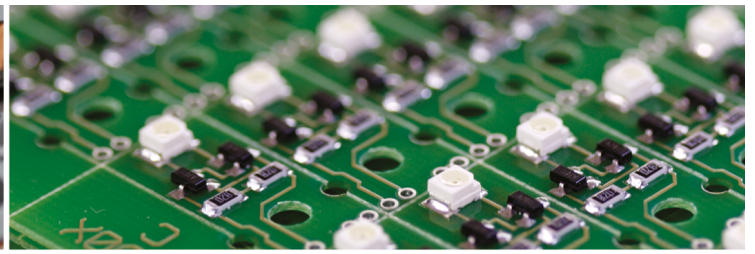
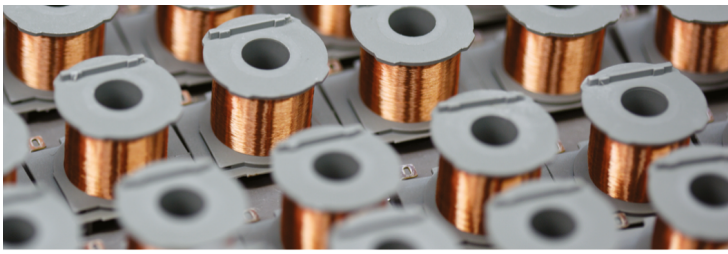


WORLD OF RELAYS

GENERAL CATALOGUE

WoR 3.2 | English



ComatReleco at a glance

ComatReleco is one of the world's leading suppliers of high-quality relays and contactors of all kinds. With one of the broadest product portfolios, including customized solutions, ComatReleco serves customers in the industrial automation and building installation, rail and transportation segments. Our core competencies are industrial relays, timing relays, monitoring relays and contactors. These are installed with the latest semiconductor technologies or also with the traditional electromechanical design.

Designed in Switzerland, assembled in...

ComatReleco continuously invests in research and development, thus ensuring a consistently high rate of innovation. Several international patent applications support this fact. Our research and development team is headquartered in Switzerland and has access to additional qualified employees in our subsidiaries in Germany and China. With a share of more than 20% of total research and development costs, we outperform many global players in our segment.

Customer orientation and quality management

ComatReleco has a group-wide quality management system with real-time access to test and inspection protocols. Our relays and contactors are 100% tested at the end of the production line. On arrival of the goods at our central warehouse in Switzerland, another quality test is carried out.

Are you using a ComatReleco product or are you looking for a suitable solution? Our support centre in Switzerland will be happy to help you find the right relay or contactor for your application. ComatReleco is known for the world's largest number of customized solutions for industrial, time and monitoring relays and contactors.

Headquarters in Switzerland – international presence

The warehouse and logistics are managed centrally at the headquarters in Switzerland. Production is diversified and optimized in terms of quality, costs and logistics criteria. Our production sites are located in Europe and Asia. Through our network of distribution partners, the Group is present on all world markets. ComatReleco has been part of the management team since 2003.

WORLD OF RELAYS

Find your suitable documentation

ComatReleco offers a variety of customized solutions. We therefore have different documentation for different areas of application.



CATALOGUES: GENERAL, TRANSPORTATION & RAILWAY, MARINE & SHIPPING, SOLID STATE RELAY, PLC & HMI

Please visit comatreleco.com or contact our support at support@comatreleco.com for more information.

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1 Relays & Contactors

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Relays

General Information

Product range

ComatReleco offers a wide range of relay types and versions and associated sockets and accessories.

Relays C2, C3, C4, C5, R4

35 x 35 mm round plug-in relay, 8- or 11-terminals multipole connectors with 2 or 3 contacts up to 10 A and different contact types and contact materials.

Standard relay 35 x 35 mm with flat blade connectors with up to 4 contacts and up to 16 A with 4 contacts.

Relays C7, C9, R7, R9

22.5 mm series with up to 4 contacts and up to 10 A with 1 or 2 contacts.

Interface Relays, C10, C12, C16, C18, R10, R12

Overall width 13 mm with up to 2 electromechanical or fully electronic contacts.

Special relays, remanence relays

While «normal» relays are monostable, i.e. they return to the idle state when the excitation is switched off, remanence relays are bistable, i.e. the current switching state is retained irrespective of the excitation. Relays of this type are available in different versions.

Solid State Relay SSR

Solid State Relays are suitable to either switch AC or DC loads. For AC relays a distinction is made between synchronously (zero crossing) and asynchronously switching versions. For switching transformer loads we recommend using asynchronously switching semiconductor switches. For incandescent lamp loads etc. synchronously switching switches are ideal for avoiding high switch-on currents.

Accessories

Suitable sockets are available for the different relay series for DIN rail mounting or panel mounting. In addition, retaining clips are available for the relays, some of which are included in the scope of supply. Suitable bridges for cost-saving wiring in series are also available.

Basic identification principle (type designation code electromechanical relays)

1	2		3	4	5	6	7	8	9	10
C	n(n)	-	T	1	0	z	(*)	X	/...V	RF-nnnn

1. Relay application

C = Industrial relays
R = Railway relays

2. Product family

n(n) = Basic type refers to the product line

3. Relay type

A = Standard (general-purpose) contact
G = Refers to a NO contact
N = Sensitive drive 800 mW coil power
S = Sensitive drive with 250 mW exciter input
R = Code for remanence relays, drive-specific ID
T = Twin contact for signal and control circuit
X = Relay high power, double make contact.
W = With tungsten contact for maximum switch-on currents
Z = Solid State
E = Sensitive drive with 500 mW coil power
H = Single-point contact + twin contact load to signal current circuit for switching state feed back. Mixed contact configuration
M = Relay with highly effective neodymium blow magnet for fast quenching of the arc. This relay is particularly suitable for high DC loads.
B = Single CO contact with two pins per connection

4. Number of contacts

1-4 = Number of contacts

5. Definition of contact material / SSR type

This code may differ depending on type.

Examples:

0 = In the standard range stands for AgNi
1-9 = See contact material for each type
N = NPN negative common (DC)
P = PNP positive common (DC)
I = Instantaneous, random-on (AC)
Z = Zero-crossing synchronised (AC)

6. Describes the options

D = Integrated free-wheeling diode
F = Integrated free-wheeling diode and series diode e.g. for common alarm circuits
R = RC connection for the coil
B = Bridge rectifier

7. (*) Special requirements

H = Orange button. No lockable function
N = Black button. No function
U = DIN rail mounting

PT = PCB pins, 3.5 mm grid, transparent cover

PTL = PCB pins, 5 mm grid, transparent cover

8. Relay with LED

X = relays with LED

9. Nominal coil voltage specification

AC...V = AC 50/60 HZ, voltage 6 - 250 (400) V
AC...V 60 Hz = AC 60 Hz, 120, 240 V
DC...V = DC, voltage 5 - 220 V
UC...V = AC/DC

10. Ref. nnnn

Relays with a reference number are versions with special (e.g. customised) features. These features may relate to special test criteria, tolerances or other properties.

Availability of such relays may be limited to certain customers or applications.

Coil accessories
General Information

Relays C2-C9, R3-R9

Protection against transients

When the coil is disconnected from an electromagnet, peaks of inverse voltage appear at the terminals which can reach very high values. These pulses can be transmitted down the line associated with the coil and could possibly affect other components.

In the case of a relay being operated by such devices as transistors, Triacs, etc; it may be necessary to protect against transients.

Transients carried in the line

High voltage surges can be carried in the supply line to the relay coil. These may appear in the form of peaks or bursts and are generated by the connection and disconnection of electric motors, transformers, capacitors etc.

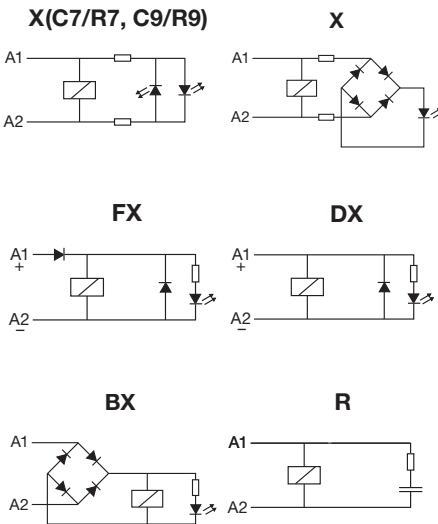
Normally a relay is unaffected by these pulses, but if a diode is connected in association with the coil, it must be capable of withstanding an inverse voltage higher than those of the incoming peaks.

Protection circuits

A protection circuit must efficiently cope with pulses generated by the coil as well as incoming line surges (surges $U_{1,2/50\mu s}$)

ComatReleco Relays are available with integrated protection circuits.

- X** LED indication with rectifier.
For DC and AC relays up to 250 V
- DX** Free-wheeling diode + LED
Dampens transients caused by the relay coil on de-energisation.
- FX** Polarity + free wheeling diode + LED
A diode in series with the coil protects the relay from reverse connection.
- BX** Bridge rectifier + LED indication
Allows the relay to operate in both AC or DC without any polarity inconvenience.
Available only in voltages up to 60 V.
- R** Resistor and capacitor.



Relays C10-C12, R10-R12

LED and protection circuit connected to coil.

- X** LED with no polarity, (standard)
Coils ≤ 12 V A DC coils
LED rectifier bridge in parallel
- X** LED with no polarity, (standard)
Coils ≥ 24 V A DC coils
LED rectifier bridge in series
- FX** LED with polarity A1+ (option)
Every DC coil voltage
Polarity and Free-wheeling diodes
- BX** LED with no polarity, (option)
Only 24 V and 48 V A DC coils
Rectifier bridge for AC/DC relays
- R** LED not available (option)
RC protection against pulses on AC

Protection against pulses

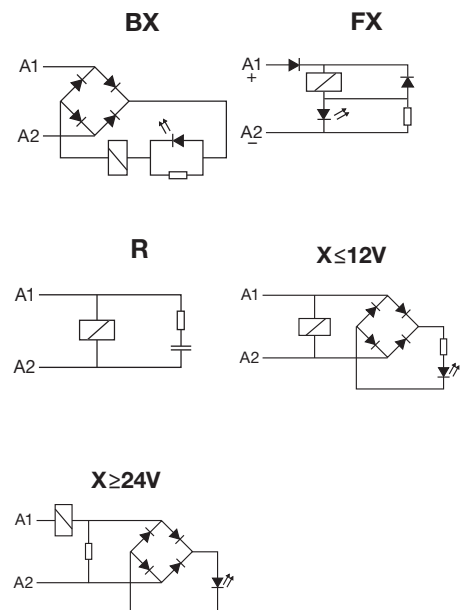
When a relay coil is disconnected, reverse voltage peaks may arise and reach very high values. Said peaks can transmit to the coil associated line and other relays or semiconductors can be affected.

If Triac, transistor, etc. controls a relay, appropriate steps must be taken to avoid or decrease peaks down to a non risky level.

Both Polarity and Free-wheeling diodes (FX), must protect coils, to avoid malfunctions provided DC relays in battery are installed.

Making or breaking engines, transformers or contactors in an industrial environmental, may generate high voltage pulses, either isolated or burst, through the main line.

The voltage level of those pulse may be high enough to affect the isolation of the coil.



Contacts

There are different contact types. The main distinction is between single contacts and twin contacts. While single contacts are more suitable for higher loads, twin contacts are significantly more reliable at small loads, i.e. <math> < 24 \text{ V}</math>, <math> < 100 \text{ mA}</math>.

Contact Material

There is no all-purpose contact!

AgNi is used as standard material for a wide range of applications. AgNi contacts with hard gold plating (up to $5 \mu\text{m}$) are offered for applications in aggressive atmosphere.

Relays with gold contacts are approved for relatively high currents (e.g. 6 A, 250 V), but in practice values of 200 mA, 30 V should not be exceeded for operation with intact gold plating.

Relays with a tungsten pre-contact are available for very high switch-on currents (up to 500 A, 2.5 ms). For some applications AgNi contacts with gold flashing ($0.2 \mu\text{m}$) are available. The purpose is corrosion protection during storage. Tin oxide is specially appropriated for load with high-inrush current.

Minimum load

The minimum load value is a recommended value under normal conditions such as regular switching, no special ambient conditions, etc. Under these conditions reliable switching behaviour can be expected.

Contact resistance

Initial values of resistance of contact can vary with the use, load and others conditions.

Typical values when the relay is new is about $50 \text{ m}\Omega$.

Contact spacing

Normally all contacts have an air gap between $0.5 \dots 1.5 \text{ mm}$ when they are open. They are referred to as μ contacts. According to the Low-Voltage Directive and the associated standards these contacts are not suitable for safe disconnection.

For switching of DC loads large contact clearances are beneficial for quenching the arc. See relays with "Cx-Gyz" naming. "G" stands for extended contact gap of 3 mm .

Switching capacity

The contact switching capacity is the product of switching voltage and switching current.

For AC the permitted switching capacity is generally high enough to handle the max. continuous AC-1 current over the whole voltage range. For DC the load limit curve must never be exceeded, because this would lead to a remaining switch-off arc and immediate destruction of the relay. The order of magnitude of the DC switching capacity is a few 100 W (DC-1).

Drive (coil)

The drive of a relay refers to the coil plus connections. The coil has special characteristics, depending on the rated voltage and the type of current.

Coil design

The coil consists of a plastic former (resistant up to about $130 \text{ }^\circ\text{C}$) and doubly insulated high-purity copper wire, temperature class F. The winding must withstand threshold voltages (EN 61000-4-5) of more than 2000 V. This is ensured through forced separation of the start and end of the winding.

Coil resistance and other properties

Each coil has an ohmic coil resistance that can be verified with an ohmmeter. The specified coil resistance applies to a temperature of $20 \text{ }^\circ\text{C}$. The tolerance is $\pm 10 \%$.

For AC operation the coil current will not match the ohmic value, because self-inductance plays a dominant role. At 230 V this may reach more than 90H. When a relay is switched off, self-inductance results in a self-induced voltage that may affect the switching source (destruction of transistors, EMC problems).

Drive voltages

A distinction is made between the standardised voltages according to EN 60947 as guaranteed values, and typical values that can be expected with a high degree of probability.

Pick-up voltage, Release voltage

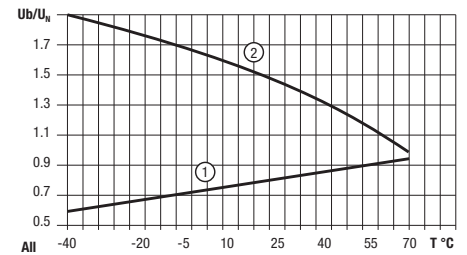
The pick-up voltage is the voltage at which the relay engages safely. For DC the typical trip voltage is approx. 65 % of U_{nom} , for AC approx. 75 %. The release voltage, on the other hand, is approx. 25 % or 60 % respectively.

For DC these voltages are strongly temperature-dependent, according to the temperature coefficient of Cu (See curve 1). This is not the case for AC, where the inductive resistance is the controlling factor, which is practically constant over a wide temperature range. With AC, in a certain undervoltage range the relay may hum, and the armature may flutter. This voltage range must be avoided.

Operating voltage range

Unless specified otherwise, the following characteristic curve applies for the operating voltage range (See curve 2). The upper limit of the coil voltage is determined by self-heating and the ambient temperature. Self-heating through contacts under high load must not be underestimated. It may be higher than the power dissipation in the drive.

During intermittent operation significantly higher over-voltages temporary may occur for short periods. If in doubt please consult our specialists.



General design

ComatReleco Relays are made from high-quality, carefully selected materials. They comply with the latest environmental regulations such as RoHS. Their meticulous design makes them particularly suitable for industrial applications and installation engineering. They are particularly service-friendly through robust terminals, mechanical position indicating device a standard, manual operation, dynamic, permanent characteristics.

Colour coding for manual operation as a function of the coil voltage is another useful feature. Further options such as different coil connections, free-wheeling diode, LED display, bridge rectifier for AC/DC drives etc., and short-term availability of special versions for practically any drive voltage up to DC 220 V / AC 400 V leave nothing to be desired.

Apart from a few special versions, in general, ComatReleco industrial relays feature manual operation (push/pull) and a mechanical position indicating device.

For safety reasons, manual operation may be replaced with a black button, if required.

Coil connections

Different coil connections can be integrated in the relay as an option.

For DC a cost-effective free-wheeling diode is available. Please note that the stated release times are generally specified without the coil connection. While an additional LED status indicator has practically no effect, a free-wheeling diode (D) will lead to an increase in release time by a factor 2 to 5, or 10 ms to 30 ms. For AC VDRs or RC elements may be used. In this case resonance effects may have to be considered. VDRs and common RC elements may increase release times by less than 5 ms.

Relays

General Information

Standards, conformities

The relays feature various technical approvals depending on the respective relay code, and they can comply with further standards and guidelines. The main technical approvals include CE, UKCA, cURus, CSA, and CCC. The associated information is provided in the respective data sheets.

Switching classes

EN 60947 defines different switching classes that specify the suitability of contacts for different load types.

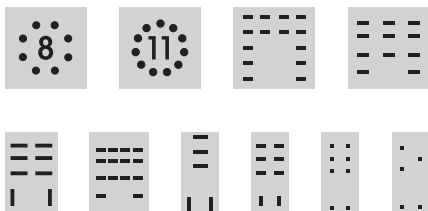
Example:

- AC-1 = Ohmic AC load
- AC-3 = Motor loads
- AC-15 = Power contactors, solenoid valves, solenoids
- DC-1 = Ohmic DC load
- DC-13 = DC contactors, solenoids

UL 60947 contains different technical approval criteria such as general purpose, control application etc. Switching classes are defined based on the electrical switching capacity, e.g. B600 etc.

Choosing the right Socket

For plug-in industry, interface, time, and monitoring relays, we offer sockets with the corresponding pin configuration and various layouts for the terminal connectors. For easy identification, you'll find those symbol referring to the matching socket.



Protection class IP according to EN 60529 and other standards. Industrial relays and their sockets can be classified as follows:

Socket IP20: Contact safety

Relay IP40/IP50: not watertight, but protected against ingress of coarse contaminants.

Main technical approvals and standards

Country	Technical approval
China	 Authority: CQC
Europe	 Authority: CEN-CENELEC
Canada	 Authority: CSA Group
Armenia / Belarus / Kazakhstan / Kyrgyzstan / Russia	 Authority: KORPORATSIA STANDART
USA	 Authority: Federal Communication Commission USA
USA / Canada	 Authority: UL
Australia / New Zealand	 Authority: Australia/New Zealand
England / Scotland / Wales	 Authority: GB
Worldwide	 Authority: Lloyd's Register
Europe / Worldwide	 Railway EN 50155

Utilisation categories according to EN 60947-4-1/-5-1

Pollution category

Cat. 1
Dry, non-conductive contamination without further effect

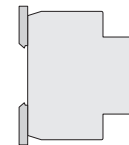
Cat. 2
Occasional conductive contamination, short duration due to moisture condensation

Cat. 3
Dry, non-conductive and conductive contamination with moisture condensation

Cat. 4
Contamination with persistent conductivity through conductive dust, rain

DIN standard cutout 45 mm

All devices with a housing fitting in an electrical distributor with a front of 45mm (DIN 43880) are marked with the following symbol.



DIN rail 35 mm (TH 35)

All units with a housing that can be mounted on a 35 mm DIN rail (DIN EN 60715) are marked with the following symbol.



Further information and tips

The main operational criteria for relays such as number of cycles, switching frequency, ambient conditions, reliability requirements, load type, switch-on current, load switch-off energy must be clarified in order to ensure reliable operation and long service life.

Example

If the number of cycles is expected to exceed several 100 000 operations per year (e.g. clock generators, fast running machines), an electronic solution is no doubt more appropriate, although we also offer solutions for this type of application. In AC applications crosstalk caused by long control leads is often a problem and can result in constant humming of the relay or even inadvertent triggering due to interference.

Different harmless loads may lead to very high switch-on currents or switch-off energy values, resulting in an unacceptable reduction in service life. Particularly tricky are DC inductive loads.

Characteristics of various loads:

Heating circuits

No higher switch-on currents, no higher switch-off loads.

Incandescent lamps, halogen lamps

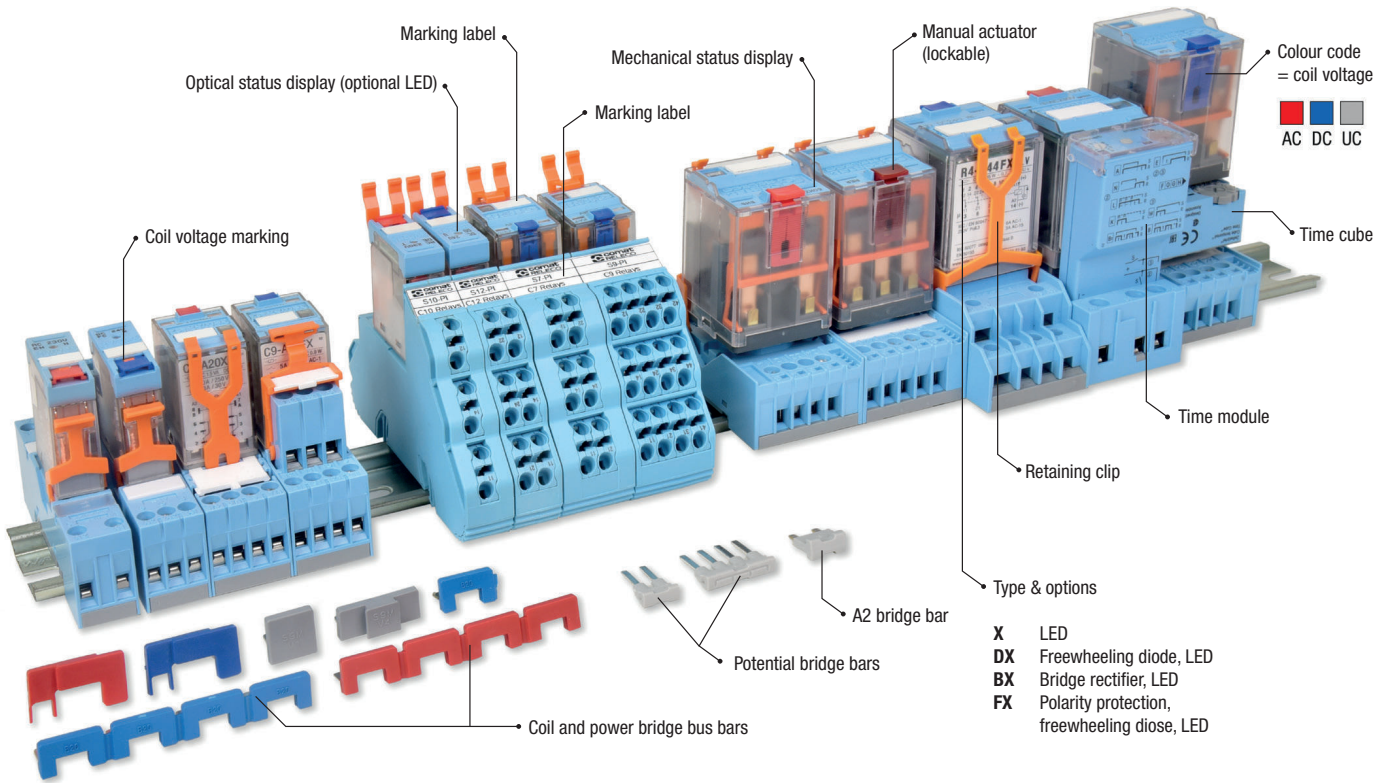
Switch-on currents during a few ms in the range 10 ... 18 x rated. Switch-off at rated load.

Low-energy lamps

Very high, but very short switch-on currents due to built-in decoupling capacitors. Contacts have a tendency to fuse.

Transformers, AC contactors

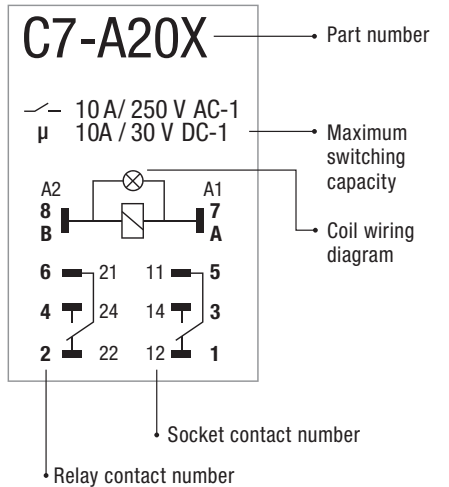
Switching on during zero-transition may lead to switch-on currents of 8 ... 15 x rated values. High inductive switch-off energy is possible. The load must be connected.



Five colours for an easier identification of coil voltage

	AC	red: 230 V AC (North America 120 V AC)	If you don't want to have the lockable function, you can use the orange button.
	AC	dark red: others V AC	Orange button, no lockable function, push only
	UC	grey: V AC/DC	Black button, no function
	DC	blue: 24 V DC	
	DC	dark blue: others V DC	

Comprehensive technical label







1 Relays & Contactors

Relays














How to select the correct relay?

Use the table below to quickly find the right relay for your application. All relays in this catalogue are marked with a symbol corresponding to the respective field of application. Please also note the following parameters for correct dimensioning:

	Type of signal	Switching frequency and service life
①	What is the switching current and voltage of the application?	-
②	Is DC or AC voltage switched? Is the load inductive or capacitive?	How many switching cycles per time unit are to be expected?

Symbol	Typical field of application			Contact	
	① Voltage	① Current	② Application	Type	Material
 Signal relays	100 mV...5V	10 µA...1 mA	Low-level signals, Standard signals (0...10 V / 4...20 mA)	Gold-plated double contact	AgNi + Au
				Gold-plated Single Contact	AgNi + Au
 Control relays	5V...30V	1 mA...100 mA	PLC inputs, Control circuits	double contact	AgNi
				Gold-plated Single Contact	AgNi + Au
			Frequent, rapid switching procedures	Semiconductor	MOSFET (DC) Triac (AC)
 Power relays	30V...400V	100 mA...16A	Increased AC or DC loads	Single Contact	AgNi
			Electromagnets (utilisation cat. AC-15 / DC-13)	Single Contact	AgSnO ₂
			Frequent, rapid switching procedures, high reliability, noiseless switching	Semiconductor	MOSFET (DC) Triac (AC)
 High-power relays	12V...400V	100 mA...16A	Capacitive loads	Early make contact	AgNi + W AgSnO ₂ + W
			High DC loads, inductive loads	Series contacts	AgNi AgSnO ₂
			Frequent, rapid switching procedures, high reliability, noiseless switching	Semiconductor	MOSFET (DC) Triac (AC)

1.1 Interface Relays - pluggable

	Type	Pin	Page
C10 / R10 Series			
1 pole changeover contact Faston	C10-A1x		18
1 pole changeover contact	C10-A1x+S10-PI		19
1 pole changeover contact Faston	R10-A10		20
1 pole normally open contact Faston	C10-G1x		21
1 pole changeover twin contact Faston	C10-T1x		22
C12 / R12 Series			
2 pole changeover contact Faston	C12-A2x		23
2 pole changeover contact	C12-A2x+S12-PI		24
2 pole changeover contact Faston	R12-A21		25
2 pole normally open contact Faston	C12-G2x		26
C16 Series			
2 pole changeover contact grid 5 mm	C16-A25PTL		27
C18 Series			
1 pole changeover contact grid 3.5 mm	C18-A15PT		28
1 pole changeover contact grid 5 mm	C18-A15PTL		29
1 pole changeover contact grid 5 mm	C18-B15PTL		30

1.1 Interface Relays - pluggable

C10-A1x

1 pole | changeover contact | Faston



Main circuit

Available contact materials

- ⚡ AgNi for C10-A10
- ⚡ AgSnO₂ for C10-A15
- ⚡ AgNi + 5 μ Au for C10-A18

Recommended minimum contact load

10 mA / 10 V for C10-A10
10 mA / 10 V for C10-A15
5 mA / 5 V for C10-A18

Maximum contact load AC

10 A / 250 V AC-1

Maximum contact load DC

10 A / 30 V DC-1

Inrush current

30 A, 20 ms (120 A for C10-A15)

Rated load AC

2 500 VA

Rated load DC

fig. 3.

Rated current

10 A

Mechanical endurance (cycles)

≥ 10 000 000

Electrical endurance at rated load AC-1 (cycles)

≥ 200 000

Control circuit

Nominal voltage

see table product references

Operating voltage range

0.8 U_N ... 1.1 U_N

Pick-up voltage

≤ 0.8 U_N

Release voltage

≥ 0.1 U_N

Power consumption AC / DC

1.1 VA / 0.7 W

Coil table

V AC	Ohm	mA	V DC	Ohm	mA
12	82	71	12	224	54
24	290	45	24	742	32
48	1 206	23	48	3 400	13.5
115	7 290	9.5	110	19 923	5.5
230	28 874	4.7			

Insulation

Test voltage open contact

1 kV / 1 min

Test voltage contact / coil

5 kV / 1 min

Overvoltage category

III

Insulation resistance at 500 V

≥ 1 GΩ

Pollution degree

3

General data

Storage temperature (no ice)

-40 ... 80 °C

Operation temperature

-40 ... 70 °C

Pick-up time / bounce time

10 ms / ≤ 1 ms

Release time / bounce time

5 ms / ≤ 3 ms

Maximum switching frequency at rated load

1 200 / h

Weight

21 g

Housing material

PA / PC

Product references

Description	Type	12	24	48	110	115	230
AC 50 Hz	C10-A1x/AC...V	✓	✓	✓		✓	✓
LED	C10-A1xX/AC...V	✓	✓	✓		✓	✓
RC - Suppressor	C10-A1xR/AC...V	✓	✓	✓		✓	✓
DC	C10-A1x/DC...V	✓	✓	✓	✓		
LED	C10-A1xX/DC...V	✓	✓	✓	✓		
LED & Pol. & Free wheeling diode	C10-A1xFX/DC...V	✓	✓	✓	✓		

AC / DC bridge rec. & LED C10-A1xBX/UC...V ✓ ✓

AC relays also available as 60 Hz. Other voltages on request. Please contact support@comatreleco.com.

«...» List coil voltage to complete product references.

Accessories

Socket

S10, S10-PI, S10-P



fig. 1. Wiring diagram

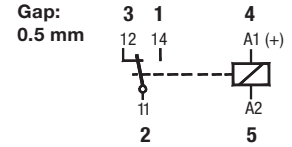


fig. 2. AC voltage endurance

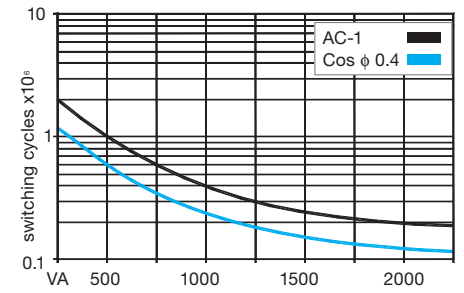


fig. 3. DC load limit curve

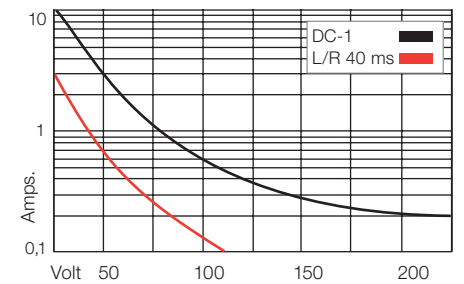
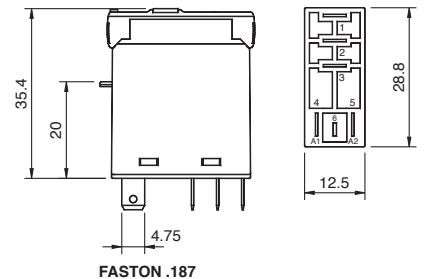


fig. 4. Dimensions (mm)



Technical approvals, conformities

Standards IEC/EN 60947; IEC/EN 61810



Approvals

C10-A1x+S10-PI

1 pole | changeover contact

Main circuit

Available contact materials	⚡ AgNi
Recommended minimum contact load	10 mA / 10 V
Maximum contact load AC	10 A / 250 V AC-1
Maximum contact load DC	10 A / 30 V DC-1
Rated load	10 A / 250 V
Inrush current	30 A, 20 ms (120 A for C10-A15)
Rated load AC	2 500 VA
Rated load DC	fig. 3.
Rated current	10 A
Mechanical endurance (cycles)	≥ 10 000 000
Electrical endurance at rated load AC-1 (cycles)	≥ 200 000

Control circuit

Nominal voltage	see table product references
Operating voltage range	0.8 U _N ... 1.1 U _N
Pick-up voltage	≤ 0.8 U _N
Release voltage	≥ 0.1 U _N
Power consumption AC / DC	1.1 VA / 0.7 W

Coil table

V AC	Ohm	mA	V DC	Ohm	mA
120	7 091	9	24	742	32
230	28 874	4.7			

Insulation

Test voltage all terminals / DIN rail	2.5 kV rms / 1 min
Test voltage terminal / terminal	2.5 kV rms / 1 min
Test voltage open contact	1 kV rms / 1 min
Test voltage contact / coil	5 kV rms / 1 min
Overvoltage category	III
Insulation resistance at 500 V	≥ 1 GΩ
Pollution degree relay	3

General data

Storage temperature (no ice)	-40 ... 80 °C
Operation temperature	-40 ... 60 °C
Pick-up time / bounce time	10 ms / ≤ 1 ms
Release time / bounce time	5 ms / ≤ 3 ms
Conductor cross section control / main circuit	
- Single wire	2 x 0.34 mm ² / AWG 22 ... 2 x 2.5 mm ² / AWG 14
- Multi wire (un-crimped)	2 x 0.34 mm ² / AWG 22 ... 2 x 2.5 mm ² / AWG 14
- Multi wire (crimped)	2 x 0.34 mm ² / AWG 22 ... 2 x 1.5 mm ² / AWG 16
Mounting	TH35 (EN 60715)
Maximum switching frequency at rated load	1 200 / h
Weight	54 g
Housing material	PA / PC

Product references

Description	Type	24	120	230
LED	C10-A10X/AC...V+S10-PI			✓
LED	C10-A10X/AC...V 60HZ+S10-PI		✓	
LED	C10-A10X/DC...V+S10-PI	✓		

Other voltages on request. Please contact support@comatreleco.com.
«...» List coil voltage to complete product references

Included Accessories

Retaining clip I plastic	S10-CPI
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Optional Accessories

Retaining clip I plastic	S10-CPI (BAG 10 PCS)
Bridge A2 for Sx-PI / Sx-PIR	Sxx-BBPI (BAG 20 PCS)
Multi-operation tool kit	OT-PI kit
Marking strip for Push-in	BS11-PI (50m tape)

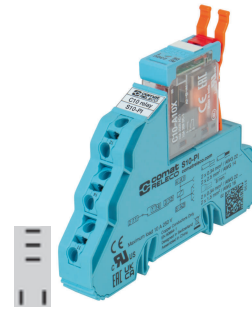


fig. 1. Wiring diagram

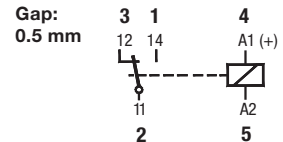


fig. 2. AC voltage endurance

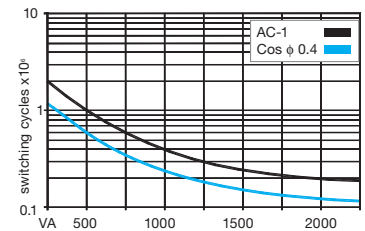


fig. 3. DC load limit curve

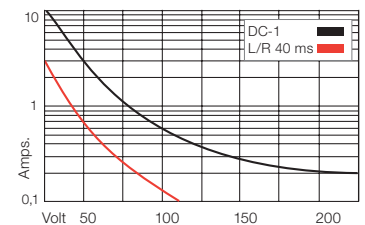
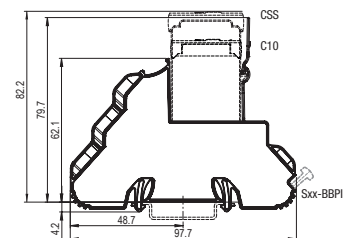


fig. 4. Dimensions (mm)



Technical approvals, conformities

Standards IEC/EN 60947; IEC/EN 61810

Approvals

1.1 Interface Relays - pluggable

R10-A10

1 pole | changeover contact | Faston

Main circuit

Available contact materials	⚡ AgNi
Recommended minimum contact load	10 mA / 10 V
Maximum contact load AC	10 A / 250 V AC-1
Maximum contact load DC	10 A / 30 V DC-1
Inrush current	30 A, 20 ms
Rated load AC	2 500 VA
Rated load DC	fig. 3.
Rated current	10 A
Mechanical endurance (cycles)	≥ 10 000 000
Electrical endurance at rated load AC-1 (cycles)	≥ 200 000

Control circuit

Nominal voltage	see table product references
Operating voltage range	0.7 U _N ... 1.25 U _N
Pick-up voltage	≤ 0.7 U _N
Release voltage	≥ 0.1 U _N
Power consumption DC	0.7 W

Coil table

V DC	Ohm	mA
12	224	54
24	742	32
36	1 815	20
48	3 400	14
60	5 400	11
72	8 467	9
110	19 923	6

Insulation

Test voltage open contact	1 kV / 1 min
Test voltage contact / coil	5 kV / 1 min
Overvoltage category	III
Insulation resistance at 500 V	≥ 1 GΩ
Pollution degree	3

General data

Storage temperature (no ice)	-40 ... 80 °C
Operation temperature	-40 ... 70 °C
Pick-up time / bounce time	10 ms / ≤ 1 ms
Release time / bounce time	5 ms / ≤ 3 ms
Maximum switching frequency at rated load	1 200 / h
Weight	21 g
Housing material	PA / PC

Product references

Description	Type	12	24	36	48	60	72	110
LED & Pol. & Free wheeling diode	R10-A10FX/DC...V	✓	✓	✓	✓	✓	✓	✓
LED	R10-A10X/DC...V		✓		✓			

Other voltages on request. Please contact support@comatreleco.com.
«...» List coil voltage to complete product references

Accessories

Socket	S10-GR, S10-PIR
--------	-----------------



fig. 1. Wiring diagram

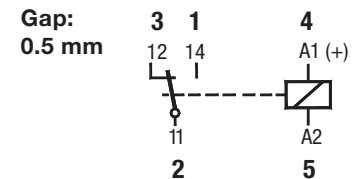


fig. 2. AC voltage endurance

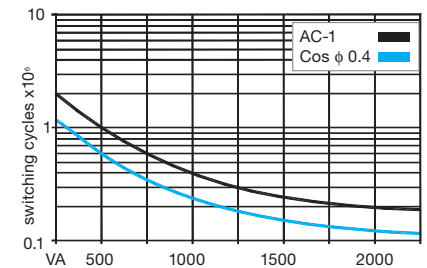


fig. 3. DC load limit curve

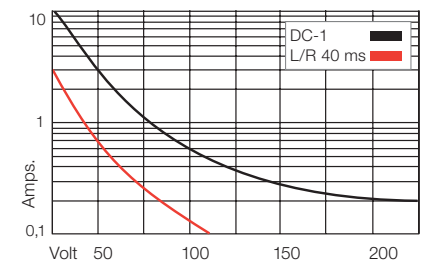
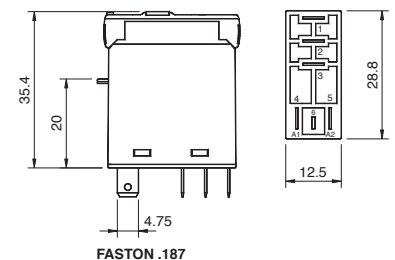


fig. 4. Dimensions (mm)



Technical approvals, conformities

Standards IEC/EN 60947; IEC/EN 61810

Railway EN 45545-2; EN 50155

Approvals

C10-G1x

1 pole | normally open contact | Faston

Main circuit

Available contact materials	<ul style="list-style-type: none"> ⚡ AgNi for C10-G10 ⚡ AgSnO₂ for C10-G15
Recommended minimum contact load	10 mA / 10 V
Maximum contact load AC	10 A / 250 V AC-1
Maximum contact load DC	10 A / 30 V DC-1
Inrush current	30 A, 20 ms (120 A for C10-G15)
Rated load AC	2 500 VA
Rated load DC	fig. 3.
Rated current	10 A
Mechanical endurance (cycles)	≥ 10 000 000
Electrical endurance at rated load AC-1 (cycles)	≥ 200 000

Control circuit

Nominal voltage	see table product references
Operating voltage range	0.8 U _N ... 1.1 U _N
Pick-up voltage	≤ 0.8 U _N
Release voltage	≥ 0.1 U _N
Power consumption AC / DC	1.1 VA / 0.7 W

Coil table

V AC	Ohm	mA	V DC	Ohm	mA
12	82	71	12	224	54
24	290	45	24	742	32
48	1 200	23	48	3 400	13.5
115	7 290	9.5	110	19 923	5.5
230	28 874	4.7			

Insulation

Test voltage open contact	2 kV / 1 min
Test voltage contact / coil	5 kV / 1 min
Overvoltage category	III
Insulation resistance at 500 V	≥ 1 GΩ
Pollution degree	3

General data

Storage temperature (no ice)	-40 ... 80 °C
Operation temperature	-40 ... 70 °C
Pick-up time / bounce time	10 ms / ≤ 1 ms
Release time / bounce time	8 ms / ≤ 3 ms
Maximum switching frequency at rated load	1 200 / h
Weight	21 g
Housing material	PA / PC

Product references

Description	Type	12	24	48	110	115	230
LED	C10-G1xX/AC...V	✓	✓	✓		✓	✓
LED	C10-G1xX/DC...V			✓			
LED & Pol. & Free wheeling diode	C10-G1xFX/DC...V	✓	✓	✓	✓		
AC / DC bridge rec. & LED	C10-G1xBX/UC...V			✓	✓		

AC relays also available as 60 Hz. Other voltages on request. Please contact support@comatreleco.com.
«...» List coil voltage to complete product references.

Accessories

Socket	S10, S10-PI, S10-P
--------	--------------------



fig. 1. Wiring diagram

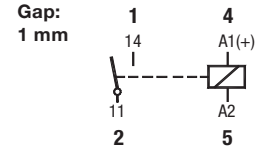


fig. 2. AC voltage endurance

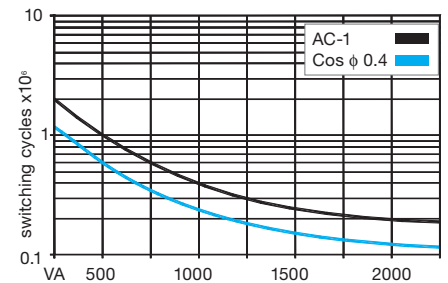


fig. 3. DC load limit curve

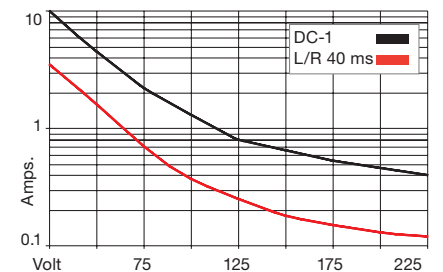
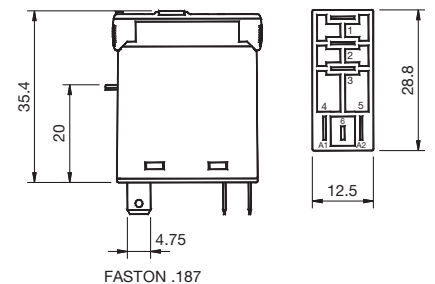


fig. 4. Dimensions (mm)



Technical approvals, conformities

Standards IEC/EN 60947; IEC/EN 61810



C10-T1x

1 pole | changeover twin contact | Faston

Main circuit

Available contact materials	<ul style="list-style-type: none"> ⬇ AgNi + 0.2 μ Au for C10-T11 ⬇ AgNi + 5 μ Au for C10-T13
Recommended minimum contact load	5 mA / 5 V for C10-T11 1 mA / 5 V for C10-T13
Maximum contact load AC	6 A / 250 V AC-1
Maximum contact load DC	6 A / 30 V DC-1
Inrush current	15 A, 20 ms
Rated load AC	1 500 VA
Rated load DC	fig. 3.
Rated current	6 A
Mechanical endurance (cycles)	≥ 10 000 000
Electrical endurance at rated load AC-1 (cycles)	≥ 100 000

Control circuit

Nominal voltage	see table product references
Operating voltage range	0.8 U _N ... 1.1 U _N
Pick-up voltage	≤ 0.8 U _N
Release voltage	≥ 0.1 U _N
Power consumption AC / DC	1.1 VA / 0.7 W

Coil table

V AC	Ohm	mA	V DC	Ohm	mA
24	290	45	12	224	54
48	1 206	23	24	742	32
115	7 290	9.5	48	3 400	13.5
230	28 874	4.7	110	19 923	5.5

Insulation

Test voltage open contact	1 kV / 1 min
Test voltage contact / coil	5 kV / 1 min
Overvoltage category	III
Insulation resistance at 500 V	≥ 1 GΩ
Pollution degree	3

General data

Storage temperature (no ice)	-40 ... 80 °C
Operation temperature	-40 ... 70 °C
Pick-up time / bounce time	10 ms / ≤ 1 ms
Release time / bounce time	5 ms / ≤ 3 ms
Maximum switching frequency at rated load	1 200 / h
Weight	21 g
Housing material	PA / PC

Product references

Description	Type	12	24	48	110	115	230
AC 50 Hz	C10-T1x/AC...V		✓	✓		✓	✓
LED	C10-T1xX/AC...V		✓	✓		✓	✓
RC - Suppressor	C10-T1xR/AC...V		✓	✓		✓	✓
DC	C10-T1x/DC...V	✓	✓	✓	✓		
LED	C10-T1xX/DC...V	✓	✓	✓	✓		
LED & Pol. & Free wheeling diode	C10-T1xFX/DC...V	✓	✓	✓	✓		

AC / DC bridge rec. & LED C10-T1xBX/UC...V
 AC relays also available as 60 Hz. Other voltages on request. Please contact support@comatreleco.com.
 «...» List coil voltage to complete product references.

Accessories

Socket	S10, S10-PI, S10-P
--------	--------------------



fig. 1. Wiring diagram

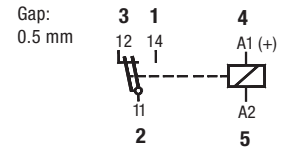


fig. 2. AC voltage endurance

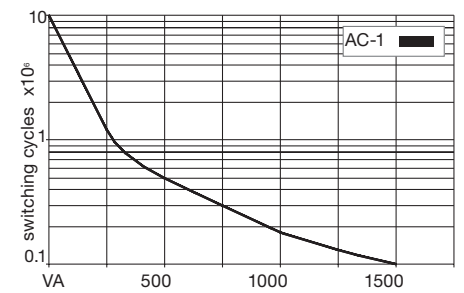


fig. 3. DC load limit curve

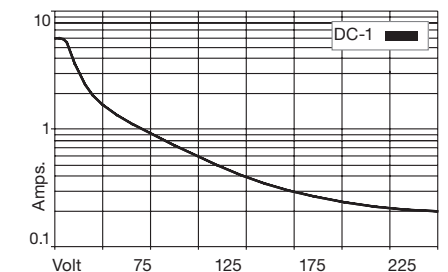
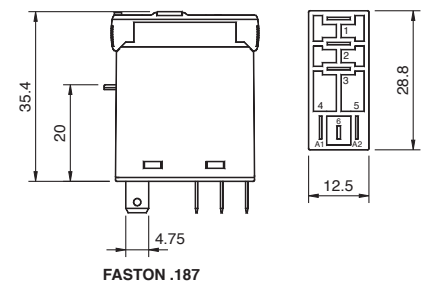


fig. 4. Dimensions (mm)



Technical approvals, conformities

Standards IEC/EN 60947; IEC/EN 61810



Approvals

C12-A2x

2 pole | changeover contact | Faston

Main circuit

Available contact materials	⬇ AgNi + 0.2 μ Au for C12-A21 ⬇ AgNi + 5 μ Au for C12-A22
Recommended minimum contact load	10 mA / 10 V for C12-A21 5 mA / 5 V for C12-A22
Maximum contact load AC	5 A / 250 V AC-1
Maximum contact load DC	5 A / 30 V DC-1
Inrush current	15 A, 20 ms
Rated load AC	1 200 VA
Rated load DC	fig. 3.
Rated current	5 A
Mechanical endurance (cycles)	≥ 10 000 000
Electrical endurance at rated load AC-1 (cycles)	≥ 100 000

Control circuit

Nominal voltage	see table product references
Operating voltage range	0.8 U _N ... 1.1 U _N
Pick-up voltage	≤ 0.8 U _N
Release voltage	≥ 0.1 U _N
Power consumption AC / DC	1.1 VA / 0.7 W

Coil table

V AC	Ohm	mA	V DC	Ohm	mA
12	82	71	12	224	54
24	290	45	24	742	32
48	1 206	23	48	3 400	13.5
115	7 290	9.5	110	19 923	5.5
230	28 874	4.7			

Insulation

Test voltage open contact	1 kV / 1 min
Test voltage contact / contact	3 kV / 1 min
Test voltage contact / coil	5 kV / 1 min
Overvoltage category	III
Insulation resistance at 500 V	≥ 1 GΩ
Pollution degree	3

General data

Storage temperature (no ice)	-40 ... 80 °C
Operation temperature	-40 ... 60 °C
Pick-up time / bounce time	10 ms / ≤ 1 ms
Release time / bounce time	5 ms / ≤ 3 ms
Maximum switching frequency at rated load	1 200 / h
Weight	21 g
Housing material	PA / PC

Product references

Description	Type	12	24	48	110	115	230
AC 50 Hz	C12-A2x/AC...V	✓	✓	✓		✓	✓
LED	C12-A2xX/AC...V	✓	✓	✓		✓	✓
RC - Suppressor	C12-A2xR/AC...V	✓	✓	✓		✓	✓
DC	C12-A2x/DC...V	✓	✓	✓	✓		
LED	C12-A2xX/DC...V	✓	✓	✓	✓		
LED & Pol. & Free wheeling diode	C12-A2xFX/DC...V	✓	✓	✓	✓		

AC / DC bridge rec. & LED C12-A2xBX/UC...V ✓ ✓
 AC relays also available as 60 Hz. Other voltages on request. Please contact support@comatreleco.com.
 «...» List coil voltage to complete product references.

Accessories

Socket	S12, S12-PI, S12-P
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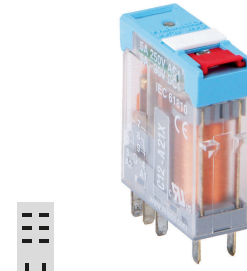


fig. 1. Wiring diagram

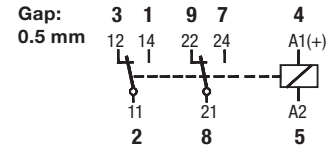


fig. 2. AC voltage endurance

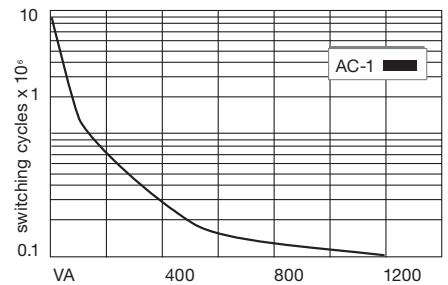


fig. 3. DC load limit curve

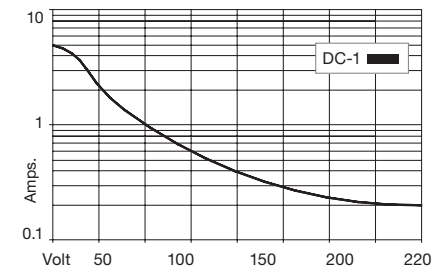
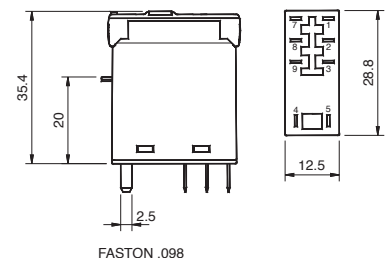


fig. 4. Dimensions (mm)



Technical approvals, conformities

Standards IEC/EN 60947; IEC/EN 61810



1.1 Interface Relays - pluggable

C12-A2x+S12-PI

2 pole | changeover contact

Main circuit

Available contact materials	AgNi + 0.2 μ Au
Recommended minimum contact load	10 mA / 10 V
Maximum contact load AC	5 A / 250 V AC-1
Maximum contact load DC	5 A / 30 V DC-1
Rated load	5 A / 250 V
Inrush current	15 A, 20 ms
Rated load AC	1 200 VA
Rated load DC	fig. 3.
Rated current	5 A
Mechanical endurance (cycles)	≥ 10 000 000
Electrical endurance at rated load AC-1 (cycles)	≥ 100 000

Control circuit

Nominal voltage	see table product references
Operating voltage range	0.8 U _N ... 1.1 U _N
Pick-up voltage	≤ 0.8 U _N
Release voltage	≥ 0.1 U _N
Power consumption AC / DC	1.1 VA / 0.7 W

Coil table

V AC	Ohm	mA	V DC	Ohm	mA
120	7 091	9	24	742	32
230	28 874	4.7			

Insulation

Test voltage all terminals / DIN rail	2.5 kV rms / 1 min
Test voltage terminal / terminal	2.5 kV rms / 1 min
Test voltage open contact	1 kV rms / 1 min
Test voltage contact / coil	5 kV rms / 1 min
Overvoltage category	III
Insulation resistance at 500 V	≥ 1 GΩ
Pollution degree relay	3

General data

Storage temperature (no ice)	-40 ... 80 °C
Operation temperature	-40 ... 60 °C
Pick-up time / bounce time	10 ms / ≤ 1 ms
Release time / bounce time	5 ms / ≤ 3 ms
Conductor cross section control / main circuit	
- Single wire	2 x 0.34 mm ² / AWG 22 ... 2 x 2.5 mm ² / AWG 14
- Multi wire (un-crimped)	2 x 0.34 mm ² / AWG 22 ... 2 x 2.5 mm ² / AWG 14
- Multi wire (crimped)	2 x 0.34 mm ² / AWG 22 ... 2 x 1.5 mm ² / AWG 16
Mounting	TH35 (EN 60715)
Maximum switching frequency at rated load	1 200 / h
Weight	60 g
Housing material	PA / PC

Product references

Description	Type	24	120	230
LED	C12-A21X/AC...V + S12-PI			✓
LED	C12-A21X/AC...V 60HZ+S12-PI		✓	
LED	C12-A21X/DC...V + S12-PI	✓		

Other voltages on request. Please contact support@comatreleco.com.
«...» List coil voltage to complete product references

Included Accessories

Retaining clip I plastic	S10-CPI
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Optional Accessories

Retaining clip I plastic	S10-CPI (BAG 10 PCS)
Bridge A2 for Sx-PI / Sx-PIR	Sxx-BBPI (BAG 20 PCS)
2-pole potential bridge bar	Sxx-BBPI2 (BAG 20 PCS)
Multi-operation tool kit	OT-PI kit
Marking strip for Push-in	BS11-PI (50m tape)

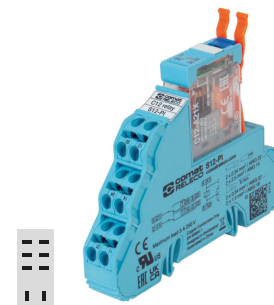


fig. 1. Wiring diagram

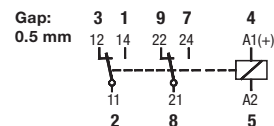


fig. 2. AC voltage endurance

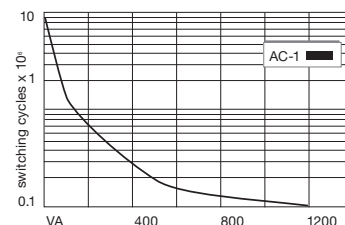


fig. 3. DC load limit curve

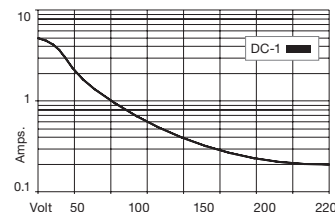
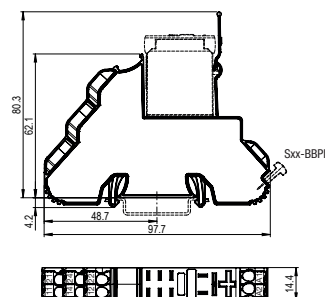


fig. 4. Dimensions (mm)



Technical approvals, conformities

Standards IEC/EN60947; IEC/EN 61810

Approvals

R12-A21

2 pole | changeover contact | Faston

Main circuit

Available contact materials	AgNi + 0.2 μ Au
Recommended minimum contact load	10 mA / 10 V
Maximum contact load AC	5 A / 250 V AC-1
Maximum contact load DC	5 A / 30 V DC-1
Inrush current	15 A, 20 ms
Rated load AC	1 200 VA
Rated load DC	fig. 3.
Rated current	5 A
Mechanical endurance (cycles)	≥ 10 000 000
Electrical endurance at rated load AC-1 (cycles)	≥ 100 000

Control circuit

Nominal voltage	see table product references
Operating voltage range	0.7 U _N ... 1.25 U _N
Pick-up voltage	≤ 0.7 U _N
Release voltage	≥ 0.1 U _N
Power consumption DC	0.7 W

Coil table

V DC	Ohm	mA
12	224	54
24	742	32
36	1 815	20
48	3 400	14
60	5 400	11
72	8 467	9
110	19 923	6

Insulation

Test voltage open contact	1 kV / 1 min
Test voltage contact / contact	3 kV / 1 min
Test voltage contact / coil	5 kV / 1 min
Overtoltage category	III
Insulation resistance at 500 V	≥ 1 GΩ
Pollution degree	3

General data

Storage temperature (no ice)	-40 ... 80 °C
Operation temperature	-40 ... 70 °C
Pick-up time / bounce time	10 ms / ≤ 1 ms
Release time / bounce time	5 ms / ≤ 3 ms
Maximum switching frequency at rated load	1 200 / h
Weight	21 g
Housing material	PA / PC

Product references

Description	Type	12	24	36	48	60	72	110
LED & Pol. & Free wheeling diode	R12-A21FX/DC...V	✓	✓	✓	✓	✓	✓	✓

Other voltages on request. Please contact support@comatreleco.com.
«...» List coil voltage to complete product references

Accessories

Socket	S12-GR, S12-PIR
--------	-----------------



fig. 1. Wiring diagram

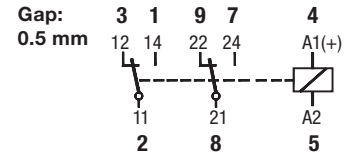


fig. 2. AC voltage endurance

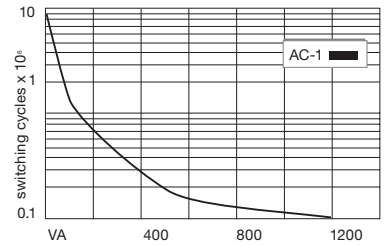


fig. 3. DC load limit curve

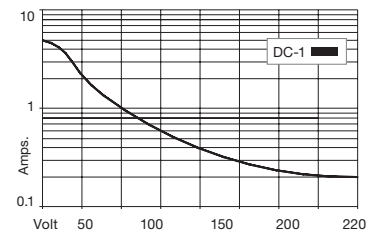
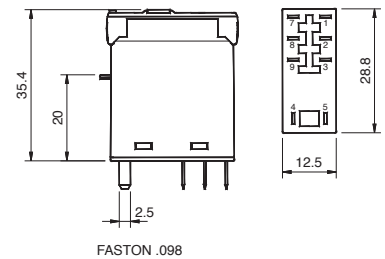


fig. 4. Dimensions (mm)



Technical approvals, conformities

Standards IEC/EN 60947; IEC/EN 61810

Railway EN 45545-2; EN 50155

Approvals

1.1 Interface Relays - pluggable

C12-G2x

2 pole | normally open contact | Faston

Main circuit

Available contact materials

AgNi + 0.2 μ Au for C12-G21

AgNi + 5 μ Au for C12-G22

Recommended minimum contact load

10 mA / 10 V for C12-G21
5 mA / 5 V for C12-G22

Maximum contact load AC

5 A / 250 V AC-1

Maximum contact load DC

5 A / 30 V DC-1

Inrush current

15 A, 20 ms

Rated load AC

1 200 VA

Rated load DC

fig. 3.

Rated current

5 A

Mechanical endurance (cycles)

≥ 10 000 000

Electrical endurance at rated load AC-1 (cycles)

≥ 100 000

Control circuit

Nominal voltage

see table product references

Operating voltage range

0.8 U_N ... 1.1 U_N

Pick-up voltage

≤ 0.8 U_N

Release voltage

≥ 0.1 U_N

Power consumption AC / DC

1.1 VA / 0.7 W

Coil table

V AC	Ohm	mA	V DC	Ohm	mA
12	82	71	12	224	54
24	290	45	24	742	32
48	1 206	23	48	3 400	13.5
115	7 290	9.5	110	19 923	5.5
230	28 874	4.7			

Insulation

Test voltage open contact

2 kV / 1 min

Test voltage contact / contact

3 kV / 1 min

Test voltage contact / coil

5 kV / 1 min

Overvoltage category

III

Insulation resistance at 500 V

≥ 1 GΩ

Pollution degree

3

General data

Storage temperature (no ice)

-40 ... 80 °C

Operation temperature

-40 ... 60 °C

Pick-up time / bounce time

10 ms / ≤ 1 ms

Release time / bounce time

5 ms / ≤ 3 ms

Maximum switching frequency at rated load

1 200 / h

Weight

21 g

Housing material

PA / PC

Product references

Description	Type	12	24	48	110	115	230
AC 50 Hz	C12-G2x/AC...V	✓	✓	✓		✓	✓
LED	C12-G2xX/AC...V	✓	✓	✓		✓	✓
DC	C12-G2x/DC...V	✓	✓	✓	✓		
LED	C12-G2xX/DC...V	✓	✓	✓	✓		
LED & Pol. & Free wheeling diode	C12-G2xFX/DC...V	✓	✓	✓	✓		

AC / DC bridge rec. & LED C12-G2xBX/UC...V ✓ ✓

AC relays also available as 60 Hz. Other voltages on request. Please contact support@comatreleco.com.

«...» List coil voltage to complete product references.

Accessories

Socket

S12, S12-PI, S12-P

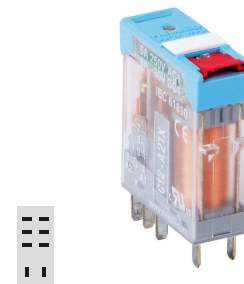


fig. 1. Wiring diagram

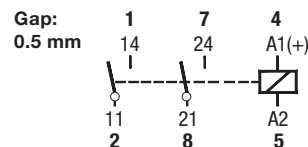


fig. 2. AC voltage endurance

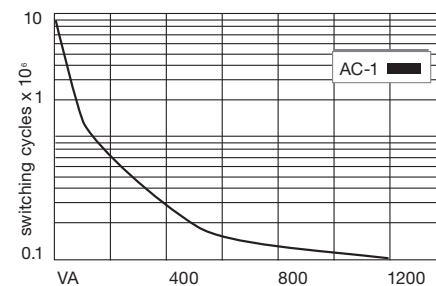


fig. 3. DC load limit curve

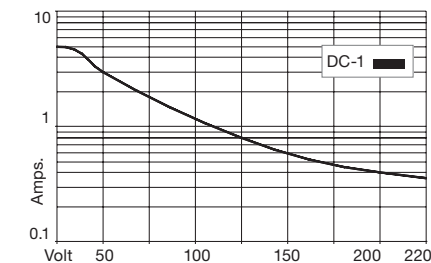
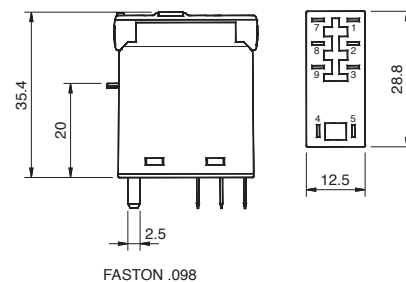


fig. 4. Dimensions (mm)



Technical approvals, conformities

Standards IEC/EN 60947; IEC/EN 61810



Approvals

C16-A25PTL

2 pole | changeover contact | grid 5 mm

Main circuit

Available contact materials	⚡ AgSnO ₂
Recommended minimum contact load	1 mA / 1 V
Maximum contact load AC	7 A / 250 V AC-1
Maximum contact load DC	7A / 30 V DC-1
Inrush current	15 A, 500 ms
Maximum operating power curve	fig. 2.
Rated current	7 A
Mechanical endurance (cycles)	≥ 10 000 000
Electrical endurance at rated load AC-1 (cycles)	≥ 100 000

Control circuit

Nominal voltage	see table product references
Operating voltage range	0.8 U _N ... 1.1 U _N
Pick-up voltage AC / DC	≤ 0.8 UN / ≤ 0.75 UN
Release voltage AC / DC	≥ 0.3 UN / ≥ 0.1 UN
Power consumption AC / DC	1 VA / 0.53 W

Coil table

V AC	Ohm	mA	V DC	Ohm	mA
24	253	95	12	270	44
115	5 819	20	24	1 080	22
230	23 276	10	36	1 350	27
			48	4 340	11
			110	22 830	5

Insulation

Test voltage open contact	1 kV / 1 min
Test voltage contact / contact	1 kV / 1 min
Test voltage contact / coil	5 kV / 1 min
Overvoltage category	III
Insulation resistance at 500 V	≥ 100 MΩ
Pollution degree	3

General data

Storage temperature (no ice)	-55 ... 70 °C
Operation temperature	-55 ... 70 °C
Pick-up time / bounce time	10 ms / ≤ 1 ms
Release time / bounce time	5 ms / ≤ 3 ms
Maximum switching frequency at rated load	1 200 / h
Weight	17 g
Housing material	PA / PC

Product references

Description	Type	12	24	36	48	110	115	230
AC 50 Hz / 60 Hz	C16-A25PTL/AC...V		✓				✓	✓

DC	C16-A25PTL/DC...V	✓	✓	✓	✓	✓		
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Other voltages on request. Please contact support@comatreleco.com.

«...» List coil voltage to complete product references

Accessories

Socket	S16-M
Retaining clip plastic	CP-16
Modules	See datasheet socket



fig. 1. Wiring diagram

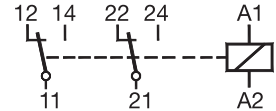


fig. 2. AC voltage endurance

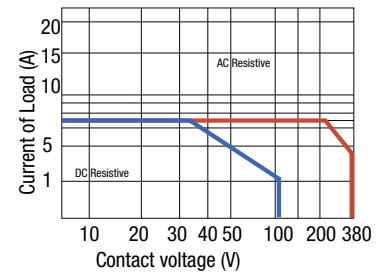
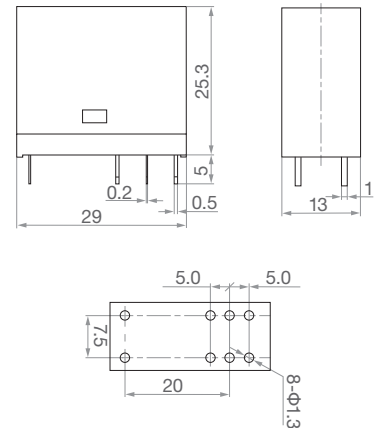


fig. 3. Dimensions (mm)



Technical approvals, conformities

Standards IEC/EN 60947; IEC/EN 61810



1.1 Interface Relays - pluggable

C18-A15PT

1 pole | changeover contact | grid 3.5 mm



Main circuit

Available contact materials	⚡ AgSnO ₂
Recommended minimum contact load	1 mA / 1 V
Maximum contact load AC	10 A / 250 V AC-1
Maximum contact load DC	10 A / 30 V DC-1
Inrush current	25 A, 500 ms
Maximum operating power curve	fig. 2.
Rated current	10 A
Mechanical endurance (cycles)	≥ 10 000 000
Electrical endurance at rated load AC-1 (cycles)	≥ 100 000

Control circuit

Nominal voltage	see table product references
Operating voltage range	0.8 U _N ... 1.1 U _N
Pick-up voltage AC / DC	≤ 0.8 U _N / ≤ 0.75 U
Release voltage AC / DC	≥ 0.3 U _N / ≥ 0.1 U _N
Power consumption AC / DC	1 VA / 0.53 W

Coil table

V AC	Ohm	mA	V DC	Ohm	mA
24	253	95	12	270	44
115	5 819	20	24	1 080	22
230	23 276	10	36	1 350	27
			48	4 340	11
			110	22 830	5

Insulation

Test voltage open contact	1 kV / 1 min
Test voltage contact / coil	5 kV / 1 min
Overtoltage category	III
Insulation resistance at 500 V	≥ 100 MΩ
Pollution degree	3

General data

Storage temperature (no ice)	-55 ... 70 °C
Operation temperature	-55 ... 70 °C
Pick-up time / bounce time	10 ms / ≤ 1 ms
Release time / bounce time	5 ms / ≤ 3 ms
Maximum switching frequency at rated load	1 200 / h
Weight	17 g
Housing material	PA / PC

Product references

Description	Type	12	24	36	48	110	115	230
AC 50 Hz / 60 Hz	C18-A15PT/AC...V		✓				✓	✓
DC	C18-A15PT/DC...V	✓	✓	✓	✓	✓		

Other voltages on request. Please contact support@comatreleco.com.
«...» List coil voltage to complete product references

Accessories

Socket	S18-M
Retaining clip plastic	CP-16
Modules	See datasheet socket



fig. 1. Wiring diagram

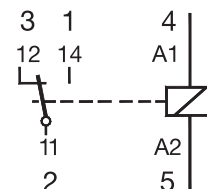


fig. 2. AC voltage endurance

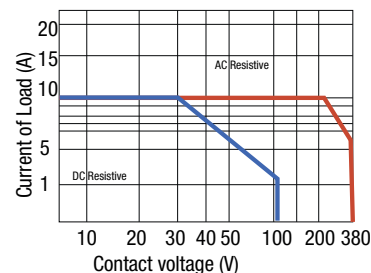
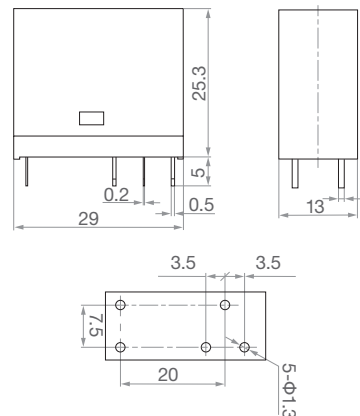


fig. 3. Dimensions (mm)



Technical approvals, conformities

Standards IEC/EN 60947; IEC/EN 61810



C18-A15PTL

1 pole | changeover contact | grid 5 mm

Main circuit

Available contact materials	⚡ AgSnO ₂
Recommended minimum contact load	1 mA / 1 V
Maximum contact load AC	10 A / 250 V AC-1
Maximum contact load DC	10 A / 30 V DC-1
Inrush current	25 A, 500 ms
Maximum operating power curve	fig. 2.
Rated current	10 A
Mechanical endurance (cycles)	≥ 10 000 000
Electrical endurance at rated load AC-1 (cycles)	≥ 100 000

Control circuit

Nominal voltage	see table product references
Operating voltage range	0.8 U _N ... 1.1 U _N
Pick-up voltage AC / DC	≤ 0.8 U _N / ≤ 0.75 U
Release voltage AC / DC	≥ 0.3 U _N / ≥ 0.1 U _N
Power consumption AC / DC	1 VA / 0.53 W

Coil table

V AC	Ohm	mA	V DC	Ohm	mA
24	253	95	12	270	44
115	5 819	20	24	1 080	22
230	23 276	10	36	1 350	27
			48	4 340	11
			110	22 830	5

Insulation

Test voltage open contact	1 kV / 1 min
Test voltage contact / coil	5 kV / 1 min
Overtoltage category	III
Insulation resistance at 500 V	≥ 100 MΩ
Pollution degree	3

General data

Storage temperature (no ice)	-55 ... 70 °C
Operation temperature	-55 ... 70 °C
Pick-up time / bounce time	10 ms / ≤ 1 ms
Release time / bounce time	5 ms / ≤ 3 ms
Maximum switching frequency at rated load	1 200 / h
Weight	17 g
Housing material	PA / PC

Product references

Description	Type	12	24	36	48	110	115	230
AC 50 Hz / 60 Hz	C18-A15PTL/AC...V		✓				✓	✓

DC	C18-A15PTL/DC...V	✓	✓	✓	✓	✓		
----	-------------------	---	---	---	---	---	--	--

Other voltages on request. Please contact support@comatreleco.com.
«...» List coil voltage to complete product references

Accessories

Socket	S16-M
Retaining clip plastic	CP-16
Modules	See datasheet socket



fig. 1. Wiring diagram

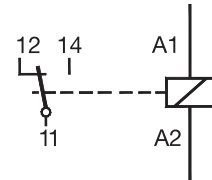


fig. 2. Maximum operating power curve

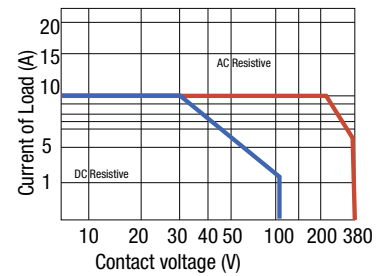
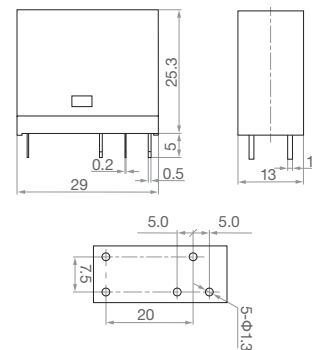


fig. 3. Dimensions (mm)



Technical approvals, conformities

Standards IEC/EN 60947; IEC/EN 61810



1.1 Interface Relays - pluggable

C18-B15PTL

1 pole | changeover contact | grid 5 mm



Main circuit

Available contact materials	⚡ AgSnO ₂
Recommended minimum contact load	1 mA / 1 V
Maximum contact load AC	16 A / 250 V AC-1
Maximum contact load DC	16 A / 30 V DC-1
Inrush current	25 A, 500 ms
Maximum operating power curve	fig. 2.
Rated current	16 A
Mechanical endurance (cycles)	≥ 10 000 000
Electrical endurance at rated load AC-1 (cycles)	≥ 100 000

Control circuit

Nominal voltage	see table product references
Operating voltage range	0.8 U _N ... 1.1 U _N
Pick-up voltage	≤ 0.8 U _N / 0.75 U _N
Release voltage	≥ 0.3 U _N / 0.1 U _N
Power consumption AC / DC	1 VA / 0.53 W

Coil table

V AC	Ohm	mA	V DC	Ohm	mA
24	253	95	12	270	44
115	5 819	20	24	1 080	22
230	23 276	10	36	1 350	27
			48	4 340	11
			110	22 830	5

Insulation

Test voltage open contact	1 kV / 1 min
Test voltage contact / coil	5 kV / 1 min
Overvoltage category	III
Insulation resistance at 500 V	≥ 100 MΩ
Pollution degree	3

General data

Storage temperature (no ice)	-55 ... 70 °C
Operation temperature	-55 ... 70 °C
Pick-up time / bounce time	10 ms / ≤ 1 ms
Release time / bounce time	5 ms / ≤ 3 ms
Maximum switching frequency at rated load	1 200 / h
Weight	17 g
Housing material	PA / PC

Product references

Description	Type	12	24	36	48	110	115	230
AC 50 Hz / 60 Hz	C18-B15PTL/AC...V		✓				✓	✓
DC	C18-B15PTL/DC...V	✓	✓	✓	✓	✓		

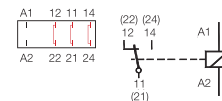
Other voltages on request. Please contact support@comatreleco.com.
«...» List coil voltage to complete product references

Accessories

Socket	S16-M
Retaining clip plastic	CP-16
Modules	See datasheet socket



fig. 1. Wiring diagram



⚠ For usage of the relay up to 16A, pin 22+12 (open), pin 21+11 (common) and pin 24+14 (closing) need to be bridged on the socket terminals to prevent overheating. Each contact on this relay is connected to two pins each.

fig. 2. Maximum operating power curve

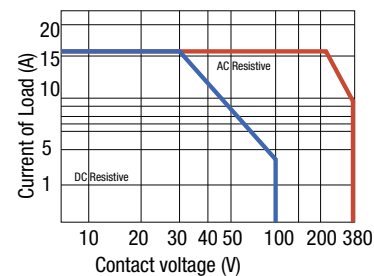
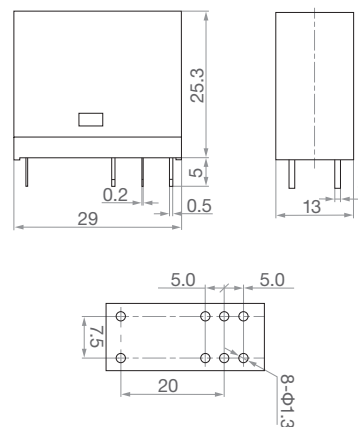


fig. 3. Dimensions (mm)



Technical approvals, conformities

Standards IEC/EN 60947; IEC/EN 61810



1.2 Interface Relays

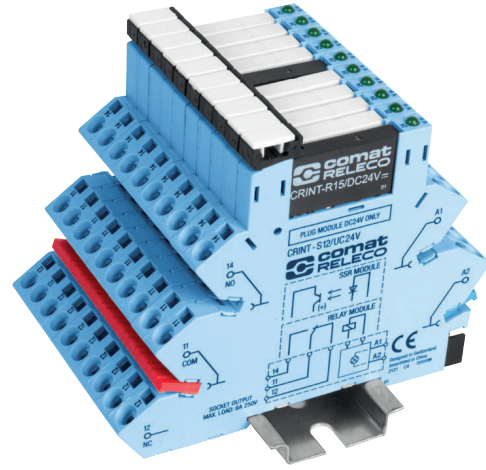
	Type	Pin	Page
CRINT Series			
1 pole changeover contact	CRINT-C1x1		33
1 pole changeover contact	CRINT-C1x2		34
1 pole changeover contact	CRINT-C1x1R		35
1 pole changeover contact	CRINT-C1x2R		36
CINT Series			
1 pole changeover contact	CINT-51 / CINT-61		37
2 pole changeover contact	CINT-52 / CINT-62		38
2 pole changeover contact	CINT-53 / CINT-63		39
CHA Series			
1 pole changeover contact auxiliary contact	CHA1		40

CRINT-C1xx & CINT-C5x/c6x
Product Key and dimensions



Interface Module CRINT

- Relay module up to 6 A 250 V, different contact materials
- Solid state modules for most loads DC and AC up to 2 A / 4 A
- Coil UC = AC/DC, no protection circuit required
- LED status display
- Push-in terminals
- Jumper link
- Super small mounting: 6.2 mm width



CRINT Product Key

1		2	3	4	5	6		7	8
CRINT	-	C	1	3	1	R	/	UC	24V

1. Product family

CRINT

2. Type

C = Combined version (Socket and Relay)

3. Contact

- 1 = One change-over contact
- 2 = Two change-over contact

4. Connection type

- 1 = Screw terminal
- 2 = Cage clamp terminal
- 3 = Push-in

5. Output

- 1 = AgSnO₂
- 2 = AgSnO₂ + 5 μ Au
- 3 = AgNi
- 5 = NO / Solid-state DC
- 8 = NO / Solid-state AC

6. Options

- = Standard version
- R = Railway version

7. Supply voltage

- UC = AC/DC
- DC = Only for C1x5 and C1x8

8. Nominal voltage

12V, 24V, 48V, 60V, 110-125V, 220-240V

RELAY Only

1		2	3	4	5
CRINT	-	R	11	DC	12V

1. Product family

CRINT

2. Type

R = Relay

3. Contact

- 11 = 1x AgSnO₂
- 12 = 1x AgSnO₂ + 3μ Au
- 15 = NO / Solid-state DC
- 18 = NO / Solid-state AC
- 21 = 2x AgSnO₂
- 22 = 2x AgNi + 3μ Au
- 23 = 2x AgNi

4. Control voltage

DC

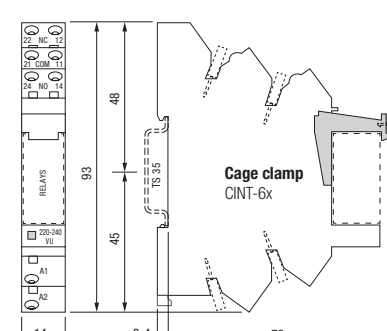
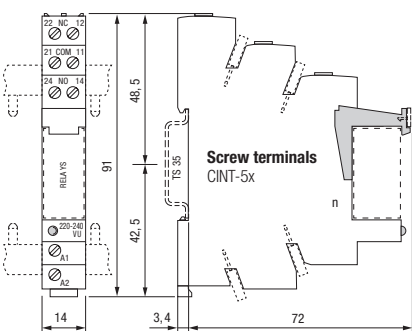
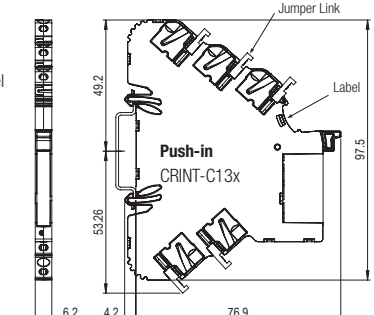
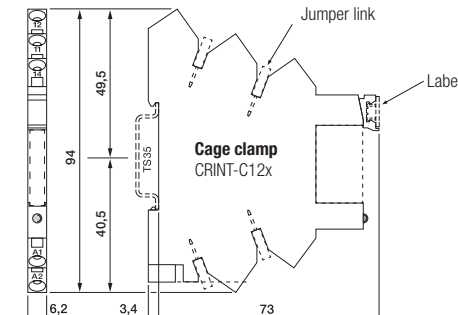
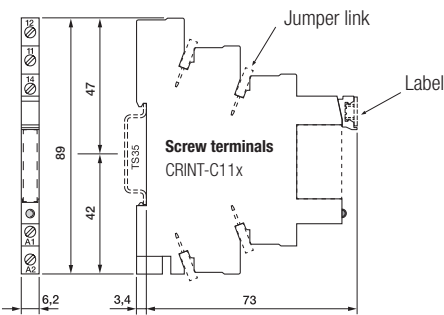
5. Rated control voltage

12 V, 24 V, 48 V, 60 V*

*60 V Relay used for all sockets with a nominal voltage higher or equal 60V

CRINT-C1xx & CINT-C5x/C6x

Dimension (mm)



1.2 Interface Relays

CRINT-C1x1

1 pole | changeover contact

Main circuit

Available contact materials	AgSnO ₂
Recommended minimum contact load	100 mA / 12 V
Maximum contact load AC	6 A / 250 V AC-1
Maximum contact load DC	6 A / 30 V DC-1
Inrush current	15 A, 2.5 ms
Rated load AC	1 500 VA
Rated load DC	fig. 3.
Rated current	6 A
Mechanical endurance (cycles)	≥ 1 000 000
Electrical endurance at rated load AC-1 (cycles)	≥ 10 000

Control circuit

Nominal voltage	see table product references
Operating voltage range	0.8 U _N ... 1.25 U _N
Pick-up voltage	≤ 0.8 U _N
Release voltage	≥ 0.1 U _N
Power consumption AC / DC	0.9 VA / 0.4 W

Insulation

Test voltage open contact	1 kV / 1 min
Test voltage contact / coil	6 kV / 1 min
Overvoltage category	III
Pollution degree	3

General data

Storage temperature (no ice)	-40 ... 85 °C
Operation temperature	-40 ... 70 °C (-40 ... 55 °C for control voltage > 60 V)
Pick-up time / bounce time	7 ms / ≤ 8 ms
Release time / bounce time	15 ms / ≤ 4 ms
Conductor cross section screw terminal	0.34 ... 2.5 mm ²
Conductor cross section cage clamp	0.75 ... 2.5 mm ²
Conductor cross section control / main circuit	Push-in terminal
- Single wire	0.34 mm ² / AWG 22 ... 2.5 mm ² / AWG 14
- Multi wire (un-crimped)	0.34 mm ² / AWG 22 ... 2.5 mm ² / AWG 14
- Multi wire (crimped)	0.34 mm ² / AWG 22 ... 1.5 mm ² / AWG 16
Ingress Protection	IP 20
Mounting	TH35 (EN 60715)
Weight	30 g
Housing material	PA

Product references

Description	Type	12	24	48	60	110-125	220-240
Screw terminal	CRINT-C111/UC...V	✓	✓	✓	✓	✓	✓
Cage clamp terminal	CRINT-C121/UC...V	✓	✓	✓	✓	✓	✓
Push-in terminal	CRINT-C131/UC...V	✓	✓	✓	✓	✓	✓

«...» List control voltage to complete product references

Accessories

Jumper link	CRINT-BR20-BU (BAG 5 PCS), CRINT-BR20-RD (BAG 5 PCS), CRINT-BR20-BK (BAG 5 PCS)
Label plate	CRINT-LAB (BAG 4X16 PCS)
Spacer	CRINT-SEP (BAG 5 PCS)
Marking strip for Push-in	BS11-PI (50m tape)

Replacement relays

Description	Type	12	24	48	60
DC	CRINT-R11/DC...V	✓	✓	✓	✓

«...» List control voltage to complete product references

60 V relay used for all sockets with a minimum nominal voltage higher or equal 60 V

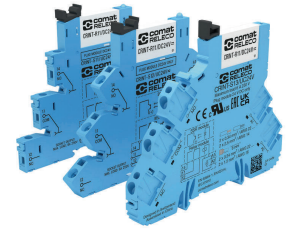


fig. 1. Wiring diagram

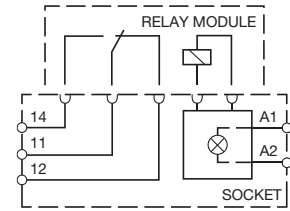


fig. 2. AC voltage endurance

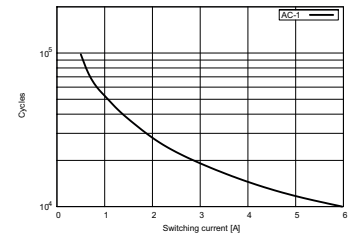


fig. 3. DC load limit curve

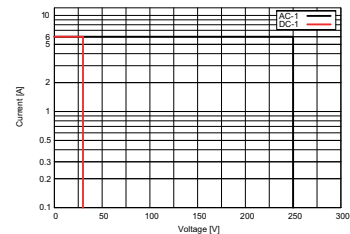
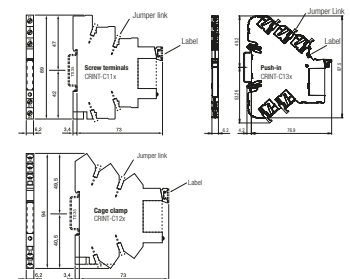


fig. 4. Dimensions (mm)



Technical approvals, conformities

Standards EN 60664-1; IEC/EN 61810-1

CE cRU us cUL us EAC
UK CA CRINT-C111 & CRINT-C121 only

1.2 Interface Relays

CRINT-C1x2

1 pole | changeover contact

Main circuit

Available contact materials	AgSnO ₂ + Au
Recommended minimum contact load	10 mA / 5 V
Maximum contact load AC	6A / 250 V AC-1
Maximum contact load DC	6A / 30 V DC-1
Inrush current	15 A, 2.5 ms
Rated load AC	1 500 VA
Rated load DC	fig. 3.
Rated current	6 A
Mechanical endurance (cycles)	≥ 1 000 000
Electrical endurance at rated load AC-1 (cycles)	≥ 10 000

Control circuit

Nominal voltage	see table product references
Operating voltage range	0.8 U _N ... 1.25 U _N
Pick-up voltage	≤ 0.8 U _N
Release voltage	≥ 0.1 U _N
Power consumption AC / DC	0.9 VA / 0.4 W

Insulation

Test voltage open contact	1 kV / 1 min
Test voltage contact / coil	6 kV / 1 min
Overvoltage category	III
Pollution degree	3

General data

Storage temperature (no ice)	-40 ... 85 °C
Operation temperature	-40 ... 70 °C (-40 ... 55 °C for control voltage > 60 V)
Pick-up time / bounce time	7 ms / ≤ 8 ms
Release time / bounce time	15 ms / ≤ 4 ms
Conductor cross section screw terminal	0.34 ... 2.5 mm ²
Conductor cross section cage clamp	0.34 ... 2.5 mm ²
Conductor cross section control / main circuit	0.75 ... 2.5 mm ²
- Single wire	0.34 mm ² / AWG 22 ... 2.5 mm ² / AWG 14
- Multi wire (un-crimped)	0.34 mm ² / AWG 22 ... 2.5 mm ² / AWG 14
- Multi wire (crimped)	0.34 mm ² / AWG 22 ... 1.5 mm ² / AWG 16
Ingress Protection	IP 20
Mounting	TH35 (EN 60715)
Weight	30 g
Housing material	PA

Product references

Description	Type	12	24	48	60	110-125	220-240
Screw terminal	CRINT-C112/UC...V	✓	✓	✓	✓	✓	✓
Cage clamp terminal	CRINT-C122/UC...V	✓	✓	✓	✓	✓	✓
Push-in terminal	CRINT-C132/UC...V	✓	✓	✓	✓	✓	✓

«...» List control voltage to complete product references

Accessories

Jumper link	CRINT-BR20-BU (BAG 5 PCS), CRINT-BR20-RD (BAG 5 PCS), CRINT-BR20-BK (BAG 5 PCS)
Label plate	CRINT-LAB (BAG 4X16 PCS)
Spacer	CRINT-SEP (BAG 5 PCS)
Marking strip for Push-in	BS11-PI (50m tape)

Replacement relays

Description	Type	12	24	48	60
DC	CRINT-R12/DC...V	✓	✓	✓	✓

«...» List control voltage to complete product references

60 V relay used for all sockets with a minimum nominal voltage higher or equal 60 V

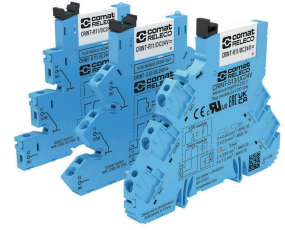


fig. 1. Wiring diagram

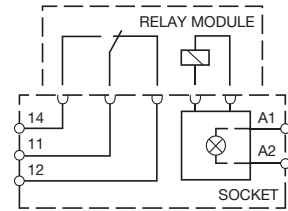


fig. 2. AC voltage endurance

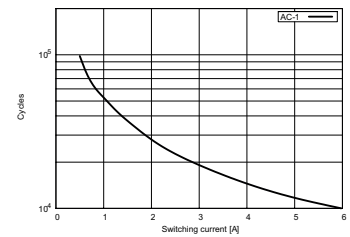


fig. 3. DC load limit curve

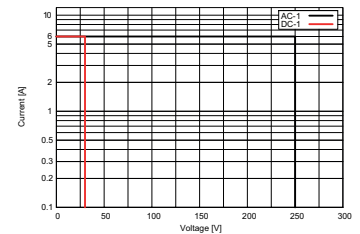
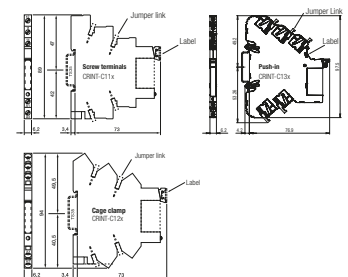


fig. 4. Dimensions (mm)



Technical approvals, conformities

Standards EN 60664-1; IEC/EN 61810-1



1.2 Interface Relays

CRINT-C1x1R

1 pole | changeover contact

Main circuit

Available contact materials	AgSnO ₂
Recommended minimum contact load	100 mA / 12 V
Maximum contact load AC	6 A / 250 V AC-1
Maximum contact load DC	6 A / 30 V DC-1
Inrush current	15 A, 2.5 ms
Rated load AC	1 500 VA
Rated load DC	fig. 3.
Rated current	6 A
Mechanical endurance (cycles)	≥ 1 000 000
Electrical endurance at rated load AC-1 (cycles)	≥ 10 000

Control circuit

Nominal voltage	see table product references
Operating voltage range	0.8 U _N ... 1.25 U _N
Pick-up voltage	≤ 0.8 U _N
Release voltage	≥ 0.1 U _N
Power consumption AC / DC	0.9 VA / 0.4 W

Insulation

Test voltage open contact	1 kV / 1 min
Test voltage contact / coil	6 kV / 1 min
Overvoltage category	III
Pollution degree	3

General data

Storage temperature (no ice)	-40 ... 85 °C
Operation temperature	-40 ... 70 °C (-40 ... 55 °C for control voltage > 60 V)
Pick-up time / bounce time	7 ms / ≤ 8 ms
Release time / bounce time	15 ms / ≤ 4 ms
Conductor cross section cage clamp	0.75 ... 2.5 mm ²
Conductor cross section control / main circuit	Push-in terminal
- Single wire	0.34 mm ² / AWG 22 ... 2.5 mm ² / AWG 14
- Multi wire (un-crimped)	0.34 mm ² / AWG 22 ... 2.5 mm ² / AWG 14
- Multi wire (crimped)	0.34 mm ² / AWG 22 ... 1.5 mm ² / AWG 16
Ingress Protection	IP 20
Mounting	TH35 (EN 60715)
Weight	30 g
Housing material	PA

Product references

Description	Type	24	110-125	220-240
Cage clamp terminal	CRINT-C121R/UC...V	✓	✓	
Push-in terminal	CRINT-C131R/UC...V	✓	✓	✓

«...» List control voltage to complete product references

Accessories

Jumper link	CRINT-BR20-BU (BAG 5 PCS), CRINT-BR20-RD (BAG 5 PCS), CRINT-BR20-BK (BAG 5 PCS)
Label plate	CRINT-LAB (BAG 4X16 PCS)
Marking strip for Push-in	BS11-PI (50m tape)

Replacement relays

Description	Type	24	60
DC	CRINT-R11/DC...V	✓	✓

«...» List control voltage to complete product references

60 V relay used for all sockets with a minimum nominal voltage higher or equal 60 V

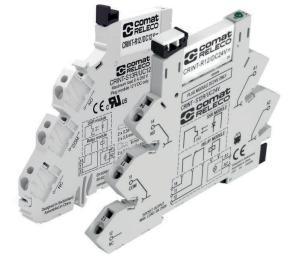


fig. 1. Wiring diagram

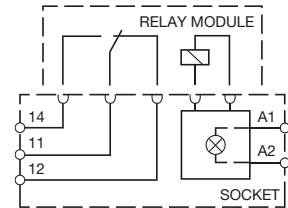


fig. 2. AC voltage endurance

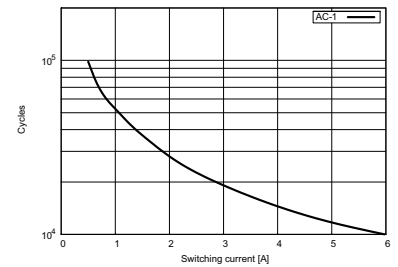


fig. 3. DC load limit curve

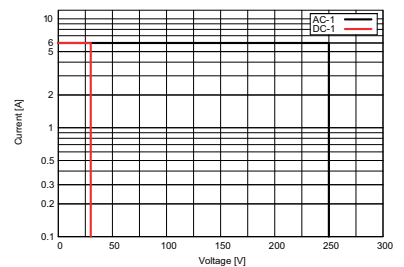
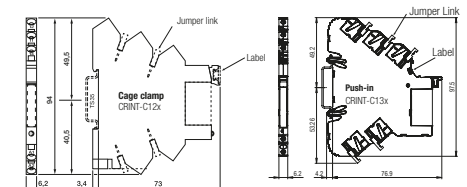


fig. 4. Dimensions (mm)



Technical approvals, conformities

Standards EN 60664-1; IEC/EN 61810-1

Railway EN 45545-2; EN 50155



Approvals

1.2 Interface Relays

CRINT-C1x2R

1 pole | changeover contact

Main circuit

Available contact materials	AgSnO ₂ + Au
Recommended minimum contact load	10 mA / 5 V
Maximum contact load AC	6A / 250 V AC-1
Maximum contact load DC	6A / 30 V DC-1
Inrush current	15 A, 2.5 ms
Rated load AC	1 500 VA
Rated load DC	fig. 3.
Rated current	6 A
Mechanical endurance (cycles)	≥ 1 000 000
Electrical endurance at rated load AC-1 (cycles)	≥ 10 000

Control circuit

Nominal voltage	see table product references
Operating voltage range	0.8 U _N ... 1.25 U _N
Pick-up voltage	≤ 0.8 U _N
Release voltage	≥ 0.1 U _N
Power consumption AC / DC	0.9 VA / 0.4 W

Insulation

Test voltage open contact	1 kV / 1 min
Test voltage contact / coil	6 kV / 1 min
Overvoltage category	III
Pollution degree	3

General data

Storage temperature (no ice)	-40 ... 85 °C
Operation temperature	-40 ... 70 °C (-40 ... 55 °C for control voltage > 60 V)
Pick-up time / bounce time	7 ms / ≤ 8 ms
Release time / bounce time	15 ms / ≤ 4 ms
Conductor cross section cage clamp	0.75 ... 2.5 mm ²
Conductor cross section control / main circuit	Push-in terminal
- Single wire	0.34 mm ² / AWG 22 ... 2.5 mm ² / AWG 14
- Multi wire (un-crimped)	0.34 mm ² / AWG 22 ... 2.5 mm ² / AWG 14
- Multi wire (crimped)	0.34 mm ² / AWG 22 ... 1.5 mm ² / AWG 16
Ingress Protection	IP 20
Mounting	TH35 (EN 60715)
Weight	30 g
Housing material	PA

Product references

Description	Type	24	110-125	220-240
Cage clamp terminal	CRINT-C122R/UC...V	✓	✓	✓
Push-in terminal	CRINT-C132R/UC...V	✓	✓	✓

«...» List control voltage to complete product references

Accessories

Jumper link	CRINT-BR20-BU (BAG 5 PCS), CRINT-BR20-RD (BAG 5 PCS), CRINT-BR20-BK (BAG 5 PCS)
Label plate	CRINT-LAB (BAG 4X16 PCS)
Marking strip for Push-in	BS11-PI (50m tape)

Replacement relays

Description	Type	24	60
DC	CRINT-R12/DC...V	✓	✓

«...» List control voltage to complete product references

60 V relay used for all sockets with a minimum nominal voltage higher or equal 60 V

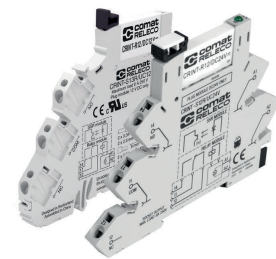


fig. 1. Wiring diagram

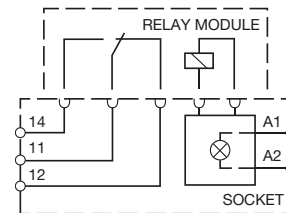


fig. 2. AC voltage endurance

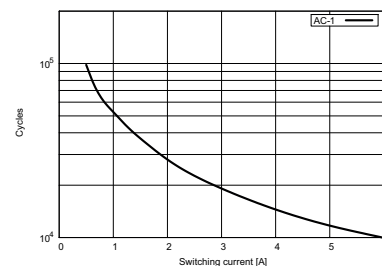


fig. 3. DC load limit curve

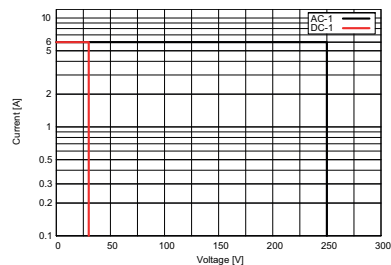
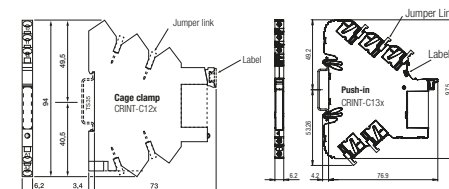


fig. 4. Dimensions (mm)



Technical approvals, conformities

Standards EN 60664-1; IEC/EN 61810-1

Railway EN 45545-2; EN 50155



Approvals

1.2 Interface Relays

CINT-51 / CINT-61

1 pole | changeover contact

Main circuit

Available contact materials	AgSnO ₂
Recommended minimum contact load	10 mA / 24 V
Maximum contact load AC	10 A / 250 V AC-1
Maximum contact load DC	10 A / 30 V DC-1
Rated current	10 A / 16 A (dual terminal use)
Inrush current	80 A, 5 ms
Rated load AC	2 500 VA
Rated load DC	fig. 3.
Mechanical endurance (cycles)	≥ 10 000 000
Electrical endurance at rated load AC-1 (cycles)	≥ 250 000

Control circuit

Nominal voltage	see table product references
Operating voltage range	0.7 U _N ... 1.25 U _N
Pick-up voltage	≤ 0.7 U _N
Release voltage	≥ 0.1 U _N
Power consumption AC / DC	0.75 VA / 0.5 W

Insulation

Test voltage open contact	1 kV / 1 min
Test voltage contact / coil	4 kV / 1 min
Overvoltage category	III
Pollution degree	3

General data

Storage temperature (no ice)	-40 ... 85 °C
Operation temperature	-20 ... 55 °C
Pick-up time / bounce time	5 ms / ≤ 8 ms
Release time / bounce time	10 ms / ≤ 6 ms
Conductor cross section screw terminal	2.5 mm ²
Conductor cross section cage clamp	0.5 ... 2.5 mm ²
Ingress Protection	IP 20
Mounting	TH35 (EN 60715)
Weight	63 g
Housing material	PA

Product references

Description	Type	24	230
Screw terminal	CINT-51/AC...V		✓
Cage clamp terminal	CINT-61/AC...V		✓
Screw terminal	CINT-51/UC...V	✓	
Cage clamp terminal	CINT-61/UC...V	✓	

«...» List coil voltage to complete product references

Accessories

Jumper link	CINT-BR8/5
Label plate	CINT5-BEZ/18

Replacement relays

Description	Type	24	110
DC	CINT-R21/DC...V	✓	✓

«...» List coil voltage to complete product references
24 V relay used for 24 V sockets, 110 V relay used for 230 V sockets.

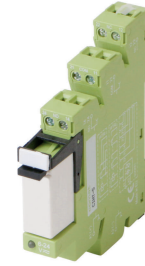


fig. 1. Wiring diagram

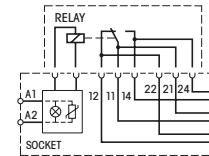


fig. 2. AC voltage endurance

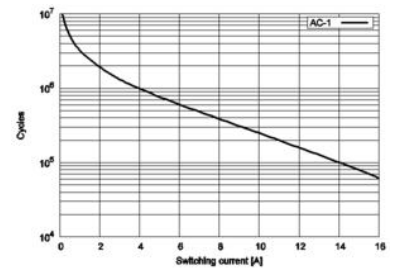


fig. 3. DC load limit curve

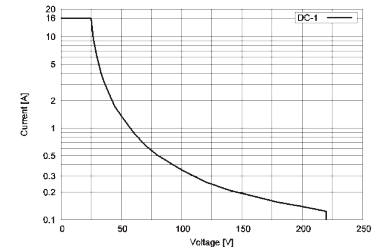
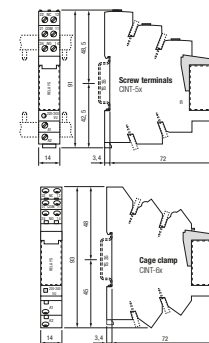


fig. 4. Dimensions (mm)



Technical approvals, conformities

Standards IEC/EN 61810-1

Approvals

1.2 Interface Relays

CINT-52 / CINT-62

2 pole | changeover contact

Main circuit

Available contact materials	AgNi + 5 µ Au
Recommended minimum contact load	5 mA / 5V
Maximum contact load AC	8 A / 250 V AC-1
	8 A / 250 V AC-1
Maximum contact load DC	8 A / 30 V DC-1
	8 A / 30 V DC-1
Inrush current	15 A, 20 ms
Rated load AC	2 000 VA
Rated load DC	fig. 3.
Rated current	8 A
Mechanical endurance (cycles)	≥ 10 000 000
Electrical endurance at rated load AC-1 (cycles)	≥ 80 000

Control circuit

Nominal voltage	see table product references
Operating voltage range	0.7 U _N ... 1.25 U _N
Pick-up voltage	≤ 0.7 U _N
Release voltage	≥ 0.1 U _N
Power consumption AC / DC	0.75 VA / 0.5 W

Insulation

Test voltage open contact	1 kV / 1 min
Test voltage contact / coil	4 kV / 1 min
Overvoltage category	III
Pollution degree	3

General data

Storage temperature (no ice)	-40 ... 85 °C
Operation temperature	-20 ... 55 °C
Pick-up time / bounce time	5 ms / ≤ 8 ms
Release time / bounce time	10 ms / ≤ 6 ms
Conductor cross section screw terminal	2.5 mm ²
Conductor cross section cage clamp	0.5 ... 2.5 mm ²
	0.5 ... 2.5mm ²
Ingress Protection	IP 20
Mounting	TH35 (EN 60715)
Weight	63 g
Housing material	PA

Product references

Description	Type	24	230
Screw terminal	CINT-52/AC...V		✓
Cage clamp terminal	CINT-62/AC...V		✓
Screw terminal	CINT-52/UC...V	✓	
Cage clamp terminal	CINT-62/UC...V	✓	

«...» List coil voltage to complete product references

Accessories

Jumper link	CINT-BR8/5
Label plate	CINT5-BEZ/18

Replacement relays

Description	Type	24	110
DC	CINT-R22/DC...V	✓	✓

«...» List coil voltage to complete product references
 24 V relay used for 24 V sockets, 110 V relay used for 230 V sockets.

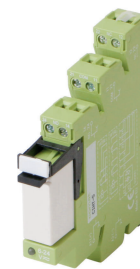


fig. 1. Wiring diagram

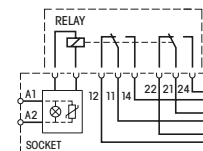


fig. 2. AC voltage endurance

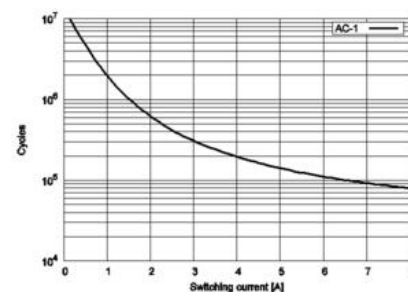


fig. 3. DC load limit curve

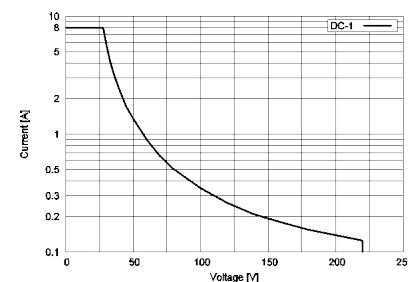
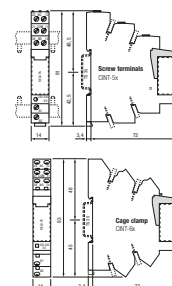


fig. 4. Dimensions (mm)



Technical approvals, conformities

Standards IEC/EN 61810-1

Approvals

1.2 Interface Relays

CINT-53 / CINT-63

2 pole | changeover contact

Main circuit

Available contact materials	⚡ AgNi
Recommended minimum contact load	10 mA / 24 V
Maximum contact load AC	8 A / 250 V AC-1
Maximum contact load DC	8 A / 30 V DC-1
Inrush current	15 A, 20 ms
Rated load AC	2 000 VA
Rated load DC	fig. 3.
Rated current	8 A
Mechanical endurance (cycles)	≥ 10 000 000
Electrical endurance at rated load AC-1 (cycles)	≥ 80 000

Control circuit

Nominal voltage	see table product references
Operating voltage range	$0.7 U_N \dots 1.25 U_N$
Pick-up voltage	$\leq 0.7 U_N$
Release voltage	$\geq 0.1 U_N$
Power consumption AC / DC	0.75 VA / 0.5 W

Insulation

Test voltage open contact	1 kV / 1 min
Test voltage contact / coil	4 kV / 1 min
Overvoltage category	III
Pollution degree	3

General data

Storage temperature (no ice)	-40 ... 85 °C
Operation temperature	-20 ... 55 °C
Pick-up time / bounce time	5 ms / ≤ 8 ms
Release time / bounce time	10 ms / ≤ 6 ms
Conductor cross section screw terminal	2.5 mm ²
Conductor cross section cage clamp	0.5 ... 2.5 mm ²
Ingress Protection	IP 20
Mounting	TH35 (EN 60715)
Weight	63 g
Housing material	PA

Product references

Description	Type	24	230
Screw terminal	CINT-53/AC...V		✓
Cage clamp terminal	CINT-63/AC...V		✓
Screw terminal	CINT-53/UC...V	✓	
Cage clamp terminal	CINT-63/UC...V	✓	✓

«...» List coil voltage to complete product references

Accessories

Jumper link	CINT-BR8/5
Label plate	CINT5-BEZ/18

Replacement relays

Description	Type	24	110
DC	CINT-R23/DC...V	✓	✓

«...» List coil voltage to complete product references
 24 V relay used for 24 V sockets, 110 V relay used for 230 V sockets.

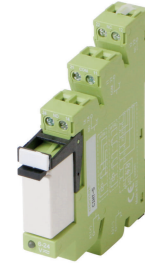


fig. 1. Wiring diagram

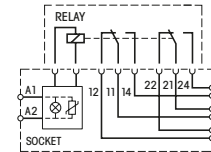


fig. 2. AC voltage endurance

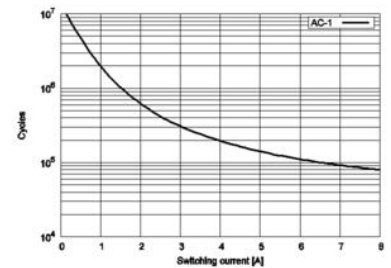


fig. 3. DC load limit curve

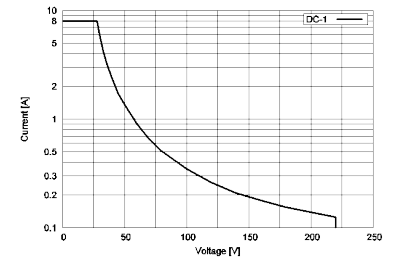
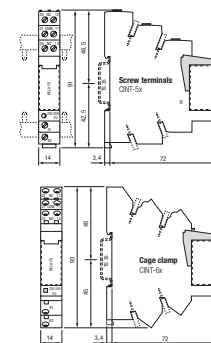


fig. 4. Dimensions (mm)



Technical approvals, conformities

Standards IEC/EN 61810-1

Approvals

CHA1

1 pole | changeover contact | auxiliary contact



Main circuit

Contact type control / main circuit	Power contact (11 / 12 / 14)	Signal contact (B1 / B2)
Available contact materials	⚡ AgSnO ₂	⚡ AgNi
Maximum contact load	10 A / 250 V AC-1	0.3 A / 30V DC-1
Recommended minimum contact load	10 mA / 12 V	1 mA / 6V
Rated load	10 A	0.3 A
Inrush current	15 A, 20 ms	0.5 A, 20 ms
Rated load AC	2 500 VA	9 VA
Rated load DC	250 W	
Mechanical endurance (cycles)	≥ 10 000 000	≥ 1 000
Electrical endurance at rated load AC-1 (cycles)	≥ 100 000	≥ 1 000

Control circuit

Nominal voltage	see table product references
Operating voltage range	0.8 U _N ... 1.1 U _N
Pick-up voltage	≤ 0.8 U _N
Release voltage	≥ 0.1 U _N
Power consumption AC / DC	0.75 VA / 0.5 W

Insulation

Test voltage open contact	1 kV / 1 min
Test voltage contact / coil	3 kV / 1 min
Overvoltage category	III
Pollution degree	3

General data

Storage temperature (no ice)	-25 ... 85 °C
Operation temperature	-20 ... 50 °C
Pick-up time / bounce time	10 ms / 2 ms
Release time / bounce time	12 ms / 2 ms
Conductor cross section screw terminal	2.5 mm ²
Nominal screw torque control / main circuit	0.5 Nm
Ingress Protection	IP 20
Mounting	TH35 (EN 60715)
Weight	42 g
Housing material	PA

Product references

Description	Type	24
AC / DC supply	CHA1/UC...V	✓

«...» List coil voltage to complete product references



fig. 1. Wiring diagram

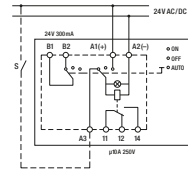
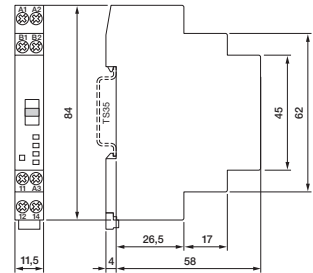


fig. 2. Function diagram

Green ON-OFF-switch	Control input A3	Relay / LED	Check back contact
AUTO	1	1	1
	0	0	1
ON	-	1	0
OFF	-	0	0

fig. 3. Dimensions (mm)



























Technical approvals, conformities

Standards IEC/EN 61810-1



1.3 Industrial Relays - pluggable

	Type	Pin	Page
C2 Series			
2 pole changeover contact	C2-A2x		44
C3 Series / R3 Series			
3 pole changeover contact	C3-A3x		45
3 pole changeover contact	C3-A30x/AC230V 16.7 Hz		46
3 pole normally open contact	C3-G30		47
1 pole normally open serial contact with blow magnet	C3-M10		48
3 pole changeover contact sensitive coil	C3-N34		49
3 pole changeover contact sensitive coil	R3-N34		50
2 pole changeover contact remanence	C3-R2xN		51
2 pole changeover contact remanence	R3-R20N		52
3 pole changeover twin contact	C3-T3x		53
1 pole normally open serial contact	C3-X10		54
C4 Series / R4 Series			
4 pole changeover contact Faston	C4-A4x		55
4 pole changeover contact Faston	R4-A40		56
3 pole changeover contact remanence Faston	C4-R3x		57
2 pole normally open serial contact Faston	C4-X20		58
C5 Series			




	Type	Pin	Page
2 pole changeover contact Faston	C5-A20		59
3 pole changeover contact Faston	C5-A3x		60
3 pole changeover contact Faston	R5-A30U		61
3 pole normally open contact Faston	C5-G3x		62
1 pole normally open serial contact with blow magnet Faston	C5-M10		63
1 pole normally open serial contact with blow magnet Faston	R5-M10		64
2 pole normally open contact with blow magnet Faston	C5-M20		65
2 pole changeover contact remanence Faston	C5-R20		66
1 pole normally open serial contact Faston	C5-X10		67

C7 Series / R7 Series

1 pole changeover contact Faston	C7-A10		68
2 pole changeover contact Faston	C7-A2x		69
2 pole changeover contact	C7-A2x+S7-PI		70
2 pole changeover contact Faston	R7-A20		71
2 pole normally open contact Faston	C7-G20		72
2 pole changeover power and twin contact Faston	C7-H23		73
2 pole changeover twin contact Faston	C7-T2x		74
2 pole changeover twin contact Faston	R7-T2x		75
1 pole normally open tungsten pre-contact Faston	C7-W10		76
1 pole normally open serial contact Faston	C7-X10		77

C9 Series / R9 Series

4 pole changeover contact Faston	C9-A4x		78
4 pole changeover contact	C9-A4x+S9-PI		79

	Type	Pin	Page
4 pole changeover contact Faston	R9-A41		80
2 pole changeover contact sensitive coil Faston	C9-E21		81
2 pole changeover contact remanence Faston	C9-R21		82

1.3 Industrial Relays - pluggable

C2-A2x

2 pole | changeover contact

Main circuit

Available contact materials

- ⚡ AgNi for C2-A20
- ⚡ AgNi + 5 μ Au for C2-A28

Recommended minimum contact load

10 mA / 10 V for C2-A20
5 mA / 5 V for C2-A28

Maximum contact load AC

10 A / 250 V AC-1

Maximum contact load DC

10 A / 30 V DC-1

Inrush current

30 A, 20 ms

Rated load AC

2 500 VA

Rated load DC

fig. 3.

Rated current

10 A

Mechanical endurance (cycles)

≥ 20 000 000

Electrical endurance at rated load AC-1 (cycles)

≥ 500 000

Control circuit

Nominal voltage

see table product references

Operating voltage range

0.8 U_N ... 1.1 U_N

Pick-up voltage

≤ 0.8 U_N

Release voltage

≥ 0.1 U_N

Power consumption AC / DC

2.2 VA / 1.3 W

Coil table

V AC	Ohm	mA	V DC	Ohm	mA
12	16	185	12	115	104
24	67	96	24	480	50
48	296	45	48	1 850	26
60	405	36	110	9 216	12
115	1 753	19	220	38 720	5.7
230	7 078	10			

Insulation

Test voltage open contact

1 kV / 1 min

Test voltage contact / contact

2.5 kV / 1 min

Test voltage contact / coil

2.5 kV / 1 min

Overtoltage category

III

Insulation resistance at 500 V

≥ 1 GΩ

Pollution degree

3

General data

Storage temperature (no ice)

-40 ... 80 °C

Operation temperature

-40 ... 60 °C

Pick-up time / bounce time

16 ms / ≤ 3 ms

Release time / bounce time

8 ms / ≤ 1 ms

Maximum switching frequency at rated load

1 200 / h

Weight

79 g

Housing material

PA / PC

Product references

Description	Type	12	24	48	110	115	220	230
AC 50 Hz	C2-A2x/AC...V	✓	✓	✓		✓		✓
LED	C2-A2xX/AC...V	✓	✓	✓		✓		✓
RC - Suppressor	C2-A2xR/AC...V	✓	✓	✓		✓		✓
DC	C2-A2x/DC...V	✓	✓	✓	✓		✓	
LED	C2-A2xX/DC...V	✓	✓	✓	✓		✓	✓
LED & Free wheeling diode	C2-A2xDX/DC...V	✓	✓	✓	✓		✓	✓
LED & Pol. & Free wheeling diode	C2-A2xFX/DC...V	✓	✓	✓	✓		✓	✓

AC / DC bridge rec. & LED C2-A2xBX/UC...V ✓ ✓

AC relays also available as 60 Hz. Other voltages on request. Please contact support@comatreleco.com.

«...» List coil voltage to complete product references.

Accessories

Socket

S2-B, EC-11

Blanking plug

S0-NP (BAG 10 PCS)

Test button without locking

S3-HP (BAG 10 PCS)

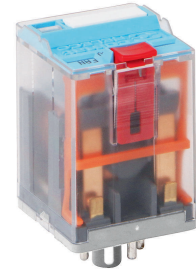


fig. 1. Wiring diagram

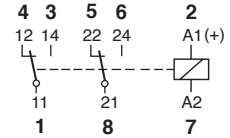


fig. 2. AC voltage endurance

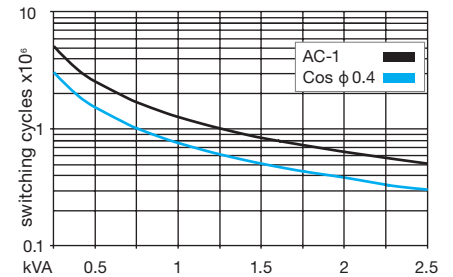


fig. 3. DC load limit curve

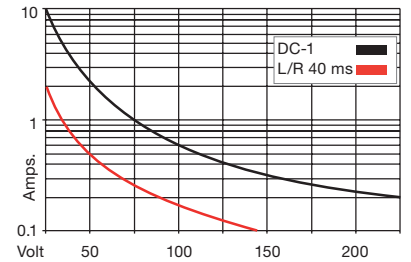
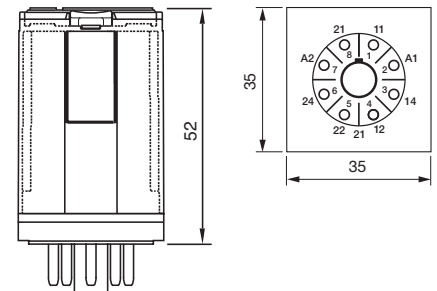


fig. 4. Dimensions (mm)



Technical approvals, conformities

Standards IEC/EN 60947; IEC/EN 61810



Approvals

C2-A20 only

C3-A3x

3 pole | changeover contact

Main circuit

Available contact materials

- ⚡ AgNi for C3-A30
- ⚡ AgNi + 5 μ Au for C3-A38
- ⚡ AgNi + 0.2 μ Au for C3-A39

Recommended minimum contact load

10 mA / 10 V for C3-A30, C3-A39
5 mA / 5 V for C3-A38

Maximum contact load AC

10 A / 250 V AC-1

Maximum contact load DC

10 A / 30 V DC-1

Inrush current

30 A, 20 ms

Rated load AC

2 500 VA

Rated load DC

fig. 3.

Rated current

10 A

Mechanical endurance (cycles)

≥ 20 000 000

Electrical endurance at rated load AC-1 (cycles)

≥ 500 000

Control circuit

Nominal voltage

see table product references

Operating voltage range

0.8 U_N ... 1.1 U_N

Pick-up voltage

≤ 0.8 U_N

Release voltage

≥ 0.1 U_N

Power consumption AC / DC

2.2 VA / 1.3 W

Coil table

V AC	Ohm	mA	V DC	Ohm	mA
12	16	185	12	115	104
24	67	96	24	480	50
48	296	45	48	1 850	26
60	405	36	60	2 900	21
115	1 753	19	110	9 216	12
230	7 078	10	220	38 720	5.7

Insulation

Test voltage open contact

1 kV / 1 min

Test voltage contact / contact

2.5 kV / 1 min

Test voltage contact / coil

2.5 kV / 1 min

Overtoltage category

III

Insulation resistance at 500 V

≥ 1 GΩ

Pollution degree

3

General data

Storage temperature (no ice)

-40 ... 80 °C

Operation temperature

-40 ... 60 °C

Pick-up time / bounce time

16 ms / ≤ 3 ms

Release time / bounce time

8 ms / ≤ 1 ms

Maximum switching frequency at rated load

1 200 / h

Weight

81 g

Housing material

PA / PC

Product references

Description	Type	12	24	48	60	110	115	220	230
AC 50 Hz	C3-A3x/AC...V	✓	✓	✓	✓		✓		✓
LED	C3-A3xX/AC...V	✓	✓	✓	✓		✓		✓
RC - Suppressor	C3-A3xR/AC...V	✓	✓		✓		✓		✓
DC	C3-A3x/DC...V	✓	✓	✓	✓	✓		✓	
LED	C3-A3xX/DC...V	✓	✓	✓	✓	✓		✓	
LED & Free wheeling diode	C3-A3xDX/DC...V	✓	✓	✓	✓	✓		✓	
LED & Pol. & Free wheeling diode	C3-A3xFX/DC...V	✓	✓	✓	✓	✓		✓	

AC / DC bridge rec. & LED

C3-A3xBX/UC...V

✓ ✓ ✓ ✓

AC relays also available as 60 Hz. Other voltages on request. Please contact support@comatreleco.com.

«...» List coil voltage to complete product references

Accessories

Socket

S3-B, S3-S, S3-M, S3-M0, S3-M1, EC-11

Blanking plug

SO-NP (BAG 10 PCS)

Test button without locking

S3-HP (BAG 10 PCS)

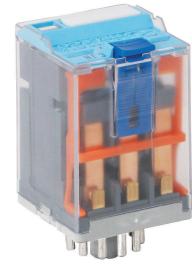


fig. 1. Wiring diagram

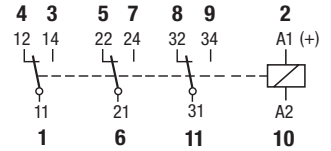


fig. 2. AC voltage endurance

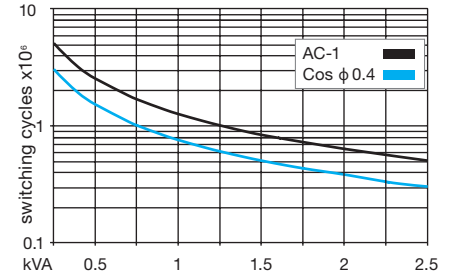


fig. 3. DC load limit curve

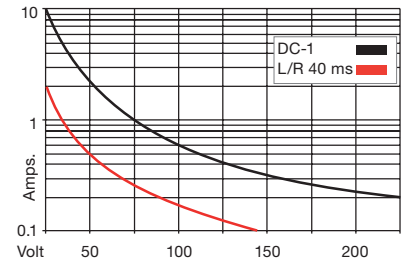
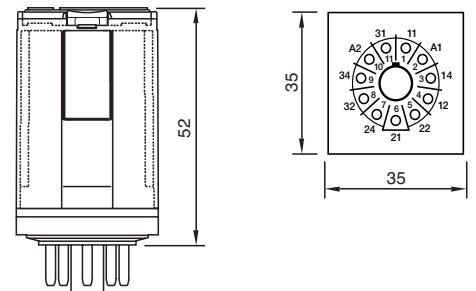


fig. 4. Dimensions (mm)



Technical approvals, conformities

Standards IEC/EN 60947; IEC/EN 61810



1.3 Industrial Relays - pluggable C3-A30x/AC230V 16.7 Hz

3 pole | changeover contact



Main circuit

Available contact materials	⚡ AgNi
Recommended minimum contact load	10 mA / 10 V
Maximum contact load AC	10 A / 250 V AC-1
Maximum contact load DC	10 A / 30 V DC-1
Inrush current	30 A, 20 ms
Rated load AC	2 500 VA
Rated load DC	fig. 3.
Rated current	10 A
Mechanical endurance (cycles)	≥ 20 000 000
Electrical endurance at rated load AC-1 (cycles)	≥ 500 000

Control circuit

Nominal voltage	see table product references
Operating voltage range	0.8 U _N ... 1.1 U _N
Pick-up voltage	≤ 0.8 U _N
Release voltage	≥ 0.1 U _N
Power consumption AC / DC	2.2 VA / 1.3 W

Coil table

V AC	Ohm	mA
230	18 900	7.5

Insulation

Test voltage open contact	1 kV / 1 min
Test voltage contact / contact	2.5 kV / 1 min
Test voltage contact / coil	2.5 kV / 1 min
Overtoltage category	III
Insulation resistance at 500 V	≥ 1 GΩ
Pollution degree	3

General data

Storage temperature (no ice)	-40 ... 80 °C
Operation temperature	-40 ... 60 °C
Pick-up time / bounce time	16 ms / ≤ 3 ms
Release time / bounce time	26 ms / ≤ 1 ms
Maximum switching frequency at rated load	1 200 / h
Weight	81 g
Housing material	PA / PC

Product references

Description	Type	230
LED	C3-A30/AC230V 16.7 Hz	✓

Other voltages on request. Please contact support@comatreleco.com.
«...» List coil voltage to complete product references

Accessories

Socket	S3-B, S3-S, S3-M, S3-M0, S3-M1, EC-11
Blanking plug	S0-NP (BAG 10 PCS)
Test button without locking	S3-HP (BAG 10 PCS)

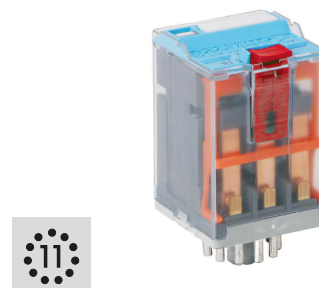


fig. 1. Wiring diagram

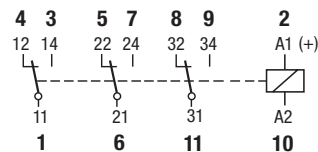


fig. 2. AC voltage endurance

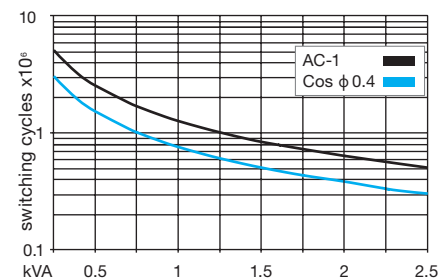


fig. 3. DC load limit curve

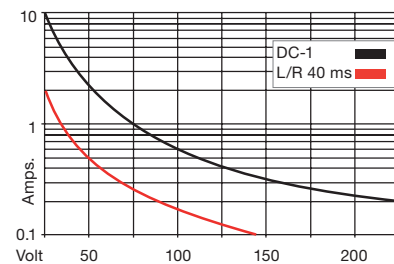
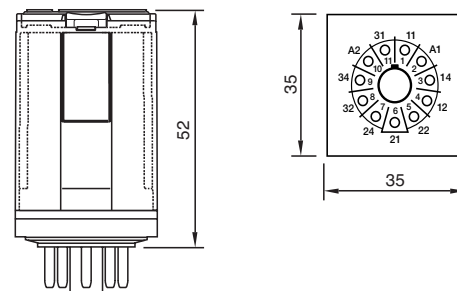


fig. 4. Dimensions (mm)



Technical approvals, conformities

Standards IEC/EN 60947; IEC/EN 61810



C3-G30

3 pole | normally open contact

Main circuit

Available contact materials	⚡ AgNi
Recommended minimum contact load	10 A / 30 V
Maximum contact load AC	10 A / 250 V AC-1
Maximum contact load DC	10 A / 30 V DC-1
Inrush current	30 A, 20 ms
Rated load AC	2 500 VA
Rated load DC	fig. 3.
Rated current	10 A
Mechanical endurance (cycles)	≥ 20 000 000
Electrical endurance at rated load AC-1 (cycles)	≥ 500 000

Control circuit

Nominal voltage	see table product references
Operating voltage range	0.8 U _N ... 1.1 U _N
Pick-up voltage	≤ 0.8 U _N
Release voltage	≥ 0.1 U _N
Power consumption AC / DC	2.4 VA / 1.6 W

Coil table

V AC	Ohm	mA	V DC	Ohm	mA
12	16	214	12	90	104
24	67	100	24	440	66
48	286	50	48	1 788	34
115	1 697	17	60	2 117	20.7
230	6 850	10.4	110	9 334	15
			220	30 307	7.5

Insulation

Test voltage open contact	2 kV / 1 min
Test voltage contact / contact	2.5 kV / 1 min
Test voltage contact / coil	2.5 kV / 1 min
Overvoltage category	III
Insulation resistance at 500 V	≥ 1 GΩ
Pollution degree	3

General data

Storage temperature (no ice)	-40 ... 80 °C
Operation temperature	-40 ... 60 °C
Pick-up time / bounce time	20 ms / ≤ 3 ms
Release time / bounce time	8 ms / ≤ 1 ms
Maximum switching frequency at rated load	1 200 / h
Weight	81 g
Housing material	PA / PC

Product references

Description	Type	12	24	48	60	110	115	220	230
AC 50 Hz	C3-G30/AC...V	✓	✓	✓			✓	✓	✓
LED	C3-G30X/AC...V	✓	✓	✓			✓	✓	✓
RC - Suppressor	C3-G30R/AC...V	✓	✓	✓			✓		✓

DC	C3-G30/DC...V	✓	✓	✓	✓	✓			✓
LED	C3-G30X/DC...V	✓	✓	✓	✓	✓			✓
LED & Free wheeling diode	C3-G30DX/DC...V	✓	✓	✓	✓	✓			✓
LED & Pol. & Free wheeling diode	C3-G30FX/DC...V	✓	✓	✓	✓	✓			✓

AC relays also available as 60 Hz. Other voltages on request. Please contact support@comatreleco.com.
«...» List coil voltage to complete product references.

Accessories

Socket	S3-B, S3-S, S3-M, S3-M0, S3-M1, EC-11
Blanking plug	S0-NP (BAG 10 PCS)
Test button without locking	S3-HP (BAG 10 PCS)

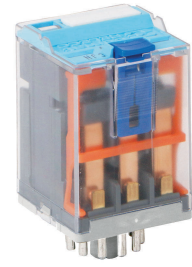


fig. 1. Wiring diagram

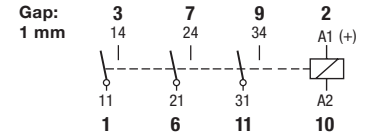


fig. 2. AC voltage endurance

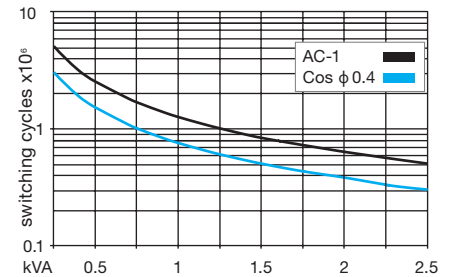


fig. 3. DC load limit curve

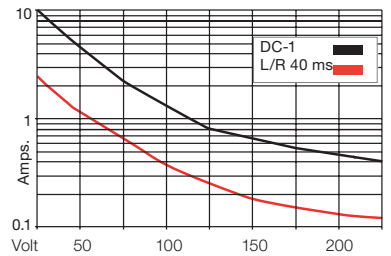
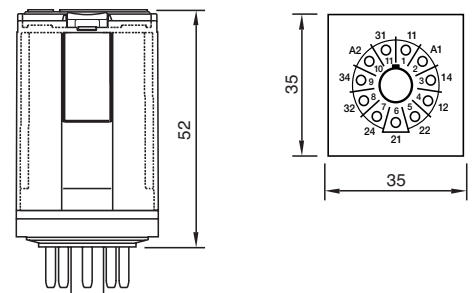


fig. 4. Dimensions (mm)



Technical approvals, conformities

Standards IEC/EN 60947; IEC/EN 61810



C3-M10

1 pole | normally open serial contact with blow magnet



Main circuit

Available contact materials	⚡ AgNi
Recommended minimum contact load	10 mA / 10 V
Maximum contact load AC	10 A / 250 V AC-1
Maximum contact load DC	10 A / 220 V DC-1
Inrush current	30 A, 20 ms
Rated load AC	2 500 VA
Rated load DC	fig. 3.
Rated current	10 A
Mechanical endurance (cycles)	≥ 20 000 000
Electrical endurance at rated load AC-1 (cycles)	≥ 500 000

Control circuit

Nominal voltage	see table product references
Operating voltage range	0.8 U _N ... 1.1 U _N
Pick-up voltage	≤ 0.8 U _N
Release voltage	≥ 0.1 U _N
Power consumption AC / DC	2.4 VA / 1.3 W

Coil table

V AC	Ohm	mA	V DC	Ohm	mA
12	16	214	12	115	104
24	67	100	24	440	55
48	286	50	48	1 750	27
115	1 697	17	110	9 216	12
230	6 850	10.4	220	38 720	5.7

Insulation

Test voltage open contact	2.5 kV / 1 min
Test voltage contact / coil	2.5 kV / 1 min
Overvoltage category	III
Insulation resistance at 500 V	≥ 1 GΩ
Pollution degree	3

General data

Storage temperature (no ice)	-40 ... 80 °C
Operation temperature	-40 ... 60 °C
Pick-up time / bounce time	20 ms / ≤ 3 ms
Release time / bounce time	10 ms / ≤ 1 ms
Maximum switching frequency at rated load	1 200 / h
Weight	90 g
Housing material	PA / PC

Product references

Description	Type	12	24	48	110	115	220	230
AC 50 Hz	C3-M10/AC...V	✓	✓	✓		✓		✓
LED	C3-M10X/AC...V	✓	✓	✓		✓		✓
RC - Suppressor	C3-M10R/AC...V	✓	✓	✓		✓		✓

DC	C3-M10/DC...V	✓	✓	✓	✓			✓
LED	C3-M10X/DC...V	✓	✓	✓	✓			✓
LED & Free wheeling diode	C3-M10DX/DC...V	✓	✓	✓	✓			✓
LED & Pol. & Free wheeling diode	C3-M10FX/DC...V	✓	✓	✓	✓			✓

AC relays also available as 60 Hz. Other voltages on request. Please contact support@comatreleco.com.
«...» List coil voltage to complete product references.

Accessories

Socket	S3-B, S3-S, S3-M, S3-M0, S3-M1, EC-11
Blanking plug	S0-NP (BAG 10 PCS)
Test button without locking	S3-HP (BAG 10 PCS)

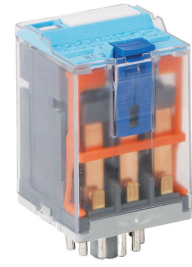


fig. 1. Wiring diagram

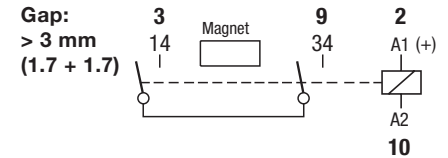


fig. 2. AC voltage endurance

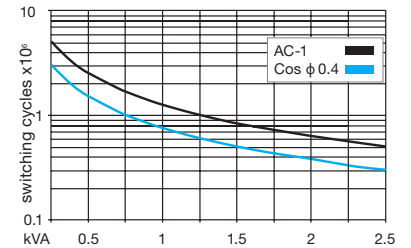


fig. 3. DC load limit curve

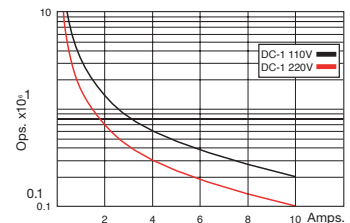
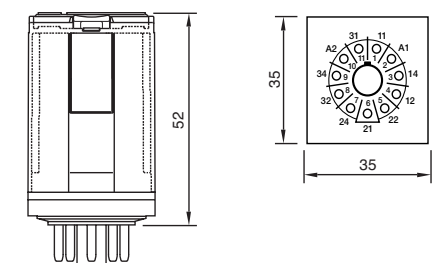


fig. 4. Dimensions (mm)



Technical approvals, conformities

Standards IEC/EN 60947; IEC/EN 61810



C3-N34

3 pole | changeover contact | sensitive coil

Main circuit

Available contact materials	AgNi + 0.2 μ Au
Recommended minimum contact load	10 mA / 10 V
Maximum contact load AC	6 A / 250 V AC-1
Maximum contact load DC	6 A / 30 V DC-1
Inrush current	30 A, 20 ms
Rated load AC	1 500 VA
Rated load DC	fig. 3.
Rated current	6 A
Mechanical endurance (cycles)	≥ 20 000 000
Electrical endurance at rated load AC-1 (cycles)	≥ 500 000

Control circuit

Nominal voltage	see table product references
Operating voltage range	0.8 U _N ... 1.1 U _N
Pick-up voltage	≤ 0.8 U _N
Release voltage	≥ 0.1 U _N
Power consumption AC / DC	800 mW

Coil table

V DC	Ohm	mA
12	186	65
24	693	35
48	2 844	17
60	4 482	13
110	14 872	7.4

Insulation

Test voltage open contact	1 kV / 1 min
Test voltage contact / contact	2.5 kV / 1 min
Test voltage contact / coil	2.5 kV / 1 min
Overvoltage category	III
Insulation resistance at 500 V	≥ 1 GΩ
Pollution degree	3

General data

Storage temperature (no ice)	-40 ... 80 °C
Operation temperature	-40 ... 60 °C
Pick-up time / bounce time	18 ms / ≤ 3 ms
Release time / bounce time	10 ms / ≤ 1 ms
Maximum switching frequency at rated load	1 200 / h
Weight	90 g
Housing material	PA / PC

Product references

Description	Type	12	24	48	60	110
DC	C3-N34/DC...V	✓	✓	✓	✓	✓

AC relays also available as 60 Hz. Other voltages on request. Please contact support@comatreleco.com.
«...» List coil voltage to complete product references.

Accessories

Socket	S3-B, S3-S, S3-M0, S3-M1, EC-11
Blanking plug	S0-NP (BAG 10 PCS)
Test button without locking	S3-HP (BAG 10 PCS)

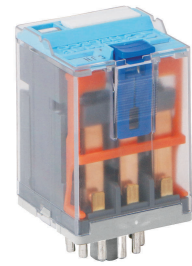


fig. 1. Wiring diagram

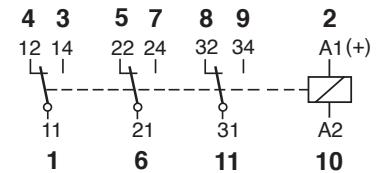


fig. 2. AC voltage endurance

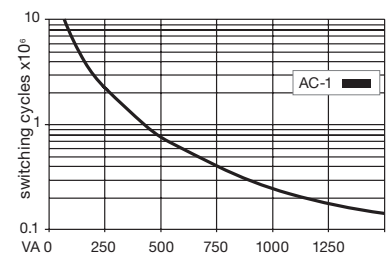


fig. 3. DC load limit curve

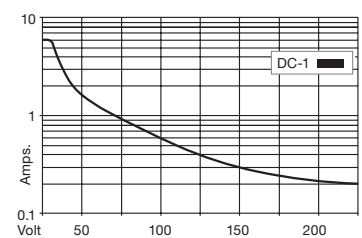
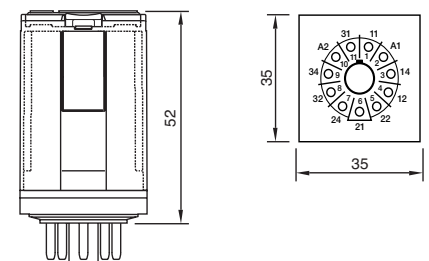


fig. 4. Dimensions (mm)



Technical approvals, conformities

Standards IEC/EN 60947; IEC/EN 61810

Approvals

1.3 Industrial Relays - pluggable

R3-N34

3 pole | changeover contact | sensitive coil



Main circuit

Available contact materials	AgNi + 0.2 μ Au
Recommended minimum contact load	10 mA / 10 V
Maximum contact load AC	6 A / 250 V AC-1
Maximum contact load DC	6 A / 30 V DC-1
Inrush current	30 A, 20 ms
Rated load AC	1 500 VA
Rated load DC	fig. 3.
Rated current	6 A
Mechanical endurance (cycles)	≥ 20 000 000
Electrical endurance at rated load AC-1 (cycles)	≥ 500 000

Control circuit

Nominal voltage	see table product references
Operating voltage range	0.7 U _N ... 1.25 U _N
Pick-up voltage	≤ 0.7 U _N
Release voltage	≥ 0.1 U _N
Power consumption AC / DC	800 mW

Coil table

V DC	Ohm	mA
72	4 844	15
110	12 900	9

Insulation

Test voltage open contact	1 kV / 1 min
Test voltage contact / contact	2.5 kV / 1 min
Test voltage contact / coil	2.5 kV / 1 min
Overvoltage category	III
Insulation resistance at 500 V	≥ 1 GΩ
Pollution degree	3

General data

Storage temperature (no ice)	-40 ... 80 °C
Operation temperature	-40 ... 70 °C
Pick-up time / bounce time	18 ms / ≤ 3 ms
Release time / bounce time	10 ms / ≤ 1 ms
Maximum switching frequency at rated load	1 200 / h
Weight	90 g
Housing material	PA / PC

Product references

Description	Type	72	110
Freewheeling diode module	R3-N34D/DC...V	✓	✓

AC relays also available as 60 Hz. Other voltages on request. Please contact support@comatreleco.com.

«...» List coil voltage to complete product references.

Accessories

Socket	S3-MR, S3-M0R, S3-M1R
Blanking plug	SO-NP (BAG 10 PCS)



fig. 1. Wiring diagram

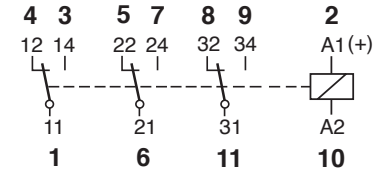


fig. 2. AC voltage endurance

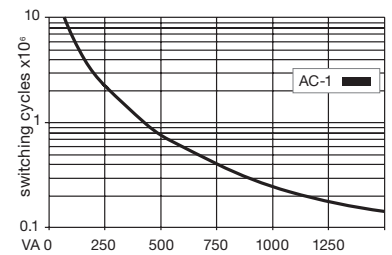


fig. 3. DC load limit curve

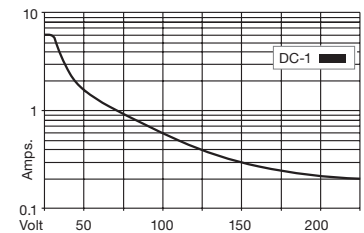
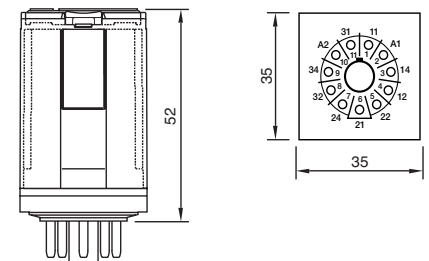


fig. 4. Dimensions (mm)



Technical approvals, conformities

Standards IEC/EN 60947; IEC/EN 61810

Railway EN 45545-2; EN 50155

Approvals

C3-R2xN

2 pole | changeover contact | remanence

Main circuit

Available contact materials	⚡ AgNi for C3-R20N ⚡ AgNi + 5 μ Au for C3-R28N
Recommended minimum contact load	10 mA / 10 V for C3-R20N 5 mA / 5 V for C3-R28N
Maximum contact load AC	10 A / 250 V AC-1
Maximum contact load DC	10 A / 30 V DC-1
Inrush current	30 A, 20 ms
Rated load AC	2 500 VA
Rated load DC	fig. 3.
Rated current	10 A
Mechanical endurance (cycles)	≥ 20 000 000
Electrical endurance at rated load AC-1 (cycles)	≥ 500 000

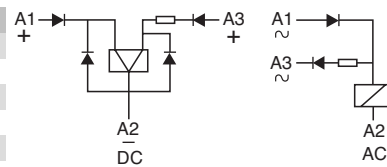
Control circuit

Nominal voltage	see table product references
Operating voltage range	0.8 U _N ... 1.1 U _N
Pick-up voltage	≤ 0.8 U _N
Release voltage	≤ 0.8 U _N
ON pulse power	AC 1.8 VA, DC 1.5 W
OFF pulse power	AC 0.3 VA, DC 0.5 W

Coil table

V AC	mA ON	mA OFF	V DC	mA ON	mA OFF
24	88	8	12	121	32
48	31	5	24	60	18
115	13	2	36	45	15
230	8	0.7	48	32	7
			60	25	9
			72	21	9
			110	12.4	3.2

Internal diagram



Insulation

Test voltage open contact	1 kV / 1 min
Test voltage contact / contact	2.5 kV / 1 min
Test voltage contact / coil	2.5 kV / 1 min
Oversvoltage category	III
Insulation resistance at 500 V	≥ 1 GΩ
Pollution degree	3

General data

Storage temperature (no ice)	-40 ... 80 °C
Operation temperature	-40 ... 60 °C
Minimum pulse length ON / OFF	50 ms
Maximum switching frequency at rated load	1 200 / h
Weight	81 g
Housing material	PA / PC

Product references

Description	Type	12	24	48	110	115	230
AC 50 Hz	C3-R2xN/AC...V	✓	✓	✓		✓	✓
DC	C3-R2xN/DC...V		✓	✓	✓		

AC relays also available as 60 Hz. Other voltages on request. Please contact support@comatreleco.com.

«...» List coil voltage to complete product references

Test Dani

Accessories

Socket	S3-B, S3-S, S3-M, S3-M0, S3-M1, EC-11
Blanking plug	S0-NP (BAG 10 PCS)

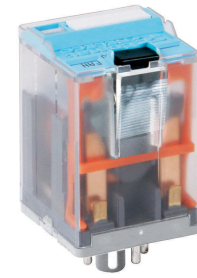


fig. 1. Wiring diagram

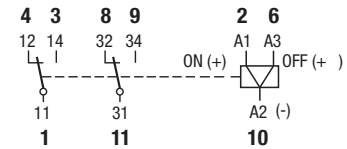


fig. 2. AC voltage endurance

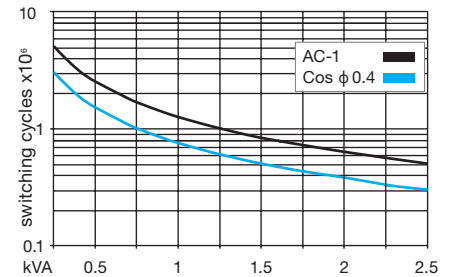


fig. 3. DC load limit curve

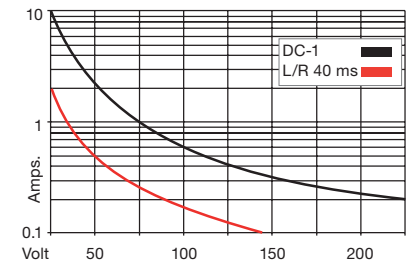
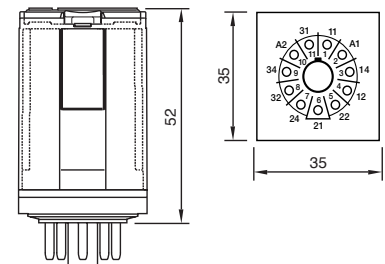


fig. 4. Dimensions (mm)



Technical approvals, conformities

Standards IEC/EN 60947; IEC/EN 61810



1.3 Industrial Relays - pluggable

R3-R20N

2 pole | changeover contact | remanence



Main circuit

Available contact materials	AgNi
Recommended minimum contact load	10 mA / 10 V
Maximum contact load AC	10 A / 250 V AC-1
Maximum contact load DC	10 A / 30 V DC-1
Inrush current	30 A, 20 ms
Rated load AC	2 500 VA
Rated load DC	fig. 3.
Rated current	10 A
Mechanical endurance (cycles)	≥ 5 000 000
Electrical endurance at rated load AC-1 (cycles)	≥ 500 000

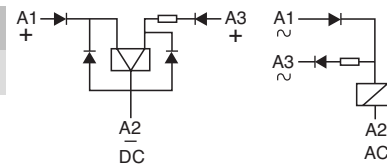
Control circuit

Nominal voltage	see table product references
Operating voltage range	$0.7 U_N \dots 1.25 U_N$
Pick-up voltage	$\leq 0.7 U_N$
Release voltage	$\leq 0.7 U_N$
ON pulse power	DC 1.5 W
OFF pulse power	DC 0.5 W

Coil table

V DC	mA ON	mA OFF
24	60	18
36	45	15

Internal diagram



Insulation

Test voltage open contact	1 kV / 1 min
Test voltage contact / contact	2.5 kV / 1 min
Test voltage contact / coil	2.5 kV / 1 min
Overvoltage category	III
Insulation resistance at 500 V	≥ 1 GΩ
Pollution degree	3

General data

Storage temperature (no ice)	-40 ... 80 °C
Operation temperature	-40 ... 70 °C
Minimum pulse length ON / OFF	50 ms
Maximum switching frequency at rated load	1 200 / h
Weight	81 g
Housing material	PA / PC

Product references

Description	Type	24	36
DC	R3-R20N/DC...V	✓	✓

Other voltages on request. Please contact support@comatreleco.com.
«...» List coil voltage to complete product references

Accessories

Socket	S3-MR, S3-M0R, S3-M1R
Blanking plug	S0-NP (BAG 10 PCS)

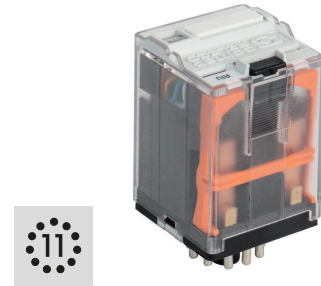


fig. 1. Wiring diagram

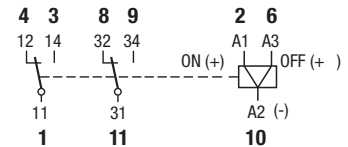


fig. 2. AC voltage endurance

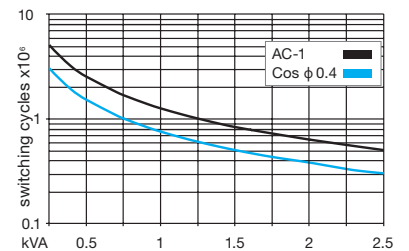


fig. 3. DC load limit curve

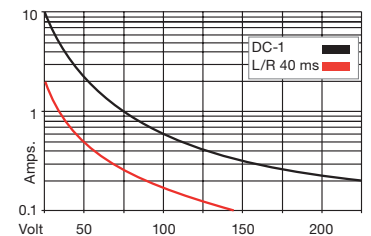
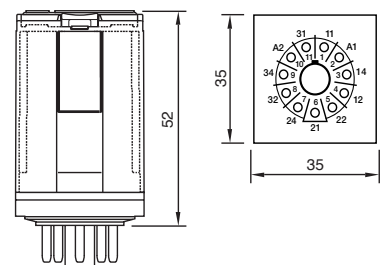


fig. 4. Dimensions (mm)



Technical approvals, conformities

Standards IEC/EN 60947; IEC/EN 61810

Railway EN 45545-2; EN 50155

Approvals

C3-T3x

3 pole | changeover twin contact

Main circuit

Available contact materials	⬇ AgNi + 0.2 μ Au for C3-T31 ⬇ AgNi + 5 μ Au for C3-T32
Recommended minimum contact load	5 mA / 5 V for C3-T31 1 mA / 5 V for C3-T32
Maximum contact load AC	6 A / 250 V AC-1
Maximum contact load DC	6 A / 30 V DC-1
Inrush current	15 A, 20 ms
Rated load AC	1 200 VA
Rated load DC	fig. 3.
Rated current	6 A
Mechanical endurance (cycles)	≥ 20 000 000
Electrical endurance at rated load AC-1 (cycles)	≥ 180 000

Control circuit

Nominal voltage	see table product references
Operating voltage range	0.8 U _N ... 1.1 U _N
Pick-up voltage	≤ 0.8 U _N
Release voltage	≥ 0.1 U _N
Power consumption AC / DC	2.2 VA / 1.3 W

Coil table

V AC	Ohm	mA	V DC	Ohm	mA
12	16	185	12	115	104
24	67	96	24	480	50
48	296	45	48	1 850	26
115	1 753	19	60	2 900	21
230	7 078	10	110	9 216	12
			220	38 720	5.7

Insulation

Test voltage open contact	1 kV / 1 min
Test voltage contact / contact	2.5 kV / 1 min
Test voltage contact / coil	2.5 kV / 1 min
Overtoltage category	III
Insulation resistance at 500 V	≥ 1 GΩ
Pollution degree	3

General data

Storage temperature (no ice)	-40 ... 80 °C
Operation temperature	-40 ... 60 °C
Pick-up time / bounce time	8 ms / ≤ 3 ms
Release time / bounce time	18 ms / ≤ 1 ms
Maximum switching frequency at rated load	1 200 / h
Weight	81 g
Housing material	PA / PC

Product references

Description	Type	12	24	48	60	110	115	220	230
AC 50 Hz	C3-T3x/AC...V	✓	✓	✓			✓		✓
LED	C3-T3xX/AC...V	✓	✓	✓			✓		✓
RC - Suppressor	C3-T3xR/AC...V	✓	✓	✓			✓		✓
DC	C3-T3x/DC...V	✓	✓	✓	✓	✓		✓	
LED	C3-T3xX/DC...V	✓	✓	✓	✓	✓		✓	✓
LED & Free wheeling diode	C3-T3xDX/DC...V	✓	✓	✓	✓	✓		✓	✓
LED & Pol. & Free wheeling diode	C3-T3xFX/DC...V	✓	✓	✓	✓	✓		✓	✓

AC relays also available as 60 Hz. Other voltages on request. Please contact support@comatreleco.com.
«...» List coil voltage to complete product references.

Accessories

Socket	S3-B, S3-S, S3-M, S3-M0, S3-M1, EC-11
Blanking plug	S0-NP (BAG 10 PCS)
Test button without locking	S3-HP (BAG 10 PCS)

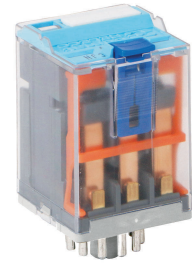


fig. 1. Wiring diagram

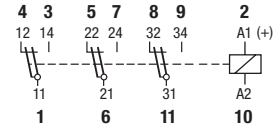


fig. 2. AC voltage endurance

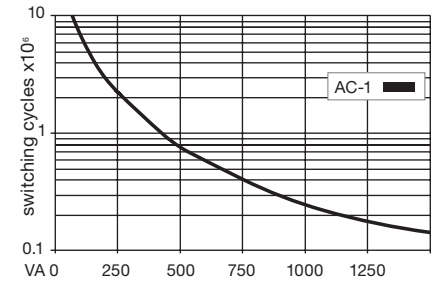


fig. 3. DC load limit curve

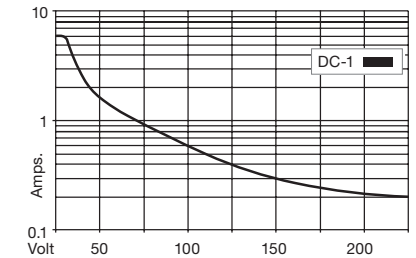
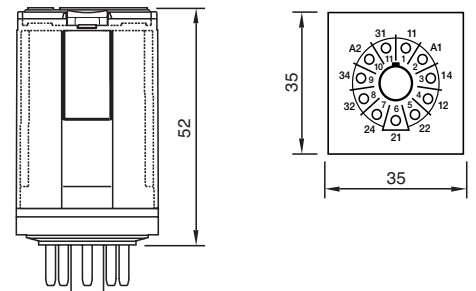


fig. 4. Dimensions (mm)



Technical approvals, conformities

Standards IEC/EN 60947; IEC/EN 61810



Approvals

C3-X10

1 pole | normally open serial contact



Main circuit

Available contact materials	⚡ AgNi
Recommended minimum contact load	10 mA / 10 V
Maximum contact load AC	10 A / 250 V AC-1
Maximum contact load DC	10 A / 30 V DC-1
Inrush current	30 A, 20 ms
Rated load AC	2 500 VA
Rated load DC	fig. 3.
Rated current	10 A
Mechanical endurance (cycles)	≥ 20 000 000
Electrical endurance at rated load AC-1 (cycles)	≥ 500 000

Control circuit

Nominal voltage	see table product references
Operating voltage range	0.8 U _N ... 1.1 U _N
Pick-up voltage	≤ 0.8 U _N
Release voltage	≥ 0.1 U _N
Power consumption AC / DC	2.4 VA / 1.3 W

Coil table

V AC	Ohm	mA	V DC	Ohm	mA
12	16	214	12	115	104
24	67	100	24	440	55
48	286	50	48	1 750	27
115	1 697	17	60	2 900	21
230	6 850	10.4	110	9 216	12
			220	38 720	5.7

Insulation

Test voltage open contact	2.5 kV / 1 min
Test voltage contact / coil	2.5 kV / 1 min
Overvoltage category	III
Insulation resistance at 500 V	≥ 1 GΩ
Pollution degree	3

General data

Storage temperature (no ice)	-40 ... 80 °C
Operation temperature	-40 ... 60 °C
Pick-up time / bounce time	18 ms / ≤ 3 ms
Release time / bounce time	8 ms / ≤ 1 ms
Maximum switching frequency at rated load	1 200 / h
Weight	83 g
Housing material	PA / PC

Product references

Description	Type	12	24	48	60	110	115	220	230
AC 50 Hz	C3-X10/AC...V	✓	✓	✓				✓	✓
LED	C3-X10X/AC...V	✓	✓	✓				✓	✓
RC - Suppressor	C3-X10R/AC...V	✓	✓	✓				✓	✓

DC	C3-X10/DC...V	✓	✓	✓	✓	✓			✓
LED	C3-X10X/DC...V	✓	✓	✓	✓	✓			✓
LED & Free wheeling diode	C3-X10DX/DC...V	✓	✓	✓	✓	✓			✓
LED & Pol. & Free wheeling diode	C3-X10FX/DC...V	✓	✓	✓	✓	✓			✓

AC relays also available as 60 Hz. Other voltages on request. Please contact support@comatreleco.com.
«...» List coil voltage to complete product references.

Accessories

Socket	S3-B, S3-S, S3-M, S3-M0, S3-M1
Blanking plug	SO-NP (BAG 10 PCS)
Test button without locking	S3-HP (BAG 10 PCS)

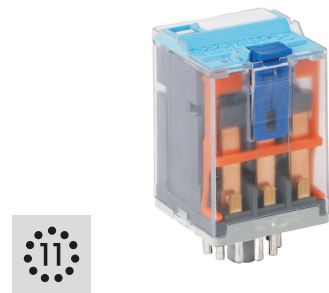


fig. 1. Wiring diagram

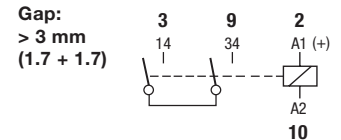


fig. 2. AC voltage endurance

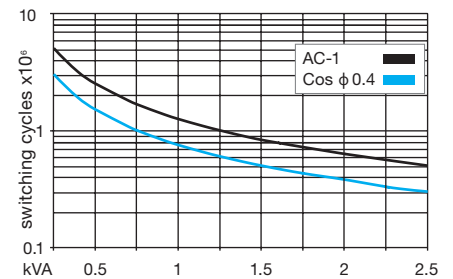


fig. 3. DC load limit curve

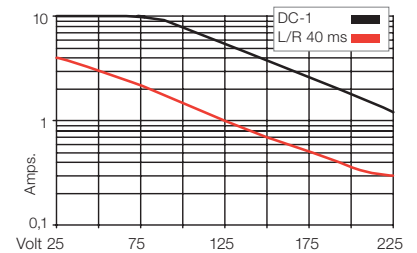
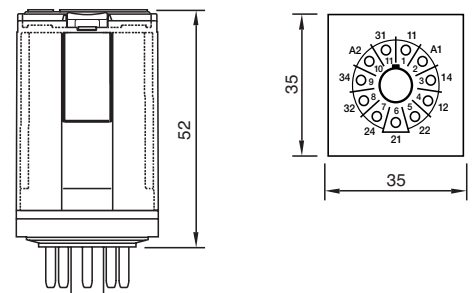


fig. 4. Dimensions (mm)



Technical approvals, conformities

Standards IEC/EN 60947; IEC/EN 61810



C4-A4x

4 pole | changeover contact | Faston

Main circuit

Available contact materials	⚡ AgNi for C4-A40 ⚡ AgNi + 5 μ Au for C4-A48
Recommended minimum contact load	10 mA / 5 V for C4-A40 5 mA / 5 V for C4-A48
Maximum contact load AC	10 A / 250 V AC-1
Maximum contact load DC	10 A / 30 V DC-1
Inrush current	30 A, 20 ms
Rated load AC	2 500 VA
Rated load DC	fig. 3.
Rated current	10 A
Mechanical endurance (cycles)	≥ 20 000 000
Electrical endurance at rated load AC-1 (cycles)	≥ 500 000

Control circuit

Nominal voltage	see table product references
Operating voltage range	0.8 U _N ... 1.1 U _N
Pick-up voltage	≤ 0.8 U _N
Release voltage	≥ 0.1 U _N
Power consumption AC / DC	2.4 VA / 1.4 W

Coil table

V AC	Ohm	mA	V DC	Ohm	mA
12	16	214	12	105	115
24	65	103	24	414	58
48	286	51	48	1 664	29
115	1 697	22	60	2 581	24
230	6 850	10.4	110	8 117	14
400	18 802	5.9	220	30 307	6.2

Insulation

Test voltage open contact	1 kV / 1 min
Test voltage contact / contact	2.5 kV / 1 min
Test voltage contact / coil	2.5 kV / 1 min
Overtoltage category	III
Insulation resistance at 500 V	≥ 1 GΩ
Pollution degree	3

General data

Storage temperature (no ice)	-40 ... 80 °C
Operation temperature	-40 ... 60 °C
Pick-up time / bounce time	20 ms / ≤ 3 ms
Release time / bounce time	8 ms / ≤ 1 ms
Maximum switching frequency at rated load	1 200 / h
Weight	90 g
Housing material	PA / PC

Product references

Description	Type	12	24	48	60	110	115	220	230	400
AC 50 Hz	C4-A4x/AC...V	✓	✓	✓			✓		✓	✓
LED	C4-A4xX/AC...V	✓	✓	✓			✓		✓	✓
RC - Suppressor	C4-A4xR/AC...V	✓	✓	✓			✓		✓	
DC	C4-A4x/DC...V	✓	✓	✓	✓	✓			✓	
LED	C4-A4xX/DC...V	✓	✓	✓	✓	✓			✓	
LED & Free wheeling diode	C4-A4xDX/DC...V	✓	✓	✓	✓	✓			✓	
LED & Pol. & Free wheeling diode	C4-A4xFX/DC...V	✓	✓	✓	✓	✓			✓	

AC / DC bridge rec. & LED C4-A4xBX/UC...V ✓ ✓ ✓
 AC relays also available as 60 Hz. Other voltages on request. Please contact support@comatreleco.com.
 «...» List coil voltage to complete product references.

Accessories

Socket	S4-J, S4-P
Blanking plug	S0-NP (BAG 10 PCS)
Wall mounting adapter for C4, C5	S5-R (BAG 5 PCS)
Test button without locking	S5-HP (BAG 10 PCS)

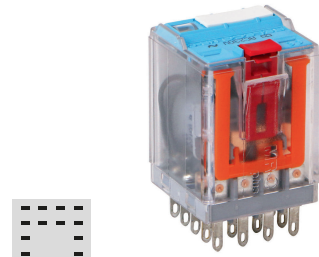


fig. 1. Wiring diagram

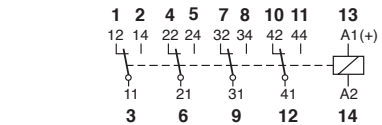


fig. 2. AC voltage endurance

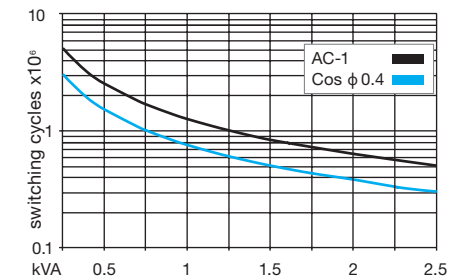


fig. 3. DC load limit curve

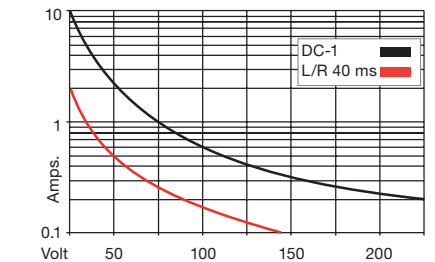
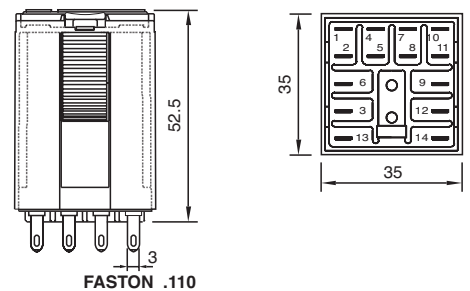


fig. 4. Dimensions (mm)



Technical approvals, conformities

Standards IEC/EN 60947; IEC/EN 61810



Approvals C4-A40 only

1.3 Industrial Relays - pluggable

R4-A40

4 pole | changeover contact | Faston



Main circuit

Available contact materials	⚡ AgNi
Recommended minimum contact load	10 mA / 5 V
Maximum contact load AC	10 A / 250 V AC-1
Maximum contact load DC	10 A / 30 V DC-1
Inrush current	30 A, 20 ms
Rated load AC	2 500 VA
Rated load DC	fig. 3.
Rated current	10 A
Mechanical endurance (cycles)	≥ 20 000 000
Electrical endurance at rated load AC-1 (cycles)	≥ 500 000

Control circuit

Nominal voltage	see table product references
Operating voltage range	0.7 U _N ... 1.25 U _N
Pick-up voltage	≤ 0.7 U _N
Release voltage	≥ 0.1 U _N
Power consumption AC / DC	2.4 VA / 1.4 W

Coil table

V DC	Ohm	mA
12	105	114
24	414	58
36	916	39
48	1 664	29
60	2 581	23
72	3 775	20
110	8 117	14
220	35 696	6.2

Insulation

Test voltage open contact	1 kV / 1 min
Test voltage contact / contact	2.5 kV / 1 min
Test voltage contact / coil	2.5 kV / 1 min
Overvoltage category	III
Insulation resistance at 500 V	≥ 1 GΩ
Pollution degree	3

General data

Storage temperature (no ice)	-40 ... 80 °C
Operation temperature	-40 ... 70 °C
Pick-up time / bounce time	20 ms / ≤ 3 ms
Release time / bounce time	8 ms / ≤ 1 ms
Maximum switching frequency at rated load	1 200 / h
Weight	90 g
Housing material	PA / PC

Product references

Description	Type	12	24	36	48	60	72	110	220
LED & Pol. & Free wheeling diode	R4-A40FX/DC...V	✓	✓	✓	✓	✓	✓	✓	✓

Other voltages on request. Please contact support@comatreleco.com.
«...» List coil voltage to complete product references

Accessories

Socket	S4-GR
Blanking plug	S0-NP (BAG 10 PCS)
Wall mounting adapter for C4, C5	S5-R (BAG 5 PCS)
Test button without locking	S5-HP (BAG 10 PCS)

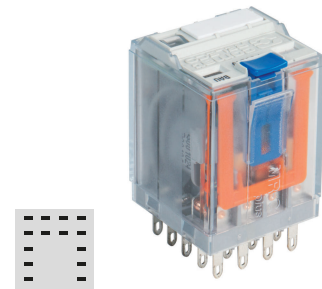


fig. 1. Wiring diagram

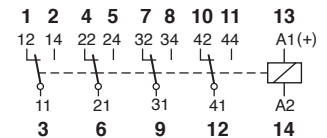


fig. 2. AC voltage endurance

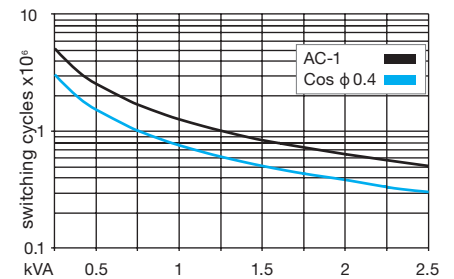


fig. 3. DC load limit curve

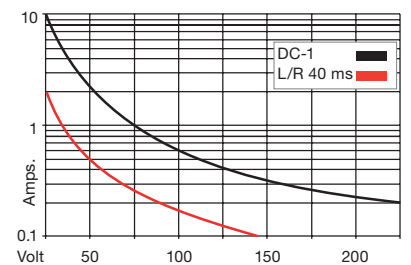
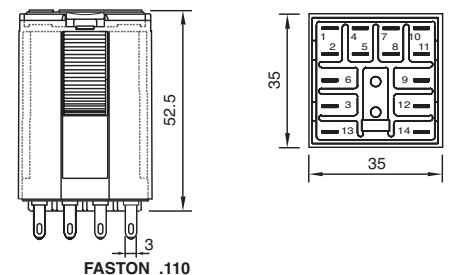


fig. 4. Dimensions (mm)



Technical approvals, conformities

Standards IEC/EN 60947; IEC/EN 61810

Railway EN 45545-2; EN 50155

Approvals

1.3 Industrial Relays - pluggable

C4-X20

2 pole | normally open serial contact | Faston



Main circuit

Available contact materials	⚡ AgNi
Recommended minimum contact load	10 mA / 10 V
Maximum contact load AC	10 A / 250 V AC-1
Maximum contact load DC	10 A / 30 V DC-1
Inrush current	30 A, 20 ms
Rated load AC	2 500 VA
Rated load DC	fig. 3.
Rated current	10 A
Mechanical endurance (cycles)	≥ 20 000 000
Electrical endurance at rated load AC-1 (cycles)	≥ 500 000

Control circuit

Nominal voltage	see table product references
Operating voltage range	0.8 U _N ... 1.1 U _N
Pick-up voltage	≤ 0.8 U _N
Release voltage	≥ 0.1 U _N
Power consumption AC / DC	2.4 VA / 1.3 W

Coil table

V AC	Ohm	mA	V DC	Ohm	mA
12	15.6	769	12	111	109
24	65	100	24	443	55
48	286	50	48	1 796	27
115	1 700	21	60	2 829	21
230	6 800	10	110	9 216	12
400	18 802	5.9	220	36 155	7

Insulation

Test voltage open contact	2.5 kV / 1 min
Test voltage contact / contact	2.5 kV / 1 min
Test voltage contact / coil	2.5 kV / 1 min
Overvoltage category	III
Insulation resistance at 500 V	≥ 1 GΩ
Pollution degree	3

General data

Storage temperature (no ice)	-40 ... 80 °C
Operation temperature	-40 ... 60 °C
Pick-up time / bounce time	20 ms / ≤ 3 ms
Release time / bounce time	8 ms / ≤ 1 ms
Maximum switching frequency at rated load	1 200 / h
Weight	90 g
Housing material	PA / PC

Product references

Description	Type	12	24	48	60	110	115	220	230	400
AC 50 Hz	C4-X20/AC...V	✓	✓	✓			✓		✓	✓
LED	C4-X20X/AC...V	✓	✓	✓			✓		✓	✓
RC - Suppressor	C4-X20R/AC...V	✓	✓	✓			✓		✓	

DC	C4-X20/DC...V	✓	✓	✓	✓	✓		✓		
LED	C4-X20X/DC...V	✓	✓	✓	✓	✓		✓		
LED & Free wheeling diode	C4-X20DX/DC...V	✓	✓	✓	✓	✓				
LED & Pol. & Free wheeling diode	C4-X20FX/DC...V	✓	✓	✓	✓	✓				

AC relays also available as 60 Hz. Other voltages on request. Please contact support@comatreleco.com.
«...» List coil voltage to complete product references.

Accessories

Socket	S4-J, S4-P
Blanking plug	S0-NP (BAG 10 PCS)
Wall mounting adapter for C4, C5	S5-R (BAG 5 PCS)
Test button without locking	S5-HP (BAG 10 PCS)

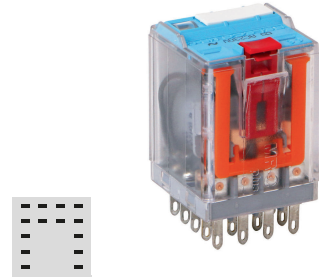


fig. 1. Wiring diagram

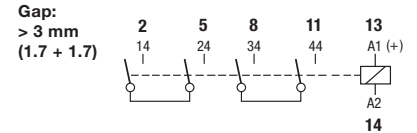


fig. 2. AC voltage endurance

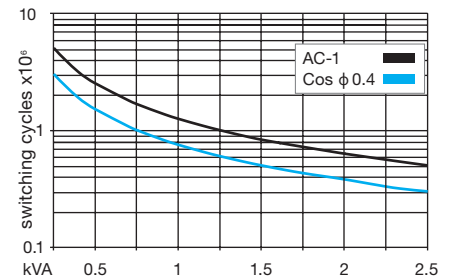


fig. 3. DC load limit curve

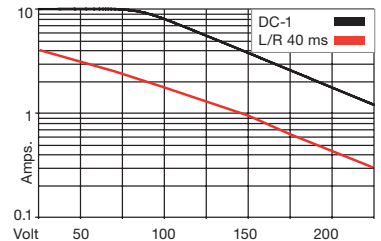
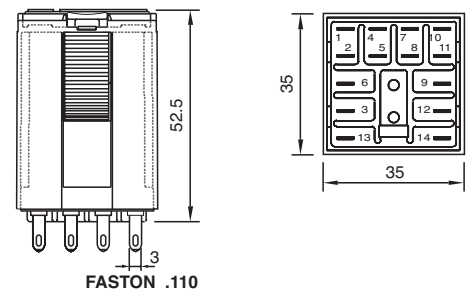


fig. 4. Dimensions (mm)



Technical approvals, conformities

Standards IEC/EN 60947; IEC/EN 61810



C5-A20

2 pole | changeover contact | Faston

Main circuit

Available contact materials	⚡ AgNi
Recommended minimum contact load	10 mA / 10 V
Maximum contact load AC	16 A / 400 V AC-1
Maximum contact load DC	16 A / 30 V DC-1
Inrush current	40 A, 20 ms
Rated load AC	4 000 VA
Rated load DC	fig. 3.
Rated current	16 A
Mechanical endurance (cycles)	≥ 20 000 000
Electrical endurance at rated load AC-1 (cycles)	≥ 300 000

Control circuit

Nominal voltage	see table product references
Operating voltage range	0.8 U _N ... 1.1 U _N
Pick-up voltage	≤ 0.8 U _N
Release voltage	≥ 0.1 U _N
Power consumption AC / DC	2.4 VA / 1.4 W

Coil table

V AC	Ohm	mA	V DC	Ohm	mA
12	15.6	769	12	111	109
24	65	100	24	443	58
48	286	50	48	1 796	30
115	1 700	21	60	2 829	21.2
230	6 800	10	110	9 216	13
400	18 802	5.9	220	36 155	6.2

Insulation

Test voltage open contact	1 kV / 1 min
Test voltage contact / contact	4 kV / 1 min
Test voltage contact / coil	4 kV / 1 min
Overvoltage category	III
Insulation resistance at 500 V	≥ 3 GΩ
Pollution degree	3

General data

Storage temperature (no ice)	-40 ... 80 °C
Operation temperature	-40 ... 60 °C
Pick-up time / bounce time	20 ms / ≤ 3 ms
Release time / bounce time	10 ms / ≤ 1 ms
Maximum switching frequency at rated load	1 200 / h
Weight	90 g
Housing material	PA / PC

Product references

Description	Type	12	24	48	60	110	115	220	230	400
AC 50 Hz	C5-A20/AC...V	✓	✓	✓			✓		✓	✓
LED	C5-A20X/AC...V	✓	✓	✓			✓		✓	✓
RC - Suppressor	C5-A20R/AC...V	✓	✓	✓			✓		✓	✓

DC	C5-A20/DC...V	✓	✓	✓	✓	✓		✓		
LED	C5-A20X/DC...V	✓	✓	✓	✓	✓		✓		
LED & Free wheeling diode	C5-A20DX/DC...V	✓	✓	✓	✓	✓				
LED & Pol. & Free wheeling diode	C5-A20FX/DC...V	✓	✓	✓	✓	✓		✓		

AC / DC bridge rec. & LED C5-A20BX/UC...V ✓ ✓
 AC relays also available as 60 Hz. Other voltages on request. Please contact support@comatreleco.com.
 «...» List coil voltage to complete product references.

Accessories

Socket	S5-M, S5-P
Blanking plug	S0-NP (BAG 10 PCS)
Wall mounting adapter for C4, C5	S5-R (BAG 5 PCS)
Test button without locking	S5-HP (BAG 10 PCS)

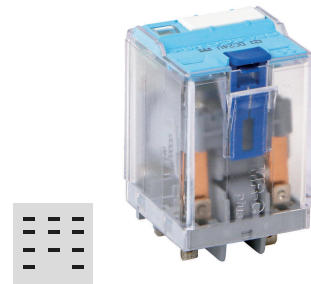


fig. 1. Wiring diagram

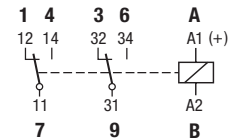


fig. 2. AC voltage endurance

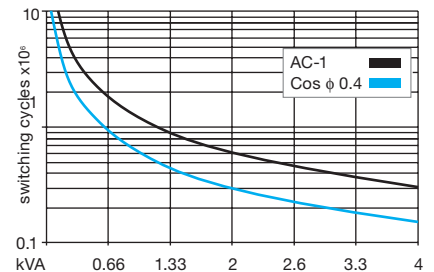


fig. 3. DC load limit curve

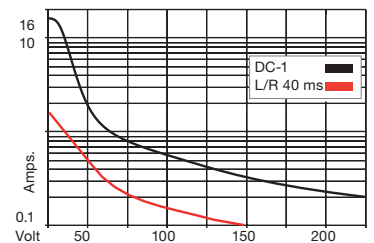
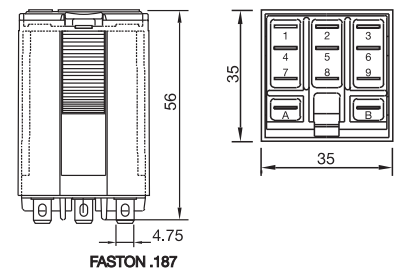


fig. 4. Dimensions (mm)



Technical approvals, conformities

Standards IEC/EN 60947; IEC/EN 61810



1.3 Industrial Relays - pluggable

C5-A3x

3 pole | changeover contact | Faston

Main circuit

Available contact materials

- ⚡ AgNi for C5-A30
- ⚡ AgSnO₂ for C5-A35

Recommended minimum contact load	10 mA / 10 V
Maximum contact load AC	16 A / 400 V AC-1
Maximum contact load DC	16 A / 30 V DC-1
Inrush current	40 A, 20 ms
Rated load AC	4 000 VA
Rated load DC	fig. 3.
Rated current	16 A
Mechanical endurance (cycles)	≥ 20 000 000
Electrical endurance at rated load AC-1 (cycles)	≥ 300 000

Control circuit

Nominal voltage	see table product references
Operating voltage range	0.8 U _N ... 1.1 U _N
Pick-up voltage	≤ 0.8 U _N
Release voltage	≥ 0.1 U _N
Power consumption AC / DC	2.4 VA / 1.4 W

Coil table

V AC	Ohm	mA	V DC	Ohm	mA
12	15.6	769	12	111	109
24	65	100	24	443	58
48	286	50	48	1 796	30
115	1 700	21	60	2 829	21.2
230	6 800	10	110	9 216	13
400	18 802	5.9	220	36 155	6.2

Insulation

Test voltage open contact	1 kV / 1 min
Test voltage contact / contact	4 kV / 1 min
Test voltage contact / coil	4 kV / 1 min
Overvoltage category	III
Insulation resistance at 500 V	≥ 3 GΩ
Pollution degree	3

General data

Storage temperature (no ice)	-40 ... 80 °C
Operation temperature	-40 ... 60 °C
Pick-up time / bounce time	20 ms / ≤ 3 ms
Release time / bounce time	10 ms / ≤ 1 ms
Maximum switching frequency at rated load	1 200 / h
Weight	95 g
Housing material	PA / PC

Product references

Description	Type	12	24	48	60	110	115	220	230	400
AC 50 Hz	C5-A3x/AC...V	✓	✓	✓			✓		✓	✓
LED	C5-A3xX/AC...V	✓	✓	✓			✓		✓	✓
RC - Suppressor	C5-A3xR/AC...V	✓	✓	✓			✓		✓	✓

DC	C5-A3x/DC...V	✓	✓	✓	✓	✓			✓	
LED	C5-A3xX/DC...V	✓	✓	✓	✓	✓			✓	
LED & Free wheeling diode	C5-A3xDX/DC...V	✓	✓	✓	✓	✓			✓	
LED & Pol. & Free wheeling diode	C5-A3xFX/DC...V	✓	✓	✓	✓	✓			✓	

AC / DC bridge rec. & LED C5-A3xBX/UC...V ✓ ✓
 AC relays also available as 60 Hz. Other voltages on request. Please contact support@comatreleco.com.
 «...» List coil voltage to complete product references.

Accessories

Socket	S5-M, S5-P
Blanking plug	S0-NP (BAG 10 PCS)
Wall mounting adapter for C4, C5	S5-R (BAG 5 PCS)
Test button without locking	S5-HP (BAG 10 PCS)

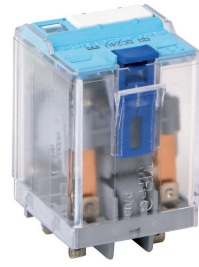


fig. 1. Wiring diagram

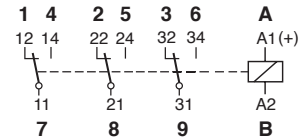


fig. 2. AC voltage endurance

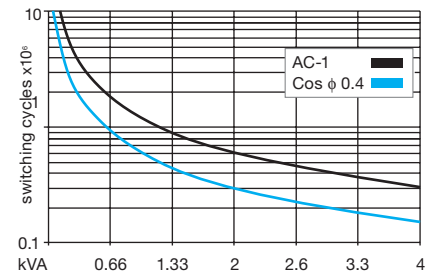


fig. 3. DC load limit curve

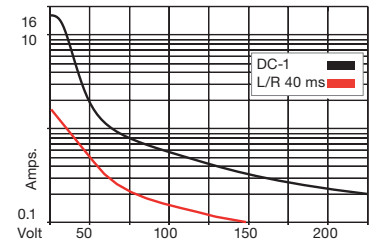
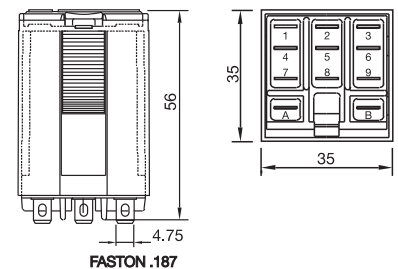


fig. 4. Dimensions (mm)



Technical approvals, conformities

Standards IEC/EN 60947; IEC/EN 61810



Approvals UKCA C5-A30 only

1.3 Industrial Relays - pluggable

R5-A30U

3 pole | changeover contact | Faston

Main circuit

Available contact materials	⚡ AgNi
Recommended minimum contact load	10 mA / 10 V
Maximum contact load AC	16 A / 400 V AC-1
Maximum contact load DC	16 A / 30 V DC-1
Inrush current	40 A, 20 ms
Rated load AC	4 000 VA
Rated load DC	fig. 3.
Rated current	16 A
Mechanical endurance (cycles)	≥ 20 000 000
Electrical endurance at rated load AC-1 (cycles)	≥ 300 000

Control circuit

Nominal voltage	see table product references
Operating voltage range	$0.7 U_N \dots 1.25 U_N$
Pick-up voltage	$\leq 0.7 U_N$
Release voltage	$\geq 0.1 U_N$
Power consumption AC / DC	2.4 VA / 1.4 W

Coil table

V DC	Ohm	mA
24	414	58

Insulation

Test voltage open contact	1 kV / 1 min
Test voltage contact / contact	4 kV / 1 min
Test voltage contact / coil	4 kV / 1 min
Overtoltage category	III
Insulation resistance at 500 V	≥ 3 GΩ
Pollution degree	3

General data

Storage temperature (no ice)	-40 ... 80 °C
Operation temperature	-40 ... 70 °C
Pick-up time / bounce time	20 ms / ≤ 3 ms
Release time / bounce time	10 ms / ≤ 1 ms
Maximum switching frequency at rated load	1 200 / h
Weight	95 g
Housing material	PA / PC

Product references

Description	Type	24
DC	R5-A30U/DC...V	✓

Other voltages on request. Please contact support@comatreleco.com.
«...» List coil voltage to complete product references

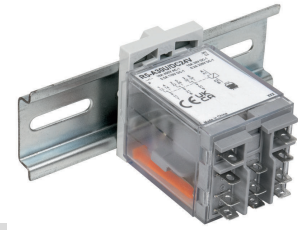


fig. 1. Wiring diagram

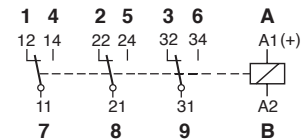


fig. 2. AC voltage endurance

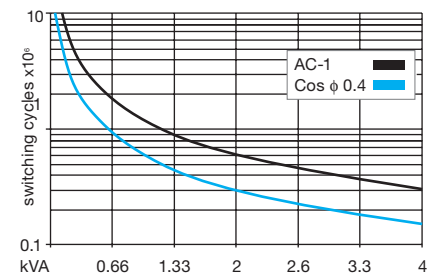


fig. 3. DC load limit curve

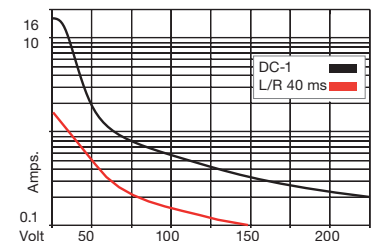
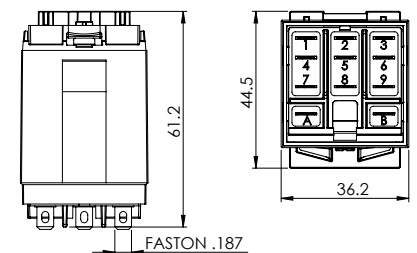


fig. 4. Dimensions (mm)



Technical approvals, conformities

Standards IEC/EN 60947; IEC/EN 61810

Railway EN 45545-2; EN 50155

Approvals



1.3 Industrial Relays - pluggable

C5-G3x

3 pole | normally open contact | Faston

Main circuit

Available contact materials

-  AgNi for C5-G30
-  AgSnO₂ for C5-G35

Recommended minimum contact load	10 mA / 10 V
Maximum contact load AC	16 A / 400 V AC-1
Maximum contact load DC	16 A / 30 V DC-1
Inrush current	40 A, 20 ms
Rated load AC	4 000 VA
Rated load DC	fig. 3.
Rated current	16 A
Mechanical endurance (cycles)	≥ 20 000 000
Electrical endurance at rated load AC-1 (cycles)	≥ 300 000

Control circuit

Nominal voltage	see table product references
Operating voltage range	0.8 U _N ... 1.1 U _N
Pick-up voltage	≤ 0.8 U _N
Release voltage	≥ 0.1 U _N
Power consumption AC / DC	2.4 VA / 1.6 W

Coil table

V AC	Ohm	mA	V DC	Ohm	mA
12	15.6	769	12	111	109
24	65	100	24	443	58
48	286	50	48	1 796	30
115	1 700	21	60	2 829	21.2
230	6 800	10	110	9 216	13
400	18 802	5.9	220	36 155	6.2

Insulation

Test voltage open contact	2 kV / 1 min
Test voltage contact / contact	4 kV / 1 min
Test voltage contact / coil	4 kV / 1 min
Overvoltage category	III
Insulation resistance at 500 V	≥ 3 GΩ
Pollution degree	3

General data

Storage temperature (no ice)	-40 ... 80 °C
Operation temperature	-40 ... 60 °C
Pick-up time / bounce time	20 ms / ≤ 3 ms
Release time / bounce time	10 ms / ≤ 1 ms
Maximum switching frequency at rated load	1 200 / h
Weight	95 g
Housing material	PA / PC

Product references

Description	Type	12	24	48	60	110	115	220	230	400
AC 50 Hz	C5-G3x/AC...V	✓	✓	✓			✓		✓	✓
LED	C5-G3xX/AC...V	✓	✓	✓			✓		✓	✓
RC - Suppressor	C5-G3xR/AC...V	✓	✓	✓			✓		✓	✓

DC	C5-G3x/DC...V	✓	✓	✓	✓	✓				✓
LED	C5-G3xX/DC...V	✓	✓	✓	✓	✓				✓
LED & Free wheeling diode	C5-G3xDX/DC...V	✓	✓	✓	✓	✓				✓
LED & Pol. & Free wheeling diode	C5-G3xFX/DC...V	✓	✓	✓	✓	✓				✓

AC relays also available as 60 Hz. Other voltages on request. Please contact support@comatreleco.com.

«...» List coil voltage to complete product references.

Accessories

Socket	S5-M, S5-P
Blanking plug	S0-NP (BAG 10 PCS)
Wall mounting adapter for C4, C5	S5-R (BAG 5 PCS)
Test button without locking	S5-HP (BAG 10 PCS)

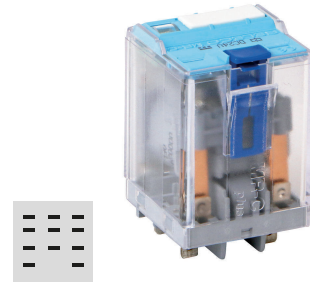


fig. 1. Wiring diagram

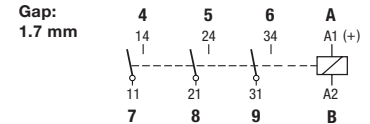


fig. 2. AC voltage endurance

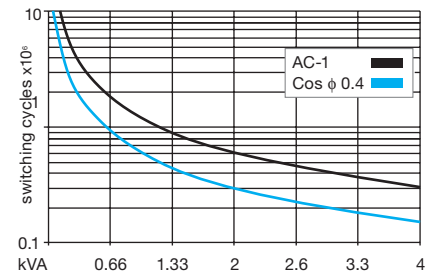


fig. 3. DC load limit curve

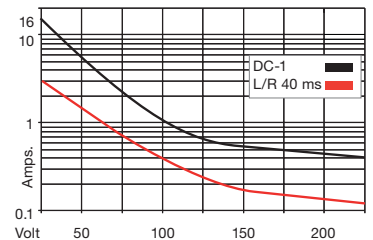
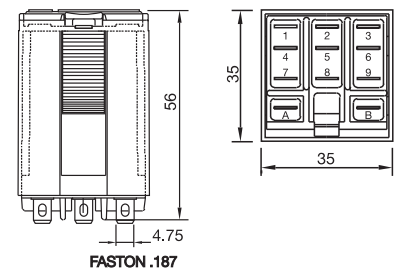


fig. 4. Dimensions (mm)



Technical approvals, conformities

Standards IEC/EN 60947; IEC/EN 61810

Approvals    

C5-M10

1 pole | normally open serial contact with blow magnet | Faston

Main circuit

Available contact materials	⚡ AgNi
Recommended minimum contact load	10 mA / 10 V
Maximum contact load AC	16 A / 400 V AC-1
Maximum contact load DC	10 A / 220 V DC-1
Inrush current	40 A, 20 ms
Rated load AC	4 000 VA
Rated load DC	2 200 W
Rated current	16 A
Mechanical endurance (cycles)	≥ 20 000 000
Electrical endurance at rated load AC-1 (cycles)	≥ 300 000

Control circuit

Nominal voltage	see table product references
Operating voltage range	0.8 U _N ... 1.1 U _N
Pick-up voltage	≤ 0.8 U _N
Release voltage	≥ 0.1 U _N
Power consumption AC / DC	2.4 VA / 1.3 W

Coil table

V AC	Ohm	mA	V DC	Ohm	mA
12	15.6	769	12	111	109
24	65	100	24	443	55
48	286	50	48	1 796	27
115	1 700	21	60	2 829	21.2
230	6 800	10	110	9 216	12
400	18 802	5.9	220	36 155	7

Insulation

Test voltage open contact	4 kV / 1 min
Test voltage contact / coil	4 kV / 1 min
Overvoltage category	III
Insulation resistance at 500 V	≥ 3 GΩ
Pollution degree	3

General data

Storage temperature (no ice)	-40 ... 80 °C
Operation temperature	-40 ... 60 °C
Pick-up time / bounce time	20 ms / ≤ 3 ms
Release time / bounce time	10 ms / ≤ 1 ms
Maximum switching frequency at rated load	1 200 / h
Weight	90 g
Housing material	PA / PC

Product references

Description	Type	12	24	48	60	110	115	220	230	400
AC 50 Hz	C5-M10/AC...V	✓	✓	✓			✓		✓	✓
LED	C5-M10X/AC...V		✓				✓		✓	
RC - Suppressor	C5-M10R/AC...V	✓	✓	✓			✓		✓	✓

DC	C5-M10/DC...V	✓	✓	✓	✓	✓				
LED	C5-M10X/DC...V	✓	✓	✓	✓	✓				✓
LED & Free wheeling diode	C5-M10DX/DC...V	✓	✓	✓	✓	✓				✓
LED & Pol. & Free wheeling diode	C5-M10FX/DC...V	✓	✓	✓	✓	✓				✓
RC - Suppressor	C5-M10R/DC...V		✓							

AC relays also available as 60 Hz. Other voltages on request. Please contact support@comatreleco.com.

«...» List coil voltage to complete product references.

Accessories

Socket	S5-M, S5-P
Blanking plug	S0-NP (BAG 10 PCS)
Wall mounting adapter for C4, C5	S5-R (BAG 5 PCS)
Test button without locking	S5-HP (BAG 10 PCS)

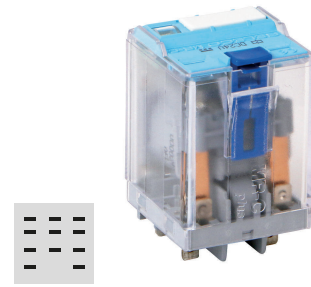


fig. 1. Wiring diagram

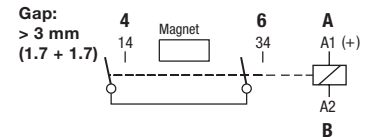


fig. 2. AC voltage endurance

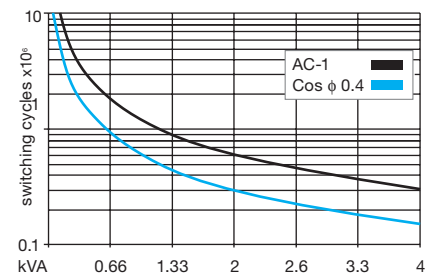


fig. 3. DC load limit curve

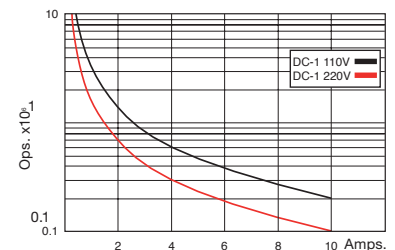
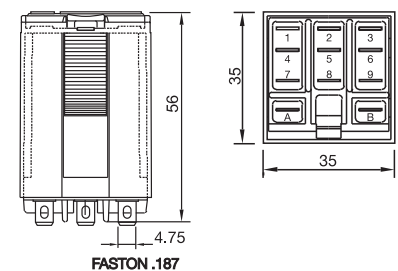


fig. 4. Dimensions (mm)



Technical approvals, conformities

Standards IEC/EN 60947; IEC/EN 61810



1.3 Industrial Relays - pluggable

R5-M10

1 pole | normally open serial contact with blow magnet | Faston



Main circuit

Available contact materials	⚡ AgNi
Recommended minimum contact load	10 mA / 10 V
Maximum contact load AC	16 A / 400 V AC-1
Maximum contact load DC	10 A / 220 V DC-1
Inrush current	40 A, 20 ms
Rated load AC	4 000 VA
Rated load DC	2 200 W
Rated current	16 A
Mechanical endurance (cycles)	≥ 20 000 000
Electrical endurance at rated load AC-1 (cycles)	≥ 300 000

Control circuit

Nominal voltage	see table product references
Operating voltage range	$0.7 U_N \dots 1.25 U_N$
Pick-up voltage	$\leq 0.7 U_N$
Release voltage	$\geq 0.1 U_N$
Power consumption AC / DC	2.4 VA / 1.3 W

Coil table

V DC	Ohm	mA
24	443	54

Insulation

Test voltage open contact	4 kV / 1 min
Test voltage contact / coil	4 kV / 1 min
Overvoltage category	III
Insulation resistance at 500 V	≥ 3 GΩ
Pollution degree	3

General data

Storage temperature (no ice)	-40 ... 80 °C
Operation temperature	-40 ... 70 °C
Pick-up time / bounce time	20 ms / ≤ 3 ms
Release time / bounce time	10 ms / ≤ 1 ms
Maximum switching frequency at rated load	1 200 / h
Weight	90 g
Housing material	PA / PC

Product references

Description	Type	24
LED & Pol. & Free wheeling diode	R5-M10FX/DC...V	✓
Other voltages on request. Please contact support@comatreleco.com.		
«...» List coil voltage to complete product references		

Accessories

S5-MR	S5-MR
Blanking plug	S0-NP (BAG 10 PCS)
Wall mounting adapter for C4, C5	S5-R (BAG 5 PCS)

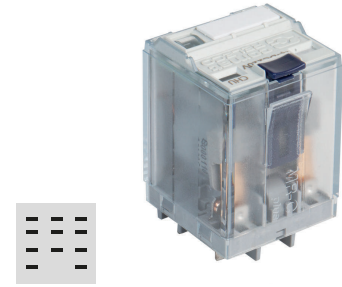


fig. 1. Wiring diagram

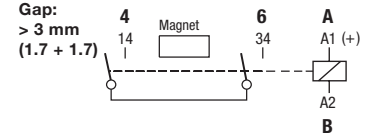


fig. 2. AC voltage endurance

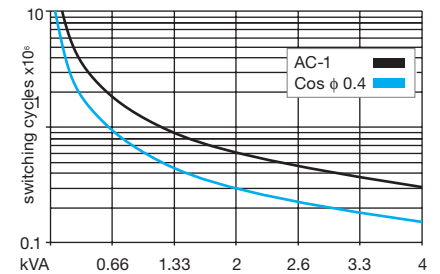


fig. 3. DC load limit curve

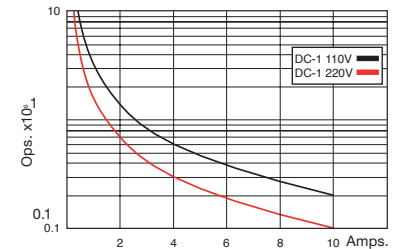
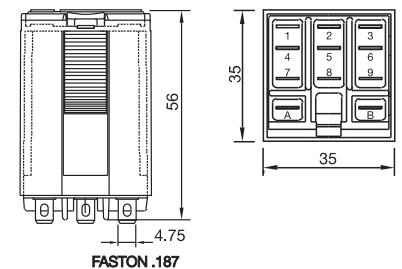


fig. 4. Dimensions (mm)



Technical approvals, conformities

Standards IEC/EN 60947; IEC/EN 61810

Railway EN 45545-2; EN 50155

Approvals

C5-M20

2 pole | normally open contact with blow magnet | Faston

Main circuit

Available contact materials	⚡ AgNi
Recommended minimum contact load	10 mA / 10 V
Maximum contact load AC	16 A / 250 V AC-1
Maximum contact load DC	7 A / 110 V DC-1
Inrush current	40 A, 20 ms
Rated load AC	4 000 VA
Rated load DC	fig. 3.
Rated current	16 A
Mechanical endurance (cycles)	≥ 20 000 000
Electrical endurance at rated load AC-1 (cycles)	≥ 300 000

Control circuit

Nominal voltage	see table product references
Operating voltage range	0.8 U _N ... 1.1 U _N
Pick-up voltage	≤ 0.8 U _N
Release voltage	≥ 0.1 U _N
Power consumption AC / DC	2.4 VA / 1.6 W

Coil table

V AC	Ohm	mA	V DC	Ohm	mA
12	15.6	769	12	111	109
24	65	100	24	443	58
48	286	50	48	1 796	30
115	1 700	21	110	9 216	13
230	6 800	10	220	36 155	6.2
400	18 802	5.9			

Insulation

Test voltage open contact	2 kV / 1 min
Test voltage contact / contact	4 kV / 1 min
Test voltage contact / coil	3 kV / 1 min
Overvoltage category	III
Insulation resistance at 500 V	≥ 3 GΩ
Pollution degree	3

General data

Storage temperature (no ice)	-40 ... 80 °C
Operation temperature	-40 ... 60 °C
Pick-up time / bounce time	20 ms / ≤ 3 ms
Release time / bounce time	10 ms / ≤ 1 ms
Maximum switching frequency at rated load	1 200 / h
Weight	90 g
Housing material	PA / PC

Product references

Description	Type	12	24	48	110	115	220	230	400
AC 50 Hz	C5-M20/AC...V	✓	✓	✓		✓		✓	✓
LED	C5-M20X/AC...V		✓					✓	
DC	C5-M20/DC...V				✓			✓	
LED	C5-M20X/DC...V		✓		✓			✓	
LED & Free wheeling diode	C5-M20DX/DC...V		✓	✓	✓			✓	
LED & Pol. & Free wheeling diode	C5-M20FX/DC...V	✓	✓	✓	✓			✓	

AC relays also available as 60 Hz. Other voltages on request. Please contact support@comatreleco.com.
«...» List coil voltage to complete product references.

Accessories

Socket	S5-M, S5-P
Blanking plug	S0-NP (BAG 10 PCS)
Wall mounting adapter for C4, C5	S5-R (BAG 5 PCS)
Test button without locking	S5-HP (BAG 10 PCS)

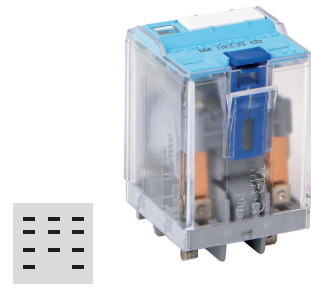


fig. 1. Wiring diagram

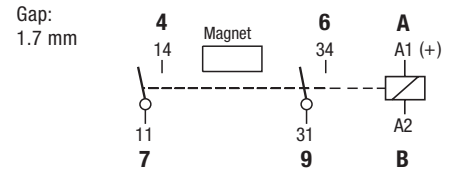


fig. 2. AC voltage endurance

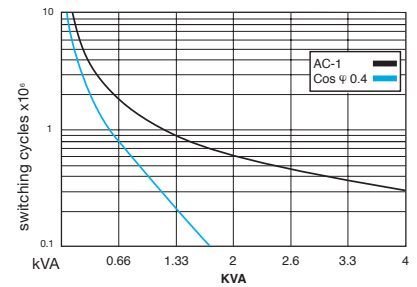


fig. 3. DC load limit curve

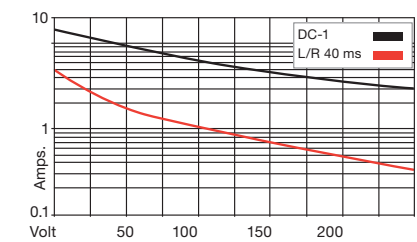
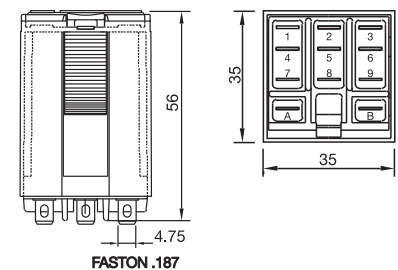


fig. 4. Dimensions (mm)



Technical approvals, conformities

Standards IEC/EN 60947; IEC/EN 61810



1.3 Industrial Relays - pluggable

C5-R20

2 pole | changeover contact | remanence | Faston



Main circuit

Available contact materials	⚡ AgNi
Recommended minimum contact load	10 mA / 10 V
Maximum contact load AC	10 A / 400 V AC-1
Maximum contact load DC	10 A / 30 V DC-1
Inrush current	30 A, 20 ms
Rated load AC	4 000 VA
Rated load DC	fig. 3.
Rated current	10 A
Mechanical endurance (cycles)	≥ 20 000 000
Electrical endurance at rated load AC-1 (cycles)	≥ 300 000

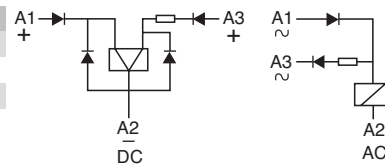
Control circuit

Nominal voltage	see table product references
Operating voltage range	$0.8 U_N \dots 1.1 U_N$
Pick-up voltage (latch)	$\leq 0.8 U_N$
Release voltage (delatch)	$\leq 0.8 U_N$
ON pulse power	AC 1.8 VA, DC 1.5 W
OFF pulse power	AC 0.3 VA, DC 0.5 W

Coil table

V AC	mA ON	mA OFF	V DC	mA ON	mA OFF
24	75	12	12	145	25
48	54	6	24	71	12
115	22	2.5	48	33	6
230	8	1.3	110	14	5

Internal diagram



Insulation

Test voltage open contact	1 kV / 1 min
Test voltage contact / contact	4 kV / 1 min
Test voltage contact / coil	4 kV / 1 min
Overvoltage category	III
Insulation resistance at 500 V	≥ 3 GΩ
Pollution degree	3

General data

Storage temperature (no ice)	-40 ... 80 °C
Operation temperature	-40 ... 60 °C
Minimum pulse length ON / OFF	50 ms
Maximum switching frequency at rated load	1 200 / h
Weight	95 g
Housing material	PA / PC

Product references

Description	Type	12	24	48	110	115	230	400
AC 50 Hz	C5-R20/AC...V		✓	✓		✓	✓	✓
DC	C5-R20/DC...V	✓	✓	✓	✓			

AC relays also available as 60 Hz. Other voltages on request. Please contact support@comatreleco.com.
«...» List coil voltage to complete product references.

Accessories

Socket	S5-M, S5-P
Blanking plug	S0-NP (BAG 10 PCS)
Wall mounting adapter for C4, C5	S5-R (BAG 5 PCS)
Test button without locking	S5-HP (BAG 10 PCS)

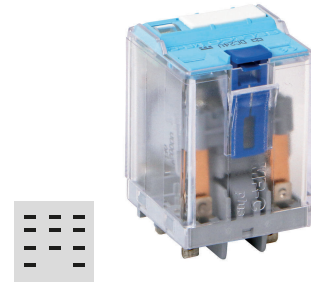


fig. 1. Wiring diagram

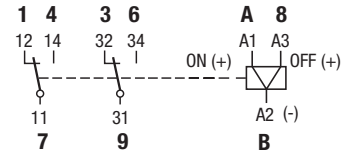


fig. 2. AC voltage endurance

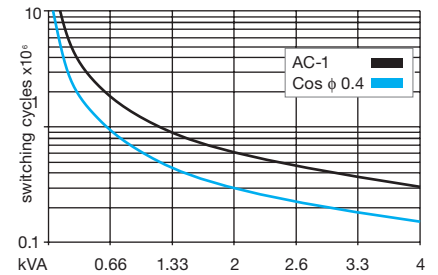


fig. 3. DC load limit curve

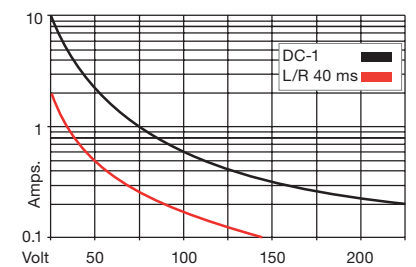
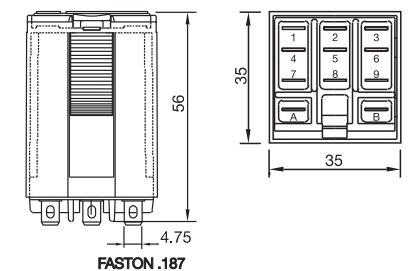


fig. 4. Dimensions (mm)



Technical approvals, conformities

Standards IEC/EN 60947; IEC/EN 61810



C5-X10

1 pole | normally open serial contact | Faston

Main circuit

Available contact materials	⚡ AgNi
Recommended minimum contact load	10 mA / 10 V
Maximum contact load AC	16 A / 400 V AC-1
Maximum contact load DC	16 A / 30 V DC-1
Inrush current	40 , 20 ms
Rated load AC	4 000 VA
Rated load DC	fig. 3.
Rated current	16 A
Mechanical endurance (cycles)	≥ 20 000 000
Electrical endurance at rated load AC-1 (cycles)	≥ 300 000

Control circuit

Nominal voltage	see table product references
Operating voltage range	0.8 U _N ... 1.1 U _N
Pick-up voltage	≤ 0.8 U _N
Release voltage	≥ 0.1 U _N
Power consumption AC / DC	2.4 VA / 1.3 W

Coil table

V AC	Ohm	mA	V DC	Ohm	mA
12	15.6	769	12	111	109
24	65	100	24	443	58
48	286	50	48	1 796	30
115	1 700	21	110	9 216	13
230	6 800	10	220	36 155	6.2
400	18 802	5.9			

Insulation

Test voltage open contact	4 kV / 1 min
Test voltage contact / coil	4 kV / 1 min
Overvoltage category	III
Insulation resistance at 500 V	≥ 3 GΩ
Pollution degree	3

General data

Storage temperature (no ice)	-40 ... 80 °C
Operation temperature	-40 ... 60 °C
Pick-up time / bounce time	20 ms / ≤ 3 ms
Release time / bounce time	10 ms / ≤ 1 ms
Maximum switching frequency at rated load	1 200 / h
Weight	90 g
Housing material	PA / PC

Product references

Description	Type	12	24	48	110	115	220	230	400
AC 50 Hz	C5-X10/AC...V	✓	✓	✓		✓		✓	✓
LED	C5-X10X/AC...V	✓	✓	✓		✓		✓	✓
RC - Suppressor	C5-X10R/AC...V	✓	✓	✓		✓		✓	

DC	C5-X10/DC...V	✓	✓	✓	✓			✓	
LED	C5-X10X/DC...V	✓	✓	✓	✓			✓	
LED & Free wheeling diode	C5-X10DX/DC...V	✓	✓	✓	✓			✓	
LED & Pol. & Free wheeling diode	C5-X10FX/DC...V	✓	✓	✓	✓			✓	

AC relays also available as 60 Hz. Other voltages on request. Please contact support@comatreleco.com.
«...» List coil voltage to complete product references.

Accessories

Socket	S5-M, S5-P
Blanking plug	S0-NP (BAG 10 PCS)
Wall mounting adapter for C4, C5	S5-R (BAG 5 PCS)
Test button without locking	S5-HP (BAG 10 PCS)

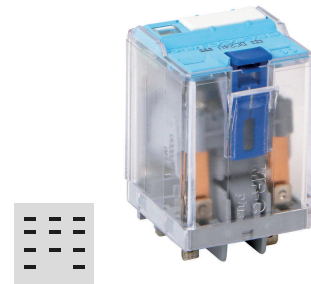


fig. 1. Wiring diagram

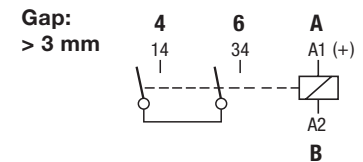


fig. 2. AC voltage endurance

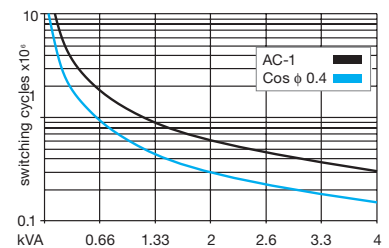


fig. 3. DC load limit curve

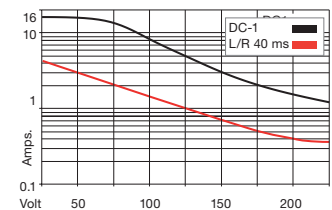
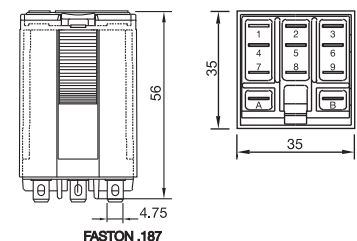


fig. 4. Dimensions (mm)



Technical approvals, conformities

Standards IEC/EN 60947; IEC/EN 61810



C7-A10

1 pole | changeover contact | Faston



Main circuit

Available contact materials	⚡ AgNi
Recommended minimum contact load	10 mA / 10 V
Maximum contact load AC	16 A / 250 V AC-1
Maximum contact load DC	16 A / 24 V DC-1
Inrush current	40 A, 20 ms
Rated load AC	4 000 VA
Rated load DC	fig. 3.
Rated current	16 A
Mechanical endurance (cycles)	≥ 10 000 000
Electrical endurance at rated load AC-1 / DC-1 (cycles)	≥ 300 000 / ≥ 100 000

Control circuit

Nominal voltage	see table product references
Operating voltage range	0.8 U _N ... 1.1 U _N
Pick-up voltage	≤ 0.8 U _N
Release voltage	≥ 0.1 U _N
Power consumption AC / DC	1.2 VA / 1.3 W

Coil table

V AC	Ohm	mA	V DC	Ohm	mA
12	42	122	12	158	76
24	166	59	24	632	38
48	681	26.2	48	2 530	19
115	3 812	12.5	60	3 953	15
230	15 248	6.7	110	13 286	8
			220	53 146	4

Insulation

Test voltage open contact	1 kV / 1 min
Test voltage contact / coil	2.5 kV / 1 min
Overvoltage category	III
Insulation resistance at 500 V	≥ 1 GΩ
Pollution degree	3

General data

Storage temperature (no ice)	-40 ... 80 °C
Operation temperature	-40 ... 60 °C
Pick-up time / bounce time	16 ms / ≤ 3 ms
Release time / bounce time	8 ms / ≤ 1 ms
Maximum switching frequency at rated load	1 200 / h
Weight	43 g
Housing material	PA / PC

Product references

Description	Type	12	24	48	60	110	115	220	230
LED	C7-A10X/AC...V	✓	✓	✓			✓		✓
LED	C7-A10X/DC...V	✓	✓	✓	✓	✓			✓
LED & Free wheeling diode	C7-A10DX/DC...V		✓						
LED & Pol. & Free wheeling diode	C7-A10FX/DC...V	✓	✓						

AC relays also available as 60 Hz. Other voltages on request. Please contact support@comatreleco.com.

«...» List coil voltage to complete product references.

Accessories

Socket	S7-C, S7-I0, S7-P, S7-PI
Blanking plug	S9-NP (BAG 10 PCS)
Test Button w/o locking	S9-OP (BAG 10 PCS)

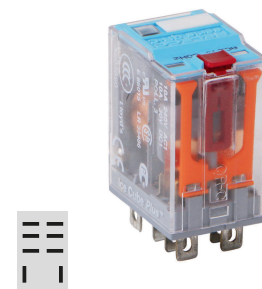


fig. 1. Wiring diagram

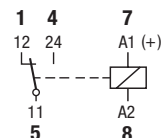


fig. 2. AC voltage endurance

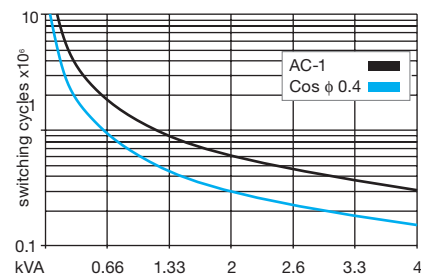


fig. 3. DC load limit curve

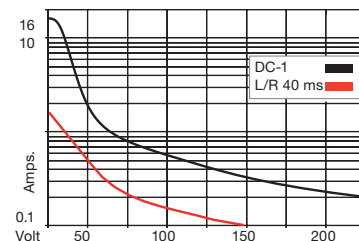
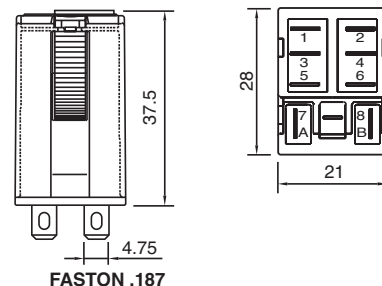


fig. 4. Dimensions (mm)



Technical approvals, conformities

Standards IEC/EN 60947; IEC/EN 61810



C7-A2x

2 pole | changeover contact | Faston

Main circuit

Available contact materials	⚡ AgNi for C7-A20 ⚡ AgNi + 5 μ Au for C7-A28
Recommended minimum contact load	10 mA / 10 V for C7-A20 1 mA / 1 V for C7-A28
Maximum contact load AC	10 A / 250 V AC-1
Maximum contact load DC	10 A / 30 V DC-1
Inrush current	30 A, 20 ms
Rated load AC	2 500 VA
Rated load DC	fig. 3.
Rated current	10 A
Mechanical endurance (cycles)	≥ 10 000 000
Electrical endurance at rated load AC-1 / DC-1 (cycles)	≥ 300 000 / ≥ 100 000

Control circuit

Nominal voltage	see table product references
Operating voltage range	0.8 U _N ... 1.1 U _N
Pick-up voltage	≤ 0.8 U _N
Release voltage	≥ 0.1 U _N
Power consumption AC / DC	1.2 VA / 1 W

Coil table

V AC	Ohm	mA	V DC	Ohm	mA
12	42	122	12	158	76
24	166	59	24	632	38
48	681	26.2	48	2 530	19
115	3 812	12.5	60	3 953	15
230	15 248	6.7	110	13 286	8
			220	53 146	4

Insulation

Test voltage open contact	1 kV / 1 min
Test voltage contact / contact	2.5 kV / 1 min
Test voltage contact / coil	2.5 kV / 1 min
Overvoltage category	III
Insulation resistance at 500 V	≥ 1 GΩ
Pollution degree	3

General data

Storage temperature (no ice)	-40 ... 80 °C
Operation temperature	-40 ... 60 °C
Pick-up time / bounce time	16 ms / ≤ 3 ms
Release time / bounce time	8 ms / ≤ 1 ms
Maximum switching frequency at rated load	1 200 / h
Weight	35 g
Housing material	PA / PC

Product references

Description	Type	12	24	48	60	72	110	115	220	230
AC 50 Hz	C7-A2x/AC.V	✓	✓	✓					✓	✓
LED	C7-A2xX/AC.V	✓	✓	✓					✓	✓
DC	C7-A2x/DC.V	✓	✓	✓	✓	✓	✓		✓	
LED	C7-A2xX/DC.V	✓	✓	✓	✓	✓	✓		✓	
LED & Free wheeling diode	C7-A2xDX/DC.V		✓							
LED & Pol. & Free wheeling diode	C7-A2xFX/DC.V	✓	✓	✓			✓			
AC / DC bridge rec. & LED	C7-A2xBX/UC.V	✓	✓	✓	✓					

AC relays also available as 60 Hz. Other voltages on request. Please contact support@comatreleco.com.
 «...» List coil voltage to complete product references.

Accessories

Socket	S7-C, S7-I0, S7-P, S7-PI
Blanking plug	S9-NP (BAG 10 PCS)
Test Button w/o locking	S9-OP (BAG 10 PCS)

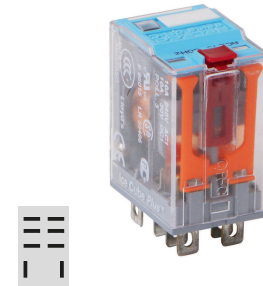


fig. 1. Wiring diagram

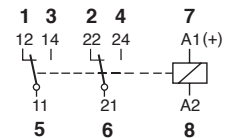


fig. 2. AC voltage endurance

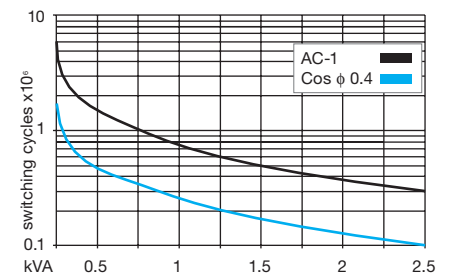


fig. 3. DC load limit curve

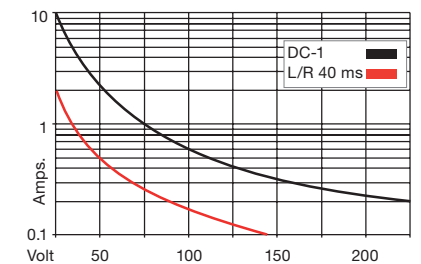
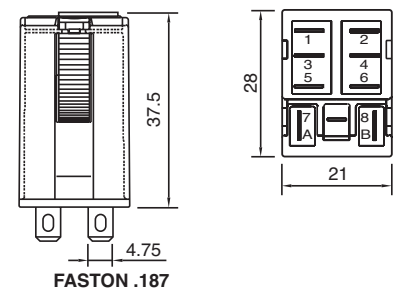


fig. 4. Dimensions (mm)



Technical approvals, conformities

Standards IEC/EN 60947; IEC/EN 61810



1.3 Industrial Relays - pluggable

C7-A2x+S7-PI

2 pole | changeover contact

Main circuit

Available contact materials	⚡ AgNi
Recommended minimum contact load	10 mA / 10 V
Maximum contact load AC	10 A / 250 V AC-1
Maximum contact load DC	10 A / 24 V DC-1
Inrush current	30 A, 20 ms
Rated load AC	2 500 VA
Rated load DC	fig. 3.
Rated current	10 A
Mechanical endurance (cycles)	≥ 10 000 000
Electrical endurance at rated load AC-1 / DC-1 (cycles)	≥ 300 000 / ≥ 100 000

Control circuit

Nominal voltage	see table product references
Operating voltage range	0.8 U_N ... 1.1 U_N
Pick-up voltage	≤ 0.8 U_N
Release voltage	≥ 0.1 U_N
Power consumption AC / DC	1.2 VA / 1 W

Coil table

V AC	Ohm	mA	V DC	Ohm	mA
120	3 973	9.5	24	632	38
230	15 248	6.7			

Insulation

Test voltage all terminals / DIN rail	2.5 kV rms / 1 min
Test voltage terminal / terminal	2.5 kV rms / 1 min
Test voltage open contact	1 kV rms / 1 min
Test voltage contact / coil	2.5 kV rms / 1 min
Overvoltage category	III
Insulation resistance at 500 V	≥ 1 GΩ
Pollution degree relay	3

General data

Storage temperature (no ice)	-40 ... 80 °C
Operation temperature	-40 ... 60 °C
Pick-up time / bounce time	16 ms / ≤ 3 ms
Release time / bounce time	8 ms / ≤ 1 ms
Conductor cross section control / main circuit	
- Single wire	2 x 0.34 mm ² / AWG 22 ... 2 x 2.5 mm ² / AWG 14
- Multi wire (un-crimped)	2 x 0.34 mm ² / AWG 22 ... 2 x 2.5 mm ² / AWG 14
- Multi wire (crimped)	2 x 0.34 mm ² / AWG 22 ... 2 x 1.5 mm ² / AWG 16
Mounting	TH35 (EN 60715)
Maximum switching frequency at rated load	1 200 / h
Weight	81 g
Housing material	PA / PC

Product references

Description	Type	24	120	230
LED	C7-A20X/AC...V+S7-PI			✓
LED	C7-A20X/AC...V 60HZ+S7-PI		✓	

LED & Free wheeling diode C7-A20DX/DC...V+S7-PI ✓
 Other voltages on request. Please contact support@comatreleco.com.
 «...» List coil voltage to complete product references

Included Accessories

Retaining clip plastic	S7-CPI
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Optional Accessories

Blanking plug	S9-NP (BAG 10 PCS)
Test Button w/o locking	S9-OP (BAG 10 PCS)
Retaining clip plastic	S7-CPI (BAG 10 PCS)
Bridge A2 for Sx-PI / Sx-PIR	Sxx-BBPI (BAG 20 PCS)
2-pole potential bridge bar	Sxx-BBPI2 (BAG 20 PCS)
Multi-operation tool kit	OT-PI kit
Marking strip for Push-in	BS11-PI (50m tape)



fig. 1. Wiring diagram

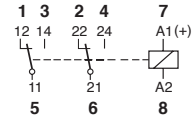


fig. 2. AC voltage endurance

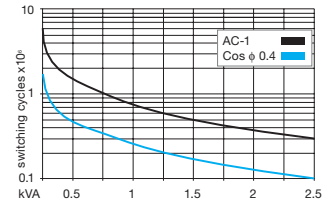


fig. 3. DC load limit curve

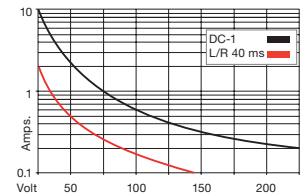
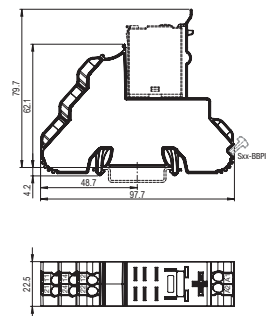


fig. 4. Dimensions (mm)



Technical approvals, conformities

Standards IEC/EN 60947; IEC/EN 61810

Approvals

1.3 Industrial Relays - pluggable

R7-A20

2 pole | changeover contact | Faston

Main circuit

Available contact materials	⚡ AgNi
Recommended minimum contact load	10 mA / 10 V
Maximum contact load AC	10 A / 250 V AC-1
Maximum contact load DC	10 A / 24 V DC-1
Inrush current	30 A, 20 ms
Rated load AC	2 500 VA
Rated load DC	fig. 3.
Rated current	10 A
Mechanical endurance (cycles)	≥ 10 000 000
Electrical endurance at rated load AC-1 (cycles)	≥ 300 000 / ≥ 100 000

Control circuit

Nominal voltage	see table product references
Operating voltage range	0.7 U_N ... 1.25 U_N
Pick-up voltage	≤ 0.7 U_N
Release voltage	≥ 0.1 U_N
Power consumption AC / DC	1.2 VA / 1 W

Coil table

V DC	Ohm	mA
12	158	76
24	632	38
24	5 692	13
36	1 423	25
60	3 953	15
72	5 692	13
110	13 286	8
220	53 146	4

Insulation

Test voltage open contact	1 kV / 1 min
Test voltage contact / contact	2.5 kV / 1 min
Test voltage contact / coil	2.5 kV / 1 min
Overvoltage category	III
Insulation resistance at 500 V	≥ 1 GΩ
Pollution degree	3

General data

Storage temperature (no ice)	-40 ... 80 °C
Operation temperature	-40 ... 70 °C
Pick-up time / bounce time	16 ms / ≤ 3 ms
Release time / bounce time	8 ms / ≤ 1 ms
Maximum switching frequency at rated load	1 200 / h
Weight	35 g
Housing material	PA / PC

Product references

Description	Type	12	24	36	60	72	110	220
LED & Free wheeling diode	R7-A20DX/DC...V	✓	✓	✓	✓	✓	✓	✓
Other voltages on request. Please contact support@comatreleco.com.								
«...» List coil voltage to complete product references								

Accessories

Socket	S7-GR, S7-PIR
Blanking plug	S9-NP (BAG 10 PCS)
Test Button w/o locking	S9-OP (BAG 10 PCS)



fig. 1. Wiring diagram

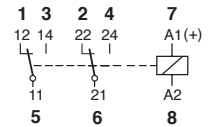


fig. 2. AC voltage endurance

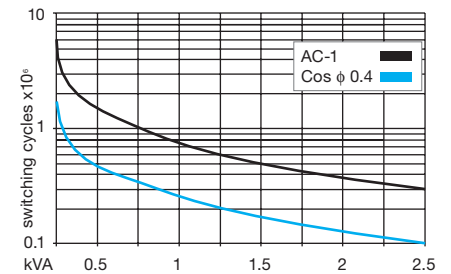


fig. 3. DC load limit curve

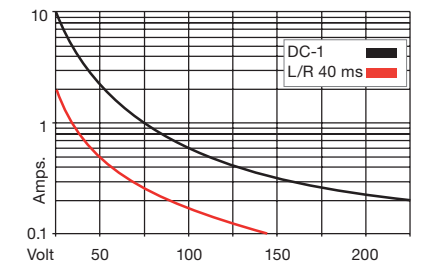
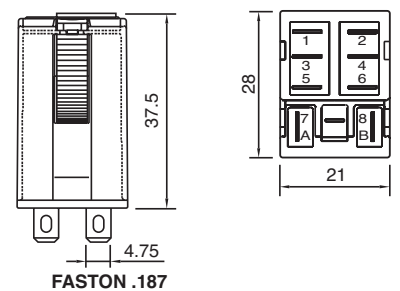


fig. 4. Dimensions (mm)



Technical approvals, conformities

Standards IEC/EN 60947; IEC/EN 61810

Railway EN 45545-2; EN 50155

Approvals

1.3 Industrial Relays - pluggable

C7-G20

2 pole | normally open contact | Faston



Main circuit

Available contact materials	⚡ AgNi
Recommended minimum contact load	10 mA / 10 V
Maximum contact load AC	10 A / 250 V AC-1
Maximum contact load DC	10 A / 30 V DC-1
Inrush current	30 A, 20 ms
Rated load AC	2 500 VA
Rated load DC	fig. 3.
Rated current	10 A
Mechanical endurance (cycles)	≥ 10 000 000
Electrical endurance at rated load AC-1 / DC-1 (cycles)	≥ 300 000 / ≥ 100 000

Control circuit

Nominal voltage	see table product references
Operating voltage range	0.8 U _N ... 1.1 U _N
Pick-up voltage	≤ 0.8 U _N
Release voltage	≥ 0.1 U _N
Power consumption AC / DC	1.5 VA / 1.5 W

Coil table

V AC	Ohm	mA	V DC	Ohm	mA
12	42	122	12	95	127
24	166	59	24	379	63
48	681	26.2	48	1 518	30
115	3 812	12.5	110	7 973	14
230	15 248	6.7			

Insulation

Test voltage open contact	2 kV / 1 min
Test voltage contact / contact	2.5 kV / 1 min
Test voltage contact / coil	2.5 kV / 1 min
Overvoltage category	III
Insulation resistance at 500 V	≥ 1 GΩ
Pollution degree	3

General data

Storage temperature (no ice)	-40 ... 80 °C
Operation temperature	-40 ... 60 °C
Pick-up time / bounce time	20 ms / ≤ 3 ms
Release time / bounce time	10 ms / ≤ 1 ms
Maximum switching frequency at rated load	1 200 / h
Weight	43 g
Housing material	PA / PC

Product references

Description	Type	12	24	48	110	115	230
AC 50 Hz	C7-G20/AC...V	✓	✓	✓		✓	✓
LED	C7-G20X/AC...V	✓	✓	✓		✓	✓
DC	C7-G20/DC...V	✓	✓	✓	✓		
LED	C7-G20X/DC...V	✓	✓	✓	✓		
LED & Free wheeling diode	C7-G20DX/DC...V			✓			
LED & Pol. & Free wheeling diode	C7-G20FX/DC...V	✓	✓	✓	✓		

AC relays also available as 60 Hz. Other voltages on request. Please contact support@comatreleco.com.
«...» List coil voltage to complete product references.

Accessories

Socket	S7-C, S7-IO, S7-P, S7-PI
Blanking plug	S9-NP (BAG 10 PCS)
Test Button w/o locking	S9-OP (BAG 10 PCS)

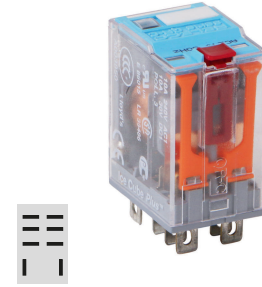


fig. 1. Wiring diagram

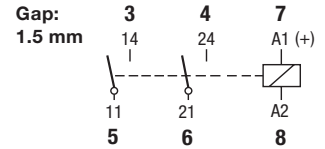


fig. 2. AC voltage endurance

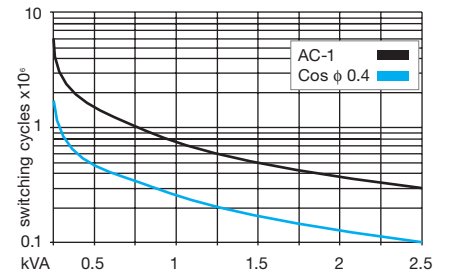


fig. 3. DC load limit curve

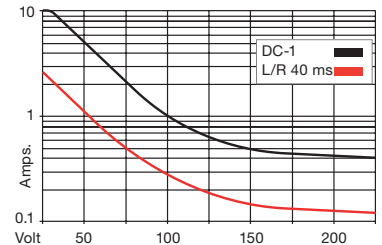
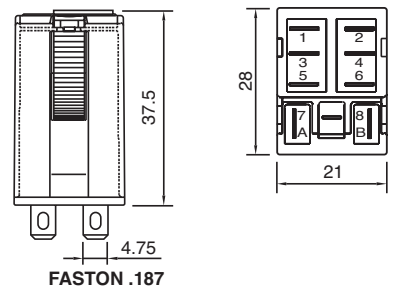


fig. 4. Dimensions (mm)



Technical approvals, conformities

Standards IEC/EN 60947; IEC/EN 61810



C7-H23

2 pole | changeover power and twin contact | Faston

Main circuit

Available contact materials

- AgNi = Power contact
- AgNi + 5 μ Au = Twin contact

Recommended minimum contact load	10 mA / 10 V on power contact 5 mA / 5 V on twin contact
Maximum contact load AC	10 A / 250 V AC-1
Maximum contact load DC	10 A / 30 V DC-1
Inrush current	30 A, 20 ms
Rated load AC	2 500 VA
Rated load DC	fig. 3.
Rated current	10 A
Mechanical endurance (cycles)	≥ 10 000 000
Electrical endurance at rated load AC-1 / DC-1 (cycles)	≥ 300 000 / ≥ 100 000

Control circuit

Nominal voltage	see table product references
Operating voltage range	0.8 U _N ... 1.1 U _N
Pick-up voltage	≤ 0.8 U _N
Release voltage	≥ 0.1 U _N
Power consumption AC / DC	1.2 VA / 1 W

Coil table

V AC	Ohm	mA	V DC	Ohm	mA
230	15 248	6.7	24	632	38

Insulation

Test voltage open contact	1 kV / 1 min
Test voltage contact / contact	2.5 kV / 1 min
Test voltage contact / coil	2.5 kV / 1 min
Overvoltage category	III
Insulation resistance at 500 V	≥ 1 GΩ
Pollution degree	3

General data

Storage temperature (no ice)	-40 ... 80 °C
Operation temperature	-40 ... 60 °C
Pick-up time / bounce time	16 ms / ≤ 3 ms
Release time / bounce time	8 ms / ≤ 1 ms
Maximum switching frequency at rated load	1 200 / h
Weight	43 g
Housing material	PA / PC

Product references

Description	Type	24	230
LED	C7-H23X/AC...V		✓
LED	C7-H23DX/DC...V		✓

AC relays also available as 60 Hz. Other voltages on request. Please contact support@comatreleco.com.

«...» List coil voltage to complete product references.

Accessories

Socket	S7-C, S7-I0, S7-P, S7-PI
Blanking plug	S9-NP (BAG 10 PCS)
Test Button w/o locking	S9-OP (BAG 10 PCS)

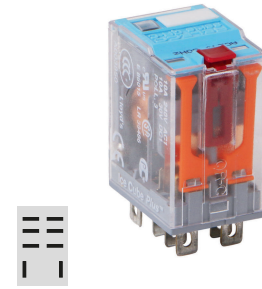


fig. 1. Wiring diagram

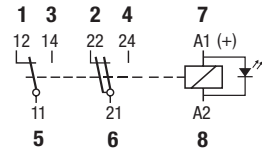


fig. 2. AC voltage endurance

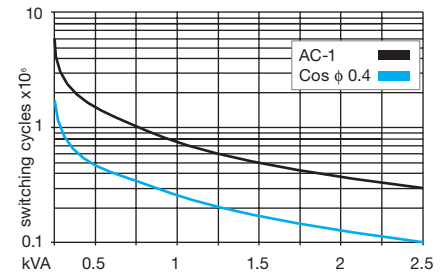


fig. 3. DC load limit curve

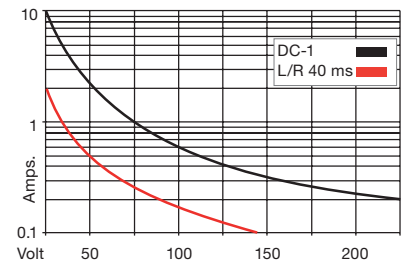
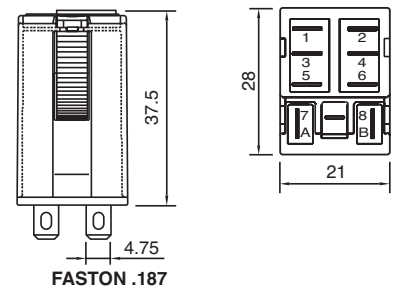


fig. 4. Dimensions (mm)



Technical approvals, conformities

Standards IEC/EN 60947; IEC/EN 61810



1.3 Industrial Relays - pluggable

C7-T2x

2 pole | changeover twin contact | Faston

Main circuit

Available contact materials

AgNi + 0.2 μ Au for C7-T21

AgNi + 5 μ Au for C7-T22

Recommended minimum contact load

5 mA / 5 V for C7-T21

1 mA / 1 V for C7-T22

Maximum contact load AC

6 A / 250 V AC-1

Maximum contact load DC

6 A / 30 V DC-1

Inrush current

15 A, 20 ms

Rated load AC

1 200 VA

Rated load DC

fig. 3.

Rated current

6 A

Mechanical endurance (cycles)

≥ 10 000 000

Electrical endurance at rated load AC-1 / DC-1 (cycles)

≥ 150 000 / ≥ 100 000

Control circuit

Nominal voltage

see table product references

Operating voltage range

0.8 U_N ... 1.1 U_N

Pick-up voltage

≤ 0.8 U_N

Release voltage

≥ 0.1 U_N

Power consumption AC / DC

1.2 VA / 1 W

Coil table

V AC	Ohm	mA	V DC	Ohm	mA
12	42	122	12	158	76
24	166	59	24	632	38
48	664	26.2	48	2 530	19
115	3 812	12.5	72	5 760	12.5
230	15 248	6.7	110	13 286	8
			125	1 736.1	72
			220	53 146	4

Insulation

Test voltage open contact

1 kV / 1 min

Test voltage contact / contact

2.5 kV / 1 min

Test voltage contact / coil

2.5 kV / 1 min

Overvoltage category

III

Insulation resistance at 500 V

≥ 1 GΩ

Pollution degree

3

General data

Storage temperature (no ice)

-40 ... 80 °C

Operation temperature

-40 ... 60 °C

Pick-up time / bounce time

16 ms / ≤ 3 ms

Release time / bounce time

8 ms / ≤ 1 ms

Maximum switching frequency at rated load

1 200 / h

Weight

43 g

Housing material

PA / PC

Product references

Description	Type	12	24	48	72	110	115	125	220	230
AC 50 Hz	C7-T2x/AC...V	✓	✓	✓			✓			✓
LED	C7-T2xX/AC...V	✓	✓	✓			✓			✓
DC	C7-T2x/DC...V	✓	✓	✓		✓			✓	
LED	C7-T2xX/DC...V	✓	✓	✓		✓			✓	
LED & Free wheeling diode	C7-T2xDX/DC.V		✓							
LED & Pol. & Free wheeling diode	C7-T2xFX/DC.V	✓	✓	✓	✓	✓		✓	✓	
AC / DC bridge rec. & LED	C7-T2xBX/UC.V	✓	✓	✓						

AC relays also available as 60 Hz. Other voltages on request. Please contact support@comatreleco.com.

«...» List coil voltage to complete product references.

Accessories

Socket

S7-C, S7-I0, S7-P, S7-PI

Blanking plug

S9-NP (BAG 10 PCS)

Test Button w/o locking

S9-OP (BAG 10 PCS)

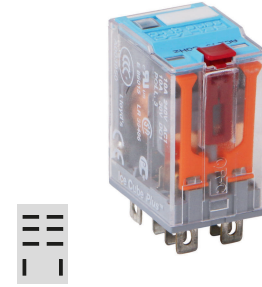


fig. 1. Wiring diagram

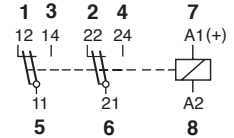


fig. 2. AC voltage endurance

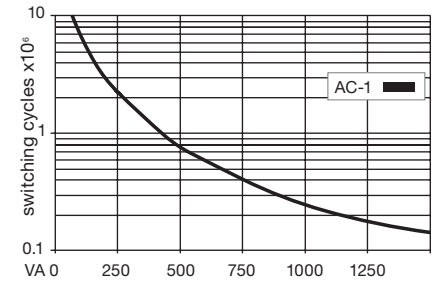


fig. 3. DC load limit curve

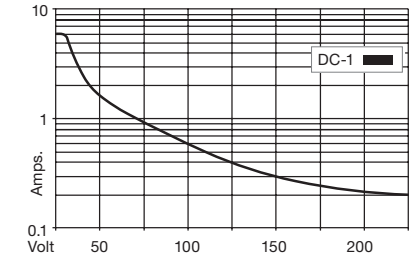
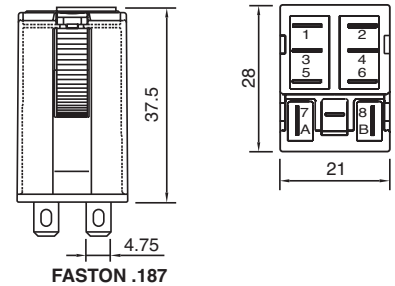


fig. 4. Dimensions (mm)



Technical approvals, conformities

Standards IEC/EN 60947; IEC/EN 61810

Approvals CE c UL US REACH UK CA

1.3 Industrial Relays - pluggable

R7-T2x

2 pole | changeover twin contact | Faston

Main circuit

Available contact materials

AgNi + 0.2 μ Au for R7-T21

AgNi + 5 μ Au for R7-T22

Recommended minimum contact load

5 mA / 5 V for R7-T21

1 mA / 1 V for R7-T22

Maximum contact load AC

6 A / 250 V AC-1

Maximum contact load DC

6 A / 30 V DC-1

Inrush current

15 A, 20 ms

Rated load AC

1 200 VA

Rated load DC

fig. 3.

Rated current

6 A

Mechanical endurance (cycles)

≥ 10 000 000

Electrical endurance at rated load AC-1 (cycles)

≥ 150 000 / ≥ 100 000

Control circuit

Nominal voltage

see table product references

Operating voltage range

0.7 U_N ... 1.25 U_N

Pick-up voltage

≤ 0.7 U_N

Release voltage

≥ 0.1 U_N

Power consumption AC / DC

1.2 VA / 1 W

Coil table

V DC	Ohm	mA
12	158	76
24	632	38
36	1 423	25
48	2 530	19
60	3 953	15
72	5 692	13
110	13 286	8
220	53 146	4

Insulation

Test voltage open contact

1 kV / 1 min

Test voltage contact / contact

2.5 kV / 1 min

Test voltage contact / coil

2.5 kV / 1 min

Overvoltage category

III

Insulation resistance at 500 V

≥ 1 GΩ

Pollution degree

3

General data

Storage temperature (no ice)

-40 ... 80 °C

Operation temperature

-40 ... 70 °C

Pick-up time / bounce time

16 ms / ≤ 3 ms

Release time / bounce time

8 ms / ≤ 1 ms

Maximum switching frequency at rated load

1 200 / h

Weight

35 g

Housing material

PA / PC

Product references

Description	Type	12	24	36	48	60	220
LED & Pol. & Free wheeling diode	R7-T2xFX/DC...V	✓	✓	✓	✓	✓	✓

Other voltages on request. Please contact support@comatreleco.com.

«...» List coil voltage to complete product references

Accessories

Socket

S7-GR, S7-PIR

Blanking plug

S9-NP (BAG 10 PCS)

Test Button w/o locking

S9-OP (BAG 10 PCS)



fig. 1. Wiring diagram

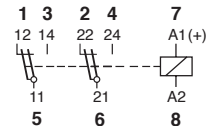


fig. 2. AC voltage endurance

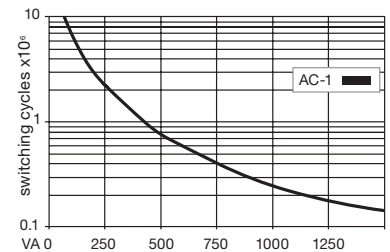


fig. 3. DC load limit curve

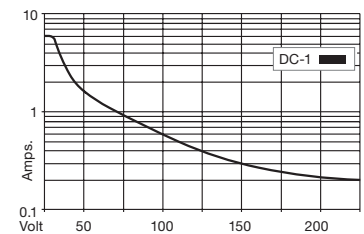
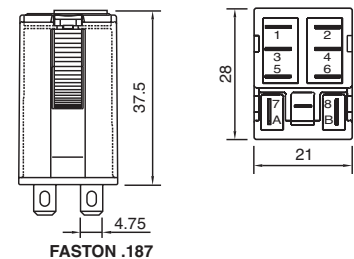


fig. 4. Dimensions (mm)



Technical approvals, conformities

Standards IEC/EN 60947; IEC/EN 61810

Railway EN 45545-2; EN 50155

Approvals

1.3 Industrial Relays - pluggable

C7-W10

1 pole | normally open tungsten pre-contact | Faston

Main circuit

Available contact materials

⚡ Tungsten = Pre-contact

⚡ AgNi = Main contact

Recommended minimum contact load	10 mA / 10 V
Maximum contact load AC	10 A / 250 V AC-1
Inrush current	500 A, 2.5 ms
Rated load AC	2 500 VA
Rated load DC	fig. 3.
Rated current	10 A
Mechanical endurance (cycles)	≥ 10 000 000
Electrical endurance at rated load AC-1 / DC-1 (cycles)	≥ 300 000 / ≥ 100 000

Control circuit

Nominal voltage	see table product references
Operating voltage range	0.8 U_N ... 1.1 U_N
Pick-up voltage	≤ 0.8 U_N
Release voltage	≥ 0.1 U_N
Power consumption AC / DC	1.5 VA / 1.5 W

Coil table

V AC	Ohm	mA	V DC	Ohm	mA
24	166	59	12	95	127
48	681	26.2	24	379	63
115	3 812	12.5	48	1 518	30
230	15 248	6.7	60	4 000	15
			110	7 973	14

Insulation

Test voltage open contact	1 kV / 1 min
Test voltage contact / coil	2.5 kV / 1 min
Overvoltage category	III
Insulation resistance at 500 V	≥ 1 GΩ
Pollution degree	3

General data

Storage temperature (no ice)	-40 ... 80 °C
Operation temperature	-40 ... 60 °C
Pick-up time / bounce time	20 ms / ≤ 3 ms
Release time / bounce time	10 ms / ≤ 1 ms
Maximum switching frequency at rated load	1 200 / h
Weight	43 g
Housing material	PA / PC

Product references

Description	Type	12	24	48	60	110	115	230
AC 50 Hz	C7-W10/AC...V			✓			✓	✓
LED	C7-W10X/AC...V			✓			✓	✓
DC	C7-W10/DC...V	✓	✓	✓	✓	✓		
LED	C7-W10X/DC...V	✓	✓	✓	✓	✓		
LED & Pol. & Free wheeling diode	C7-W10FX/DC...V	✓	✓	✓	✓	✓		

AC / DC bridge rec. & LED C7-W10BX/UC...V ✓

AC relays also available as 60 Hz. Other voltages on request. Please contact support@comatreleco.com.

«...» List coil voltage to complete product references.

Accessories

Socket	S7-C, S7-I0, S7-P, S7-PI
Blanking plug	S9-NP (BAG 10 PCS)
Test Button w/o locking	S9-OP (BAG 10 PCS)

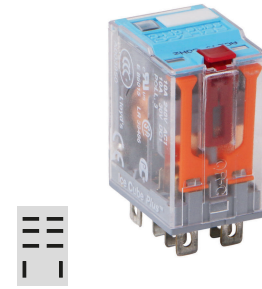


fig. 1. Wiring diagram

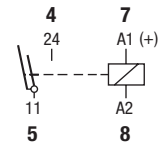


fig. 2. AC voltage endurance

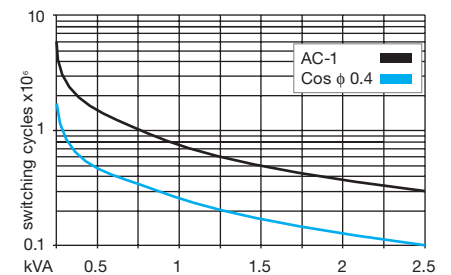


fig. 3. DC load limit curve

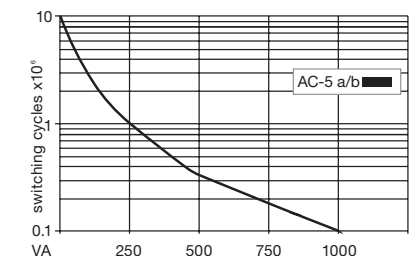
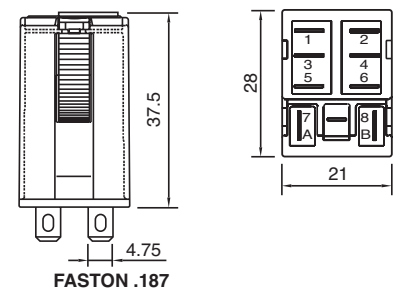


fig. 4. Dimensions (mm)



Technical approvals, conformities

Standards IEC/EN 60947; IEC/EN 61810

Approvals **CE** **RELECO** **UK**

C7-X10

1 pole | normally open serial contact | Faston

Main circuit

Available contact materials	⚡ AgNi
Recommended minimum contact load	10 mA / 10 V
Maximum contact load AC	10 A / 250 V AC-1
Maximum contact load DC	10 A / 30 V DC-1
Inrush current	30 A, 20 ms
Rated load AC	2 500 VA
Rated load DC	fig. 3.
Rated current	10 A
Mechanical endurance (cycles)	≥ 10 000 000
Electrical endurance at rated load AC-1 / DC-1 (cycles)	≥ 300 000 / ≥ 100 000

Control circuit

Nominal voltage	see table product references
Operating voltage range	0.8 U _N ... 1.1 U _N
Pick-up voltage	≤ 0.8 U _N
Release voltage	≥ 0.1 U _N
Power consumption AC / DC	1.5 VA / 1.3 W

Coil table

V AC	Ohm	mA	V DC	Ohm	mA
24	166	59	12	95	127
115	3 812	12.5	24	379	63
230	15 248	6.7	48	1 518	30
			110	7 973	14

Insulation

Test voltage open contact	2.5 kV / 1 min
Test voltage contact / coil	2.5 kV / 1 min
Overvoltage category	III
Insulation resistance at 500 V	≥ 1 GΩ
Pollution degree	3

General data

Storage temperature (no ice)	-40 ... 80 °C
Operation temperature	-40 ... 60 °C
Pick-up time / bounce time	20 ms / ≤ 3 ms
Release time / bounce time	10 ms / ≤ 1 ms
Maximum switching frequency at rated load	1 200 / h
Weight	43 g
Housing material	PA / PC

Product references

Description	Type	12	24	48	110	115	230
AC 50 Hz	C7-X10/AC...V						✓
LED	C7-X10X/AC...V		✓			✓	✓
DC	C7-X10/DC...V	✓	✓	✓	✓		
LED	C7-X10X/DC...V	✓	✓	✓			
LED & Free wheeling diode	C7-X10DX/DC...V		✓				
LED & Pol. & Free wheeling diode	C7-X10FX/DC...V	✓	✓	✓	✓		

AC relays also available as 60 Hz. Other voltages on request. Please contact support@comatreleco.com.

«...» List coil voltage to complete product references.

Accessories

Socket	S7-C, S7-I0, S7-P, S7-PI
Blanking plug	S9-NP (BAG 10 PCS)
Test Button w/o locking	S9-OP (BAG 10 PCS)

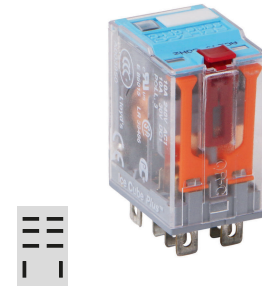


fig. 1. Wiring diagram

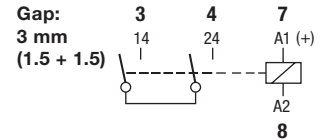


fig. 2. AC voltage endurance

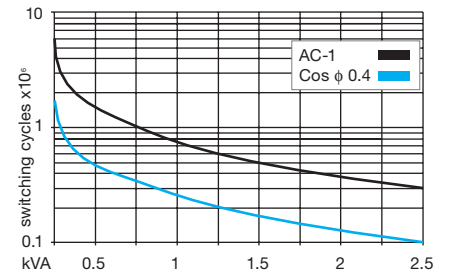


fig. 3. DC load limit curve

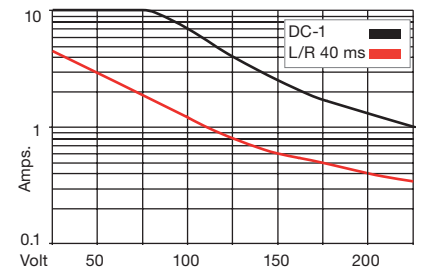
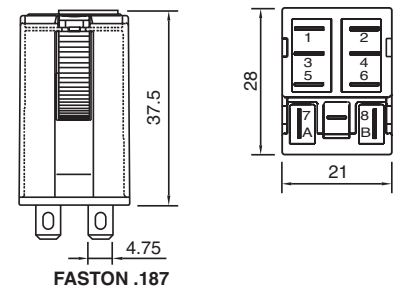


fig. 4. Dimensions (mm)



Technical approvals, conformities

Standards IEC/EN 60947; IEC/EN 61810

Approvals

1.3 Industrial Relays - pluggable

C9-A4x

4 pole | changeover contact | Faston

Main circuit

Available contact materials

AgNi + 0.2 μ Au for C9-A41

AgNi + 5 μ Au for C9-A42

Recommended minimum contact load

1 mA / 1 V

Maximum contact load AC

5 A / 250 V AC-1

Maximum contact load DC

5 A / 30 V DC-1

Inrush current

15 A, 20 ms

Rated load AC

1 250 VA

Rated load DC

fig. 3.

Rated current

5 A

Mechanical endurance (cycles)

≥ 10 000 000

Electrical endurance at rated load AC-1 (cycles)

≥ 100 000

Control circuit

Nominal voltage

see table product references

Operating voltage range

0.8 U_N ... 1.1 U_N

Pick-up voltage

≤ 0.8 U_N

Release voltage

≥ 0.1 U_N

Power consumption AC / DC

1.2 VA / 1 W

Coil table

V AC	Ohm	mA	V DC	Ohm	mA
12	42	122	12	158	76
24	166	59	24	632	38
48	681	26.2	48	2 530	19
60	1 038	0	60	3 953	15
230	15 248	6.7	110	13 286	8
			220	53 146	4

Insulation

Test voltage open contact

1 kV / 1 min

Test voltage contact / contact

2 kV / 1 min

Test voltage contact / coil

2.5 kV / 1 min

Overvoltage category

III

Insulation resistance at 500 V

≥ 1 GΩ

Pollution degree

3

General data

Storage temperature (no ice)

-40 ... 80 °C

Operation temperature

-40 ... 60 °C

Pick-up time / bounce time

10 ms / ≤ 3 ms

Release time / bounce time

6 ms / ≤ 1 ms

Maximum switching frequency at rated load

1 200 / h

Weight

43 g

Housing material

PA / PC

Product references

Description	Type	12	24	48	60	110	220	230
AC 50 Hz	C9-A4x/AC...V	✓	✓	✓	✓			✓
LED	C9-A4xX/AC...V	✓	✓	✓	✓			✓
DC	C9-A4x/DC...V	✓	✓	✓	✓	✓	✓	
LED	C9-A4xX/DC...V	✓	✓	✓	✓	✓	✓	
LED & Free wheeling diode	C9-A4DX/DC...V			✓				
LED & Pol. & Free wheeling diode	C9-A4xFX/DC...V	✓	✓	✓	✓	✓	✓	

AC / DC bridge rec. & LED C9-A4xBX/UC...V ✓ ✓ ✓ ✓

AC relays also available as 60 Hz. Other voltages on request. Please contact support@comatreleco.com.

«...» List coil voltage to complete product references.

Accessories

Socket

S9-M, S9-P, S9-PI

Blanking plug

S9-NP (BAG 10 PCS)

Test Button w/o locking

S9-OP (BAG 10 PCS)



Maximum voltage between two separate circuits on neighbouring contacts: 150 V

Not permitted: 24 V DC next to 230 V AC, 230 V AC next to neutral, 230 V AC next to 230 V AC of different phases

Permitted: 230 V AC next to 230 V AC same phase



fig. 1. Wiring diagram

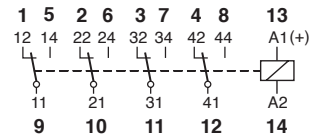


fig. 2. AC voltage endurance

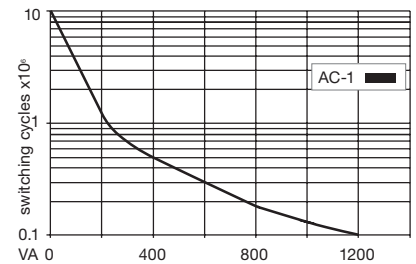


fig. 3. DC load limit curve

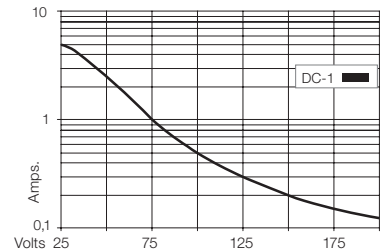
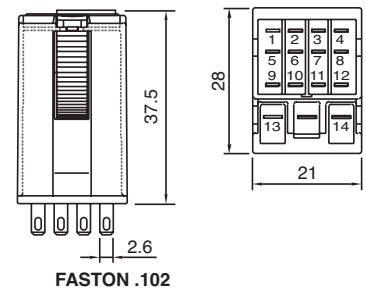


fig. 4. Dimensions (mm)



Technical approvals, conformities

Standards IEC/EN 60947; IEC/EN 61810



1.3 Industrial Relays - pluggable

C9-A4x+S9-PI

4 pole | changeover contact

Main circuit

Available contact materials	AgNi + 0.2 μ Au
Recommended minimum contact load	1 mA / 1 V
Maximum contact load AC	5 A / 250 V AC-1
Maximum contact load DC	5 A / 30 V DC-1
Inrush current	15 A, 20 ms
Rated load AC	1 250 VA
Rated load DC	fig. 3.
Rated current	5 A
Mechanical endurance (cycles)	≥ 10 000 000
Electrical endurance at rated load AC-1 (cycles)	≥ 100 000

Control circuit

Nominal voltage	see table product references
Operating voltage range	0.8 U _N ... 1.1 U _N
Pick-up voltage	≤ 0.8 U _N
Release voltage	≥ 0.1 U _N
Power consumption AC / DC	1.2 VA / 1 W

Coil table

V AC	Ohm	mA	V DC	Ohm	mA
120	3 973	9.5	24	632	38
230	15 248	6.7			

Insulation

Test voltage all terminals / DIN rail	2.5 kV rms / 1 min
Test voltage terminal / terminal	2.0 kV rms / 1 min
Test voltage open contact	1 kV rms / 1 min
Test voltage contact / coil	2.5 kV rms / 1 min
Overtoltage category	III
Insulation resistance at 500 V	≥ 1 GΩ
Pollution degree relay	3

General data

Storage temperature (no ice)	-40 ... 80 °C
Operation temperature	-40 ... 60 °C
Pick-up time / bounce time	10 ms / ≤ 3 ms
Release time / bounce time	6 ms / ≤ 1 ms
Conductor cross section control / main circuit	
- Single wire	2 x 0.34 mm ² / AWG 22 ... 2 x 2.5 mm ² / AWG 14
- Multi wire (un-crimped)	2 x 0.34 mm ² / AWG 22 ... 2 x 2.5 mm ² / AWG 14
- Multi wire (crimped)	2 x 0.34 mm ² / AWG 22 ... 2 x 1.5 mm ² / AWG 16
Mounting	TH35 (EN 60715)
Maximum switching frequency at rated load	1 200 / h
Weight	105 g
Housing material	PA / PC

Product references

Description	Type	24	120	230
LED	C9-A41X/AC...V+S9-PI			✓
LED	C9-A41X/AC...V 60HZ+S9-PI		✓	

LED & Free wheeling diode C9-A41DX/DC...V+S9-PI ✓

Other voltages on request. Please contact support@comatreleco.com.

«...» List coil voltage to complete product references

Included Accessories

Retaining clip plastic	S7-CPI
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Optional Accessories

Blanking plug	S9-NP (BAG 10 PCS)
Test Button w/o locking	S9-OP (BAG 10 PCS)
Bridge A2 for Sx-PI / Sx-PIR	Sxx-BBPI (BAG 20 PCS)
2-pole potential bridge bar	Sxx-BBPI2 (BAG 20 PCS)
4-pole potential bridge bar	Sxx-BBPI4 (BAG 20 PCS)
Multi-operation tool kit	OT-PI kit
Marking strip for Push-in	BS11-PI (50m tape)
Retaining clip plastic	S7-CPI (BAG 10 PCS)

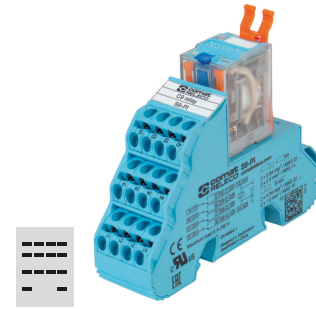


fig. 1. Wiring diagram

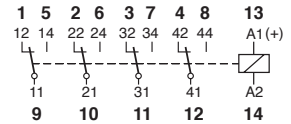


fig. 2. AC voltage endurance

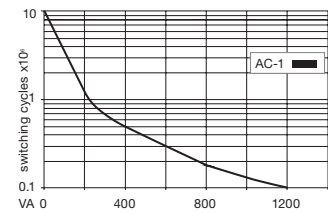


fig. 3. DC load limit curve

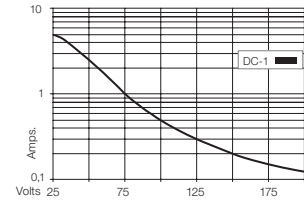
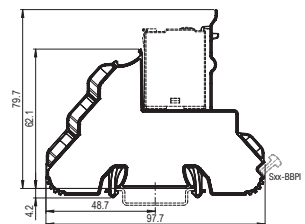


fig. 4. Dimensions (mm)



Technical approvals, conformities

Standards IEC/EN 60947; IEC/EN 61810

Approvals

1.3 Industrial Relays - pluggable

R9-A41

4 pole | changeover contact | Faston

Main circuit

Available contact materials	AgNi + 0.2 μ Au
Recommended minimum contact load	10 mA / 10 V
Maximum contact load AC	5 A / 250 V AC-1
Maximum contact load DC	5 A / 30 V DC-1
Inrush current	15 A, 20 ms
Rated load AC	1 250 VA
Rated load DC	fig. 3.
Rated current	5 A
Mechanical endurance (cycles)	≥ 10 000 000
Electrical endurance at rated load AC-1 (cycles)	≥ 100 000

Control circuit

Nominal voltage	see table product references
Operating voltage range	0.7 U _N ... 1.25 U _N
Pick-up voltage	≤ 0.7 U _N
Release voltage	≥ 0.1 U _N
Power consumption AC / DC	1.2 VA / 1 W

Coil table

V DC	Ohm	mA
12	158	76
24	632	38
36	1 423	25
48	2 530	19
60	3 953	15
72	5 692	13
110	13 286	8
220	53 146	4

Insulation

Test voltage open contact	1 kV / 1 min
Test voltage contact / contact	2 kV / 1 min
Test voltage contact / coil	2.5 kV / 1 min
Overvoltage category	III
Insulation resistance at 500 V	≥ 1 GΩ
Pollution degree	3

General data

Storage temperature (no ice)	-40 ... 80 °C
Operation temperature	-40 ... 70 °C
Pick-up time / bounce time	10 ms / ≤ 3 ms
Release time / bounce time	6 ms / ≤ 1 ms
Maximum switching frequency at rated load	1 200 / h
Weight	43 g
Housing material	PA / PC

Product references

Description	Type	12	24	36	48	60	72	110	220
LED & Pol. & Free wheeling diode	R9-A41FX/DC...V	✓	✓	✓	✓	✓	✓	✓	✓

Other voltages on request. Please contact support@comatreleco.com.
«...» List coil voltage to complete product references

Accessories

Socket	S9-PIR
Blanking plug	S9-NP (BAG 10 PCS)
Test Button w/o locking	S9-OP (BAG 10 PCS)

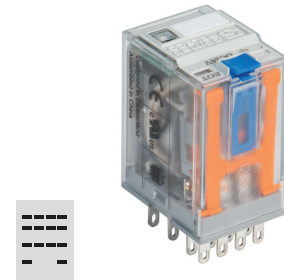


fig. 1. Wiring diagram

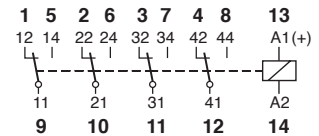


fig. 2. AC voltage endurance

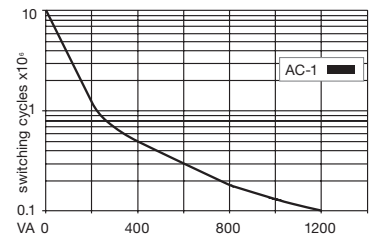


fig. 3. DC load limit curve

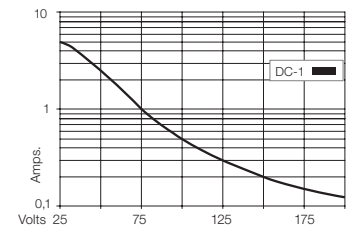
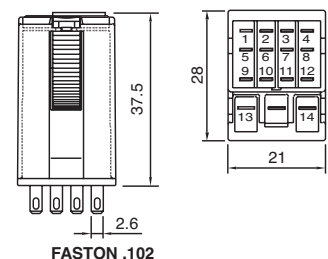


fig. 4. Dimensions (mm)



Technical approvals, conformities

Standards IEC/EN 60947; IEC/EN 61810

Railway EN 45545-2; EN 50155

Approvals

C9-E21

2 pole | changeover contact | sensitive coil | Faston

Main circuit

Available contact materials	AgNi + 0.2 μ Au
Recommended minimum contact load	10 mA / 10 V
Maximum contact load AC	5 A / 250 V AC-1
Maximum contact load DC	5 A / 30 V DC-1
Inrush current	15 A, 20 ms
Rated load AC	1 200 VA
Rated load DC	fig. 3.
Rated current	5 A
Mechanical endurance (cycles)	≥ 10 000 000
Electrical endurance at rated load AC-1 (cycles)	≥ 100 000

Control circuit

Nominal voltage	see table product references
Operating voltage range	0.8 U _N ... 1.1 U _N
Pick-up voltage	≤ 0.8 U _N
Release voltage	≥ 0.1 U _N
Power consumption AC / DC	0.8 VA / 0.5 W

Coil table

V AC	Ohm	mA	V DC	Ohm	mA
12	65	68	12	279	43
24	255	on req.	24	1140	21
48	1022	on req.	48	4467	10.7
60	1516	13.6	60	7053	8.5
115	5865	on req.	110	23449	4.7
230	23900	3.2			

Insulation

Test voltage open contact	1 kV / 1 min
Test voltage contact / contact	2.5 kV / 1 min
Test voltage contact / coil	2.5 kV / 1 min
Overtoltage category	III
Insulation resistance at 500 V	≥ 1 GΩ
Pollution degree	3

General data

Storage temperature (no ice)	-40 ... 80 °C
Operation temperature	-40 ... 60 °C
Pick-up time / bounce time	10 ms / ≤ 3 ms
Release time / bounce time	6 ms / ≤ 1 ms
Maximum switching frequency at rated load	1 200 / h
Weight	40 g
Housing material	PA / PC

Product references

Description	Type	6	12	24	48	60	72	110	115	220	230
AC 50 Hz	C9-E21/AC...V	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
LED	C9-E21X/AC...V		✓	✓	✓			✓	✓		✓
DC	C9-E21/DC...V	✓	✓	✓	✓	✓	✓	✓			
LED	C9-E21X/DC...V		✓	✓	✓			✓			
LED & Free wheeling diode	C9-E21DX/DC...V			✓							
LED & Pol. & Free wheeling diode	C9-E21FX/DC...V		✓	✓	✓	✓		✓			✓

AC relays also available as 60 Hz. Other voltages on request. Please contact support@comatreleco.com.
 «...» List coil voltage to complete product references.

Accessories

Socket	S9-M, S9-P, S9-PI
Blanking plug	S9-NP (BAG 10 PCS)
Test Button w/o locking	S9-OP (BAG 10 PCS)

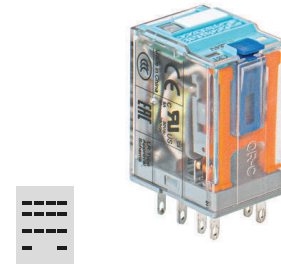


fig. 1. Wiring diagram

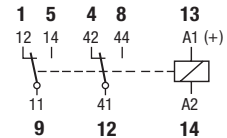


fig. 2. AC voltage endurance

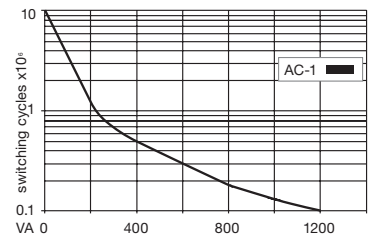


fig. 3. DC load limit curve

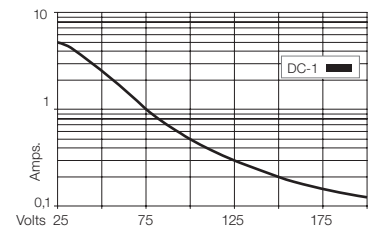
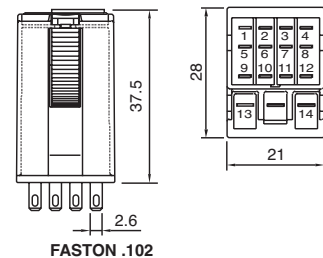


fig. 4. Dimensions (mm)



Technical approvals, conformities

Standards IEC/EN 60947; IEC/EN 61810



1.3 Industrial Relays - pluggable

C9-R21

2 pole | changeover contact | remanence | Faston

Main circuit

Available contact materials	AgNi + 0.2 μ Au
Recommended minimum contact load	10 mA / 10 V
Maximum contact load AC	5 A / 120 V AC-1
Maximum contact load DC	5 A / 30 V DC-1
Inrush current	15 A, 20 ms
Rated load AC	600 VA
Rated load DC	fig. 3.
Rated current	5 A
Mechanical endurance (cycles)	≥ 10 000 000
Electrical endurance at rated load AC-1 (cycles)	≥ 100 000

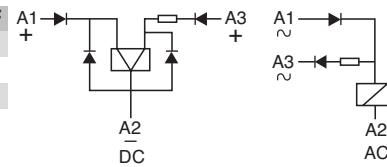
Control circuit

Nominal voltage	see table product references
Operating voltage range	0.8 U _N ... 1.1 U _N
Pick-up voltage	≤ 0.8 U _N
Release voltage	≤ 0.8 U _N
ON pulse power	AC 1.2 VA, DC 1.2 W
OFF pulse power	0.2 VA / 0.3 W

Coil table

V AC	mA ON	mA OFF	V DC	mA ON	mA OFF
24	62	6	12	105	19
48	25	4	24	51	8
115	14	1	48	26	4
230	5	1	60	21	5

Internal diagram



Insulation

Test voltage open contact	1 kV / 1 min
Test voltage contact / contact	2 kV / 1 min
Test voltage contact / coil	2 kV / 1 min
Overvoltage category	III
Insulation resistance at 500 V	≥ 1 GΩ
Pollution degree	3

General data

Storage temperature (no ice)	-40 ... 80 °C
Operation temperature	-40 ... 60 °C
Minimum pulse length ON / OFF	50 ms
Maximum switching frequency at rated load	1 200 / h
Weight	43 g
Housing material	PA / PC

Product references

Description	Type	12	24	48	60	110	115	230
AC 50 Hz	C9-R21/AC...V	✓	✓	✓			✓	✓
DC	C9-R21/DC...V	✓	✓	✓	✓	✓		

AC relays also available as 60 Hz. Other voltages on request. Please contact support@comatreleco.com.

«...» List coil voltage to complete product references.

Accessories

Socket	S9-M, S9-P, S9-PI
Blanking plug	S0-NP (BAG 10 PCS)
Test Button w/o locking	S9-OP (BAG 10 PCS)

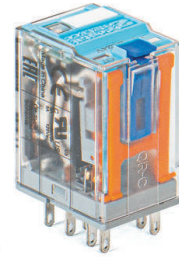


fig. 1. Wiring diagram

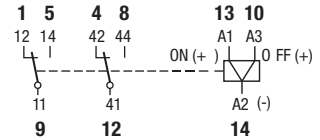


fig. 2. AC voltage endurance

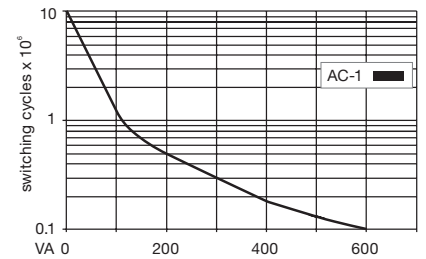


fig. 3. DC load limit curve

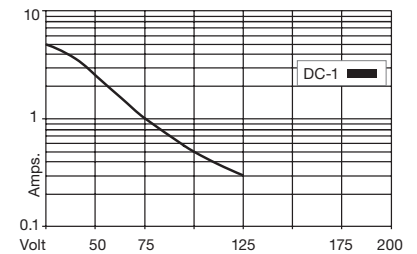
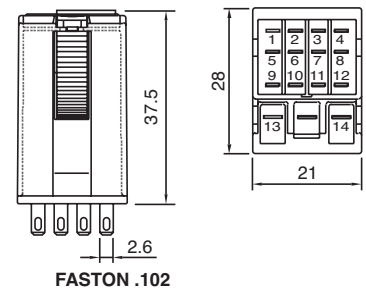


fig. 4. Dimensions (mm)









Technical approvals, conformities

Standards IEC/EN 60947; IEC/EN 61810

Approvals

1.4 Long Life Relays

	Type	Pin	Page
C2x Series			
2 pole changeover contact Power relay	C21		84
2 pole changeover twin contact Control relay	C22		85
C3 Series			
3 pole changeover contact Power relay	C31		86
3 pole changeover contact Power relay Railway	C31x/R		87
3-pole change-over double contact Control relay	C32		88
3 pole changeover twin contact Control relay Railway	C32x/R		89

1.4 Long Life Relays

C21

2 pole | changeover contact | Power relay

Main circuit

Available contact materials	⚡ AgCuNi
Recommended minimum contact load	50 mA / 10 V
Maximum contact load AC	10 A / 250 V AC-1
Maximum contact load DC	10 A / 30 V DC-1
Inrush current	40 A, 20 ms
Rated load AC	2 500 VA
Rated load DC	fig. 3.
Rated current	10 A
Mechanical endurance (cycles)	≥ 100 000 000
Electrical endurance at rated load AC-1 (cycles)	≥ 700 000

Control circuit

Nominal voltage	see table product references
Operating voltage range	$0.8 U_N \dots 1.1 U_N$
Pick-up voltage	$\leq 0.8 U_N$
Release voltage AC / DC	$> 0.15 \times U_N / > 0.05 \times U_N$
Power consumption AC / DC	2.5 VA / 1.2 W

Coil table

V AC	Ohm	mA	V DC	Ohm	mA
24	52	104	12	115	104
48	1 850	26	24	480	50
230	5 600	11.5	48	1 850	26
			110	9 000	12
			220	29 000	7.6

Types with LED indicator take additional 5 ... 10 mA @ < 80 V

Insulation

Test voltage open contact	1.5 kV / 1 min
Test voltage contact / contact	1.5 kV / 1 min
Test voltage contact / coil	2 kV / 1 min
Overvoltage category	III
Insulation resistance at 500 V	≥ 1 GΩ
Pollution degree	3

General data

Storage temperature (no ice)	-40 ... 70 °C
Operation temperature	-40 ... 70 °C
Pick-up time AC / DC	3 ... 10 ms / ≤ 12 ms
Release time AC / DC	2 ... 15 ms / ≤ 3.5 ms
Bounce time NO contact AC / DC	3 ... 6 ms / approx. ≤ 3.5 ms
Maximum switching frequency at rated load	360 / h
Weight	80 g
Housing material	PA / PC

Product references

Description	Type	12	24	48	110	220	230
LED	C21L/AC...V	✓	✓	✓			✓

LED & Free wheeling diode C21DL/DC...V ✓ ✓ ✓ ✓ ✓
 AC relays also available as 60 Hz. Other voltages on request. Please contact support@comatreleco.com.
 «...» List coil voltage to complete product references.

Accessories

Socket	S2-B
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fig. 1. Wiring diagram

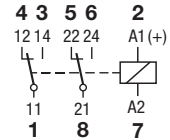


fig. 2. AC voltage endurance

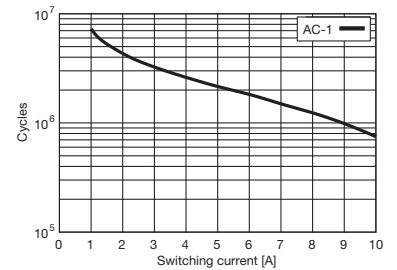


fig. 3. DC load limit curve

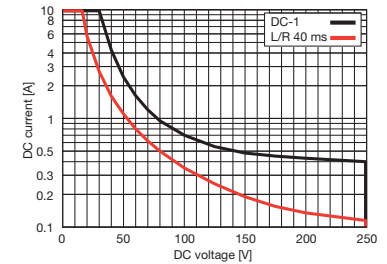
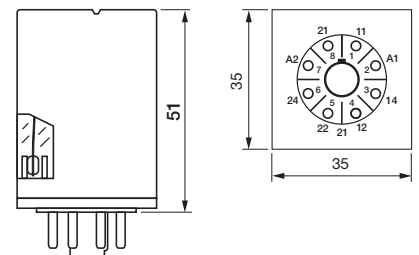


fig. 4. Dimensions (mm)



Technical approvals, conformities

Standards IEC/EN 60947; IEC/EN 61810



Main circuit

Available contact materials	AgCuNi
Recommended minimum contact load	10 mA / 5 V
Maximum contact load AC	6 A / 250 V AC-1
Maximum contact load DC	6 A / 30 V DC-1
Inrush current	15 A, 20 ms
Rated load AC	1 500 VA
Rated load DC	fig. 3.
Rated current	6 A
Mechanical endurance (cycles)	≥ 100 000 000
Electrical endurance at rated load AC-1 (cycles)	≥ 1 500 000

Control circuit

Nominal voltage	see table product references
Operating voltage range	0.8 U _N ... 1.1 U _N
Pick-up voltage	≤ 0.8 U _N
Release voltage AC / DC	> 0.15 x U _N / > 0.05 x U _N
Power consumption AC / DC	2.5 VA / 1.2 W

Coil table

V AC	Ohm	mA	V DC	Ohm	mA
24	52	104	12	115	104
48	240	55	24	480	50
115	1 350	23	48	1 850	26
			110	9 000	12
			220	29 000	7.6

Types with LED indicator take additional 5 ... 10 mA @ < 80 V

Insulation

Test voltage open contact	1.5 kV / 1 min
Test voltage contact / contact	1.5 kV / 1 min
Test voltage contact / coil	2 kV / 1 min
Overvoltage category	III
Insulation resistance at 500 V	≥ 1 GΩ
Pollution degree	3

General data

Storage temperature (no ice)	-40 ... 70 °C
Operation temperature	-40 ... 70 °C
Pick-up time AC / DC	3 ... 10 ms / ≤ 12 ms
Release time AC / DC	2 ... 15 ms / ≤ 3.5 ms
Bounce time NO contact AC / DC	3 ... 6 ms / approx. ≤ 3.5 ms
Maximum switching frequency at rated load	360 / h
Weight	80 g
Housing material	PA / PC

Product references

Description	Type	12	24	48	110	115	220
LED	C22L/AC...V	✓	✓	✓		✓	

LED & Free wheeling diode C22DL/DC...V ✓ ✓ ✓ ✓ ✓
 AC relays also available as 60 Hz. Other voltages on request. Please contact support@comatreleco.com.
 «...» List coil voltage to complete product references.

Accessories

Socket	S2-B
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fig. 1. Wiring diagram

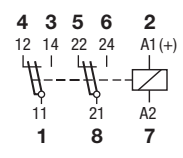


fig. 2. AC voltage endurance

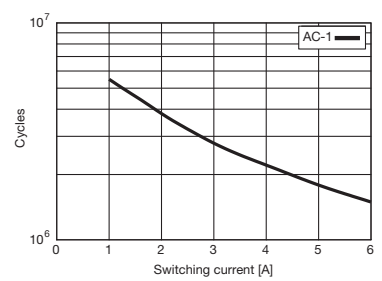


fig. 3. DC load limit curve

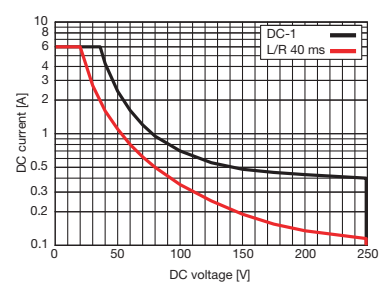
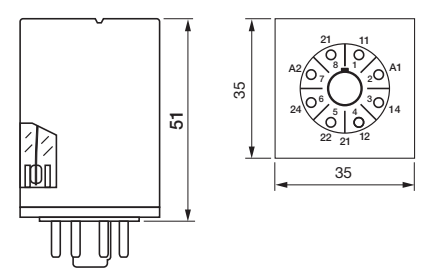


fig. 4. Dimensions (mm)



Technical approvals, conformities

Standards IEC/EN 60947; IEC/EN 61810



1.4 Long Life Relays

C31

3 pole | changeover contact | Power relay



Main circuit

Available contact materials	⚡ AgCuNi
Recommended minimum contact load	50 mA / 10 V
Maximum contact load AC	10 A / 250 V AC-1
Maximum contact load DC	10 A / 30 V DC-1
Inrush current	40 A, 20 ms
Rated load AC	2 500 VA
Rated load DC	fig. 3.
Rated current	10 A
Mechanical endurance (cycles)	≥ 100 000 000
Electrical endurance at rated load AC-1 (cycles)	≥ 700 000

Control circuit

Nominal voltage	see table product references
Operating voltage range	$0.8 U_N \dots 1.20 U_N$
Pick-up voltage	$0.8 U_N$
Release voltage	$> 0.15 \times U_N / > 0.05 \times U_N$
Power consumption AC / DC	2.5 VA / 1.2 W

Coil table

V AC	Ohm	mA	V DC	Ohm	mA
24	52	104	12	115	104
48	240	55	24	480	50
115	1 350	23	48	1 850	26
230	5 600	11.5	72	3 200	23
			110	9 000	12
			220	29 000	7.6

Types with LED indicator take additional 5 ... 10 mA @ < 80 V

Insulation

Test voltage open contact	1.5 kV / 1 min
Test voltage contact / contact	1.5 kV / 1 min
Test voltage contact / coil	2 kV / 1 min
Overtoltage category	III
Insulation resistance at 500 V	≥ 1 GΩ
Pollution degree	3

General data

Storage temperature (no ice)	-40 ... 80 °C
Operation temperature	-40 ... 70 °C
Pick-up time AC / DC	3 ... 10 ms / ≤ 12 ms
Release time AC / DC	2 ... 15 ms / ≤ 3.5 ms
Bounce time NO contact AC / DC	3 ... 6 ms / approx. ≤ 3.5 ms
Maximum switching frequency at rated load	360 / h
Weight	80 g
Housing material	PA / PC

Product references

Description	Type	12	24	48	110	115	220	230
LED	C31L/AC...V	✓	✓	✓		✓		✓
LED & Free wheeling diode	C31DL/DC...V	✓	✓	✓	✓			✓

AC relays also available as 60 Hz. Other voltages on request. Please contact support@comatreleco.com.
«...» List coil voltage to complete product references.

Accessories

Socket	S3-B, S3-S, S3-M, S3-M0, S3-M1, EC-11
--------	---------------------------------------



fig. 1. Wiring diagram

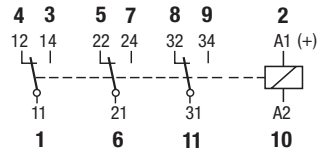


fig. 2. AC voltage endurance

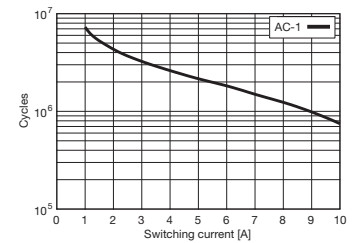


fig. 3. DC load limit curve

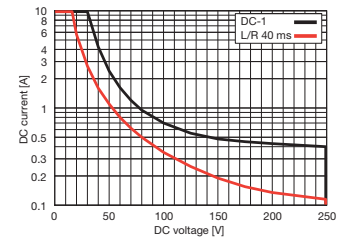
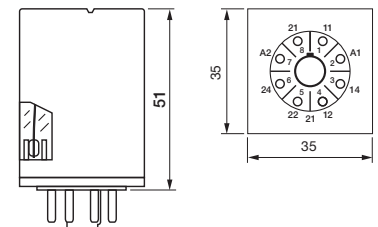


fig. 4. Dimensions (mm)



Technical approvals, conformities

Standards IEC/EN 60947; IEC/EN 61810



Approvals

C31x/R

3 pole | changeover contact | Power relay | Railway

Main circuit

Available contact materials	⚡ AgCuNi
Recommended minimum contact load	50 mA / 10 V
Maximum contact load AC	10 A / 250 V AC-1
Maximum contact load DC	10 A / 30 V DC-1
Inrush current	40 A, 20 ms
Rated load AC	2 500 VA
Rated load DC	fig. 3.
Rated current	10 A
Mechanical endurance (cycles)	≥ 100 000 000
Electrical endurance at rated load AC-1 (cycles)	≥ 700 000

Control circuit

Nominal voltage	see table product references
Operating voltage range	0.7 U _N ... 1.25 U _N
Pick-up voltage	0.7 U _N
Release voltage	> 0.15 x U _N / > 0.05 x U _N
Power consumption AC / DC	2.5 VA / 1.2 W

Coil table

V DC	Ohm	mA
12	115	104
24	340	70
36	780	46
48	1 850	26
72	3 200	23
110	9 700	11
220	29 000	7.6

Types with LED indicator take additional 5 ... 10 mA @ < 80 V

Insulation

Test voltage open contact	1.5 kV / 1 min
Test voltage contact / contact	1.5 kV / 1 min
Test voltage contact / coil	2 kV / 1 min
Overtoltage category	III
Insulation resistance at 500 V	≥ 1 GΩ
Pollution degree	3

General data

Storage temperature (no ice)	-40 ... 80 °C
Operation temperature	-40 ... 70 °C
Pick-up time AC / DC	3 ... 10 ms / ≤ 12 ms
Release time AC / DC	2 ... 15 ms / ≤ 3.5 ms
Bounce time NO contact AC / DC	3 ... 6 ms / approx. ≤ 3.5 ms
Maximum switching frequency at rated load	360 / h
Weight	80 g
Housing material	PA / PC

Product references

Description	Type	12	24	36	48	72	110	220
Railway & Free wheeling diode	C31D/R DC...V	✓	✓	✓	✓	✓	✓	✓

Other voltages on request. Please contact support@comatreleco.com.
«...» List coil voltage to complete product references

Accessories

Socket	S3-MR, S3-M0R, S3-M1R
--------	-----------------------



fig. 1. Wiring diagram

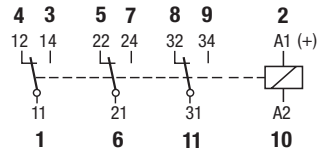


fig. 2. AC voltage endurance

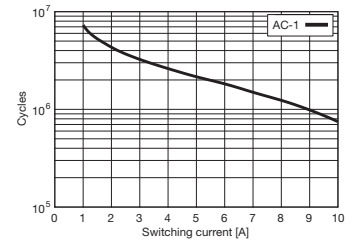


fig. 3. DC load limit curve

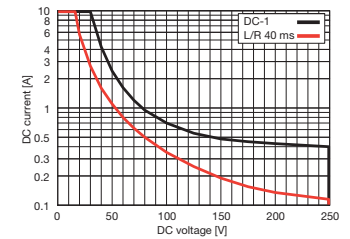
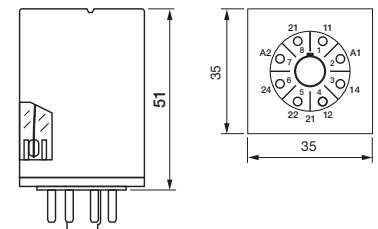


fig. 4. Dimensions (mm)



Technical approvals, conformities

Standards IEC/EN 60947; IEC/EN 61810

Railway EN 45545-2; EN 50155



1.4 Long Life Relays

C32

3-pole | change-over double contact | Control relay



Main circuit

Available contact materials	AgCuNi
Recommended minimum contact load	1 mA / 5 V
Maximum contact load AC	6 A / 250 V AC-1
Maximum contact load DC	6 A / 30 V DC-1
Inrush current	15 A, 20 ms
Rated load AC	1 500 VA
Rated load DC	fig. 3.
Rated current	6 A
Mechanical endurance (cycles)	≥ 100 000 000
Electrical endurance at rated load AC-1 (cycles)	≥ 1 500 000

Control circuit

Nominal voltage	see table product references
Operating voltage range	0.8 U _N ... 1.20 U _N
Pick-up voltage	0.8 U _N
Release voltage	> 0.15 x U _N / > 0.05 x U _N
Power consumption AC / DC	2.5 VA / 1.2 W

Coil table

V AC	Ohm	mA	V DC	Ohm	mA
48	240	55	12	115	104
115	1 350	23	24	480	50
230	5 600	11.5	48	1 850	26
			220	29 000	7.6

Types with LED indicator take additional 5 ... 10 mA @ < 80 V

Insulation

Test voltage open contact	1.5 kV / 1 min
Test voltage contact / contact	1.5 kV / 1 min
Test voltage contact / coil	2 kV / 1 min
Overvoltage category	III
Insulation resistance at 500 V	≥ 1 GΩ
Pollution degree	3

General data

Storage temperature (no ice)	-40 ... 80 °C
Operation temperature	-40 ... 70 °C
Pick-up time AC / DC	3 ... 10 ms / ≤ 12 ms
Release time AC / DC	2 ... 15 ms / ≤ 3.5 ms
Bounce time NO contact AC / DC	3 ... 6 ms / approx. ≤ 3.5 ms
Maximum switching frequency at rated load	360 / h
Weight	80 g
Housing material	PA / PC

Product references

Description	Type	12	24	48	220	230
LED	C32L/AC...V	✓	✓	✓	✓	✓
LED & Free wheeling diode	C32DL/DC...V	✓	✓	✓	✓	✓

AC relays also available as 60 Hz. Other voltages on request. Please contact support@comatreleco.com.
«...» List coil voltage to complete product references.

Accessories

Socket	S3-B, S3-S, S3-M, S3-M0, S3-M1, S3-MR, S3-M0R, S3-M1R, EC-11
--------	--



fig. 1. Wiring diagram

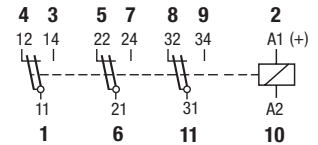


fig. 2. AC voltage endurance

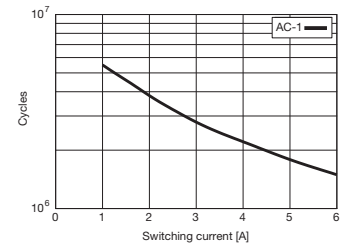


fig. 3. DC load limit curve

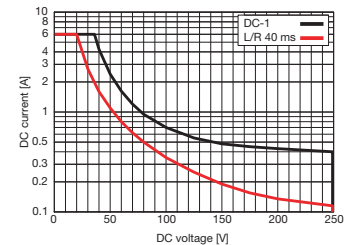
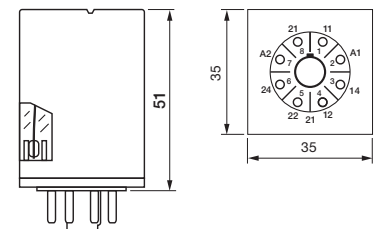


fig. 4. Dimensions (mm)



Technical approvals, conformities

Standards IEC/EN 60947; IEC/EN 61810



Main circuit

Available contact materials	AgCuNi
Recommended minimum contact load	1 mA / 5 V
Maximum contact load AC	6 A / 250 V AC-1
Maximum contact load DC	6 A / 30 V DC-1
Inrush current	15 A, 20 ms
Rated load AC	1 500 VA
Rated load DC	fig. 3.
Rated current	6 A
Mechanical endurance (cycles)	≥ 100 000 000
Electrical endurance at rated load AC-1 (cycles)	≥ 1 500 000

Control circuit

Nominal voltage	see table product references
Operating voltage range	0.7 U _N ... 1.25 U _N
Pick-up voltage	0.7 U _N
Release voltage	>0.15 x U _N / > 0.05 x U _N
Power consumption AC / DC	2.5 VA / 1.2 W

Coil table

V AC	Ohm	mA	V DC	Ohm	mA
230	5 600	11.5	12	115	104
			24	340	70
			36	780	46
			48	1 850	26
			72	3 200	23
			110	9 700	11
			220	29 000	7.6

Insulation

Test voltage open contact	1.5 kV / 1 min
Test voltage contact / contact	1.5 kV / 1 min
Test voltage contact / coil	2 kV / 1 min
Overvoltage category	III
Insulation resistance at 500 V	≥ 1 GΩ
Pollution degree	3

General data

Storage temperature (no ice)	-40 ... 80 °C
Operation temperature	-40 ... 70 °C
Pick-up time AC / DC	3 ... 10 ms / ≤ 12 ms
Release time AC / DC	2 ... 15 ms / ≤ 3.5 ms
Bounce time NO contact AC / DC	3 ... 6 ms / approx. ≤ 3.5 ms
Maximum switching frequency at rated load	360 / h
Weight	80 g
Housing material	PA / PC

Product references

Description	Type	12	24	36	48	72	110	220	230
Railway & LED	C32L/R AC...V								✓

Railway & Free wheeling diode	C32D/R DC...V	✓	✓	✓	✓	✓	✓	✓	✓
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AC relays also available as 60 Hz. Other voltages on request. Please contact support@comatreleco.com.

«...» List coil voltage to complete product references.

Accessories

Socket	S3-MR, S3-M0R, S3-M1R
--------	-----------------------



fig. 1. Wiring diagram

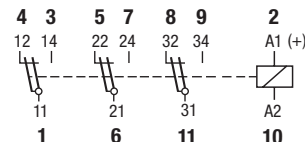


fig. 2. AC voltage endurance

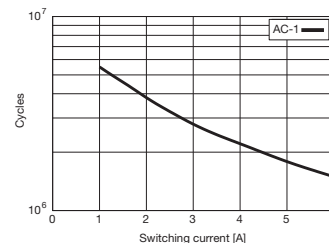


fig. 3. DC load limit curve

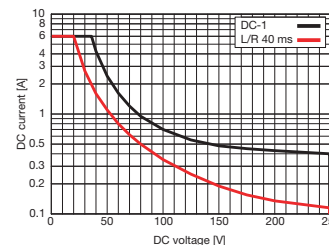
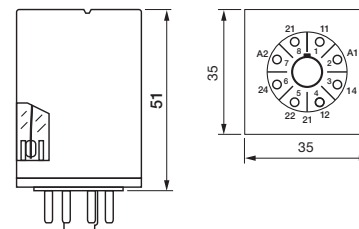


fig. 4. Dimensions (mm)











Technical approvals, conformities

Standards IEC/EN 60947; IEC/EN 61810

Railway EN 45545-2; EN 50155



1.5 Solid State Relays

	Type	Pin	Page
CSS Series / R10 Series			
1 pole normally open solid state AC Faston	CSS-I		94
1 pole normally open solid state AC Faston	R10-Z1I		95
1 pole normally open solid state AC Faston	CSS-Z		96
1 pole normally open solid state AC Faston	R10-Z1Z		97
1 pole normally open solid state DC Faston	CSS-N		98
1 pole normally open solid state DC Faston	R10-Z1N		99
1 pole normally open solid state DC Faston	CSS-P		100
1 pole normally open solid state DC Faston	R10-Z1P		101
CRINT Series			
1 pole normally open solid state DC	CRINT-C1x5		103
1 pole normally open solid state DC	CRINT-C1x5R		104
1 pole normally open solid state AC	CRINT-C1x8		105
1 pole normally open solid state AC	CRINT-C1x8R		106
SP1M Series			
SSR 1 phase NO up to 280 V AC, 25 A instantaneous Faston IP 00	SP1MXF-TIX0240-10/16/25		108
SSR 1 phase NO up to 440 V AC, 25 A instantaneous Faston IP 00	SP1MXF-TIX0380-10/16/25		109
SSR 1 phase NO up to 280 V AC, 25 A synchr zero Faston IP 00	SP1MXF-TZX0240-10/16/25		110
SSR 1 phase NO up to 440 V AC, 25 A synchr zero Faston IP 00	SP1MXF-TZX0380-10/16/25		111

	Type	Pin	Page
SSR 1 phase NO up to 280 V AC, 25 A instantaneous screw IP 00	SP1MXN-TIX0240-10/16/25		112
SSR 1 phase NO up to 440 V AC, 25 A instantaneous screw IP 00	SP1MXN-TIX0380-10/16/25		113
SSR 1 phase NO up to 280 V AC, 25 A synchr zero screw IP 00	SP1MXN-TZX0240-10/16/25		114
SSR 1 phase NO up to 440 V AC, 25 A synchr zero screw IP 00	SP1MXN-TZX0380-10/16/25		115
SP1E Series			
SSR 1 phase NO up to 280 V AC, 60 A instantaneous screw IP 20	SP1EXS-TIX0240-25/40/60		116
SSR 1 phase NO up to 280 V AC, 125 A instantaneous screw IP 20	SP1EXS-TIX0240-80/100/125		117
SSR 1 phase NO up to 530 V AC, 60 A instantaneous screw IP 20	SP1EXS-TIX0480-25/40/60		118
SSR 1 phase NO up to 530 V AC, 125 A instantaneous screw IP 20	SP1EXS-TIX0480-80/100/125		119
SSR 1 phase NO up to 660 V AC, 60 A instantaneous screw IP 20	SP1EXS-TIX0600-25/40/60		120
SSR 1 phase NO up to 660 V AC, 125 A instantaneous screw IP 20	SP1EXS-TIX0600-80/100/125		121
SSR 1 phase NO up to 280 V AC, 60 A synchr zero screw IP 20	SP1EXS-TZX0240-25/40/60		122
SSR 1 phase NO up to 280 V AC, 125 A synchr zero screw IP 20	SP1EXS-TZX0240-80/100/125		123
SSR 1 phase NO up to 530 V AC, 60 A synchr zero screw IP 20	SP1EXS-TZX0480-25/40/60		124
SSR 1 phase NO up to 530 V AC, 125 A synchr zero screw IP 20	SP1EXS-TZX0480-80/100/125		125
SSR 1 phase NO up to 660 V AC, 60 A synchr zero screw IP 20	SP1EXS-TZX0600-25/40/60		126
SSR 1 phase NO up to 660 V AC, 125 A synchr zero screw IP 20	SP1EXS-TZX0600-80/100/125		127

CSS SSR

Product Key & general information

CSS product key

1		2	3	4	5		6	7
CSS	-	P	1	1	X	/	DC	5-48V

1. Solid State Relay

CSS = C-Series (Plug-in)
solid state

2. Logic

P = PNP, Instantaneous (DC)
N = NPN, Instantaneous (DC)
I = Random-on, Instantaneous (AC)
Z = Zero crossing (AC)

3. Channels

1 = Single-channel relay

4. Semiconductor type

2 = TRIAC
3 = MOSFET

5. Indication

X = LED

6. Control circuit voltage

DC = DC Voltage

7. Control circuit rated voltage

5 ... 48 V



Type
CSS-P13X/DC5-48V
CSS-N13X/DC5-48V
CSS-I12X/DC5-48V
CSS-Z12X/DC5-48V

1.5 Solid State Relays

CSS-I

1 pole | normally open solid state AC | Faston

Main circuit

Output type	  TRIAC
Type	Instantaneous
Output voltage range	24 ... 250 V AC
Recommended minimum contact load	35 mA
Residual current	1 mA
Maximum voltage drop	≤ 1.1 V AC
Rated current	3 A
Inrush current	150 A, 10 ms
Rated limit load I ² t	210 A ² s
Rated load AC	750 VA

Control circuit

Nominal voltage	see table product references
Operating voltage range	5 ... 48 V DC
Input voltage range	4.75 ... 60 V DC
Input current	10 mA
Pick-up voltage	5 V DC
Release voltage	< 4.75 V
Power consumption DC	300 mW

General data

Storage temperature (no ice)	-40 ... 85 °C
Operation temperature	-40 ... 70 °C
Pick-up time	0.06 ms
Release time	0.06 ms
Ingress Protection	IP 40
Weight	28 g
Housing material	PA / PC

Product references

Description	Type	5-48
DC	CSS-I12X/DC...V	✓

«...» List control voltage to complete product references

Optional Accessories

Socket	S10, S10-P, S10-PI
--------	--------------------

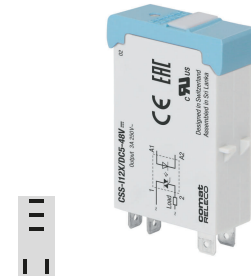


fig. 1. Wiring diagram

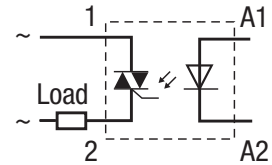


fig. 2. AC derating curve

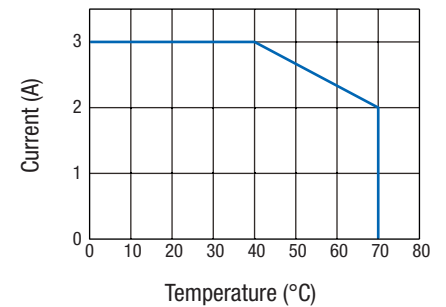


fig. 3. Dimensions (mm)

Technical approvals, conformities



Standards IEC/EN 60947

Approvals     

R10-Z1I

1 pole | normally open solid state AC | Faston

Main circuit

Output type	  TRIAC
Type	Instantaneous
Output voltage range	24 ... 250 V AC
Recommended minimum contact load	35 mA
Residual current	1 mA
Maximum voltage drop	≤ 1.1 V AC
Rated current	3 A
Inrush current	150 A, 10 ms
Rated limit load I ² t	210 A ² s
Rated load AC	750 VA

Control circuit

Nominal voltage	see table product references
Operating voltage range	5 ... 48 V DC
Input voltage range	4.75 ... 60 V DC
Input current	10 mA
Pick-up voltage	5 V DC
Release voltage	< 4.75 V
Power consumption DC	300 mW

General data

Storage temperature (no ice)	-40 ... 85 °C
Operation temperature	-40 ... 70 °C
Pick-up time	0.06 ms
Release time	0.06 ms
Ingress Protection	IP 40
Weight	28 g
Housing material	PA

Product references

Description	Type	5-48
DC	R10-Z1IX/DC...V	✓

«...» List coil voltage to complete product references

Accessories

Socket	S10-GR, S10-PIR
--------	-----------------



fig. 1. Wiring diagram

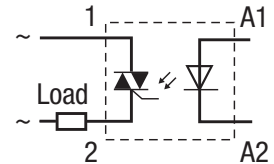


fig. 2. AC derating curve

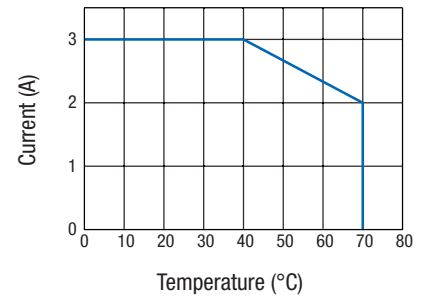
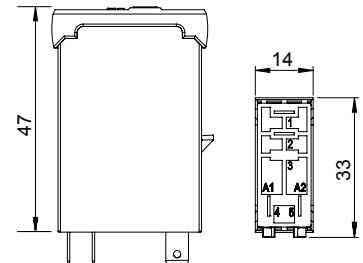


fig. 3. Dimensions (mm)



Technical approvals, conformities

Standards IEC/EN 60947
 Railway EN 45545-2; EN 50155



Approvals  

1.5 Solid State Relays

CSS-Z

1 pole | normally open solid state AC | Faston

Main circuit

Output type	  TRIAC
Type	Synchronized zero
Output voltage range	24...250 V AC
Recommended minimum contact load	35 mA
Residual current	1 mA
Maximum voltage drop	≤ 1.1 V AC
Rated current	3 A
Inrush current	150 A, 10 ms
Rated limit load I ² t	210 A ² s
Rated load AC	750 VA

Control circuit

Nominal voltage	see table product references
Operating voltage range	5 ... 48 V DC
Input voltage range	4.75 ... 60 V DC
Input current	10 mA
Pick-up voltage	5 V DC
Release voltage	< 4.75 V
Power consumption DC	300 mW

General data

Storage temperature (no ice)	-40 ... 85 °C
Operation temperature	-40 ... 70 °C
Pick-up time	10 ms
Release time	10 ms
Ingress Protection	IP 40
Weight	28 g
Housing material	PA / PC

Product references

Description	Type	5-48
DC	CSS-Z12X/DC...V	✓

«...» List control voltage to complete product references

Optional Accessories

Socket	S10, S10-P, S10-PI
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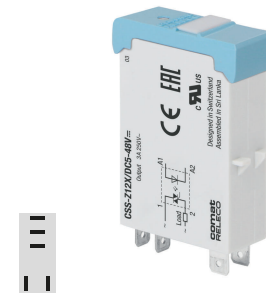


fig. 1. Wiring diagram

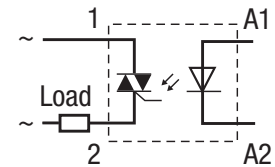


fig. 2. AC derating curve

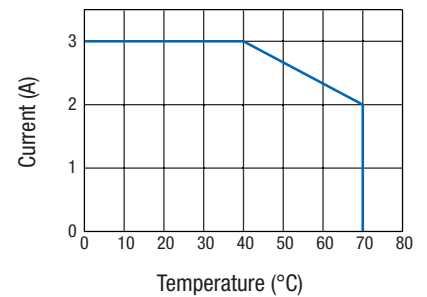
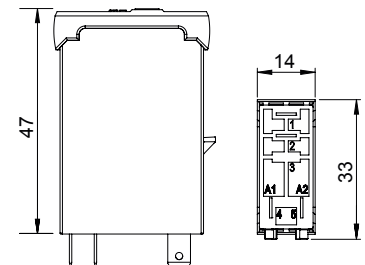


fig. 3. Dimensions (mm)



Technical approvals, conformities



Standards IEC/EN 60947

Approvals     

R10-Z1Z

1 pole | normally open solid state AC | Faston

Main circuit

Output type	  TRIAC
Type	Synchronized zero
Output voltage range	24 ... 250 V AC
Recommended minimum contact load	35 mA
Residual current	1 mA
Maximum voltage drop	≤ 1.1 V AC
Rated current	3 A
Inrush current	150 A, 10 ms
Rated limit load I ² t	210 A ² s
Rated load AC	750 VA

Control circuit

Nominal voltage	see table product references
Operating voltage range	5 ... 48 V DC
Input voltage range	4.75 ... 60 V DC
Input current	10 mA
Pick-up voltage	5 V DC
Release voltage	< 4.75 V
Power consumption DC	300 mW

General data

Storage temperature (no ice)	-40 ... 85 °C
Operation temperature	-40 ... 70 °C
Pick-up time	10 ms
Release time	10 ms
Ingress Protection	IP 40
Weight	28 g
Housing material	PA

Product references

Description	Type	5-48
DC	R10-Z1ZX/DC...V	✓

«...» List coil voltage to complete product references

Accessories

Socket	S10-GR, S10-PIR
--------	-----------------



fig. 1. Wiring diagram

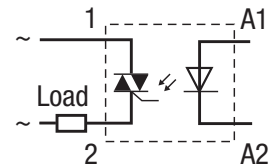


fig. 2. AC derating curve

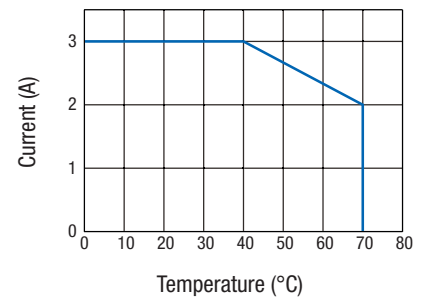
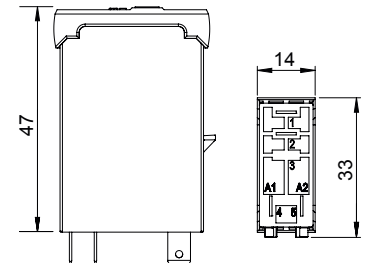


fig. 3. Dimensions (mm)



Technical approvals, conformities

Standards IEC/EN 60947
 Railway EN 45545-2; EN 50155


Approvals  

1.5 Solid State Relays

CSS-N

1 pole | normally open solid state DC | Faston

Main circuit

Output type	 MOSFET
Type	Instantaneous
Logic	N-Channel
Output voltage range	5 ... 48 V DC
Recommended minimum contact load	1 mA
Residual current	0.1 mA
Maximum voltage drop	≤ 0.14 V DC
Rated current	6 A
Inrush current	40 A, 10 ms
Rated load DC	360 W

Current derating curve versus operation temperature: fig. 2.

Control circuit

Nominal voltage	see table product references
Operating voltage range	5 ... 48 V DC
Input voltage range	4.75 ... 60 V DC
Input current	4 mA
Pick-up voltage	5 V DC
Release voltage	< 4.75 V
Power consumption DC	300 mW

General data

Storage temperature (no ice)	-40 ... 85 °C
Operation temperature	-40 ... 70 °C
Pick-up time	0.06 ms
Release time	0.06 ms
Ingress Protection	IP 40
Weight	28 g
Housing material	PA / PC

Product references

Description	Type	5-48
DC	CSS-N13X/DC...V	✓

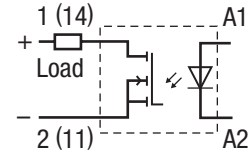
«...» List control voltage to complete product references

Optional Accessories

Socket	S10, S10-P, S10-PI
--------	--------------------



fig. 1. Wiring diagram



Negative common

fig. 2. DC derating curve

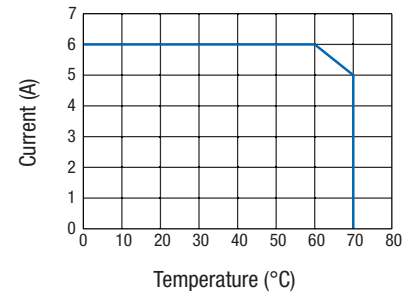


fig. 3. Dimensions (mm)

Technical approvals, conformities

Standards IEC/EN 60947

Approvals       

1.5 Solid State Relays

R10-Z1N

1 pole | normally open solid state DC | Faston

Main circuit

Output type	MOSFET
Type	Instantaneous
Logic	NPN
Output voltage range	5 ... 48 V DC
Recommended minimum contact load	1 mA
Residual current	0.1 mA
Maximum voltage drop	≤ 0.14 V DC
Rated current	6 A
Inrush current	40 A, 10 ms
Rated load DC	360 W

Control circuit

Nominal voltage	see table product references
Operating voltage range	5 ... 48 V DC
Input voltage range	4.75 ... 60 V DC
Input current	4 mA
Pick-up voltage	5 V DC
Release voltage	< 4.75 V
Power consumption DC	300 mW

General data

Storage temperature (no ice)	-40 ... 85 °C
Operation temperature	-40 ... 70 °C
Pick-up time	0.06 ms
Release time	0.06 ms
Ingress Protection	IP 40
Weight	28 g
Housing material	PA

Product references

Description	Type	5-48
DC	R10-Z1NX/DC...V	✓

«...» List coil voltage to complete product references

Accessories

Socket	S10-GR, S10-PIR
--------	-----------------



fig. 1. Wiring diagram

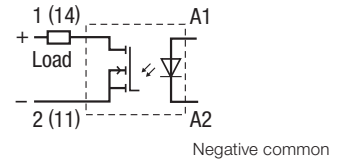


fig. 2. DC derating curve

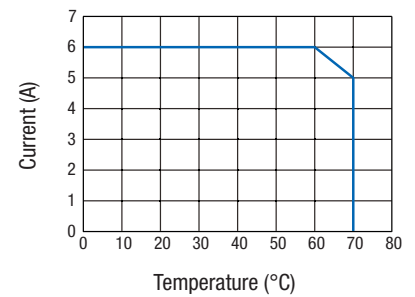
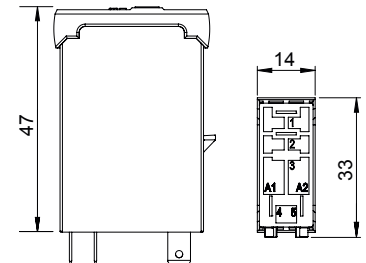


fig. 3. Dimensions (mm)



Technical approvals, conformities

Standards IEC/EN 60947

Railway EN 45545-2; EN 50155


Approvals

1.5 Solid State Relays

CSS-P

1 pole | normally open solid state DC | Faston

Main circuit

Output type	 MOSFET
Type	Instantaneous
Logic	P-Channel
Output voltage range	5 ... 48 V DC
Recommended minimum contact load	1 mA
Residual current	0.1 mA
Maximum voltage drop	≤ 0.14 V DC
Rated current	6 A
Inrush current	40 A, 10 ms
Rated load DC	360 W

Current derating curve versus operation temperature: fig. 2.

Control circuit

Nominal voltage	see table product references
Operating voltage range	5 ... 48 V DC
Input voltage range	4.75 ... 60 V DC
Input current	4 mA
Pick-up voltage	5 V DC
Release voltage	< 4.75 V
Power consumption DC	300 mW

Output current

Type	Instantaneous
Logic	P-Channel
Maximum output current	6 A
Minimum output current	1 mA
Output voltage range	5 ... 48 V DC
Residual current	0.1 mA
Maximum voltage drop	≤ 0.14 V DC

General data

Storage temperature (no ice)	-40 ... 85 °C
Operation temperature	-40 ... 70 °C
Pick-up time	0.06 ms
Release time	0.06 ms
Ingress Protection	IP 40
Weight	28 g
Housing material	PA / PC

Product references

Description	Type	5-48
DC	CSS-P13X/DC...V+S10-PI	✓

«...» List control voltage to complete product references

Optional Accessories

Socket	S10, S10-P, S10-PI
--------	--------------------

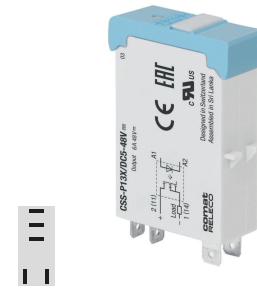
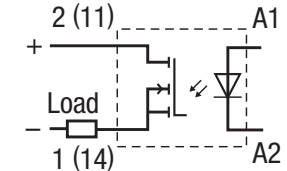


fig. 1. Wiring diagram



Positive common

fig. 2. DC derating curve

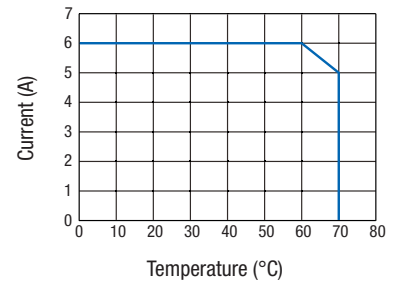
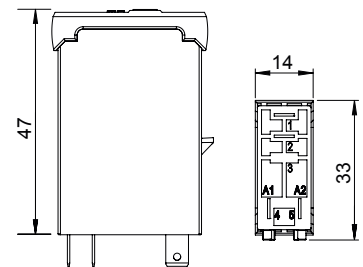


fig. 3. Dimensions (mm)



Technical approvals, conformities

Standards IEC/EN 60947

Approvals     

R10-Z1P

1 pole | normally open solid state DC | Faston

Main circuit

Output type	MOSFET
Type	Instantaneous
Logic	PNP
Output voltage range	5 ... 48 V DC
Recommended minimum contact load	1 mA
Residual current	0.1 mA
Maximum voltage drop	≤ 0.14 V DC
Rated current	6 A
Inrush current	40 A, 10 ms
Rated load DC	360 W

Control circuit

Nominal voltage	see table product references
Operating voltage range	5 ... 48 V DC
Input voltage range	4.75 ... 60 V DC
Input current	4 mA
Pick-up voltage	5 V DC
Release voltage	< 4.75 V
Power consumption DC	300 mW

Output current

Type	Instantaneous
Logic	PNP
Maximum output current	6 A
Minimum output current	1 mA
Output voltage range	5 ... 48 V DC
Residual current	0.1 mA
Maximum voltage drop	≤ 0.14 V DC

General data

Storage temperature (no ice)	-40 ... 85 °C
Operation temperature	-40 ... 70 °C
Pick-up time	0.06 ms
Release time	0.06 ms
Ingress Protection	IP 40
Weight	28 g
Housing material	PA

Product references

Description	Type	5-48
DC	R10-Z1PX/DC...V	✓

«...» List coil voltage to complete product references

Accessories

Socket	S10-GR, S10-PIR
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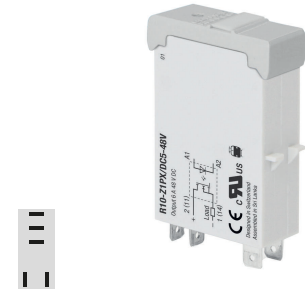


fig. 1. Wiring diagram

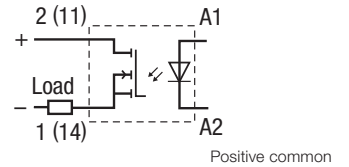


fig. 2. DC derating curve

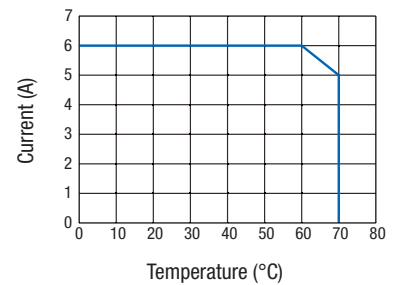
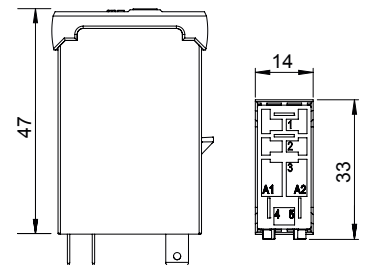


fig. 3. Dimensions (mm)



Technical approvals, conformities

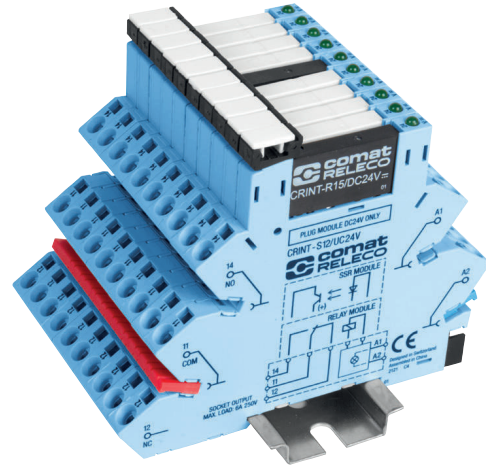
Standards IEC/EN 60947
 Railway EN 45545-2; EN 50155

Approvals

CRINT-C1xx
Product Key and dimensions

Interface Module CRINT

- Relay module up to 6 A 250 V, different contact materials
- Solid state modules for most loads DC and AC up to 2 A / 4 A
- Coil UC = AC/DC, no protection circuit required
- LED status display
- Push-in terminals
- Jumper link
- Super small mounting: 6.2 mm width



CRINT Product Key

1		2	3	4	5	6		7	8
CRINT	-	C	1	3	1	R	/	UC	24V

1. Product family

CRINT

2. Type

C = Combined version (Socket and Relay)

3. Contact

- 1 = One change-over contact
- 2 = Two change-over contact

4. Connection type

- 1 = Screw terminal
- 2 = Cage clamp terminal
- 3 = Push-in

5. Output

- 1 = AgSnO₂
- 2 = AgSnO₂ + 5 μ Au
- 3 = AgNi
- 5 = NO / Solid-state DC
- 8 = NO / Solid-state AC

6. Options

- = Standard version
- R = Railway version

7. Supply voltage

- UC = AC/DC
- DC = Only for C1x5 and C1x8

8. Nominal voltage

12V, 24V, 48V, 60V, 110-125V, 220-240V

RELAY Only

1		2	3	4	5
CRINT	-	R	11	DC	12V

1. Product family

CRINT

2. Type

R = Relay

3. Contact

- 11 = 1x AgSnO₂
- 12 = 1x AgSnO₂ + 3μ Au
- 15 = NO / Solid-state DC
- 18 = NO / Solid-state AC
- 21 = 2x AgSnO₂
- 22 = 2x AgNi + 3μ Au
- 23 = 2x AgNi

4. Control voltage

DC

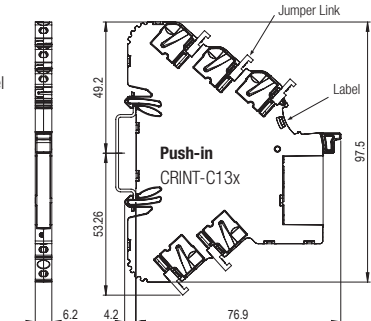
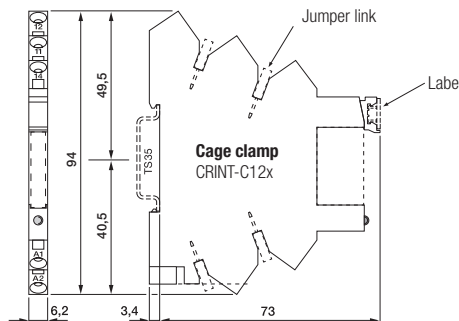
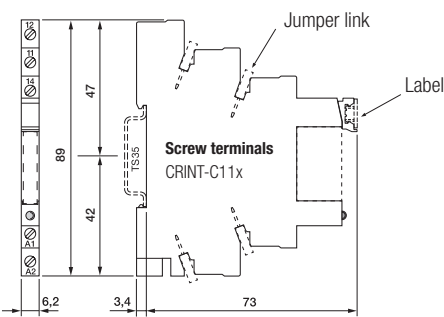
5. Rated control voltage

12 V, 24 V, 48 V, 60 V*

*60 V Relay used for all sockets with a nominal voltage higher or equal 60V

CRINT-C1xx

Dimension (mm)



CRINT-C1x5

1 pole | normally open solid state DC

Main circuit

Output type	MOSFET
Type	Instantaneous
Output voltage range	3 ... 28.8 V DC
Recommended minimum contact load	20 mA
Residual current	0.1 mA
Maximum voltage drop	0.35 V DC
Rated current	4 A
Inrush current	48 A, 10 ms
Rated load DC	115 W

Control circuit

Nominal voltage	see table product references
Operating voltage range	0.8 ... 1.2 U _N
Pick-up voltage	≤ 0.8 U _N
Release voltage	≤ 0.25 U _N
Power consumption DC	160 mW

Insulation

Test voltage open contact	1 kV / 1 min
Test voltage contact / coil	2.5 kV / 1 min
Overvoltage category	III
Pollution degree	3

General data

Storage temperature (no ice)	-30 ... 85 °C
Operation temperature	-30 ... 70 °C
Pick-up time	≤ 50 μs
Release time	≤ 300 μs
Conductor cross section screw terminal	0.34 ... 2.5 mm ²
Conductor cross section cage clamp	0.75 ... 2.5 mm ²
Conductor cross section control / main circuit	Push-in terminal
- Single wire	0.34 mm ² / AWG 22 ... 2.5 mm ² / AWG 14
- Multi wire (un-crimped)	0.34 mm ² / AWG 22 ... 2.5 mm ² / AWG 14
- Multi wire (crimped)	0.34 mm ² / AWG 22 ... 1.5 mm ² / AWG 16
Ingress Protection	IP 20
Mounting	TH35 (EN 60715)
Weight	30 g
Housing material	PA

Product references

Description	Type	12	24	48	60	110-125	220-240
Screw terminal	CRINT-C115/DC...V	✓	✓	✓	✓	✓	✓
Cage clamp terminal	CRINT-C125/DC...V	✓	✓	✓	✓	✓	✓
Push-in terminal	CRINT-C135/DC...V	✓	✓	✓	✓	✓	✓

«...» List control voltage to complete product references

Accessories

Jumper link	CRINT-BR20-BU (BAG 5 PCS), CRINT-BR20-RD (BAG 5 PCS), CRINT-BR20-BK (BAG 5 PCS)
Label plate	CRINT-LAB (BAG 4X16 PCS)
Spacer	CRINT-SEP (BAG 5 PCS)
Marking strip for Push-in	BS11-PI (50m tape)

Replacement relays

Description	Type	12	24	48	60
DC	CRINT-R15/DC...V	✓	✓	✓	✓

«...» List control voltage to complete product references
60 V relay used for all sockets with a minimum nominal voltage higher or equal 60 V

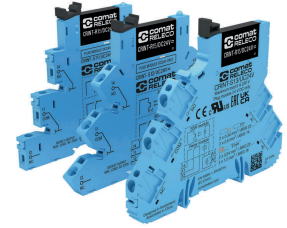


fig. 1. Wiring diagram

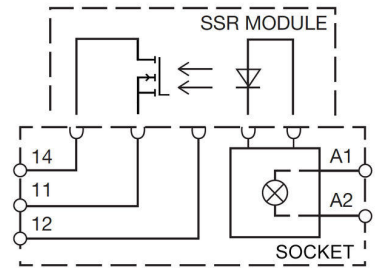


fig. 2. DC load limit curve

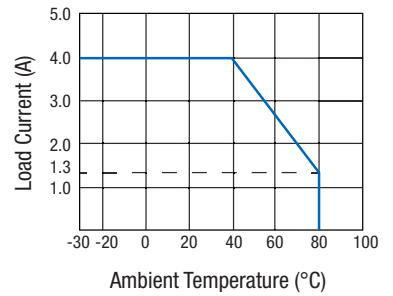
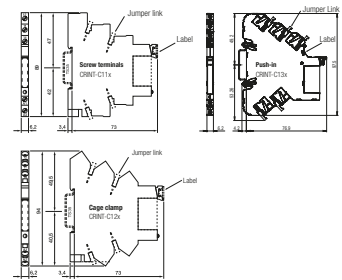


fig. 3. Dimensions (mm)



Technical approvals, conformities

Standards EN 60664-1; EN 62314




1.5 Solid State Relays

CRINT-C1x5R

1 pole | normally open solid state DC

Main circuit

Output type	 MOSFET
Type	Instantaneous
Output voltage range	3 ... 28.8 V DC
Recommended minimum contact load	20 mA
Residual current	0.1 mA
Maximum voltage drop	0.35 V DC
Rated current	4 A
Inrush current	48 A, 10 ms
Rated load DC	115 W

Control circuit

Nominal voltage	see table product references
Operating voltage range	0.8 ... 1.2 U_N
Pick-up voltage	$\leq 0.8 U_N$
Release voltage	$\leq 0.25 U_N$
Power consumption AC / DC	160 mW
Power consumption DC	160 mW

Insulation

Test voltage open contact	1 kV / 1 min
Test voltage contact / coil	2.5 kV / 1 min
Overtoltage category	III
Pollution degree	3

General data

Storage temperature (no ice)	-30 ... 85 °C
Operation temperature	-30 ... 70 °C
Pick-up time	$\leq 50 \mu\text{s}$
Release time	$\leq 300 \mu\text{s}$
Conductor cross section cage clamp	0.75 ... 2.5 mm ²
Conductor cross section control / main circuit	Push-in terminal
- Single wire	0.34 mm ² / AWG 22 ... 2.5 mm ² / AWG 14
- Multi wire (un-crimped)	0.34 mm ² / AWG 22 ... 2.5 mm ² / AWG 14
- Multi wire (crimped)	0.34 mm ² / AWG 22 ... 1.5 mm ² / AWG 16
Ingress Protection	IP 20
Mounting	TH35 (EN 60715)
Weight	30 g
Housing material	PA

Product references

Description	Type	24	110-125
Cage clamp terminal	CRINT-C125R/DC...V	✓	✓
Push-in terminal	CRINT-C135R/DC...V	✓	✓

«...» List control voltage to complete product references

Accessories

Jumper link	CRINT-BR20-BU (BAG 5 PCS), CRINT-BR20-RD (BAG 5 PCS), CRINT-BR20-BK (BAG 5 PCS)
Label plate	CRINT-LAB (BAG 4X16 PCS)
Marking strip for Push-in	BS11-PI (50m tape)

Replacement relays

Description	Type	24	60
DC	CRINT-R15/DC...V	✓	✓

«...» List control voltage to complete product references

60 V relay used for all sockets with a minimum nominal voltage higher or equal 60 V

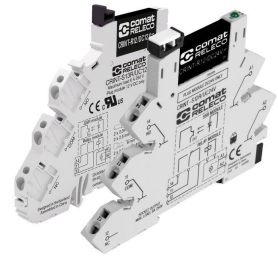


fig. 1. Wiring diagram

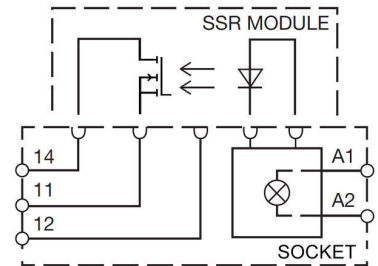


fig. 2. DC load limit curve

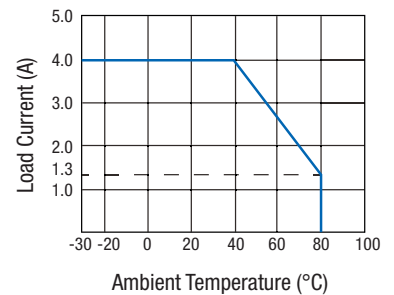
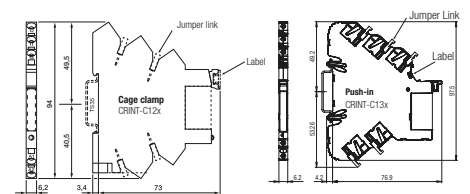


fig. 3. Dimensions (mm)



Technical approvals, conformities

Standards EN 60664-1; EN 62314
 Railway EN 45545-2; EN 50155



CRINT-C1x8

1 pole | normally open solid state AC

Main circuit

Output type	TRIAC
Type	Synchronized zero
Output voltage range	48 ... 280 V AC
Recommended minimum contact load	100 mA
Residual current	1.5 mA
Maximum voltage drop	1.2 V AC
Rated current	2 A
Inrush current	80 A, 10 ms
Rated load AC	fig. 2.

Control circuit

Nominal voltage	see table product references
Operating voltage range	0.8 ... 1.2 U _N
Pick-up voltage	≤ 0.8 U _N
Release voltage	≤ 0.25 U _N
Power consumption DC	150 mW

Insulation

Test voltage open contact	1 kV / 1 min
Test voltage contact / coil	2.5 kV / 1 min
Oversvoltage category	III
Pollution degree	3

General data

Storage temperature (no ice)	-30 ... 85 °C
Operation temperature	-30 ... 70 °C
Pick-up time	1/2 Cycle +1 ms
Release time	1/2 Cycle +1 ms
Conductor cross section screw terminal	0.34 ... 2.5 mm ²
Conductor cross section cage clamp	0.75 ... 2.5 mm ²
Conductor cross section control / main circuit	Push-in terminal
- Single wire	0.34 mm ² / AWG 22 ... 2.5 mm ² / AWG 14
- Multi wire (un-crimped)	0.34 mm ² / AWG 22 ... 2.5 mm ² / AWG 14
- Multi wire (crimped)	0.34 mm ² / AWG 22 ... 1.5 mm ² / AWG 16
Ingress Protection	IP 20
Mounting	TH35 (EN 60715)
Weight	30 g
Housing material	PA

Product references

Description	Type	12	24	60	110-125	220-240
Screw terminal	CRINT-C118/DC...V	✓	✓	✓	✓	✓
Cage clamp terminal	CRINT-C128/DC...V	✓	✓	✓	✓	✓
Push-in terminal	CRINT-C138/DC...V	✓	✓	✓	✓	✓

«...» List control voltage to complete product references

Accessories

Jumper link	CRINT-BR20-BU (BAG 5 PCS), CRINT-BR20-RD (BAG 5 PCS), CRINT-BR20-BK (BAG 5 PCS)
Label plate	CRINT-LAB (BAG 4X16 PCS)
Spacer	CRINT-SEP (BAG 5 PCS)
Marking strip for Push-in	BS11-PI (50m tape)

Replacement relays

Description	Type	12	24	60
DC	CRINT-R18/DC...V	✓	✓	✓

«...» List control voltage to complete product references
60 V relay used for all sockets with a minimum nominal voltage higher or equal 60 V

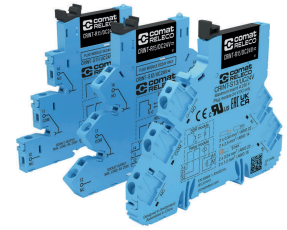


fig. 1. Wiring diagram

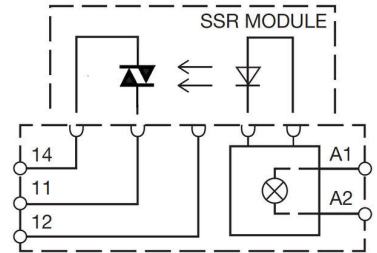


fig. 2. DC load limit curve

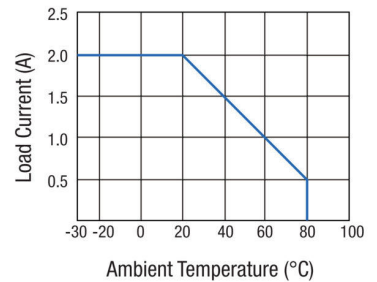
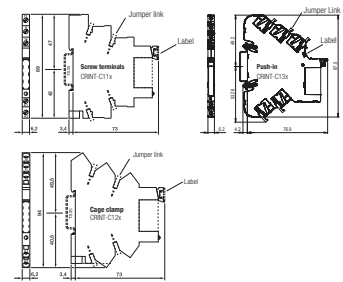


fig. 3. Dimensions (mm)



Technical approvals, conformities

Standards EN 60664-1; EN 62314




1.5 Solid State Relays

CRINT-C1x8R

1 pole | normally open solid state AC

Main circuit

Output type	 TRIAC
Type	Synchronized zero
Output voltage range	48 ... 280 V AC
Recommended minimum contact load	100 mA
Residual current	1.5 mA
Maximum voltage drop	1.2 V AC
Rated current	2 A
Inrush current	80 A, 10 ms
Rated load AC	fig. 2.

Control circuit

Nominal voltage	see table product references
Operating voltage range	0.8 ... 1.2 U_N
Pick-up voltage	$\leq 0.8 U_N$
Release voltage	$\leq 0.25 U_N$
Power consumption DC	150 mW

Insulation

Test voltage open contact	1 kV / 1 min
Test voltage contact / coil	2.5 kV / 1 min
Overvoltage category	III
Pollution degree	3

General data

Storage temperature (no ice)	-30 ... 85 °C
Operation temperature	-30 ... 70 °C
Pick-up time	1/2 Cycle +1 ms
Release time	1/2 Cycle +1 ms
Conductor cross section cage clamp	0.75 ... 2.5 mm ²
Conductor cross section control / main circuit	Push-in terminal
- Single wire	0.34 mm ² / AWG 22 ... 2.5 mm ² / AWG 14
- Multi wire (un-crimped)	0.34 mm ² / AWG 22 ... 2.5 mm ² / AWG 14
- Multi wire (crimped)	0.34 mm ² / AWG 22 ... 1.5 mm ² / AWG 16
Ingress Protection	IP 20
Mounting	TH35 (EN 60715)
Weight	30 g
Housing material	PA

Product references

Description	Type	24	110-125
Cage clamp terminal	CRINT-C128R/DC...V	✓	✓
Push-in terminal	CRINT-C138R/DC...V	✓	✓
«...» List control voltage to complete product references			

Accessories

Jumper link	CRINT-BR20-BU (BAG 5 PCS), CRINT-BR20-RD (BAG 5 PCS), CRINT-BR20-BK (BAG 5 PCS)
Label plate	CRINT-LAB (BAG 4X16 PCS)
Marking strip for Push-in	BS11-PI (50m tape)

Replacement relays

Description	Type	24	60
DC	CRINT-R18/DC...V	✓	✓

«...» List control voltage to complete product references

60 V relay used for all sockets with a minimum nominal voltage higher or equal 60 V

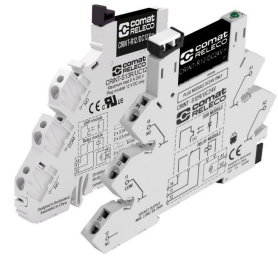


fig. 1. Wiring diagram

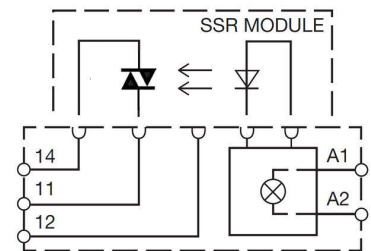


fig. 2. DC load limit curve

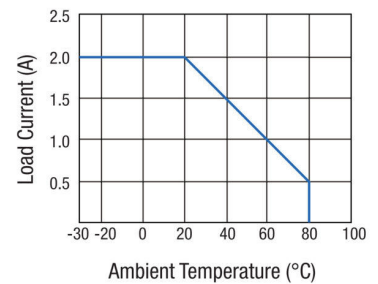
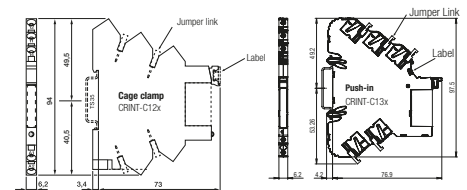


fig. 3. Dimensions (mm)



Technical approvals, conformities

Standards EN 60664-1; EN 62314

Railway EN 45545-2; EN 50155



SP product key

Main parameters					Control				Output parameters				Control parameters		
1	2	3	4	5	6	7	8	9	10	11	12	13	14		
SP	1	M	X	F	-	T	Z	X	0600	V	025	X	/	DC	24V

1. Solid State Relay

SP = Solid state Panel mounting
SD = Solid state DIN rail mounting

2. Channels

1 = Single-channel relay
2 = Two-channel relay
3 = Three-channel relay

3. Size H x W x D (mm)

M = 38.5 x 28.5 x max. 25.2
P = 58.6 x 45.7 x max. 33.5
E = 45.4 x 58.5 x max. 79.4
... = other series

4. Free Key

X

5. Terminals / IP Protection

F = Faston / IP00
L = Faston large / IP00
S = Screw / IP20
N = Screw / IP00

6. Semiconductor type

T = Triac / SCR (AC)
M = MOSFET (DC)
I = IGBT (DC)
R = Transistor (DC)

7. Logic

Z = Zero-crossing (AC)
I = Random-on, Instantaneous (AC)
N = NPN, Instantaneous (DC)
P = PNP, Instantaneous (DC)
Q = Zero crossing / PNP (AC)
S = Zero crossing, NPN (AC)

8. Free key

X

9. Output circuit rated voltage

0030 = 30 V
⋮
0250 = 250 V
⋮
1200 = 1200 V

10. Surge protection

N = RC protection
V = Varistor and RC
T = Transient voltage suppressor and RC
None = without protection

11. Output circuit current

001 = 1 A
⋮
025 = 25 A
⋮
125 = 125 A

12. Indication

N = No LED
X = LED
A = Alarm output
B = LED and alarm output

13. Control circuit voltage

AC = AC Voltage
DC = DC Voltage
UC = AC/DC Voltage

14. Control circuit rated voltage

4–15 V
⋮
3–32 V
⋮
48 V
⋮
90–280 V
⋮
600 V

General information

General remarks

As any solid state relays, they don't provide a galvanic insulation between the load and the mains. Therefore the solid state relay must be always used in conjunction with an adequate circuit breaker with insulation performances or a similar device, in order to ensure a reliable insulation in case of malfunction or when the relay must be insulated from the mains (eg. due to maintenance).

Each solid state relay can be DIN-Rail mounted as soon as a specific heatsink is used.

Mounting

The heat generated by the relay must be removed through its entire bottom plate. Therefore an adequate heat exchanger (either any of the recommended heatsinks listed in the datasheets under "heatsinks" or an equivalent product) must be firmly fixed to the solid state relay bottom plate.

ComatReleco's heatsink offering consists of 2 clusters:

- DIN rail mounted heatsinks (through a DIN rail clip, supplied with the product)
- Panel mounted heatsinks (by means of screws)

Between the solid state relay bottom plate and the heat exchanger either the conducting pad or the conducting grease (refer to 'accessories' in the datasheets) must be added.

Each terminal connector of the relay must be firmly fixed to the electric cables, to avoid that loose wiring leads to abnormal heating and thus to product damages and malfunctions. The recommended mounting torques for the terminals are 0.58-0.98 Nm, 0.98-1.37 Nm respectively for M3 and M4 terminals.

Overvoltage protection

The overvoltage protection of the solid state relay can be increased by choosing either (refer under 'product reference' in the datasheets):

- **RC** protection
- **MOV** (Metal Oxide Varistor) and RC protection or
- **TVS** (Transient Voltage Suppressor) and RC protection

When selecting any of those options by ordering, the delivered product will include the specified feature, no further wiring will be necessary.

In case of an overvoltage, **MOV** clamps it by shunting through itself, where **TVS** triggers the solid state relay. The following table provides a principle guidance for selecting the right protection option:

Protection	Surge energy	Resonse time
MOV	high	fast
TVS	medium	very fast
RC	medium	slow

The improved protection levels are stated in the specific datasheet.

Main circuit

Output type	⚡ TRIAC		
Type	Instantaneous		
Rated voltage AC	380 V		
Output voltage range	24 ... 440 V		
Operating frequency	47 ... 63 Hz		
Recommended minimum contact load	100 mA		
Maximum leakage current @ rated voltage mA	5 mA		
Maximum voltage drop @ rated current	≤ 1.5 V rms		
Repetitive peak voltage in off-state	600 Vpk		
Maximum switch off slew rate dv/dt	200 V / μs		
Maximum non repetitive di/dt	50 A / μs		
Type of terminal	Faston		
Contact	1 NO		
Rated current	10 A	16 A	25 A
Thermal derating, refer to:	fig. 2	fig. 3	fig. 4
Inrush current @ 10 ms	120 A	160 A	250 A
Rated limit load I2t @ 10 ms	50 A²s	128 A²s	312 A²s

Control circuit

Operating voltage range	4 ... 32 V DC
Max. input current @ max. operating voltage	25 mA
Pick-up voltage	4 V DC
Release voltage	1 V DC
Power consumption DC	0.8 W

Insulation

Rated test voltage input/output	4 000 Vrms / 1 min
Rated test voltage input output/base	2 500 Vrms / 1 min
Overtoltage category	III

General data

Storage temperature (no ice)	-30 ... 100 °C
Operation temperature	-30 ... 80 °C
Pick-up time	1 ms
Release time	10 ms
Power Factor	> 0.5
Ingress Protection	IP 00
Dimensions	fig. 5.
Weight	35 g
Housing material	PBT

Product references

Description	Type	010	016	025
1 NO, LED, RC Protection	SP1MXF-TIX0380N...X/DC4-32V	✓	✓	✓
1 NO, LED, TVS (*2) and RC protection	SP1MXF-TIX0380T...X/DC4-32V	o.r.	✓	✓
1 NO, LED, MOV (*1) and RC protection	SP1MXF-TIX0380V...X/DC4-32V	o.r.	o.r.	o.r.

Accessories

Thermal conducting pad	SP1M/pad
Heatsinks (DIN rail mounted with clip)	HS_003
Heatsinks (panel mounted with screws)	HS_010, HS_012

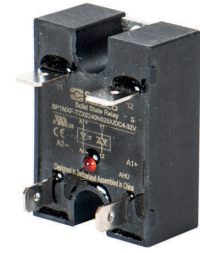


fig. 1. Wiring diagram

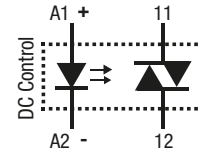


fig. 2. Thermal derating curve 10 A

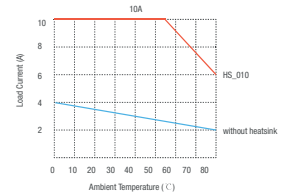


fig. 3. Thermal derating curve 16 A

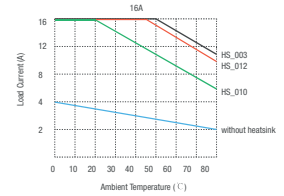


fig. 4. Thermal derating curve 25 A

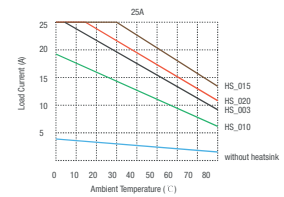
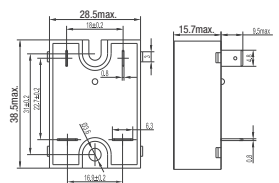


fig. 5. Dimensions (mm)



Technical approvals, conformities

Standards EN 60950-1, EN 62314

Approvals

1.5 Solid State Relays SP1MXF-TZX0240-10/16/25

SSR | 1 phase | NO | up to 280 V AC, 25 A | synchr zero | Faston | IP 00



Main circuit

Output type	⚡ TRIAC		
Type	Synchronised zero		
Rated voltage AC	240 V		
Output voltage range	24 ... 280 V		
Operating frequency	47 ... 63 Hz		
Recommended minimum contact load	100 mA		
Maximum leakage current @ rated voltage mA	5 mA		
Maximum voltage drop @ rated current	≤ 1.5 V rms		
Repetitive peak voltage in off-state	600 Vpk		
Maximum switch off slew rate dv/dt	200 V / μs		
Maximum non repetitive di/dt	50 A / μs		
Type of terminal	Faston		
Contact	1 NO		
Rated current	10 A	16 A	25 A
Thermal derating, refer to:	fig. 2.	fig. 3.	fig. 4.
Inrush current @ 10 ms	120 A	160 A	250 A
Rated limit load I2t @ 10 ms	50 A ² s	128 A ² s	312 A ² s

Control circuit

Operating voltage range	4 ... 32 V DC
Max. input current @ max. operating voltage	25 mA
Pick-up voltage	4 V DC
Release voltage	1 V DC
Power consumption DC	0.8 W

Insulation

Rated test voltage input/output	4 000 Vrms / 1 min
Rated test voltage input output/base	2 500 Vrms / 1 min
Overvoltage category	III

General data

Storage temperature (no ice)	-30 ... 100 °C
Operation temperature	-30 ... 80 °C
Pick-up time	10 ms
Release time	10 ms
Power Factor	> 0.5
Ingress Protection	IP 00
Dimensions	fig. 5.
Weight	35 g
Housing material	PBT

Product references

Description	Type	010	016	025
1 NO, LED, RC Protection	SP1MXF-TZX0240N...X/DC4-32V	✓	o.r.	✓
1 NO, LED, TVS (*2) and RC protection	SP1MXF-TZX0240T...X/DC4-32V	✓	o.r.	✓
1 NO, LED, MOV (*1) and RC protection	SP1MXF-TZX0240V...X/DC4-32V	o.r.	o.r.	o.r.

Accessories

Thermal conducting pad	SP1M/pad
Heatsinks (DIN rail mounted with clip)	HS_003
Heatsinks (panel mounted with screws)	HS_010, HS_012



fig. 1. Wiring diagram

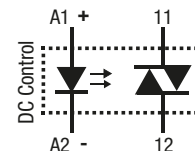


fig. 2. Thermal derating curve 10 A

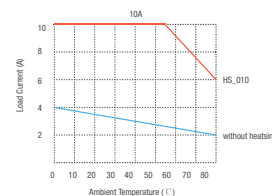


fig. 3. Thermal derating curve 16 A

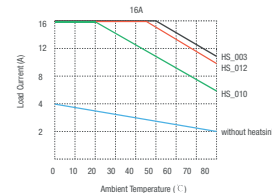


fig. 4. Thermal derating curve 25 A

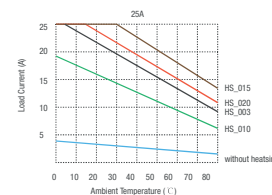
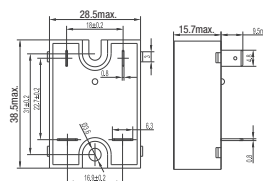


fig. 5. Dimensions (mm)



Technical approvals, conformities

Standards EN 60950-1, EN 62314



1.5 Solid State Relays SP1MXN-TIX0240-10/16/25

SSR | 1 phase | NO | up to 280 V AC, 25 A | instantaneous | screw | IP 00



Main circuit

Output type	⚡ TRIAC		
Type	Instantaneous		
Rated voltage AC	240 V		
Output voltage range	24 ... 280 V		
Operating frequency	47 ... 63 Hz		
Recommended minimum contact load	100 mA		
Maximum leakage current @ rated voltage mA	5 mA		
Maximum voltage drop @ rated current	≤ 1.5 V rms		
Repetitive peak voltage in off-state	600 Vpk		
Maximum switch off slew rate dv/dt	200 V / μs		
Maximum non repetitive di/dt	50 A / μs		
Type of terminal	Screw		
Contact	1 NO		
Rated current	10 A	16 A	25 A
Thermal derating, refer to:	fig. 2	fig. 3	fig. 4
Inrush current @ 10 ms	120 A	160 A	250 A
Rated limit load I2t @ 10 ms	50 A²s	128 A²s	312 A²s

Control circuit

Operating voltage range	4 ... 32 V DC
Max. input current @ max. operating voltage	25 mA
Pick-up voltage	4 V DC
Release voltage	1 V DC
Power consumption DC	0.8 W

Insulation

Rated test voltage input/output	4 000 Vrms / 1 min
Rated test voltage input output/base	2 500 Vrms / 1 min
Overvoltage category	III

General data

Storage temperature (no ice)	-30 ... 100 °C
Operation temperature	-30 ... 80 °C
Pick-up time	1 ms
Release time	10 ms
Power Factor	> 0.5
Ingress Protection	IP 00
Dimensions	fig. 5.
Weight	35 g
Housing material	PBT

Product references

Description	Type	010	016	025
1 NO, LED, RC Protection	SP1MXN-TIX0240N...X/DC4-32V	✓	o.r.	✓
1 NO, LED, TVS (*2) and RC protection	SP1MXN-TIX0240T...X/DC4-32V	✓	o.r.	✓
1 NO, LED, MOV (*1) and RC protection	SP1MXN-TIX0240V...X/DC4-32V	o.r.	o.r.	o.r.

Accessories

Thermal conducting pad	SP1M/pad
Transparent cover	SP1MXN/cover
Heatsinks (DIN rail mounted with clip)	HS_003
Heatsinks (panel mounted with screws)	HS_010, HS_012



fig. 1. Wiring diagram

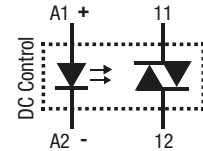


fig. 2. Thermal derating curve 10 A

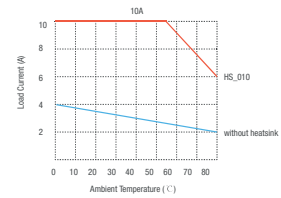


fig. 3. Thermal derating curve 16 A

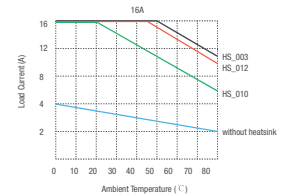


fig. 4. Thermal derating curve 25 A

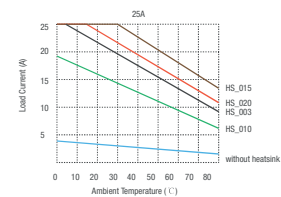
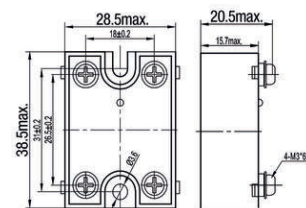


fig. 5. Dimensions (mm)



Technical approvals, conformities

Standards EN 60950-1, EN 62314

Approvals

Main circuit

Output type	⚡ TRIAC		
Type	Instantaneous		
Rated voltage AC	380 V		
Output voltage range	24 ... 440 V		
Operating frequency	47 ... 63 Hz		
Recommended minimum contact load	100 mA		
Maximum leakage current @ rated voltage mA	5 mA		
Maximum voltage drop @ rated current	≤ 1.5 V rms		
Repetitive peak voltage in off-state	600 Vpk		
Maximum switch off slew rate dv/dt	200 V / μs		
Maximum non repetitive di/dt	50 A / μs		
Type of terminal	Screw		
Contact	1 NO		
Rated current	10 A	16 A	25 A
Thermal derating, refer to:	Fig. 2	fig. 3	fig. 4
Inrush current @ 10 ms	120 A	160 A	250 A
Rated limit load I2t @ 10 ms	50 A²s	128 A²s	312 A²s

Control circuit

Operating voltage range	4 ... 32 V DC
Max. input current @ max. operating voltage	25 mA
Pick-up voltage	4 V DC
Release voltage	1 V DC
Power consumption DC	0.8 W

Insulation

Rated test voltage input/output	4 000 Vrms / 1 min
Rated test voltage input output/base	2 500 Vrms / 1 min
Overvoltage category	III

General data

Storage temperature (no ice)	-30 ... 100 °C
Operation temperature	-30 ... 80 °C
Pick-up time	1 ms
Release time	10 ms
Power Factor	> 0.5
Ingress Protection	IP 00
Dimensions	fig. 5.
Weight	35 g
Housing material	PBT

Product references

Description	Type	010	016	025
1 NO, LED, RC Protection	SP1MXN-TIX0380N...X/DC4-32V	✓	o.r.	✓
1 NO, LED, TVS (*2) and RC protection	SP1MXN-TIX0380T...X/DC4-32V	✓	o.r.	✓
1 NO, LED, MOV (*1) and RC protection	SP1MXN-TIX0380V...X/DC4-32V	o.r.	o.r.	o.r.

Accessories

Thermal conducting pad	SP1P/pad
Transparent cover	SP1MXN/cover
Heatsinks (DIN rail mounted with clip)	HS_003
Heatsinks (panel mounted with screws)	HS_010, HS_012



fig. 1. Wiring diagram

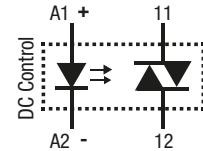


fig. 2. Thermal derating curve 10 A

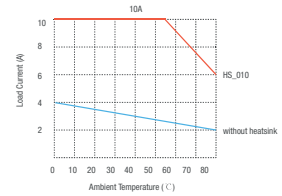


fig. 3. Thermal derating curve 16 A

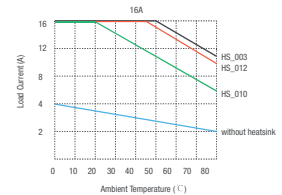


fig. 4. Thermal derating curve 25 A

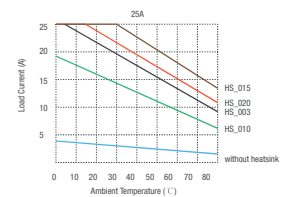
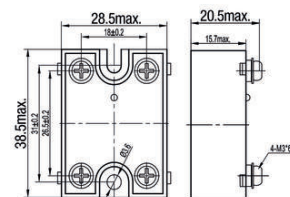


fig. 5. Dimensions (mm)



Technical approvals, conformities

Standards EN 60950-1, EN 62314



1.5 Solid State Relays SP1MXN-TZX0240-10/16/25

SSR | 1 phase | NO | up to 280 V AC, 25 A | synchr zero | screw | IP 00



Main circuit

Output type	⚡ TRIAC		
Type	Synchronised zero		
Rated voltage AC	240 V		
Output voltage range	24 ... 280 V		
Operating frequency	47 ... 63 Hz		
Recommended minimum contact load	100 mA		
Maximum leakage current @ rated voltage mA	5 mA		
Maximum voltage drop @ rated current	≤ 1.5 V rms		
Repetitive peak voltage in off-state	600 Vpk		
Maximum switch off slew rate dv/dt	200 V / μs		
Maximum non repetitive di/dt	50 A / μs		
Type of terminal	Screw		
Contact	1 NO		
Rated current	10 A	16 A	25 A
Thermal derating, refer to:	Fig. 2	fig. 3	fig. 4
Inrush current @ 10 ms	120 A	160 A	250 A
Rated limit load I2t @ 10 ms	50 A ² s	128 A ² s	312 A ² s

Control circuit

Operating voltage range	4 ... 32 V DC
Max. input current @ max. operating voltage	25 mA
Pick-up voltage	4 V DC
Release voltage	1 V DC
Power consumption DC	0.8 W

Insulation

Rated test voltage input/output	4 000 Vrms / 1 min
Rated test voltage input output/base	2 500 Vrms / 1 min
Overtoltage category	III

General data

Storage temperature (no ice)	-30 ... 100 °C
Operation temperature	-30 ... 80 °C
Pick-up time	10 ms
Release time	10 ms
Power Factor	> 0.5
Ingress Protection	IP 00
Dimensions	fig. 5.
Weight	35 g
Housing material	PBT

Product references

Description	Type	010	016	025
1 NO, LED, RC Protection	SP1MXN-TZX0240N...X/DC4-32V	✓	o.r.	o.r.
1 NO, LED, TVS (*2) and RC protection	SP1MXN-TZX0240T...X/DC4-32V	✓	o.r.	✓
1 NO, LED, MOV (*1) and RC protection	SP1MXN-TZX0240V...X/DC4-32V	o.r.	o.r.	o.r.

Accessories

Thermal conducting pad	SP1M/pad
Transparent cover	SP1MXN/cover
Heatsinks (DIN rail mounted with clip)	HS_003
Heatsinks (panel mounted with screws)	HS_010, HS_012



fig. 1. Wiring diagram

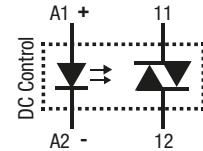


fig. 2. Thermal derating curve 10 A

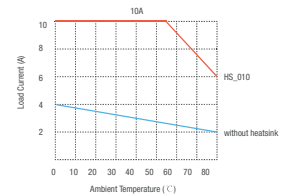


fig. 3. Thermal derating curve 16 A

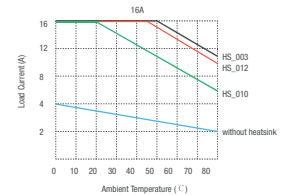


fig. 4. Thermal derating curve 25 A

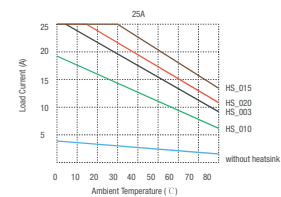
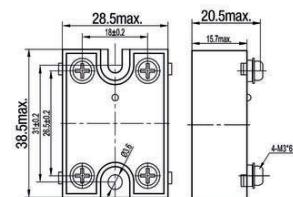


fig. 5. Dimensions (mm)



Technical approvals, conformities

Standards EN 60950-1, EN 62314



Main circuit

Output type	⚡ TRIAC		
Type	Synchronised zero		
Rated voltage AC	380 V		
Output voltage range	24 ... 440 V		
Operating frequency	47 ... 63 Hz		
Recommended minimum contact load	100 mA		
Maximum leakage current @ rated voltage mA	5 mA		
Maximum voltage drop @ rated current	≤ 1.5 V rms		
Repetitive peak voltage in off-state	600 Vpk		
Maximum switch off slew rate dv/dt	200 V / μs		
Maximum non repetitive di/dt	50 A / μs		
Type of terminal	Screw		
Contact	1 NO		
Rated current	10 A	16 A	25 A
Thermal derating, refer to:	fog. 2	fig. 3	fig. 4
Inrush current @ 10 ms	120 A	160 A	250 A
Rated limit load I2t @ 10 ms	50 A²s	120 A²s	312 A²s

Control circuit

Operating voltage range	4 ... 32 V DC
Max. input current @ max. operating voltage	25 mA
Pick-up voltage	4 V DC
Release voltage	1 V DC
Power consumption DC	0.8 W

Insulation

Rated test voltage input/output	4 000 Vrms / 1 min
Rated test voltage input output/base	2 500 Vrms / 1 min
Overvoltage category	III

General data

Storage temperature (no ice)	-30 ... 100 °C
Operation temperature	-30 ... 80 °C
Pick-up time	10 ms
Release time	10 ms
Power Factor	> 0.5
Ingress Protection	IP 00
Dimensions	fig. 5.
Weight	35 g
Housing material	PBT

Product references

Description	Type	010	016	025
1 NO, LED, RC Protection	SP1MXN-TZX0380N...X/DC4-32V	✓	o.r.	✓
1 NO, LED, TVS (*2) and RC protection	SP1MXN-TZX0380T...X/DC4-32V	✓	o.r.	✓
1 NO, LED, MOV (*1) and RC protection	SP1MXN-TZX0380V...X/DC4-32V	o.r.	o.r.	o.r.

Accessories

Thermal conducting pad	SP1M/pad
Transparent cover	SP1MXN/cover
Heatsinks (DIN rail mounted with clip)	HS_003
Heatsinks (panel mounted with screws)	HS_010, HS_012



fig. 1. Wiring diagram

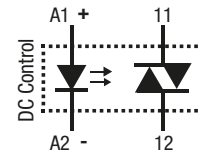


fig. 2. Thermal derating curve 10 A

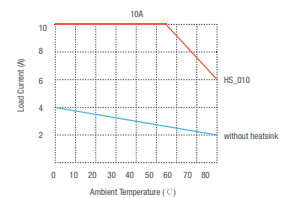


fig. 3. Thermal derating curve 16 A

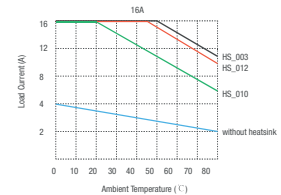


fig. 4. Thermal derating curve 25 A

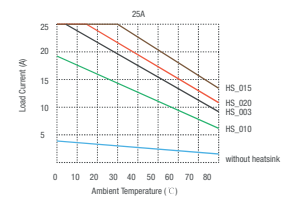
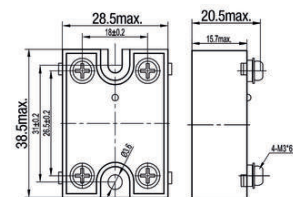


fig. 5. Dimensions (mm)



Technical approvals, conformities

Standards EN 60950-1, EN 62314

Approvals

1.5 Solid State Relays SP1EXS-TIX0240-25/40/60

SSR | 1 phase | NO | up to 280 V AC, 60 A | instantaneous | screw | IP 20



Main circuit

Output type	⚡ SCR		
Type	Instantaneous		
Rated voltage AC	240 V		
Output voltage range	24...280 V		
Operating frequency	47...63 Hz		
Recommended minimum contact load	100 mA		
Maximum leakage current @ rated voltage mA	3 mA		
Maximum voltage drop @ rated current	≤ 1.5 V rms		
Repetitive peak voltage in off-state	600 Vpk		
Maximum switch off slew rate dv/dt	500 V / μs		
Type of terminal	Screw		
Contact	1 NO		
Rated current	25 A	40 A	60 A
Thermal derating, refer to:	fig. 2	fig. 3	fig. 4
Inrush current @ 10 ms	300 A	500 A	700 A
Rated limit load I2t @ 10 ms	450 A²s	1 250 A²s	2 450 A²s

Control circuit

Operating voltage range	3 ... 32 V DC	90 ... 280 V AC
Max. input current @ max. operating voltage	25 mA	35 mA
Pick-up voltage	3 V DC	90 V AC
Release voltage	1 V DC	15 V AC
Power consumption DC	0.8 W	9.8 VA

Insulation

Rated test voltage input/output	4 000 Vrms / 1 min
Rated test voltage input output/base	4 000 Vrms / 1 min
Overtoltage category	III

General data

Storage temperature (no ice)	-30 ... 100 °C
Operation temperature	-30 ... 80 °C
Pick-up time	≤ 1 ms (DC) / 40 ms (AC)
Release time	≤ 10 ms (DC) / 20 ms (AC)
Power Factor	> 0.5
Ingress Protection	IP 20
Dimensions	fig. 5
Weight	80 g

Product references

Description	Type	025	040	060
1 NO, LED, RC Protection	SP1EXS-TIX0240N...X/AC90-280V	✓	✓	O.r.
1 NO, LED, TVS (*2) and RC protection	SP1EXS-TIX0240T...X/AC90-280V	✓	✓	O.r.
1 NO, LED, MOV (*1) and RC protection	SP1EXS-TIX0240V...X/AC90-280V	O.r.	O.r.	O.r.
1 NO, LED, RC Protection	SP1EXS-TIX0240N...X/DC4-32V	O.r.	✓	O.r.
1 NO, LED, TVS (*2) and RC protection	SP1EXS-TIX0240T...X/DC4-32V	O.r.	✓	O.r.
1 NO, LED, MOV (*1) and RC protection	SP1EXS-TIX0240V...X/DC4-32V	O.r.	O.r.	O.r.

Accessories

Thermal conducting pad	SP1P/pad
Heatsinks (DIN rail mounted with clip)	HS_003, HS_004, HS_005, HS_006, HS_007, HS_008
Heatsinks (panel mounted with screws)	HS_012, HS_015, HS_020, HS_022, HS_025



fig. 1. Wiring diagram

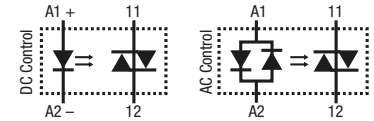


fig. 2. Thermal derating curve 25 A

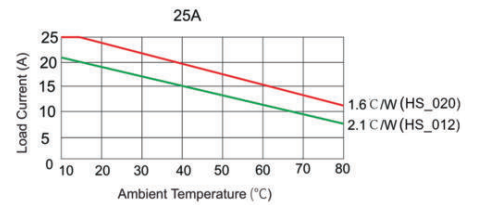


fig. 3. Thermal derating curve 40 A

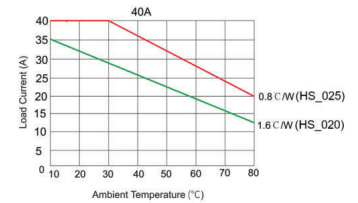


fig. 4. Thermal derating curve 60 A

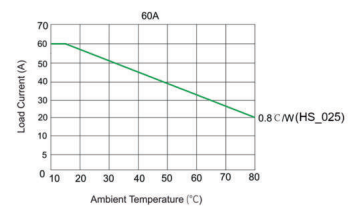
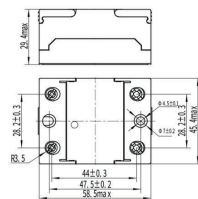


fig. 5. Dimensions (mm)



Technical approvals, conformities

Standards EN 60950-1, EN 62314

Approvals

Main circuit

Output type	⚡ SCR		
Type	Instantaneous		
Rated voltage AC	240 V		
Output voltage range	24...280 V		
Operating frequency	47...63 Hz		
Recommended minimum contact load	100 mA		
Maximum leakage current @ rated voltage mA	3 mA		
Maximum voltage drop @ rated current	≤ 1.5 V rms		
Repetitive peak voltage in off-state	1,600 Vpk		
Maximum switch off slew rate dv/dt	500 V / μs		
Type of terminal	Screw		
Contact	1 NO		
Rated current	80 A	100 A	125 A
Thermal derating, refer to:	fig. 2	fig. 3	fig. 4
Inrush current @ 10 ms	800 A	1 500 A	2 250 A
Rated limit load I2t @ 10 ms	3 200 A²s	11 250 A²s	25 000 A²s

Control circuit

Operating voltage range	3 ... 32 V DC	90 ... 280 V AC
Max. input current @ max. operating voltage	25 mA	35 mA
Pick-up voltage	3 V DC	90 V AC
Release voltage	1 V DC	15 V AC
Power consumption DC	0.8 W	9.8 VA

Insulation

Rated test voltage input/output	4 000 Vrms / 1 min
Rated test voltage input output/base	4 000 Vrms / 1 min
Overtoltage category	III

General data

Storage temperature (no ice)	-30 ... 100 °C
Operation temperature	-30 ... 80 °C
Pick-up time	≤ 1 ms (DC) / 40 ms (AC)
Release time	≤ 10 ms (DC) / 20 ms (AC)
Power Factor	> 0.5
Ingress Protection	IP 20
Dimensions	fig. 5
Weight	80 g

Product references

Description	Type	080	100	125
1 NO, LED, RC Protection	SP1EXS-TIX0240N...X/AC90-280V	o.r.		
1 NO, LED, TVS (*2) and RC protection	SP1EXS-TIX0240T...X/AC90-280V	o.r.	o.r.	o.r.
1 NO, LED, MOV (*1) and RC protection	SP1EXS-TIX0240V...X/AC90-280V	o.r.	o.r.	o.r.
1 NO, LED, RC Protection	SP1EXS-TIX0240N...X/DC4-32V	o.r.	o.r.	o.r.
1 NO, LED, TVS (*2) and RC protection	SP1EXS-TIX0240T...X/DC4-32V	o.r.	o.r.	o.r.
1 NO, LED, MOV (*1) and RC protection	SP1EXS-TIX0240V...X/DC4-32V	o.r.	o.r.	o.r.

Accessories

Thermal conducting pad	SP1P/pad
Heatsinks (DIN rail mounted with clip)	HS_003, HS_004, HS_005, HS_006, HS_007, HS_008
Heatsinks (panel mounted with screws)	HS_012, HS_015, HS_020, HS_022, HS_025



fig. 1. Wiring diagram

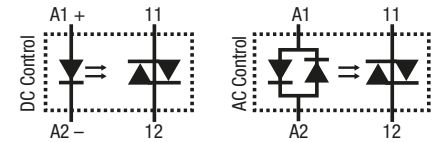


fig. 2. Thermal derating curve 80 A

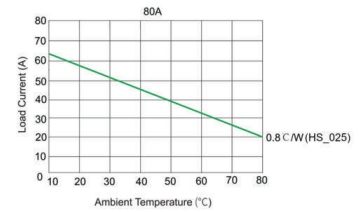


fig. 3. Thermal derating curve 100 A

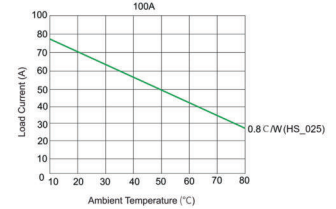


fig. 4. Thermal derating curve 125 A

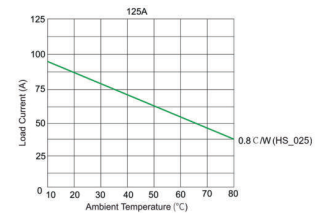
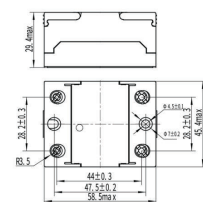


fig. 5. Dimensions (mm)



Technical approvals, conformities

Standards EN 60950-1, EN 62314

Approvals

1.5 Solid State Relays SP1EXS-TIX0480-25/40/60

SSR | 1 phase | NO | up to 530 V AC, 60 A | instantaneous | screw | IP 20



Main circuit

Output type	⚡ SCR		
Type	Instantaneous		
Rated voltage AC	480 V		
Output voltage range	24...530 V		
Operating frequency	47...63 Hz		
Recommended minimum contact load	100 mA		
Maximum leakage current @ rated voltage mA	3 mA		
Maximum voltage drop @ rated current	≤ 1.5 V rms		
Repetitive peak voltage in off-state	1,200 Vpk		
Maximum switch off slew rate dv/dt	500 V / μs		
Type of terminal	Screw		
Contact	1 NO		
Rated current	25 A	40 A	60 A
Thermal derating, refer to:	fig. 2	fig. 3	fig. 4
Inrush current @ 10 ms	300 A	500 A	700 A
Rated limit load I2t @ 10 ms	450 A ² s	1 250 A ² s	2 450 A ² s

Control circuit

Operating voltage range	3 ... 32 V DC	90 ... 280 V AC
Max. input current @ max. operating voltage	25 mA	35 mA
Pick-up voltage	3 V DC	90 V AC
Release voltage	1 V DC	15 V AC
Power consumption DC	0.8 W	9.8 VA

Insulation

Rated test voltage input/output	4 000 Vrms / 1 min
Rated test voltage input output/base	4 000 Vrms / 1 min
Overtoltage category	III

General data

Storage temperature (no ice)	-30 ... 100 °C
Operation temperature	-30 ... 80 °C
Pick-up time	≤ 1 ms (DC) / 40 ms (AC)
Release time	≤ 10 ms (DC) / 20 ms (AC)
Power Factor	> 0.5
Ingress Protection	IP 20
Dimensions	fig. 5
Weight	80 g

Product references

Description	Type	025	040	060
1 NO, LED, RC Protection	SP1EXS-TIX0480N...X/AC90-280V	✓	✓	O.r.
1 NO, LED, TVS (*2) and RC protection	SP1EXS-TIX0480T...X/AC90-280V	✓	✓	O.r.
1 NO, LED, MOV (*1) and RC protection	SP1EXS-TIX0480V...X/AC90-280V	O.r.	O.r.	O.r.
1 NO, LED, RC Protection	SP1EXS-TIX0480N...X/DC4-32V	O.r.	✓	O.r.
1 NO, LED, TVS (*2) and RC protection	SP1EXS-TIX0480T...X/DC4-32V	O.r.	✓	O.r.
1 NO, LED, MOV (*1) and RC protection	SP1EXS-TIX0480V...X/DC4-32V	O.r.	O.r.	O.r.

Accessories

Thermal conducting pad	SP1P/pad
Heatsinks (DIN rail mounted with clip)	HS_003, HS_004, HS_005, HS_006, HS_007, HS_008
Heatsinks (panel mounted with screws)	HS_012, HS_015, HS_020, HS_022, HS_025



fig. 1. Wiring diagram

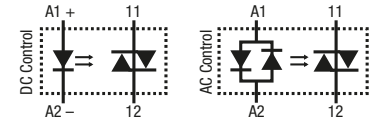


fig. 2. Thermal derating curve 25 A

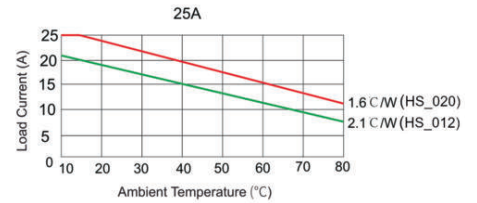


fig. 3. Thermal derating curve 40 A

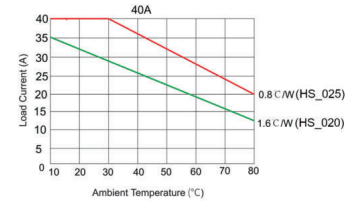


fig. 4. Thermal derating curve 60 A

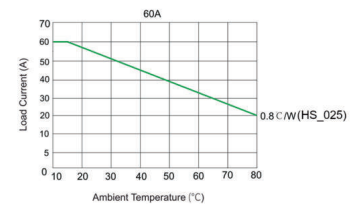
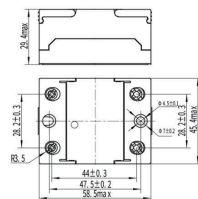


fig. 5. Dimensions (mm)



Technical approvals, conformities

Standards EN 60950-1, EN 62314

Approvals

1.5 Solid State Relays

SP1EXS-TIX0480-80/100/125

SSR | 1 phase | NO | up to 530 V AC, 125 A | instantaneous | screw | IP 20

Main circuit

Output type	⚡ SCR		
Type	Instantaneous		
Rated voltage AC	480 V		
Output voltage range	24...530 V		
Operating frequency	47...63 Hz		
Recommended minimum contact load	100 mA		
Maximum leakage current @ rated voltage mA	3 mA		
Maximum voltage drop @ rated current	≤ 1.5 V rms		
Repetitive peak voltage in off-state	1,600 Vpk		
Maximum switch off slew rate dv/dt	500 V / μs		
Type of terminal	Screw		
Contact	1 NO		
Rated current	80 A	100 A	125 A
Thermal derating, refer to:	fig. 2	fig. 3	fig. 4
Inrush current @ 10 ms	1		
	800 A	1 500 A	2 250 A
Rated limit load I2t @ 10 ms	3 200 A²s	11 250 A²s	25 000 A²s

Control circuit

Operating voltage range	3 ... 32 V DC	90 ... 280 V AC
Max. input current @ max. operating voltage	25 mA	35 mA
Pick-up voltage	3 V DC	90 V AC
Release voltage	1 V DC	15 V AC
Power consumption DC	0.8 W	9.8 VA

Insulation

Rated test voltage input/output	4 000 Vrms / 1 min
Rated test voltage input output/base	4 000 Vrms / 1 min
Overvoltage category	III

General data

Storage temperature (no ice)	-30 ... 100 °C
Operation temperature	-30 ... 80 °C
Pick-up time	≤ 1 ms (DC) / 40 ms (AC)
Release time	≤ 10 ms (DC) / 20 ms (AC)
Power Factor	> 0.5
Ingress Protection	IP 20
Dimensions	fig. 5
Weight	80 g

Product references

Description	Type	080	100	125
1 NO, LED, RC Protection	SP1EXS-TIX0480N...X/AC90-280V	o.r.	o.r.	o.r.
1 NO, LED, TVS (*2) and RC protection	SP1EXS-TIX0480T...X/AC90-280V	o.r.	o.r.	o.r.
1 NO, LED, MOV (*1) and RC protection	SP1EXS-TIX0480V...X/AC90-280V	o.r.	o.r.	o.r.
1 NO, LED, RC Protection	SP1EXS-TIX0480N...X/DC4-32V	o.r.	o.r.	o.r.
1 NO, LED, TVS (*2) and RC protection	SP1EXS-TIX0480T...X/DC4-32V	o.r.	o.r.	o.r.
1 NO, LED, MOV (*1) and RC protection	SP1EXS-TIX0480V...X/DC4-32V	o.r.	o.r.	o.r.

Accessories

Thermal conducting pad	SP1P/pad
Heatsinks (DIN rail mounted with clip)	HS_003, HS_004, HS_005, HS_006, HS_007, HS_008
Heatsinks (panel mounted with screws)	HS_012, HS_015, HS_020, HS_022, HS_025



fig. 1. Wiring diagram

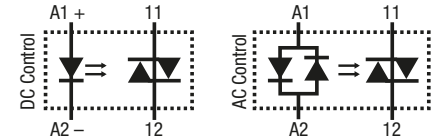


fig. 2. Thermal derating curve 80 A

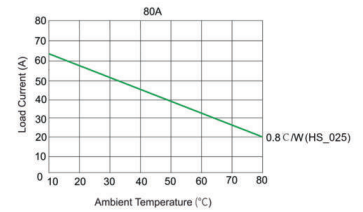


fig. 3. Thermal derating curve 100 A

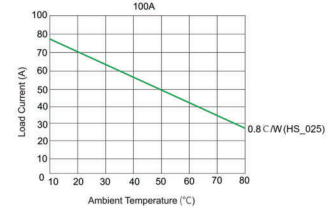


fig. 4. Thermal derating curve 125 A

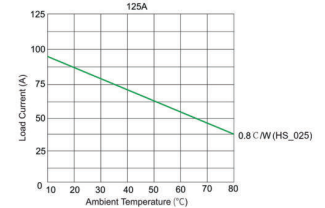
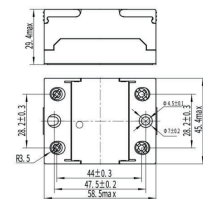


fig. 5. Dimensions (mm)



Technical approvals, conformities

Standards EN 60950-1, EN 62314

Approvals

1.5 Solid State Relays

SP1EXS-TIX0600-25/40/60

SSR | 1 phase | NO | up to 660 V AC, 60 A | instantaneous | screw | IP 20



Main circuit

Output type	⚡ SCR		
Type	Instantaneous		
Rated voltage AC	600 V		
Output voltage range	24...660 V		
Operating frequency	47...63 Hz		
Recommended minimum contact load	100 mA		
Maximum leakage current @ rated voltage mA	3 mA		
Maximum voltage drop @ rated current	≤ 1.5 V rms		
Repetitive peak voltage in off-state	1,600 Vpk		
Maximum switch off slew rate dv/dt	500 V / μs		
Type of terminal	Screw		
Contact	1 NO		
Rated current	25 A	40 A	60 A
Thermal derating, refer to:	fig. 2	fig. 3	fig. 4
Inrush current @ 10 ms	300 A	500 A	700 A
Rated limit load I2t @ 10 ms	450 A²s	1 250 A²s	2 450 A²s

Control circuit

Operating voltage range	3 ... 32 V DC	90 ... 280 V AC
Max. input current @ max. operating voltage	25 mA	35 mA
Pick-up voltage	3 V DC	90 V AC
Release voltage	1 V DC	15 V AC
Power consumption DC	0.8 W	9.8 VA

Insulation

Rated test voltage input/output	4 000 Vrms / 1 min
Rated test voltage input output/base	4 000 Vrms / 1 min
Overtoltage category	III

General data

Storage temperature (no ice)	-30 ... 100 °C
Operation temperature	-30 ... 80 °C
Pick-up time	≤ 1 ms (DC) / 40 ms (AC)
Release time	≤ 10 ms (DC) / 20 ms (AC)
Power Factor	> 0.5
Ingress Protection	IP 20
Dimensions	fig. 5
Weight	80 g

Product references

Description	Type	025	040	060
1 NO, LED, RC Protection	SP1EXS-TIX0600N...X/AC90-280V	✓	✓	o.r.
1 NO, LED, TVS (*2) and RC protection	SP1EXS-TIX0600T...X/AC90-280V	✓	✓	o.r.
1 NO, LED, MOV (*1) and RC protection	SP1EXS-TIX0600V...X/AC90-280V	o.r.	o.r.	o.r.
1 NO, LED, RC Protection	SP1EXS-TIX0600N...X/DC4-32V	o.r.	✓	o.r.
1 NO, LED, TVS (*2) and RC protection	SP1EXS-TIX0600T...X/DC4-32V	o.r.	✓	o.r.
1 NO, LED, MOV (*1) and RC protection	SP1EXS-TIX0600V...X/DC4-32V	o.r.	o.r.	o.r.

Accessories

Thermal conducting pad	SP1P/pad
Heatsinks (DIN rail mounted with clip)	HS_003, HS_004, HS_005, HS_006, HS_007, HS_008
Heatsinks (panel mounted with screws)	HS_012, HS_015, HS_020, HS_022, HS_025



fig. 1. Wiring diagram

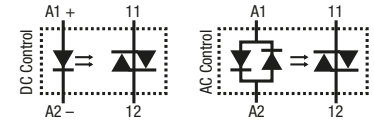


fig. 2. Thermal derating curve 25 A

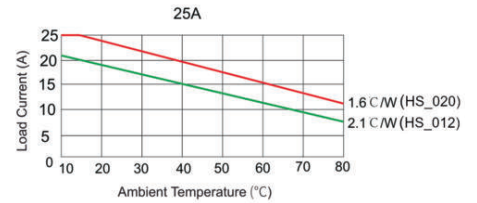


fig. 3. Thermal derating curve 40 A

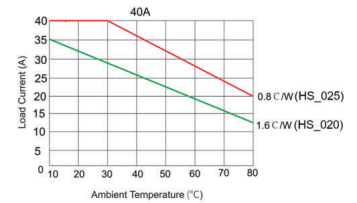


fig. 4. Thermal derating curve 60 A

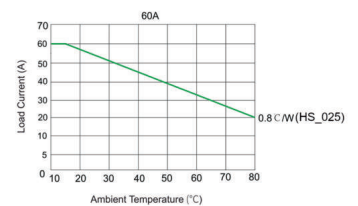
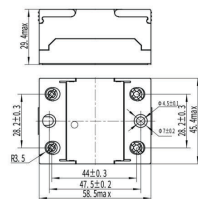


fig. 5. Dimensions (mm)



Technical approvals, conformities

Standards EN 60950-1, EN 62314

Approvals

Main circuit

Output type	⚡ SCR		
Type	Instantaneous		
Rated voltage AC	600 V		
Output voltage range	24...660 V		
Operating frequency	47...63 Hz		
Recommended minimum contact load	100 mA		
Maximum leakage current @ rated voltage mA	3 mA		
Maximum voltage drop @ rated current	≤ 1.5 V rms		
Repetitive peak voltage in off-state	1,600 Vpk		
Maximum switch off slew rate dv/dt	500 V / μs		
Type of terminal	Screw		
Contact	1 NO		
Rated current	80 A	100 A	125 A

Thermal derating, refer to:	fig. 2	fig. 3	fig. 4
Inrush current @ 10 ms	800 A	1 500 A	2 250 A
Rated limit load I2t @ 10 ms	3 200 A²s	11 250 A²s	25 000 A²s

Control circuit

Operating voltage range	3 ... 32 V DC	90 ... 280 V AC
Max. input current @ max. operating voltage	25 mA	35 mA
Pick-up voltage	3 V DC	90 V AC
Release voltage	1 V DC	15 V AC
Power consumption DC	0.8 W	9.8 VA

Insulation

Rated test voltage input/output	4 000 Vrms / 1 min
Rated test voltage input output/base	4 000 Vrms / 1 min
Overtoltage category	III

General data

Storage temperature (no ice)	-30 ... 100 °C
Operation temperature	-30 ... 80 °C
Pick-up time	≤ 1 ms (DC) / 40 ms (AC)
Release time	≤ 10 ms (DC) / 20 ms (AC)
Power Factor	> 0.5
Ingress Protection	IP 20
Dimensions	fig. 5
Weight	80 g

Product references

Description	Type	080	100	125
1 NO, LED, RC Protection	SP1EXS-TIX0600N...X/AC90-280V	O.r.	O.r.	O.r.
1 NO, LED, TVS (*2) and RC protection	SP1EXS-TIX0600T...X/AC90-280V	O.r.	O.r.	O.r.
1 NO, LED, MOV (*1) and RC protection	SP1EXS-TIX0600V...X/AC90-280V	O.r.	O.r.	O.r.
1 NO, LED, RC Protection	SP1EXS-TIX0600N...X/DC4-32V	O.r.	O.r.	O.r.
1 NO, LED, TVS (*2) and RC protection	SP1EXS-TIX0600T...X/DC4-32V	O.r.	O.r.	O.r.
1 NO, LED, MOV (*1) and RC protection	SP1EXS-TIX0600V...X/DC4-32V	O.r.	O.r.	O.r.

Accessories

Thermal conducting pad	SP1P/pad
Heatsinks (DIN rail mounted with clip)	HS_003, HS_004, HS_005, HS_006, HS_007, HS_008
Heatsinks (panel mounted with screws)	HS_012, HS_015, HS_020, HS_022, HS_025



fig. 1. Wiring diagram

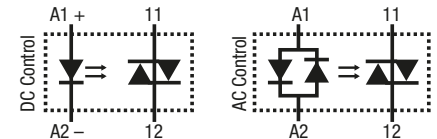


fig. 2. Thermal derating curve 80 A

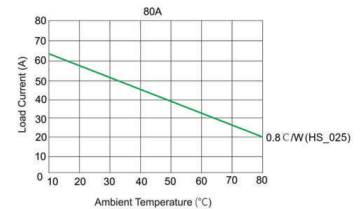


fig. 3. Thermal derating curve 100 A

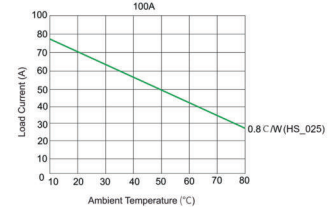


fig. 4. Thermal derating curve 125 A

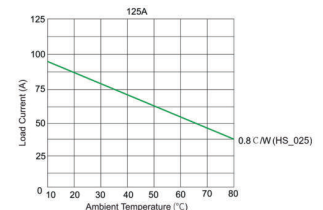
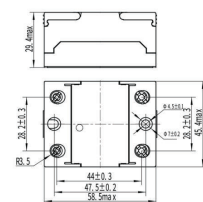


fig. 5. Dimensions (mm)



Technical approvals, conformities

Standards EN 60950-1, EN 62314

Approvals

Main circuit

Output type	⚡ SCR		
Type	Synchronised zero		
Rated voltage AC	480 V		
Output voltage range	24...530 V		
Operating frequency	47...63 Hz		
Recommended minimum contact load	100 mA		
Maximum leakage current @ rated voltage mA	3 mA		
Maximum voltage drop @ rated current	≤ 1.5 V rms		
Repetitive peak voltage in off-state	1,200 Vpk		
Maximum switch off slew rate dv/dt	500 V / µs		
Type of terminal	Screw		
Contact	1 NO		
Rated current	80 A	100 A	125 A
Thermal derating, refer to:	fig. 2	fig. 3	fig. 4
Inrush current @ 10 ms	800 A	1 500 A	2 250 A
Rated limit load I2t @ 10 ms	3 200 A²s	11 250 A²s	25 000 A²s

Control circuit

Operating voltage range	3... 32 V DC	90 ... 280 V AC
Max. input current @ max. operating voltage	25 mA	35 mA
Pick-up voltage	3 V DC	90 V AC
Release voltage	1 V DC	15 V AC
Power consumption DC	0.8 W	9.8 VA

Insulation

Rated test voltage input/output	4 000 Vrms / 1 min
Rated test voltage input output/base	4 000 Vrms / 1 min
Overtoltage category	III

General data

Storage temperature (no ice)	-30 ... 100 °C
Operation temperature	-30 ... 80 °C
Pick-up time	≤ 1/2 cycle + 10 ms (DC) / 40 ms (AC)
Release time	≤ 1/2 cycle + 10 ms (DC) / 20 ms (AC)
Power Factor	> 0.5
Ingress Protection	IP 20
Dimensions	fig. 5
Weight	80 g

Product references

Description	Type	080	100	125
1 NO, LED, RC Protection	SP1EXS-TZX0480N...X/AC90-280V	✓	o.r.	o.r.
1 NO, LED, TVS (*2) and RC protection	SP1EXS-TZX0480T...X/AC90-280V	✓	o.r.	o.r.
1 NO, LED, MOV (*1) and RC protection	SP1EXS-TZX0480V...X/AC90-280V	o.r.	o.r.	o.r.
1 NO, LED, RC Protection	SP1EXS-TZX0480N...X/DC4-32V	✓	o.r.	o.r.
1 NO, LED, TVS (*2) and RC protection	SP1EXS-TZX0480T...X/DC4-32V	✓	o.r.	o.r.
1 NO, LED, MOV (*1) and RC protection	SP1EXS-TZX0480V...X/DC4-32V	o.r.	o.r.	o.r.

Accessories

Thermal conducting pad	SP1P/pad
Heatsinks (DIN rail mounted with clip)	HS_003, HS_004, HS_005, HS_006, HS_007, HS_008
Heatsinks (panel mounted with screws)	HS_012, HS_015, HS_020, HS_022, HS_025



fig. 1. Wiring diagram

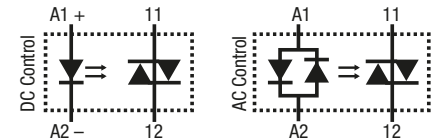


fig. 2. Thermal derating curve 80 A

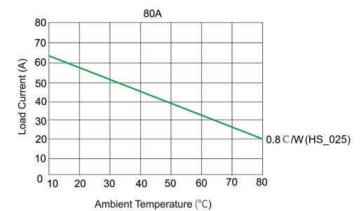


fig. 3. Thermal derating curve 100 A

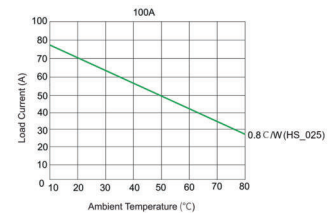


fig. 4. Thermal derating curve 125 A

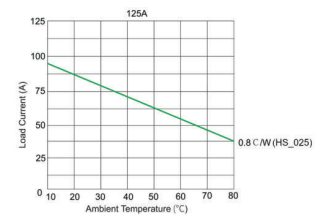
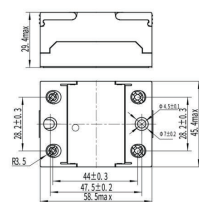


fig. 5. Dimensions (mm)



Technical approvals, conformities

Standards EN 60950-1, EN 62314



1.5 Solid State Relays SP1EXS-TZX0600-25/40/60

SSR | 1 phase | NO | up to 660 V AC, 60 A | synchr zero | screw | IP 20



Main circuit

Output type	⚡ SCR		
Type	Synchronised zero		
Rated voltage AC	600 V		
Output voltage range	24...660 V		
Operating frequency	47...63 Hz		
Recommended minimum contact load	100 mA		
Maximum leakage current @ rated voltage mA	3 mA		
Maximum voltage drop @ rated current	≤ 1.5 V rms		
Repetitive peak voltage in off-state	1,600 Vpk		
Maximum switch off slew rate dv/dt	500 V / μs		
Type of terminal	Screw		
Contact	1 NO		
Rated current	25 A	40 A	60 A
Thermal derating, refer to:	fig. 2	fig. 3	fig. 4
Inrush current @ 10 ms	300 A	500 A	700 A
Rated limit load I _{2t} @ 10 ms	450 A ² s	1 250 A ² s	2 450 A ² s

Control circuit

Operating voltage range	3 ... 32 V DC	90 ... 280 V AC
Max. input current @ max. operating voltage	25 mA	35 mA
Pick-up voltage	3 V DC	90 V AC
Release voltage	1 V DC	15 V AC
Power consumption DC	0.8 W	9.8 VA

Insulation

Rated test voltage input/output	4 000 Vrms / 1 min
Rated test voltage input output/base	4 000 Vrms / 1 min
Overtoltage category	III

General data

Storage temperature (no ice)	-30 ... 100 °C
Operation temperature	-30 ... 80 °C
Pick-up time	1/2 cycle + 10 ms (DC) / 40 ms (AC)
Release time	1/2 cycle + 10 ms (DC) / 20 ms (AC)
Power Factor	> 0.5
Ingress Protection	IP 20
Dimensions	fig. 5
Weight	80 g

Product references

Description	Type	025	040	060
1 NO, LED, RC Protection	SP1EXS-TZX0600N...X/AC90-280V	✓	✓	✓
1 NO, LED, TVS (*2) and RC protection	SP1EXS-TZX0600T...X/AC90-280V	✓	✓	✓
1 NO, LED, MOV (*1) and RC protection	SP1EXS-TZX0600V...X/AC90-280V	o.r.	o.r.	o.r.
1 NO, LED, RC Protection	SP1EXS-TZX0600N...X/DC4-32V	o.r.	✓	✓
1 NO, LED, TVS (*2) and RC protection	SP1EXS-TZX0600T...X/DC4-32V	o.r.	✓	✓
1 NO, LED, MOV (*1) and RC protection	SP1EXS-TZX0600V...X/DC4-32V	o.r.	o.r.	o.r.

Accessories

Thermal conducting pad	SP1P/pad
Heatsinks (DIN rail mounted with clip)	HS_003, HS_004, HS_005, HS_006, HS_007, HS_008
Heatsinks (panel mounted with screws)	HS_012, HS_015, HS_020, HS_022, HS_025



fig. 1. Wiring diagram

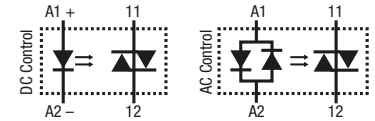


fig. 2. Thermal derating curve 25 A

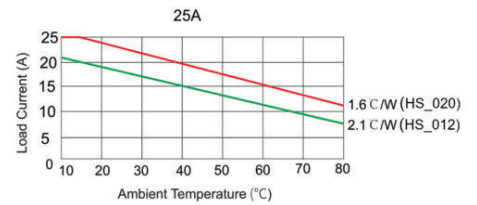


fig. 3. Thermal derating curve 40 A

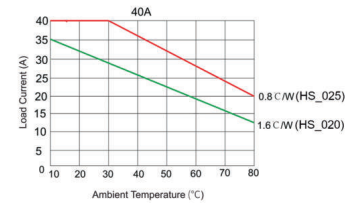


fig. 4. Thermal derating curve 60 A

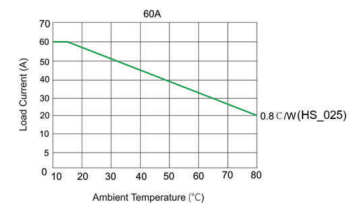
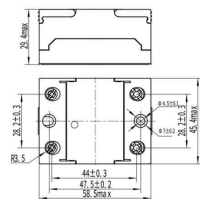


fig. 5. Dimensions (mm)



Technical approvals, conformities

Standards EN 60950-1, EN 62314

Approvals

Main circuit

Output type	⚡ SCR		
Type	Synchronised zero		
Rated voltage AC	600 V		
Output voltage range	48...660 V		
Operating frequency	47...63 Hz		
Recommended minimum contact load	100 mA		
Maximum leakage current @ rated voltage mA	3 mA		
Maximum voltage drop @ rated current	≤ 1.5 V rms		
Repetitive peak voltage in off-state	1,600 Vpk		
Maximum switch off slew rate dv/dt	500 V / μs		
Type of terminal	Screw		
Contact	1 NO		
Rated current	80 A	100 A	125 A
Thermal derating, refer to:	fig. 2	fig. 3	fig. 4
Inrush current @ 10 ms	800 A	1 500 A	2 250 A
Rated limit load I2t @ 10 ms	3 200 A²s	11 250 A²s	25 000 A²s

Control circuit

Operating voltage range	3 ... 32 V DC	90 ... 280 V AC
Max. input current @ max. operating voltage	25 mA	35 mA
Pick-up voltage	3 V DC	90 V AC
Release voltage	1 V DC	15 V AC
Power consumption DC	0.8 W	9.8 VA

Insulation

Rated test voltage input/output	4 000 Vrms / 1 min
Rated test voltage input output/base	4 000 Vrms / 1 min
Overtoltage category	III

General data

Storage temperature (no ice)	-30 ... 100 °C
Operation temperature	-30 ... 80 °C
Pick-up time	≤ 1/2 cycle + 10 ms (DC) / 40 ms (AC)
Release time	≤ 1/2 cycle + 10 ms (DC) / 20 ms (AC)
Power Factor	> 0.5
Ingress Protection	IP 20
Dimensions	fig. 5
Weight	80 g

Product references

Description	Type	080	100	125
1 NO, LED, RC Protection	SP1EXS-TZX0600N...X/AC90-280V	✓	✓	✓
1 NO, LED, TVS (*2) and RC protection	SP1EXS-TZX0600T...X/AC90-280V	✓	✓	✓
1 NO, LED, MOV (*1) and RC protection	SP1EXS-TZX0600V...X/AC90-280V	o.r.	o.r.	o.r.
1 NO, LED, RC Protection	SP1EXS-TZX0600N...X/DC4-32V	✓	✓	✓
1 NO, LED, TVS (*2) and RC protection	SP1EXS-TZX0600T...X/DC4-32V	✓	✓	✓
1 NO, LED, MOV (*1) and RC protection	SP1EXS-TZX0600V...X/DC4-32V	o.r.	o.r.	o.r.

Accessories

Thermal conducting pad	SP1P/pad
Heatsinks (DIN rail mounted with clip)	HS_003, HS_004, HS_005, HS_006, HS_007, HS_008
Heatsinks (panel mounted with screws)	HS_012, HS_015, HS_020, HS_022, HS_025



fig. 1. Wiring diagram

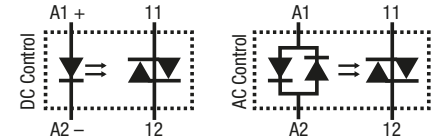


fig. 2. Thermal derating curve 80 A

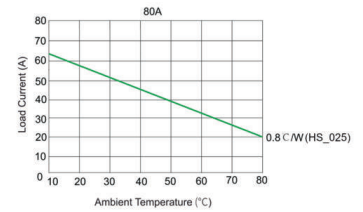


fig. 3. Thermal derating curve 100 A

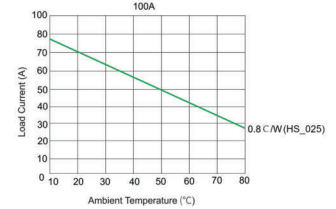


fig. 4. Thermal derating curve 125 A

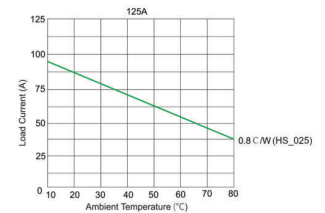
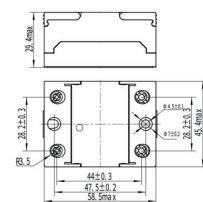


fig. 5. Dimensions (mm)















Technical approvals, conformities

Standards EN 60950-1, EN 62314

Approvals

1.6 Installation Relays

	Type	Pin	Page
CHI Series			
1 pole High Inrush Relay with tungsten pre-contact	CHI14		130
3 pole High Inrush Relay with tungsten pre-contact	CHI34		131
C100/200/300 Series			
2 pole Power Relay	C133.01		132
2 pole 2 coil Control Relay	C203.01		133
2 pole 2 coil Control Relay	C203.04		134
2 pole 2 coil Signal Relay	C203.06		135
2 pole 2 coil Signal Relay	C203.06R		136
2 pole 3 coil Signal Relay	C301.04		137
CR Series			
2 pole Signal Relay	CR11C		138
1 pole Power Relay	CR16CX		139
1 pole Power Relay Step Switch	CRS1C		140
B Series			
1 pole Power Relay	B103		141

1.6 Installation Relays

CHI14

1 pole | High Inrush Relay with tungsten pre-contact

Main circuit

Available contact materials	⚡ W + AgSnO ₂	
Recommended minimum contact load	100 mA / 12 V	
Maximum contact load AC-1	16 A / 250 V	
Rated current	16 A	
Inrush current	165 A, 20 ms	800 A, 200 μs
Operating voltage AC / DC	80 ... 250 V	
Rated load AC	4 000 VA	
Rated load DC	fig. 2.	
Mechanical endurance (cycles)	≥ 5 000 000	
Electrical endurance at rated load AC-1 (cycles)	≥ 5000	
Number of contacts	1 NO	

Control circuit

Nominal voltage	24 ... 240 V AC / DC
Operating voltage range	0.7 U _N ... 1.05 U _N
Max. Pick-up time	500 ms
Pick-up voltage	≤ 0.7 U _N
Release voltage	≥ 0.1 U _N
Power consumption AC	1.2 VA
Power consumption DC	0.43 W
Frequency range	16 ... 63 Hz

Insulation

Contact/coil	2.5 kV / 1 min
Overvoltage category	II
Rated impulse withstand voltage open contact	1 kV / 1 min
Pollution degree	2

General data

Storage temperature (no ice)	-40 ... 85 °C
Operation temperature	-40 ... 60 °C
Conductor cross section	solid wire 1 x 4 mm ² , 2 x 1.5 mm ² , stranded & crimped wire 1 x 2.5 mm ² , 2 x 1.5 mm ²
Nominal screw torque	0.5 Nm
Ingress Protection	IP 20
Mounting	TH35 (EN 60715)
Weight	70 g
Housing material	PA / PC

Product references

Description	Type	24-240
1 NO	CHI14/UC...V	✓

Other voltages on request. Please contact support@comatreleco.com.
«...» List control circuit voltage to complete product references.

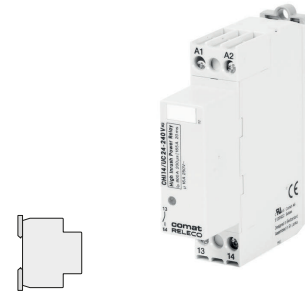


fig. 1. Wiring diagram

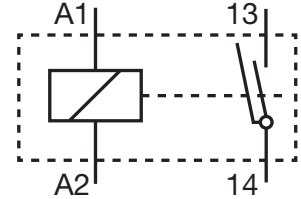


fig. 2. DC load limit curve

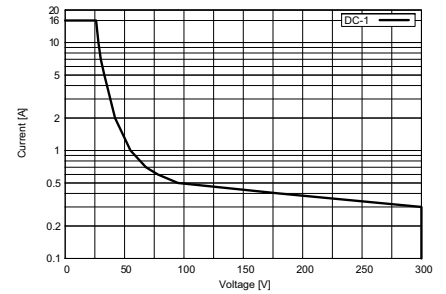
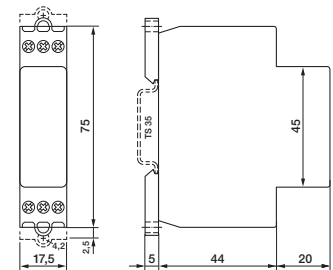


fig. 3. Dimensions (mm)



Technical approvals, conformities

Standards EN 60730-1; EN 61000-6-2; EN 61000-6-3

Approvals

CHI34

3 pole | High Inrush Relay with tungsten pre-contact

Main circuit

Available contact materials	⚡ W + AgSnO ₂	
Recommended minimum contact load	100 mA / 12 V	
Maximum contact load AC-1	16 A / 250 V	
Rated current	16 A	
Inrush current	165 A, 20 ms	800 A, 200 μs
Operating voltage AC / DC	80 ... 250 V	
Rated load AC	16 A / 250 V	
Rated load DC	fig. 2.	
Mechanical endurance (cycles)	≥ 5 000 000	
Electrical endurance at rated load AC-1 (cycles)	≥ 5 000	
Number of contacts	3 NO	

Auxiliary contact

Output type	⚡ MOSFET
Rated current	90 mA at 25 °C / 60 mA at 60°C
Inrush current	1 A / 100 μs
Recommended minimum contact load	1 mA / 5 V
Operating voltage AC / DC	24 V AC/DC
Voltage drop max.	≤ 1.5 V
Switching point	Synchronized with last switching main contact
Number of contacts	1 NO

Control circuit

Nominal voltage	24 ... 240 V AC / DC
Operating voltage range	0.7 U _N ... 1.05 U _N
Max. Pick-up time	500 ms
Pick-up voltage	≤ 0.7 U _N
Release voltage	≥ 0.1 U _N
Power consumption supply (1-N) AC / DC	3.45 VA / 3.45 W
Power consumption control (A1-A2) AC / DC	≤ 30 mVA / ≤ 30 mW
Frequency range	47 ... 63 HZ

Insulation

Contact/coil	2.5 kV / 1 min
Overvoltage category	II
Rated impulse withstand voltage open contact	1 kV / 1 min
Pollution degree	2

General data

Storage temperature (no ice)	-40 ... 85 °C
Operation temperature	-25 ... 60 °C
Conductor cross section	solid wire 1 x 4 mm ² , 2 x 1.5 mm ² , stranded & crimped wire 1 x 2.5 mm ² , 2 x 1.5 mm ²
Nominal screw torque	0.5 Nm
Ingress Protection	IP 20
Mounting	TH35 (EN 60715)
Weight	125 g
Housing material	PA / PC

Product references

Description	Type	24-240
3 NO + 1 NO	CHI34/UC...V	✓

Other voltages on request. Please contact support@comatreleco.com.
«...» List control circuit voltage to complete product references.



fig. 1. Wiring diagram

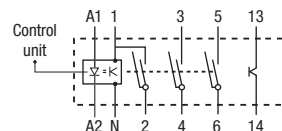


fig. 2. DC load limit curve

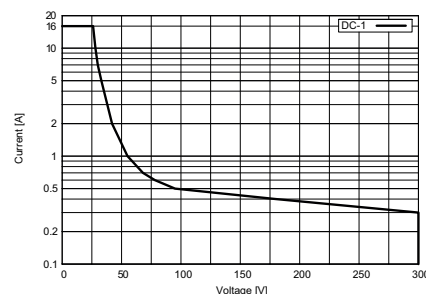
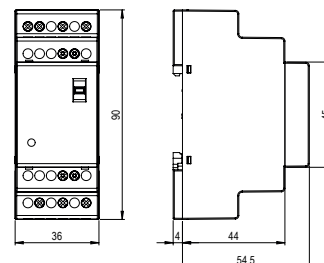


fig. 3. Dimensions (mm)



Technical approvals, conformities

Standards EN 61000-6-2; EN 61000-6-3

Approvals

1.6 Installation Relays

C133.01

2 pole | Power Relay

Main circuit

Available contact materials	⚡ AgNi
Recommended minimum contact load	100 mA / 12 V
Maximum contact load AC-1	6 A / 250 V
Rated current	6 A
Inrush current	15 A, 20 ms
Operating voltage	See table product references
Rated load AC	1 500 VA
Rated load DC	300 W
Mechanical endurance (cycles)	≥ 20 000 000
Electrical endurance at rated load (cycles)	≥ 300 000
Number of contacts	2 CO

Control circuit

Nominal voltage	see table product references
Operating voltage range	$0.85 U_N \dots 1.15 U_N$
Pick-up voltage	$0.85 U_N$
Release voltage	$\geq 0.1 U_N$
Pick-up time	10 ms
Release time	10 ms
Power consumption AC	1.1 VA
Power consumption DC	1.1 W

Insulation

Contact/contact	4 kV / 1 min
Contact/coil	2 kV / 1 min
Overvoltage category	III
Rated impulse withstand voltage open contact	1 kV / 1 min
Pollution degree	3

General data

Storage temperature (no ice)	-40 ... 85 °C
Operation temperature	-25 ... 60 °C
Conductor cross section	solid wire 1 x 4 mm ² , 2 x 1.5 mm ² , stranded & crimped wire 1 x 2.5 mm ² , 2 x 1.5 mm ²
Nominal screw torque	0.5 Nm
Ingress Protection	IP 20
Mounting	TH35 (EN 60715)
Weight	89 g
Housing material	PA / PC

Product references

Description	Type	12	24	48	220-240
2 CO	C133.01/AC...V				✓
2 CO	C133.01/DC...V	✓			
2 CO	C133.01/UC...V		✓	✓	

Other voltages on request. Please contact support@comatreleco.com.

«...» List control circuit voltage to complete product references.



fig. 1. Wiring diagram

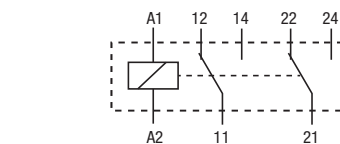


fig. 2. AC voltage endurance

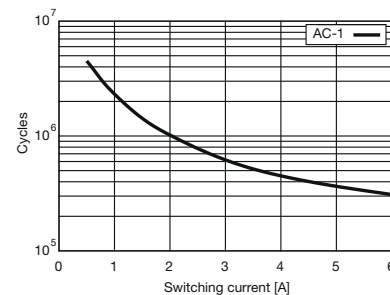
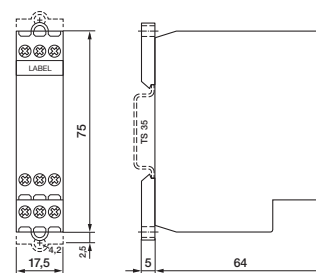


fig. 3. Dimensions (mm)



Technical approvals, conformities

Standards EN 61810

Approvals

C203.01

2 pole | 2 coil | Control Relay

Main circuit

Available contact materials	⚡ AgNi
Recommended minimum contact load	100 mA / 12 V
Maximum contact load AC-1	6 A / 250 V
Maximum contact load DC-1	6 A / 25 V
Rated current	6 A
Inrush current	15 A, 20 ms
Operating voltage	See table product references
Rated load AC	1 250 VA
Rated load DC	330 W
Mechanical endurance (cycles)	≥ 20 000 000
Electrical endurance at rated load (cycles)	≥ 300 000
Number of contacts	2 CO

Control circuit

Nominal voltage	see table product references
Operating voltage range	0.85 U _N ... 1.15 U _N
Pick-up voltage	0.85 U _N
Release voltage	≥ 0.1 U _N
Pick-up time	10 ms
Release time	10 ms
Power consumption AC	2 x 0.6 VA
Power consumption DC	2 x 0.6 W

Insulation

Contact/contact	4 kV / 1 min
Contact/coil	2 kV / 1 min
Overvoltage category	III
Rated impulse withstand voltage open contact	1 kV / 1 min
Pollution degree	3

General data

Storage temperature (no ice)	-40 ... 85 °C
Operation temperature	-25 ... 60 °C
Conductor cross section	solid wire 1 x 4 mm ² , 2 x 1.5 mm ² , stranded & crimped wire 1 x 2.5 mm ² , 2 x 1.5 mm ²
Nominal screw torque	0.5 Nm
Ingress Protection	IP 20
Mounting	TH35 (EN 60715)
Weight	89 g
Housing material	PA / PC

Product references

Description	Type	24	220-240
2 CO	C203.01/AC...V		✓
2 CO	C203.01/UC...V	✓	

Other voltages on request. Please contact support@comatreleco.com.
«...» List control circuit voltage to complete product references.



fig. 1. Wiring diagram

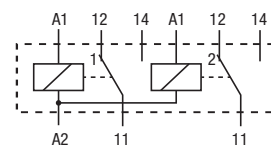


fig. 2. AC voltage endurance

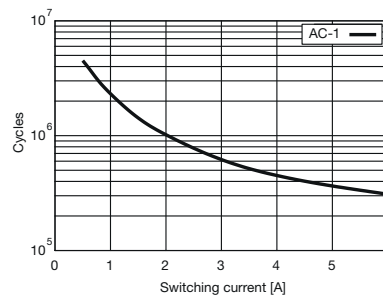
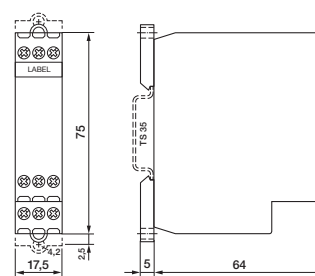


fig. 3. Dimensions (mm)



Technical approvals, conformities

Standards EN 61810

Approvals

1.6 Installation Relays

C203.04

2 pole | 2 coil | Control Relay

Main circuit

Available contact materials	⚡ AgNi
Recommended minimum contact load	1 mA / 0.1 V
Maximum contact load AC-1	5 A / 250 V
Maximum contact load DC-1	5 A / 30 V
Operating voltage	See table product references
Rated load AC	1 250 VA
Rated load DC	150 W
Rated current	5 A
Mechanical endurance (cycles)	≥ 50 000 000
Electrical endurance at rated load AC-1 (cycles)	≥ 100 000
Number of contacts	2 CO

Control circuit

Nominal voltage	see table product references
Operating voltage range	0.8 U _N ... 1.2 U _N
Pick-up voltage	0.8 U _N
Release voltage	≥ 0.1 U _N
Pick-up time	6 ms
Release time	30 ms
Power consumption AC	2 x 0.25 VA
Power consumption DC	2 x 0.25 W

Insulation

Contact/contact	4 kV / 1 min
Contact/coil	2 kV / 1 min
Overvoltage category	III
Rated impulse withstand voltage open contact	1 kV / 1 min
Pollution degree	3

General data

Storage temperature (no ice)	-40 ... 85 °C
Operation temperature	-25 ... 60 °C
Conductor cross section	solid wire 1 x 4 mm ² , 2 x 1.5 mm ² , stranded & crimped wire 1 x 2.5 mm ² , 2 x 1.5 mm ²
Nominal screw torque	0.5 Nm
Ingress Protection	IP 20
Mounting	TH35 (EN 60715)
Weight	65 g
Housing material	PA / PC

Product references

Description	Type	24
2 CO	C203.04/DC...V	✓

Other voltages on request. Please contact support@comatreleco.com.
«...» List control circuit voltage to complete product references.



fig. 1. Wiring diagram

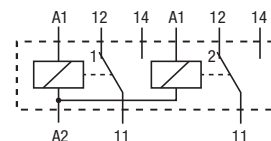


fig. 2. AC voltage endurance

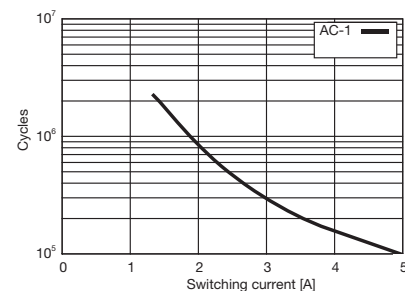
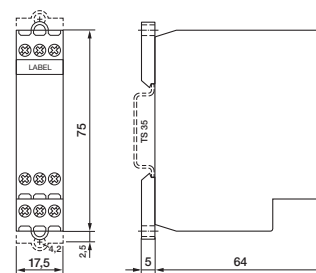


fig. 3. Dimensions (mm)



Technical approvals, conformities

Standards EN 61810

Approvals

C203.06

2 pole | 2 coil | Signal Relay

Main circuit

Available contact materials	AgAu
Recommended minimum contact load	10 μ A / 10 mV
Maximum contact load AC-1	0.5 A / 125 V
Maximum contact load DC-1	2 A / 30 V
Operating voltage	See table product references
Rated load AC	100 VA
Rated load DC	60 W, fig. 2.
Rated current	0.5 A
Mechanical endurance (cycles)	\geq 100 000 000
Electrical endurance at rated load AC-1 (cycles)	\geq 100 000
Number of contacts	2 CO

Control circuit

Nominal voltage	see table product references
Operating voltage range	0.8 U_N ... 1.2 U_N
Pick-up voltage	0.8 U_N
Release voltage	\geq 0.1 U_N
Pick-up time	10 ms
Release time	20 ms
Power consumption AC	2 x 0.25 VA
Power consumption DC	2 x 0.25 W

Insulation

Contact/contact	4 kV / 1 min
Contact/coil	2 kV / 1 min
Overvoltage category	III
Rated impulse withstand voltage open contact	1 kV / 1 min
Pollution degree	3

General data

Storage temperature (no ice)	-40 ... 85 °C
Operation temperature	-25 ... 60 °C
Conductor cross section	solid wire 1 x 4 mm ² , 2 x 1.5 mm ² , stranded & crimped wire 1 x 2.5 mm ² , 2 x 1.5 mm ²
Nominal screw torque	0.5 Nm
Ingress Protection	IP 20
Mounting	TH35 (EN 60715)
Weight	65 g
Housing material	PA / PC

Product references

Description	Type	48	220-240
2 CO	C203.06/AC...V		✓
2 CO	C203.06/UC...V	✓	

Other voltages on request. Please contact support@comatreleco.com.
«...» List control circuit voltage to complete product references.



fig. 1. Wiring diagram

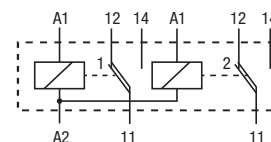


fig. 2. DC voltage endurance

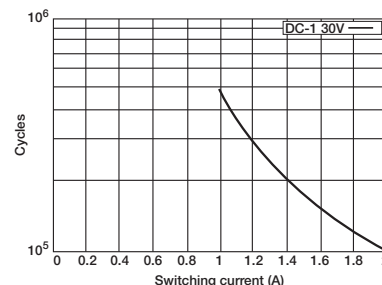


fig. 3. DC load limit curve

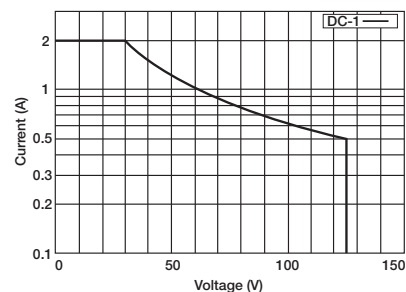
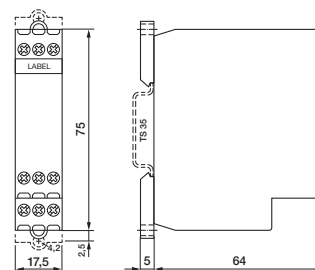


fig. 4. Dimensions (mm)



Technical approvals, conformities

Standards EN 61810

Approvals

1.6 Installation Relays

C203.06R

2 pole | 2 coil | Signal Relay



Main circuit

Available contact materials	AgAu
Recommended minimum contact load	10 μ A / 10 mV
Maximum contact load AC	0.5 A / 125 V
Maximum contact load DC	2 A / 30 V
Operating voltage AC / DC	See table product references
Rated load AC	100 VA
Rated load DC	60 W, fig. 2.
Rated current	0.5 A
Mechanical endurance (cycles)	\geq 100 000 000
Electrical endurance at rated load AC-1 (cycles)	\geq 100 000
Number of contacts	2 CO

Control circuit

Nominal voltage	see table product references
Operating voltage range	0.7 U_N ... 1.25 U_N
Pick-up voltage	0.7 U_N
Release voltage	\geq 0.1 U_N
Pick-up time	10 ms
Release time	20 ms
Power consumption AC	2 x 0.25 VA
Power consumption DC	2 x 0.25 W

Insulation

Contact/contact	4 kV / 1 min
Contact/coil	2 kV / 1 min
Overvoltage category	III
Rated impulse withstand voltage open contact	1 kV / 1 min
Pollution degree	3

General data

Storage temperature (no ice)	-40 ... 85 °C
Operation temperature	-25 ... 60 °C
Conductor cross section	solid wire 1 x 4 mm ² , 2 x 1.5 mm ² , stranded & crimped wire 1 x 2.5 mm ² , 2 x 1.5 mm ²
Nominal screw torque	0.5 Nm
Ingress Protection	IP 20
Mounting	TH35 (EN 60715)
Weight	65 g
Housing material	PA / PC

Product references

Description	Type	24	36
2 CO	C203.06R/UC...V	✓	✓

Other voltages on request. Please contact support@comatreleco.com.
«...» List control circuit voltage to complete product references.



fig. 1. Wiring diagram

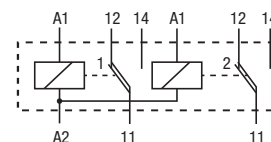


fig. 2. DC voltage endurance

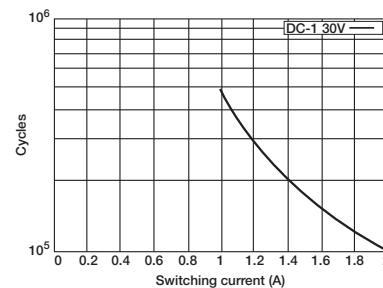


fig. 3. DC load limit curve

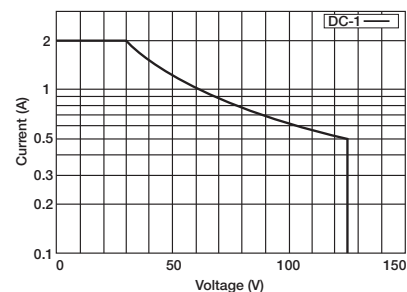
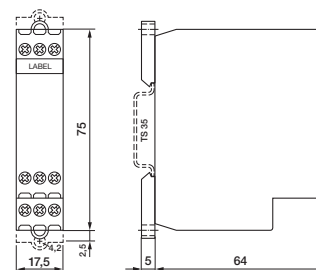


fig. 4. Dimensions (mm)



Technical approvals, conformities

Standards EN 61810
Railway EN 45545-2; EN 50155



C301.04

2 pole | 3 coil | Signal Relay

Main circuit

Available contact materials	AgAu
Recommended minimum contact load	1 mA / 0.1 V
Maximum contact load AC-1	5 A / 250 V
Maximum contact load DC-1	5 A / 30 V
Rated current	5 A
Operating voltage	See table product references
Rated load AC	1 250 VA
Rated load DC	150 W
Mechanical endurance (cycles)	≥ 50 000 000
Electrical endurance at rated load AC-1 (cycles)	≥ 100 000
Number of contacts	3 NO

Control circuit

Nominal voltage	see table product references
Operating voltage range	0.8 U _N ... 1.2 U _N
Pick-up voltage	0.8 U _N
Release voltage	≥ 0.1 U _N
Pick-up time	6 ms
Release time	30 ms
Power consumption AC	3 x 0.25 VA
Power consumption DC	3 X 0.25 W

Insulation

Contact/contact	4 kV / 1 min
Contact/coil	2 kV / 1 min
Overvoltage category	III
Rated impulse withstand voltage open contact	1 kV / 1 min
Pollution degree	3

General data

Storage temperature (no ice)	-40 ... 85 °C
Operation temperature	-20 ... 60 °C
Conductor cross section	solid wire 1 x 4 mm ² , 2 x 1.5 mm ² , stranded & crimped wire 1 x 2.5 mm ² , 2 x 1.5 mm ²
Nominal screw torque	0.5 Nm
Ingress Protection	IP 20
Mounting	TH35 (EN 60715)
Weight	65 g
Housing material	PA / PC

Product references

Description	Type	24
3 NO	C301.04/DC...V	✓

Other voltages on request. Please contact support@comatreleco.com.
«...» List control circuit voltage to complete product references.

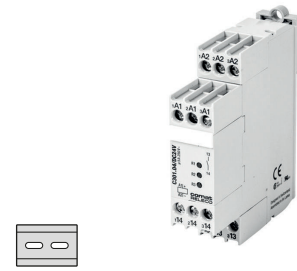


fig. 1. Wiring diagram

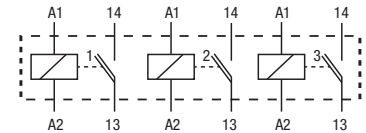


fig. 2. AC voltage endurance

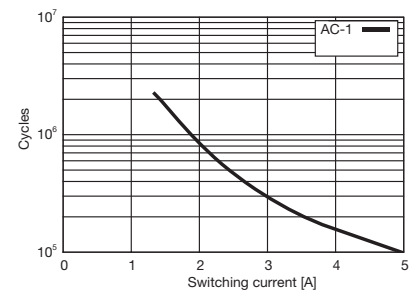
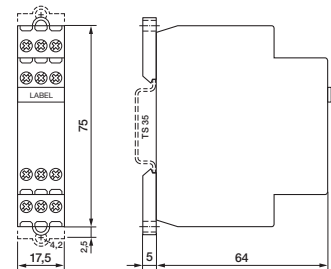


fig. 3. Dimensions (mm)



Technical approvals, conformities

Standards EN 61810

Approvals

1.6 Installation Relays

CR11C

2 pole | Signal Relay

Main circuit

Available contact materials	AgAu
Recommended minimum contact load	10 μ A / 10 mV
Maximum contact load AC-1	0.5 A / 125 V
Maximum contact load DC-1	1 A / 30 V
Rated current	1 A
Operating voltage	See table product references
Rated load AC	62.5 VA
Rated load DC	30 W
Mechanical endurance (cycles)	$\geq 100\,000\,000$
Electrical endurance at rated load AC-1 (cycles)	$\geq 100\,000$
Number of contacts	2 CO

Control circuit

Nominal voltage	see table product references
Operating voltage range	$0.8 U_N \dots 1.2 U_N$
Pick-up voltage	$0.8 U_N$
Release voltage	$\geq 0.1 U_N$
Pick-up time	3 ms
Release time	4 ms
Power consumption AC	0.25 VA
Power consumption DC	0.25 W

Insulation

Contact/contact	4 kV / 1 min
Contact/coil	2 kV / 1 min
Overvoltage category	III
Rated impulse withstand voltage open contact	1 kV / 1 min
Pollution degree	3

General data

Storage temperature (no ice)	-40 ... 85 °C
Operation temperature	-25 ... 60 °C
Conductor cross section	solid wire 1 x 4 mm ² , 2 x 1.5 mm ² , stranded & crimped wire 1 x 2.5 mm ² , 2 x 1.5 mm ²
Nominal screw torque	0.5 Nm
Ingress Protection	IP 20
Mounting	TH35 (EN 60715)
Weight	38g
Housing material	PA

Product references

Description	Type	24
2 CO	CR11C/DC...V	✓

Other voltages on request. Please contact support@comatreleco.com.
«...» List control circuit voltage to complete product references.



fig. 1. Wiring diagram

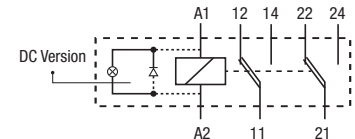


fig. 2. AC voltage endurance

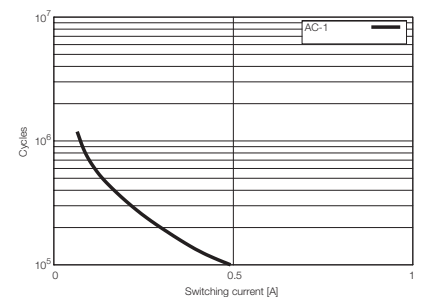
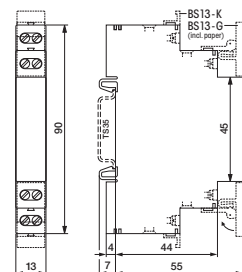


fig. 3. Dimensions (mm)



Technical approvals, conformities

Standards EN 61810

Approvals

CR16CX

1 pole | Power Relay

Main circuit

Available contact materials	⚡ AgNi
Recommended minimum contact load	10 mA / 12 V
Maximum contact load AC-1	6 A / 250 V
Maximum contact load DC-1	6 A / 30 V
Rated load	6 A
Operating voltage	See table product references
Rated load AC	1 500 VA
Rated load DC	180 W
Mechanical endurance (cycles)	≥ 30 000 000
Electrical endurance at rated load AC-1 (cycles)	≥ 190 000
Number of contacts	1 CO

Control circuit

Nominal voltage	see table product references
Operating voltage range	0.8 U _N ... 1.1 U _N
Pick-up voltage	0.8 U _N
Release voltage	≥ 0.1 U _N
Pick-up time	10 ms
Release time	20 ms
Power consumption AC	2 VA
Power consumption DC	0.25 W

Insulation

Contact/contact	4 kV / 1 min
Contact/coil	2 kV / 1 min
Overvoltage category	III
Rated impulse withstand voltage open contact	1 kV / 1 min
Pollution degree	3

General data

Storage temperature (no ice)	-40 ... 85 °C
Operation temperature	-25 ... 60 °C
Conductor cross section	solid wire 1 x 4 mm ² , 2 x 1.5 mm ² , stranded & crimped wire 1 x 2.5 mm ² , 2 x 1.5 mm ²
Nominal screw torque	0.5 Nm
Ingress Protection	IP 20
Mounting	TH35 (EN 60715)
Weight	45 g
Housing material	PC

Product references

Description	Type	24	230
1 CO	CR16CX/AC...V		✓
1 CO	CR16CX/DC...V	✓	

Other voltages on request. Please contact support@comatreleco.com.
«...» List control circuit voltage to complete product references.



fig. 1. Wiring diagram

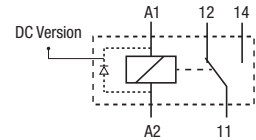


fig. 2. AC voltage endurance

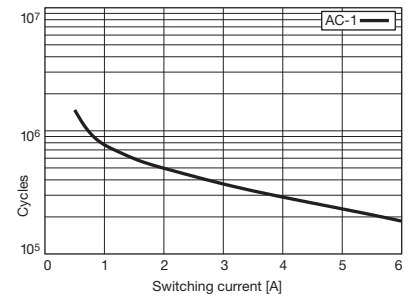
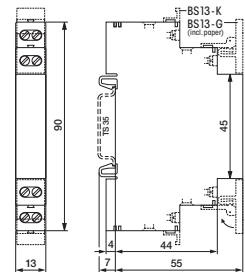


fig. 3. Dimensions (mm)



Technical approvals, conformities

Standards EN 61810

Approvals

1.6 Installation Relays

CRS1C

1 pole | Power Relay | Step Switch

Main circuit

Available contact materials	⚡ AgNi
Recommended minimum contact load	10 mA / 12 V
Maximum contact load AC-1	6 A / 250 V
Maximum contact load DC-1	6 A / 30 V
Rated current	6 A
Operating voltage	See table product references
Rated load AC	1 500 VA
Rated load DC	180 W
Mechanical endurance (cycles)	≥ 10 000 000
Electrical endurance at rated load AC-1 (cycles)	≥ 100 000
Number of contacts	1 CO

Control circuit

Nominal voltage	see table product references
Operating voltage range	$0.8 U_N \dots 1.1 U_N$
Pick-up voltage	$0.8 U_N$
Release voltage	$\geq 0.1 U_N$
Pick-up time	≥ 50 ms
Release time	≥ 50 ms
Power consumption AC	2 VA
Power consumption DC	1.5 W
Frequency range	50 Hz / 60 Hz

Insulation

Contact/contact	4 kV / 1 min
Contact/coil	2 kV / 1 min
Overvoltage category	III
Rated impulse withstand voltage open contact	1 kV / 1 min
Pollution degree	3

General data

Storage temperature (no ice)	-40 ... 85 °C
Operation temperature	-25 ... 60 °C
Conductor cross section	solid wire 1 x 4 mm ² , 2 x 1.5 mm ² , stranded & crimped wire 1 x 2.5 mm ² , 2 x 1.5 mm ²
Nominal screw torque	0.5 Nm
Ingress Protection	IP 20
Mounting	TH35 (EN 60715)
Weight	45 g
Housing material	PC

Product references

Description	Type	24
1 CO	CRS1C/DC...V	✓

Other voltages on request. Please contact support@comatreleco.com.

«...» List control circuit voltage to complete product references.



fig. 1. Wiring diagram

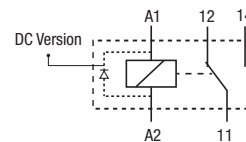


fig. 2. AC voltage endurance

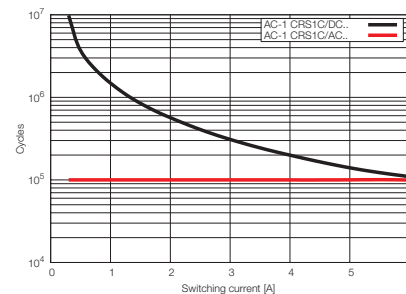
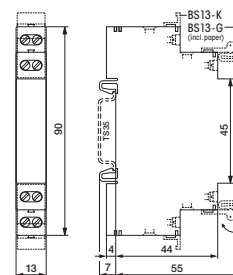


fig. 3. Dimensions (mm)



Technical approvals, conformities

Standards EN 61810

Approvals

Main circuit

Available contact materials	⚡ AgSnO ₂
Recommended minimum contact load	10 mA / 12 V
Maximum contact load AC-1	10 A / 250 V
Maximum contact load DC-1	6 A / 30 V
Rated current	10 A
Inrush current	16 A, 20 ms
Operating voltage	See table product references
Rated load AC	2 500 VA
Rated load DC	fig. 3.
Mechanical endurance (cycles)	≥ 20 000 000
Electrical endurance at rated load AC-1 (cycles)	≥ 200 000
Number of contacts	1 CO

Control circuit

Nominal voltage	see table product references
Operating voltage range	0.85 U _N ... 1.15 U _N
Pick-up voltage	0.85 U _N
Release voltage	≥ 0.1 U _N
Pick-up time	20 ms
Release time	12 ms
Power consumption AC	5.5 VA
Power consumption DC	1.2 W

Insulation

Contact/contact	4 kV / 1 min
Contact/coil	2 kV / 1 min
Overvoltage category	III
Rated impulse withstand voltage open contact	1 kV / 1 min
Pollution degree	3

General data

Storage temperature (no ice)	-40 ... 85 °C
Operation temperature	-20 ... 55 °C
Conductor cross section	solid wire 1 x 4 mm ² , 2 x 1.5 mm ² , stranded & crimped wire 1 x 2.5 mm ² , 2 x 1.5 mm ²
Nominal screw torque	0.5 Nm
Ingress Protection	IP 20
Mounting	TH35 (EN 60715)
Weight	60 g
Housing material	PA / PC

Product references

Description	Type	8-12	24	220-240
1 CO	B103/AC...V			✓
1 CO	B103/UC...V	✓	✓	

Other voltages on request. Please contact support@comatreleco.com.
«...» List control circuit voltage to complete product references.



fig. 1. Wiring diagram

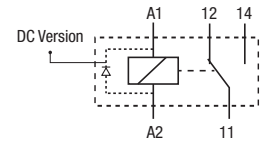


fig. 2. AC voltage endurance

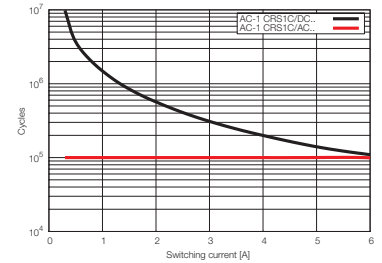


fig. 3. DC load limit curve

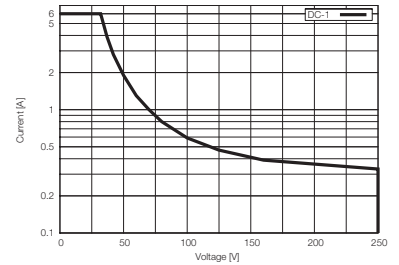
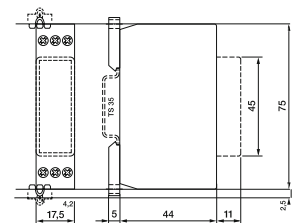


fig. 4. Dimensions (mm)

















Technical approvals, conformities

Standards EN 61810

Approvals

1.7 Installation Contactors

	Type	Pin	Page
RIC Series			
1, 2 or 4 pole 16 A 3.5 kW	RIC16		145
2 pole 20 A 4 kW	RIC20		146
2 pole 20 A 7 kW DC-5 4 A 110 V DC	RIC20-xxx-R4A110V		147
2 pole 20 A 7 kW DC-5 4 A 110 V DC TVS Suppressor	RIC20-xxx-SR		148
2 or 4 pole 25 A 5.4 kW	RIC25		149
4 pole 25 A 5.4 kW	RIC25-xxx-R		150
2 or 4 pole 32 A 7 kW	RIC32		151
4 pole 40 A 8.7 kW	RIC40		152
4 pole 63 A 13.3 kW	RIC63		153
RAC Series			
2 pole 20 A 4 kW manual lever Auto - 1 - Lock	RAC20		154
2 pole 25 A 5.4 kW manual lever Auto - 1 - Lock	RAC25		155
4 pole 40 A 8.7 kW manual lever Auto - 1 - Lock	RAC40		156
4 pole 63 A 13.3 kW manual lever Auto - 1 - Lock	RAC63		157
RBC Series			
2 or 4 pole 20 A 4.4 kW Step switch, manual lever 0 - 1 - Lock	RBC20		158
4 pole 32 A 7 kW Step switch, manual lever 0 - 1 - Lock	RBC32		159

Installation Contactors

Product Key Installation Contactors

1	2		3	4	5		6	7	8		9	10
RIC	20	-	2	0	0	-			R	/	DC	24V

1. Product Name

- RIC Installation Contactor
- RAC Installation Contactor with manual control (Actuator)
- RBC Installation Bi-stable Contactor

2. Rated current AC-1 [A]

16, 20, 25, 32, 40 or 63 A

3. Number of main contacts NO (normally open)

4. Number of main contacts NC (normally closed)

5. Number of main contacts CO (change over)

6. Terminal

- Screw
- 1 Cage Clamp
- 2 Push-in

7. Surge protection

- none
- S Transient voltage suppressor

8. Options

- Standard version
- R Railway version

9. Supply voltage

- DC Direct current
- AC Alternate current
- UC AC/DC with built-in bridge rectifier and varistor

10. Coil nominal voltage

12, 24, 36, 48, 72, 110, 230 or 400 V

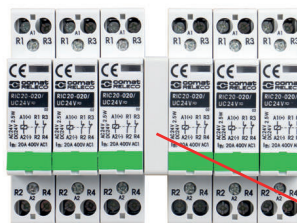
Assembly information

If several contactors are installed next to each other, spacers (RIC DIST) must be installed for heat dissipation.

Example:

Ambient temperature up to 40 °C:

1 spacer (9 mm) after every third RIC, RAC, RBC



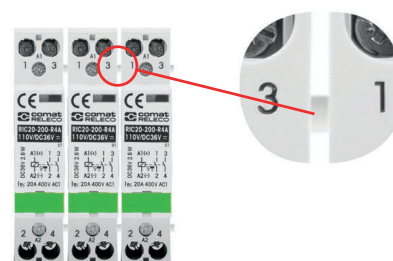
spacers (RIC DIST)

Ambient temperature 40 ... 50 °C:

1 spacer (9 mm) after every second RIC, RAC, RBC



The RIC20 rail contactors have an integrated spacer (3 mm).



RIC16

1, 2 or 4 pole | 16 A | 3.5 kW



Main circuit

Available contact materials	AgNi
Rated voltage	400 V AC
Rated current AC-1	16 A
Recommended minimum contact load	50 mA, 17 V
Inrush current	50 A, 100 ms
Rated load AC-1	3.5 kW
Rated load AC-3	1.1 kW (NO) / 0.55 kW (NC)
Rated load DC-1	see fig. 2
Mechanical endurance (cycles)	≥ 10 000 000
Electrical endurance at rated load AC-1 (cycles)	≥ 200 000
Electrical endurance at rated load AC-3 (cycles)	≥ 300 000
Electrical endurance at rated load DC-1 (cycles)	≥ 100 000
Switching frequency at rated load AC-1 (cycles / h)	≤ 600
Switching frequency at rated load AC-3 (cycles / h)	≤ 600
Switching frequency at rated load DC-1 (cycles / h)	≤ 300

Control circuit

Nominal voltage	see table product references
Operating voltage range	0.85 ... 1.1 U _N
Pick-up voltage	≤ 0.85 U _N
Release voltage	≥ 0.1 U _N
Pick-up time	15 ... 45 ms
Release time	20 ... 50 ms
Power consumption AC / DC	2.1 VA / 2.1 W
Frequency range	40 ... 500 Hz

Insulation

Rated insulation voltage	440 V
Rated impulse withstand voltage open contact	4 kV / 1 min
Pollution degree	3
Overvoltage category	III
Clearance of open contact	3.6 mm

Wiring

Conductor cross section control / main circuit	2.5 mm ² / 6 mm ²
--	---

Housing and environmental conditions

Storage temperature (no ice)	-30 ... 80 °C
Ambient temperature operation 2 devices, 1 spacer	40 ... 55 °C
Ambient temperature operation 3 devices, 1 spacer	-15 ... 40 °C
Ingress Protection	IP 20
Weight	130 g (1, 2 pole) / 170 g (4 pole)
Housing material	PA 6
Dimensions	see fig. 3

Product references

Description	Type	230
1 NC	RIC16-010/UC...V	✓
2 NC	RIC16-020/UC...V	✓
4 NC	RIC16-040/UC...V	✓
1 NO	RIC16-100/UC...V	✓
1 NO + 1 NC	RIC16-110/UC...V	✓
2 NO	RIC16-200/UC...V	✓
2 NO + 2 NC	RIC16-220/UC...V	✓
3 NO + 1 NC	RIC16-310/UC...V	✓
4 NO	RIC16-400/UC...V	✓

Other voltages on request. Please contact support@comatreleco.com.
 «...» List control circuit voltage to complete product references.

Accessories

Sealing cover	RIC-SEAL20
Spacer	RIC-DIST
Busbar	RIC-NS-1-1, RIC-PS-1-2, RIC-PS-2-3, RIC-PS-2-4, RIC-NS-2-1
End covers	RIC-EK-11 (BAG 25 PCS), RIC-EK-23 (BAG 10 PCS), RIC-EK-40 (BAG 10 PCS)
Auxiliary contact	RIC-AUX02, RIC-AUX11, RIC-AUX20



fig. 1. Wiring diagram

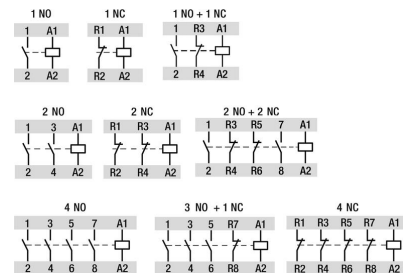


fig. 2. DC load limit curve

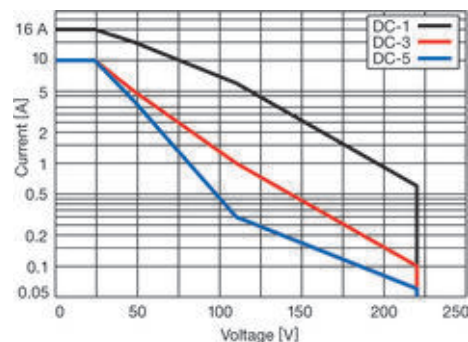
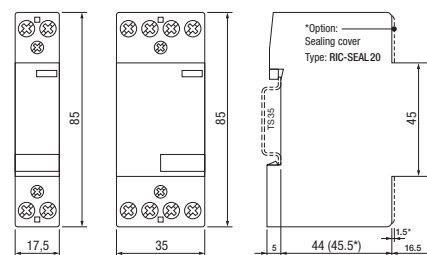


fig. 3. Dimensions (mm)



Technical approvals, conformities

Standards IEC/EN 60947; IEC/EN 61095



Approvals

1.7 Installation Contactors

RIC20

2 pole | 20 A | 4 kW

Main circuit

Available contact materials	⚡ AgNi
Rated voltage	400 V AC
Rated current AC-1	20 A
Recommended minimum contact load	50 mA, 17 V
Inrush current	50 A, 100 ms / 180 A, 300 μs
Rated load AC-1	4 kW
Rated load AC-3	1.3 kW (NO) / 0.75 kW (NC)
Rated load DC-1	see fig. 2
Mechanical endurance (cycles)	≥ 10 000 000
Electrical endurance at rated load AC-1 (cycles)	≥ 200 000
Electrical endurance at rated load AC-3 (cycles)	≥ 300 000
Electrical endurance at rated load DC-1 (cycles)	≥ 100 000
Switching frequency at rated load AC-1 (cycles / h)	≤ 600
Switching frequency at rated load AC-3 (cycles / h)	≤ 600
Switching frequency at rated load DC-1 (cycles / h)	≤ 300

Control circuit

Nominal voltage	see table product references
Operating voltage range	0.85 ... 1.1 U _N
Pick-up voltage	≤ 0.85 U _N
Release voltage	≥ 0.1 U _N
Pick-up time	15 ... 45 ms
Release time	20 ... 50 ms
Power consumption AC / DC	2.1 VA / 2.1 W
Frequency range	40 ... 500 Hz

Insulation

Rated insulation voltage	440 V
Rated impulse withstand voltage open contact	4 kV / 1 min
Pollution degree	3
Overvoltage category	III
Clearance of open contact	3.6 mm

Wiring

Conductor cross section control / main circuit	2.5 mm ² / 6 mm ²
--	---

Housing and environmental conditions

Storage temperature (no ice)	-30 ... 80 °C
Ambient temperature operation 2 devices, 1 spacer	40 ... 55 °C
Ambient temperature operation 3 devices, 1 spacer	-15 ... 40 °C
Ingress Protection	IP 20
Weight	130 g
Housing material	PA 6
Dimensions	see fig. 3

Product references

Description	Type	12	24	36	110	230
2 NC	RIC20-020/UC...V		✓	✓		✓
1 NO + 1 NC	RIC20-110/UC...V	✓	✓	✓		✓
2 NO	RIC20-200/UC...V		✓	✓	✓	✓

Other voltages on request. Please contact support@comatreleco.com.
«...» List coil voltage to complete product references

Accessories

Sealing cover	RIC-SEAL20
Spacer	RIC-DIST
End covers	RIC-EK-11 (BAG 25 PCS), RIC-EK-23 (BAG 10 PCS)
Busbar	RIC-NS-1-1, RIC-PS-1-2



fig. 1. Wiring diagram

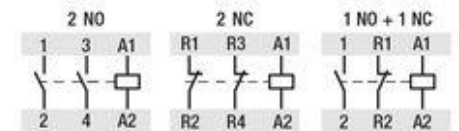


fig. 2. DC load limit curve

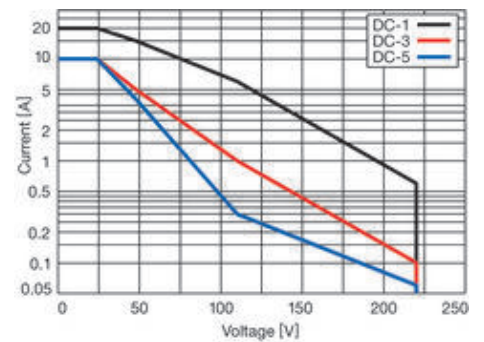
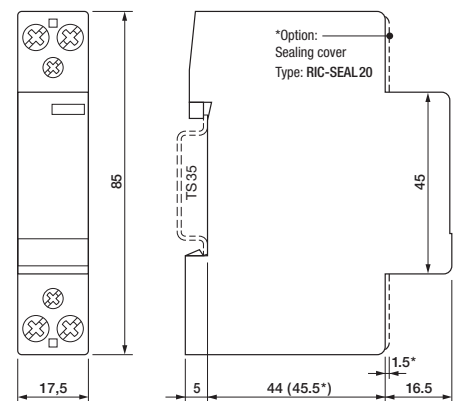


fig. 3. Dimensions (mm)



Technical approvals, conformities

Standards IEC/EN 60947; IEC/EN 61095



1.7 Installation Contactors

RIC20-xxx-R4A110V

2 pole | 20 A | 7 kW | DC-5 | 4 A 110 V DC

Main circuit

Available contact materials	AgNi
Rated voltage	400 V AC
Rated current AC-1	20 A
Recommended minimum contact load	50 mA, 17 V
Inrush current	50 A, 100 ms / 180 A, 300 μs
Rated load AC-1	7 kW
Rated load AC-3	1.3 kW (NO) / 0.75 kW (NC)
Rated load DC-1	see fig. 2
Mechanical endurance (cycles)	≥ 10 000 000
Electrical endurance at rated load AC-1 (cycles)	≥ 150 000
Electrical endurance at rated load AC-3 (cycles)	≥ 200 000
Electrical endurance at rated load DC-1 (cycles)	≥ 200 000
Electrical endurance at rated load DC-5 (cycles)	≥ 300 000
Switching frequency at rated load AC-1 (cycles / h)	≤ 600
Switching frequency at rated load AC-3 (cycles / h)	≤ 600
Switching frequency at rated load DC-1 (cycles / h)	≤ 300
Switching frequency at rated load DC-5 (cycles / h)	≤ 300

Control circuit

Nominal voltage	see table product references
Operating voltage range	0.70 ... 1.25 U _N
Pick-up voltage	≤ 0.70 U _N
Release voltage	≥ 0.1 U _N
Pick-up time	15 ... 45 ms
Release time	20 ... 50 ms
Power consumption DC	2.6 W

Insulation

Rated insulation voltage	440 V
Rated impulse withstand voltage open contact	4 kV / 1 min
Pollution degree	3
Overvoltage category	III
Clearance of open contact	3.6 mm

Wiring

Conductor cross section control / main circuit	2.5 mm ² / 6 mm ²
--	---

Housing and environmental conditions

Storage temperature (no ice)	-40 ... 80 °C
Operation temperature	-40 ... 70 °C
Ingress Protection	IP 20
Weight	133 g
Housing material	PA 6
Dimensions	see fig. 3

Product references

Description	Type	24	36	72	110
2 NC	RIC20-020-R4A110V/DC...V	✓	✓	✓	✓
1 NO + 1 NC	RIC20-110-R4A110V/DC...V	✓	✓	✓	✓
2 NO	RIC20-200-R4A110V/DC...V	✓	✓	✓	✓

Other voltages on request. Please contact support@comatreleco.com.
«...» List control circuit voltage to complete product references.

Accessories

Sealing cover	RIC-SEAL20
End covers	RIC-EK-11 (BAG 25 PCS), RIC-EK-23 (BAG 10 PCS)
Busbar	RIC-NS-1-1-R, RIC-PS-1-2-R

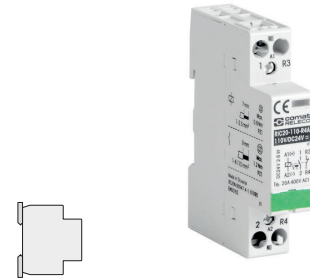


fig. 1. Wiring diagram

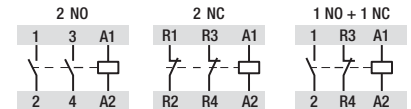


fig. 2. DC load limit curve

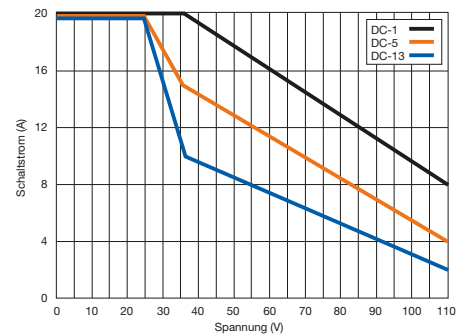
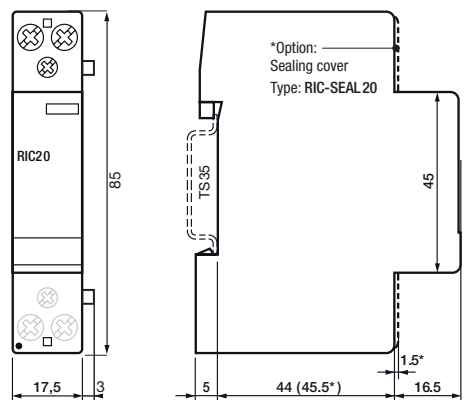


fig. 3. Dimensions (mm)



Technical approvals, conformities

Standards IEC/EN 60947

Railway EN 45545-2; EN 50155

Approvals

1.7 Installation Contactors

RIC20-xxx-SR

2 pole | 20 A | 7 kW | DC-5 | 4 A 110 V DC | TVS Suppressor



Main circuit

Available contact materials	⚡ AgNi
Rated voltage	400 V AC
Rated current AC-1	20 A
Recommended minimum contact load	50 mA, 17 V
Inrush current	50 A, 100 ms / 180 A, 300 μs
Rated load AC-1	7 kW
Rated load AC-3	1.3 kW (NO) / 0.75 kW (NC)
Rated load DC-1	see fig. 2
Mechanical endurance (cycles)	≥ 10 000 000
Electrical endurance at rated load AC-1 (cycles)	≥ 150 000
Electrical endurance at rated load AC-3 (cycles)	≥ 200 000
Electrical endurance at rated load DC-1 (cycles)	≥ 200 000
Electrical endurance at rated load DC-5 (cycles)	≥ 300 000
Switching frequency at rated load AC-1 (cycles / h)	≤ 600
Switching frequency at rated load AC-3 (cycles / h)	≤ 600
Switching frequency at rated load DC-1 (cycles / h)	≤ 300
Switching frequency at rated load DC-5 (cycles / h)	≤ 300

Control circuit

Nominal voltage	see table product references
Operating voltage range	0.70 ... 1.25 U _N
Pick-up voltage	≤ 0.70 U _N
Release voltage	≥ 0.1 U _N
Pick-up time	15 ... 45 ms
Release time	20 ... 50 ms
Power consumption DC	2.6 W
TVS Diode type	Bidirectional surge TVS
TVS Diode failure mode	defined short cut

Insulation

Rated insulation voltage	440 V
Rated impulse withstand voltage open contact	4 kV / 1 min
Pollution degree	3
Overvoltage category	III
Clearance of open contact	3.6 mm

Wiring

Conductor cross section control / main circuit	2.5 mm ² / 6 mm ² , use copper conductors only
--	--

Housing and environmental conditions

Storage temperature (no ice)	-40 ... 80 °C
Operation temperature	-40 ... 70 °C
Ingress Protection	IP 20
Weight	135 g
Housing material	PA 66
Dimensions	see fig. 3

Product references

Description	Type	24	36	72	110
2 NC	RIC20-020-SR/DC...V	✓	✓	✓	✓
1 NO + 1 NC	RIC20-110-SR/DC...V	✓	✓	✓	✓
2 NO	RIC20-200-SR/DC...V	✓	✓	✓	✓

Other voltages on request. Please contact support@comatreleco.com.
«...» List control circuit voltage to complete product references.

Accessories

Sealing cover	RIC-SEAL20
End covers	RIC-EK-11 (BAG 25 PCS), RIC-EK-23 (BAG 10 PCS)
Busbar	RIC-NS-1-1-R, RIC-PS-1-2-R



fig. 1. Wiring diagram

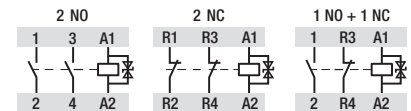


fig. 2. DC load limit curve

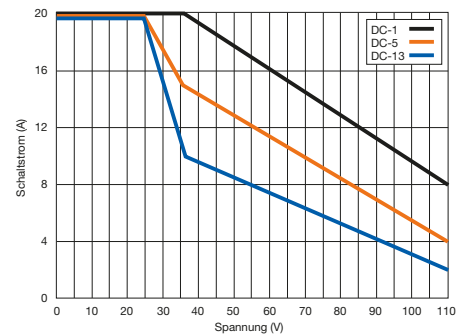
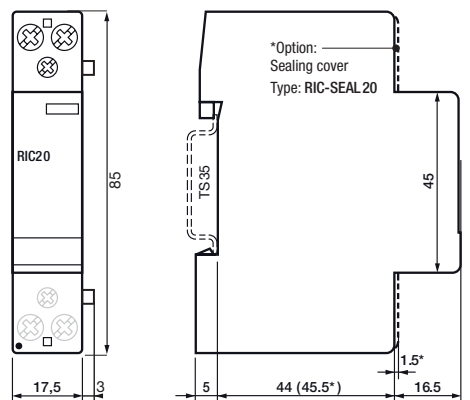


fig. 3. Dimensions (mm)



Technical approvals, conformities

Standards IEC/EN 60947

Railway EN 45545-2; EN 50155



1.7 Installation Contactors

RIC25

2 or 4 pole | 25 A | 5.4 kW

Main circuit

Available contact materials	⚡ AgNi
Rated voltage	400 V AC
Rated current AC-1	25 A
Recommended minimum contact load	50 mA, 17 V
Inrush current	60 A, 100 ms / 280 A, 300 μs
Rated load AC-1	5.4 kW
Rated load AC-3	1.3 kW
Rated load DC-1	see fig. 2
Mechanical endurance (cycles)	≥ 10 000 000
Electrical endurance at rated load AC-1 (cycles)	≥ 200 000
Electrical endurance at rated load AC-3 (cycles)	≥ 500 000
Electrical endurance at rated load DC-1 (cycles)	≥ 100 000
Switching frequency at rated load AC-1 (cycles / h)	≤ 600
Switching frequency at rated load AC-3 (cycles / h)	≤ 600
Switching frequency at rated load DC-1 (cycles / h)	≤ 300

Control circuit

Nominal voltage	see table product references	
Operating voltage range	0.85 ... 1.1 U _N	
Pick-up voltage	≤ 0.85 U _N	
Release voltage	≥ 0.1 U _N	
Pick-up time	15 ... 45 ms	
Release time	20 ... 70 ms	
Power consumption AC / DC	2.6 VA / 2.6 W	
Frequency range	50 / 60 Hz (AC)	40 ... 500 Hz (UC)

Insulation

Rated insulation voltage	440 V
Rated impulse withstand voltage open contact	4 kV / 1 min
Pollution degree	3
Overvoltage category	III
Clearance of open contact	3.6 mm

Wiring

Conductor cross section control / main circuit	2.5 mm ² / 6 mm ²
--	---

Housing and environmental conditions

Storage temperature (no ice)	-30 ... 80 °C
Ambient temperature operation 2 devices, 1 spacer	40 ... 55 °C
Ambient temperature operation 3 devices, 1 spacer	-15 ... 40 °C
Ingress Protection	IP20
Weight	250 g
Housing material	PA 6
Dimensions	see fig. 3

Product references

Description	Type	24	36	48	72	110	230	400
4 NC	RIC25-040/AC...V		✓					✓
2 NO + 2 NC	RIC25-220/AC...V							✓
4 NO	RIC25-400/AC...V			✓				✓
2 CO	RIC25-002/UC...V	✓						✓
2 NC	RIC25-020/UC...V							✓
4 NC	RIC25-040/UC...V	✓						✓
2 NO	RIC25-200/UC...V							✓
2 NO + 2 NC	RIC25-220/UC...V	✓	✓		✓	✓	✓	✓
4 NO	RIC25-400/UC...V	✓	✓					✓

Other voltages on request. Please contact support@comatreleco.com.
«...» List control circuit voltage to complete product references.

Accessories

Sealing cover	RIC-SEAL25
Spacer	RIC-DIST
Busbar	RIC-NS-2-1, RIC-PS-2-3, RIC-PS-2-4
End covers	RIC-EK-11 (BAG 25 PCS), RIC-EK-23 (BAG 10 PCS), RIC-EK-40 (BAG 10 PCS)
Auxiliary contact	RIC-AUX02, RIC-AUX11, RIC-AUX20



fig. 1. Wiring diagram

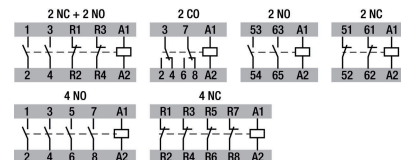


fig. 2. DC load limit curve

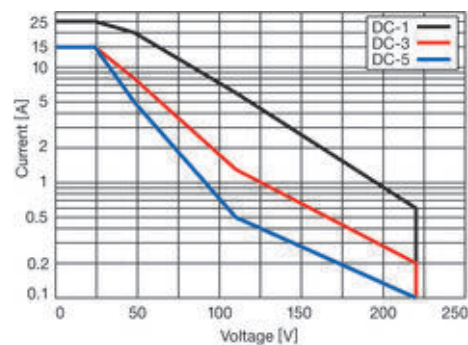
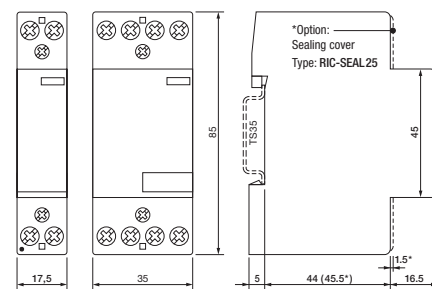


fig. 3. Dimensions (mm)



Technical approvals, conformities

Standards IEC/EN 60947; IEC/EN 61095

Approvals

1.7 Installation Contactors

RIC25-xxx-R

4 pole | 25 A | 5.4 kW



Main circuit

Available contact materials	⚡ AgNi
Rated voltage	400 V AC
Rated current AC-1	25 A
Recommended minimum contact load	50 mA, 17 V
Inrush current	60 A, 100 ms / 280 A, 300 μs
Rated load AC-1	5.4 kW
Rated load AC-3	1.3 kW
Rated load DC-1	see fig. 2
Mechanical endurance (cycles)	≥ 10 000 000
Electrical endurance at rated load AC-1 (cycles)	≥ 200 000
Electrical endurance at rated load AC-3 (cycles)	≥ 500 000
Electrical endurance at rated load DC-1 (cycles)	≥ 100 000
Electrical endurance at rated load DC-5 (cycles)	≥ 100 000
Switching frequency at rated load AC-1 (cycles / h)	≤ 600
Switching frequency at rated load AC-3 (cycles / h)	≤ 600
Switching frequency at rated load DC-1 (cycles / h)	≤ 300
Switching frequency at rated load DC-3 (cycles / h)	≤ 300
Switching frequency at rated load DC-5 (cycles / h)	≤ 300

Control circuit

Nominal voltage	see table product references
Operating voltage range	0.70 ... 1.25 U _N
Pick-up voltage	≤ 0.70 U _N
Release voltage	≥ 0.1 U _N
Pick-up time	15 ... 45 ms
Release time	20 ... 70 ms
Power consumption DC	4.6 W

Insulation

Rated insulation voltage	440 V
Rated impulse withstand voltage open contact	4 kV / 1 min
Pollution degree	3
Overvoltage category	III
Clearance of open contact	3.6 mm

Wiring

Conductor cross section control / main circuit	2.5 mm ² / 6 mm ²
--	---

Housing and environmental conditions

Storage temperature (no ice)	-40 ... 80 °C
Operation temperature	-40 ... 70 °C
Ingress Protection	IP 20
Weight	250 g
Housing material	PA 6
Dimensions	see fig. 3

Product references

Description	Type	24	36	72	110
2 CO	RIC25-002-R/DC...V	✓	✓	✓	✓
4 NC	RIC25-040-R/DC...V	✓	✓	✓	✓
2 NO + 2 NC	RIC25-220-R/DC...V	✓	✓	✓	✓
4 NO	RIC25-400-R/DC...V	✓	✓	✓	✓

Other voltages on request. Please contact support@comatreleco.com.
«...» List control circuit voltage to complete product references.

Accessories

Sealing cover	RIC-SEAL25
Spacer	RIC-DIST
Busbar	RIC-NS-2-1, RIC-PS-2-3, RIC-PS-2-4
End covers	RIC-EK-11 (BAG 25 PCS), RIC-EK-23 (BAG 10 PCS), RIC-EK-40 (BAG 10 PCS)
Auxiliary contact	RIC-AUX02, RIC-AUX11, RIC-AUX20

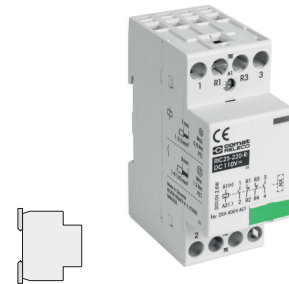


fig. 1. Wiring diagram

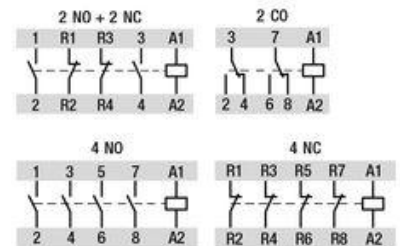


fig. 2. DC load limit curve

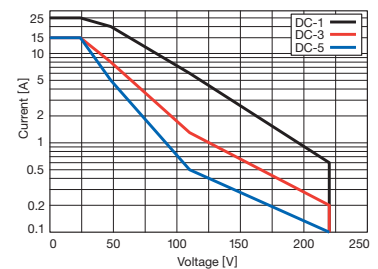
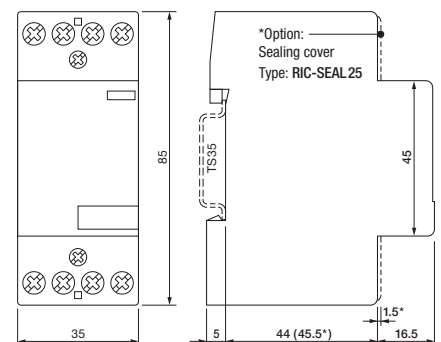


fig. 3. Dimensions (mm)



Technical approvals, conformities

Standards IEC/EN 60947

Railway EN 45545-2; EN 50155

Approvals

RIC32

2 or 4 pole | 32 A | 7 kW

Main circuit

Available contact materials	AgNi
Rated voltage	400 V AC
Rated current AC-1	32 A
Recommended minimum contact load	50 mA, 17 V
Inrush current	60 A, 100 ms
Rated load AC-1	7 kW
Rated load AC-3	1.3 kW
Rated load DC-1	see fig. 2
Mechanical endurance (cycles)	≥ 10 000 000
Electrical endurance at rated load AC-1 (cycles)	≥ 200 000
Electrical endurance at rated load AC-3 (cycles)	≥ 500 000
Electrical endurance at rated load DC-1 (cycles)	≥ 100 000
Switching frequency at rated load AC-1 (cycles / h)	≤ 600
Switching frequency at rated load AC-3 (cycles / h)	≤ 600
Switching frequency at rated load DC-1 (cycles / h)	≤ 300

Control circuit

Nominal voltage	see table product references
Operating voltage range	0.85 ... 1.1 U _N
Pick-up voltage	≤ 0.85 U _N
Release voltage	≥ 0.1 U _N
Pick-up time	15 ... 45 ms
Release time	20 ... 70 ms
Power consumption AC / DC	2.6 VA / 2.6 W
Frequency range	40 ... 500 Hz

Insulation

Rated insulation voltage	440 V
Rated impulse withstand voltage open contact	4 kV / 1 min
Pollution degree	3
Overvoltage category	III
Clearance of open contact	3.6 mm

Wiring

Conductor cross section control / main circuit	2.5 mm ² / 6 mm ²
--	---

Housing and environmental conditions

Storage temperature (no ice)	-30 ... 80 °C
Ambient temperature operation 2 devices, 1 spacer	40 ... 55 °C
Ambient temperature operation 3 devices, 1 spacer	-15 ... 40 °C
Ingress Protection	IP 20
Weight	140 g (2 pole) / 250 g (4 pole)
Housing material	PA 6
Dimensions	see fig. 3

Product references

Description	Type	230
2 NC	RIC32-020/UC...V	✓
4 NC	RIC32-040/UC...V	✓
1 NO + 1 NC	RIC32-110/UC...V	✓
2 NO	RIC32-200/UC...V	✓
2 NO + 2 NC	RIC32-220/UC...V	✓
3 NO + 1 NC	RIC32-310/UC...V	✓
4 NO	RIC32-400/UC...V	✓

Other voltages on request. Please contact support@comatreleco.com.
«...» List control circuit voltage to complete product references.

Accessories

Sealing cover	RIC-SEAL25
Spacer	RIC-DIST
Busbar	RIC-NS-1-1, RIC-PS-1-2, RIC-PS-2-3, RIC-PS-2-4, RIC-NS-2-1
End covers	RIC-EK-11 (BAG 25 PCS), RIC-EK-23 (BAG 10 PCS), RIC-EK-40 (BAG 10 PCS)
Auxiliary contact	RIC-AUX02, RIC-AUX11, RIC-AUX20



fig. 1. Wiring diagram

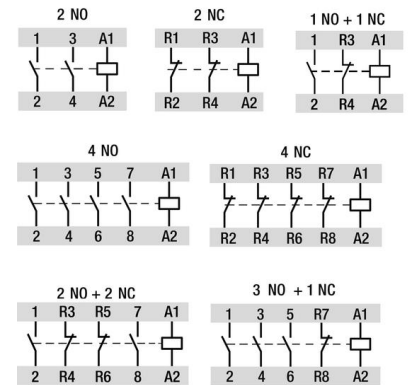


fig. 2. DC load limit curve

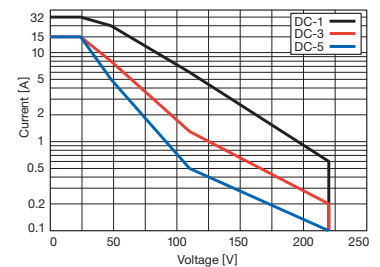
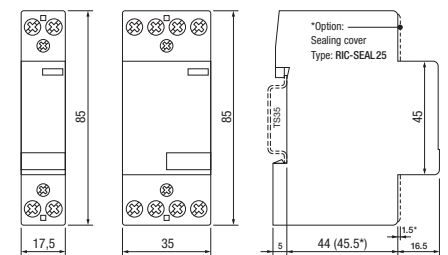


fig. 3. Dimensions (mm)



Technical approvals, conformities

Standards IEC/EN 60947; IEC/EN 61095

Approvals

1.7 Installation Contactors

RIC40

4 pole | 40 A | 8.7 kW



Main circuit

Available contact materials	⚡ AgSnO ₂
Rated voltage	400 V AC
Rated current AC-1	40 A
Recommended minimum contact load	50 mA, 17 V
Inrush current	170 A, 100 ms / 970 A, 300 μs
Rated load AC-1	8.7 kW
Rated load AC-3	3.7 kW
Rated load DC-1	see fig. 2
Mechanical endurance (cycles)	≥ 10 000 000
Electrical endurance at rated load AC-1 (cycles)	≥ 100 000
Electrical endurance at rated load AC-3 (cycles)	≥ 150 000
Electrical endurance at rated load DC-1 (cycles)	≥ 100 000
Switching frequency at rated load AC-1 (cycles / h)	≤ 600
Switching frequency at rated load AC-3 (cycles / h)	≤ 600
Switching frequency at rated load DC-1 (cycles / h)	≤ 300

Control circuit

Nominal voltage	see table product references	
Operating voltage range	0.85 ... 1.1 U _N	
Pick-up voltage	≤ 0.85 U _N	
Release voltage	≥ 0.1 U _N	
Pick-up time	15 ... 20 ms	
Release time	35 ... 45 ms	
Power consumption AC / DC	5 VA / 5 W	
Frequency range	50 / 60 Hz (AC)	40 ... 500 Hz (UC)

Insulation

Rated insulation voltage	440 V
Rated impulse withstand voltage open contact	6 kV / 1 min
Pollution degree	3
Overvoltage category	III
Clearance of open contact	3.6 mm

Wiring

Conductor cross section control / main circuit	2.5 mm ² / 16 mm ²
--	--

Housing and environmental conditions

Storage temperature (no ice)	-40 ... 80 °C
Ambient temperature operation 2 devices, 1 spacer	40 ... 55 °C
Ambient temperature operation 3 devices, 1 spacer	-15 ... 40 °C
Ingress Protection	IP 20
Weight	420 g
Housing material	PA 6
Dimensions	see fig. 3

Product references

Description	Type	24	48	230
4 NC	RIC40-040/UC...V	✓		✓
2 NO + 2 NC	RIC40-220/UC...V	✓	✓	✓
4 NO	RIC40-400/UC...V	✓		✓

Other voltages on request. Please contact support@comatreleco.com.
«...» List control circuit voltage to complete product references.

Accessories

Sealing cover	RIC-SEAL40/63
Spacer	RIC-DIST
Auxiliary contact	RIC-AUX02, RIC-AUX11, RIC-AUX20

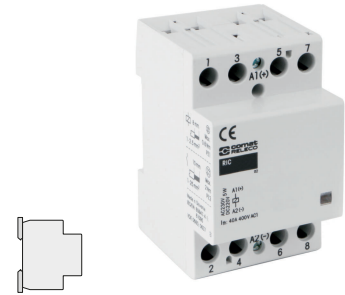


fig. 1. Wiring diagram

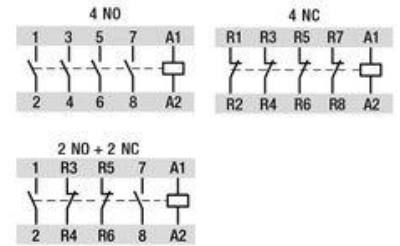


fig. 2. DC load limit curve

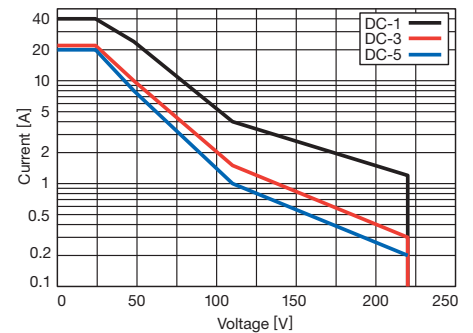
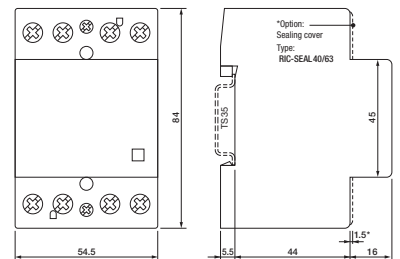


fig. 3. Dimensions (mm)



Technical approvals, conformities

Standards IEC/EN 60947; IEC/EN 61095



RIC63

4 pole | 63 A | 13.3 kW

Main circuit

Available contact materials	⚡ AgSnO ₂
Rated voltage	400 V AC
Rated current AC-1	63 A
Recommended minimum contact load	50 mA, 17 V
Inrush current	240 A, 100 ms / 1 500 A, 300 μs
Rated load AC-1	13.3 kW
Rated load AC-3	6 kW
Rated load DC-1	see fig. 2
Mechanical endurance (cycles)	≥ 10 000 000
Electrical endurance at rated load AC-1 (cycles)	≥ 100 000
Electrical endurance at rated load AC-3 (cycles)	≥ 150 000
Electrical endurance at rated load DC-1 (cycles)	≥ 100 000
Switching frequency at rated load AC-1 (cycles / h)	≤ 600
Switching frequency at rated load AC-3 (cycles / h)	≤ 600
Switching frequency at rated load DC-1 (cycles / h)	≤ 300

Control circuit

Nominal voltage	see table product references	
Operating voltage range	0.85 ... 1.1 U _N	
Pick-up voltage	≤ 0.85 U _N	
Release voltage	≥ 0.1 U _N	
Pick-up time	15 ... 20 ms	
Release time	35 ... 45 ms	
Power consumption AC / DC	5 VA / 5 W	
Frequency range	50 / 60 Hz (AC)	40 ... 500 Hz (UC)

Insulation

Rated insulation voltage	440 V
Rated impulse withstand voltage open contact	6 kV / 1 min
Pollution degree	3
Overvoltage category	III
Clearance of open contact	3.6 mm

Wiring

Conductor cross section control / main circuit	2.5 mm ² / 16 mm ²
--	--

Housing and environmental conditions

Storage temperature (no ice)	-30 ... 80 °C
Ambient temperature operation 2 devices, 1 spacer	40 ... 55 °C
Ambient temperature operation 3 devices, 1 spacer	-15 ... 40 °C
Ingress Protection	IP 20
Weight	420 g
Housing material	PA 6
Dimensions	see fig. 3

Product references

Description	Type	24	230
4 NC	RIC63-040/UC...V	✓	✓
2 NO + 2 NC	RIC63-220/UC...V	✓	✓
4 NO	RIC63-400/UC...V	✓	✓

Other voltages on request. Please contact support@comatreleco.com.
«...» List control circuit voltage to complete product references.

Accessories

Sealing cover	RIC-SEAL40/63
Spacer	RIC-DIST
Auxiliary contact	RIC-AUX02, RIC-AUX11, RIC-AUX20

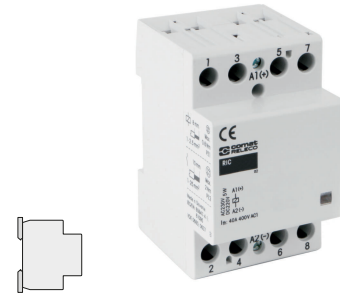


fig. 1. Wiring diagram

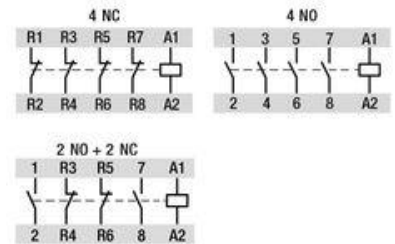


fig. 2. DC load limit curve

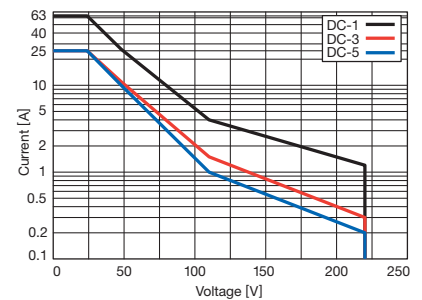
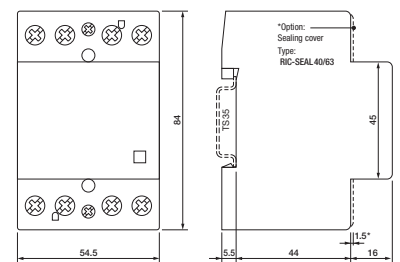


fig. 3. Dimensions (mm)



Technical approvals, conformities

Standards IEC/EN 60947; IEC/EN 61095

Approvals

1.7 Installation Contactors

RAC20

2 pole | 20 A | 4 kW | manual lever Auto - 1 - Lock



Main circuit

Available contact materials	⚡ AgNi
Rated voltage	400 V AC
Rated current AC-1	20 A
Recommended minimum contact load	50 mA, 17 V
Inrush current	50 A, 100 ms / 180 A, 300 μs
Rated load AC-1	4 kW
Rated load AC-3	1.3 kW (NO) / 0.75 kW (NC)
Rated load DC-1	see fig. 2
Mechanical endurance (cycles)	≥ 10 000 000
Electrical endurance at rated load AC-1 (cycles)	≥ 200 000
Electrical endurance at rated load AC-3 (cycles)	≥ 300 000
Electrical endurance at rated load DC-1 (cycles)	≥ 100 000
Switching frequency at rated load AC-1 (cycles / h)	≤ 600
Switching frequency at rated load AC-3 (cycles / h)	≤ 600
Switching frequency at rated load DC-1 (cycles / h)	≤ 300

Control circuit

Nominal voltage	see table product references
Operating voltage range	0.85 ... 1.1 U _N
Pick-up voltage	≤ 0.85 U _N
Release voltage	≥ 0.1 U _N
Pick-up time	15 ... 45 ms
Release time	20 ... 50 ms
Power consumption AC / DC	2.1 VA / 2.1 W
Frequency range	40 ... 500 Hz

Insulation

Rated insulation voltage	440 V
Rated impulse withstand voltage open contact	4 kV / 1 min
Pollution degree	3
Overvoltage category	III
Clearance of open contact	3.6 mm

Wiring

Conductor cross section control / main circuit	2.5 mm ² / 6 mm ²
--	---

Housing and environmental conditions

Storage temperature (no ice)	-30 ... 80 °C
Ambient temperature operation 2 devices, 1 spacer	40 ... 55 °C
Ambient temperature operation 3 devices, 1 spacer	-15 ... 40 °C
Ingress Protection	IP 20
Weight	130 g
Housing material	PA 6
Dimensions	see fig. 3

Product references

Description	Type	24	230
2 NC	RAC20-020/UC...V	✓	✓
1 NO + 1 NC	RAC20-110/UC...V	✓	✓
2 NO	RAC20-200/UC...V	✓	✓

Other voltages on request. Please contact support@comatreleco.com.
«...» List control circuit voltage to complete product references.

Accessories

Sealing cover	RIC-SEAL20
Spacer	RIC-DIST
Busbar	RIC-NS-1-1, RIC-PS-1-2
End covers	RIC-EK-11 (BAG 25 PCS), RIC-EK-23 (BAG 10 PCS)



fig. 1. Wiring diagram

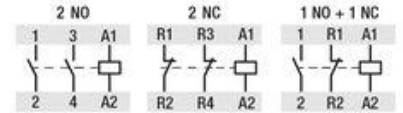


fig. 2. DC load limit curve

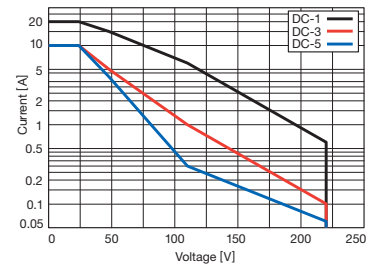
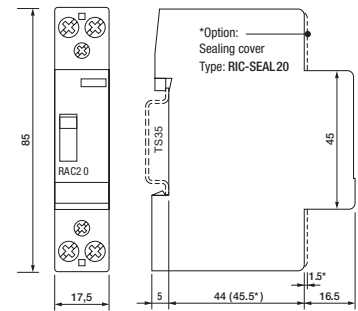


fig. 3. Dimensions (mm)



Technical approvals, conformities

Standards IEC/EN 60947; IEC/EN 61095

Approvals

RAC25

2 pole | 25 A | 5.4 kW | manual lever Auto - 1 - Lock

Main circuit

Available contact materials	AgNi
Rated voltage	400 V AC
Rated current AC-1	25 A
Recommended minimum contact load	50 mA, 17 V
Inrush current	60 A, 100 ms / 280 A, 300 μs
Rated load AC-1	5.4 kW
Rated load AC-3	1.3 kW
Rated load DC-1	see fig. 2
Mechanical endurance (cycles)	≥ 10 000 000
Electrical endurance at rated load AC-1 (cycles)	≥ 200 000
Electrical endurance at rated load AC-3 (cycles)	≥ 500 000
Electrical endurance at rated load DC-1 (cycles)	≥ 100 000
Switching frequency at rated load AC-1 (cycles / h)	≤ 600
Switching frequency at rated load AC-3 (cycles / h)	≤ 600
Switching frequency at rated load DC-1 (cycles / h)	≤ 300

Control circuit

Nominal voltage	see table product references
Operating voltage range	0.85 ... 1.1 U _N
Pick-up voltage	≤ 0.85 U _N
Release voltage	≥ 0.1 U _N
Pick-up time	15 ... 45 ms
Release time	20 ... 70 ms
Power consumption AC / DC	2.6 VA / 2.6 W
Frequency range	40 ... 500 Hz

Insulation

Rated insulation voltage	440 V
Rated impulse withstand voltage open contact	4 kV / 1 min
Pollution degree	3
Overvoltage category	III
Clearance of open contact	3.6 mm

Wiring

Conductor cross section control / main circuit	2.5 mm ² / 6 mm ²
--	---

Housing and environmental conditions

Storage temperature (no ice)	-30 ... 80 °C
Ambient temperature operation 2 devices, 1 spacer	40 ... 55 °C
Ambient temperature operation 3 devices, 1 spacer	-15 ... 40 °C
Ingress Protection	IP 20
Weight	250 g
Housing material	PA 6
Dimensions	see fig. 3

Product references

Description	Type	24	230
4 NC	RAC25-040/UC...V		✓
2 NO + 2 NC	RAC25-220/UC...V	✓	✓
4 NO	RAC25-400/UC...V	✓	✓

Other voltages on request. Please contact support@comatreleco.com.
«...» List control circuit voltage to complete product references.

Accessories

Sealing cover	RIC-SEAL25
Spacer	RIC-DIST
Busbar	RIC-NS-2-1, RIC-PS-2-3, RIC-PS-2-4
End covers	RIC-EK-11 (BAG 25 PCS), RIC-EK-23 (BAG 10 PCS), RIC-EK-40 (BAG 10 PCS)
Auxiliary contact	RIC-AUX02, RIC-AUX11, RIC-AUX20

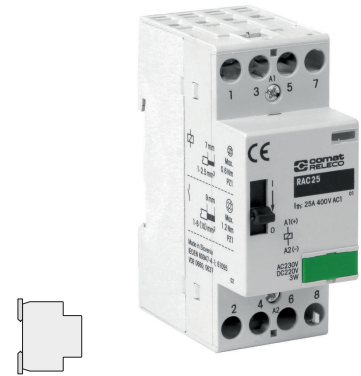


fig. 1. Wiring diagram

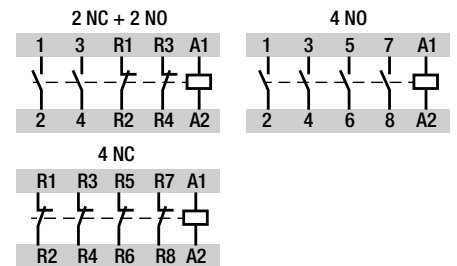


fig. 2. DC load limit curve

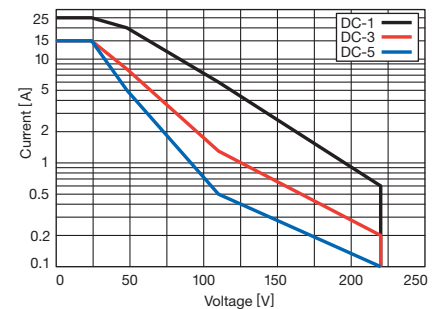
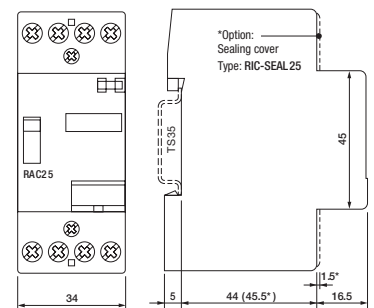


fig. 3. Dimensions (mm)



Technical approvals, conformities

Standards IEC/EN 60947; IEC/EN 61095

Approvals

1.7 Installation Contactors

RAC40

4 pole | 40 A | 8.7 kW | manual lever Auto - 1 - Lock



Main circuit

Available contact materials	⚡ AgSnO ₂
Rated voltage	400 V AC
Rated current AC-1	40 A
Recommended minimum contact load	50 mA, 17 V
Inrush current	170 A, 100 ms / 970 A, 300 μs
Rated load AC-1	8.7 kW
Rated load AC-3	3.7 kW
Rated load DC-1	see fig. 2
Mechanical endurance (cycles)	≥ 10 000 000
Electrical endurance at rated load AC-1 (cycles)	≥ 100 000
Electrical endurance at rated load AC-3 (cycles)	≥ 150 000
Electrical endurance at rated load DC-1 (cycles)	≥ 100 000
Switching frequency at rated load AC-1 (cycles / h)	≤ 600
Switching frequency at rated load AC-3 (cycles / h)	≤ 600
Switching frequency at rated load DC-1 (cycles / h)	≤ 300

Control circuit

Nominal voltage	see table product references
Operating voltage range	0.85 ... 1.1 U _N
Pick-up voltage	≤ 0.85 U _N
Release voltage	≥ 0.1 U _N
Pick-up time	15 ... 20 ms
Release time	35 ... 45 ms
Power consumption AC / DC	5 VA / 5 W
Frequency range	50 / 60 Hz

Insulation

Rated insulation voltage	440 V
Rated impulse withstand voltage open contact	6 kV / 1 min
Pollution degree	3
Overvoltage category	III
Clearance of open contact	3.6 mm

Wiring

Conductor cross section control / main circuit	2.5 mm ² / 16 mm ²
--	--

Housing and environmental conditions

Storage temperature (no ice)	-30 ... 80 °C
Ambient temperature operation 2 devices, 1 spacer	40 ... 55 °C
Ambient temperature operation 3 devices, 1 spacer	-15 ... 40 °C
Ingress Protection	IP 20
Weight	420 g
Housing material	PA 6
Dimensions	see fig. 3

Product references

Description	Type	230
3 NO + 1 NC	RAC40-310/AC...V	✓
4 NO	RAC40-400/AC...V	✓

Other voltages on request. Please contact support@comatreleco.com.
«...» List control circuit voltage to complete product references.

Accessories

Sealing cover	RIC-SEAL40/63
Spacer	RIC-DIST
Auxiliary contact	RIC-AUX02, RIC-AUX11, RIC-AUX20

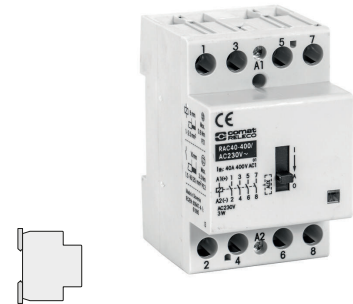


fig. 1. Wiring diagram

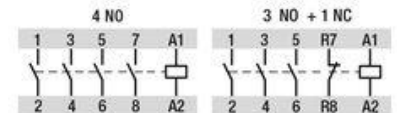


fig. 2. DC load limit curve

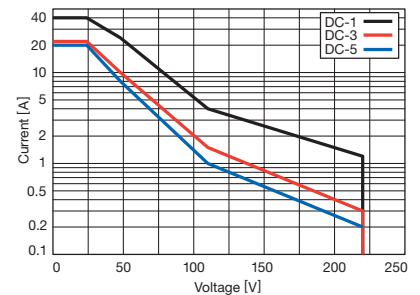
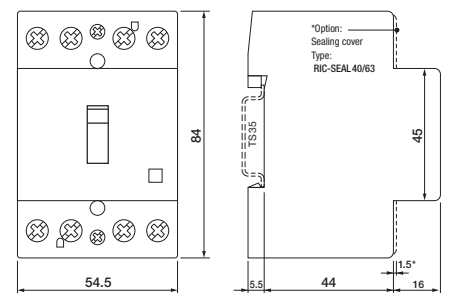


fig. 3. Dimensions (mm)



Technical approvals, conformities

Standards IEC/EN 60947; IEC/EN 61095

Approvals

RAC63

4 pole | 63 A | 13.3 kW | manual lever Auto - 1 - Lock



Main circuit

Available contact materials	⚡ AgSnO ₂
Rated voltage	400 V AC
Rated current AC-1	63 A
Recommended minimum contact load	50 mA, 17 V
Inrush current	240 A, 100 ms / 1 500 A, 300 μs
Rated load AC-1	13.3 kW
Rated load AC-3	6 kW
Rated load DC-1	see fig. 2
Mechanical endurance (cycles)	≥ 10 000 000
Electrical endurance at rated load AC-1 (cycles)	≥ 100 000
Electrical endurance at rated load AC-3 (cycles)	≥ 150 000
Electrical endurance at rated load DC-1 (cycles)	≥ 100 000
Switching frequency at rated load AC-1 (cycles / h)	≤ 600
Switching frequency at rated load AC-3 (cycles / h)	≤ 600
Switching frequency at rated load DC-1 (cycles / h)	≤ 300

Control circuit

Nominal voltage	see table product references
Operating voltage range	0.85 ... 1.1 U _N
Pick-up voltage	≤ 0.85 U _N
Release voltage	≥ 0.1 U _N
Pick-up time	15 ... 20 ms
Release time	35 ... 45 ms
Power consumption AC / DC	5 VA / 5 W
Frequency range	50 / 60 Hz

Insulation

Rated insulation voltage	440 V
Rated impulse withstand voltage open contact	6 kV / 1 min
Pollution degree	3
Overvoltage category	III
Clearance of open contact	3.6 mm

Wiring

Conductor cross section control / main circuit	2.5 mm ² / 16 mm ²
--	--

Housing and environmental conditions

Storage temperature (no ice)	-30 ... 80 °C
Ambient temperature operation 2 devices, 1 spacer	40 ... 55 °C
Ambient temperature operation 3 devices, 1 spacer	-15 ... 40 °C
Ingress Protection	IP 20
Weight	420 g
Housing material	PA 6
Dimensions	see fig. 3

Product references

Description	Type	230
3 NO + 1 NC	RAC63-310/AC...V	✓
4 NO	RAC63-400/AC...V	✓

Other voltages on request. Please contact support@comatreleco.com.
«...» List control circuit voltage to complete product references.

Accessories

Sealing cover	RIC-SEAL40/63
Spacer	RIC-DIST
Auxiliary contact	RIC-AUX02, RIC-AUX11, RIC-AUX20

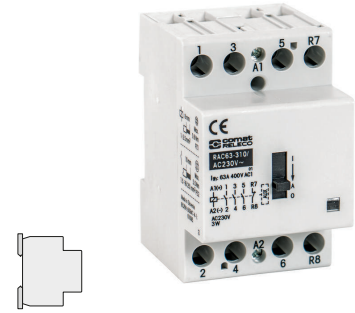


fig. 1. Wiring diagram

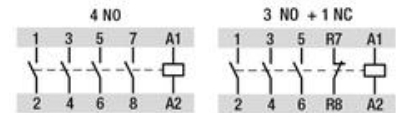


fig. 2. DC load limit curve

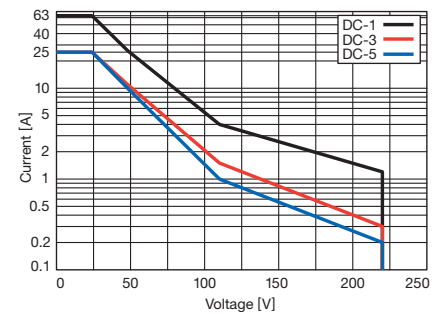
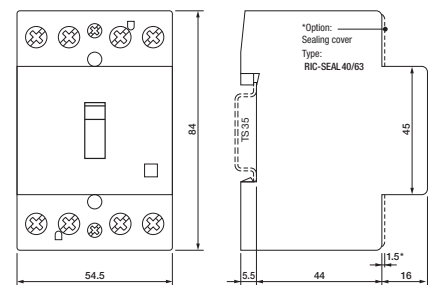


fig. 3. Dimensions (mm)



Technical approvals, conformities

Standards IEC/EN 60947; IEC/EN 61095

Approvals

1.7 Installation Contactors

RBC20

2 or 4 pole | 20 A | 4.4 kW | Step switch, manual lever 0 - 1 - Lock

Main circuit

Available contact materials	⚡ AgNi
Rated voltage	400 V AC
Rated current AC-1	20 A
Recommended minimum contact load	100 mA, 10 V
Inrush current	50 A, 100 ms / 180 A, 300 μs
Rated load AC-1	4.4 kW
Rated load AC-3	0.55 kW
Rated load DC-1	see fig. 2
Mechanical endurance (cycles)	≥ 1 000 000
Electrical endurance at rated load AC-1 (cycles)	≥ 100 000
Electrical endurance at rated load AC-3 (cycles)	≥ 100 000
Electrical endurance at rated load DC-1 (cycles)	≥ 100 000
Switching frequency at rated load AC-1 (cycles / h)	≤ 600
Switching frequency at rated load AC-3 (cycles / h)	≤ 600
Switching frequency at rated load DC-1 (cycles / h)	≤ 300

Control circuit

Nominal voltage	see table product references
Operating voltage range	0.9 ... 1.1 U _N
Pick-up voltage	≤ 0.75 U _N
Release voltage	≥ 0.1 U _N
Minimal impulse duration at rated voltage U _N	50 ms
Minimal impulse duration at 0.9 U _N	100 ms
Minimal pause between two impulses	150 ms
Maximal impulse duration	≤ 15 / min
Maximal number of impulses	≤ 60 / min
Pick-up time	5 ... 35 ms
Release time	5 ... 35 ms
Power consumption AC / DC	9 VA / 4 W
Frequency range	50 / 60 Hz

Insulation

Rated insulation voltage	440 V
Rated impulse withstand voltage open contact	4 kV / 1 min
Pollution degree	3
Overtoltage category	III
Clearance of open contact	> 3 mm

Wiring

Conductor cross section control / main circuit	4 mm ² / 10 mm ²
--	--

Housing and environmental conditions

Storage temperature (no ice)	-30 ... 80 °C
Ambient temperature operation 2 devices, 1 spacer	40 ... 55 °C
Ambient temperature operation 3 devices, 1 spacer	-15 ... 40 °C
Ingress Protection	IP 20
Weight	135 g
Housing material	PA 6
Dimensions	see fig. 3

Product references

Description	Type	24	230
1 NO + 1 NC	RBC20-110/AC...V		✓
2 NO	RBC20-200/AC...V	✓	✓
4 NO	RBC20-400/AC...V	✓	✓

Other voltages on request. Please contact support@comatreleco.com.
«...» List control circuit voltage to complete product references.

Accessories

Auxiliary contact	RBC-AUX11
Spacer	RIC-DIST
Auxiliary module for centralized control	RBC-AUX-CM
Auxiliary module for group control	RBC-AUX-GM

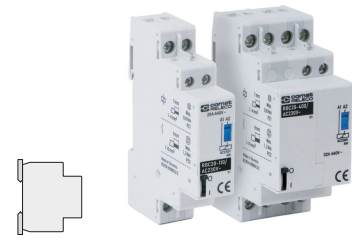


fig. 1. Wiring diagram

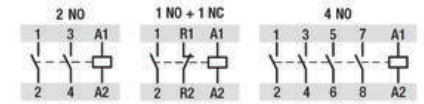


fig. 2. DC load limit curve

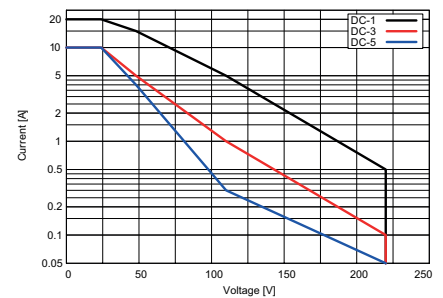
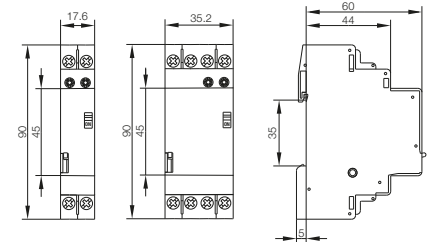


fig. 3. Dimensions (mm)



Technical approvals, conformities

Standards IEC/EN 60947; IEC/EN 61095

Approvals

RBC32

4 pole | 32 A | 7 kW | Step switch, manual lever 0 - 1 - Lock

Main circuit

Available contact materials	⚡ AgNi
Rated voltage	400 V AC
Rated current AC-1	32 A
Recommended minimum contact load	100 mA, 10 V
Inrush current	50 A, 100 ms / 180 A, 300 μs
Rated load AC-1	7 kW
Rated load AC-3	1.1 kW
Rated load DC-1	see fig. 2
Mechanical endurance (cycles)	≥ 1 000 000
Electrical endurance at rated load AC-1 (cycles)	≥ 100 000
Electrical endurance at rated load AC-3 (cycles)	≥ 100 000
Electrical endurance at rated load DC-1 (cycles)	≥ 100 000
Switching frequency at rated load AC-1 (cycles / h)	≤ 450
Switching frequency at rated load AC-3 (cycles / h)	≤ 450
Switching frequency at rated load DC-1 (cycles / h)	≤ 300

Control circuit

Nominal voltage	see table product references
Operating voltage range	0.9 ... 1.1 U _N
Pick-up voltage	≤ 0.75 U _N
Release voltage	≥ 0.1 U _N
Minimal impulse duration at rated voltage U _N	50 ms
Minimal impulse duration at 0.9 U _N	100 ms
Minimal pause between two impulses	150 ms
Maximal impulse duration	≤ 8 / min
Maximal number of impulses	≤ 60 / min
Pick-up time	5 ... 35 ms
Release time	5 ... 35 ms
Power consumption AC / DC	9 VA / 4 W
Frequency range	50 / 60 Hz

Insulation

Rated insulation voltage	440 V
Rated impulse withstand voltage open contact	4 kV / 1 min
Pollution degree	3
Overvoltage category	III
Clearance of open contact	> 3 mm

Wiring

Conductor cross section control / main circuit	4 mm ² / 10 mm ²
--	--

Housing and environmental conditions

Storage temperature (no ice)	-30 ... 80 °C
Ambient temperature operation 2 devices, 1 spacer	40 ... 55 °C
Ambient temperature operation 3 devices, 1 spacer	-15 ... 40 °C
Ingress Protection	IP 20
Weight	135 g
Housing material	PA 6
Dimensions	see fig. 3

Product references

Description	Type	230
2 NO + 2 NC	RBC32-220/AC...V	✓
4 NO	RBC32-400/AC...V	✓

Other voltages on request. Please contact support@comatreleco.com.
«...» List control circuit voltage to complete product references.

Accessories

Auxiliary contact	RBC-AUX11
Spacer	RIC-DIST
Auxiliary module for centralized control	RBC-AUX-CM
Auxiliary module for group control	RBC-AUX-GM



fig. 1. Wiring diagram

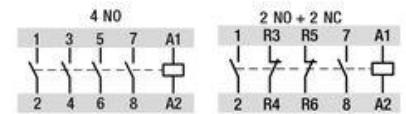


fig. 2. DC load limit curve

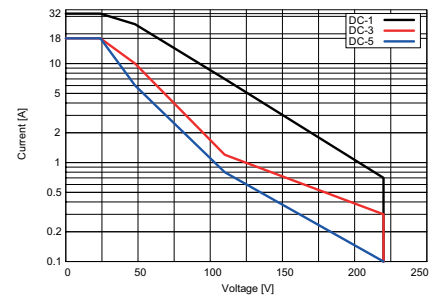
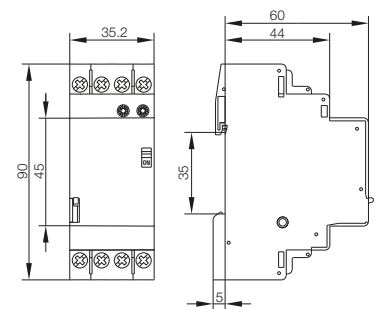


fig. 3. Dimensions (mm)













Technical approvals, conformities

Standards IEC/EN 60947; IEC/EN 61095

Approvals

1.8 Industrial Contactors

	Type	Pin	Page
RMC Series			
4 pole 8.5 A 4 kW	RMC08		162
4 pole 11.3 A 5.5 kW	RMC11		163
RSC Series			
3 or 4 pole 9 A 4 kW	RSC09		164
3 or 4 pole 12 A 5.5 kW	RSC12		165
3 or 4 pole 16 A 7.5 kW	RSC16		166
3 pole 22 A 11 kW	RSC22		167
3 pole 30 A 15 kW	RSC30		168
3 pole 38 A 18.5 kW	RSC38		169
5 pole 43 A 22 kW	RSC43		170
5 pole 63 A 30 kW	RSC63		171

RMC08

4 pole | 8.5 A | 4 kW



Main circuit

Available contact materials	⚡ AgNi
Rated voltage	690 V AC
Rated current AC-1	20 A
Rated current AC-3	8.5 A, 400 V
Rated current DC-3	0.25 A, 110 VDC
Rated load AC-1	13 kW
Rated load AC-3	4 kW
Recommended minimum contact load	50 mA, 17 V
Mechanical endurance (cycles)	10 000 000
Electrical endurance at rated load AC-1 (cycles)	200 000
Electrical endurance at rated load AC-3 (cycles)	see fig. 2
Switching frequency at rated load AC-1 (cycles / h)	≤ 600
Switching frequency at rated load AC-3 (cycles / h)	≤ 600
Switching frequency at rated load DC-3 (cycles / h)	≤ 300

Control circuit

Nominal voltage	see table product references
Operating voltage range	0.85 ... 1.1 U _N
Pick-up voltage	≤ 0.85 U _N
Release voltage	≥ 0.2 U _N AC / ≥ 0.1 U _N DC
Pick-up time	10 ... 15 ms
Release time	6 ... 15 ms
Power consumption AC / DC	8.1 VA / 4 W
Frequency range	50 / 60 Hz

Insulation

Rated insulation voltage	690 V
Rated impulse withstand voltage open contact	6 kV / 1 min
Pollution degree	3
Overvoltage category	III
Clearance of open contact	3.6 mm

Wiring

Conductor cross section control / main circuit	2.5 mm ² / 2.5 mm ²
--	---

Housing and environmental conditions

Storage temperature (no ice)	-30 ... 80 °C
Ingress Protection	IP20
Weight	AC: 160 g / DC: 215 g
Housing material	PA 66
Dimensions	see fig. 3

Product references

Description	Type	24	230
3 NO + 1 NC	RMC08-301/AC...V	✓	✓
3 NO + 1 NO	RMC08-310/AC...V	✓	✓
3 NO + 1 NC	RMC08-301/DC...V	✓	
3 NO + 1 NO	RMC08-310/DC...V	✓	

Other voltages on request. Please contact support@comatreleco.com.
«...» List control circuit voltage to complete product references.

Accessories

Auxiliary contact	RMC-AUX02, RMC-AUX04, RMC-AUX11, RMC-AUX20, RMC-AUX22, RMC-AUX40
DI - Suppressor	RMC-DI
MBL - Mechanical interlock	RMC-MBL
RC - Suppressor	RMC-RC1, RMC-RC2



fig. 1. Wiring diagram

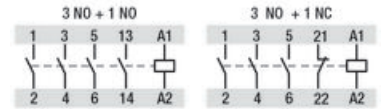


fig. 2. Electrical endurance

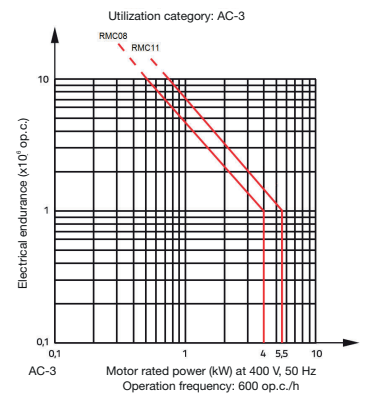
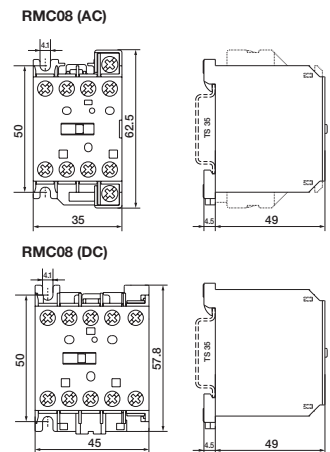


fig. 3. Dimensions (mm)



Technical approvals, conformities

Standards IEC/EN 60947



RMC11

4 pole | 11.3 A | 5.5 kW

Main circuit

Available contact materials	⚡ AgNi
Rated voltage	690 V AC
Rated current AC-1	20 A
Rated current AC-3	11.3 A, 400 V
Rated current DC-3	0.25 A, 110 VDC
Rated load AC-1	13 kW
Rated load AC-3	5.5 kW
Recommended minimum contact load	50 mA, 17 V
Mechanical endurance (cycles)	10 000 000
Electrical endurance at rated load AC-1 (cycles)	200 000
Electrical endurance at rated load AC-3 (cycles)	see fig. 2
Switching frequency at rated load AC-1 (cycles / h)	≤ 600
Switching frequency at rated load AC-3 (cycles / h)	≤ 600
Switching frequency at rated load DC-3 (cycles / h)	≤ 300

Control circuit

Nominal voltage	see table product references
Operating voltage range	0.85 ... 1.1 U _N
Pick-up voltage	≤ 0.85 U _N
Release voltage	≥ 0.2 U _N AC / ≥ 0.1 U _N DC
Pick-up time	10 ... 15 ms
Release time	6 ... 15 ms
Power consumption AC / DC	8.1 VA / 4 W
Frequency range	50 / 60 Hz

Insulation

Rated insulation voltage	690 V
Rated impulse withstand voltage open contact	6 kV / 1 min
Pollution degree	3
Overvoltage category	III
Clearance of open contact	3.6 mm

Wiring

Conductor cross section control / main circuit	2.5 mm ² / 2.5 mm ²
--	---

Housing and environmental conditions

Storage temperature (no ice)	-30 ... 80 °C
Ingress Protection	IP 20
Weight	AC: 170 g / DC: 215 g
Housing material	PA 66
Dimensions	see fig. 3

Product references

Description	Type	24	230
3 NO + 1 NC	RMC11-301/AC...V	✓	✓
3 NO + 1 NO	RMC11-310/AC...V	✓	✓
3 NO + 1 NC	RMC11-301/DC...V	✓	
3 NO + 1 NO	RMC11-310/DC...V	✓	

Other voltages on request. Please contact support@comatreleco.com.
«...» List control circuit voltage to complete product references.

Accessories

Auxiliary contact	RMC-AUX02, RMC-AUX04, RMC-AUX11, RMC-AUX20, RMC-AUX22, RMC-AUX40
DI - Suppressor	RMC-DI
MBL - Mechanical interlock	RMC-MBL
RC - Suppressor	RMC-RC1, RMC-RC2

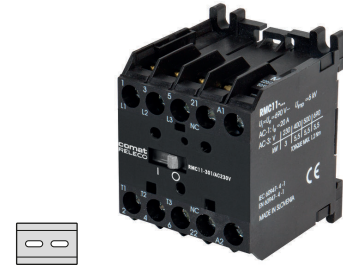


fig. 1. Wiring diagram

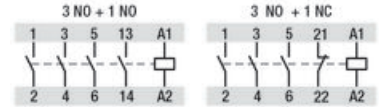


fig. 2. AC voltage endurance

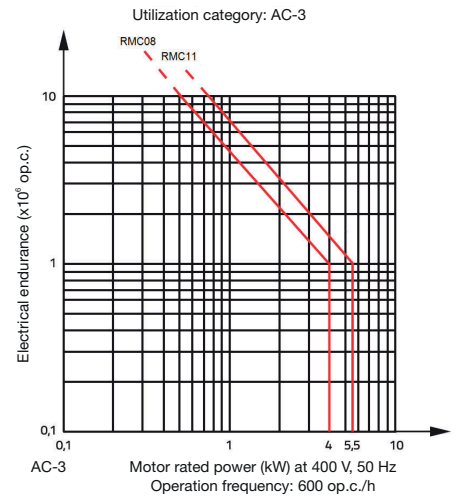
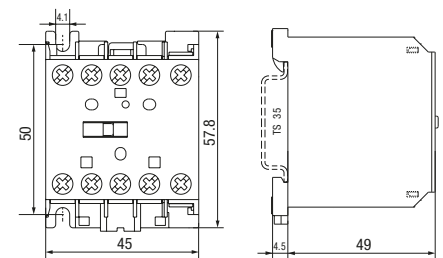


fig. 3. Dimensions (mm)



Technical approvals, conformities

Standards IEC/EN 60947

Approvals

1.8 Industrial Contactors

RSC09

3 or 4 pole | 9 A | 4 kW

Main circuit

Available contact materials	⚡ AgNi
Rated voltage	690 V AC
Rated current AC-1	25 A
Rated current AC-3	9 A, 400 V
Rated current DC-3	0.75 A, 220 V DC
Rated load AC-1	16 kW
Rated load AC-3	4 kW
Recommended minimum contact load	50 mA, 17 V
Overload current	72 A (10 s) / 220 A (0.001 s)
Mechanical endurance (cycles)	10 000 000
Electrical endurance at rated load AC-1 (cycles)	200 000
Electrical endurance at rated load AC-3 (cycles)	see fig. 2
Switching frequency at rated load AC-1 (cycles / h)	≤ 600
Switching frequency at rated load AC-3 (cycles / h)	≤ 600
Switching frequency at rated load DC-3 (cycles / h)	≤ 300

Control circuit

Nominal voltage	see table product references
Operating voltage range	0.85 ... 1.1 U_N
Pick-up voltage	≤ 0.85 U_N
Release voltage	≥ 0.2 U_N AC / ≥ 0.1 U_N DC
Pick-up time	10 ... 25 ms
Release time	5 ... 15 ms
Power consumption AC / DC	8.0 VA / 2.5 W
Frequency range	50 / 60 Hz

Insulation

Rated insulation voltage	690 V
Rated impulse withstand voltage open contact	6 kV / 1 min
Pollution degree	3
Overvoltage category	III
Clearance of open contact	3.6 mm

Wiring

Conductor cross section control / main circuit	2.5 mm ² / 6 mm ²
--	---

Housing and environmental conditions

Storage temperature (no ice)	-30 ... 80 °C
Ingress Protection	IP 20
Weight	300 g
Housing material	PA 66
Dimensions	see fig. 3

Product references

Description	Type	24	230
3 NO + 1 NC	RSC09-301/AC...V	✓	✓
3 NO + 1 NO	RSC09-310/AC...V	✓	✓
3 NO	RSC09-300/DC...V		✓

Other voltages on request. Please contact support@comatreleco.com.

«...» List coil voltage to complete product references

Accessories

Auxiliary contact	RSC-AUX02, RSC-AUX11, RSC-AUX04, RSC-AUX20, RSC-AUX22, RSC-AUX40
RC - Suppressor	RSC-RC1, RSC-RC2
Bimetallic thermal relay	RSC-MP-0.16, RSC-MP-0.25, RSC-MP-0.4, RSC-MP-0.5, RSC-MP-0.63, RSC-MP-0.8, RSC-MP-1.3, RSC-MP-1.6, RSC-MP-10.0, RSC-MP-2.0, RSC-MP-2.5, RSC-MP-3.2, RSC-MP-4.0, RSC-MP-4.8, RSC-MP-6.3, RSC-MP-7.5, RSC-MP-1.0
MBL - Mechanical interlock	RSC-MBL1, RSC-MBL2
DI - Suppressor	RMC-DI



fig. 1. Wiring diagram

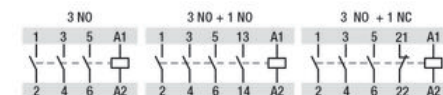


fig. 2. Electrical endurance

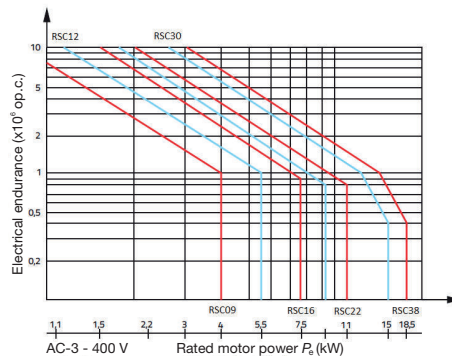
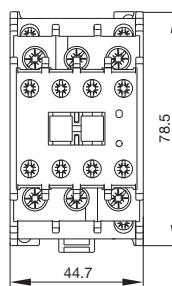
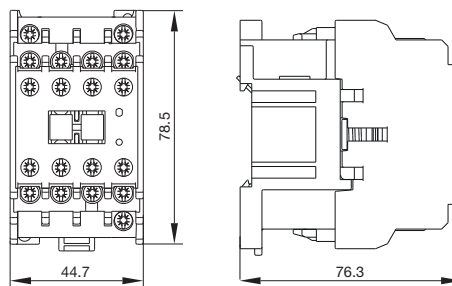


fig. 3. Dimensions (mm)

3 pole



4 pole



Technical approvals, conformities

Standards IEC/EN 60947

Approvals

RSC12

3 or 4 pole | 12 A | 5.5 kW

Main circuit

Available contact materials	AgNi
Rated voltage	690 V AC
Rated current AC-1	25 A
Rated current AC-3	12 A, 400 V
Rated current DC-3	0.75 A, 220 V DC
Rated load AC-1	16 kW
Rated load AC-3	5.5 kW
Recommended minimum contact load	50 mA, 17 V
Overload current	96 A (10 s) / 330 A (0.001 s)
Mechanical endurance (cycles)	10 000 000
Electrical endurance at rated load AC-1 (cycles)	200 000
Electrical endurance at rated load AC-3 (cycles)	see fig. 2
Switching frequency at rated load AC-1 (cycles / h)	≤ 600
Switching frequency at rated load AC-3 (cycles / h)	≤ 600
Switching frequency at rated load DC-3 (cycles / h)	≤ 300

Control circuit

Nominal voltage	see table product references
Operating voltage range	0.85 ... 1.1 U _N
Pick-up voltage	≤ 0.85 U _N
Release voltage	≥ 0.2 U _N AC / ≥ 0.1 U _N DC
Pick-up time	10 ... 25 ms
Release time	5 ... 15 ms
Power consumption AC / DC	8.0 VA / 2.5 W
Frequency range	50 / 60 Hz

Insulation

Rated insulation voltage	690 V
Rated impulse withstand voltage open contact	6 kV / 1 min
Pollution degree	3
Overvoltage category	III
Clearance of open contact	3.6 mm

Wiring

Conductor cross section control / main circuit	2.5 mm ² / 6 mm ²
--	---

Housing and environmental conditions

Storage temperature (no ice)	-30 ... 80 °C
Ingress Protection	IP 20
Weight	300 g
Housing material	PA 66
Dimensions	see fig. 3

Product references

Description	Type	24	230
3 NO + 1 NC	RSC12-301/AC...V	✓	✓
3 NO + 1 NO	RSC12-310/AC...V	✓	✓
3 NO	RSC12-300/DC...V		✓

Other voltages on request. Please contact support@comatreleco.com.
 «...» List control circuit voltage to complete product references.

Accessories

Auxiliary contact	RSC-AUX02, RSC-AUX11, RSC-AUX04, RSC-AUX20, RSC-AUX22, RSC-AUX40
RC - Suppressor	RSC-RC1, RSC-RC2
Bimetallic thermal relay	RSC-MP-0.16, RSC-MP-0.25, RSC-MP-0.4, RSC-MP-0.5, RSC-MP-0.63, RSC-MP-0.8, RSC-MP-1.0, RSC-MP-1.3, RSC-MP-1.6, RSC-MP-10.0, RSC-MP-2.0, RSC-MP-2.5, RSC-MP-3.2, RSC-MP-4.0, RSC-MP-4.8, RSC-MP-6.3, RSC-MP-7.5
MBL - Mechanical interlock	RSC-MBL1, RSC-MBL2
DI - Suppressor	RMC-DI



fig. 1. Wiring diagram

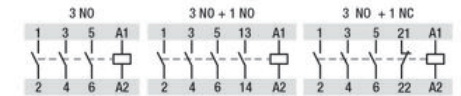


fig. 2. Electrical endurance

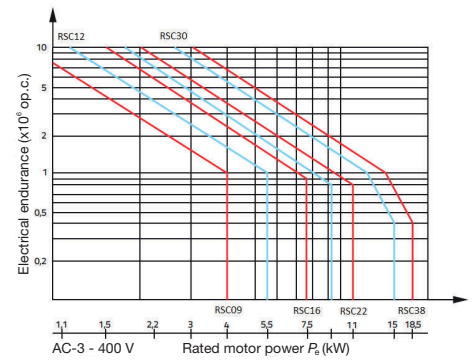
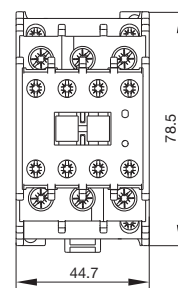
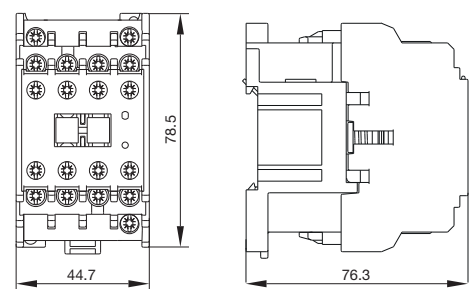


fig. 3. Dimensions (mm)

3 pole



4 pole



Technical approvals, conformities

Standards IEC/EN 60947

Approvals

1.8 Industrial Contactors

RSC16

3 or 4 pole | 16 A | 7.5 kW



Main circuit

Available contact materials	AgNi
Rated voltage	690 V AC
Rated current AC-1	25 A
Rated current AC-3	16 A, 400 V
Rated current DC-3	0.75 A, 220 V DC
Rated load AC-1	16 kW
Rated load AC-3	7.5 kW
Recommended minimum contact load	50 mA, 17 V
Overload current	128 A (10 s) / 450 A (0.001 s)
Mechanical endurance (cycles)	10 000 000
Electrical endurance at rated load AC-1 (cycles)	200 000
Electrical endurance at rated load AC-3 (cycles)	see fig. 2
Switching frequency at rated load AC-1 (cycles / h)	≤ 600
Switching frequency at rated load AC-3 (cycles / h)	≤ 600
Switching frequency at rated load DC-3 (cycles / h)	≤ 300

Control circuit

Nominal voltage	see table product references
Operating voltage range	0.85 ... 1.1 U _N
Pick-up voltage	≤ 0.85 U _N
Release voltage	≥ 0.2 U _N AC / ≥ 0.1 U _N DC
Pick-up time	10 ... 25 ms
Release time	5 ... 15 ms
Power consumption AC / DC	8.0 VA / 2.5 W
Frequency range	50 / 60 Hz

Insulation

Rated insulation voltage	690 V
Rated impulse withstand voltage open contact	6 kV / 1 min
Pollution degree	3
Overvoltage category	III
Clearance of open contact	3.6 mm

Wiring

Conductor cross section control / main circuit	2.5 mm ² / 6 mm ²
--	---

Housing and environmental conditions

Storage temperature (no ice)	-30 ... 80 °C
Ingress Protection	IP 20
Weight	300 g
Housing material	PA 66
Dimensions	see fig. 3

Product references

Description	Type	24	230
3 NO + 1 NC	RSC16-301/AC...V	✓	✓
3 NO + 1 NO	RSC16-310/AC...V	✓	✓
3 NO	RSC16-300/DC...V	✓	

Other voltages on request. Please contact support@comatreleco.com.
«...» List control circuit voltage to complete product references.

Accessories

Auxiliary contact	RSC-AUX02, RSC-AUX11, RSC-AUX04, RSC-AUX20, RSC-AUX22, RSC-AUX40
RC - Suppressor	RSC-RC1, RSC-RC2
Bimetallic thermal relay	RSC-MP-0.16, RSC-MP-0.25, RSC-MP-0.4, RSC-MP-0.5, RSC-MP-0.63, RSC-MP-0.8, RSC-MP-1.0, RSC-MP-1.3, RSC-MP-1.6, RSC-MP-10.0, RSC-MP-2.0, RSC-MP-2.5, RSC-MP-3.2, RSC-MP-4.0, RSC-MP-4.8, RSC-MP-6.3, RSC-MP-7.5
MBL - Mechanical interlock	RSC-MBL1, RSC-MBL2
DI - Suppressor	RMC-DI



fig. 1. Wiring diagram

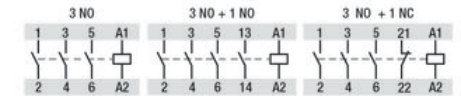


fig. 2. Electrical endurance

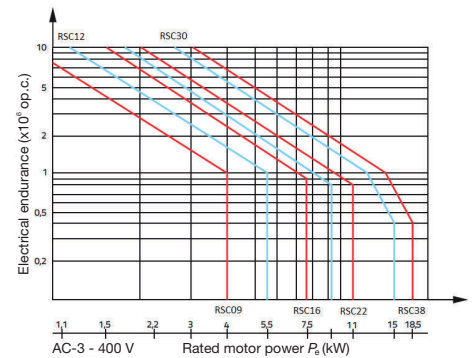
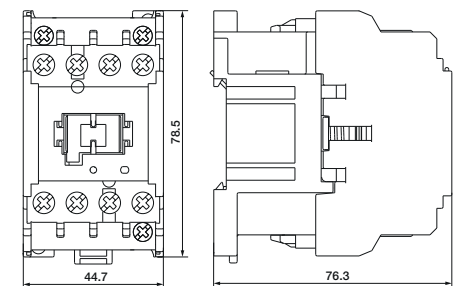


fig. 3. Dimensions (mm)



Technical approvals, conformities

Standards IEC/EN 60947



RSC22

3 pole | 22 A | 11 kW

Main circuit

Available contact materials	⚡ AgNi
Rated voltage	1 000 V AC
Rated current AC-1	35 A
Rated current AC-3	22 A, 400 V
Rated current DC-3	1 A, 220 V DC
Rated load AC-1	23 kW
Rated load AC-3	11 kW
Recommended minimum contact load	50 mA, 17 V
Overload current	176 A (10 s) / 600 A (0.001 s)
Mechanical endurance (cycles)	10 000 000
Electrical endurance at rated load AC-1 (cycles)	200 000
Electrical endurance at rated load AC-3 (cycles)	see fig. 2
Switching frequency at rated load AC-1 (cycles / h)	≤ 600
Switching frequency at rated load AC-3 (cycles / h)	≤ 600
Switching frequency at rated load DC-3 (cycles / h)	≤ 300

Control circuit

Nominal voltage	see table product references
Operating voltage range	0.85 ... 1.1 U _N
Pick-up voltage	≤ 0.85 U _N
Release voltage	≥ 0.2 U _N AC / ≥ 0.1 U _N DC
Pick-up time	10 ... 20 ms
Release time	5 ... 15 ms
Power consumption AC / DC	8.0 VA / 2.5 W
Frequency range	50 / 60 Hz

Insulation

Rated insulation voltage	1 000 V
Rated impulse withstand voltage open contact	6 kV / 1 min
Pollution degree	3
Overvoltage category	III
Clearance of open contact	3.6 mm

Wiring

Conductor cross section control / main circuit	2.5 mm ² / 10 mm ²
--	--

Housing and environmental conditions

Storage temperature (no ice)	-30 ... 80 °C
Ingress Protection	IP 20
Weight	AC: 320 g / DC: 360 g
Housing material	PA 66
Dimensions	see fig. 3

Product references

Description	Type	24	230
3 NO	RSC22-300/AC...V	✓	✓

3 NO	RSC22-300/DC...V	✓	
Other voltages on request. Please contact support@comatreleco.com.			
«...» List control circuit voltage to complete product references.			

Accessories

Auxiliary contact	RSC-AUX02, RSC-AUX04, RSC-AUX11, RSC-AUX20, RSC-AUX22, RSC-AUX40
RC - Suppressor	RSC-RC1, RSC-RC2
Bimetallic thermal relay	RSC-MP-0.16, RSC-MP-0.25, RSC-MP-0.4, RSC-MP-0.5, RSC-MP-0.63, RSC-MP-0.8, RSC-MP-1.0, RSC-MP-1.3, RSC-MP-1.6, RSC-MP-10.0, RSC-MP-2.0, RSC-MP-2.5, RSC-MP-3.2, RSC-MP-4.0, RSC-MP-4.8, RSC-MP-6.3, RSC-MP-7.5
MBL - Mechanical interlock	RSC-MBL1, RSC-MBL2
DI - Suppressor	RMC-DI



fig. 1. Wiring diagram



fig. 2. Electrical endurance

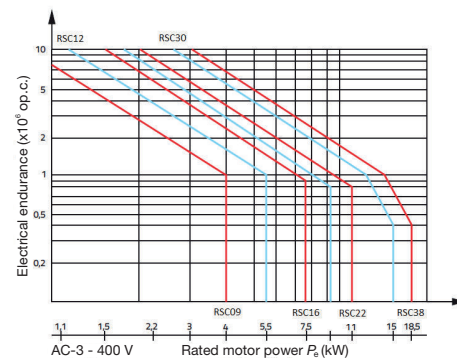
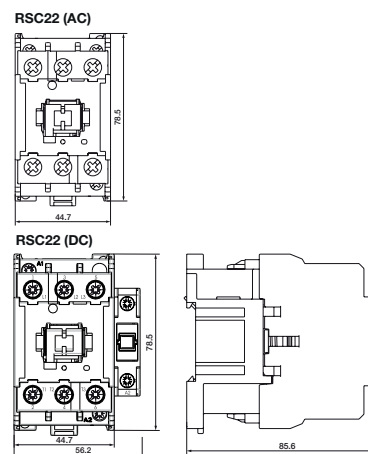


fig. 3. Dimensions (mm)



Technical approvals, conformities

Standards IEC/EN 60947

Approvals

1.8 Industrial Contactors

RSC30

3 pole | 30 A | 15 kW

Main circuit

Available contact materials	⚡ AgNiO ₂
Rated voltage	1 000 V AC
Rated current AC-1	35 A
Rated current AC-3	30 A, 400 V
Rated current DC-3	1 A, 220 V DC
Rated load AC-1	23 kW
Rated load AC-3	15 kW
Recommended minimum contact load	50 mA, 17 V
Overload current	240 A (10 s) / 900 A (0.001 s)
Mechanical endurance (cycles)	10 000 000
Electrical endurance at rated load AC-1 (cycles)	200 000
Electrical endurance at rated load AC-3 (cycles)	see fig. 2
Switching frequency at rated load AC-1 (cycles / h)	≤ 600
Switching frequency at rated load AC-3 (cycles / h)	≤ 600
Switching frequency at rated load DC-3 (cycles / h)	≤ 300

Control circuit

Nominal voltage	see table product references
Operating voltage range	0.85 ... 1.1 U _N
Pick-up voltage	≤ 0.85 U _N
Release voltage	≥ 0.2 U _N AC / ≥ 0.1 U _N DC
Pick-up time	10 ... 20 ms
Release time	5 ... 15 ms
Power consumption AC / DC	8.0 VA / 2.5 W
Frequency range	50 / 60 Hz

Insulation

Rated insulation voltage	1 000 V
Rated impulse withstand voltage open contact	6 kV / 1 min
Pollution degree	3
Overvoltage category	III
Clearance of open contact	3.6 mm

Wiring

Conductor cross section control / main circuit	2.5 mm ² / 10 mm ²
--	--

Housing and environmental conditions

Storage temperature (no ice)	-30 ... 80 °C
Ingress Protection	IP 20
Weight	AC: 320 g / DC: 360 g
Housing material	PA 66
Dimensions	see fig. 3

Product references

Description	Type	24	230
3 NO	RSC30-300/AC...V	✓	✓

3 NO	RSC30-300/DC...V	✓	
Other voltages on request. Please contact support@comatreleco.com.			
«...» List control circuit voltage to complete product references.			

Accessories

Auxiliary contact	RSC-AUX02, RSC-AUX04, RSC-AUX11, RSC-AUX20, RSC-AUX22, RSC-AUX40
RC - Suppressor	RSC-RC1, RSC-RC2
Bimetallic thermal relay	RSC-MP-0.16, RSC-MP-0.25, RSC-MP-0.4, RSC-MP-0.5, RSC-MP-0.63, RSC-MP-0.8, RSC-MP-1.0, RSC-MP-1.3, RSC-MP-1.6, RSC-MP-10.0, RSC-MP-2.0, RSC-MP-2.5, RSC-MP-3.2, RSC-MP-4.0, RSC-MP-4.8, RSC-MP-6.3, RSC-MP-7.5
MBL - Mechanical interlock	RSC-MBL1, RSC-MBL2
DI - Suppressor	RMC-DI



fig. 1. Wiring diagram

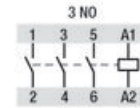


fig. 2. Electrical endurance

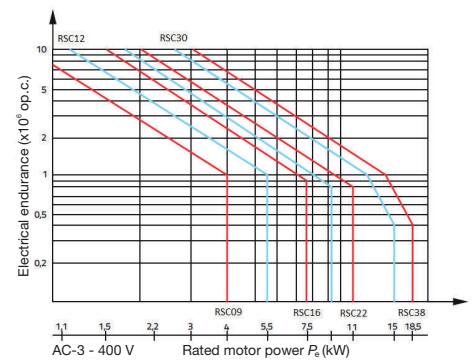
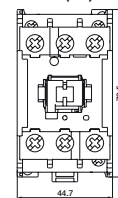
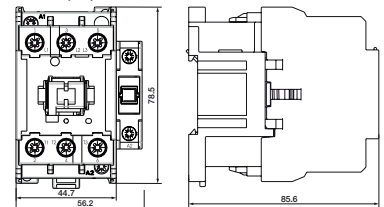


fig. 3. Dimensions (mm)

RSC30 (AC)



RSC30 (DC)



Technical approvals, conformities

Standards IEC/EN 60947

Approvals

RSC38

3 pole | 38 A | 18.5 kW

Main circuit

Available contact materials	⚡ AgNiO ₂
Rated voltage	1 000 V AC
Rated current AC-1	45 A
Rated current AC-3	38 A, 400 V
Rated current DC-3	1 A, 220 V DC
Rated load AC-1	29 kW
Rated load AC-3	18.5 kW
Recommended minimum contact load	50 mA, 17 V
Overload current	304 A (10 s) / 900 A (0.001 s)
Mechanical endurance (cycles)	10 000 000
Electrical endurance at rated load AC-1 (cycles)	200 000
Electrical endurance at rated load AC-3 (cycles)	see fig. 2
Switching frequency at rated load AC-1 (cycles / h)	≤ 600
Switching frequency at rated load AC-3 (cycles / h)	≤ 600
Switching frequency at rated load DC-3 (cycles / h)	≤ 300

Control circuit

Nominal voltage	see table product references
Operating voltage range	0.85 ... 1.1 U _N
Pick-up voltage	≤ 0.85 U _N
Release voltage	≥ 0.2 U _N AC / ≥ 0.1 U _N DC
Pick-up time	10 ... 20 ms
Release time	5 ... 15 ms
Power consumption AC / DC	10 VA / 2.5 W
Frequency range	50 / 60 Hz

Insulation

Rated insulation voltage	1 000 V
Rated impulse withstand voltage open contact	6 kV / 1 min
Pollution degree	3
Overvoltage category	III
Clearance of open contact	3.6 mm

Housing and environmental conditions

Storage temperature (no ice)	-30 ... 80 °C
Ingress Protection	IP 20
Weight	AC: 320 g / DC: 360 g
Housing material	PA 66
Dimensions	see fig. 3

Product references

Description	Type	24	230
3 NO	RSC38-300/AC...V	✓	✓

3 NO	RSC38-300/DC...V	✓	
Other voltages on request. Please contact support@comatreleco.com.			
«...» List control circuit voltage to complete product references.			

Accessories

Auxiliary contact	RSC-AUX02, RSC-AUX04, RSC-AUX11, RSC-AUX20, RSC-AUX22, RSC-AUX40
RC - Suppressor	RSC-RC1, RSC-RC2
Bimetallic thermal relay	RSC-MP-0.16, RSC-MP-0.25, RSC-MP-0.4, RSC-MP-0.5, RSC-MP-0.63, RSC-MP-0.8, RSC-MP-1.0, RSC-MP-1.3, RSC-MP-1.6, RSC-MP-10.0, RSC-MP-2.0, RSC-MP-2.5, RSC-MP-3.2, RSC-MP-4.0, RSC-MP-4.8, RSC-MP-6.3, RSC-MP-7.5
MBL - Mechanical interlock	RSC-MBL1, RSC-MBL2
DI - Suppressor	RMC-DI



fig. 1. Wiring diagram



fig. 2. Electrical endurance

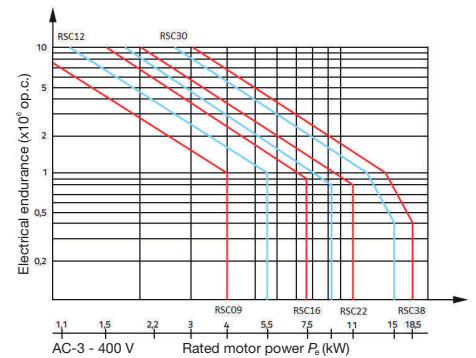
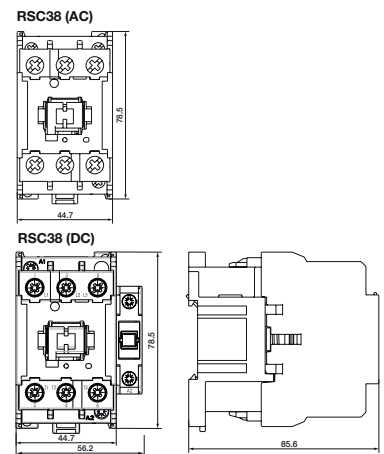


fig. 3. Dimensions (mm)



Technical approvals, conformities

Standards IEC/EN 60947

Approvals

1.8 Industrial Contactors

RSC43

5 pole | 43 A | 22 kW

Main circuit

Available contact materials	⚡ AgNi
Rated voltage	1 000 V AC
Rated current AC-1	75 A
Rated current AC-3	43 A, 400 V
Rated current DC-3	6 A, 220 V DC
Rated load AC-1	56 kW
Rated load AC-3	22 kW
Recommended minimum contact load	50 mA, 17 V
Overload current	344 A (10 s)
Mechanical endurance (cycles)	3 000 000
Electrical endurance at rated load AC-1 (cycles)	200 000
Electrical endurance at rated load AC-3 (cycles)	see fig. 2
Switching frequency at rated load AC-1 (cycles / h)	≤ 600
Switching frequency at rated load AC-3 (cycles / h)	≤ 600
Switching frequency at rated load DC-3 (cycles / h)	≤ 300

Control circuit

Nominal voltage	see table product references
Operating voltage range	0.85 ... 1.1 U_N
Pick-up voltage	≤ 0.85 U_N
Release voltage	≥ 0.2 U_N AC
Pick-up time	10 ... 20 ms
Release time	8 ... 15 ms
Power consumption AC / DC	10 VA
Frequency range	50 / 60 Hz

Insulation

Rated insulation voltage	1 000 V
Rated impulse withstand voltage open contact	6 kV / 1 min
Pollution degree	3
Overvoltage category	III
Clearance of open contact	3.6 mm

Wiring

Conductor cross section control / main circuit	2.5 mm ² / 25 mm ²
--	--

Housing and environmental conditions

Storage temperature (no ice)	-30 ... 80 °C
Ingress Protection	IP 20
Weight	930 g
Housing material	PA 66
Dimensions	see fig. 3

Product references

Description	Type	24	230
3 NO + 1 NO + 1 NC	RSC43-311/AC...V	✓	✓

Other voltages on request. Please contact support@comatreleco.com.
«...» List control circuit voltage to complete product references.

Accessories

Auxiliary contact	RSC-AUX02, RSC-AUX04, RSC-AUX11, RSC-AUX20, RSC-AUX22, RSC-AUX40
RC - Suppressor	RSC-RC1, RSC-RC2
Bimetallic thermal relay	RSC-MP-0.16, RSC-MP-0.25, RSC-MP-0.4, RSC-MP-0.5, RSC-MP-0.63, RSC-MP-0.8, RSC-MP-1.0, RSC-MP-1.3, RSC-MP-1.6, RSC-MP-10.0, RSC-MP-2.0, RSC-MP-2.5, RSC-MP-3.2, RSC-MP-4.0, RSC-MP-4.8, RSC-MP-6.3, RSC-MP-7.5
MBL - Mechanical interlock	RSC-MBL1, RSC-MBL2
DI - Suppressor	RMC-DI



fig. 1. Wiring diagram

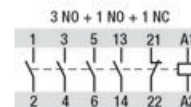


fig. 2. Electrical endurance

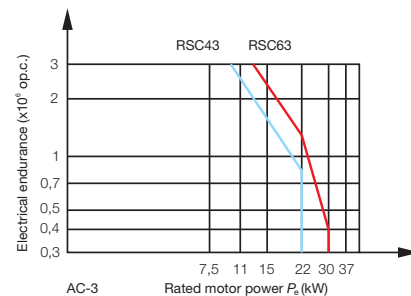
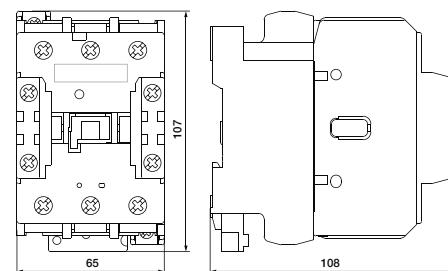


fig. 3. Dimensions (mm)



Technical approvals, conformities

Standards IEC/EN 60947

Approvals

RSC63

5 pole | 63 A | 30 kW

Main circuit

Available contact materials	⚡ AgNi
Rated voltage	1 000 V AC
Rated current AC-1	85 A
Rated current AC-3	63 A, 400 V
Rated current DC-3	6 A, 220 V DC
Rated load AC-1	66 kW
Rated load AC-3	30 kW
Recommended minimum contact load	50 mA, 17 V
Overload current	504 A (10 s)
Mechanical endurance (cycles)	3 000 000
Electrical endurance at rated load AC-1 (cycles)	200 000
Electrical endurance at rated load AC-3 (cycles)	see fig. 2
Switching frequency at rated load AC-1 (cycles / h)	≤ 600
Switching frequency at rated load AC-3 (cycles / h)	≤ 600
Switching frequency at rated load DC-3 (cycles / h)	≤ 300

Control circuit

Nominal voltage	see table product references
Operating voltage range	0.85 ... 1.1 U _N
Pick-up voltage	≤ 0.85 U _N
Release voltage	≥ 0.2 U _N AC
Pick-up time	10 ... 20 ms
Release time	8 ... 15 ms
Power consumption AC / DC	10 VA
Frequency range	50 / 60 Hz

Insulation

Rated insulation voltage	1 000 V
Rated impulse withstand voltage open contact	6 kV / 1 min
Pollution degree	3
Overvoltage category	III
Clearance of open contact	3.6 mm

Wiring

Conductor cross section control / main circuit	2.5 mm ² / 25 mm ²
--	--

Housing and environmental conditions

Storage temperature (no ice)	-30 ... 80 °C
Ingress Protection	IP 20
Weight	930 g
Housing material	PA 66
Dimensions	see fig. 3

Product references

Description	Type	24	230
3 NO + 1 NO + 1 NC	RSC63-311/AC...V	✓	✓

Other voltages on request. Please contact support@comatreleco.com.
«...» List control circuit voltage to complete product references.

Accessories

Auxiliary contact	RSC-AUX02, RSC-AUX04, RSC-AUX11, RSC-AUX20, RSC-AUX22, RSC-AUX40
RC - Suppressor	RSC-RC1, RSC-RC2
Bimetallic thermal relay	RSC-MP-0.16, RSC-MP-0.25, RSC-MP-0.4, RSC-MP-0.5, RSC-MP-0.63, RSC-MP-0.8, RSC-MP-1.0, RSC-MP-1.3, RSC-MP-1.6, RSC-MP-10.0, RSC-MP-2.0, RSC-MP-2.5, RSC-MP-3.2, RSC-MP-4.0, RSC-MP-4.8, RSC-MP-6.3, RSC-MP-7.5
MBL - Mechanical interlock	RSC-MBL1, RSC-MBL2
DI - Suppressor	RMC-DI



fig. 1. Wiring diagram

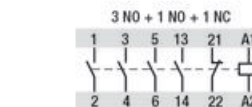


fig. 2. Electrical endurance

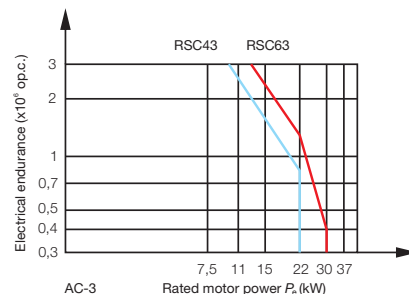
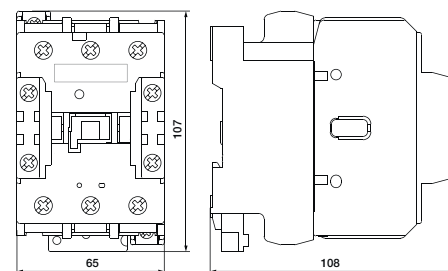


fig. 3. Dimensions (mm)

















Technical approvals, conformities

Standards IEC/EN 60947

Approvals

1.9 Solid State Contactors

	Type	Pin	Page
CC1 Series			
1 phase 230 V 15 A	CC1H215		174
1 phase 230 V 30 A	CC1H230		175
1 phase 230 V 50 A	CC1H250		176
1 phase 400 V 15 A	CC1H415		177
1 phase 400 V 30 A	CC1H430		178
1 phase 400 V 50 A	CC1H450		179
1 phase 400 V 63 A	CC1H463		180
CC3 Series			
3 phase 400 V 10 A	CC3H410		181
3 phase 400 V 20 A	CC3H420		182
CCR Series			
3 phase 400 V 10 A Reversing	CCR3H410		183
CPC Series			
1 phase 230 V 30 A Power Controller	CPC1230		184
1 phase 230 V 50 A Power Controller	CPC1250		185
1 phase 400 V 30 A Power Controller	CPC1430		186
1 phase 400 V 50 A Power Controller	CPC1450		187

1.9 Solid State Contactors

CC1H215

1 phase | 230 V | 15 A

Main circuit

Output type	⚡ SCR
Number of outputs	1
Rated voltage	230 V AC
Output voltage range	12 ... 240 V AC
Reverse voltage	1,000 Vrrm
Peak reverse voltage	1,100 Vrrm
Rated current AC-1	15 A
Rated current AC-3	15 A
Recommended minimum contact load	10 mA
Leakage current	1 mA
Rated limit load	1,800 A ² s

Control circuit

Nominal voltage	24 ... 230 V AC/DC
Operating voltage range	0.85 ... 1.1 U _N
Pick-up voltage	20.4 V
Release voltage	7.2 V
Pick-up time	20 ms
Release time	20 ms
Power consumption AC / DC	1.5 VA / 150 mW
Frequency range	50 / 60 Hz

Insulation

Rated insulation voltage	660 V
Rated impulse withstand voltage open contact	4 kV / 1 min
Pollution degree	3
Overvoltage category	III

General data

Storage temperature (no ice)	-20 ... 80 °C
Operation temperature	-5 ... 40 °C
Ambient temperature operation derated power	-5 ... 60 °C, 0.7 I _N
Conductor cross section control / main circuit	1.5 mm ² / 10 mm ²
Nominal screw torque control / main circuit	0.5 Nm / 1.2 Nm
Dimensions	fig. 2
Weight	270 g
Ingress Protection	IP 20
Housing material	PPE
Mounting	TH35 (EN 60715) or back panel mounting

Product references

Description	Type
Solid State Contactor, 1 phase	CC1H215
Other devices on request. Please contact support@comatreleco.com.	

Accessories

Thermal overload protection	P82-100C
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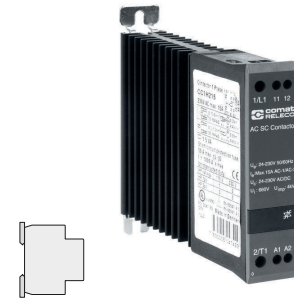
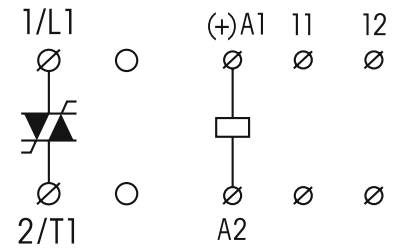
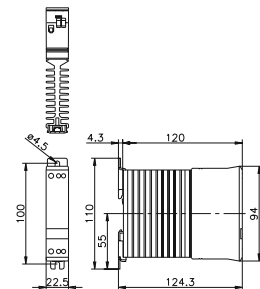


fig. 1. Wiring diagram



11-12: Thermostat

fig. 2. Dimensions (mm)



Technical approvals, conformities

Standards IEC/EN 50022; IEC/EN 60068;
IEC/EN 60947

Approvals

CC1H230

1 phase | 230 V | 30 A

Main circuit

Output type	SCR
Number of outputs	1
Rated voltage	230 V AC
Output voltage range	12 ... 240 V AC
Reverse voltage	1,000 Vrrm
Peak reverse voltage	1,100 Vrrm
Rated current AC-1	30 A
Rated current AC-3	15 A
Recommended minimum contact load	10 mA
Leakage current	1 mA
Rated limit load	1,800 A ² s

Control circuit

Nominal voltage	24 ... 230 V AC/DC
Operating voltage range	0.85 ... 1.1 U _N
Pick-up voltage	20.4 V
Release voltage	7.2 V
Pick-up time	20 ms
Release time	20 ms
Power consumption AC / DC	1.5 VA / 150 mW
Frequency range	50 / 60 Hz

Insulation

Rated insulation voltage	660 V
Rated impulse withstand voltage open contact	4 kV / 1 min
Pollution degree	3
Overvoltage category	III

General data

Storage temperature (no ice)	-20 ... 80 °C
Operation temperature	-5 ... 40 °C
Ambient temperature operation derated power	-5 ... 60 °C, 0.7 I _N
Conductor cross section control / main circuit	1.5 mm ² / 10 mm ²
Nominal screw torque control / main circuit	0.5 Nm / 1.2 Nm
Dimensions	fig. 2
Weight	650 g
Ingress Protection	IP 20
Housing material	PPE
Mounting	TH35 (EN 60715) or back panel mounting

Product references

Description	Type
Solid State Contactor, 1 phase	CC1H230
Other devices on request. Please contact support@comatreleco.com.	

Accessories

Thermal overload protection	P82-100C
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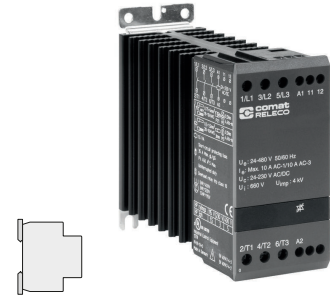
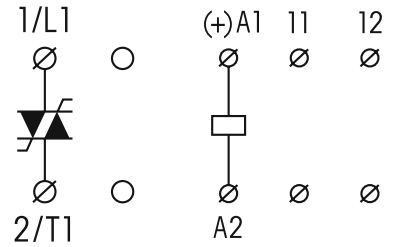
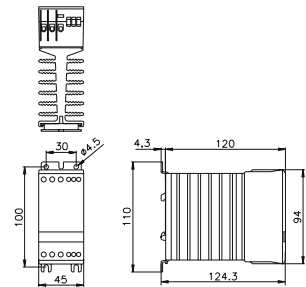


fig. 1. Wiring diagram



11-12: Thermostat

fig. 2. Dimensions (mm)



Technical approvals, conformities

Standards IEC/EN 50022; IEC/EN 60068; IEC/EN 60947

Approvals

1.9 Solid State Contactors

CC1H250

1 phase | 230 V | 50 A

Main circuit

Output type	⚡ SCR
Number of outputs	1
Rated voltage	230 V AC
Output voltage range	12 ... 240 V AC
Reverse voltage	1,000 V _{rrm}
Peak reverse voltage	1,100 V _{rrm}
Rated current AC-1	50 A
Rated current AC-3	15 A
Recommended minimum contact load	10 mA
Leakage current	1 mA
Rated limit load	1,800 A ² s

Control circuit

Nominal voltage	24 ... 230 V AC/DC
Operating voltage range	0.85 ... 1.1 U _N
Pick-up voltage	20.4 V
Release voltage	7.2 V
Pick-up time	20 ms
Release time	20 ms
Power consumption AC / DC	1.5 VA / 150 mW
Frequency range	50 / 60 Hz

Insulation

Rated insulation voltage	660 V
Rated impulse withstand voltage open contact	4 kV / 1 min
Pollution degree	3
Overvoltage category	III

General data

Storage temperature (no ice)	-20 ... 80 °C
Operation temperature	-5 ... 40 °C
Ambient temperature operation derated power	-5 ... 60 °C, 0.7 I _N
Conductor cross section control / main circuit	1.5 mm ² / 10 mm ²
Nominal screw torque control / main circuit	0.5 Nm / 1.2 Nm
Dimensions	fig. 2
Weight	1 050 g
Ingress Protection	IP 20
Housing material	PPE
Mounting	TH35 (EN 60715) or back panel mounting

Product references

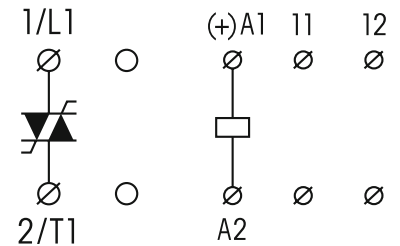
Description	Type
Solid State Contactor, 1 phase	CC1H250
Other devices on request. Please contact support@comatreleco.com.	

Accessories

Thermal overload protection	P82-100C
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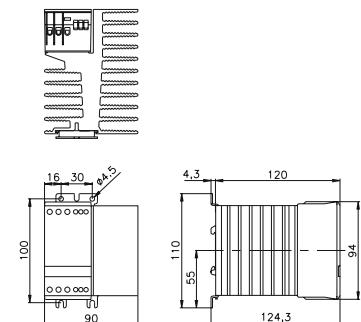


fig. 1. Wiring diagram



11-12: Thermostat

fig. 2. Dimensions (mm)



Technical approvals, conformities

Standards IEC/EN 50022; IEC/EN 60068;
IEC/EN 60947

Approvals

CC1H415

1 phase | 400 V | 15 A

Main circuit

Output type	SCR
Number of outputs	1
Rated voltage	400 V AC
Output voltage range	24 ... 480 VAC
Reverse voltage	1,200 Vrrm
Peak reverse voltage	1,300 Vrrm
Rated current AC-1	15 A
Rated current AC-3	15 A
Recommended minimum contact load	10 mA
Leakage current	1 mA
Rated limit load	1,800 A ² s

Control circuit

Nominal voltage	24 ... 230 V AC/DC
Operating voltage range	0.85 ... 1.1 U _N
Pick-up voltage	20.4 V
Release voltage	7.2 V
Pick-up time	20 ms
Release time	20 ms
Power consumption AC / DC	1.5 VA / 150 mW
Frequency range	50 / 60 Hz

Insulation

Rated insulation voltage	660 V
Rated impulse withstand voltage open contact	4 kV / 1 min
Pollution degree	3
Overvoltage category	III

General data

Storage temperature (no ice)	-20 ... 80 °C
Operation temperature	-5 ... 40 °C
Ambient temperature operation derated power	-5 ... 60 °C, 0.7 I _N
Conductor cross section control / main circuit	1.5 mm ² / 10 mm ²
Nominal screw torque control / main circuit	0.5 Nm / 1.2 Nm
Dimensions	fig. 2
Weight	270 g
Ingress Protection	IP 20
Housing material	PPE
Mounting	TH35 (EN 60715) or back panel mounting

Product references

Description	Type
Solid State Contactor, 1 phase	CC1H415
Other devices on request. Please contact support@comatreleco.com.	

Accessories

Thermal overload protection	P82-100C
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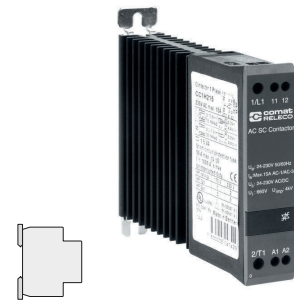
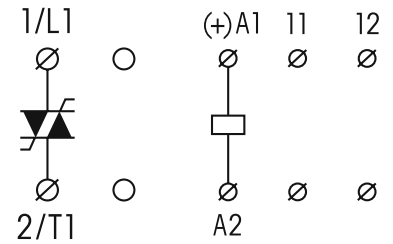
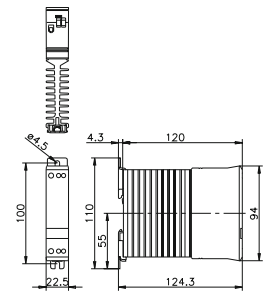


fig. 1. Wiring diagram



11-12: Thermostat

fig. 2. Dimensions (mm)



Technical approvals, conformities

Standards IEC/EN 50022; IEC/EN 60068; IEC/EN 60947

Approvals

1.9 Solid State Contactors

CC1H430

1 phase | 400 V | 30 A

Main circuit

Output type	SCR
Number of outputs	1
Rated voltage	400 V AC
Output voltage range	24 ... 480 VAC
Reverse voltage	1,200 V _{rrm}
Peak reverse voltage	1,300 V _{rrm}
Rated current AC-1	30 A
Rated current AC-3	15 A
Recommended minimum contact load	10 mA
Leakage current	1 mA
Rated limit load	1,800 A ² s

Control circuit

Nominal voltage	24 ... 230 V AC/DC
Operating voltage range	0.85 ... 1.1 U _N
Pick-up voltage	20.4 V
Release voltage	7.2 V
Pick-up time	20 ms
Release time	20 ms
Power consumption AC / DC	1.5 VA / 150 mW
Frequency range	50 / 60 Hz

Insulation

Rated insulation voltage	660 V
Rated impulse withstand voltage open contact	4 kV / 1 min
Pollution degree	3
Overvoltage category	III

General data

Storage temperature (no ice)	-20 ... 80 °C
Operation temperature	-5 ... 40 °C
Ambient temperature operation derated power	-5 ... 60 °C, 0.7 I _N
Conductor cross section control / main circuit	1.5 mm ² / 10 mm ²
Nominal screw torque control / main circuit	0.5 Nm / 1.2 Nm
Dimensions	fig. 2
Weight	650 g
Ingress Protection	IP 20
Housing material	PPE
Mounting	TH35 (EN 60715) or back panel mounting

Product references

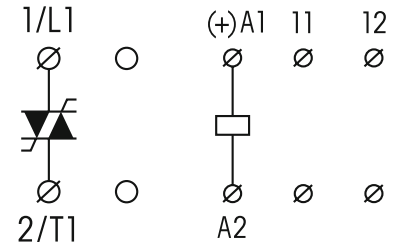
Description	Type
Solid State Contactor, 1 phase	CC1H430
Other devices on request. Please contact support@comatreleco.com.	

Accessories

Thermal overload protection	P82-100C
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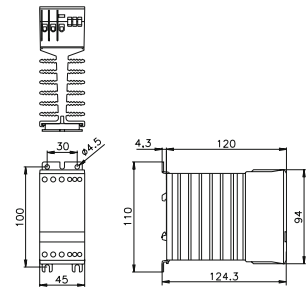


fig. 1. Wiring diagram



11-12: Thermostat

fig. 2. Dimensions (mm)



Technical approvals, conformities

Standards IEC/EN 50022; IEC/EN 60068;
IEC/EN 60947

Approvals

CC1H450

1 phase | 400 V | 50 A



Main circuit

Output type	SCR
Number of outputs	1
Rated voltage	400 V AC
Output voltage range	24 ... 480 VAC
Reverse voltage	1,200 V _{rrm}
Peak reverse voltage	1,300 V _{rrm}
Rated current AC-1	50 A
Rated current AC-3	15 A
Recommended minimum contact load	10 mA
Leakage current	1 mA
Rated limit load	1,800 A ² s

Control circuit

Nominal voltage	24 ... 230 V AC/DC
Operating voltage range	0.85 ... 1.1 U _N
Pick-up voltage	20.4 V
Release voltage	7.2 V
Pick-up time	20 ms
Release time	20 ms
Power consumption AC / DC	1.5 VA / 150 mW
Frequency range	50 / 60 Hz

Insulation

Rated insulation voltage	660 V
Rated impulse withstand voltage open contact	4 kV / 1 min
Pollution degree	3
Overvoltage category	III

General data

Storage temperature (no ice)	-20 ... 80 °C
Operation temperature	-5 ... 40 °C
Ambient temperature operation derated power	-5 ... 60 °C, 0.7 I _N
Conductor cross section control / main circuit	1.5 mm ² / 10 mm ²
Nominal screw torque control / main circuit	0.5 Nm / 1.2 Nm
Dimensions	fig. 2
Weight	1 050 g
Ingress Protection	IP 20
Housing material	PPE
Mounting	TH35 (EN 60715) or back panel mounting

Product references

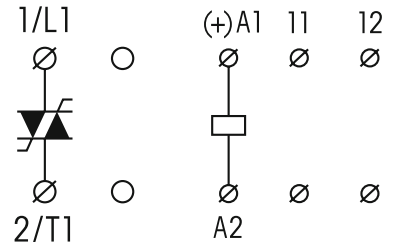
Description	Type
Solid State Contactor, 1 phase	CC1H450
Other devices on request. Please contact support@comatreleco.com.	

Accessories

Thermal overload protection	P82-100C
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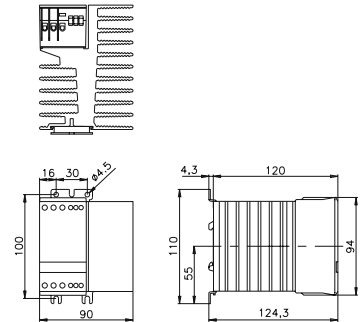


fig. 1. Wiring diagram



11-12: Thermostat

fig. 2. Dimensions (mm)



Technical approvals, conformities

Standards IEC/EN 50022; IEC/EN 60068; IEC/EN 60947

Approvals

1.9 Solid State Contactors

CC1H463

1 phase | 400 V | 63 A

Main circuit

Output type	SCR
Number of outputs	1
Rated voltage	400 V AC
Output voltage range	24 ... 480 VAC
Reverse voltage	1,200 V _{rrm}
Peak reverse voltage	1,300 V _{rrm}
Rated current AC-1	63 A
Rated current AC-3	30 A
Recommended minimum contact load	10 mA
Leakage current	1 mA
Rated limit load	1,800 A ² s

Control circuit

Nominal voltage	24 ... 230 V AC/DC
Operating voltage range	0.85 ... 1.1 U _N
Pick-up voltage	20.4 V
Release voltage	7.2 V
Pick-up time	20 ms
Release time	20 ms
Power consumption AC / DC	1.5 VA / 150 mW
Frequency range	50 / 60 Hz

Insulation

Rated insulation voltage	660 V
Rated impulse withstand voltage open contact	4 kV / 1 min
Pollution degree	3
Overvoltage category	III

General data

Storage temperature (no ice)	-20 ... 80 °C
Operation temperature	-5 ... 40 °C
Ambient temperature operation derated power	-5 ... 60 °C, 0.7 I _N
Conductor cross section control / main circuit	1.5 mm ² / 10 mm ²
Nominal screw torque control / main circuit	0.5 Nm / 1.2 Nm
Dimensions	fig. 2
Weight	1 050 g
Ingress Protection	IP 20
Housing material	PPE
Mounting	TH35 (EN 60715) or back panel mounting

Product references

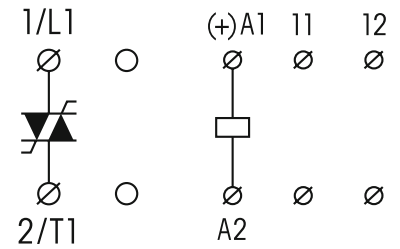
Description	Type
Solid State Contactor, 1 phase	CC1H463
Other devices on request. Please contact support@comatreleco.com.	

Accessories

Thermal overload protection	P82-100C
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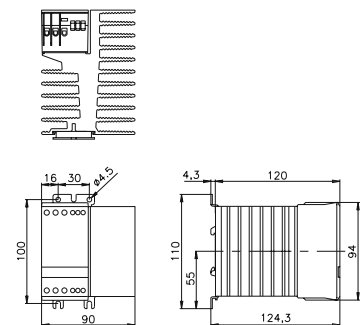


fig. 1. Wiring diagram



11-12: Thermostat

fig. 2. Dimensions (mm)



Technical approvals, conformities

Standards IEC/EN 60947

Approvals

1.9 Solid State Contactors

CC3H410

3 phase | 400 V | 10 A

Main circuit

Output type	SCR
Number of outputs	3
Rated voltage	400 V AC
Output voltage range	24 ... 480 VAC
Reverse voltage	1,200 V _{rrm}
Peak reverse voltage	1,300 V _{rrm}
Rated current AC-1	10 A
Rated current AC-3	10 A
Recommended minimum contact load	10 mA
Leakage current	1 mA
Rated limit load	610 A ² s

Control circuit

Nominal voltage	24 ... 230 V AC/DC
Operating voltage range	0.85 ... 1.1 U _N
Pick-up voltage	20.4 V
Release voltage	7.2 V
Pick-up time	20 ms
Release time	20 ms
Power consumption AC / DC	1.5 VA / 150 mW
Frequency range	50 / 60 Hz

Insulation

Rated insulation voltage	660 V
Rated impulse withstand voltage open contact	4 kV / 1 min
Pollution degree	3
Overvoltage category	III

General data

Storage temperature (no ice)	-20 ... 80 °C
Operation temperature	-5 ... 40 °C
Ambient temperature operation derated power	-5 ... 60 °C, 0.7 I _N
Conductor cross section control / main circuit	1.5 mm ² / 10 mm ²
Nominal screw torque control / main circuit	0.5 Nm / 1.2 Nm
Dimensions	fig. 2
Weight	650 g
Ingress Protection	IP 20
Housing material	PPE
Mounting	TH35 (EN 60715) or back panel mounting

Product references

Description	Type
Solid State Contactor, 3 phase	CC3H410
Other devices on request. Please contact support@comatreleco.com.	

Accessories

Thermal overload protection	P82-100C
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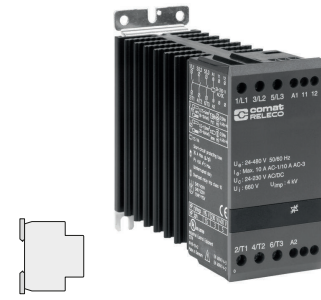


fig. 1. Wiring diagram

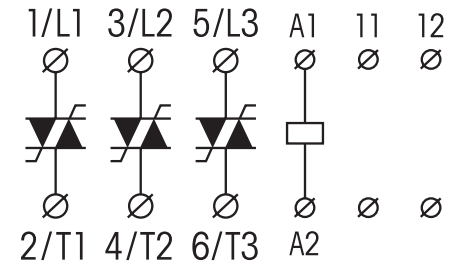
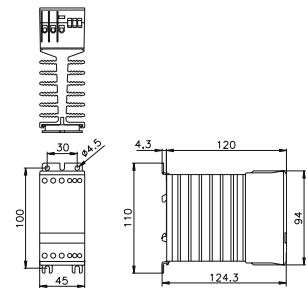


fig. 2. Dimensions (mm)



Technical approvals, conformities

Standards 50022; 60068; IEC/EN 60947

Approvals

1.9 Solid State Contactors

CC3H420

3 phase | 400 V | 20 A

Main circuit

Output type	SCR
Number of outputs	3
Rated voltage	400 V AC
Output voltage range	24 ... 480 VAC
Reverse voltage	1,200 V _{rrm}
Peak reverse voltage	1,300 V _{rrm}
Rated current AC-1	20 A
Rated current AC-3	10 A
Recommended minimum contact load	10 mA
Leakage current	1 mA
Rated limit load	610 A ² s

Control circuit

Nominal voltage	24 ... 230 V AC/DC
Operating voltage range	0.85 ... 1.1 U _N
Pick-up voltage	20.4 V
Release voltage	7.2 V
Pick-up time	20 ms
Release time	20 ms
Power consumption AC / DC	1.5 VA / 150 mW
Frequency range	50 / 60 Hz

Insulation

Rated insulation voltage	660 V
Rated impulse withstand voltage open contact	4 kV / 1 min
Pollution degree	3
Overvoltage category	III

General data

Storage temperature (no ice)	-20 ... 80 °C
Operation temperature	-5 ... 40 °C
Ambient temperature operation derated power	-5 ... 60 °C, 0.7 I _N
Conductor cross section control / main circuit	1.5 mm ² / 10 mm ²
Nominal screw torque control / main circuit	0.5 Nm / 1.2 Nm
Dimensions	fig. 2
Weight	1 050 g
Ingress Protection	IP 20
Housing material	PPE
Mounting	TH35 (EN 60715) or back panel mounting

Product references

Description	Type
Solid State Contactor, 3 phase	CC3H420
Other devices on request. Please contact support@comatreleco.com.	

Accessories

Thermal overload protection	P82-100C
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fig. 1. Wiring diagram

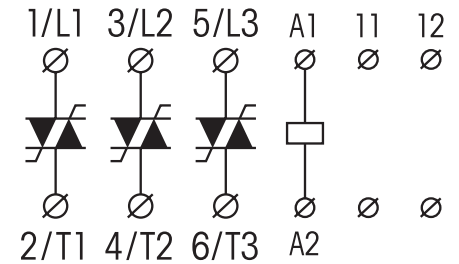
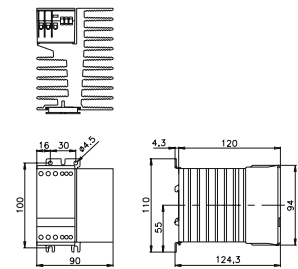


fig. 2. Dimensions (mm)



Technical approvals, conformities

Standards 50022; 60068; IEC/EN 60947

Approvals

CCR3H410

3 phase | 400 V | 10 A | Reversing

Main circuit

Output type	⚡ SCR
Number of outputs	3
Rated voltage	400 V AC
Output voltage range	24 ... 480 VAC
Reverse voltage	1,200 Vrrm
Peak reverse voltage	1,300 Vrrm
Rated current AC-1	10 A
Rated current AC-3	10 A
Recommended minimum contact load	10 mA
Leakage current	1 mA
Rated limit load	610 A ² s

Control circuit

Nominal voltage	24 ... 230 V AC/DC
Operating voltage range	0.85 ... 1.1 U _N
Pick-up voltage	20.4 V
Release voltage	7.2 V
Pick-up time	20 ms
Release time	20 ms
Interlock time	150 ms
Power consumption AC / DC	1.5 VA / 150 mW
Frequency range	50 / 60 Hz

Insulation

Rated insulation voltage	660 V
Rated impulse withstand voltage open contact	4 kV / 1 min
Pollution degree	3
Overvoltage category	III

General data

Storage temperature (no ice)	-20 ... 80 °C
Operation temperature	-5 ... 40 °C
Ambient temperature operation derated power	-5 ... 60 °C, 0.7 I _N
Conductor cross section control / main circuit	1.5 mm ² / 10 mm ²
Nominal screw torque control / main circuit	0.5 Nm / 1.2 Nm
Dimensions	fig. 2
Weight	650 g
Ingress Protection	IP 20
Housing material	PPE
Mounting	TH35 (EN 60715) or back panel mounting

Product references

Description	Type
Solid State Contactor, 3 phase	CC3H420
Other devices on request. Please contact support@comatreleco.com.	

Accessories

Thermal overload protection	P82-100C
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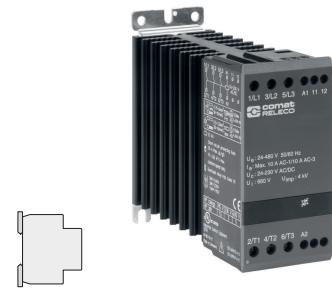


fig. 1. Wiring diagram

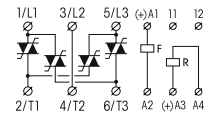
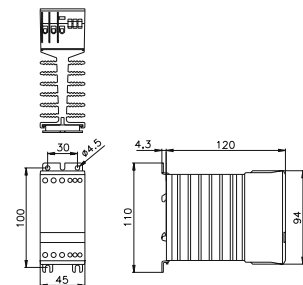


fig. 2. Dimensions (mm)



Technical approvals, conformities

Standards 50022; 60068; IEC/EN 60947

Approvals

1.9 Solid State Contactors

CPC1230

1 phase | 230 V | 30 A | Power Controller

Main circuit

Output type	SCR
Number of outputs	1
Rated voltage	230 V AC
Output voltage range	380 ... 480 V
Reverse voltage	1,000 V _{rrm}
Peak reverse voltage	1,100 V _{rrm}
Rated current AC-1	30 A
Recommended minimum contact load	10 mA
Leakage current	1 mA
Rated limit load	1,800 A ² s

Control circuit

Nominal voltage	24 V AC/DC
Operating voltage range	0.5 ... 1.5 U _N
Pick-up voltage	≤ 12 V
Release voltage	≥ 12 V
Pick-up time	20 ms
Release time	20 ms
Control input	0 ... 20 mA / 4 ... 20 mA / 0 - 10 V
Potentiometer input	0 - 10 kOhm

Insulation

Rated insulation voltage	660 V
Rated impulse withstand voltage open contact	4 kV / 1 min
Pollution degree	3
Overvoltage category	III

General data

Storage temperature (no ice)	-20 ... 80 °C
Operation temperature	-5 ... 40 °C
Ambient temperature operation derated power	-5 ... 60 °C, 0.7 I _N
Conductor cross section control / main circuit	1.5 mm ² / 10 mm ²
Nominal screw torque control / main circuit	0.5 Nm / 1.2 Nm
Dimensions	fig. 2
Weight	650 g
Ingress Protection	IP 20
Housing material	PPE
Mounting	TH35 (EN 60715) or back panel mounting

Product references

Description	Type
Power controller, 1 phase	CPC1230
Other devices on request. Please contact support@comatreleco.com.	

Accessories

Thermal overload protection	P82-100C
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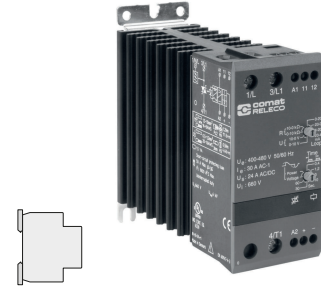
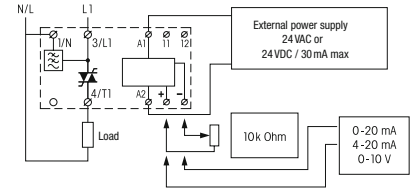
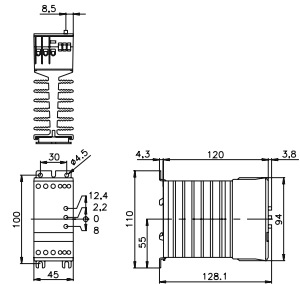


fig. 1. Wiring diagram



11-12: Thermostat

fig. 2. Dimensions (mm)



Technical approvals, conformities

Standards 50022; 60068; IEC/EN 60947

Approvals

CPC1250

1 phase | 230 V | 50 A | Power Controller

Main circuit

Output type	SCR
Number of outputs	1
Rated voltage	230 V AC
Output voltage range	380 ... 480 V
Reverse voltage	1,000 V _{rrm}
Peak reverse voltage	1,100 V _{rrm}
Rated current AC-1	50 A
Recommended minimum contact load	10 mA
Leakage current	1 mA
Rated limit load	1,800 A ² s

Control circuit

Nominal voltage	24 V AC/DC
Operating voltage range	0.5 ... 1.5 U _N
Pick-up voltage	≤ 12 V
Release voltage	≥ 12 V
Pick-up time	20 ms
Release time	20 ms
Control input	0 ... 20 mA / 4 ... 20 mA / 0 - 10 V
Potentiometer input	0 - 10 kOhm

Insulation

Rated insulation voltage	660 V
Rated impulse withstand voltage open contact	4 kV / 1 min
Pollution degree	3
Overvoltage category	III

General data

Storage temperature (no ice)	-20 ... 80 °C
Operation temperature	-5 ... 40 °C
Ambient temperature operation derated power	-5 ... 60 °C, 0.7 I _N
Conductor cross section control / main circuit	1.5 mm ² / 10 mm ²
Nominal screw torque control / main circuit	0.5 Nm / 1.2 Nm
Dimensions	fig. 2
Weight	650 g
Ingress Protection	IP 20
Housing material	PPE
Mounting	TH35 (EN 60715) or back panel mounting

Product references

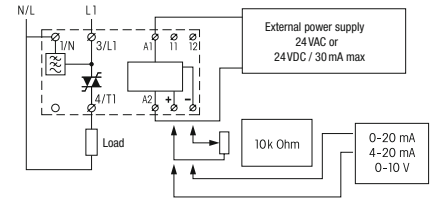
Description	Type
Power controller, 1 phase	CPC1250
Other devices on request. Please contact support@comatreleco.com.	

Accessories

Thermal overload protection	P82-100C
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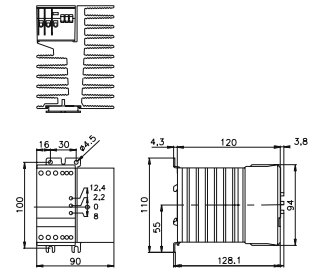


fig. 1. Wiring diagram



11-12: Thermostat

fig. 2. Dimensions (mm)



Technical approvals, conformities

Standards 50022; 60068; IEC/EN 60947

Approvals

1.9 Solid State Contactors

CPC1430

1 phase | 400 V | 30 A | Power Controller

Main circuit

Output type	SCR
Number of outputs	1
Rated voltage	400 V AC
Output voltage range	380 ... 480 V
Reverse voltage	1,200 V _{rrm}
Peak reverse voltage	1,300 V _{rrm}
Rated current AC-1	30 A
Recommended minimum contact load	10 mA
Leakage current	1 mA
Rated limit load	1,800 A ² s

Control circuit

Nominal voltage	24 V AC/DC
Operating voltage range	0.5 ... 1.5 U _N
Pick-up voltage	≤ 12 V
Release voltage	≥ 12 V
Pick-up time	20 ms
Release time	20 ms
Control input	0 ... 20 mA / 4 ... 20 mA / 0 - 10 V
Potentiometer input	0 - 10 kOhm

Insulation

Rated insulation voltage	660 V
Rated impulse withstand voltage open contact	4 kV / 1 min
Pollution degree	3
Overvoltage category	III

General data

Storage temperature (no ice)	-20 ... 80 °C
Operation temperature	-5 ... 40 °C
Ambient temperature operation derated power	-5 ... 60 °C, 0.7 I _N
Conductor cross section control / main circuit	1.5 mm ² / 10 mm ²
Nominal screw torque control / main circuit	0.5 Nm / 1.2 Nm
Dimensions	fig. 2
Weight	650 g
Ingress Protection	IP 20
Housing material	PPE
Mounting	TH35 (EN 60715) or back panel mounting

Product references

Description	Type
Power controller, 1 phase	CPC1430
Other devices on request. Please contact support@comatreleco.com.	

Accessories

Thermal overload protection	P82-100C
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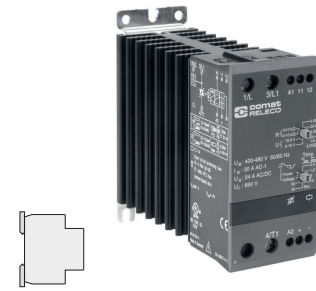
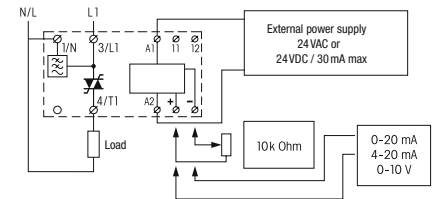
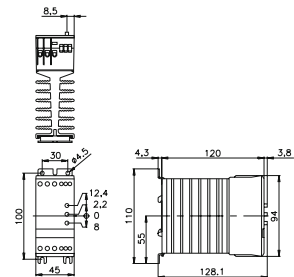


fig. 1. Wiring diagram



11-12: Thermostat

fig. 2. Dimensions (mm)



Technical approvals, conformities

Standards 50022; 60068; IEC/EN 60947

Approvals

CPC1450

1 phase | 400 V | 50 A | Power Controller

Main circuit

Output type	⚡ SCR
Number of outputs	1
Rated voltage	400 V AC
Output voltage range	380 ... 480 V
Reverse voltage	1,200 V _{rrm}
Peak reverse voltage	1,300 V _{rrm}
Rated current AC-1	50 A
Recommended minimum contact load	10 mA
Leakage current	1 mA
Rated limit load	1,800 A ² s

Control circuit

Nominal voltage	24 V AC/DC
Operating voltage range	0.5 ... 1.5 U _N
Pick-up voltage	≤ 12 V
Release voltage	≥ 12 V
Pick-up time	20 ms
Release time	20 ms
Control input	0 ... 20 mA / 4 ... 20 mA / 0 - 10 V
Potentiometer input	0 - 10 kOhm

Insulation

Rated insulation voltage	660 V
Rated impulse withstand voltage open contact	4 kV / 1 min
Pollution degree	3
Overvoltage category	III

General data

Storage temperature (no ice)	-20 ... 80 °C
Operation temperature	-5 ... 40 °C
Ambient temperature operation derated power	-5 ... 60 °C, 0.7 I _N
Conductor cross section control / main circuit	1.5 mm ² / 10 mm ²
Nominal screw torque control / main circuit	0.5 Nm / 1.2 Nm
Dimensions	fig. 2
Weight	650 g
Ingress Protection	IP 20
Housing material	PPE
Mounting	TH35 (EN 60715) or back panel mounting

Product references

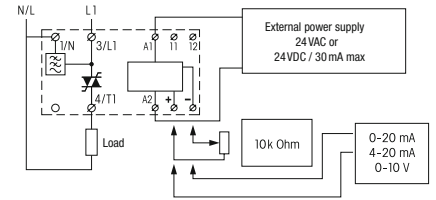
Description	Type
Power controller, 1 phase	CPC1450
Other power and voltages on request. Please contact support@comatreleco.com.	

Accessories

Thermal overload protection	P82-100C
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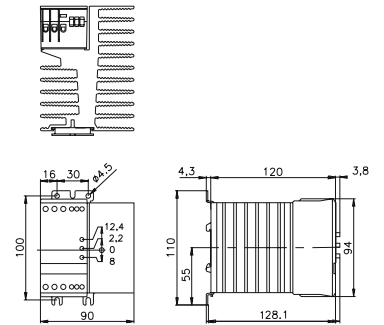


fig. 1. Wiring diagram



11-12: Thermostat

fig. 2. Dimensions (mm)



Technical approvals, conformities

Standards 50022; 60068; IEC/EN 60947

Approvals

1.10 Relays Accessories

	Type	Pin	Page
Relays Accessories			
Jumper link for CRINT-C1xx	CRINT-BR20		191
Test button without locking	S3-HP		191
Test button without locking	S5-HP		191
Blanking plug	S9-NP		191
Test Button w/o locking	S9-OP		191
Heatsink for passive cooling 1.9 °C/W	HS_003		191
Heatsink for passive cooling 1.7 °C/W	HS_004		191
Heatsink for passive cooling 1.6 °C/W	HS_005		192
Heatsink for active cooling, with fan 0.6 °C/W	HS_006		192
Heatsink for passive cooling 0.8 °C/W	HS_007		192
Heatsink for active cooling, with fan 0.35 °C/W	HS_008		193
Heatsink for passive cooling 2.8 °C/W	HS_010		193
Heatsink for passive cooling 2.1 °C/W	HS_012		193
Heatsink for active cooling, with fan 0.6 °C/W	HS_015		194
Heatsink for passive cooling 1.6 °C/W	HS_020		194
Heatsink for passive cooling 1.7 °C/W	HS_022		194
Heatsink for passive cooling 0.8 °C/W	HS_025		194
Thermal overload protection	P82-100C		195

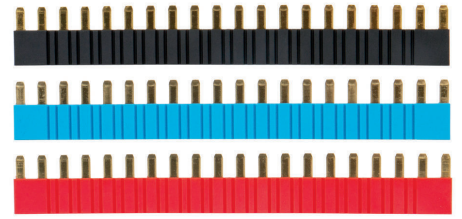
Type	Pin	Page
SP1M/pad		195
SP1P/pad		195

CRINT-BR20

Jumper link for CRINT-C1xx

Product references

Description	Type
Jumper link blue	CRINT-BR20-BU (BAG 5 PCS)
Jumper link red	CRINT-BR20-RD (BAG 5 PCS)
Jumper link black	CRINT-BR20-BK (BAG 5 PCS)



S3-HP

Test button without locking

Product references

Description	Type
Test button without locking	S3-HP

S5-HP

Test button without locking

Product references

Description	Type
Test button without locking	S5-HP

S9-NP

Blanking plug

Product references

Description	Type
Blanking plug	S9-NP (BAG 10 PCS)



S9-OP

Test Button w/o locking

Product references

Description	Type
Test Button	S9-OP (BAG 10 PCS)



HS_003

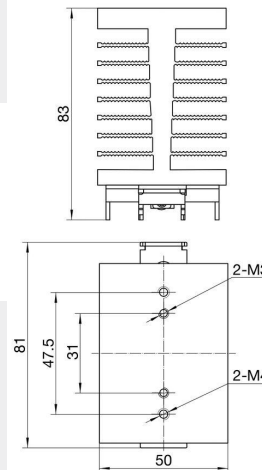
Heatsink for passive cooling | 1.9 °C/W

General data

Thermal Resistance	1.9 °C/W
Dimensions	81 x 50 x 82.5 mm (H x W x D)
Weight	328 gr
Mounting	TH35 (EN 60715) with clip
Suitable for solid state relays type	SP1M, SP1P
Cooling	Air, natural convection

Product references

Description	Type
Heatsink	HS_003



HS_004

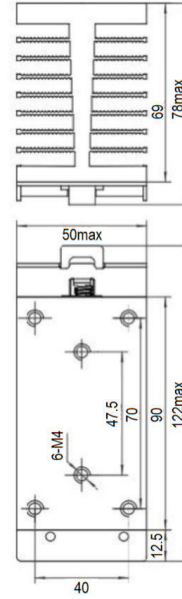
Heatsink for passive cooling | 1.7 °C/W

General data

Thermal Resistance	1.7 °C/W
Dimensions	122 x 50 x 78 mm (H x W x D)
Weight	422 gr
Mounting	TH35 (EN 60715) with clip
Suitable for solid state relays type	SP1P
Cooling	Air, natural convection

Product references

Description	Type
Heatsink	HS_004



HS_005

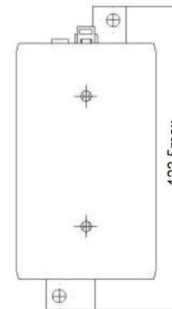
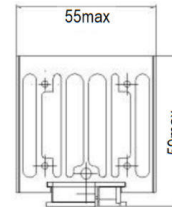
Heatsink for passive cooling | 1.6 °C/W

General data

Thermal Resistance	1.6 °C/W
Dimensions	122 x 55 x 59 mm (H x W x D)
Weight	347
Mounting	TH35 (EN 60715) with clip
Suitable for solid state relays type	SP1P
Cooling	Air, natural convection

Product references

Description	Type
Heatsink	HS_005



HS_006

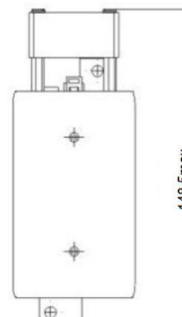
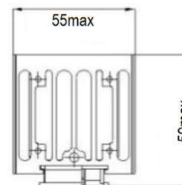
Heatsink for active cooling, with fan | 0.6 °C/W

General data

Thermal Resistance	0.6 °C/W
Dimensions	148.5 x 55 x 59 mm (H x W x D)
Weight	397 gr
Mounting	TH35 (EN 60715) with clip
Suitable for solid state relays type	SP1P
Cooling	Air, forced convection (fan)
FAN voltage	230 V AC

Product references

Description	Type
Heatsink	HS_006

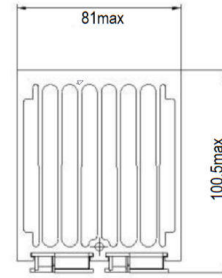


HS_007

Heatsink for passive cooling | 0.8 °C/W

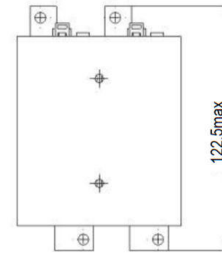
General data

Thermal Resistance	0.8 °C/W
Dimensions	122.5 x 81 x 100.5 mm (H x W x D)
Weight	714 gr
Mounting	TH35 (EN 60715) with clip
Suitable for solid state relays type	SP1P
Cooling	Air, natural convection



Product references

Description	Type
Heatsink	HS_007

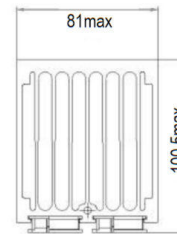


HS_008

Heatsink for active cooling, with fan | 0.35 °C/W

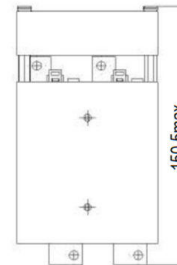
General data

Thermal Resistance	0.35 °C/W
Dimensions	150.5 x 81 x 100.5 mm (H x W x D)
Weight	817 gr
Mounting	TH35 (EN 60715) with clip
Suitable for solid state relays type	SP1P
Cooling	Air, forced convection (fan)
FAN voltage	230 V AC



Product references

Description	Type
Heatsink	HS_008

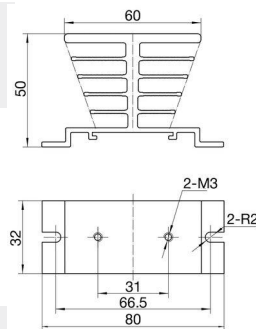


HS_010

Heatsink for passive cooling | 2.8 °C/W

General data

Thermal Resistance	2.8 °C/W
Dimensions	80 x 32 x 50 mm (H x W x D)
Weight	70 gr
Mounting	Panel (with screws, not incl. in the delivery)
Suitable for solid state relays type	SP1M
Cooling	Air, natural convection



Product references

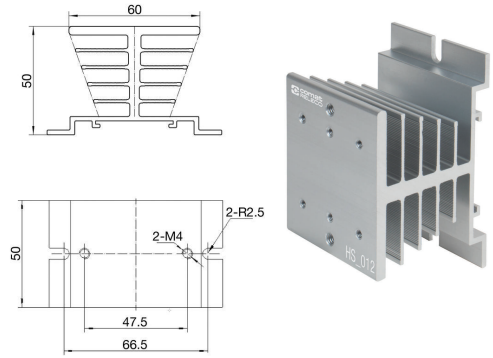
Description	Type
Heatsink	HS_010

HS_012

Heatsink for passive cooling | 2.1 °C/W

General data

Thermal Resistance	2.1 °C/W
Dimensions	80 x 50 x 50 mm (H x W x D)
Weight	115 gr
Mounting	Panel (with screws, not incl. in the delivery)
Suitable for solid state relays type	SP1P , SP1M
Cooling	Air, natural convection



Product references

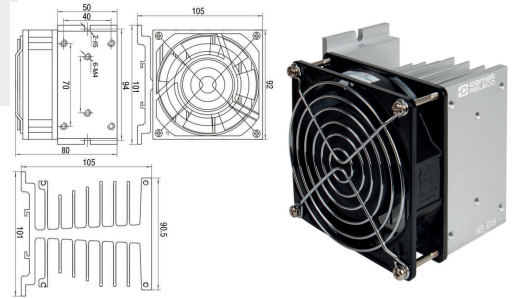
Description	Type
Heatsink	HS_012

HS_015

Heatsink for active cooling, with fan | 0.6 °C/W

General data

Thermal Resistance	0.6 °C/W
Dimensions	106 x 80 x 96 mm (H x W x D)
Weight	645 gr
Mounting	Panel (with screws, not incl. in the delivery)
Suitable for solid state relays type	SP1P
Cooling	Air, forced convection (fan)
FAN voltage	230 V AC



Product references

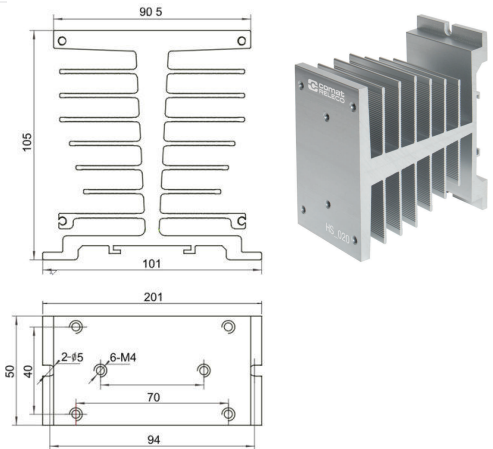
Description	Type
Heatsink	HS_015

HS_020

Heatsink for passive cooling | 1.6 °C/W

General data

Thermal Resistance	1.6 °C/W
Dimensions	106 x 50 x 96 mm (H x W x D)
Weight	375 gr
Mounting	Panel (with screws, not incl. in the delivery)
Suitable for solid state relays type	SP1P
Cooling	Air, natural convection



Product references

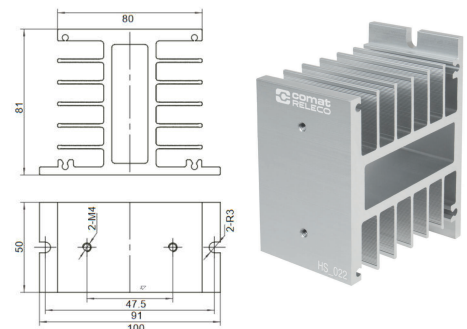
Description	Type
Heatsink	HS_020

HS_022

Heatsink for passive cooling | 1.7 °C/W

General data

Thermal Resistance	1.7 °C/W
Dimensions	100 x 50 x 81 mm (H x W x D)
Weight	255 gr
Mounting	Panel (with screws, not incl. in the delivery)
Suitable for solid state relays type	SP1P
Cooling	Air, natural convection



Product references

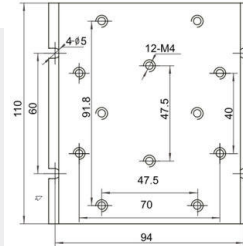
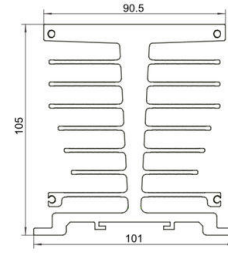
Description	Type
Heatsink	HS_022

HS_025

Heatsink for passive cooling | 0.8 °C/W

General data

Thermal Resistance	0.8 °C/W
Dimensions	106 x 110 x 96 mm (H x W x D)
Weight	895 gr
Mounting	Panel (with screws, not incl. in the delivery)
Suitable for solid state relays type	SP1P
Cooling	Air, natural convection



Product references

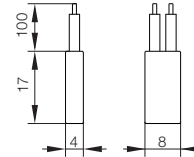
Description	Type
Heatsink	HS_025

P82-100C

Thermal overload protection

General data

Dimensions	fig. 1
Weight	3 g
Ingress Protection	IP 66
Mounting	Slot on contactor



Product references

Description	Type
Thermal overload protection	P82-100C

SP1M/pad

General data

Dimensions	36.2 x 26.2 x 0.15 mm (H x W x D)
Suitable for solid state relays type	SP1M



Product references

Description	Type
SP1M/pad	SP1M/pad

SP1P/pad

General data






Dimensions	55 x 42 x 0.15 mm (H x W x D)
Suitable for solid state relays type	SP1P



Product references

Description	Type
SP1P/pad	SP1P/pad

1.11 Contactors Accessories

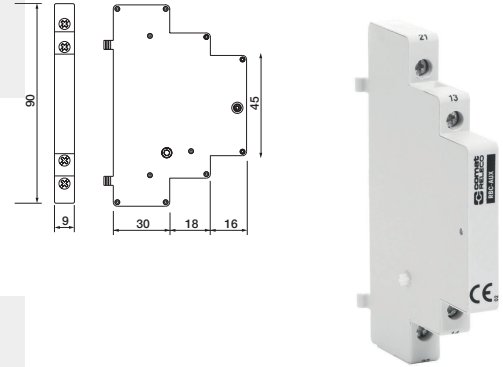
	Type	Pin	Page
Contactors Accessories			
Auxiliary module for step switch installation contactors 2 pole 6 A	RBC-AUX		198
Aux. module for step switch inst. contactors - centralized control ON - OFF	RBC-AUX-CM		198
Aux. module for step switch inst. contactors - group control ON - OFF	RBC-AUX-GM		198
Auxiliary module for RIC / RAC installation contactors 2 pole 6 A	RIC-AUX		198
Auxiliary spacer module for RIC / RAC / RBC installation contactors	RIC-DIST		199
End covers for RIC-NS / RIC-PS Busbar set with left and right	RIC-EK		199
Neutral busbar for RIC / RAC 10 mm ² 690V 63A 1m	RIC-NS		199
Phase busbar for RIC / RAC 10 mm ² 690V 63A 1m	RIC-PS		199
Auxiliary sealing cover for RIC20 / RAC20	RIC-SEAL		200
Auxiliary contacts for RMC contactors 2 or 4 pole 6 A	RMC-AUX		200
DI - Suppressor for RMC contactors 6 - 250 V DC	RMC-DI		200
MBL - Mechanical interlock for RMC contactors	RMC-MBL		200
RC - Suppressor for RMC contactors	RMC-RC		201
Auxiliary contacts for RMC contactors 2 or 4 pole 6 A	RSC-AUX		201
MBL - Mechanical interlock for RSC contactors	RSC-MBL		201
Bimetallic thermal relay for RSC09 ... RSC16 contactor 5 pole 0.1 ... 10 A	RSC-MP		201
RC - Suppressor for RSC contactor	RSC-RC		202

RBC-AUX

Auxiliary module for step switch installation contactors | 2 pole | 6 A

Housing and environmental conditions

Storage temperature (no ice)	-30 ... 80 °C
Operation temperature	-25 ... 70 °C
Ingress Protection	IP 20
Weight	30 g
Housing material	PA 6
Dimensions	see fig. 2



Product references

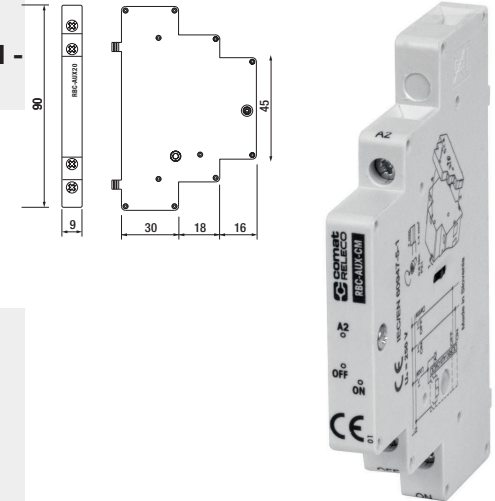
Description	Type
1 NO + 1 NC	RBC-AUX11
2 NO	RBC-AUX20

RBC-AUX-CM

Aux. module for step switch inst. contactors - centralized control ON - OFF

Housing and environmental conditions

Storage temperature (no ice)	-30 ... 80 °C
Operation temperature	-25 ... 70 °C
Ingress Protection	IP 20
Weight	30 g
Housing material	PA 6
Dimensions	see fig. 2



Product references

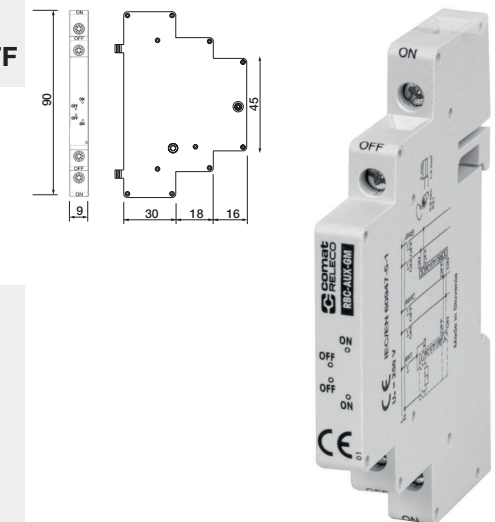
Description	Type
Centralized control ON – OFF	RBC-AUX-CM

RBC-AUX-GM

Aux. module for step switch inst. contactors - group control ON - OFF

Housing and environmental conditions

Storage temperature (no ice)	-30 ... 80 °C
Operation temperature	-25 ... 70 °C
Ingress Protection	IP 20
Weight	30 g
Housing material	PA 6
Dimensions	see fig. 2



Product references

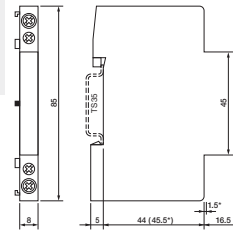
Description	Type
Group control ON – OFF	RBC-AUX-GM

RIC-AUX

Auxiliary module for RIC / RAC installation contactors | 2 pole | 6 A

Housing and environmental conditions

Storage temperature (no ice)	-30 ... 80 °C
Operation temperature	-25 ... 55 °C
Ingress Protection	IP 20
Weight	30 g
Housing material	PA 6
Dimensions	see fig. 2



Product references

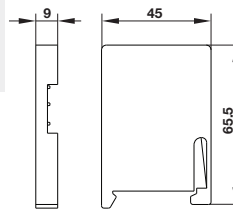
Description	Type
2 NC	RIC-AUX02
1 NO + 1 NC	RIC-AUX11
2 NO	RIC-AUX20

RIC-DIST

Auxiliary spacer module for RIC / RAC / RBC installation contactors

General data

Storage temperature (no ice)	-30 ... 80 °C
Dimensions	see fig. 1
Weight	13 g
Housing material	PA 6



Product references

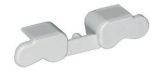
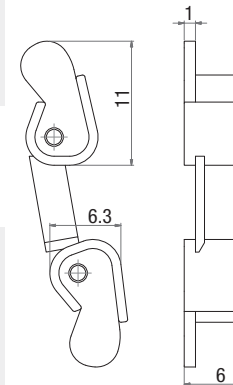
Description	Type
Auxiliary spacer module (9 mm)	RIC-DIST

RIC-EK

End covers for RIC-NS / RIC-PS Busbar | set with left and right

General data

Dimensions	12 x 6 x 6 mm
Weight	0.17 g
Housing material	PC/ABS



Product references

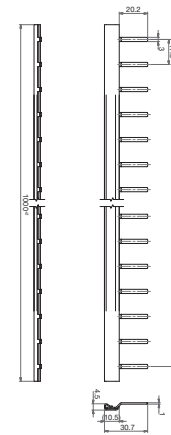
Description	Type
End cover for 1 pole busbar	RIC-EK-11
End cover for 2/3 pole busbar	RIC-EK-23
End cover for 4 pole busbar	RIC-EK-40

RIC-NS

Neutral busbar for RIC / RAC | 10 mm² | 690V | 63A | 1m

General data

Conductor cross section control / main circuit	10 mm ²
Dimensions	see fig. 1
Weight	159 g
Ingress Protection	IP 20
Housing material	PC/ABS



Product references

Description	Type
Neutral busbar for RIC / RAC	RIC-NS-1-1
Neutral busbar for RIC / RAC	RIC-NS-1-1-R
Neutral busbar for RIC / RAC	RIC-NS-2-1

RIC-PS

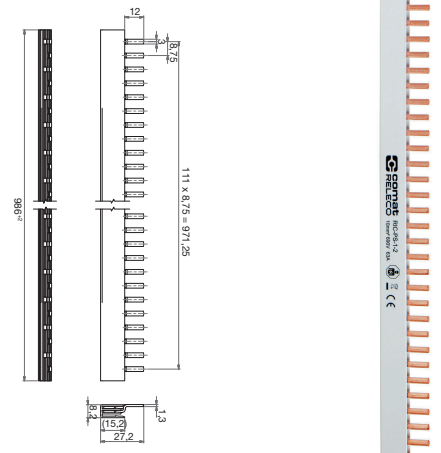
Phase busbar for RIC / RAC | 10 mm² | 690V | 63A | 1m

General data

Conductor cross section control / main circuit - 10 mm²
 Dimensions see fig. 1
 Weight 480 g
 Ingress Protection IP 20
 Housing material PC/ABS

Product references

Description	Type
Phase busbar for RIC / RAC	RIC-PS-1-2
Phase busbar for RIC / RAC	RIC-PS-1-2-R
Phase busbar for RIC / RAC	RIC-PS-2-3
Phase busbar for RIC / RAC	RIC-PS-2-4



RIC-SEAL

Auxiliary sealing cover for RIC20 / RAC20

General data

Storage temperature (no ice) -30 ... 80 °C
 Dimensions 21 x 16 x 1 mm (20), 21 x 35 x 1 mm (25), 18 x 53 x 16 mm (40/63)
 Weight 1 g (20), 2 g (25), 3 g (40/63)
 Housing material PA

Product references

Description	Type
Auxiliary sealing module for RIC / RAC installation contactors	RIC-SEAL20
Auxiliary sealing module for RIC / RAC installation contactors	RIC-SEAL25
Auxiliary sealing module for RIC / RAC installation contactors	RIC-SEAL40/63

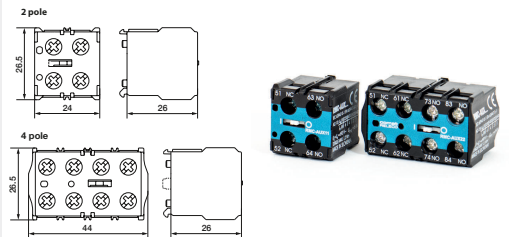


RMC-AUX

Auxiliary contacts for RMC contactors | 2 or 4 pole | 6 A

Product references

Description	Type
2 NC	RMC-AUX02
4 NC	RMC-AUX04
1 NO + 1 NC	RMC-AUX11
2 NO	RMC-AUX20
2 NO + 2 NC	RMC-AUX22
4 NO	RMC-AUX40



RMC-DI

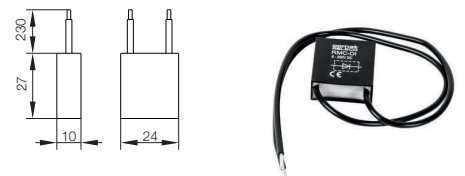
DI - Suppressor for RMC contactors | 6 - 250 V DC

General data

Dimensions see fig. 1
 Weight 16 g

Product references

Description	Type
DI - Suppressor Diode 6 - 250 V	RMC-DI

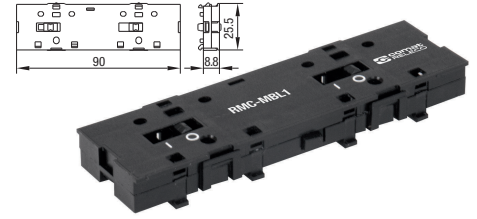


RMC-MBL

MBL - Mechanical interlock for RMC contactors

General data

Storage temperature (no ice)	-30 ... 80 °C
Ambient temperature operation open contact	-20 ... 60 °C
Dimensions	see fig. 1
Weight	12 g



Product references

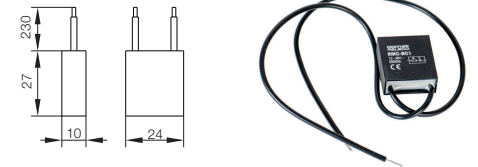
Description	Type
Mechanical interlock	RMC-MBL

RMC-RC

RC - Suppressor for RMC contactors

General data

Dimensions	see fig. 1
Weight	16 g



Product references

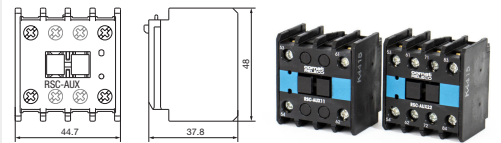
Description	Type
RC - Suppressor 12 - 48 V	RMC-RC1
RC - Suppressor 48 - 250 V	RMC-RC2

RSC-AUX

Auxiliary contacts for RMC contactors | 2 or 4 pole | 6 A

Product references

Description	Type
2 NC	RSC-AUX02
4 NC	RSC-AUX04
1 NO + 1 NC	RSC-AUX11
2 NO	RSC-AUX20
2 NO + 2 NC	RSC-AUX22
4 NO	RSC-AUX40

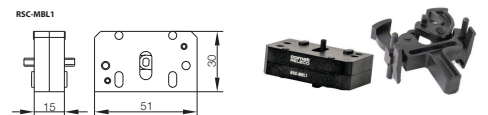


RSC-MBL

MBL - Mechanical interlock for RSC contactors

General data

Dimensions	see fig. 1
Weight	14 g



RSC-MBL2
on request

Product references

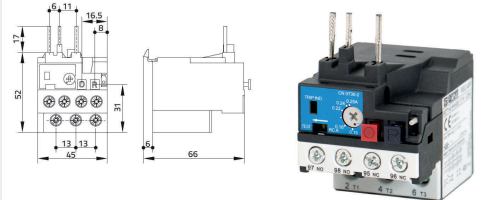
Description	Type
Mechanical interlock for RSC09-38	RSC-MBL1
Mechanical interlock for RSC43/63	RSC-MBL2

RSC-MP

Bimetallic thermal relay for RSC09 ... RSC16 contactor | 5 pole | 0.1 ... 10 A

Product references

Description	Type
Bimetallic thermal relay 0.1 – 0.16	RSC-MP-0.16
Bimetallic thermal relay 0.16 – 0.25	RSC-MP-0.25
Bimetallic thermal relay 0.25 – 0.4	RSC-MP-0.4
Bimetallic thermal relay 0.35 – 0.5	RSC-MP-0.5
Bimetallic thermal relay 0.45 – 0.63	RSC-MP-0.63



Description	Type
Bimetallic thermal relay 0.55 – 0.8	RSC-MP-0.8
Bimetallic thermal relay 0.75 – 1	RSC-MP-1.0
Bimetallic thermal relay 0.9 – 1.3	RSC-MP-1.3
Bimetallic thermal relay 1.1 – 1.6	RSC-MP-1.6
Bimetallic thermal relay 7.2 – 10	RSC-MP-10.0
Bimetallic thermal relay 1.4 – 2	RSC-MP-2.0
Bimetallic thermal relay 2.3 – 3.2	RSC-MP-3.2
Bimetallic thermal relay 2.9 – 4	RSC-MP-4.0
Bimetallic thermal relay 3.5 – 4.8	RSC-MP-4.8
Bimetallic thermal relay 4.5 – 6.3	RSC-MP-6.3
Bimetallic thermal relay 5.5 – 7.5	RSC-MP-7.5

RSC-RC

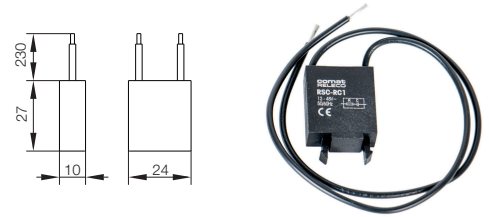
RC - Suppressor for RSC contactor

General data

Dimensions	see fig. 1
Weight	16 g

Product references

Description	Type
RC - Suppressor 12 - 48 V	RSC-RC1
RC - Suppressor 48 - 250 V	RSC-RC2



2 Time Relays

Chapter	Page
2.1 ON and OFF delay Relays	209
2.2 Multifunction Time Relays	215
2.3 Star-Delta Relays	249
2.4 Time Relays - pluggable	251
2.5 Timers & Twilight Switches	263
2.6 Time Cubes	269
2.7 Time Modules	273
2.8 Time Relay Accessories	277

Delay functions

E On delay

 $S \Rightarrow R$ on with delay
 $S_{OFF} \Rightarrow R$ off

A Off delay

 $S \Rightarrow R$ on
 $S_{OFF} \Rightarrow R$ off with delay

F On and off delay

 $S \Rightarrow R$ on with delay (t_1)
 $S_{OFF} \Rightarrow R$ off with delay (t_2)

Shot timing modes

W One shot leading edge

 $S \Rightarrow R$ on for t
 $S_{OFF} \Rightarrow R$ off (pulse clipping)

N One shot trailing edge

 $S_{OFF} \Rightarrow R$ on for t
 S on for $t \Rightarrow R$ off

Q One shot leading and trailing edge

 $S \Rightarrow R$ on for t_1
 $S_{OFF} \Rightarrow R$ on for t_2
 S_{OFF} off for $t_1 \Rightarrow R$ off

Puls shaping

K Puls shaping

 S (pulse or continuous contact) $\Rightarrow R$ on for t
 S_{--} no influence on R and t

L Pulse shaping, retrigger (subsequ.time operation from 0)

 S (pulse or continuous contact) $\Rightarrow R$ on for t
 S on for $t = t_{RESET}$

M Puls shaping

 $S_{OFF} \Rightarrow R$ on for t
 S_{--} no influence on R and t

Blinker functions

B Blinker, pulse start

 $S \Rightarrow R$ on/off periodically according to t
 $S_{OFF} \Rightarrow R$ off

B1 Blinker, pulse start, trailing pulse

 $S \Rightarrow R$ on/off periodically according to t
 S_{OFF} : last pulse = t

B2 Blinker, interval start

 $S \Rightarrow R$ after t on/off periodically according to t
 $S_{OFF} \Rightarrow R$ off

Delayed pulse

G On delay single shot

 S (pulse or continuous contact) $\Rightarrow R$ after t_1 on for t_2
 S_{--} no influence on R and t

H On delay single shot

 $S \Rightarrow R$ after t_1 on for t_2
 $S_{OFF} \Rightarrow R$ off

Repeat cycle timer

I Repeat cycle timer, pulse start

 $S \Rightarrow R$ on/off periodically according to t_1 and t_2
 $S_{OFF} \Rightarrow R$ off

P Repeat cycle timer, interval start **C55, CT1: $\frac{t_2}{t_1}$**

 $S \Rightarrow R$ after t_1 (t_2) on/off periodically according to t_2 and t_1
 $S_{OFF} \Rightarrow R$ off

Special functions

Y Star-delta timer

 $S \Rightarrow \Delta$ on for t
 $\Delta_{OFF} \Rightarrow \Delta$ on with delay for t
 $S_{OFF} \Rightarrow \Delta$ off

Special functions

S Step-on/Step-off switch

 $S \Rightarrow R$ on/off

LS Step-switching (staircase lighting timer), with time lapse

 $S \Rightarrow R$ on and starts t
 S on for $t \Rightarrow R$ off

Stop/Reset

tSTOP SSTOP interrupts t (t -addition) **T** t is stopped $\Rightarrow R$ on/off

tRESET SRESET reset t t restarts immediately **T** Test

S = Triggering
 R = Output circuit
 \Rightarrow = switches...

Pulse sequence monitoring





U
 S_1/S_2
 P (t_P)
 R

V
 S_1/S_2
 P (t_P)
 R

S_1/S_2 = Monitoring start
 P = Pulse sequence
 t_P = Pulse separation

\leq : Pulse separation is **smaller** than the time t_P Start with **S1** = **without** start-up short-out t_A t_V = settable alarm delay delay ($t_A = t_V$)
 $>$: Pulse separation is **larger** than the time t_P Start with **S2** = start-up short-out t_A

2.1 ON and OFF delay Relays

	Type	Pin	Page
CMD Series			
Off delay single voltage 1 CO	CMD11-A		210
On delay single voltage 1 CO	CMD11-E		211
AA2, AE2 Series			
Off delay 24 V AC / DC 220 ... 240 V AC 1 CO	AA2, AA2M		212
On delay 24 V AC / DC 220 ... 240 V AC 1 CO	AE2, AE2M		213

2.1 ON and OFF delay Relays

CMD11-A

Off delay | single voltage | 1 CO



Time data

Timing functions	A
Timing range	50 ms ... 0.6 s / 0.5 s ... 6 s / 5 s ... 60 s / 0.5 min ... 6 min / 5 min ... 60 min
Timing scale	0.6 s / 6 s / 60 s / 6 min / 60 min

Main circuit

Number of contacts	1 CO
Available contact materials	⚡ AgNi
Rated voltage	250 V AC
Rated current	8 A
Minimum load	10 mA, 12 V
Inrush current	15 A, 20 ms
Rated load DC	fig. 3
Rated load AC-1	2,000 VA
Mechanical endurance (cycles)	30 000 000
Electrical endurance at rated load AC-1 (cycles)	fig. 2

Control circuit

Nominal voltage	12 V AC / DC	24 V AC / DC
Operating voltage range	0.8 ... 1.2 U _N	0.8 ... 1.2 U _N
Power consumption AC / DC	0.6 VA / 0.4 W	0.5 VA / 0.3 W
Current consumption on supply A1-A2 AC / DC	50 mA / 32 mA	21 mA / 12 mA
Current consumption on input control B1 AC / DC	4.3 mA / 2.7 mA	9.5 mA / 11.6 mA
Threshold voltage on input control B1 AC / DC	5.2 V / 8.8 V	9.5 V / 14 V
Frequency range	0; 48 ... 62 Hz	0; 48 ... 62 Hz

Control circuit

Nominal voltage	115 V AC	230 V AC
Operating voltage range	0.8 ... 1.2 U _N	0.8 ... 1.2 U _N
Power consumption AC / DC	5.3 VA / -	14.3 VA / -
Current consumption on supply A1-A2 AC / DC	47 mA / -	60 mA / -
Current consumption on input control B1 AC / DC	1.7 mA / -	1.9 mA / -
Threshold voltage on input control B1 AC / DC	42 V / -	80 V / -
Frequency range	48 ... 62 Hz	48 ... 62 Hz

Insulation

Rated test voltage control / main circuit	2 kV rms / 1 min
Rated test voltage open contact	1 kV rms / 1 min
Pollution degree	2
Overvoltage category	III

General data

Storage temperature (no ice)	-40 ... 85 °C
Operation temperature	-40 ... 60 °C
Conductor cross section control / main circuit	2.5 mm ² , 2 x 1.5 mm ²
Nominal screw torque control / main circuit	0.5 Nm
Dimensions	fig. 4
Weight	48 g
Ingress Protection	IP 20
Housing material	PA66

Product references

Description	Type	12	24	115	230
AC supply	CMD11-A/AC...V			✓	✓

AC / DC supply	CMD11-A/UC...V	✓	✓		
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Other voltages on request. Please contact support@comatreleco.com.

«...» List control circuit voltage to complete product references.

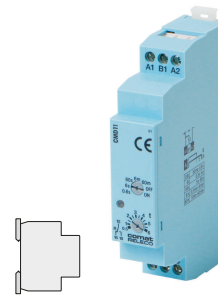


fig. 1. Wiring diagram

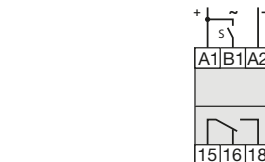


fig. 2. AC voltage endurance

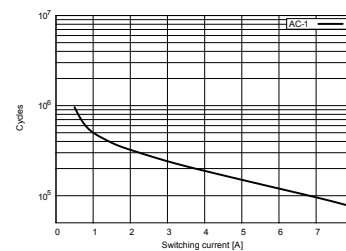


fig. 3. DC load limit curve

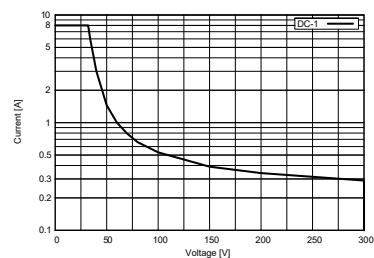
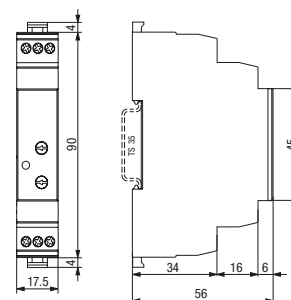


fig. 4. Dimensions (mm)



Technical approvals, conformities

Standards IEC/EN 60947

Approvals

CMD11-E

On delay | single voltage | 1 CO

Time data

Timing functions	E
Timing range	50 ms ... 0.6 s / 0.5 s ... 6 s / 5 s ... 60 s / 0.5 min ... 6 min / 5 min ... 60 min
Timing scale	0.6 s / 6 s / 60 s / 6 min / 60 min

Main circuit

Number of contacts	1 CO
Available contact materials	⚡ AgNi
Rated voltage	250 V AC
Rated current	8 A
Minimum load	10 mA, 12 V
Inrush current	15 A, 20 ms
Rated load DC	fig. 3
Rated load AC-1	2,000 VA
Mechanical endurance (cycles)	30 000 000
Electrical endurance at rated load AC-1 (cycles)	fig. 2

Control circuit

Nominal voltage	12 V AC / DC	24 V AC / DC
Operating voltage range	0.8 ... 1.2 U _N	0.8 ... 1.2 U _N
Power consumption AC / DC	32 mVA / 50 mW	12 mVA / 21 mW
Current consumption on supply A1-A2 AC / DC	50 mA / 32 mA	21 mA / 12 mA
Threshold voltage on input control B1 AC / DC	5.2 V / 8.8 V	9.5 V / 14 V
Frequency range	0; 48 ... 62 Hz	0; 48 ... 62 Hz

Control circuit

Nominal voltage	115 V AC	230 V AC
Operating voltage range	0.8 ... 1.2 U _N	0.8 ... 1.2 U _N
Power consumption AC / DC	5.3 VA / -	14.3 VA / -
Current consumption on supply A1-A2 AC / DC	47 mA / -	60 mA / -
Current consumption on input control B1 AC / DC	1.7 mA / -	1.9 mA / -
Threshold voltage on input control B1 AC / DC	42 V / -	80 V / -
Frequency range	48 ... 62 Hz	48 ... 62 Hz

Insulation

Rated test voltage control / main circuit	2 kV rms / 1 min
Rated test voltage open contact	1 kV rms / 1 min
Pollution degree	2
Overvoltage category	III

General data

Storage temperature (no ice)	-40 ... 85 °C
Operation temperature	-40 ... 60 °C
Conductor cross section control / main circuit	2.5 mm ² , 2 x 1.5 mm ²
Nominal screw torque control / main circuit	0.5 Nm
Dimensions	fig. 4
Weight	48 g
Ingress Protection	IP 20
Housing material	PA66

Product references

Description	Type	12	24	115	230
AC supply	CMD11-E/AC...V			✓	✓
AC / DC supply	CMD11-E/UC...V	✓	✓		

Other voltages on request. Please contact support@comatreleco.com.
«...» List control circuit voltage to complete product references.

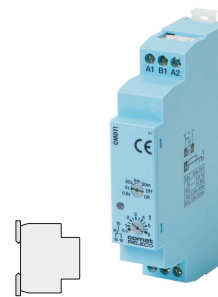


fig. 1. Wiring diagram

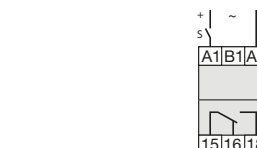


fig. 2. AC voltage endurance

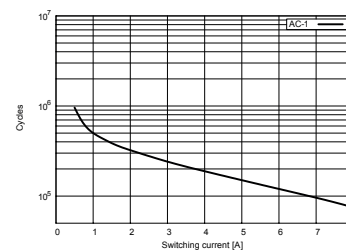


fig. 3. DC load limit curve

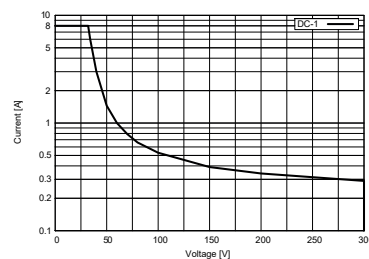
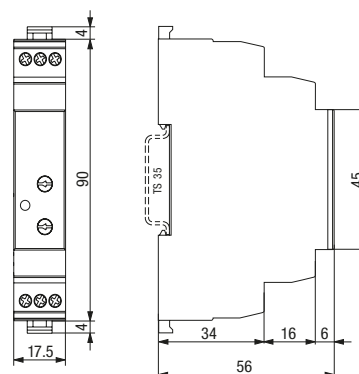


fig. 4. Dimensions (mm)



Technical approvals, conformities

Standards IEC/EN 60947

Approvals

2.1 ON and OFF delay Relays

AA2, AA2M

Off delay | 24 V AC / DC | 220 ... 240 V AC | 1 CO



Time data

Timing functions	A
Timing range	AA2: 0.8 s ... 1.5 min / AA2M: 0.1 min ... 12 min
Timing scale	AA2: 12 s / 1.5 min / AA2M: 1.5 min / 12 min

Main circuit

Number of contacts	1 CO
Available contact materials	⚡ AgNi
Rated voltage	250 V AC
Rated current	10 A
Minimum load	10 mA, 12 V
Inrush current	16 A, 10 ms
Rated load DC	fig. 3
Rated load AC-1	2,500 VA
Mechanical endurance (cycles)	20 000 000
Electrical endurance at rated load AC-1 (cycles)	fig. 2

Control circuit

Nominal voltage	24 V AC/DC	220 ... 240 V AC
Operating voltage range	0.8 ... 1.3 U _N	0.8 ... 1.1 U _N
Power consumption AC / DC	0.84 VA / 0.84 W	2.4 VA / -
Current consumption on supply A1-A2 AC / DC	35 mA / 35 mA	10 mA / -
Current consumption on input control B1 AC / DC	25 mA / 25 mA	5 mA / -
Threshold voltage on input control B1 AC / DC	10 V / 10 V	176 V / -
Frequency range	0; 48 ... 63 Hz	48 ... 63 Hz

Insulation

Rated test voltage control / main circuit	2 kV rms / 1 min
Rated test voltage open contact	1 kV rms / 1 min
Pollution degree	2
Overtoltage category	III

General data

Storage temperature (no ice)	-40 ... 85 °C
Operation temperature	-25 ... 60 °C
Conductor cross section control / main circuit	2.5 mm ² , 2 x 1.5 mm ²
Nominal screw torque control / main circuit	0.5 Nm
Dimensions	fig. 4
Weight	65 g
Ingress Protection	IP 20
Housing material	PC

Product references

Description	Type	24	220-240
AC supply	AA2/AC...V		✓
AC / DC supply		✓	✓

Other voltages on request. Please contact support@comatreleco.com.
«...» List control circuit voltage to complete product references.

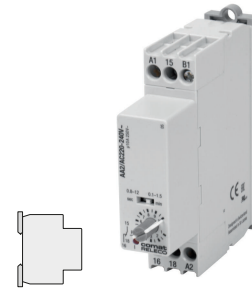


fig. 1. Wiring diagram

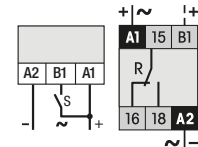


fig. 2. AC voltage endurance

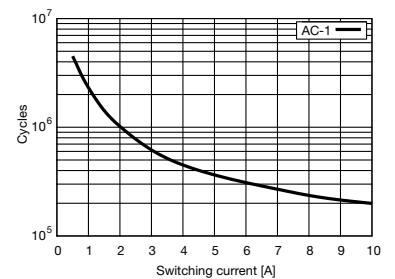


fig. 3. DC load limit curve

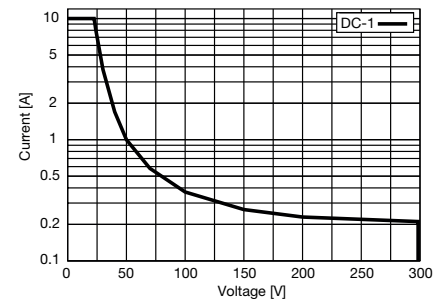
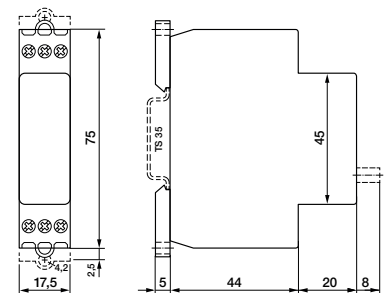


fig. 4. Dimensions (mm)



Technical approvals, conformities

Standards IEC/EN 60947

Approvals

2.1 ON and OFF delay Relays

AE2, AE2M

On delay | 24 V AC / DC | 220 ... 240 V AC | 1 CO

Time data

Timing functions	E
Timing range	AE2: 0.8 s ... 1.5 min / AE2M: 0.1 min ... 12 min
Timing scale	AE2: 12 s / 1.5 min / AE2M: 0.8 min / 12 min

Main circuit

Number of contacts	1 CO
Available contact materials	⚡ AgNi
Rated voltage	250 V AC
Rated current	10 A
Minimum load	10 mA, 12 V
Inrush current	16 A, 10 ms
Rated load DC	fig. 3
Rated load AC-1	2,500 VA
Mechanical endurance (cycles)	20 000 000
Electrical endurance at rated load AC-1 (cycles)	fig. 2

Control circuit

Nominal voltage	24 V AC/DC	220 ... 240 V AC
Operating voltage range	0.8 ... 1.3 U _N	0.8 ... 1.1 U _N
Power consumption AC / DC	1.1 VA / 1.1 W	3.6 VA / -
Current consumption on supply A1-A2 AC / DC	25 mA / 25 mA	5 mA / -
Threshold voltage on input control B1 AC / DC	10 V / 10 V	176 V / -
Frequency range	0; 48 ... 63 Hz	48 ... 63 Hz

Insulation

Rated test voltage control / main circuit	2 kV rms / 1 min
Rated test voltage open contact	1 kV rms / 1 min
Pollution degree	2
Overvoltage category	III

General data

Storage temperature (no ice)	-40 ... 85 °C
Operation temperature	-25 ... 60 °C
Conductor cross section control / main circuit	2.5 mm ² , 2 x 1.5 mm ²
Nominal screw torque control / main circuit	0.5 Nm
Dimensions	fig. 4
Weight	65 g
Ingress Protection	IP 20
Housing material	PC

Housing and environmental conditions

Operation Position	Any
--------------------	-----

Product references

Description	Type	24	220-240
AC supply	AE2/AC...V		✓
AC supply	AE2M/AC...V		✓

AC / DC supply AE2/UC...V ✓

Other voltages on request. Please contact support@comatreleco.com.

«...» List control circuit voltage to complete product references.

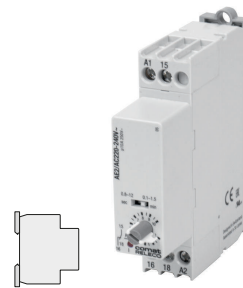


fig. 1. Wiring diagram

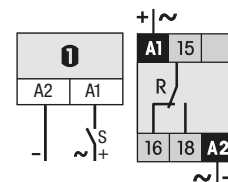


fig. 2. AC voltage endurance

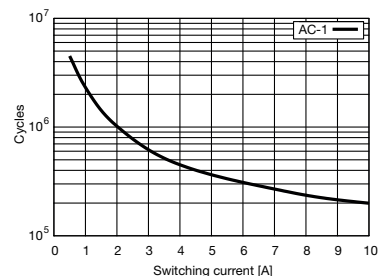


fig. 3. DC load limit curve

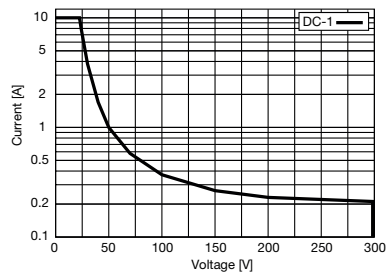
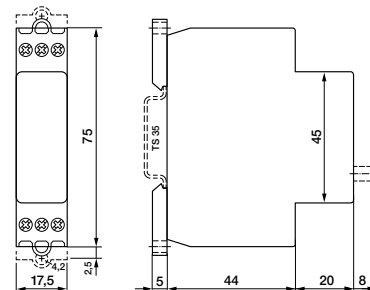


fig. 4. Dimensions (mm)
















Technical approvals, conformities

Standards IEC/EN 60947

Approvals

2.2 Multifunction Time Relays

	Type	Pin	Page
CIM Series			
Multifunction 24 ... 240 V AC / DC 1 CO	CIM1		217
Multifunction 24 ... 240 V AC / DC 1 CO	CIM1R		218
Multifunction 24 ... 240 V AC / DC 1 TRIAC	CIM12		219
Multifunction 24 ... 240 V AC / DC 1 TRIAC	CIM12R		220
Multifunction 24 ... 240 V AC / DC 1 MOSFET	CIM13		221
Multifunction 24 ... 240 V AC / DC 1 MOSFET	CIM13R		222
Multifunction 24 ... 240 V AC / DC 1 NO, pre-contact	CIM14		223
Multifunction 24 ... 240 V AC / DC 1 CO	CIM2		224
Multifunction 24 ... 240 V AC / DC 1 CO	CIM2R		225
Multifunction 24 ... 240 V AC / DC 1 TRIAC	CIM22		226
Multifunction 24 ... 240 V AC / DC 1 TRIAC	CIM22R		227
Multifunction 24 ... 240 V AC / DC 1 MOSFET	CIM23		228
Multifunction 24 ... 240 V AC / DC 1 MOSFET	CIM23R		229
Multifunction 24 ... 240 V AC / DC 1 CO	CIM3		230
Multifunction 24 ... 240 V AC / DC 1 CO	CIM3R		231
Multifunction 24 ... 240 V AC / DC 1 TRIAC	CIM32		232
Multifunction 24 ... 240 V AC / DC 1 TRIAC	CIM32R		233
Multifunction 24 ... 240 V AC / DC 1 MOSFET	CIM33		234

	Type	Pin	Page
Multifunction 24 ... 240 V AC / DC 1 MOSFET	CIM33R		235
AL Series			
Staircase switch Auto - ON 220 ... 240 V AC 1 NO	AL1		236
Staircase switch Auto-ON 24 V AC / DC 220...240 V AC 1 NO, pre-contact	AL3		237
Staircase switch Auto-ON Central ON-OFF 220..240 V AC 1 NO,pre-contact	AL4		238
Step switch Auto - ON Central ON - OFF 230 V AC 1 NO, pre-contact	AL5		239
AM Series			
Multifunction 24 ... 60 V AC / DC 110 ... 240 V AC / DC 1 CO	AM1		240
Multifunction 24 ... 60 V AC / DC 220 ... 240 V AC 1 CO	AM2		241
Multifunction 24 ... 60 V AC / DC 110 ... 240 V AC / DC 2 CO	AM3		242
CM Series			
Multifunction 24 ... 60 V AC / DC 110 ... 240 V AC / DC 1 NO + 1 CO	CM2		243
Multifunction 12 ... 24 V DC 24 ... 48 V DC, 24 ... 240 V AC 2 CO	CM3		244
CPF Series			
Pulse extension 24 V DC 1 PNP Transistor	CPF11		245
CRV Series			
Multifunction 24 ... 240 V AC / DC 1 CO External potentiometer	CRV4		246
CSV Series			
Multifunction 12 ... 36 V DC 1 MOSFET External potentiometer	CSV4		247

CIM1

Multifunction | 24 ... 240 V AC / DC | 1 CO

Time data

Timing functions	fig. 1 1: E 2: A, K, N, B1, S, LS 3: B, W
Timing range	50 ms ... 0.6 s / 0.5 s ... 6 s / 5 s ... 60 s / 0.5 min ... 6 min / 5 min ... 60 min / 0.5 h ... 6 h / 5 h ... 60 h
Timing scale	0.6 s / 6 s / 60 s / 6 min / 60 min / 6 h / 60 h

Main circuit

Number of contacts	1 CO
Available contact materials	⚡ AgNi
Rated voltage	250 V AC
Switching at zero crossing	yes ($t_d > 0.6$ s)
Rated current	16 A
Minimum load	10 mA, 10 V
Inrush current	30 A, 10 ms
Rated load DC	fig. 3
Rated load AC-1	4,000 VA
Mechanical endurance (cycles)	30 000 000
Electrical endurance at rated load AC-1 (cycles)	fig. 2

Control circuit

Nominal voltage	24 ... 240 V AC / DC
Operating voltage range	16.8 ... 250 V AC / DC
Power consumption AC / DC	1.2 VA / 430 mW
Current consumption on supply A1-A2 AC / DC	< 23 mA / < 23 mA
Current consumption on input control B1 AC / DC	< 22 mA / < 22 mA
Threshold voltage on input control B1 AC / DC	13 V / 15 V
Frequency range	0; 16 ... 63 Hz

Insulation

Rated test voltage control / main circuit	2.5 kV rms / 1 min
Rated test voltage open contact	1 kV rms / 1 min
Pollution degree	2
Overvoltage category	III

General data

Storage temperature (no ice)	-40 ... 85 °C
Operation temperature	-40 ... 60 °C
Conductor cross section control / main circuit	2.5 mm ² , 2 x 1.5 mm ²
Nominal screw torque control / main circuit	0.5 Nm
Dimensions	fig. 4
Weight	70 g
Ingress Protection	IP 20
Housing material	PC

Product references

Description	Type	24-240
AC / DC supply	CIM1/UC...V	✓

Other voltages on request. Please contact support@comatreleco.com.
«...» List control circuit voltage to complete product references.

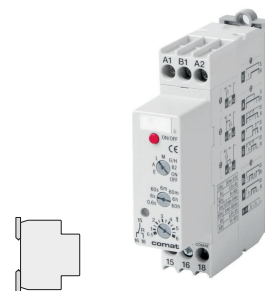


fig. 1. Wiring diagram

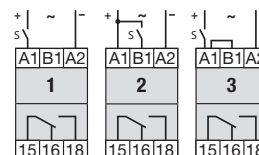


fig. 2. AC voltage endurance

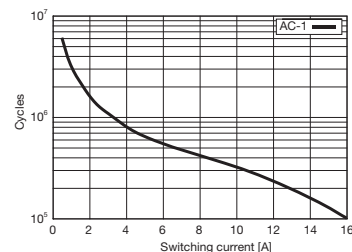


fig. 3. DC load limit curve

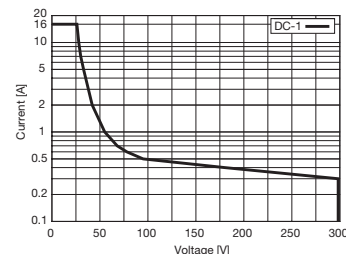
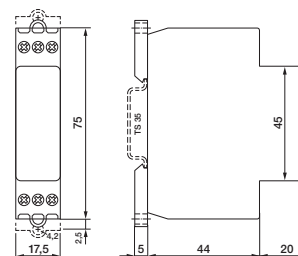


fig. 4. Dimensions (mm)



Technical approvals, conformities

Standards IEC/EN 60947

Approvals

2.2 Multifunction Time Relays

CIM1R

Multifunction | 24 ... 240 V AC / DC | 1 CO



Time data

Timing functions	fig. 1 1: E 2: A, K, N, B1, S, LS 3: B, W
Timing range	50 ms ... 60 h
Timing scale	0.6 s / 6 s / 60 s / 6 min / 60 min / 6 h / 60 h

Main circuit

Number of contacts	1 CO
Available contact materials	⚡ AgNi
Rated voltage	250 V AC
Switching at zero crossing	yes ($t_d > 0.6$ s)
Rated current	16 A
Minimum load	10 mA, 10 V
Inrush current	30 A, 10 ms
Rated load DC	fig. 3
Rated load AC-1	4,000 VA
Mechanical endurance (cycles)	$\geq 30\,000\,000$
Electrical endurance at rated load AC-1 (cycles)	fig. 2

Control circuit

Nominal voltage	24 ... 240 V AC / DC
Operating voltage range	16.8 ... 250 V AC / DC
Power consumption AC / DC	1.2 VA / 430 mW
Current consumption on supply A1-A2 AC / DC	< 23 mA / < 23 mA
Current consumption on input control B1 AC / DC	< 22 mA / < 22 mA
Threshold voltage on input control B1 AC / DC	13 V / 15 V
Frequency range	0; 16 ... 63 Hz

Insulation

Rated test voltage control / main circuit	2.5 kV rms / 1 min
Rated test voltage open contact	1 kV rms / 1 min
Pollution degree	2
Overvoltage category	III

General data

Storage temperature (no ice)	-40 ... 85 °C
Operation temperature	-40 ... 70 °C
Conductor cross section control / main circuit	2.5 mm ² , 2 x 1.5 mm ²
Nominal screw torque control / main circuit	0.5 Nm
Dimensions	fig. 4
Weight	70 g
Ingress Protection	IP 20
Housing material	PA

Product references

Description	Type	24-240
AC / DC supply	CIM1R/UC...V	✓

Other voltages on request. Please contact support@comatreleco.com.

«...» List control circuit voltage to complete product references.

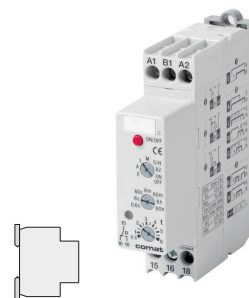


fig. 1. Wiring diagram

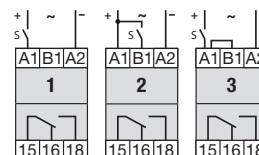


fig. 2. AC voltage endurance

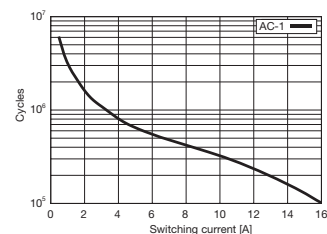


fig. 3. DC load limit curve

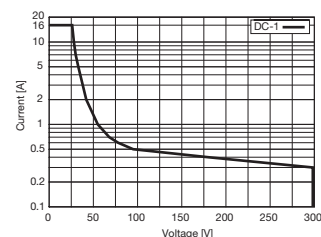
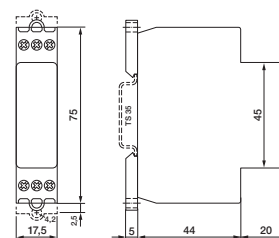


fig. 4. Dimensions (mm)



Technical approvals, conformities

Standards IEC/EN 60947

Railway EN 45545-2; EN 50155

Approvals

CIM12

Multifunction | 24 ... 240 V AC / DC | 1 TRIAC

Time data

Timing functions	fig. 1 1: E 2: A, K, N, B1, S, LS 3: B, W
Timing range	50 ms ... 0.6 s / 0.5 s ... 6 s / 5 s ... 60 s / 0.5 min ... 6 min / 5 min ... 60 min / 0.5 h ... 6 h / 5 h ... 60 h
Timing scale	0.6 s / 6 s / 60 s / 6 min / 60 min / 6 h / 60 h

Main circuit

Number of outputs	1 NO
Output type	⚡ TRIAC
Rated voltage	250 V AC
Switching at zero crossing	yes ($t_d > 0.6$ s)
Rated current	2 A
Minimum load	50 mA, 12 V
Inrush current	100 A, 10 ms
Rated limit load	78 A ² s
Typ. leakage current	1 mA
Rated load AC-1	300 VA
Mechanical endurance (cycles)	∞
Electrical endurance at rated load AC-1 (cycles)	∞

Control circuit

Nominal voltage	24 ... 240 V AC / DC
Operating voltage range	16.8 ... 250 V AC / DC
Power consumption AC / DC	1.2 VA / 430 mW
Current consumption on supply A1-A2 AC / DC	< 23 mA / < 23 mA
Current consumption on input control B1 AC / DC	< 22 mA / < 22 mA
Threshold voltage on input control B1 AC / DC	13 V / 15 V
Frequency range	0; 16 ... 63 Hz

Insulation

Rated test voltage control / main circuit	2.5 kV rms / 1 min
Pollution degree	2
Overvoltage category	III

General data

Storage temperature (no ice)	-40 ... 85 °C
Operation temperature	-40 ... 60 °C
Conductor cross section control / main circuit	2.5 mm ² , 2 x 1.5 mm ²
Nominal screw torque control / main circuit	0.5 Nm
Dimensions	fig. 2
Weight	70 g
Ingress Protection	IP 20
Housing material	PC

Product references

Description	Type	24-240
AC / DC supply	CIM12/UC...V	✓

Other voltages on request. Please contact support@comatreleco.com.
«...» List control circuit voltage to complete product references.

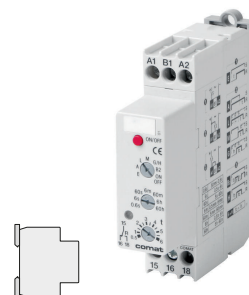


fig. 1. Wiring diagram

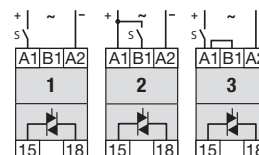
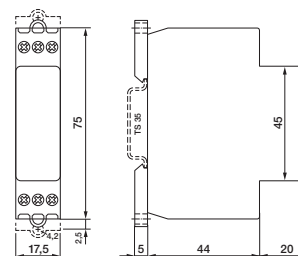


fig. 2. Dimensions (mm)



Technical approvals, conformities

Standards IEC/EN 60947

Approvals

2.2 Multifunction Time Relays

CIM12R

Multifunction | 24 ... 240 V AC / DC | 1 TRIAC



Time data

Timing functions	fig. 1 1: E 2: A, K, N, B1, S, LS 3: B, W
Timing range	50 ms ... 60 h
Timing scale	0.6 s / 6 s / 60 s / 6 min / 60 min / 6 h / 60 h

Main circuit

Number of outputs	1 NO
Output type	⚡ TRIAC
Rated voltage	250 V AC
Switching at zero crossing	yes ($t_d > 0.6$ s)
Rated current	2 A
Minimum load	50 mA, 12 V
Inrush current	100 A, 10 ms
Rated limit load	78 A ² s
Typ. leakage current	1 mA
Rated load AC-1	300 VA
Mechanical endurance (cycles)	∞
Electrical endurance at rated load AC-1 (cycles)	∞

Control circuit

Nominal voltage	24 ... 240 V AC / DC
Operating voltage range	16.8 ... 250 V AC / DC
Power consumption AC / DC	1.2 VA / 430 mW
Current consumption on supply A1-A2 AC / DC	< 23 mA / < 23 mA
Current consumption on input control B1 AC / DC	< 22 mA / < 22 mA
Threshold voltage on input control B1 AC / DC	13 V / 15 V
Frequency range	0; 16 ... 63 Hz

Insulation

Rated test voltage control / main circuit	2.5 kV rms / 1 min
Pollution degree	2
Overvoltage category	III

General data

Storage temperature (no ice)	-40 ... 85 °C
Operation temperature	-40 ... 70 °C
Conductor cross section control / main circuit	2.5 mm ² , 2 x 1.5 mm ²
Nominal screw torque control / main circuit	0.5 Nm
Dimensions	fig. 2
Weight	70 g
Ingress Protection	IP 20
Housing material	PA

Product references

Description	Type	24-240
AC / DC supply	CIM12R/UC...V	✓

Other voltages on request. Please contact support@comatreleco.com.

«...» List control circuit voltage to complete product references.

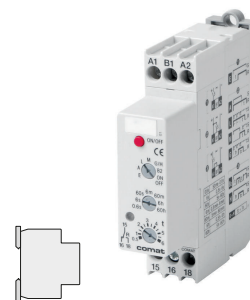


fig. 1. Wiring diagram

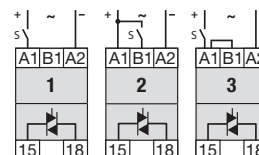
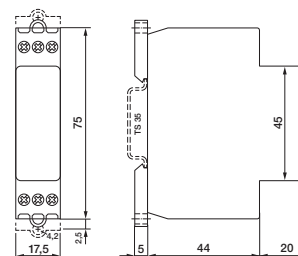


fig. 2. Dimensions (mm)



Technical approvals, conformities

Standards IEC/EN 60947

Railway EN 45545-2; EN 50155

Approvals

CIM13

Multifunction | 24 ... 240 V AC / DC | 1 MOSFET

Time data

Timing functions	fig. 1 1: E 2: A, K, N, B1, S, LS 3: B, W
Timing range	50 ms ... 0.6 s / 0.5 s ... 6 s / 5 s ... 60 s / 0.5 min ... 6 min / 5 min ... 60 min / 0.5 h ... 6 h / 5 h ... 60 h
Timing scale	0.6 s / 6 s / 60 s / 6 min / 60 min / 6 h / 60 h

Main circuit

Number of outputs	1 NO
Output type	⚡ MOSFET
Rated voltage	24 V DC
Rated current	5 A
Minimum load	1 mA, 1 V
Inrush current	40 A, 10 us
Typ. leakage current	10 µA
Mechanical endurance (cycles)	∞
Electrical endurance at rated load DC-1 (cycles)	∞

Control circuit

Nominal voltage	24 ... 240 V AC / DC
Operating voltage range	16.8 ... 250 V AC / DC
Power consumption AC / DC	1.2 VA / 430 mW
Current consumption on supply A1-A2 AC / DC	< 23 mA / < 23 mA
Current consumption on input control B1 AC / DC	< 22 mA / < 22 mA
Threshold voltage on input control B1 AC / DC	13 V / 15 V
Frequency range	0; 16 ... 63 Hz

Insulation

Rated test voltage control / main circuit	2.5 kV rms / 1 min
Pollution degree	2
Overvoltage category	III

General data

Storage temperature (no ice)	-40 ... 85 °C
Operation temperature	-40 ... 60 °C
Conductor cross section control / main circuit	2.5 mm ² , 2 x 1.5 mm ²
Nominal screw torque control / main circuit	0.5 Nm
Dimensions	fig. 2
Weight	70 g
Ingress Protection	IP 20
Housing material	PC

Product references

Description	Type	24-240
AC / DC supply	CIM13/UC...V	✓
Other voltages on request. Please contact support@comatreleco.com.		
«...» List control circuit voltage to complete product references.		

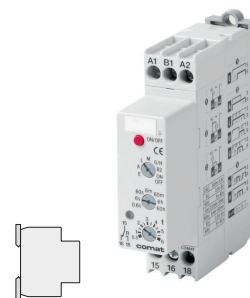


fig. 1. Wiring diagram

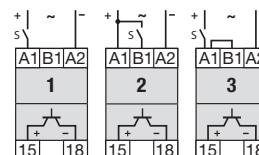
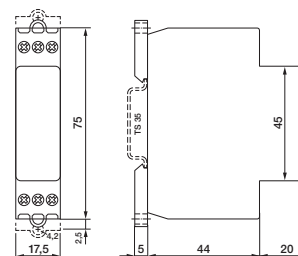


fig. 2. Dimensions (mm)



Technical approvals, conformities

Standards IEC/EN 60947

Approvals

2.2 Multifunction Time Relays

CIM13R

Multifunction | 24 ... 240 V AC / DC | 1 MOSFET



Time data

Timing functions	fig. 1 1: E 2: A, K, N, B1, S, LS 3: B, W
Timing range	50 ms ... 60 h
Timing scale	0.6 s / 6 s / 60 s / 6 min / 60 min / 6 h / 60 h

Main circuit

Number of outputs	1 NO
Output type	⚡ MOSFET
Rated voltage	24 V DC
Rated current	5 A
Minimum load	1 mA, 1 V
Inrush current	40 A, 10 us
Typ. leakage current	10 µA
Mechanical endurance (cycles)	∞
Electrical endurance at rated load DC-1 (cycles)	∞

Control circuit

Nominal voltage	24 ... 240 V AC / DC
Operating voltage range	16.8 ... 250 V AC / DC
Power consumption AC / DC	1.2 VA / 430 mW
Current consumption on supply A1-A2 AC / DC	< 23 mA / < 23 mA
Current consumption on input control B1 AC / DC	< 22 mA / < 22 mA
Threshold voltage on input control B1 AC / DC	13 V / 15 V
Frequency range	0; 16 ... 63 Hz

Insulation

Rated test voltage control / main circuit	2.5 kV rms / 1 min
Pollution degree	2
Overvoltage category	III

General data

Storage temperature (no ice)	-40 ... 85 °C
Ambient temperature operation derated power	-40 ... 70 °C
Conductor cross section control / main circuit	2.5 mm ² , 2 x 1.5 mm ²
Nominal screw torque control / main circuit	0.5 Nm
Dimensions	fig. 2
Weight	70 g
Ingress Protection	IP 20
Housing material	PA

Product references

Description	Type	24-240
AC / DC supply	CIM13R/UC...V	✓

Other voltages on request. Please contact support@comatreleco.com.

«...» List control circuit voltage to complete product references.

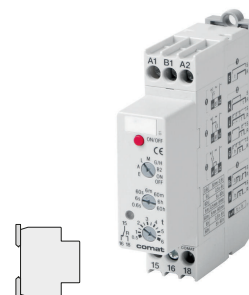


fig. 1. Wiring diagram

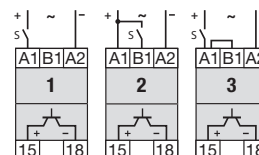
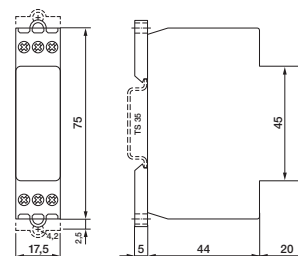


fig. 2. Dimensions (mm)



Technical approvals, conformities

Standards IEC/EN 60947

Railway EN 45545-2; EN 50155

Approvals

CIM14

Multifunction | 24 ... 240 V AC / DC | 1 NO, pre-contact

Time data

Timing functions	fig. 1 1: E 2: A, K, N, B1, S, LS 3: B, W
Timing range	50 ms ... 0.6 s / 0.5 s ... 6 s / 5 s ... 60 s / 0.5 min ... 6 min / 5 min ... 60 min / 0.5 h ... 6 h / 5 h ... 60 h
Timing scale	0.6 s / 6 s / 60 s / 6 min / 60 min / 6 h / 60 h

Main circuit

Number of contacts	1 NO
Available contact materials	⚡ W + AgSnO ₂
Rated voltage	250 V AC
Switching at zero crossing	yes (t _d > 0.6 s)
Rated current	16 A
Minimum load	100 mA, 12 V
Inrush current	800 A, 200 us / 165 A, 20 ms
Rated load DC	fig. 3
Rated load AC-1	4,000 VA
Mechanical endurance (cycles)	5 000 000
Electrical endurance at rated load AC-1 (cycles)	fig. 2

Control circuit

Nominal voltage	24 ... 240 V AC / DC
Operating voltage range	16.8 ... 250 V AC / DC
Power consumption AC / DC	1.2 VA / 430 mW
Current consumption on supply A1-A2 AC / DC	< 23 mA / < 23 mA
Current consumption on input control B1 AC / DC	< 22 mA / < 22 mA
Threshold voltage on input control B1 AC / DC	13 V / 15 V
Frequency range	0; 16 ... 63 Hz

Insulation

Rated test voltage control / main circuit	2.5 kV rms / 1 min
Rated test voltage open contact	1 kV rms / 1 min
Pollution degree	2
Overvoltage category	III

General data

Storage temperature (no ice)	-40 ... 85 °C
Operation temperature	-40 ... 60 °C
Conductor cross section control / main circuit	2.5 mm ² , 2 x 1.5 mm ²
Nominal screw torque control / main circuit	0.5 Nm
Dimensions	fig. 4
Weight	70 g
Ingress Protection	IP 20
Housing material	PC

Product references

Description	Type	24-240
AC / DC supply	CIM14/UC...V	✓

Other voltages on request. Please contact support@comatreleco.com.
«...» List control circuit voltage to complete product references.

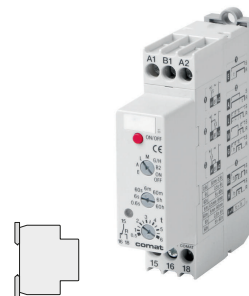


fig. 1. Wiring diagram

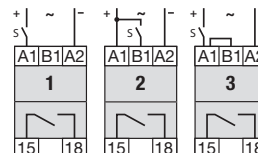


fig. 2. AC voltage endurance

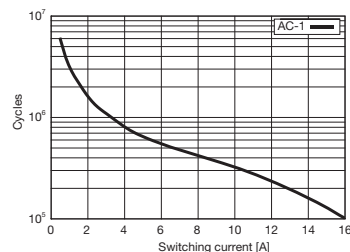


fig. 3. DC load limit curve

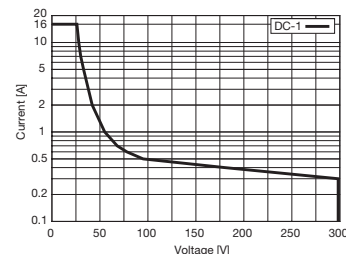
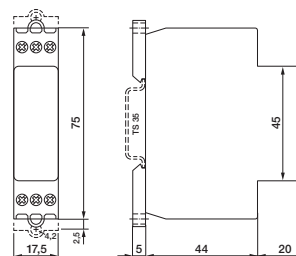


fig. 4. Dimensions (mm)



Technical approvals, conformities

Standards IEC/EN 60947

Approvals

2.2 Multifunction Time Relays

CIM2

Multifunction | 24 ... 240 V AC / DC | 1 CO

Time data

Timing functions	fig. 1 1: E 2: A, L, M, G 3: B2, H
Timing range	50 ms ... 0.6 s / 0.5 s ... 6 s / 5 s ... 60 s / 0.5 min ... 6 min / 5 min ... 60 min / 0.5 h ... 6 h / 5 h ... 60 h
Timing scale	0.6 s / 6 s / 60 s / 6 min / 60 min / 6 h / 60 h

Main circuit

Number of contacts	1 CO
Available contact materials	⚡ AgNi
Rated voltage	250 V AC
Switching at zero crossing	yes ($t_d > 0.6$ s)
Rated current	16 A
Minimum load	10 mA, 10 V
Inrush current	30 A, 10 ms
Rated load DC	fig. 3
Rated load AC-1	4,000 VA
Mechanical endurance (cycles)	30 000 000
Electrical endurance at rated load AC-1 (cycles)	fig. 2

Control circuit

Nominal voltage	24 ... 240 V AC / DC
Operating voltage range	16.8 ... 250 V AC / DC
Power consumption AC / DC	1.2 VA / 430 mW
Current consumption on supply A1-A2 AC / DC	< 23 mA / < 23 mA
Current consumption on input control B1 AC / DC	< 22 mA / < 22 mA
Threshold voltage on input control B1 AC / DC	13 V / 15 V
Frequency range	0; 16 ... 63 Hz

Insulation

Rated test voltage control / main circuit	2.5 kV rms / 1 min
Rated test voltage open contact	1 kV rms / 1 min
Pollution degree	2
Overvoltage category	III

General data

Storage temperature (no ice)	-40 ... 85 °C
Operation temperature	-40 ... 60 °C
Ambient temperature operation derated power	-40 ... 60 °C (I_N 13 A)
Conductor cross section control / main circuit	2.5 mm ² , 2 x 1.5 mm ²
Nominal screw torque control / main circuit	0.5 Nm
Dimensions	fig. 4
Weight	70 g
Ingress Protection	IP 20
Housing material	PC

Product references

Description	Type	24-240
AC / DC supply	CIM2/UC...V	✓
Other voltages on request. Please contact support@comatreleco.com.		
«...» List control circuit voltage to complete product references.		

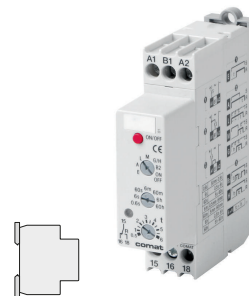


fig. 1. Wiring diagram

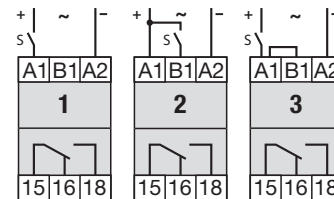


fig. 2. AC voltage endurance

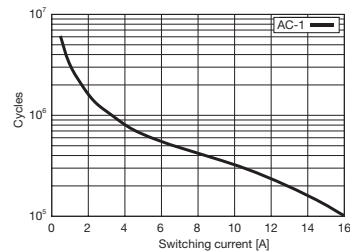


fig. 3. DC load limit curve

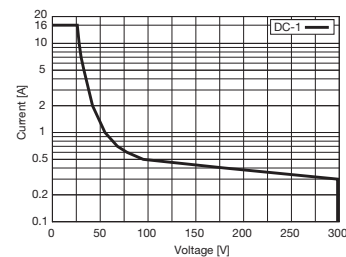
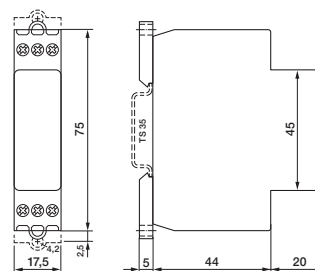


fig. 4. Dimensions (mm)



Technical approvals, conformities

Standards IEC/EN 60947

Approvals

2.2 Multifunction Time Relays

CIM2R

Multifunction | 24 ... 240 V AC / DC | 1 CO

Time data

Timing functions	fig. 1 1: E 2: A, L, M, G 3: B2, H
Timing range	50 ms ... 60 h
Timing scale	0.6 s / 6 s / 60 s / 6 min / 60 min / 6 h / 60 h

Main circuit

Number of contacts	1 CO
Available contact materials	⚡ AgNi
Rated voltage	250 V AC
Switching at zero crossing	yes ($t_d > 0.6$ s)
Rated current	16 A
Minimum load	10 mA, 10 V
Inrush current	30 A, 10 ms
Rated load DC	fig. 3
Rated load AC-1	4,000 VA
Mechanical endurance (cycles)	$\geq 30\,000\,000$
Electrical endurance at rated load AC-1 (cycles)	fig. 2

Control circuit

Nominal voltage	24 ... 240 V AC / DC
Operating voltage range	16.8 ... 250 V AC / DC
Power consumption AC / DC	1.2 VA / 430 mW
Current consumption on supply A1-A2 AC / DC	< 23 mA / < 23 mA
Current consumption on input control B1 AC / DC	< 22 mA / < 22 mA
Threshold voltage on input control B1 AC / DC	13 V / 15 V
Frequency range	0; 16 ... 63 Hz

Insulation

Rated test voltage control / main circuit	2.5 kV rms / 1 min
Rated test voltage open contact	1 kV rms / 1 min
Pollution degree	2
Overtoltage category	III

General data

Storage temperature (no ice)	-40 ... 85 °C
Operation temperature	-40 ... 70 °C
Conductor cross section control / main circuit	2.5 mm ² , 2 x 1.5 mm ²
Nominal screw torque control / main circuit	0.5 Nm
Dimensions	fig. 4
Weight	70 g
Ingress Protection	IP 20
Housing material	PA

Product references

Description	Type	24-240
AC / DC supply	CIM2R/UC...V	✓

Other voltages on request. Please contact support@comatreleco.com.
«...» List control circuit voltage to complete product references.

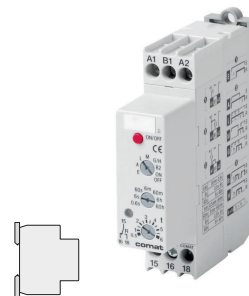


fig. 1. Wiring diagram

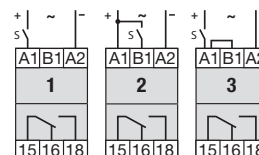


fig. 2. AC voltage endurance

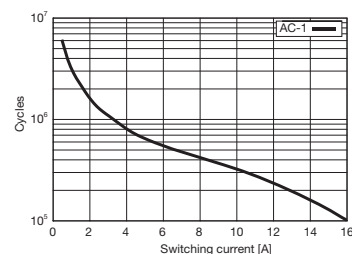


fig. 3. DC load limit curve

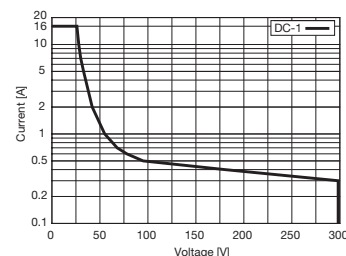
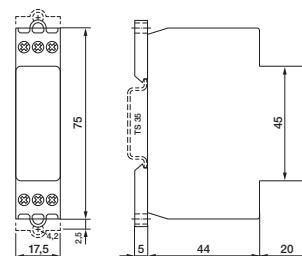


fig. 4. Dimensions (mm)



Technical approvals, conformities

Standards IEC/EN 60947

Railway EN 45545-2; EN 50155

Approvals

2.2 Multifunction Time Relays

CIM22

Multifunction | 24 ... 240 V AC / DC | 1 TRIAC

Time data

Timing functions	fig. 1 1: E 2: A, L, M, G 3: B2, H
Timing range	50 ms ... 0.6 s / 0.5 s ... 6 s / 5 s ... 60 s / 0.5 min ... 6 min / 5 min ... 60 min / 0.5 h ... 6 h / 5 h ... 60 h
Timing scale	0.6 s / 6 s / 60 s / 6 min / 60 min / 6 h / 60 h

Main circuit

Number of outputs	1 NO
Output type	⚡ TRIAC
Rated voltage	250 V AC
Switching at zero crossing	yes ($t_d > 0.6$ s)
Rated current	2 A
Minimum load	50 mA, 12 V
Inrush current	100 A, 10 ms
Rated limit load	78 A ² s
Typ. leakage current	1 mA
Rated load AC-1	300 VA
Mechanical endurance (cycles)	∞
Electrical endurance at rated load AC-1 (cycles)	∞

Control circuit

Nominal voltage	24 ... 240 V AC / DC
Operating voltage range	16.8 ... 250 V AC / DC
Power consumption AC / DC	1.2 VA / 430 mW
Current consumption on supply A1-A2 AC / DC	< 23 mA / < 23 mA
Current consumption on input control B1 AC / DC	< 22 mA / < 22 mA
Threshold voltage on input control B1 AC / DC	13 V / 15 V
Frequency range	0; 16 ... 63 Hz

Insulation

Rated test voltage control / main circuit	2.5 kV rms / 1 min
Pollution degree	2
Overvoltage category	III

General data

Storage temperature (no ice)	-40 ... 85 °C
Operation temperature	-40 ... 60 °C
Conductor cross section control / main circuit	2.5 mm ² , 2 x 1.5 mm ²
Nominal screw torque control / main circuit	0.5 Nm
Dimensions	fig. 2
Weight	70 g
Ingress Protection	IP 20
Housing material	PC

Product references

Description	Type	24-240
AC / DC supply	CIM22/UC...V	✓

Other voltages on request. Please contact support@comatreleco.com.
«...» List control circuit voltage to complete product references.

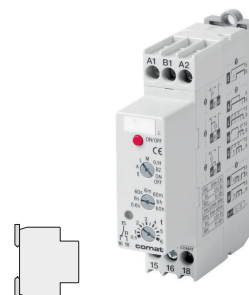


fig. 1. Wiring diagram

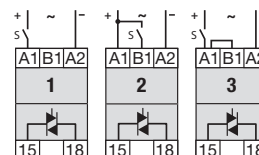
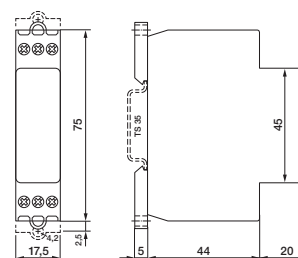


fig. 2. Dimensions (mm)



Technical approvals, conformities

Standards IEC/EN 60947

Approvals

CIM22R

Multifunction | 24 ... 240 V AC / DC | 1 TRIAC

Time data

Timing functions	fig. 1 1: E 2: A, L, M, G 3: B2, H
Timing range	50 ms ... 60 h
Timing scale	0.6 s / 6 s / 60 s / 6 min / 60 min / 6 h / 60 h

Main circuit

Number of outputs	1 NO
Output type	⚡ TRIAC
Rated voltage	250 V AC
Switching at zero crossing	yes ($t_d > 0.6$ s)
Rated current	2 A
Minimum load	50 mA, 12 V
Inrush current	100 A, 10 ms
Rated limit load	78 A ² s
Typ. leakage current	1 mA
Rated load AC-1	300 VA
Electrical endurance at rated load AC-1 (cycles)	∞
Electrical endurance at rated load DC-1 (cycles)	∞

Control circuit

Nominal voltage	24 ... 240 V AC / DC
Operating voltage range	16.8 ... 250 V AC / DC
Power consumption AC / DC	1.2 VA / 430 mW
Current consumption on supply A1-A2 AC / DC	< 23 mA / < 23 mA
Current consumption on input control B1 AC / DC	< 22 mA / < 22 mA
Threshold voltage on input control B1 AC / DC	13 V / 15 V
Frequency range	0; 16 ... 63 Hz

Insulation

Rated test voltage control / main circuit	2.5 kV rms / 1 min
Pollution degree	2
Overvoltage category	III

General data

Storage temperature (no ice)	-40 ... 85 °C
Operation temperature	-40 ... 70 °C
Conductor cross section control / main circuit	2.5 mm ² , 2 x 1.5 mm ²
Nominal screw torque control / main circuit	0.5 Nm
Dimensions	fig. 2
Weight	70 g
Ingress Protection	IP 20
Housing material	PA

Product references

Description	Type	24-240
AC / DC supply	CIM22R/UC...V	✓

Other voltages on request. Please contact support@comatreleco.com.
«...» List control circuit voltage to complete product references.

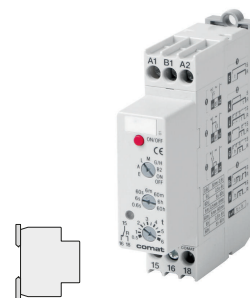


fig. 1. Wiring diagram

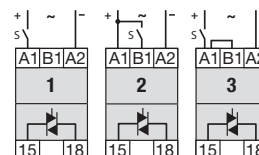
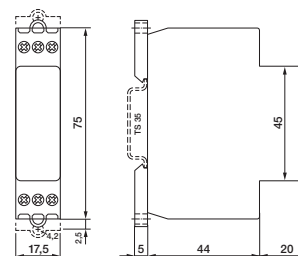


fig. 2. Dimensions (mm)



Technical approvals, conformities

Standards IEC/EN 60947

Railway EN 45545-2; EN 50155

Approvals

2.2 Multifunction Time Relays

CIM23

Multifunction | 24 ... 240 V AC / DC | 1 MOSFET

Time data

Timing functions	fig. 1 1: E 2: A, L, M, G 3: B2, H
Timing range	50 ms ... 0.6 s / 0.5 s ... 6 s / 5 s ... 60 s / 0.5 min ... 6 min / 5 min ... 60 min / 0.5 h ... 6 h / 5 h ... 60 h
Timing scale	0.6 s / 6 s / 60 s / 6 min / 60 min / 6 h / 60 h

Main circuit

Number of outputs	1 NO
Output type	⚡ MOSFET
Rated voltage	24 V DC
Rated current	5 A
Minimum load	1 mA, 1 V
Inrush current	40 A, 10 us
Typ. leakage current	10 µA
Mechanical endurance (cycles)	∞
Electrical endurance at rated load DC-1 (cycles)	∞

Control circuit

Nominal voltage	24 ... 240 V AC / DC
Operating voltage range	16.8 ... 250 V AC / DC
Power consumption AC / DC	1.2 VA / 430 mW
Current consumption on supply A1-A2 AC / DC	< 23 mA / < 23 mA
Current consumption on input control B1 AC / DC	< 22 mA / < 22 mA
Threshold voltage on input control B1 AC / DC	13 V / 15 V
Frequency range	0; 16 ... 63 Hz

Insulation

Rated test voltage control / main circuit	2.5 kV rms / 1 min
Pollution degree	2
Overvoltage category	III

General data

Storage temperature (no ice)	-40 ... 85 °C
Operation temperature	-40 ... 60 °C
Conductor cross section control / main circuit	2.5 mm ² , 2 x 1.5 mm ²
Nominal screw torque control / main circuit	0.5 Nm
Dimensions	fig. 2
Weight	70 g
Ingress Protection	IP 20
Housing material	PC

Product references

Description	Type	24-240
AC / DC supply	CIM23/UC...V	✓
Other voltages on request. Please contact support@comatreleco.com.		
«...» List control circuit voltage to complete product references.		

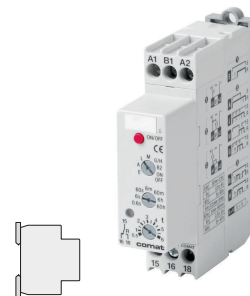


fig. 1. Wiring diagram

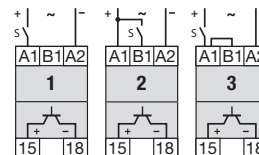
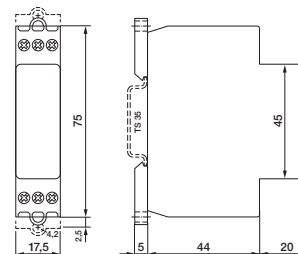


fig. 2. Dimensions (mm)



Technical approvals, conformities

Standards IEC/EN 60947

Approvals

2.2 Multifunction Time Relays

CIM23R

Multifunction | 24 ... 240 V AC / DC | 1 MOSFET

Time data

Timing functions	fig. 1 1: E 2: A, L, M, G 3: B2, H
Timing range	50 ms ... 60 h
Timing scale	0.6 s / 6 s / 60 s / 6 min / 60 min / 6 h / 60 h

Main circuit

Number of outputs	1 NO
Output type	MOSFET
Rated voltage	24 V DC
Rated current	5 A
Minimum load	1 mA, 1 V
Inrush current	40 A, 10 us
Typ. leakage current	10 µA
Mechanical endurance (cycles)	∞
Electrical endurance at rated load DC-1 (cycles)	∞

Control circuit

Nominal voltage	24 ... 240 V AC / DC
Operating voltage range	16.8 ... 250 V AC / DC
Power consumption AC / DC	1.2 VA / 430 mW
Current consumption on supply A1-A2 AC / DC	< 23 mA / < 23 mA
Current consumption on input control B1 AC / DC	< 22 mA / < 22 mA
Threshold voltage on input control B1 AC / DC	13 V / 15 V
Frequency range	0; 16 ... 63 Hz

Insulation

Rated test voltage control / main circuit	2.5 kV rms / 1 min
Pollution degree	2
Overvoltage category	III

General data

Storage temperature (no ice)	-40 ... 85 °C
Operation temperature	-40 ... 70 °C
Conductor cross section control / main circuit	2.5 mm ² , 2 x 1.5 mm ²
Nominal screw torque control / main circuit	0.5 Nm
Dimensions	fig. 2
Weight	70 g
Ingress Protection	IP 20
Housing material	PA

Product references

Description	Type	24-240
AC / DC supply	CIM23R/UC...V	✓

Other voltages on request. Please contact support@comatreleco.com.

«...» List control circuit voltage to complete product references.

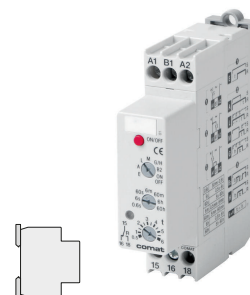


fig. 1. Wiring diagram

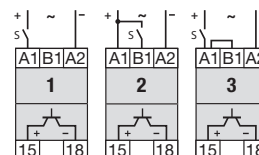
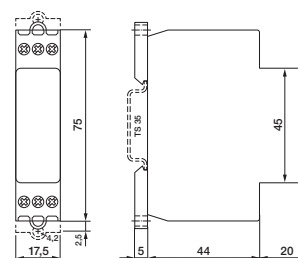


fig. 2. Dimensions (mm)



Technical approvals, conformities

Standards IEC/EN 60947

Railway EN 45545-2; EN 50155

Approvals

2.2 Multifunction Time Relays

CIM3

Multifunction | 24 ... 240 V AC / DC | 1 CO

Time data

Timing functions	fig. 1 2: F, Q, G 3: I, P, H
Timing range	50 ms ... 0.6 s / 0.5 s ... 6 s / 5 s ... 60 s / 0.5 min ... 6 min / 5 min ... 60 min / 0.5 h ... 6 h / 5 h ... 60 h
Timing scale	0.6 s / 6 s / 60 s / 6 min / 60 min / 6 h / 60 h

Main circuit

Number of contacts	1 CO
Available contact materials	⚡ AgNi
Rated voltage	250 V AC
Switching at zero crossing	yes ($t_d > 0.6$ s)
Rated current	16 A
Minimum load	10 mA, 10 V
Inrush current	30 A, 10 ms
Rated load DC	fig. 3
Rated load AC-1	4,000 VA
Mechanical endurance (cycles)	30 000 000
Electrical endurance at rated load AC-1 (cycles)	fig. 2

Control circuit

Nominal voltage	24 ... 240 V AC / DC
Operating voltage range	16.8 ... 250 V AC / DC
Power consumption AC / DC	1.2 VA / 430 mW
Current consumption on supply A1-A2 AC / DC	< 23 mA / < 23 mA
Current consumption on input control B1 AC / DC	< 22 mA / < 22 mA
Threshold voltage on input control B1 AC / DC	13 V / 15 V
Frequency range	0; 16 ... 63 Hz

Insulation

Rated test voltage control / main circuit	2.5 kV rms / 1 min
Pollution degree	2
Overvoltage category	III

General data

Storage temperature (no ice)	-40 ... 85 °C
Operation temperature	-40 ... 60 °C
Conductor cross section control / main circuit	2.5 mm ² , 2 x 1.5 mm ²
Nominal screw torque control / main circuit	0.5 Nm
Dimensions	fig. 4
Weight	70 g
Ingress Protection	IP 20
Housing material	PC

Product references

Description	Type	24-240
AC / DC supply	CIM3/UC...V	✓

Other voltages on request. Please contact support@comatreleco.com.
«...» List control circuit voltage to complete product references.

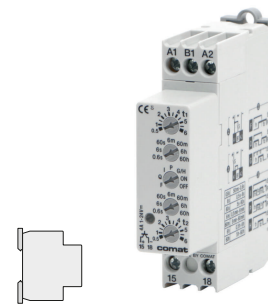


fig. 1. Wiring diagram

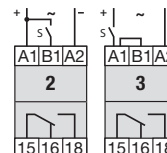


fig. 2. AC voltage endurance

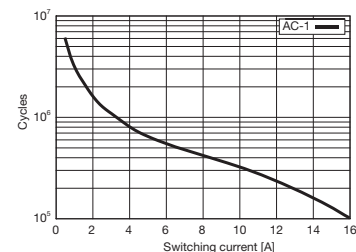


fig. 3. DC load limit curve

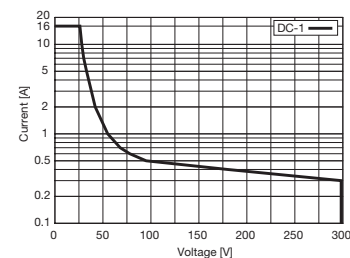
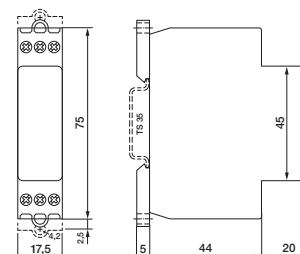


fig. 4. Dimensions (mm)



Technical approvals, conformities

Standards IEC/EN 60947

Approvals

CIM3R

Multifunction | 24 ... 240 V AC / DC | 1 CO

Time data

Timing functions	fig. 1 2: F, Q, G 3: I, P, H
Timing range	50 ms ... 60 h
Timing scale	0.6 s / 6 s / 60 s / 6 min / 60 min / 6 h / 60 h

Main circuit

Number of contacts	1 CO
Available contact materials	⚡ AgNi
Rated voltage	250 V AC
Switching at zero crossing	yes ($t_d > 0.6$ s)
Rated current	16 A
Minimum load	10 mA, 10 V
Inrush current	30 A, 10 ms
Rated load DC	fig. 3
Rated load AC-1	4,000 VA
Mechanical endurance (cycles)	$\geq 30\,000\,000$
Electrical endurance at rated load AC-1 (cycles)	fig. 2

Control circuit

Nominal voltage	24 ... 240 V AC / DC
Operating voltage range	16.8 ... 250 V AC / DC
Power consumption AC / DC	1.2 VA / 430 mW
Current consumption on supply A1-A2 AC / DC	< 23 mA / < 23 mA
Current consumption on input control B1 AC / DC	< 22 mA / < 22 mA
Threshold voltage on input control B1 AC / DC	13 V / 15 V
Frequency range	0; 16 ... 63 Hz

Insulation

Rated test voltage control / main circuit	2.5 kV rms / 1 min
Pollution degree	2
Overvoltage category	III

General data

Storage temperature (no ice)	-40 ... 85 °C
Operation temperature	-40 ... 70 °C
Conductor cross section control / main circuit	2.5 mm ² , 2 x 1.5 mm ²
Nominal screw torque control / main circuit	0.5 Nm
Dimensions	fig. 4
Weight	70 g
Ingress Protection	IP 20
Housing material	PA

Product references

Description	Type	24-240
AC / DC supply	CIM3R/UC...V	✓

Other voltages on request. Please contact support@comatreleco.com.
«...» List control circuit voltage to complete product references.

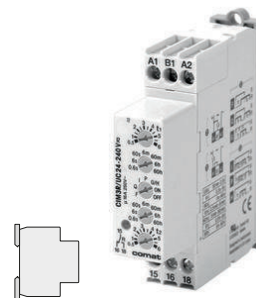


fig. 1. Wiring diagram

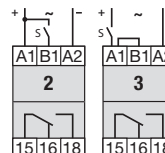


fig. 2. AC voltage endurance

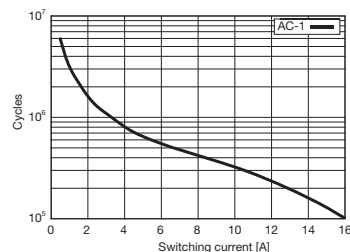


fig. 3. DC load limit curve

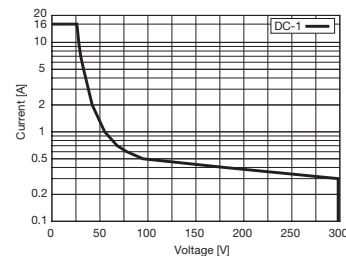
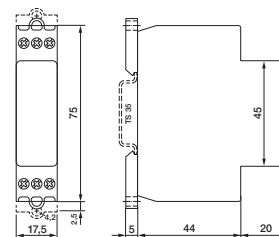


fig. 4. Dimensions (mm)



Technical approvals, conformities

Standards IEC/EN 60947

Railway EN 45545-2; EN 50155

Approvals

2.2 Multifunction Time Relays

CIM32

Multifunction | 24 ... 240 V AC / DC | 1 TRIAC

Time data

Timing functions	fig. 1 2: F, Q, G 3: I, P, H
Timing range	50 ms ... 0.6 s / 0.5 s ... 6 s / 5 s ... 60 s / 0.5 min ... 6 min / 5 min ... 60 min / 0.5 h ... 6 h / 5 h ... 60 h
Timing scale	0.6 s / 6 s / 60 s / 6 min / 60 min / 6 h / 60 h

Main circuit

Number of outputs	1 NO
Output type	⚡ TRIAC
Rated voltage	250 V AC
Switching at zero crossing	yes ($t_d > 0.6$ s)
Rated current	2 A
Minimum load	50 mA, 12 V
Inrush current	100 A, 10 ms
Rated limit load	78 A ² s
Typ. leakage current	1 mA
Rated load AC-1	300 VA
Mechanical endurance (cycles)	∞
Electrical endurance at rated load AC-1 (cycles)	∞

Control circuit

Nominal voltage	24 ... 240 V AC / DC
Operating voltage range	16.8 ... 250 V AC / DC
Power consumption AC / DC	1.2 VA / 430 mW
Current consumption on supply A1-A2 AC / DC	< 23 mA / < 23 mA
Current consumption on input control B1 AC / DC	< 22 mA / < 22 mA
Threshold voltage on input control B1 AC / DC	13 V / 15 V
Frequency range	0; 16 ... 63 Hz

Insulation

Rated test voltage control / main circuit	2.5 kV rms / 1 min
Pollution degree	2
Overvoltage category	III

General data

Storage temperature (no ice)	-40 ... 85 °C
Operation temperature	-40 ... 60 °C
Conductor cross section control / main circuit	2.5 mm ² , 2 x 1.5 mm ²
Nominal screw torque control / main circuit	0.5 Nm
Dimensions	fig. 2
Weight	70 g
Ingress Protection	IP 20
Housing material	PC

Product references

Description	Type	24-240
AC / DC supply	CIM32/UC...V	✓

Other voltages on request. Please contact support@comatreleco.com.
«...» List control circuit voltage to complete product references.



fig. 1. Wiring diagram

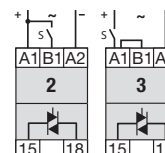
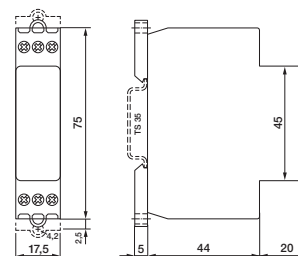


fig. 2. Dimensions (mm)



Technical approvals, conformities

Standards IEC/EN 60947

Approvals

2.2 Multifunction Time Relays

CIM32R

Multifunction | 24 ... 240 V AC / DC | 1 TRIAC

Time data

Timing functions	fig. 1 2: F, Q, G 3: I, P, H
Timing range	50 ms ... 60 h
Timing scale	0.6 s / 6 s / 60 s / 6 min / 60 min / 6 h / 60 h

Main circuit

Number of outputs	1 NO
Output type	⚡ TRIAC
Rated voltage	250 V AC
Switching at zero crossing	yes ($t_d > 0.6$ s)
Rated current	2 A
Minimum load	50 mA, 12 V
Inrush current	100 A, 10 ms
Rated limit load	78 A ² s
Typ. leakage current	1 mA
Rated load AC-1	300 VA
Mechanical endurance (cycles)	∞
Electrical endurance at rated load AC-1 (cycles)	∞

Control circuit

Nominal voltage	24 ... 240 V AC / DC
Operating voltage range	16.8 ... 250 V AC / DC
Power consumption AC / DC	1.2 VA / 430 mW
Current consumption on supply A1-A2 AC / DC	< 23 mA / < 23 mA
Current consumption on input control B1 AC / DC	< 22 mA / < 22 mA
Threshold voltage on input control B1 AC / DC	13 V / 15 V
Frequency range	0; 16 ... 63 Hz

Insulation

Rated test voltage control / main circuit	2.5 kV rms / 1 min
Pollution degree	2
Overvoltage category	III

General data

Storage temperature (no ice)	-40 ... 85 °C
Operation temperature	-40 ... 70 °C
Conductor cross section control / main circuit	2.5 mm ² , 2 x 1.5 mm ²
Nominal screw torque control / main circuit	0.5 Nm
Dimensions	fig. 2
Weight	70 g
Ingress Protection	IP 20
Housing material	PA

Product references

Description	Type	24-240
AC / DC supply	CIM32R/UC...V	✓

Other voltages on request. Please contact support@comatreleco.com.
«...» List control circuit voltage to complete product references.

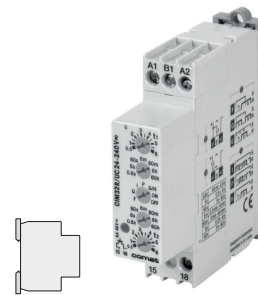


fig. 1. Wiring diagram

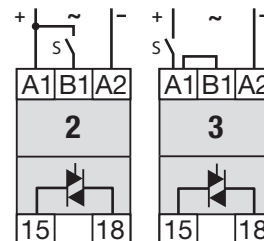
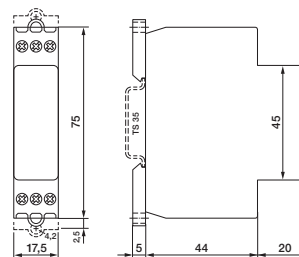


fig. 2. Dimensions (mm)



Technical approvals, conformities

Standards IEC/EN 60947

Railway EN 45545-2; EN 50155

Approvals     

2.2 Multifunction Time Relays

CIM33

Multifunction | 24 ... 240 V AC / DC | 1 MOSFET

Time data

Timing functions	fig. 1 2: F, Q, G 3: I, P, H
Timing range	50 ms ... 0.6 s / 0.5 s ... 6 s / 5 s ... 60 s / 0.5 min ... 6 min / 5 min ... 60 min / 0.5 h ... 6 h / 5 h ... 60 h
Timing scale	0.6 s / 6 s / 60 s / 6 min / 60 min / 6 h / 60 h

Main circuit

Number of outputs	1 NO
Output type	⚡ MOSFET
Rated voltage	24 V DC
Rated current	5 A
Minimum load	1 mA, 1 V
Inrush current	40 A, 10 us
Typ. leakage current	10 µA
Mechanical endurance (cycles)	∞
Electrical endurance at rated load DC-1 (cycles)	∞

Control circuit

Nominal voltage	24 ... 240 V AC / DC
Operating voltage range	16.8 ... 250 V AC / DC
Power consumption AC / DC	1.2 VA / 430 mW
Current consumption on supply A1-A2 AC / DC	< 23 mA / < 23 mA
Current consumption on input control B1 AC / DC	< 22 mA / < 22 mA
Threshold voltage on input control B1 AC / DC	13 V / 15 V
Frequency range	0; 16 ... 63 Hz

Insulation

Rated test voltage control / main circuit	2.5 kV rms / 1 min
Pollution degree	2
Overvoltage category	III

General data

Storage temperature (no ice)	-40 ... 85 °C
Operation temperature	-40 ... 60 °C
Ambient temperature operation derated power	-40 ... 60 °C (I _N 4 A)
Conductor cross section control / main circuit	2.5 mm ² , 2 x 1.5 mm ²
Nominal screw torque control / main circuit	0.5 Nm
Dimensions	fig. 2
Weight	70 g
Ingress Protection	IP 20
Housing material	PC

Product references

Description	Type	24-240
AC / DC supply	CIM33/UC...V	✓

Other voltages on request. Please contact support@comatreleco.com.
«...» List control circuit voltage to complete product references.



fig. 1. Wiring diagram

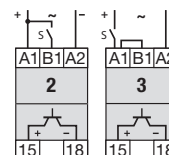
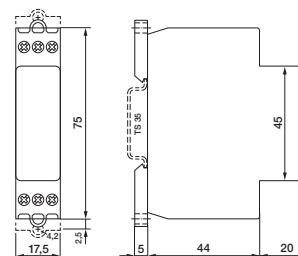


fig. 2. Dimensions (mm)



Technical approvals, conformities

Standards IEC/EN 60947

Approvals

2.2 Multifunction Time Relays

CIM33R

Multifunction | 24 ... 240 V AC / DC | 1 MOSFET

Time data

Timing functions	fig. 1 2: F, Q, G 3: I, P, H
Timing range	50 ms ... 60 h
Timing scale	0.6 s / 6 s / 60 s / 6 min / 60 min / 6 h / 60 h

Main circuit

Number of outputs	1 NO
Output type	⚡ MOSFET
Rated voltage	24 V DC
Rated current	5 A
Minimum load	1 mA, 1 V
Inrush current	40 A, 10 us
Typ. leakage current	10 µA
Mechanical endurance (cycles)	∞
Electrical endurance at rated load DC-1 (cycles)	∞

Control circuit

Nominal voltage	24 ... 240 V AC / DC
Operating voltage range	16.8 ... 250 V AC / DC
Power consumption AC / DC	1.2 VA / 430 mW
Current consumption on supply A1-A2 AC / DC	< 23 mA / < 23 mA
Current consumption on input control B1 AC / DC	< 22 mA / < 22 mA
Threshold voltage on input control B1 AC / DC	13 V / 15 V
Frequency range	0; 16 ... 63 Hz

Insulation

Rated test voltage control / main circuit	2.5 kV rms / 1 min
Pollution degree	2
Overvoltage category	III

General data

Storage temperature (no ice)	-40 ... 85 °C
Operation temperature	-40 ... 70 °C
Conductor cross section control / main circuit	2.5 mm ² , 2 x 1.5 mm ²
Nominal screw torque control / main circuit	0.5 Nm
Dimensions	fig. 2
Weight	70 g
Ingress Protection	IP 20
Housing material	PA

Product references

Description	Type	24-240
AC / DC supply	CIM33R/UC...V	✓

Other voltages on request. Please contact support@comatreleco.com.
«...» List control circuit voltage to complete product references.

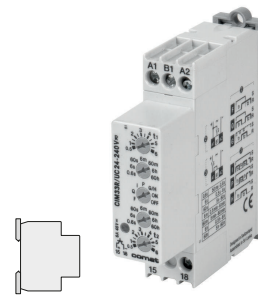


fig. 1. Wiring diagram

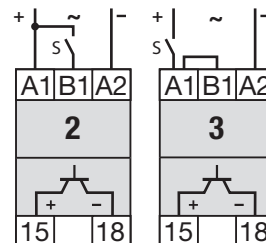
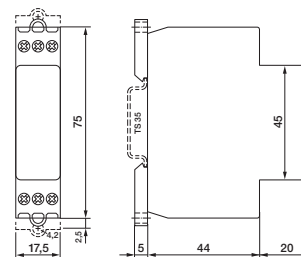


fig. 2. Dimensions (mm)



Technical approvals, conformities

Standards IEC/EN 60947

Railway EN 45545-2; EN 50155

Approvals

2.2 Multifunction Time Relays

AL1

Staircase switch | Auto - ON | 220 ... 240 V AC | 1 NO

Time data

Timing functions	L
Timing range	30 s ... 10 min

Main circuit

Number of contacts	1 NO
Available contact materials	⚡ AgNi
Rated voltage	250 V
Rated current	10 A
Minimum load	10 mA, 12 V
Inrush current	16 A, 10 ms
Rated load DC	fig. 3
Rated load AC-1	2,500 VA
Mechanical endurance (cycles)	20 000 000
Electrical endurance at rated load AC-1 (cycles)	fig. 2

Control circuit

Nominal voltage	220 ... 240 V AC
Operating voltage range	187 ... 265 V AC
Power consumption AC / DC	10.8 VA / -
Current consumption on supply A1-A2 AC / DC	< 45 mA / -
Current consumption on input control B1 AC / DC	< 28 mA / -
Threshold voltage on input control B1 AC / DC	154 V / -
Frequency range	48 ... 62 Hz

Insulation

Rated test voltage control / main circuit	2.5 kV rms / 1 min
Rated test voltage open contact	2.5 kV rms / 1 min
Pollution degree	2
Overvoltage category	III

General data

Storage temperature (no ice)	-40 ... 85 °C
Operation temperature	-40 ... 40 °C
Conductor cross section control / main circuit	2.5 mm ² , 2 x 1.5 mm ²
Nominal screw torque control / main circuit	0.5 Nm
Dimensions	fig. 4
Weight	71 g
Ingress Protection	IP 20
Housing material	PC

Product references

Description	Type	220-240
AC supply	AL1/AC...V	✓

Other voltages on request. Please contact support@comatreleco.com.
«...» List control circuit voltage to complete product references.



fig. 1. Wiring diagram

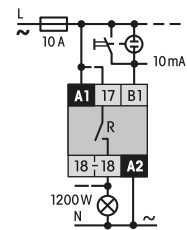


fig. 2. AC voltage endurance

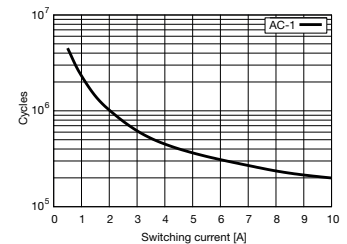


fig. 3. DC load limit curve

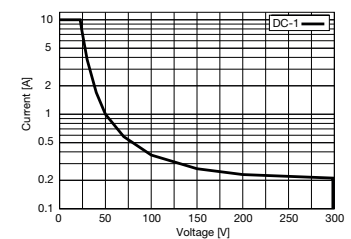
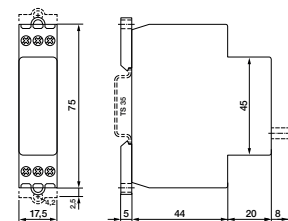


fig. 4. Dimensions (mm)



Technical approvals, conformities

Standards IEC/EN 60947

AL3

Staircase switch | Auto-ON | 24 V AC / DC | 220...240 V AC | 1 NO, pre-contact

Time data

Timing functions	L, LS, S
Timing range	30 s - 60 min
Timing scale	6 min / 60 min

Main circuit

Number of contacts	1 NO
Available contact materials	⚡ W + AgSnO ₂
Rated voltage	250 V
Rated current	10 A
Minimum load	10 mA, 12 V
Inrush current	600 A, 2.5 ms / 120 A, 20 ms
Rated load DC	210 W, 30 V
Rated load AC-1	2,500 VA
Mechanical endurance (cycles)	5 000 000
Electrical endurance at rated load AC-1 (cycles)	5 000

Control circuit

Nominal voltage	24 V AC/DC	220 ... 240 V AC
Operating voltage range	19.2 .. 30 V AC/DC	187 .. 265 V AC
Power consumption AC / DC	2.5 VA / 2.5 VA	2.5 VA / -
Current consumption on supply A1-A2 AC / DC	< 130 mA / < 130 mA	< 13 mA / -
Current consumption on input control B1 AC / DC	< 500 mA / < 500 mA	< 120 mA / -
Threshold voltage on input control B1 AC / DC	9 ... 18 V / 9 ... 18 V	130 ... 175 V / -
Frequency range	0; 48 ... 62 Hz	48 ... 62 Hz

Insulation

Rated test voltage control / main circuit	2.5 kV rms / 1 min
Rated test voltage open contact	2.5 kV rms / 1 min
Pollution degree	2
Overvoltage category	III

General data

Storage temperature (no ice)	-40 ... 85 °C
Operation temperature	-25 ... 60 °C
Conductor cross section control / main circuit	2.5 mm ² , 2 x 1.5 mm ²
Nominal screw torque control / main circuit	0.5 Nm
Dimensions	fig. 2
Weight	98 g
Ingress Protection	IP 20
Housing material	PC

Product references

Description	Type	24	220-240
AC supply	AL3/AC...V		✓
AC / DC supply	AL3/UC...V	✓	

Other voltages on request. Please contact support@comatreleco.com.
«...» List control circuit voltage to complete product references.



fig. 1. Wiring diagram

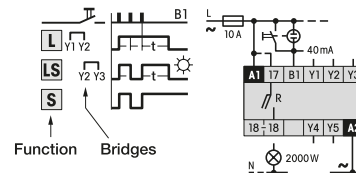
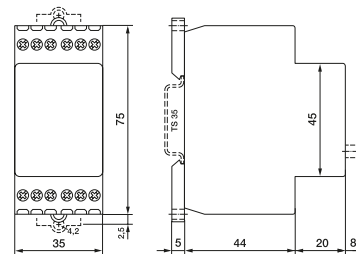


fig. 2. Dimensions (mm)



Technical approvals, conformities

Standards IEC/EN 60947

Approvals

2.2 Multifunction Time Relays

AL4

Staircase switch |Auto-ON| Central ON-OFF| 220..240 V AC |1 NO,pre-contact

Time data

Timing functions	fig. 1 L, LS, S
Timing range	30 s - 60 min
Timing scale	6 min / 60 min

Main circuit

Number of contacts	1 NO
Available contact materials	⚡ W + AgSnO ₂
Rated voltage	250 V
Rated current	10 A
Minimum load	10 mA, 12 V
Inrush current	600 A, 2.5 ms / 120 A, 20 ms
Rated load DC	210 W, 30 V
Rated load AC-1	2,500 VA
Mechanical endurance (cycles)	5 000 000
Electrical endurance at rated load AC-1 (cycles)	5 000

Control circuit

Nominal voltage	220 ... 240 V AC
Operating voltage range	187... 265 V AC
Power consumption AC / DC	2.5 VA / -
Current consumption on supply A1-A2 AC / DC	< 13 mA / -
Current consumption on input control B1 AC / DC	< 120 mA / -
Threshold voltage on input control B1 AC / DC	130 ... 175 V / -
Frequency range	48 ... 62 Hz

Insulation

Rated test voltage control / main circuit	2.5 kV rms / 1 min
Rated test voltage open contact	2.5 kV rms / 1 min
Pollution degree	2
Overtoltage category	III

General data

Storage temperature (no ice)	-40 ... 85 °C
Operation temperature	-25 ... 60 °C
Conductor cross section control / main circuit	2.5 mm ² , 2 x 1.5 mm ²
Nominal screw torque control / main circuit	0.5 Nm
Dimensions	fig. 2
Weight	98 g
Ingress Protection	IP 20
Housing material	PC

Product references

Description	Type	220-240
AC supply	AL4/AC...V	✓

Other voltages on request. Please contact support@comatreleco.com.
«...» List control circuit voltage to complete product references.

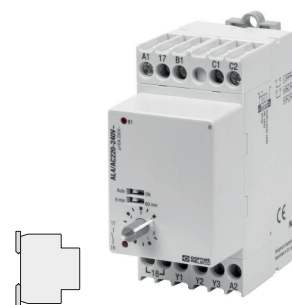


fig. 1. Wiring diagram

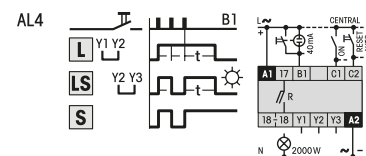
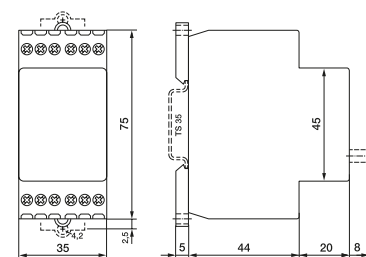


fig. 2. Dimensions (mm)



Technical approvals, conformities

Standards IEC/EN 60947

Approvals

AL5

Step switch | Auto - ON | Central ON - OFF | 230 V AC | 1 NO, pre-contact

Time data

Timing functions S

Main circuit

Number of contacts	1 NO
Available contact materials	⚡ W + AgSnO ₂
Rated voltage	250 V
Rated current	10 A
Minimum load	10 mA, 12 V
Inrush current	600 A, 2.5 ms / 120 A, 20 ms
Rated load DC	210 W, 30 V
Rated load AC-1	2,500 VA
Mechanical endurance (cycles)	5 000 000
Electrical endurance at rated load AC-1 (cycles)	5 000

Control circuit

Nominal voltage	230 V AC
Operating voltage range	187 .. 265 V AC
Power consumption AC / DC	2.5 VA / -
Current consumption on supply A1-A2 AC / DC	< 13 mA / -
Current consumption on input control B1 AC / DC	< 120 mA / -
Threshold voltage on input control B1 AC / DC	130 ... 165 V / -
Frequency range	48 ... 62 Hz

Insulation

Rated test voltage control / main circuit	2.5 kV rms / 1 min
Rated test voltage open contact	2.5 kV rms / 1 min
Pollution degree	2
Overvoltage category	III

General data

Storage temperature (no ice)	-40 ... 85 °C
Operation temperature	-25 ... 60 °C
Conductor cross section control / main circuit	2.5 mm ² , 2 x 1.5 mm ²
Nominal screw torque control / main circuit	0.5 Nm
Dimensions	fig. 2
Weight	98 g
Ingress Protection	IP 20
Housing material	PC

Product references

Description	Type	230
AC supply	AL5/AC...V	✓

Other voltages on request. Please contact support@comatreleco.com.
 «...» List control circuit voltage to complete product references.



fig. 1. Wiring diagram

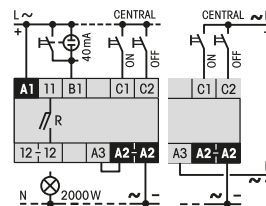
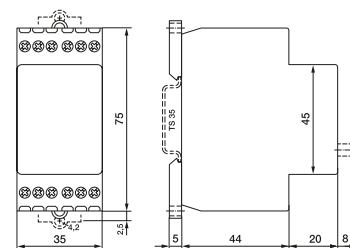


fig. 2. Dimensions (mm)



Technical approvals, conformities

Standards IEC/EN 60947

Approvals

2.2 Multifunction Time Relays

AM1

Multifunction | 24 ... 60 V AC / DC | 110 ... 240 V AC / DC | 1 CO



Time data

Timing functions	E, W, B
Timing range	0.5 s ... 6 s / 5 s ... 60 s / 0.5 min ... 6 min / 5 min ... 60 min
Timing scale	6 min / 60 min

Main circuit

Number of contacts	1 CO
Available contact materials	⚡ AgSnO ₂
Rated voltage	250 V
Rated current	10 A
Minimum load	10 mA, 12 V
Inrush current	16 A, 10 ms
Rated load DC	fig. 3
Rated load AC-1	2,500 VA
Mechanical endurance (cycles)	20 000 000
Electrical endurance at rated load AC-1 (cycles)	fig. 2

Control circuit

Nominal voltage	24 ... 60 V AC / DC	110 ... 240 V AC / DC
Operating voltage range	20 ... 75 V AC / DC	90 ... 265 V AC / DC
Power consumption AC / DC	1.8 VA / 1.8 W	2.4 VA / 2.4 W
Current consumption on supply A1-A2 AC / DC	< 30 mA / < 30 mA	< 10 mA / -
Threshold voltage on input control B1 AC / DC	10 V / 10 V	40 V / 40 V
Frequency range	0; 40 ... 60 Hz	0; 40 ... 60 Hz

Insulation

Rated test voltage control / main circuit	2 kV rms / 1 min
Rated test voltage open contact	1 kV rms / 1 min
Pollution degree	2
Overvoltage category	III

General data

Storage temperature (no ice)	-40 ... 85 °C
Operation temperature	-25 ... 60 °C
Conductor cross section control / main circuit	2.5 mm ² / 2 x 1.5 mm ²
Nominal screw torque control / main circuit	0.5 Nm
Dimensions	fig. 4
Weight	70 g
Ingress Protection	IP 20
Housing material	PC

Product references

Description	Type	24-60	110-240
AC / DC supply	AM1/UC...V	✓	✓

Other voltages on request. Please contact support@comatreleco.com.

«...» List control circuit voltage to complete product references.

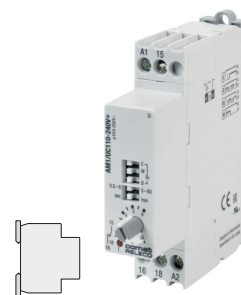


fig. 1. Wiring diagram

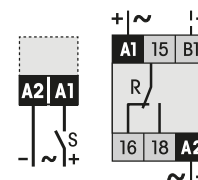


fig. 2. AC voltage endurance

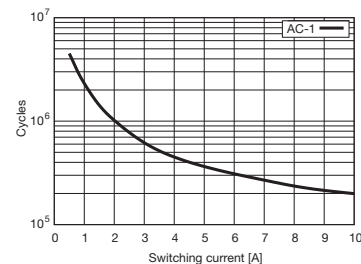


fig. 3. DC load limit curve

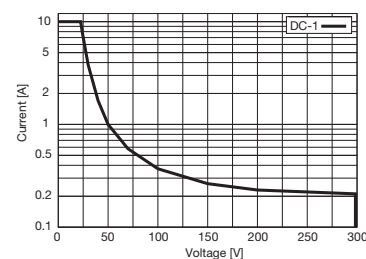
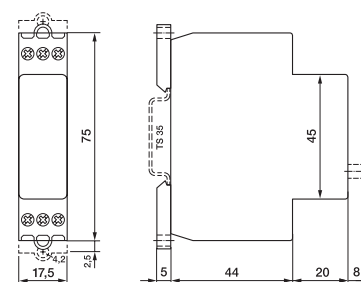


fig. 4. Dimensions (mm)



Technical approvals, conformities

Standards IEC/EN 60947

Approvals

AM2

Multifunction | 24 ... 60 V AC / DC | 220 ... 240 V AC | 1 CO

Time data

Timing functions	fig. 1 1: E 2: A, K 3: W
Timing range	0.5 s ... 6 s / 5 s ... 60 s / 0.5 min ... 6 min / 5 min ... 60 min
Timing scale	6 min / 60 min

Main circuit

Number of contacts	1 CO
Available contact materials	⚡ AgSnO ₂
Rated voltage	250 V
Rated current	10 A
Minimum load	10 mA, 12 V
Inrush current	16 A, 10 ms
Rated load DC	fig. 3
Rated load AC-1	2,500 VA
Mechanical endurance (cycles)	20 000 000
Electrical endurance at rated load AC-1 (cycles)	fig. 2

Control circuit

Nominal voltage	24 ... 60 V AC / DC	220 ... 240 V AC
Operating voltage range	20 ... 75 V AC / DC	180 ... 265 V AC
Power consumption AC / DC	2.4 VA / 2.4 W	3.6 VA / -
Current consumption on supply A1-A2 AC / DC	< 40 mA / < 40 mA	< 15 mA / -
Current consumption on input control B1 AC / DC	< 25 mA / < 25 mA	< 10 mA / -
Threshold voltage on input control B1 AC / DC	18 V / 18 V	170 V / -
Frequency range	0; 40 ... 60 Hz	0; 40 ... 60 Hz

Insulation

Rated test voltage control / main circuit	2 kV rms / 1 min
Rated test voltage open contact	1 kV rms / 1 min
Pollution degree	2
Overvoltage category	III

General data

Storage temperature (no ice)	-40 ... 85 °C
Operation temperature	-25 ... 60 °C
Conductor cross section control / main circuit	2.5 mm ² , 2 x 1.5 mm ²
Nominal screw torque control / main circuit	0.5 Nm
Dimensions	fig. 4
Weight	70 g
Ingress Protection	IP 20
Housing material	PC

Product references

Description	Type	24-60	220-240
AC supply	AM2/AC...V		✓
AC / DC supply	AM2/UC...V		✓

Other voltages on request. Please contact support@comatreleco.com.
«...» List control circuit voltage to complete product references.

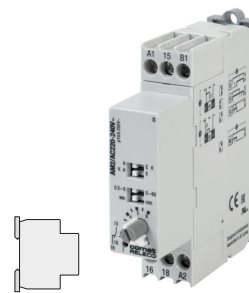


fig. 1. Wiring diagram

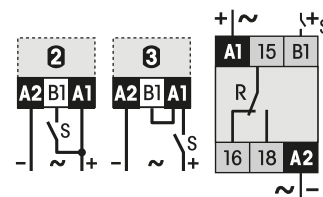


fig. 2. AC voltage endurance

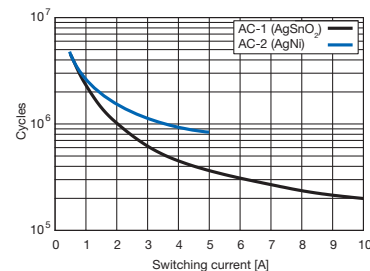


fig. 3. DC load limit curve

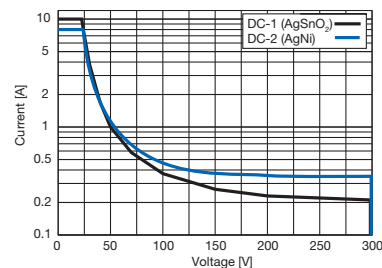
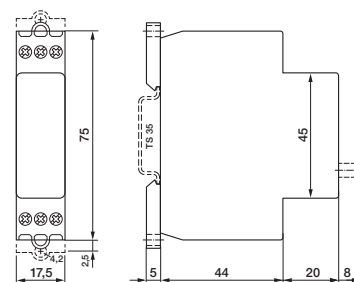


fig. 4. Dimensions (mm)



Technical approvals, conformities

Standards IEC/EN 60947

Approvals

2.2 Multifunction Time Relays

AM3

Multifunction | 24 ... 60 V AC / DC | 110 ... 240 V AC / DC | 2 CO



Time data

Timing functions	fig. 1 1: E 2: A, K 3: W
Timing range	0.5 s ... 6 s / 5 s ... 60 s / 0.5 min ... 6 min / 5 min ... 60 min
Timing scale	6 min / 60 min

Main circuit

Number of contacts	2 CO
Available contact materials	⚡ AgSnO ₂
Rated voltage	250 V
Rated current	10 A
Minimum load	10 mA, 12 V
Inrush current	16 A, 10 ms
Rated load DC	fig. 3
Rated load AC-1	2,500 VA
Mechanical endurance (cycles)	20 000 000
Electrical endurance at rated load AC-1 (cycles)	fig. 2

Control circuit

Nominal voltage	24 ... 60 V AC / DC	220 ... 240 V AC
Operating voltage range	19 ... 75 V AC / DC	187 ... 265 V AC
Power consumption AC / DC	3.0 VA / 3.0 W	3.6 VA / -
Current consumption on supply A1-A2 AC / DC	< 50 mA / < 50 mA	< 15 mA / -
Current consumption on input control B1 AC / DC	< 20 mA / < 20 mA	< 5 mA / -
Threshold voltage on input control B1 AC / DC	19 V / 19 V	187 V / -
Frequency range	0; 40 ... 60 Hz	0; 40 ... 60 Hz

Insulation

Rated test voltage control / main circuit	2 kV rms / 1 min
Rated test voltage main / main circuit	2 kV rms / 1 min
Rated test voltage open contact	1 kV rms / 1 min
Pollution degree	2
Overtoltage category	III

General data

Storage temperature (no ice)	-40 ... 85 °C
Operation temperature	-25 ... 60 °C
Conductor cross section control / main circuit	2.5 mm ² , 2 x 1.5 mm ²
Nominal screw torque control / main circuit	0.5 Nm
Dimensions	fig. 4
Weight	110 g
Ingress Protection	IP 20
Housing material	PC

Product references

Description	Type	24-60	220-240
AC supply	AM3/AC...V		✓
AC / DC supply	AM3/UC...V		✓

Other voltages on request. Please contact support@comatreleco.com.
«...» List control circuit voltage to complete product references.

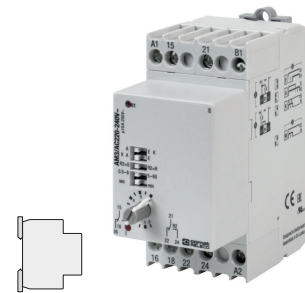


fig. 1. Wiring diagram

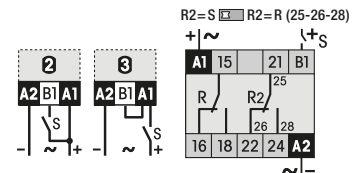


fig. 2. AC voltage endurance

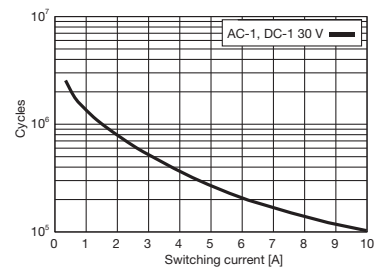


fig. 3. DC load limit curve

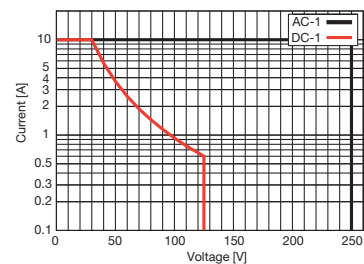
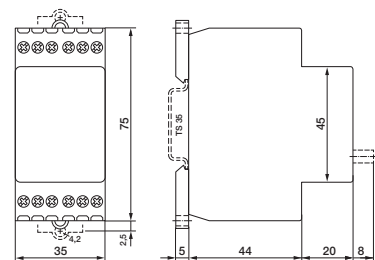


fig. 4. Dimensions (mm)



Technical approvals, conformities

Standards IEC/EN 60947

Approvals

CM2

Multifunction | 24 ... 60 V AC / DC | 110 ... 240 V AC / DC | 1 NO + 1 CO

Time data

Timing functions	fig. 1 2: E, A, K 3: E, W
Timing range	0.3 s ... 3 s / 1.2 s ... 12 s / 0.15 min ... 1.5 min / 1.2 min ... 12 min / 0.15 h ... 1.5 h / 1.2 h ... 12 h
Timing scale	3 s / 12 s / 1.5 min / 12 min / 1.5 h / 12 h

Main circuit

Number of contacts	1 NO + 1 CO
Available contact materials	⚡ AgNi
Rated voltage	250 V
Rated current	6 A
Minimum load	10 mA, 12 V
Inrush current	10 A, 10 ms
Rated load DC	100 W, 24 V
Rated load AC-1	1,500 VA
Mechanical endurance (cycles)	10 000 000
Electrical endurance at rated load DC-1 (cycles)	5 000 000

Control circuit

Nominal voltage	24 ... 60 V AC / DC	110 ... 240 V AC / DC
Operating voltage range	19 ... 75 V AC / DC	90 ... 265 V AC
Power consumption AC / DC	3.6 VA / 4.8 W	6 VA / 6 W
Current consumption on supply A1-A2 AC / DC	< 60 mA / < 80 mA	< 25 mA / < 25 mA
Current consumption on input control B1 AC / DC	< 20 mA / < 20 mA	< 10 mA / < 10 mA
Threshold voltage on input control B1 AC / DC	18 V / 20 V	70 V / 85 V
Frequency range	0; 40 ... 60 Hz	0; 40 ... 60 Hz

Insulation

Rated test voltage control / main circuit	2 kV rms / 1 min
Rated test voltage open contact	1 kV rms / 1 min
Pollution degree	2
Overvoltage category	III

General data

Storage temperature (no ice)	-40 ... 85 °C
Operation temperature	-25 ... 60 °C
Conductor cross section control / main circuit	2.5 mm ² , 2 x 1.5 mm ²
Nominal screw torque control / main circuit	0.5 Nm
Dimensions	fig. 2
Weight	139 g
Ingress Protection	IP 20
Housing material	PC

Product references

Description	Type	24-60	110-240
AC / DC supply	CM2/UC...V	✓	✓

Other voltages on request. Please contact support@comatreleco.com.
«...» List control circuit voltage to complete product references.



fig. 1. Wiring diagram

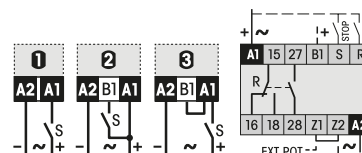
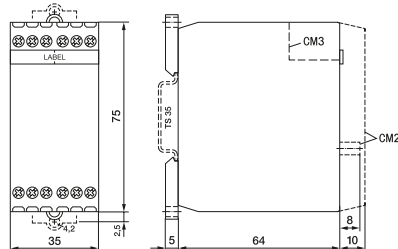


fig. 2. Dimensions (mm)



Technical approvals, conformities

Standards IEC/EN 60947

Approvals

2.2 Multifunction Time Relays

CM3

Multifunction | 12 ... 24 V DC | 24 ... 48 V DC, 24 ... 240 V AC | 2 CO



Time data

Timing functions	fig. 1 1: E 2: A, K, N, B1 3: B, W
Timing range	50 ms ... 0.6 s / 0.5 s ... 6 s / 5 s ... 60 s / 0.5 min ... 6 min / 5 min ... 60 min / 0.5 h ... 6 h / 5 h ... 60 h
Timing scale	0.6 s / 6 s / 60 s / 6 min / 60 min / 6 h / 60 h

Main circuit

Number of contacts	2 CO
Available contact materials	⚡ AgNi
Rated voltage	250 V
Rated current	5 A
Minimum load	10 mA, 10 V
Inrush current	10 A, 10 ms
Rated load DC	fig. 3
Rated load AC-1	1,250 VA
Mechanical endurance (cycles)	15 000 000
Electrical endurance at rated load AC-1 (cycles)	fig. 2

Control circuit

Nominal voltage	12 ... 24 V DC	24 ... 48 V DC / 24 ... 240 V AC
Operating voltage range	9.6 ... 28.8 V DC	19 ... 250 V AC / 19 ... 60 V DC
Power consumption AC / DC	- / 1.2 W	15 VA / 1.2 W
Current consumption on supply A1-A2 AC / DC	- / < 45 mA	< 40 mA / < 40 mA
Current consumption on input control B1 AC / DC	- / < 13.8 mA	< 6 mA / < 6 mA
Threshold voltage on input control B1 AC / DC	- / 5.8 ... 6.5 V	11 ... 13 V / 13 ... 18 V
Frequency range	-	0; 45 ... 63 Hz

Insulation

Rated test voltage control / main circuit	2.5 kV rms / 1 min
Rated test voltage main / main circuit	2.5 kV rms / 1 min
Rated test voltage open contact	1 kV rms / 1 min
Pollution degree	2
Overvoltage category	III

General data

Storage temperature (no ice)	-40 ... 85 °C
Operation temperature	-25 ... 60 °C
Conductor cross section control / main circuit	2.5 mm ² , 2 x 1.5 mm ²
Nominal screw torque control / main circuit	0.5 Nm
Dimensions	fig. 4
Weight	72 g
Ingress Protection	IP 20
Housing material	PC

Product references

Description	Type	12-24	24-48
AC / DC supply	CM3/DC...V/AC...V		✓

DC supply	CM3/DC...V	✓
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Other voltages on request. Please contact support@comatreleco.com.

«...» List control circuit voltage to complete product references.

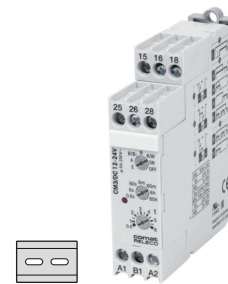


fig. 1. Wiring diagram

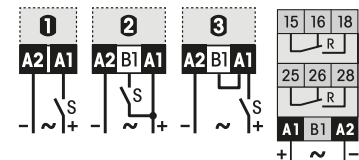


fig. 2. AC voltage endurance

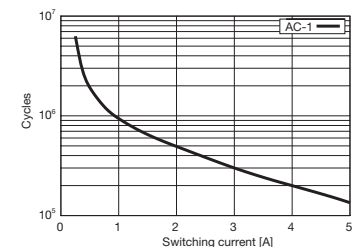


fig. 3. DC load limit curve

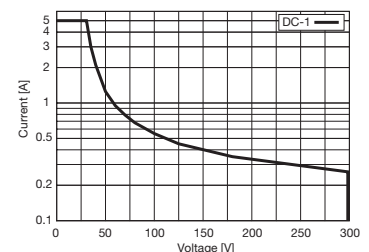
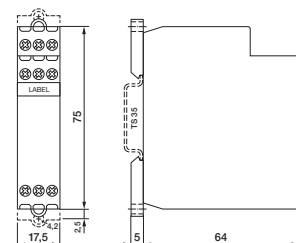


fig. 4. Dimensions (mm)



Technical approvals, conformities

Standards IEC/EN 60947

Approvals

CPF11

Pulse extension | 24 V DC | 1 PNP Transistor

Time data

Timing functions	A, K, L
Timing range	5 ms ... 60 ms / 50 ms ... 600 ms
Timing scale	60 ms / 600 ms

Main circuit

Number of outputs	1 NO
Output type	⚡ PNP Transistor
Output voltage range	10 ... 32 V (Potential of +)
Rated current	0.8 A
Inrush current	2 A, 5 s
Typ. leakage current	1 µA
Rated load DC	0.8 A, 32 V
Electrical endurance at rated load DC-1 (cycles)	∞

Control circuit

Nominal voltage	24 V DC
Operating voltage range	15 ... 32 V DC
Power consumption AC / DC	- / 0.4 W
Current consumption on supply A1-A2 AC / DC	- / 16 mA
Current consumption on input control B1 AC / DC	E1: 5 mA @ 24 V; E2: 1.8 mA @ 24 V
Threshold voltage on input control B1 AC / DC	E1: 10 V; E2: 16 V
Frequency range	DC

Insulation

Pollution degree	2
Overvoltage category	III

General data

Storage temperature (no ice)	-40 ... 85 °C
Operation temperature	-25 ... 50 °C
Ambient temperature operation derated power	-25 ... 60 °C (I _N 0.7 A)
Conductor cross section control / main circuit	2.5 mm ² , 2 x 1.5 mm ²
Nominal screw torque control / main circuit	0.5 Nm
Dimensions	fig. 2
Weight	60 g
Ingress Protection	IP 20
Housing material	PC

Product references

Description	Type	24
DC supply	CPF11/DC...V	✓
Other voltages on request. Please contact support@comatreleco.com.		
«...» List control circuit voltage to complete product references.		

Accessories

Labels	BZS DIN 175MM
--------	---------------



fig. 1. Wiring diagram

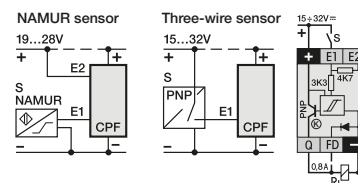
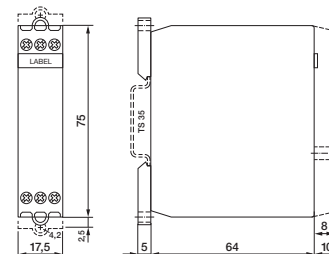


fig. 2. Dimensions (mm)



Technical approvals, conformities

Standards IEC/EN 60947

Approvals

2.2 Multifunction Time Relays

CRV4

Multifunction | 24 ... 240 V AC / DC | 1 CO | External potentiometer



Time data

Timing functions
Timing range

fig. 1 1: E 2: E, A, K, N, M, B1, F, G, Q, L, S, LS 3: W, B, B2, H
t (t1) 50 ms ... 0.6 s / 0.5 s ... 6 s / 5 s ... 60 s / 0.5 min ... 6 min / 5 min ... 60 min / 0.5 h ... 6 h / 5 h ... 60 h t2 (G/H 1) 60 ms / 0.6 s / 6 s / 0.6 min / 6 min / 0.6 h t2 (G/H 2) 0.6 s / 6 s / 60 s / 6 min / 60 min / 6 h / 60 h
Timing scale 0.6 s / 6 s / 60 s / 6 min / 60 min / 6 h / 60 h

Main circuit

Number of contacts 1 CO
Available contact materials ⚡ AgNi
Rated voltage 250 V
Rated current 6 A
Minimum load 10 mA, 10 V
Inrush current 15 A, 10 ms
Rated load DC fig. 3
Rated load AC-1 1,500 VA
Mechanical endurance (cycles) 30 000 000
Electrical endurance at rated load AC-1 (cycles) fig. 2

Control circuit

Nominal voltage 24 ... 240 V AC / DC
Operating voltage range 19.2 ... 250 V AC / DC
Power consumption AC / DC 0.55 VA / 0.55 W
Current consumption on supply A1-A2 AC / DC 6 mA / 6 mA
Current consumption on input control B1 AC / DC 4 mA / 7 mA
Threshold voltage on input control B1 AC / DC 14.5 V / 17.5 V
Frequency range 0; 40 ... 60 Hz

Insulation

Rated test voltage control / main circuit 2 kV rms / 1 min
Rated test voltage open contact 1 kV rms / 1 min
Pollution degree 2
Overvoltage category III

General data

Nominal screw torque control / main circuit 0.5 Nm

Housing and environmental conditions

Storage temperature (no ice) -40 ... 85 °C
Operation temperature -40 ... 70 °C
Ingress Protection IP 20
Weight 50 g
Operation Position Any
Housing material PC
Dimensions fig. 4

Wiring

Conductor cross section control / main circuit 2.5 mm², 2 x 1 mm²

Product references

Description	Type	24-240
AC / DC supply	CRV4/UC...V	✓
Other voltages on request. Please contact support@comatreleco.com.		
«...» List control circuit voltage to complete product references.		

Accessories

External potentiometer SP-01/100K

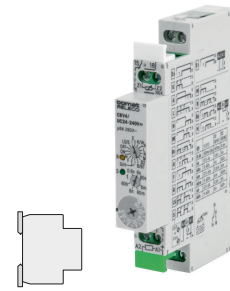


fig. 1. Wiring diagram

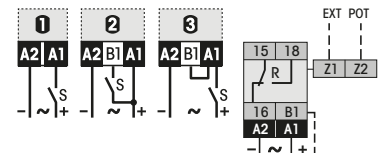


fig. 2. AC voltage endurance

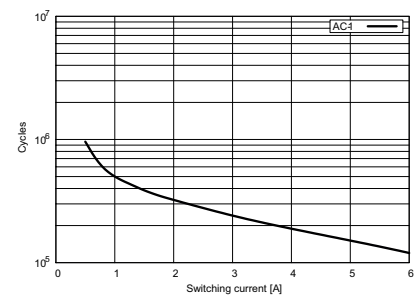


fig. 3. DC load limit curve

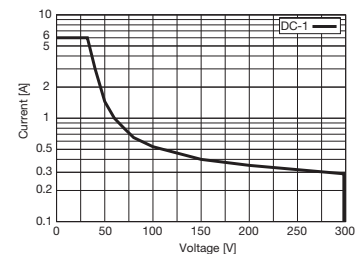
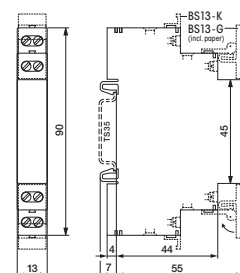


fig. 4. Dimensions (mm)



Technical approvals, conformities

Standards IEC/EN 60947

Approvals CE cRU us EAC UK CA

CSV4

Multifunction | 12 ... 36 V DC | 1 MOSFET | External potentiometer

Time data

Timing functions
Timing range

fig. 1 1: E 2: E, A, K, N, M, B1, F, G, Q, L, S, LS 3: W, B, B2, H
t (t1) 0.8 ms ... 10 ms / 8 ms ... 100 ms / 80 ms ... 1 s / 0.8 s
... 10 s / 5 s ... 1 min / 0.8 min ... 10 min / 8 min ... 1 h / 0.8 h
... 10 h t2 (G/H 1) 1 ms / 10 ms / 0.1 s / 1 s / 6 s / 1 min / 6 min /
1 h t2 (G/H 2) 10 ms / 0.1 s / 1 s / 10 s / 1 min / 10 min / 1 h / 10
h
Timing scale 0.1 s / 1 s / 10 s / 1 min / 10 min / 1 h / 10 h

Timing scale

Main circuit

Number of outputs
Output type

1 NO
MOSFET

Output voltage range

10.2 ... 45 V (Potential of A1)

Rated current

1.5 A

Minimum load

1 mA, 10.2 V

Inrush current

4 A, 100 ms

Typ. leakage current

10 µA

Mechanical endurance (cycles)

∞

Electrical endurance at rated load DC-1 (cycles)

∞

Control circuit

Nominal voltage

12 ... 36 V DC

Operating voltage range

10.2 ... 45 V DC

Power consumption AC / DC

- / 0.2 W

Current consumption on supply A1-A2 AC / DC

- / 8 mA

Current consumption on input control B1 AC / DC

- / 4 mA

Threshold voltage on input control B1 AC / DC

- / 7.3 V

Frequency range

DC

Insulation

Rated test voltage control / main circuit

2 kV rms / 1 min

Pollution degree

2

Overvoltage category

III

General data

Nominal screw torque control / main circuit

0.5 Nm

Housing and environmental conditions

Storage temperature (no ice)

-40 ... 85 °C

Operation temperature

-40 ... 70 °C

Ingress Protection

IP 20

Weight

50 g

Operation Position

Any

Housing material

PC

Dimensions

fig. 2

Wiring

Conductor cross section control / main circuit

2.5 mm², 2 x 1 mm²

Accessories

External potentiometer

SP-01/100K

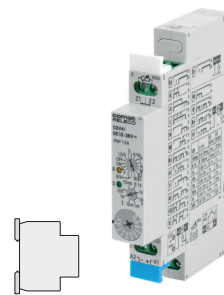


fig. 1. Wiring diagram

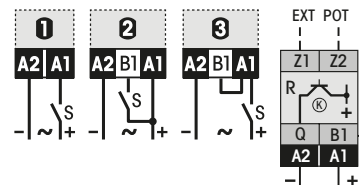
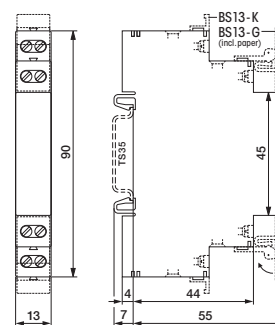


fig. 2. Dimensions (mm)




Technical approvals, conformities

Standards IEC/EN 60947

Approvals **CE** **c** **RU** **us** **EAC** **UK** **CA**

2.3 Star-Delta Relays

	Type	Pin	Page
CY Series			
Star-Delta 24 ... 60 V AC / DC 110 ... 240 V AC / DC 1 NO + 1 CO	CY1		250

2.3 Star-Delta Relays

CY1

Star-Delta | 24 ... 60 V AC / DC | 110 ... 240 V AC / DC | 1 NO + 1 CO

Time data

Timing functions	Y
Timing range	Star time: 0.5 s ... 6 s / 5 s ... 60 s Switchover time: 50 ms / 100 ms
Timing scale	6 s / 60 s

Main circuit

Number of contacts	1 NO + 1 CO
Available contact materials	⚡ AgNi
Rated voltage	250 V
Rated current	6 A
Minimum load	10 mA, 10 V
Inrush current	30 A, 10 ms
Rated load DC	fig. 3
Rated load AC-1	1,500 VA
Mechanical endurance (cycles)	30 000 000
Electrical endurance at rated load AC-1 (cycles)	fig. 2

Control circuit

Nominal voltage	24 ... 60 V AC / DC	110 ... 240 V AC / DC
Operating voltage range	20 ... 75 V AC/DC	90 ... 265 V AC/DC
Power consumption AC / DC	1 VA / 1 W	1 VA / 1 W
Current consumption on supply A1-A2 AC / DC	35 mA / 35 mA	10 mA / 10 mA
Frequency range	0; 40 ... 60 Hz	0; 40 ... 60 Hz

Insulation

Rated test voltage control / main circuit	2 kV rms / 1 min
Rated test voltage main / main circuit	2 kV rms / 1 min
Rated test voltage open contact	1 kV rms / 1 min
Pollution degree	2
Overvoltage category	III

General data

Storage temperature (no ice)	-40 ... 85 °C
Operation temperature	-25 ... 60 °C
Conductor cross section control / main circuit	2.5 mm ² , 2 x 1.5 mm ²
Nominal screw torque control / main circuit	0.5 Nm
Dimensions	fig. 4
Weight	76 g
Ingress Protection	IP 20
Housing material	PC

Product references

Description	Type	24-60	110-240
AC / DC supply	CY1/UC...V	✓	✓

Other voltages on request. Please contact support@comatreleco.com.
«...» List control circuit voltage to complete product references.

Accessories

Labels	BZS DIN 175MM
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fig. 1. Wiring diagram

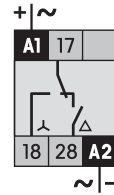


fig. 2. AC voltage endurance

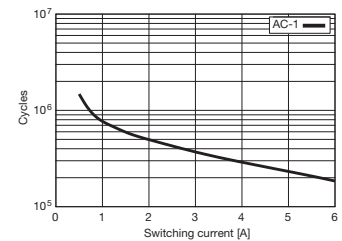


fig. 3. DC load limit curve

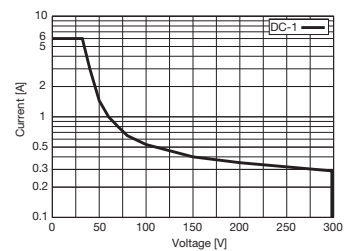
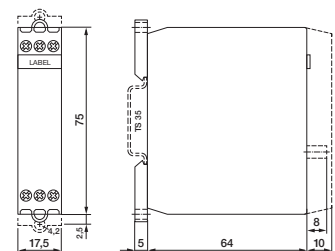


fig. 4. Dimensions (mm)




Technical approvals, conformities

Standards IEC/EN 60947

Approvals

2.4 Time Relays - pluggable

	Type	Pin	Page
C Series			
Multifunction 24 ... 60 V AC / DC 110 ... 240 V AC / DC 2 CO	C55		252
Multifunction 24 ... 60 V AC/DC 110 ... 240 V AC/DC 1 MOSFET	C55.3		253
Multifunction 24 V DC 1 MOSFET	C55.4		254
Multifunction 24...60 V AC / DC 110...240 V AC / DC 1 CO, 1 NO	C56		255
Multifunction 24 ... 60 V AC / DC 110 ... 240 V AC / DC 2 CO	C64		256
Multifunction 24 ... 240 V AC / DC 1 CO	C83		257
Multifunction 24 ... 240 V AC / DC 1 CO	C85		258
CS Series			
Multifunction 12 ... 240 V AC / DC 1 CO External potentiometer	CS2		259
Multifunction 12 ... 240 V AC / DC 2 CO	CS3		260
RS Series			
Multifunction 24 ... 48 V AC / DC 220 ... 240 V AC 1 CO	RS 41-M		261

2.4 Time Relays - pluggable

C55

Multifunction | 24 ... 60 V AC / DC | 110 ... 240 V AC / DC | 2 CO

Time data

Timing functions	fig. 1 2: E, A, K, W, H, N, M, B, G, F, Q, I, P 3: E, W, H, B, I, P 4: U, V
Timing range	0.01 s ... 60 d
Timing scale	digital

Main circuit

Number of contacts	2 CO
Available contact materials	⚡ AgNi
Rated voltage	250 V
Rated current	5 A
Minimum load	10 mA, 12 V
Inrush current	10 A, 10 ms
Rated load DC	fig. 3
Rated load AC-1	1,250 VA
Mechanical endurance (cycles)	5 000 000
Electrical endurance at rated load AC-1 (cycles)	fig. 2

Control circuit

Nominal voltage	24 ... 60 V AC / DC	110 ... 240 V AC / DC
Operating voltage range	19 ... 75 V AC / DC	88 ... 265 V AC / DC
Power consumption AC / DC	2 VA / 2 W	2 VA / 2 W
Current consumption on supply A1-A2 AC / DC	80 mA / 80 mA	15 mA / 15 mA
Current consumption on input control B1 AC / DC	6.3 mA / 6.3 mA	4.2 mA / 4.2 mA
Threshold voltage on input control B1 AC / DC	11 V / 11 V	50 V / 50 V
Frequency range	0; 50 ... 400 Hz	0; 50 ... 400 Hz

Insulation

Rated test voltage control / main circuit	2 kV rms / 1 min
Rated test voltage main / main circuit	2 kV rms / 1 min
Rated test voltage open contact	1 kV rms / 1 min
Pollution degree	2
Overvoltage category	III

General data

Storage temperature (no ice)	-40 ... 85 °C
Operation temperature	-25 ... 60 °C
Dimensions	fig. 4
Weight	80 g
Ingress Protection	IP 20
Housing material	PC

Product references

Description	Type	24-60	110-240
AC / DC supply	C55/UC...V	✓	✓

Other voltages on request. Please contact support@comatreleco.com.
«...» List control circuit voltage to complete product references.

Accessories

Socket	S3-M
Frontpanel mounting set	FZ-50L
Retaining spring I steel	HF-50 (BAG 10 PCS)



fig. 1. Wiring diagram

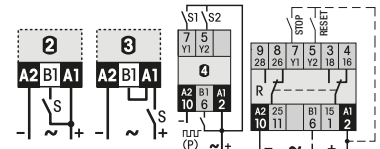


fig. 2. AC voltage endurance

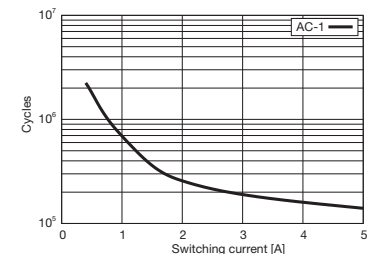


fig. 3. DC load limit curve

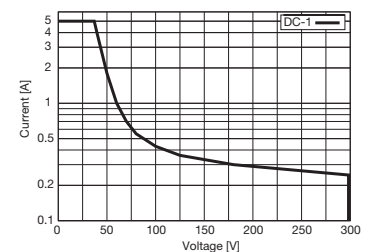
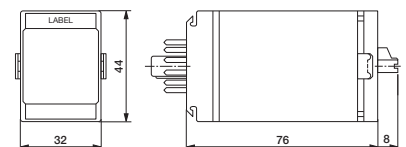


fig. 4. Dimensions (mm)



Technical approvals, conformities

Standards IEC/EN 60947

Approvals

C55.3

Multifunction | 24 ... 60 V AC/DC | 110 ... 240 V AC/DC | 1 MOSFET

Time data

Timing functions	fig. 1 2: E, A, K, W, H, N, M, B, G, F, Q, I, P 3: E, W, H, B, I, P 4: U, V
Timing range	0.01 s ... 60 d
Timing scale	digital

Main circuit

Number of outputs	1 NO
Output type	MOSFET AC and DC
Output voltage range	10 ... 265 V
Rated current	0.5 A
Minimum load	1 mA, 10 V
Inrush current	6 A, 2 us
Rated load AC-1	132 VA
Mechanical endurance (cycles)	∞
Electrical endurance at rated load AC-1 (cycles)	∞
Electrical endurance at rated load DC-1 (cycles)	∞

Control circuit

Nominal voltage	24 ... 60 V AC / DC	110 ... 240 V AC / DC
Operating voltage range	19 ... 75 V AC / DC	88 ... 265 V AC / DC
Power consumption AC / DC	2 VA / 2 W	2 VA / 2 W
Current consumption on supply A1-A2 AC / DC	80 mA/ 80 mA	15 mA / 15 mA
Current consumption on input control B1 AC / DC	6.3 mA / 6.3 mA	4.2 mA / 4.2 mA
Threshold voltage on input control B1 AC / DC	11 V / 11 V	50 V / 50 V
Frequency range	0; 50 ... 400 Hz	0; 50 ... 400 Hz

Insulation

Rated test voltage control / main circuit	2 kV rms / 1 min
Pollution degree	2
Overvoltage category	III

General data

Storage temperature (no ice)	-40 ... 85 °C
Operation temperature	-25 ... 60 °C
Dimensions	fig. 2
Weight	80 g
Ingress Protection	IP 20
Housing material	PC

Product references

Description	Type	24-60	110-240
AC / DC supply	C55.3/UC...V	✓	✓
Other voltages on request. Please contact support@comatreleco.com.			
«...» List control circuit voltage to complete product references.			

Accessories

Socket	S3-M
Frontpanel mounting set	FZ-50L
Retaining spring steel	HF-50 (BAG 10 PCS)



fig. 1. Wiring diagram

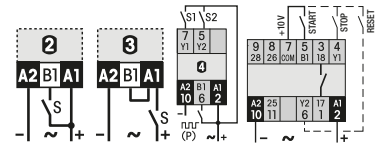
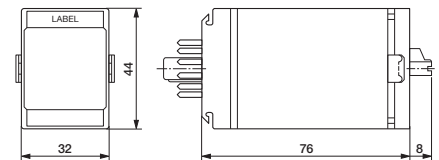


fig. 2. Dimensions (mm)



Technical approvals, conformities

Standards IEC/EN 60947

Approvals

2.4 Time Relays - pluggable


C55.4

Multifunction | 24 V DC | 1 MOSFET

Time data

Timing functions	fig. 1 2: E, A, K, W, H, N, M, B, G, F, Q, I, P 3: E, W, H, B, I, P 4: U, V
Timing range	0.01 s ... 60 d
Timing scale	digital

Main circuit

Number of outputs	1 NO
Output type	 MOSFET
Output voltage range	19 ... 30 V
Rated current	2 A
Minimum load	1 mA, 5 V
Inrush current	40 A, 150 us
Mechanical endurance (cycles)	∞
Electrical endurance at rated load AC-1 (cycles)	∞

Control circuit

Nominal voltage	24 V DC
Operating voltage range	19 ... 30 V DC
Power consumption AC / DC	- / 300 mW
Current consumption on supply A1-A2 AC / DC	- / 80 mA
Current consumption on input control B1 AC / DC	- / 5.5 mA
Threshold voltage on input control B1 AC / DC	- / 10 V
Frequency range	DC

Insulation

Pollution degree	2
Overvoltage category	III

General data

Storage temperature (no ice)	-40 ... 85 °C
Operation temperature	-25 ... 60 °C
Dimensions	fig. 2
Weight	80 g
Ingress Protection	IP 20
Housing material	PC

Product references

Description	Type	24
DC supply	C55.4/DC...V	✓

Other voltages on request. Please contact support@comatreleco.com.
«...» List control circuit voltage to complete product references.

Accessories

Socket	S3-M
Frontpanel mounting set	FZ-50L
Retaining spring steel	HF-50 (BAG 10 PCS)



fig. 1. Wiring diagram

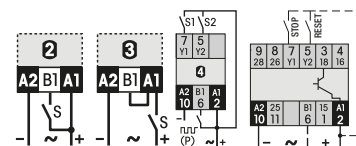
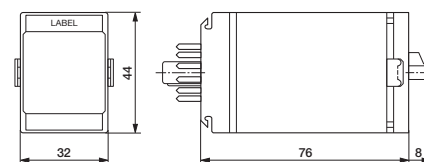


fig. 2. Dimensions (mm)



Technical approvals, conformities

Standards IEC/EN 60947

Approvals 

C56

Multifunction | 24...60 V AC / DC | 110...240 V AC / DC | 1 CO, 1 NO



Time data

Timing functions	fig. 1 6: E, A, K, W, H, N, M, B, G, F, Q, I, P 7: E, W, H, B, I, P 5: U, V
Timing range	0.01 s ... 60 d
Timing scale	digital

Main circuit

Number of contacts	1 CO, 1 NO (Potential-free control)
Available contact materials	⚡ AgNi
Rated voltage	250 V
Rated current	5 A
Minimum load	10 mA, 12 V
Inrush current	10 A, 10 ms
Rated load DC	fig. 3
Rated load AC-1	1,250 VA
Mechanical endurance (cycles)	5 000 000
Electrical endurance at rated load AC-1 (cycles)	fig. 2

Control circuit

Nominal voltage	24 ... 60 V AC / DC	110 ... 240 V AC / DC
Operating voltage range	19 ... 75 V AC / DC	88 ... 265 V AC / DC
Power consumption AC / DC	2 VA / 2 W	2 VA / 2 W
Current consumption on supply A1-A2 AC / DC	80 mA/ 80 mA	15 mA / 15 mA
Frequency range	0; 50 ... 400 Hz	0; 50 ... 400 Hz

Insulation

Rated test voltage control / main circuit	2 kV rms / 1 min
Rated test voltage main / main circuit	2 kV rms / 1 min
Rated test voltage open contact	1 kV rms / 1 min
Pollution degree	2
Overvoltage category	III

General data

Storage temperature (no ice)	-40 ... 85 °C
Operation temperature	-25 ... 60 °C
Dimensions	fig. 4
Weight	80 g
Ingress Protection	IP 20
Housing material	PC

Product references

Description	Type	24-60	110-240
AC / DC supply	C56/UC...V	✓	✓

Other voltages on request. Please contact support@comatreleco.com.
«...» List control circuit voltage to complete product references.

Accessories

Socket	S3-M
Frontpanel mounting set	FZ-50L
Retaining spring steel	HF-50 (BAG 10 PCS)



fig. 1. Wiring diagram

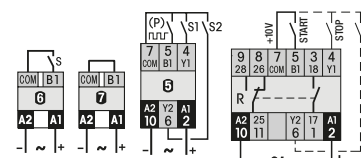


fig. 2. AC voltage endurance

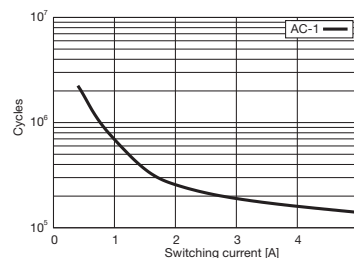


fig. 3. DC load limit curve

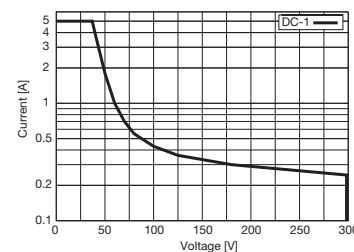
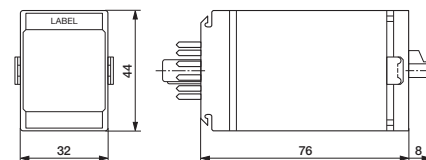


fig. 4. Dimensions (mm)



Technical approvals, conformities

Standards IEC/EN 60947



2.4 Time Relays - pluggable

C64

Multifunction | 24 ... 60 V AC / DC | 110 ... 240 V AC / DC | 2 CO

Time data

Timing functions	A, N (Off delay without control voltage)
Timing range	0.1 s ... 1.2 s / 1 s ... 12 s / 10 s ... 120 s / 1.7 min ... 20 min
Timing scale	1.2 s / 12 s / 120 s / 20 min

Main circuit

Number of contacts	2 CO
Available contact materials	⚡ AgNi
Rated voltage	250 V
Rated current	5 A
Minimum load	10 mA, 12 V
Inrush current	10 A, 10 ms
Rated load DC	fig. 3
Rated load AC-1	1,250 VA
Mechanical endurance (cycles)	5 000 000
Electrical endurance at rated load AC-1 (cycles)	fig. 2

Control circuit

Nominal voltage	24 ... 60 V AC / DC	110 ... 240 V AC / DC
Operating voltage range	20 ... 75 V AC / DC	88 ... 265 V AC / DC
Power consumption AC / DC	0.9 VA / 0.9 W	1.2 VA / 1.2 W
Current consumption on supply A1-A2 AC / DC	15 mA / 15 mA	5 mA / 5 mA
Frequency range	0; 50 ... 400 Hz	0; 50 ... 400 Hz

Insulation

Rated test voltage control / main circuit	2 kV rms / 1 min
Rated test voltage main / main circuit	2 kV rms / 1 min
Rated test voltage open contact	1 kV rms / 1 min
Pollution degree	2
Overvoltage category	III

General data

Storage temperature (no ice)	-40 ... 85 °C
Operation temperature	-25 ... 60 °C
Dimensions	fig. 4
Weight	75 g
Ingress Protection	IP 20
Housing material	PC

Product references

Description	Type	24-60	110-240
AC / DC supply	C64/UC...V	✓	✓
Other voltages on request. Please contact support@comatreleco.com.			
«...» List coil voltage to complete product references			

Accessories

Socket	S3-M
Retaining spring I steel	HF-50 (BAG 10 PCS)

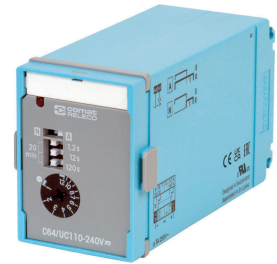


fig. 1. Wiring diagram

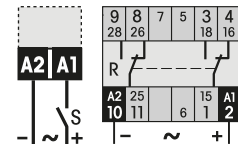


fig. 2. AC voltage endurance

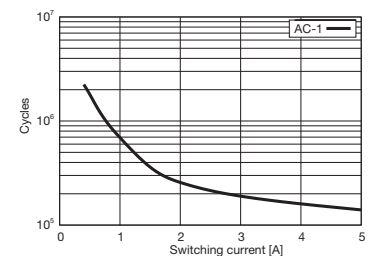


fig. 3. DC load limit curve

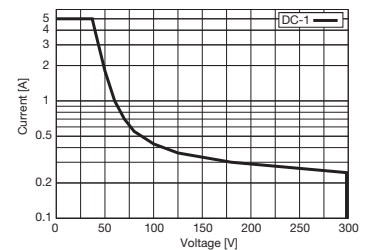
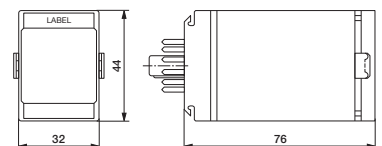


fig. 4. Dimensions (mm)



Technical approvals, conformities

Standards IEC/EN 60947

Approvals

2.4 Time Relays - pluggable

C83

Multifunction | 24 ... 240 V AC / DC | 1 CO

Time data

Timing functions	fig. 1 2: E, A, N, L, F, K, G, B1, Q 3: E, W, H, B
Timing range	50 ms ... 0.6 s / 0.5 s ... 6 s / 5 s ... 60 s / 0.5 min ... 6 min / 5 min ... 60 min / 0.5 h ... 6 h / 5 h ... 60 h
Timing scale	0.6 s / 6 s / 60 s / 6 min / 60 min / 6 h / 60 h

Main circuit

Number of contacts	1 CO
Available contact materials	⚡ AgNi
Rated voltage	250 V
Rated current	8 A
Minimum load	10 mA, 10 V
Inrush current	30 A, 10 ms
Rated load DC	fig. 3
Rated load AC-1	2,000 VA
Mechanical endurance (cycles)	30 000 000
Electrical endurance at rated load AC-1 (cycles)	fig. 2

Control circuit

Nominal voltage	24 ... 240 V AC / DC
Operating voltage range	20 ... 265 V AC / DC
Power consumption AC / DC	10 VA / 1.8 W
Current consumption on supply A1-A2 AC / DC	< 40 mA / < 35mA
Current consumption on input control B1 AC / DC	6.5 mA / 3.5 mA
Threshold voltage on input control B1 AC / DC	= 0.32 x Operating Voltage + 6 (min) = 0.38 x Operating Voltage + 9 (max)
Frequency range	0; 45 ... 63 Hz

Insulation

Rated test voltage control / main circuit	2 kV rms / 1 min
Rated test voltage open contact	1 kV rms / 1 min
Pollution degree	2
Overvoltage category	III

General data

Storage temperature (no ice)	-40 ... 85 °C
Operation temperature	-25 ... 60 °C
Dimensions	fig. 4
Weight	60 g
Ingress Protection	IP 20
Housing material	PC

Product references

Description	Type	24-240
AC / DC supply	C83/UC...V	✓

Other voltages on request. Please contact support@comatreleco.com.
«...» List control voltage to complete product references.

Accessories

Socket	S7-C
--------	------



fig. 1. Wiring diagram

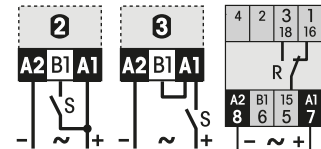


fig. 2. AC voltage endurance

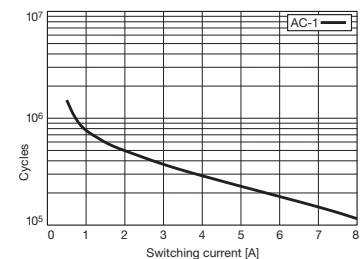


fig. 3. DC load limit curve

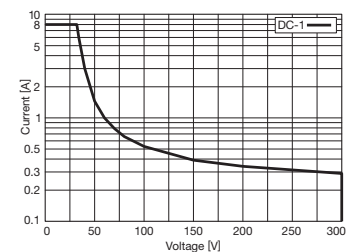
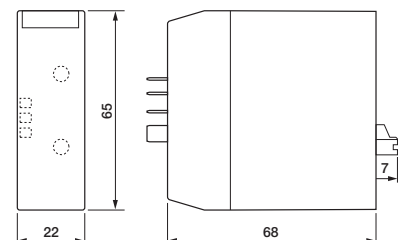


fig. 4. Dimensions (mm)



Technical approvals, conformities

Standards IEC/EN 60947

Approvals

2.4 Time Relays - pluggable

C85

Multifunction | 24 ... 240 V AC / DC | 1 CO

Time data

Timing functions	fig. 1 2: F, G, Q, I, P 3: H, I, P
Timing range	50 ms ... 0.6 s / 0.5 s ... 6 s / 5 s ... 60 s / 0.5 min ... 6 min / 5 min ... 60 min / 0.5 h ... 6 h / 5 h ... 60 h
Timing scale	0.6 s / 6 s / 60 s / 6 min / 60 min / 6 h / 60 h

Main circuit

Number of contacts	1 CO
Available contact materials	⚡ AgNi
Rated voltage	250 V
Rated current	8 A
Minimum load	10 mA, 10 V
Inrush current	30 A, 10 ms
Rated load DC	fig. 3
Rated load AC-1	1,250 VA
Mechanical endurance (cycles)	30 000 000
Electrical endurance at rated load AC-1 (cycles)	fig. 2

Control circuit

Nominal voltage	24 ... 240 V AC / DC
Operating voltage range	20 ... 265 V AC/DC
Power consumption AC / DC	10 VA / 1.8 W
Current consumption on supply A1-A2 AC / DC	< 40 mA / < 35 mA
Current consumption on input control B1 AC / DC	6.5 mA / 3.5 mA
Threshold voltage on input control B1 AC / DC	= 0.32 x Operating Voltage + 6 (min) = 0.38 x Operating Voltage + 9 (max)
Frequency range	0; 45...63 Hz

Insulation

Rated test voltage control / main circuit	2 kV rms / 1 min
Rated test voltage open contact	1 kV rms / 1 min
Pollution degree	2
Overvoltage category	III

General data

Storage temperature (no ice)	-40 ... 85 °C
Operation temperature	-25 ... 60 °C
Dimensions	fig. 4
Weight	63 g
Ingress Protection	IP 20
Housing material	PC

Product references

Description	Type	24-240
AC / DC supply	C85/UC...V	✓

Other voltages on request. Please contact support@comatreleco.com.
«...» List coil voltage to complete product references

Accessories

Socket	S7-C
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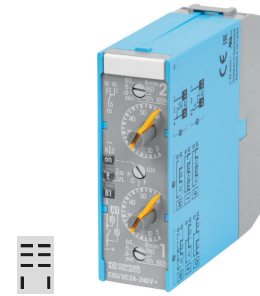


fig. 1. Wiring diagram

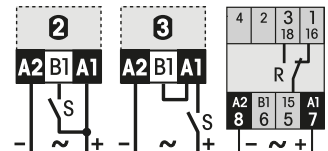


fig. 2. AC voltage endurance

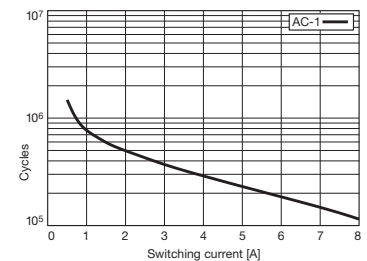


fig. 3. DC load limit curve

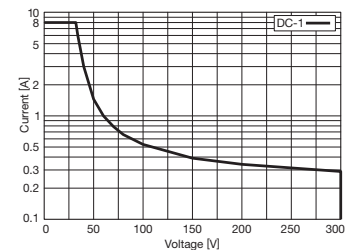
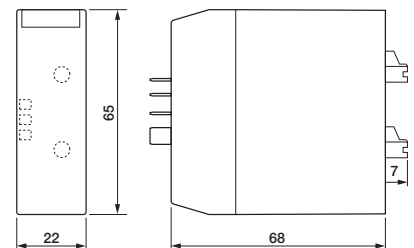


fig. 4. Dimensions (mm)



Technical approvals, conformities

Standards IEC/EN 60947

Approvals

Time data

Timing functions	fig. 1 1: E, W, B, B2 2: A, E, K, N
Timing range	50 ms ... 0.6 s / 0.5 s ... 6 s / 5 s ... 60 s / 0.5 min ... 6 min / 5 min ... 60 min / 0.5 h ... 6 h / 5 h ... 60 h
Timing scale	0.6 s / 6 s / 60 s / 6 min / 60 min / 6 h / 60 h

Main circuit

Number of contacts	1 CO
Available contact materials	⚡ AgNi
Rated voltage	250 V
Rated current	8 A
Minimum load	10 mA, 10 V
Inrush current	30 A, 10 ms
Rated load DC	fig. 3
Rated load AC-1	2,000 VA
Mechanical endurance (cycles)	30 000 000
Electrical endurance at rated load AC-1 (cycles)	fig. 2

Control circuit

Nominal voltage	12 ... 240 V AC / DC
Operating voltage range	10 ... 265 V AC / DC
Power consumption AC / DC	1.4 VA / 0.8 W
Current consumption on supply A1-A2 AC / DC	50 mA / 7 mA
Current consumption on input control B1 AC / DC	6 mA / 2 mA
Threshold voltage on input control B1 AC / DC	6.5 V / 7 V
Frequency range	0; 45 ... 63 Hz

Insulation

Rated test voltage control / main circuit	2.5 kV rms / 1 min
Rated test voltage open contact	1 kV rms / 1 min
Pollution degree	2
Overvoltage category	III

General data

Storage temperature (no ice)	-40 ... 85 °C
Operation temperature	-25 ... 60 °C
Dimensions	fig. 4
Weight	75 g
Ingress Protection	IP 20
Housing material	PC

Product references

Description	Type	12-240
AC / DC supply	CS2/UC...V	✓
Other voltages on request. Please contact support@comatreleco.com.		
«...» List control voltage to complete product references.		

Accessories

External potentiometer	SP-01/1M
Socket	S3-M
Retaining spring steel	HF-50 (BAG 10 PCS)



fig. 1. Wiring diagram

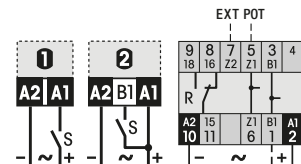


fig. 2. AC voltage endurance

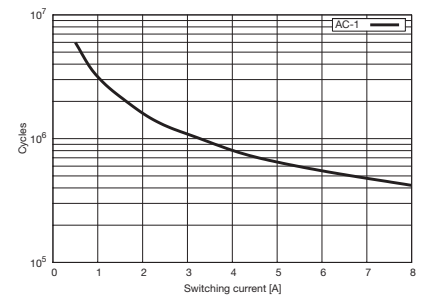


fig. 3. DC load limit curve

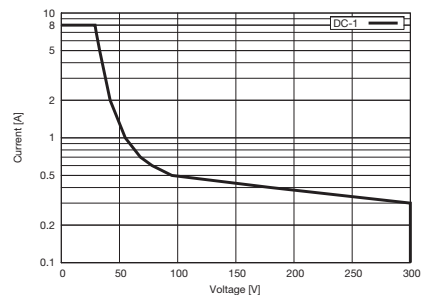
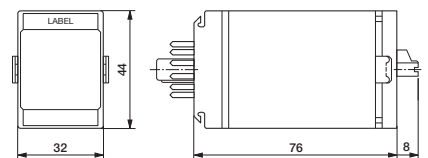


fig. 4. Dimensions (mm)



Technical approvals, conformities

Standards IEC/EN 60947



2.4 Time Relays - pluggable

CS3

Multifunction | 12 ... 240 V AC / DC | 2 CO



Time data

Timing functions	fig. 1 1: E, W, B, B2 2: A, E, K, N
Timing range	50 ms ... 0.6 s / 0.5 s ... 6 s / 5 s ... 60 s / 0.5 min ... 6 min / 5 min ... 60 min / 0.5 h ... 6 h / 5 h ... 60 h
Timing scale	0.6 s / 6 s / 60 s / 6 min / 60 min / 6 h / 60 h

Main circuit

Number of contacts	2 CO
Available contact materials	⚡ AgNi
Rated voltage	250 V
Rated current	6 A
Minimum load	10 mA, 10 V
Inrush current	10 A, 10 ms
Rated load DC	fig. 3
Rated load AC-1	1,500 VA
Mechanical endurance (cycles)	30 000 000
Electrical endurance at rated load AC-1 (cycles)	fig. 2

Control circuit

Nominal voltage	12 ... 240 V AC / DC
Operating voltage range	10 ... 265 V AC / DC
Power consumption AC / DC	1.4 VA / 0.8 W
Current consumption on supply A1-A2 AC / DC	50 mA / 7 mA
Current consumption on input control B1 AC / DC	6 mA / 2 mA
Threshold voltage on input control B1 AC / DC	6.5 V / 7 V
Frequency range	0; 45 ... 63 Hz

Insulation

Rated test voltage control / main circuit	2.5 kV rms / 1 min
Rated test voltage main / main circuit	2.5 kV rms / 1 min
Rated test voltage open contact	1 kV rms / 1 min
Pollution degree	2
Overvoltage category	III

General data

Storage temperature (no ice)	-40 ... 85 °C
Operation temperature	-25 ... 60 °C
Dimensions	fig. 4
Weight	75 g
Ingress Protection	IP 20
Housing material	PC

Product references

Description	Type	12-240
AC / DC supply	CS3/UC...V	✓

Other voltages on request. Please contact support@comatreleco.com.
«...» List coil voltage to complete product references

Accessories

Socket	S3-M
Retaining spring steel	HF-50 (BAG 10 PCS)



fig. 1. Wiring diagram

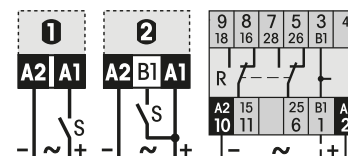


fig. 2. AC voltage endurance

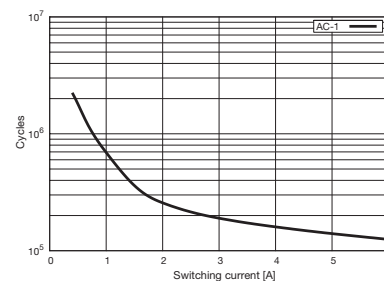


fig. 3. DC load limit curve

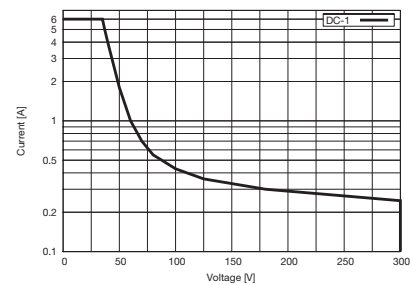
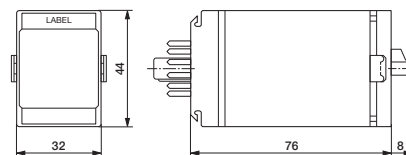


fig. 4. Dimensions (mm)



Technical approvals, conformities

Standards IEC/EN 60947

Approvals

2.4 Time Relays - pluggable

RS 41-M

Multifunction | 24 ... 48 V AC / DC | 220 ... 240 V AC | 1 CO

Time data

Timing functions	fig. 1 1: W, I 4: E 5: A 6: K
Timing range	0.1 s ... 1.5 s / 1 s ... 15 s / 0.1 min ... 15 s / 1 min ... 15 min
Timing scale	1.5 s / 15 s / 15 min

Main circuit

Number of contacts	1 CO (floating)
Available contact materials	AgNi
Rated voltage	250 V
Rated current	6 A
Minimum load	10 mA, 10 V
Inrush current	10 A, 10 ms
Rated load DC	fig. 3
Rated load AC-1	1,500 VA
Mechanical endurance (cycles)	20 000 000
Electrical endurance at rated load AC-1 (cycles)	fig. 2

Control circuit

Nominal voltage	24 ... 48 V AC / DC	110 ... 120 V AC	220 ... 240 V AC / DC
Operating voltage range	19 ... 53 V AC / DC	93 ... 132 V AC	187 ... 265 V AC / DC
Power consumption AC / DC	0.48 VA / 0.48 W	2.4 VA / -	2.4 VA / 2.4 W
Current consumption on supply A1-A2 AC / DC	10 mA / 10 mA	21 mA / -	10 mA / 10 mA
Current consumption on input control B1 AC / DC	2 mA / 2 mA	2 mA / -	2 mA / 2 mA
Threshold voltage on input control B1 AC / DC	8 V from terminal 4	8 V from terminal 4	8 V from terminal 4
Frequency range	0; 45 ... 63 Hz	45 ... 63 Hz	0; 45 ... 63 Hz

Insulation

Rated test voltage control / main circuit	2 kV rms / 1 min
Rated test voltage open contact	1 kV rms / 1 min
Pollution degree	2
Overtoltage category	III

General data

Storage temperature (no ice)	-40 ... 85 °C
Operation temperature	-25 ... 60 °C
Dimensions	fig. 4
Weight	75 g
Ingress Protection	IP 20
Housing material	PC

Product references

Description	Type	24-48	220-240
AC supply	RS 41-M/ATX AC...V		✓
AC / DC supply	RS 41-M/UFK UC...V		✓

Other voltages on request. Please contact support@comatreleco.com.
«...» List control circuit voltage to complete product references.

Accessories

Socket	S3-M
Retaining spring I steel	HF-50 (BAG 10 PCS)



fig. 1. Wiring diagram

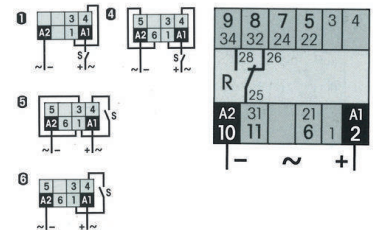


fig. 2. AC voltage endurance

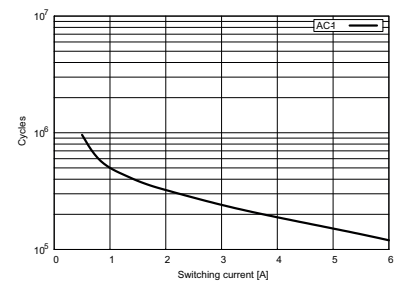


fig. 3. DC load limit curve

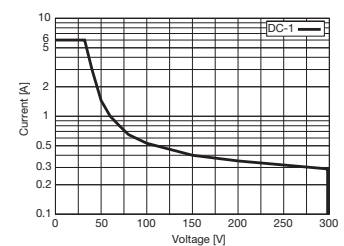
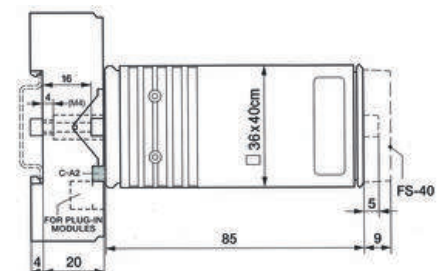


fig. 4. Dimensions (mm)







Technical approvals, conformities

Standards IEC/EN 60947

Approvals **CE** **EAC** **UK** **CA**

2.5 Timers & Twilight Switches

	Type	Pin	Page
CPU Series			
Digital Timer 16 A / 230 V AC-1	CPU		264
QSU Series			
Mechanical timer 16 A / 230 V AC-1	QSU		265
EDS Series			
Twilight switch 16 A / 230 V AC-1	EDS17		266
Twilight switch 16 A / 230 V AC-1	EDS35		267

2.5 Timers & Twilight Switches

CPU

Digital Timer 16 A / 230 V AC-1

General

Type	35WU-JS	35W2U-JS	35WU-LCD	35W2U-LCD
Time program	Digital weekly menu guided timer, multilingual, single channel, min. switching time 1 min	Digital weekly menu guided timer, multilingual, dual channel, min. switching time 1 sec	Digital weekly menu guided timer, multilingual, single channel, min. switching time 1 min	Digital weekly menu guided timer, multilingual, dual channel, min. switching time 1 sec
Memory Spaces	64	64	20	20
Shortest switching time	1 min	1 min	1 sec	1 sec
Summer/winter time changeover	automatic	automatic	automatic	automatic
Power backup	6 Years	6 Years	15 Days	15 Days
Number of contacts	1	2	1	2
Rated load AC-1	16 A / 230 V	16 A / 230 V	16 A / 230 V	16 A / 230 V
Operating voltage	230 V AC	230 V AC	230 V AC	230 V AC
Operating temperature	0...+50 °C	0...+50 °C	-10...+50 °C (No ice)	-10...+50 °C (No ice)

Specifications

Ingress Protection	IP 20
Weight	163 g

Product references

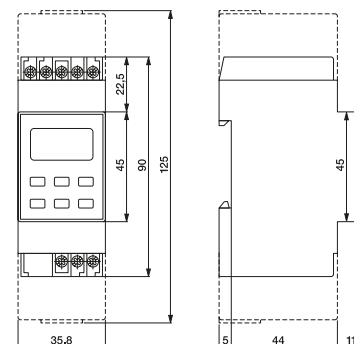
Description	Type	230
AC 230 V	CPU 35W2U-JS/AC...V	✓
AC 230 V	CPU 35W2U-LCD/AC...V	✓
AC 230 V	CPU 35W2U-M/AC...V	✓

Other voltages on request. Please contact support@comatreleco.com.

«...» List control circuit voltage to complete product references.



fig. 1. Dimensions (mm)



Technical approvals, conformities

Approvals  

QSU

Mechanical timer 16 A / 230 V AC-1

General	QSU 35U	QSU 35WU
Type	Mechanical day timer	Mechanical week timer
	QSU 35U Mechanical day timer	QSU 35WU Mechanical week timer
Time program	Day	Week
Memory Spaces	1	1
Shortest switching time	30 min	30 min
Summer/winter time changeover	-	-
Power backup	150 h	150 h
Number of contacts	1	1
Rated load AC-1	16 A / 230 V	16 A / 230 V
Operating voltage	230 V AC	230 V AC
Operating temperature	0...+50 °C	0...+50 °C

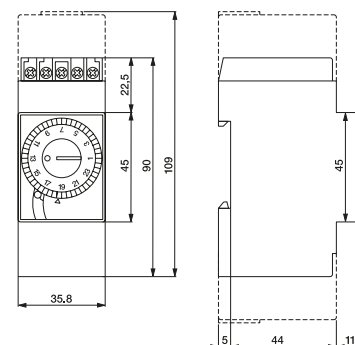
Specifications	
Ingress Protection	IP 20
Weight	134 g

Product references		
Description	Type	230
AC 230 V	QSU 35U/AC230V	✓
AC 230 V	QSU 35WU/AC230V	✓

Other voltages on request. Please contact support@comatreleco.com.
«...» List control voltage to complete product references.



fig. 1. Dimensions (mm)



Technical approvals, conformities

Approvals

2.5 Timers & Twilight Switches

EDS17

Twilight switch 16 A / 230 V AC-1

Specifications

Setting ranges	0...100 Lux 0...1000 Lux OFF permanent light
Turn-on delay	15 s
Off-delay	30 s
Number of contacts	1
Rated load AC-1	16 A / 230 V
Operating voltage	230 V AC
Operating temperature	-10...55 °C (kein Eis)
Ingress Protection	IP 20
Weight	100 g

Product references

Description	Type	230
AC 230 V	EDS17A/AC230V	✓

Other voltages on request. Please contact support@comatreleco.com.

«...» List control voltage to complete product references.

Accessories

Light sensor EDS/LF for EDS17A and EDS35	EDS/LF
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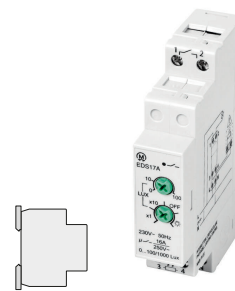
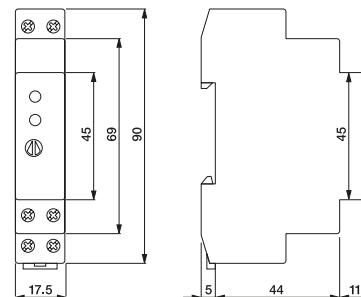


fig. 1. Dimensions (mm)



Technical approvals, conformities

Approvals

EDS35

Twilight switch 16 A / 230 V AC-1

Specifications

Setting ranges	0...100 Lux 0...1000 Lux 0...10000 Lux
Turn-on delay	8 s
Off-delay	38 s
Number of contacts	1
Rated load AC-1	16 A / 230 V
Operating voltage	230 V AC
Operating temperature	-10...55 °C (kein Eis)
Ingress Protection	IP 20
Weight	234 g

Product references

Description	Type	230
AC 230 V	EDS35/AC...V	✓

Other voltages on request. Please contact support@comatreleco.com.

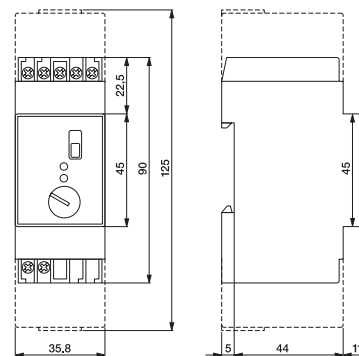
«...» List control circuit voltage to complete product references.

Accessories

Light sensor EDS/LF for EDS17A and EDS35	EDS/LF
--	--------




fig. 1. Dimensions (mm)



Technical approvals, conformities

Approvals

2.6 Time Cubes

	Type	Pin	Page
CT Series			
Single function multivoltage	CT2		270
Single function multivoltage	CT3		271

2.6 Time Cubes

CT2

Single function | multivoltage

Time data

Timing functions	fig. 1 1: E, B 2: A, K 3: W
Timing range	0.2 s ... 3 s / 2 s ... 30 s / 0.2 min ... 3 min / 2 min ... 30 min
Timing scale	3 s / 30 s / 3 min / 30 min

Control circuit

Nominal voltage	9,5 ... 18 V AC / DC	20 ... 65 V AC / DC
Operating voltage range	9.5 ... 17 V AC / DC	20 ... 65 V AC / DC
Power consumption AC / DC	0.2 VA / 0.4 W	0.4 VA / 0.4 W
Current consumption on supply A1-A2 AC / DC	12 mA / 12 mA	6 mA / 6 mA
Current consumption on input control B1 AC / DC	- / 0.2 mA	0.2 mA / 0.2 mA
Threshold voltage on input control B1 AC / DC	9 V / 9 V	18 V / 18 V
Frequency range	DC	0; 40 ... 60 Hz

Control circuit

Nominal voltage	9,5 ... 18 V AC / DC	9,5 ... 18 V AC / DC
Operating voltage range	80 ... 150 V AC / DC	150 ... 265 V AC / DC
Power consumption AC / DC	0.3 VA / 0.4 W	0.5 VA / 0.5 W
Current consumption on supply A1-A2 AC / DC	2 mA / 2 mA	2 mA / 2 mA
Current consumption on input control B1 AC / DC	0.2 mA / 0.2 mA	0.2 mA / 0.2 mA
Threshold voltage on input control B1 AC / DC	75 V / 75 V	140 V / 140 V
Frequency range	0; 40 ... 60 Hz	0; 40 ... 60 Hz

Control circuit

Nominal voltage	90 ... 265 V AC / DC
Operating voltage range	90 ... 265 AC / DC
Power consumption AC / DC	0.5 VA / 0.5 W
Current consumption on supply A1-A2 AC / DC	2 mA / 2 mA
Current consumption on input control B1 AC / DC	0.2 mA / 0.2 mA
Threshold voltage on input control B1 AC / DC	75 V / 75 V
Frequency range	0; 40 ... 60 Hz

General data

Storage temperature (no ice)	-40 ... 85 °C
Operation temperature	-25 ... 60 °C
Conductor cross section control / main circuit	2.5 mm ²
Nominal screw torque control / main circuit	0.5 Nm
Dimensions	fig. 2
Weight	35 g
Ingress Protection	IP 20
Housing material	PC

Product references

Description	Type	9.5	9.5-18	20	90-150	90-265	180-265
Off-delay	CT2-A30/S DC...V	✓					
On delay	CT2-E30/S DC...V		✓				
Pulse shaping, one shot	CT2-K30/S DC...V		✓				
Off-delay	CT2-A30/L UC...V			✓			
Off-delay	CT2-A30/M UC...V				✓		
Blinker	CT2-B30/H UC...V					✓	
On delay	CT2-E30/H UC...V					✓	
Pulse shaping, one shot	CT2-K30/L UC...V			✓			
Pulse shaping, one shot	CT2-K30/U UC...V						✓

Other voltages on request. Please contact support@comatreleco.com.

«...» List control voltage to complete product references.

Accessories

Socket	S2-B
Retaining spring steel	HF-33 (BAG 10 PCS)



fig. 1. Wiring diagram

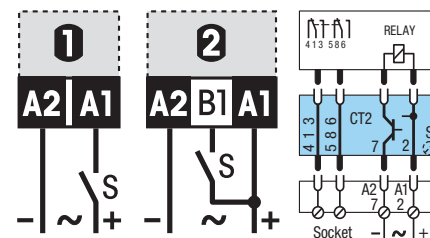
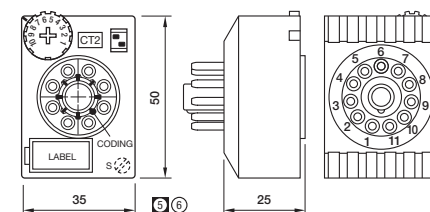


fig. 2. Dimensions (mm)



Technical approvals, conformities

Standards IEC/EN 60947

Approvals

CT3

Single function | multivoltage

Time data

Timing functions	fig. 1 1: E, B 2: A, K 3: W
Timing range	0.2 s ... 3 s / 2 s ... 30 s / 0.2 min ... 3 min / 2 min ... 30 min
Timing scale	3 s / 30 s / 3 min / 30 min

Control circuit

Nominal voltage	9,5 ... 18 V AC / DC	20 ... 65 V AC / DC
Operating voltage range	80 ... 150 V AC / DC	150 ... 265 V AC / DC
Power consumption AC / DC	0.2 VA / 0.4 W	0.4 VA / 0.4 W
Current consumption on supply A1-A2 AC / DC	12 mA / 12 mA	6 mA / 6 mA
Current consumption on input control B1 AC / DC	- / 0.2 mA	0.2 mA / 0.2 mA
Threshold voltage on input control B1 AC / DC	9 V / 9 V	18 V / 18 V
Frequency range	DC	0; 40 ... 60 Hz

Control circuit

Nominal voltage	9,5 ... 18 V AC / DC	20 ... 65 V AC / DC
Operating voltage range	9,5 ... 17 V AC / DC	20 ... 65 V AC / DC
Power consumption AC / DC	0.3 VA / 0.4 W	0.5 VA / 0.5 W
Current consumption on supply A1-A2 AC / DC	2 mA / 2 mA	2 mA / 2 mA
Current consumption on input control B1 AC / DC	0.2 mA / 0.2 mA	0.2 mA / 0.2 mA
Threshold voltage on input control B1 AC / DC	75 V / 75 V	140 V / 140 V
Frequency range	0; 40 ... 60 Hz	0; 40 ... 60 Hz

Control circuit

Nominal voltage	90 ... 265 V AC / DC
Operating voltage range	90 ... 265 V AC / DC
Power consumption AC / DC	0.5 VA / 0.5 W
Current consumption on supply A1-A2 AC / DC	2 mA / 2 mA
Current consumption on input control B1 AC / DC	0.2 mA / 0.2 mA
Threshold voltage on input control B1 AC / DC	75 V / 75 V
Frequency range	0; 40 ... 60 Hz

General data

Storage temperature (no ice)	-40 ... 85 °C
Operation temperature	-25 ... 60 °C
Conductor cross section control / main circuit	2.5 mm ²
Nominal screw torque control / main circuit	0.5 Nm
Dimensions	fig. 2
Weight	35 g
Ingress Protection	IP 20
Housing material	PC

Product references

Description	Type	9.5	9.5-18	20-65	90-150	90-265	180-265
Off-delay	CT3-A30/S DC...V		✓				
On delay	CT3-E30/S DC...V	✓					
Pulse shaping, one shot	CT3-K30/S DC...V		✓				
Off-delay	CT3-A30/L UC...V			✓			
Off-delay	CT3-A30/M UC...V				✓		
Off-delay	CT3-A30/U UC...V					✓	
Blinker	CT3-B30/H UC...V					✓	
Blinker	CT3-B30/L UC...V			✓			
On delay	CT3-E30/H UC...V					✓	
On delay	CT3-E30/L UC...V			✓			
Pulse shaping, one shot	CT3-K30/L UC...V			✓			
Pulse shaping, one shot	CT3-K30/M UC...V				✓		

Other voltages on request. Please contact support@comatreleco.com.
 «...» List control voltage to complete product references.

Accessories

Socket	S3-B, S3-M
Retaining spring steel	HF-33 (BAG 10 PCS)

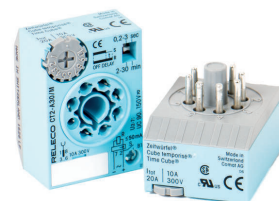


fig. 1. Wiring diagram

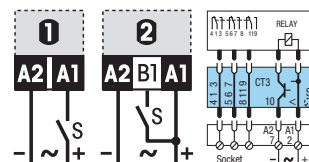
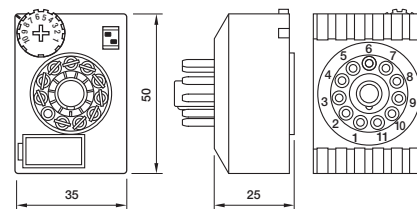


fig. 2. Dimensions (mm)



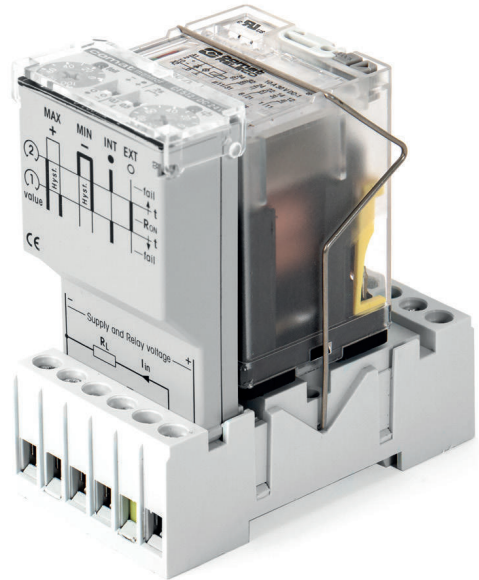
Technical approvals, conformities

Standards IEC/EN 60947

Approvals

2.7 Time Modules

	Type	Pin	Page
CT Series			
Multifunction 24 ... 48 V AC / DC 115 V AC / DC 230 V AC / DC	CT33R		275



The time delay relays and monitoring relays consist of plug-in CT electronic modules and 11 pole output relays. Both system components can be combined in a variety of combinations. This allows adapting the system for the specific application.

Subsequent modifications, for example a change from mechanical contacts to solid-state outputs, are possible at any time just by replacing the relay.

This system provides the user a complete universal system with worldwide unmatched flexibility.

The system sockets S3-M0R or S3-M1R serve as a basis for the secure reception of electronic modules. The sockets have a 4 pole module slot in which the CT modules lock firmly and vibration proof also without the output relay. Contact is made with reliable twin knife contacts.

With the A2 connector bridge "C-A2", the neutral conductor (N/-) can be connected from socket to socket. It reduces wiring work considerably.

Robust terminals for wires up to 4mm² and spacious labelling are other advantages of this practical ComatReleco modular system.

Clear markings close to the terminal connections on the sockets make it easy to identify the connections for wiring and servicing.

The CT modules are proof of the practical oriented experiences of ComatReleco in the field of industrial electronics. All control and display elements are arranged easy accessible at all times on the front side of the modules. The functions and settings are self-explanatory schematically illustrated on the front and allow to review the set values also during operation.

A transparent cover over the module setting components provides protection from unintentional settings and additionally links the module to the output relay.

Triggering is performed with the operating voltage. (L1 or +). No potential-free contacts are therefore required. The triggering complies to machine standards. Parallel connection to B1 is admissible.

The standard contacts have proven its reliability for high switching current applications over many years. The contact material AgCuNi permits a wide switching range and due to the large dimensioning they are designed for a high number of switching cycles. The high breaking capacity of up to 10 A / 250 V and a low load switching capability of 10 V / 50 mA makes the contact suitable for the use in main circuits as well as for low voltage applications.

The twin contacts are switching the load circuit with 2 independent contact tongues. The switching safety for low currents is therefore 100 times higher compared to a single contact relay. Despite the high switching capacity of up to 6 A / 250 V, these contacts are very suitable to switch low currents and voltages up to 1 mA / 5 V.

CT33R

Multifunction | 24 ... 48 V AC / DC | 115 V AC / DC | 230 V AC / DC

Product references

Description	Type	24-48	115	230
AC / DC supply	CT33R/UC...V	✓	✓	✓

Other voltages on request. Please contact support@comatreleco.com.
 «...» List control voltage to complete product references.

Accessories

Socket	S3-M0R, FS-C/5 (BEUTEL/UNIT 5 STK/PCS)
S5-MR	S5-MR



fig. 1. Wiring diagram

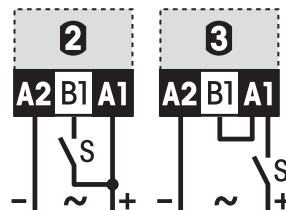
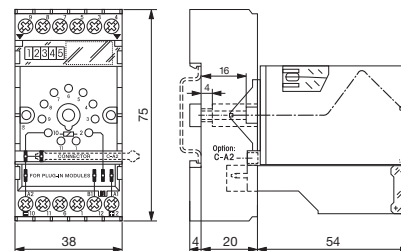


fig. 2. Dimensions (mm)



Technical approvals, conformities

Standards IEC/EN 60947

Railway EN 45545-2; EN 50155

Approvals

2.8 Time Relay Accessories

	Type	Pin	Page
Time Relay Accessories			
Nameplate C10 White	BZS DIN		278
Light sensor for EDS17A	EDS/LF		278
Transparent front cover kit for CT3x	FA-50		278
Transparent front cover kit for CT3x	FS-C		278
Front panel mounting set Socket S3-L Retaining clip	FZ-50L		278
Potentiometer 100 k Ω 1 M Ω 0.2 W	SP-01		279

BZS DIN

Nameplate C10 White

Product references

Description	Type
Label plate	BZS DIN 17.5MM



EDS/LF

Light sensor for EDS17A

General data

Dimensions	56 x 28 x 48
Weight	35 g

Product references

Description	Type
Light sensor	EDS/LF



FA-50

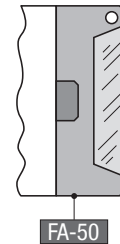
Transparent front cover kit for CT3x

General data

Storage temperature (no ice)	-40 ... 85 °C
Operation temperature	-25 ... 60 °C
Weight	5 g
Housing material	PC

Product references

Description	Type
Transparent front cover kit for CT3x	FA-50



FS-C

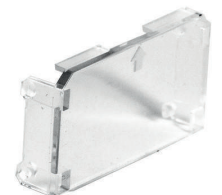
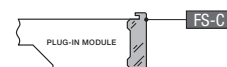
Transparent front cover kit for CT3x

General data

Storage temperature (no ice)	-40 ... 80 °C
Operation temperature	-25 ... 60 °C
Dimensions	6.6 x 19.2 x 36.5
Weight	5 g

Product references

Description	Type
Transparent front cover kit for CT3x	FS-C/5 (BEUTEL/UNIT 5 STK/PCS)

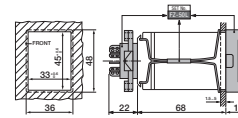


FZ-50L

Front panel mounting set | Socket S3-L | Retaining clip

General data

Storage temperature (no ice)	-40 ... 85 °C
Operation temperature	-25 ... 60 °C
Dimensions	fig. 1
Weight	40 g
Housing material	PC



Product references

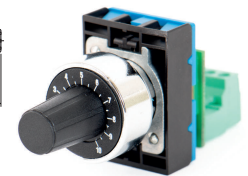
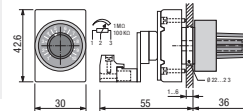
Description	Type
Front panel mounting kit	FZ-50L

SP-01

Potentiometer | 100 kΩ | 1 MΩ | 0.2 W

General data

Storage temperature (no ice)	-40 ... 85 °C
Operation temperature	-25 ... 60 °C
Conductor cross section control / main circuit	2.5 mm ² Stripping length 7.5 mm
Nominal screw torque control / main circuit	0.5 Nm
Dimensions	fig. 1
Weight	85 g
Ingress Protection	IP 65



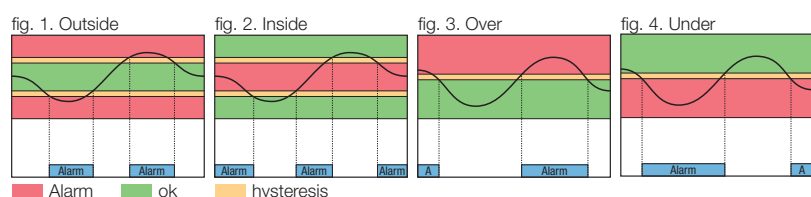
Product references

Description	Type
Potentiometer	SP-01/100K
Potentiometer	SP-01/1M





3 Monitoring & Measuring Devices

Chapter	Page
3.1 Multifunction Monitoring	283
3.2 Voltage Monitoring	289
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3.6 Isolation Monitoring	309
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3.10 Current transformer	321

	Description	MRM11	MRM11R	MRM32	MRM32R	MRU11	MRU32	IV53	SSU34	SSU31	SSU33L	MRI11	MRI32	TSR19	ESU-D2R	CT516R	CT524R	
Monitoring	One phase voltage monitoring	●	●			●		●										
	Three phase voltage monitoring			●	●		●		●		●							
	Four channel voltage measuring																	
	DC Voltage monitoring	●	●	●	●	●	●										●	
	One phase current monitoring	●	●									●						
	Three phase current monitoring			●	●								●					
	Four channel current measuring																	
	DC current monitoring	●	●	●	●								●	●			●	
	Phase failure			●	●		●		●	●	●							
	Phase sequence monitoring			●	●		●		●	●	●							
	Phase angle monitoring / measuring*			●	●		●		●		●							
	Differential voltage monitoring / measuring*								●		●							
	Neutral failure monitoring								●		●							
	Frequency monitoring / measuring*	●	●	●	●	●	●		●		●	●	●	●				
	Apparent power monitoring / measuring*	●	●	●	●													
	Active power monitoring / measuring*	●	●	●	●													
	Power factor monitoring / measuring*	●	●	●	●													
	Active energy measuring																	
	THDI / THDU measuring																	
	PTC monitoring														●			
Earth failure monitoring															●			
Functions	Threshold „over“ exceeded fig. 3.	●	●	●	●	●	●	●	●		●	●	●	●		●	●	
	Theshold „under“ exceeded fig. 4.	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
	„Inside“ band entered fig. 2.	●	●	●	●	●	●					●	●			●	●	
	„Outside“ band entered fig. 1.	●	●	●	●	●	●					●	●			●	●	
	Alarm on-delay	●	●	●	●	●	●	●	●		●	●	●		●	●	●	
	Alarm off-delay	●	●	●	●	●	●	●					●	●				
	Latching alarm output function	●	●	●	●	●	●						●	●	●			
	Threshold selectable	●	●	●	●	●	●	●	●				●	●	●	●	●	
	Threshold fixed									●	●				●			
Power supply	Supply isolated from measuring circuit	●	●	●	●	●	●					●	●	●	●			
	Supply from measure circuit							●	●	●	●					●	●	
Mounting	DIN rail mounting	●	●	●	●	●	●	●				●	●		●			
	Housing according IEC/EN 43880 (electrical distribution mounting)	●	●	●	●	●	●	●				●	●					
	Plug-in (socket mounting)									●	●	●		●		●	●	



3.1 Multifunction Monitoring

	Type	Pin	Page
MRM Series			
1 phase 1 CO multifunction monitoring	MRM11		284
1 phase 1 CO multifunction monitoring	MRM11R		285
3 phase 2 CO multifunction monitoring	MRM32		286
3 phase 2 CO multifunction monitoring	MRM32R		287

3.1 Multifunction Monitoring

MRM11

1 phase | 1 CO | multifunction monitoring

Power supply

Nominal voltage	12 ... 48 V UC	110 ... 240 V UC
Operating voltage range	10 ... 60 V	85 ... 250 V
Power consumption AC / DC	3.2 VA / 1.6 W	2.6 VA / 1.5 W
Frequency range	16 ... 63 Hz	16 ... 63 Hz

Measuring circuit

Measured parameters	U, I, P, S, f, Cosφ
Min. setting step, resolution	0.1 V / 0.1 A / 1 W / 1 VA / 1 Hz / 0.05
Monitoring functions	Under, over, inside, outside
Number of voltage measurement inputs	1
Rated AC voltage L-N / L-L	230 V / -
Rated DC voltage U+ / U-	300 V
DC voltage measurement range U+ / U-	+0.1 ... +690 V, -0.1 ... -690 V
Undervoltage setting range	+0.1 ... +700 V, -0.1 ... -700 V
Overvoltage setting range	+0.1 ... +700 V, -0.1 ... -700 V
AC voltage measurement range L-N / L-L	0.1 ... 480 V
Number of current measurement inputs	1
Rated measurement current	5 A
Measurement current range	0.1 ... 5 A
Undercurrent setting range	0.1 ... 6 A
Overcurrent setting range	0.1 ... 6 A
Rated base frequency	15 ... 150 Hz
Alarm delay	0.5 ... 999.9 s
Alarm reset delay	0.5 ... 999.9 s

Main circuit

Number of contacts	1 CO
Available contact materials	⚡ AgNi
Rated voltage	250 V AC
Rated current	6 A
Minimum load	10 mA, 10 V
Inrush current	10 A, 10 ms
Rated load DC	fig. 3
Rated load AC-1	1,250 VA
Mechanical endurance (cycles)	30 000 000
Electrical endurance at rated load AC-1 (cycles)	fig. 2

Insulation

Rated test voltage measuring / measuring circuit	1.5 kV rms / 1 min
Rated test voltage measuring circuit / power supply	2 kV rms / 1 min
Rated test voltage measuring circuit / main circuit	2 kV rms / 1 min
Rated test voltage main circuit / power supply	2 kV rms / 1 min
Rated test voltage open contact	1.5 kV rms / 1 min
Pollution degree	2
Overvoltage category	III

General data

Storage temperature (no ice)	-40 ... 85 °C
Operation temperature	-40 ... 60 °C
Conductor cross section control / main circuit	2.5 mm ²
Nominal screw torque control / main circuit	0.6
Dimensions	fig. 4
Weight	107 g
Ingress Protection	IP 20
Housing material	PC

Product references

Description	Type	12-48	110-240
Single phase monitoring	MRM11/UC...V	✓	✓

Other voltages on request. Please contact support@comatreleco.com.

«...» List coil voltage to complete product references



fig. 1. Wiring diagram

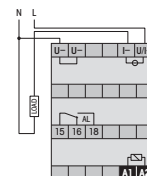


fig. 2. AC voltage endurance

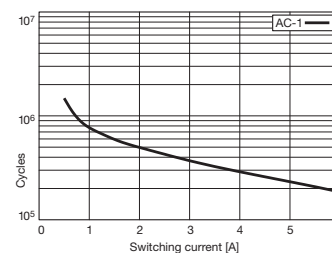


fig. 3. DC load limit curve

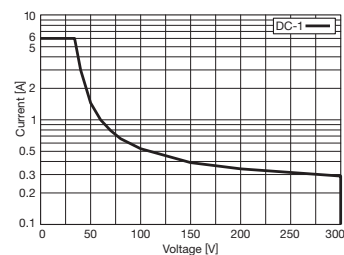
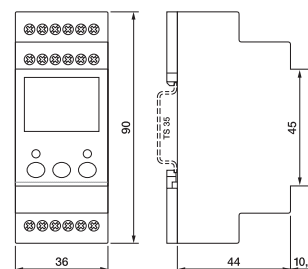


fig. 4. Dimensions (mm)



Technical approvals, conformities

Standards EN 60730-1; EN 60947-1; EN 61000-6-2; EN 61000-6-3

Approvals

3.1 Multifunction Monitoring

MRM11R

1 phase | 1 CO | multifunction monitoring

Power supply

Nominal voltage	12 ... 48 V AC / DC	110 ... 240 V AC / DC
Operating voltage range	10 ... 60 V	77 ... 250 V
Power consumption AC / DC	3.2 VA / 1.6 W	2.6 VA / 1.5 W
Frequency range	16 ... 63 Hz	16 ... 63 Hz

Measuring circuit

Measured parameters	U, I, P, S, f, Cosφ
Min. setting step, resolution	0.1 V / 0.1 A / 1 W / 1 VA / 1 Hz / 0.05
Monitoring functions	Under, over, inside, outside
Number of voltage measurement inputs	1
Rated AC voltage L-N / L-L	230 V / -
Rated DC voltage U+ / U-	300 V
DC voltage measurement range U+ / U-	+0.1 ... +690 V, -0.1 ... -690 V
Undervoltage setting range	+0.1 ... +700 V, -0.1 ... -700 V
Overvoltage setting range	+0.1 ... +700 V, -0.1 ... -700 V
AC voltage measurement range L-N / L-L	0.1 ... 480 V
Number of current measurement inputs	1
Rated measurement current	5 A
Measurement current range	0.1 ... 5 A
Undercurrent setting range	0.1 ... 6 A
Overcurrent setting range	0.1 ... 6 A
Rated base frequency	15 ... 150 Hz
Alarm delay	0.5 ... 999.9 s
Alarm reset delay	0.5 ... 999.9 s

Main circuit

Number of contacts	1 CO
Available contact materials	⚡ AgNi
Rated voltage	250 V AC
Rated current	6 A
Minimum load	10 mA, 10 V
Inrush current	10 A, 10 ms
Rated load DC	fig. 3
Rated load AC-1	1,250 VA
Mechanical endurance (cycles)	30 000 000
Electrical endurance at rated load AC-1 (cycles)	fig. 3

Insulation

Rated test voltage measuring / measuring circuit	1.5 kV rms / 1 min
Rated test voltage measuring circuit / power supply	2 kV rms / 1 min
Rated test voltage measuring circuit / main circuit	2 kV rms / 1 min
Rated test voltage main circuit / power supply	2 kV rms / 1 min
Rated test voltage open contact	1.5 kV rms / 1 min
Pollution degree	2
Overvoltage category	III

General data

Storage temperature (no ice)	-40 ... 85 °C
Operation temperature	-40 ... 70 °C
Conductor cross section control / main circuit	2.5 mm ²
Nominal screw torque control / main circuit	0.6
Dimensions	fig. 4
Weight	107 g
Ingress Protection	IP 20
Housing material	PA

Product references

Description	Type	12-48	110-240
Single phase monitoring	MRM11R/UC...V	✓	✓

Other voltages on request. Please contact support@comatreleco.com.

«...» List coil voltage to complete product references



fig. 1. Wiring diagram

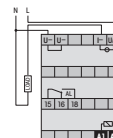


fig. 2. AC voltage endurance

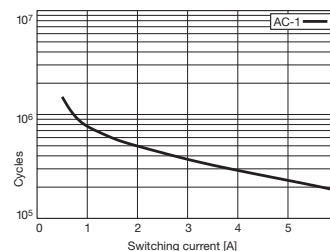


fig. 3. DC load limit curve

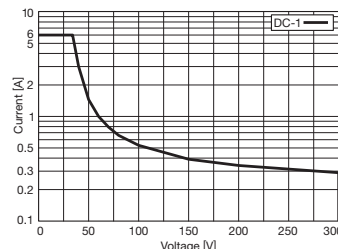
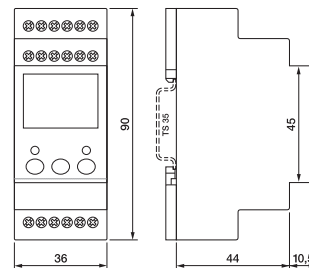


fig. 4. Dimensions (mm)



Technical approvals, conformities

Standards EN 60730-1; EN 60947-1; EN 61000-6-2; EN 61000-6-3
 Railway EN 45545-2; EN 50155

Approvals

3.1 Multifunction Monitoring

MRM32

3 phase | 2 CO | multifunction monitoring

Power supply

Nominal voltage	12 ... 48 V UC	110 ... 240 V UC
Operating voltage range	10 ... 60 V	85 ... 250 V
Power consumption AC / DC	3.2 VA / 1.6 W	2.6 VA / 1.5 W
Frequency range	16 ... 63 Hz	16 ... 63 Hz

Measuring circuit

Measured parameters	U, I, P, S, f, Cosφ, ΔPhi, phase sequence
Min. setting step, resolution	0.1 V / 0.1 A / 1 W / 1 VA / 1 Hz / 0.05 / 1°
Monitoring functions	Under, over, inside, outside, phase sequence, phase failure
Number of voltage measurement inputs	3
Rated AC voltage L-N / L-L	230 V / 400 V
Rated DC voltage U+ / U-	300 V
DC voltage measurement range U+ / U-	+0.1 ... +690 V, -0.1 ... -690 V
Undervoltage setting range	+0.1 ... +700 V, -0.1 ... -700 V
Overvoltage setting range	+0.1 ... +700 V, -0.1 ... -700 V
AC voltage measurement range L-N / L-L	0.1 ... 480 V
Number of current measurement inputs	3
Rated measurement current	5 A
Measurement current range	0.1 ... 5 A
Undercurrent setting range	0.1 ... 6 A
Overcurrent setting range	0.1 ... 6 A
Rated base frequency	15 ... 150 Hz
Alarm delay	0.5 ... 999.9 s
Alarm reset delay	0.5 ... 999.9 s

Main circuit

Number of contacts	2 CO
Available contact materials	⚡ AgNi
Rated voltage	250 V AC
Rated current	6 A
Minimum load	10 mA, 10 V
Inrush current	10 A, 10 ms
Rated load DC	fig. 3
Rated load AC-1	1,250 VA
Mechanical endurance (cycles)	30 000 000
Electrical endurance at rated load AC-1 (cycles)	fig. 2

Insulation

Rated test voltage measuring / measuring circuit	1.5 kV rms / 1 min
Rated test voltage measuring circuit / power supply	2 kV rms / 1 min
Rated test voltage measuring circuit / main circuit	2 kV rms / 1 min
Rated test voltage main circuit / power supply	2 kV rms / 1 min
Rated test voltage main / main circuit	1.5 kV rms / 1 min
Rated test voltage open contact	1.5 kV rms / 1 min
Pollution degree	2
Overvoltage category	III

General data

Storage temperature (no ice)	-40 ... 85 °C
Operation temperature	-40 ... 60 °C
Conductor cross section control / main circuit	2.5 mm ²
Nominal screw torque control / main circuit	0.6
Dimensions	fig. 4
Weight	125 g
Ingress Protection	IP 20
Housing material	PC

Product references

Description	Type	12-48	110-240
Three phase monitoring	MRM32/UC...V	✓	✓

Other voltages on request. Please contact support@comatreleco.com.
«...» List coil voltage to complete product references



fig. 1. Wiring diagram

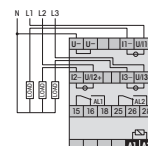


fig. 2. AC voltage endurance

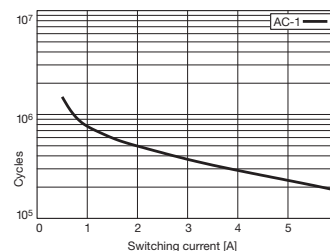


fig. 3. DC load limit curve

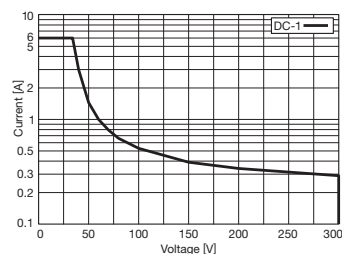
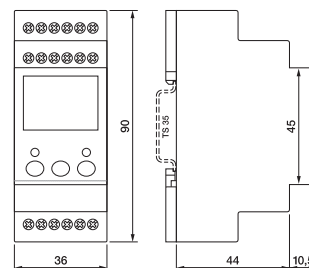


fig. 4. Dimensions (mm)



Technical approvals, conformities

Standards EN 60730-1; EN 60947-1; EN 61000-6-2; EN 61000-6-3

Approvals

3.1 Multifunction Monitoring

MRM32R

3 phase | 2 CO | multifunction monitoring

Power supply

Nominal voltage	12 ... 48 V AC / DC	110 ... 240 V AC / DC
Operating voltage range	10 ... 60 V	77 ... 250 V
Power consumption AC / DC	3.2 VA / 1.6 W	2.6 VA / 1.5 W
Frequency range	16 ... 63 Hz	16 ... 63 Hz

Measuring circuit

Measured parameters	U, I, P, S, f, Cosφ, ΔPhi, phase sequence
Min. setting step, resolution	0.1 V / 0.1 A / 1 W / 1 VA / 1 Hz / 0.05 / 1°
Monitoring functions	Under, over, inside, outside, phase sequence, phase failure
Number of voltage measurement inputs	3
Rated AC voltage L-N / L-L	230 V / 400 V
Rated DC voltage U+ / U-	300 V
DC voltage measurement range U+ / U-	± 0.1 ... 690 V
Undervoltage setting range	± 0.1 ... 700 V
Overvoltage setting range	± 0.1 ... 700 V
AC voltage measurement range L-N / L-L	0.1 ... 480 V
Number of current measurement inputs	3
Rated measurement current	5 A
Measurement current range	0.1 ... 5 A
Undercurrent setting range	0.1 ... 6 A
Overcurrent setting range	0.1 ... 6 A
Rated base frequency	15 ... 150 Hz
Alarm delay	0.5 ... 999.9 s
Alarm reset delay	0.5 ... 999.9 s

Main circuit

Number of contacts	2 CO
Available contact materials	⚡ AgNi
Rated voltage	250 V AC
Rated current	6 A
Minimum load	10 mA, 10 V
Inrush current	10 A, 10 ms
Rated load DC	fig. 3
Rated load AC-1	1,250 VA
Mechanical endurance (cycles)	30 000 000
Electrical endurance at rated load AC-1 (cycles)	fig. 2

Insulation

Rated test voltage measuring / measuring circuit	1.5 kV rms / 1 min
Rated test voltage measuring circuit / power supply	2 kV rms / 1 min
Rated test voltage measuring circuit / main circuit	2 kV rms / 1 min
Rated test voltage main circuit / power supply	2 kV rms / 1 min
Rated test voltage main / main circuit	1.5 kV rms / 1 min
Rated test voltage open contact	1.5 kV rms / 1 min
Pollution degree	2
Overvoltage category	III

General data

Storage temperature (no ice)	-40 ... 85 °C
Operation temperature	-40 ... 70 °C
Conductor cross section control / main circuit	2.5 mm ²
Nominal screw torque control / main circuit	0.6
Dimensions	fig. 4
Weight	125 g
Ingress Protection	IP 20
Housing material	PA

Product references

Description	Type	12-48	110-240
Single phase monitoring	MRM32R/UC...V	✓	✓

Other voltages on request. Please contact support@comatreleco.com.
«...» List control circuit voltage to complete product references.



fig. 1. Wiring diagram

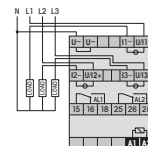


fig. 2. AC voltage endurance

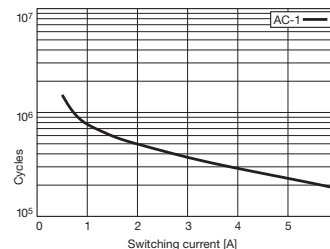


fig. 3. DC load limit curve

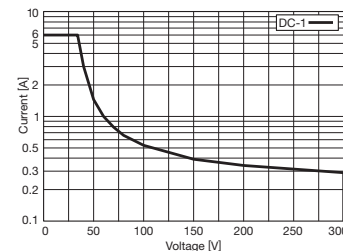
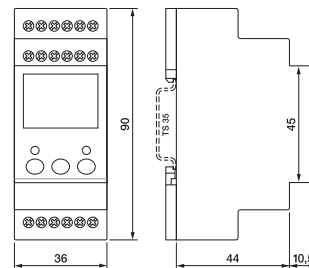


fig. 4. Dimensions (mm)









Technical approvals, conformities

Standards EN 60730-1; EN 60947-1; EN 61000-6-2; EN 61000-6-3
Railway EN 45545-2; EN 50155

Approvals

3.2 Voltage Monitoring

	Type	Pin	Page
MRU Series			
1 phase 1 CO voltage monitoring	MRU11		290
1 phase 1 CO voltage monitoring	MRU11R		291
3 phase 2 CO voltage monitoring	MRU32		292
3 phase 2 CO voltage monitoring	MRU32R		293
MV Series			
1 phase 1 CO voltage monitoring	MV53		294
SSU Series			
3 phase + N 2 CO voltage monitoring	SSU34		295

3.2 Voltage Monitoring

MRU11

1 phase | 1 CO | voltage monitoring

Power supply

Nominal voltage	12 ... 48 V UC	110 ... 240 V UC
Operating voltage range	10 ... 60 V	85 ... 250 V
Power consumption AC / DC	3.2 VA / 1.6 W	2.6 VA / 1.5 W
Frequency range	16 ... 63 Hz	16 ... 63 Hz

Measuring circuit

Measured parameters	U, f
Min. setting step, resolution	0.1 V / 1 Hz
Monitoring functions	Under, over, inside, outside
Number of voltage measurement inputs	1
Rated AC voltage L-N / L-L	230 V / -
Rated DC voltage U+ / U-	300 V
DC voltage measurement range U+ / U-	+0.1 ... +690 V, -0.1 ... -690 V
Undervoltage setting range	+0.1 ... +700 V, -0.1 ... -700 V
Overvoltage setting range	+0.1 ... +700 V, -0.1 ... -700 V
AC voltage measurement range L-N / L-L	0.1 ... 480 V
Alarm delay	0.5 ... 999.9 s
Alarm reset delay	0.5 ... 999.9 s

Main circuit

Number of contacts	1 CO
Available contact materials	⚡ AgNi
Rated voltage	250 V AC
Rated current	6 A
Minimum load	10 mA, 10 V
Inrush current	10 A, 10 ms
Rated load DC	fig. 3
Rated load AC-1	1,250 VA
Mechanical endurance (cycles)	30 000 000
Electrical endurance at rated load AC-1 (cycles)	fig. 2

Insulation

Rated test voltage measuring / measuring circuit	1.5 kV rms / 1 min
Rated test voltage measuring circuit / power supply	2 kV rms / 1 min
Rated test voltage measuring circuit / main circuit	2 kV rms / 1 min
Rated test voltage main circuit / power supply	2 kV rms / 1 min
Rated test voltage open contact	1.5 kV rms / 1 min
Pollution degree	2
Overvoltage category	III

General data

Storage temperature (no ice)	-40 ... 85 °C
Operation temperature	-40 ... 60 °C
Conductor cross section control / main circuit	2.5 mm ²
Nominal screw torque control / main circuit	0.6
Dimensions	fig. 4
Weight	107 g
Ingress Protection	IP 20
Housing material	PC

Product references

Description	Type	12-48	110-240
Single phase monitoring	MRU11/UC...V	✓	✓

Other voltages on request. Please contact support@comatreleco.com.
«...» List coil voltage to complete product references

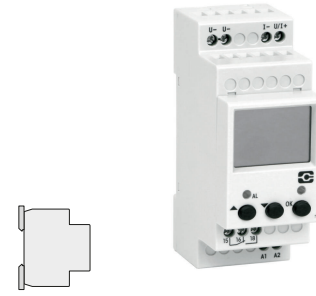


fig. 1. Wiring diagram

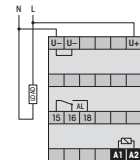


fig. 2. AC voltage endurance

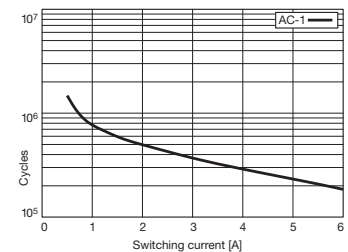


fig. 3. DC load limit curve

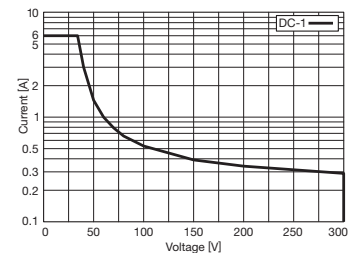
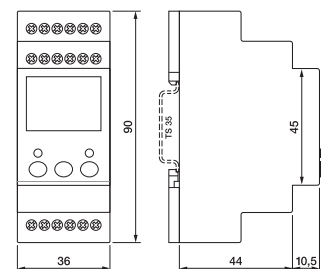


fig. 4. Dimensions (mm)



Technical approvals, conformities

Standards EN 60730-1; EN 60947-1; EN 61000-6-2; EN 61000-6-3

Approvals

3.2 Voltage Monitoring

MRU11R

1 phase | 1 CO | voltage monitoring

Power supply

Nominal voltage	12 ... 48 V AC / DC	110 ... 240 V AC / DC
Operating voltage range	10 ... 60 V	85 ... 250 V
Power consumption AC / DC	3.2 VA / 1.6 W	2.6 VA / 1.5 W
Frequency range	16 ... 63 Hz	16 ... 63 Hz

Measuring circuit

Measured parameters	U, f
Min. setting step, resolution	0.1 V / 1 Hz
Monitoring functions	Under, over, inside, outside
Number of voltage measurement inputs	1
Rated AC voltage L-N / L-L	230 V / -
Rated DC voltage U+ / U-	300 V
DC voltage measurement range U+ / U-	+0.1 ... +690 V, -0.1 ... -690 V
Undervoltage setting range	+0.1 ... +700 V, -0.1 ... -700 V
Overvoltage setting range	+0.1 ... +700 V, -0.1 ... -700 V
Alarm delay	0.5 ... 999.9 s
Alarm reset delay	0.5 ... 999.9 s

Main circuit

Number of contacts	1 CO
Available contact materials	⚡ AgNi
Rated voltage	250 V AC
Rated current	6 A
Minimum load	10 mA, 10 V
Inrush current	10 A, 10 ms
Rated load DC	fig. 3
Rated load AC-1	1,200 VA
Mechanical endurance (cycles)	30 000 000
Electrical endurance at rated load AC-1 (cycles)	fig. 2

Insulation

Rated test voltage measuring / measuring circuit	1.5 kV rms / 1 min
Rated test voltage measuring circuit / power supply	2 kV rms / 1 min
Rated test voltage measuring circuit / main circuit	2 kV rms / 1 min
Rated test voltage main circuit / power supply	2 kV rms / 1 min
Rated test voltage open contact	1.5 kV rms / 1 min
Pollution degree	2
Overvoltage category	III

General data

Storage temperature (no ice)	-40 ... 85 °C
Operation temperature	-40 ... 60 °C
Conductor cross section control / main circuit	2.5 mm ²
Nominal screw torque control / main circuit	0.6
Dimensions	fig. 4
Weight	107 g
Ingress Protection	IP 20
Housing material	PC

Product references

Description	Type	12-48	110-240
Single phase monitoring	MRU11R/UC...V	✓	✓

Other voltages on request. Please contact support@comatreleco.com.
«...» List control circuit voltage to complete product references.



fig. 1. Wiring diagram

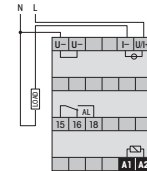


fig. 2. AC voltage endurance

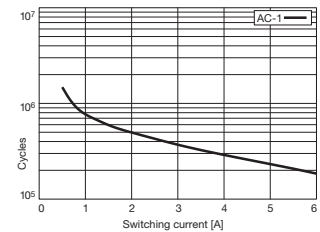


fig. 3. DC load limit curve

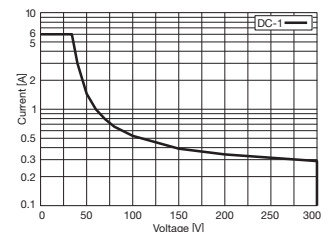
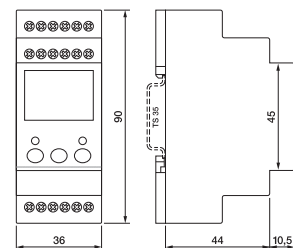


fig. 4. Dimensions (mm)



Technical approvals, conformities

Standards EN 60730-1; EN 60947; EN 61000-6-2; EN 61000-6-3
Railway EN 45545-2; EN 50155

Approvals

3.2 Voltage Monitoring

MRU32

3 phase | 2 CO | voltage monitoring

Power supply

Nominal voltage	12 ... 48 V UC	110 ... 240 V UC
Operating voltage range	10 ... 60 V	85 ... 250 V
Power consumption AC / DC	3.2 VA / 1.6 W	2.6 VA / 1.5 W
Frequency range	16 ... 63 Hz	16 ... 63 Hz

Measuring circuit

Measured parameters	U, f, ΔPhi, phase sequence
Min. setting step, resolution	0.1 V / 1 Hz / 1°
Monitoring functions	Under, over, inside, outside, phase sequence, phase failure
Number of voltage measurement inputs	3
Rated AC voltage L-N / L-L	230 V / 400 V
Rated DC voltage U+ / U-	300 V
DC voltage measurement range U+ / U-	+0.1 ... +690 V, -0.1 ... -690 V
Undervoltage setting range	+0.1 ... +700 V, -0.1 ... -700 V
Overvoltage setting range	+0.1 ... +700 V, -0.1 ... -700 V
AC voltage measurement range L-N / L-L	0.1 ... 480 V
Alarm delay	0.5 ... 999.9 s
Alarm reset delay	0.5 ... 999.9 s

Main circuit

Number of contacts	2 CO
Available contact materials	⚡ AgNi
Rated voltage	250 V AC
Rated current	6 A
Minimum load	10 mA, 10 V
Inrush current	10 A, 10 ms
Rated load DC	fig. 3
Rated load AC-1	1,500 VA
Mechanical endurance (cycles)	30 000 000
Electrical endurance at rated load AC-1 (cycles)	fig. 2

Insulation

Rated test voltage measuring / measuring circuit	1.5 kV rms / 1 min
Rated test voltage measuring circuit / power supply	2 kV rms / 1 min
Rated test voltage measuring circuit / main circuit	2 kV rms / 1 min
Rated test voltage main circuit / power supply	2 kV rms / 1 min
Rated test voltage main / main circuit	1.5 kV rms / 1 min
Rated test voltage open contact	1.5 kV rms / 1 min
Pollution degree	2
Overvoltage category	III

General data

Storage temperature (no ice)	-40 ... 85 °C
Operation temperature	-40 ... 60 °C
Conductor cross section control / main circuit	2.5 mm ²
Nominal screw torque control / main circuit	0.6
Dimensions	fig. 4
Weight	125 g
Ingress Protection	IP 20
Housing material	PC

Product references

Description	Type	12-48	110-240
Three phase monitoring	MRU32/UC...V	✓	✓

Other voltages on request. Please contact support@comatreleco.com.

«...» List coil voltage to complete product references



fig. 1. Wiring diagram

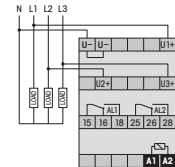


fig. 2. AC voltage endurance

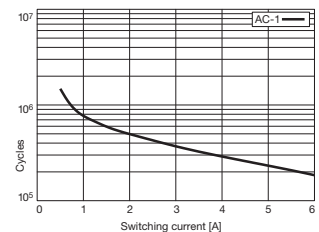


fig. 3. DC load limit curve

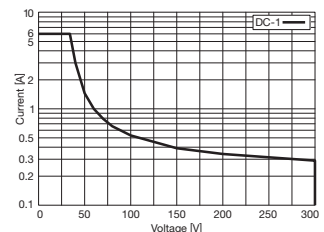
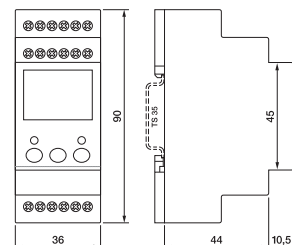


fig. 4. Dimensions (mm)



Technical approvals, conformities

Standards EN 60730-1; EN 60947-1; EN 61000-6-2; EN 61000-6-3

Approvals

3.2 Voltage Monitoring

MRU32R

3 phase | 2 CO | voltage monitoring

Power supply

Nominal voltage	12 ... 48 V AC / DC	110 ... 240 V AC / DC
Operating voltage range	10 ... 60 V	85 ... 250 V
Power consumption AC / DC	3.2 VA / 1.6 W	2.6 VA / 1.5 W
Frequency range	16 ... 63 Hz	16 ... 63 Hz

Measuring circuit

Measured parameters	U, f, ΔPhi, phase sequence
Min. setting step, resolution	0.1 V / 1 Hz / 1°
Monitoring functions	Under, over, inside, outside, phase sequence, phase failure
Number of voltage measurement inputs	3
Rated AC voltage L-N / L-L	230 V / 400 V
Rated DC voltage U+ / U-	300 V
DC voltage measurement range U+ / U-	+0.1 ... +690 V, -0.1 ... -690 V
Undervoltage setting range	+0.1 ... +700 V, -0.1 ... -700 V
Overvoltage setting range	+0.1 ... +700 V, -0.1 ... -700 V
Alarm delay	0.5 ... 999.9 s
Alarm reset delay	0.5 ... 999.9 s

Main circuit

Number of contacts	2 CO
Available contact materials	⚡ AgNi
Rated voltage	250 V AC
Rated current	6 A
Minimum load	10 mA, 10 V
Inrush current	10 A, 10 ms
Rated load DC	fig. 3
Rated load AC-1	1,500 VA
Mechanical endurance (cycles)	30 000 000
Electrical endurance at rated load AC-1 (cycles)	fig. 2

Insulation

Rated test voltage measuring / measuring circuit	1.5 kV rms / 1 min
Rated test voltage measuring circuit / power supply	2 kV rms / 1 min
Rated test voltage measuring circuit / main circuit	2 kV rms / 1 min
Rated test voltage main circuit / power supply	2 kV rms / 1 min
Rated test voltage main / main circuit	1.5 kV rms / 1 min
Rated test voltage open contact	1.5 kV rms / 1 min
Pollution degree	2
Overvoltage category	III

General data

Storage temperature (no ice)	-40 ... 85 °C
Operation temperature	-40 ... 60 °C
Conductor cross section control / main circuit	2.5 mm ²
Nominal screw torque control / main circuit	0.6
Dimensions	fig. 4
Weight	125 g
Ingress Protection	IP 20
Housing material	PC

Product references

Description	Type	12-48	110-240
Three phase monitoring	MRU32R/UC...V	✓	✓

Other voltages on request. Please contact support@comatreleco.com.
«...» List control circuit voltage to complete product references.



fig. 1. Wiring diagram

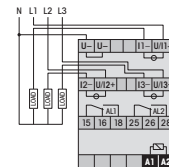


fig. 2. AC voltage endurance

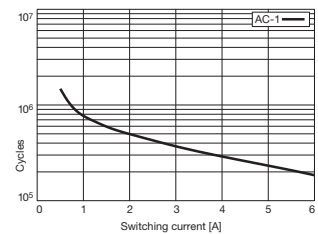


fig. 3. DC load limit curve

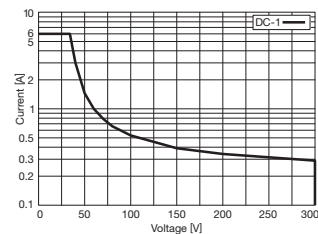
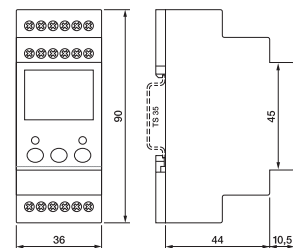


fig. 4. Dimensions (mm)



Technical approvals, conformities

Standards EN 60730-1; EN 60947-1; EN 61000-6-2; EN 61000-6-3
Railway EN 45545-2; EN 50155

Approvals

3.2 Voltage Monitoring

MV53

1 phase | 1 CO | voltage monitoring

Power supply

Nominal voltage	230 V AC
Operating voltage range	149 ... 270 V
Power consumption AC / DC	< 10 VA / < 1.5 W
Frequency range	45 ... 65 Hz

Measuring circuit

Measured parameters	U
Monitoring functions	Under, over
Number of voltage measurement inputs	1 (A1 / A2)
Rated AC voltage L-N / L-L	230 V / -
Undervoltage setting range	149 ... 218 V
Overvoltage setting range	236 ... 270 V
AC voltage measurement range L-N / L-L	149 ... 270 V
Rated base frequency	45 ... 65 Hz

Main circuit

Number of contacts	1 CO
Available contact materials	⚡ AgNi
Rated voltage	250 V AC
Rated current	6 A
Minimum load	10 mA, 5 V
Inrush current	20 A, 20 ms
Rated load DC	fig. 3
Rated load AC-1	1,750 VA
Mechanical endurance (cycles)	20 000 000
Electrical endurance at rated load AC-1 (cycles)	fig. 2

Insulation

Rated test voltage main circuit / power supply	2 kV rms / 1 min
Rated test voltage open contact	1 kV rms / 1 min
Pollution degree	2
Overvoltage category	III

General data

Storage temperature (no ice)	-40 ... 85 °C
Operation temperature	-25 ... 60 °C
Conductor cross section control / main circuit	2.5 mm ² , 2 x 1.5 mm ²
Nominal screw torque control / main circuit	0.8
Dimensions	fig. 4
Weight	80 g
Ingress Protection	IP 20
Housing material	PC

Product references

Description	Type	115	230
AC 50 Hz / 60 Hz	MV53/AC...V	✓	✓

Other voltages on request. Please contact support@comatreleco.com.

«...» List coil voltage to complete product references



fig. 1. Wiring diagram

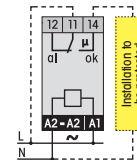


fig. 2. AC voltage endurance

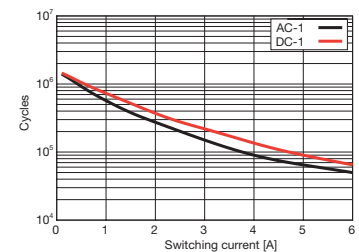


fig. 3. DC load limit curve

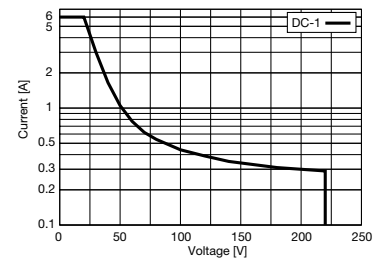
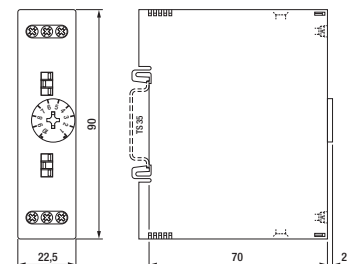


fig. 4. Dimensions (mm)



Technical approvals, conformities

Standards IEC/EN 60065

Approvals

3.2 Voltage Monitoring

SSU34

3 phase + N | 2 CO | voltage monitoring

Power supply

Nominal voltage	400 V AC
Operating voltage range	240 ... 495 V
Power consumption AC / DC	< 5 VA / -
Frequency range	50 Hz

Measuring circuit

Measured parameters	U, $\Delta\Phi$, Δf
Monitoring functions	Under, over, phase failure, phase sequence
Number of voltage measurement inputs	4 (L1 / L2 / L3 / N)
Rated AC voltage L-N / L-L	230 V / 400 V
Undervoltage setting range	160 ... 225 V / 280 ... 390 V
Overvoltage setting range	235 ... 275 V / 410 ... 480 V
AC voltage measurement range L-N / L-L	160 ... 275 V / 280 ... 480 V
Voltage difference setting range L-N / L-L	20 ... 100 V 35 ... 173 V
Rated base frequency	50 Hz
Frequency difference setting range L-N / L-L	3 ... 15 Hz
Phase angle difference setting range L-N / L-L	3 ... 15°
Alarm delay	0.2 ... 5 s

Main circuit

Number of contacts	2 CO
Available contact materials	⚡ AgNi
Rated voltage	250 V AC
Rated current	5 A
Minimum load	10 mA, 12 V
Inrush current	15 A, 20 ms
Rated load DC	fig. 3
Rated load AC-1	1,250 VA
Mechanical endurance (cycles)	5 000 000
Electrical endurance at rated load AC-1 (cycles)	fig. 2

Insulation

Rated test voltage measuring / measuring circuit	3 kV rms / 1 min
Rated test voltage measuring circuit / main circuit	3 kV rms / 1 min
Rated test voltage open contact	1 kV rms / 1 min
Pollution degree	2
Overvoltage category	III

General data

Storage temperature (no ice)	-40 ... 85 °C
Operation temperature	-10 ... 60 °C
Conductor cross section control / main circuit	2.5 mm ² , 2 x 1.5 mm ²
Nominal screw torque control / main circuit	0.5
Dimensions	fig. 4
Weight	350 g
Ingress Protection	IP 20
Housing material	PC

Product references

Description	Type	400
Three phase monitoring	SSU34/AC...V 50HZ S	✓
Other voltages on request. Please contact support@comatreleco.com.		
«...» List coil voltage to complete product references		



fig. 1. Wiring diagram

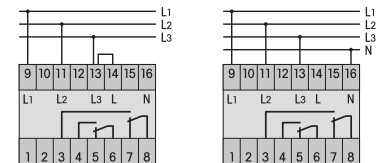


fig. 2. AC voltage endurance

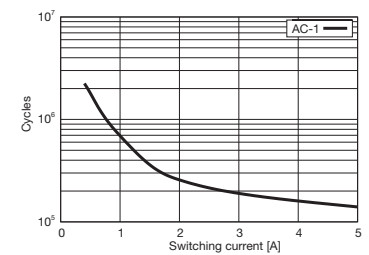


fig. 3. DC load limit curve

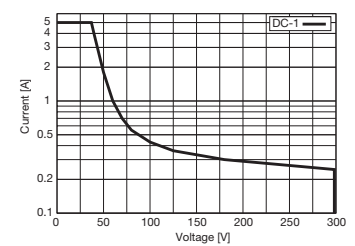
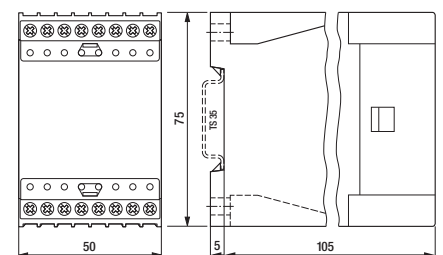


fig. 4. Dimensions (mm)






Technical approvals, conformities

Standards IEC/EN 60947

Approvals

3.3 Voltage Monitoring - pluggable

	Type	Pin	Page
SSU Series			
3 phase 1 CO phase sequence monitoring	SSU31		298
3 phase + N 1 CO voltage monitoring	SSU33L		299
3 phase + N 1 CO voltage monitoring	SSU33R		300

3.3 Voltage Monitoring - pluggable

SSU31

3 phase | 1 CO | phase sequence monitoring

Power supply

Nominal voltage	400 V AC
Operating voltage range	360 ... 470 V
Power consumption AC / DC	10 VA / 1.5 W
Frequency range	45 ... 65 Hz

Measuring circuit

Measured parameters	U
Monitoring functions	Under, phase failure, phase sequence
Number of voltage measurement inputs	3 (L1 / L2 / L3)
Rated AC voltage L-N / L-L	- / 400 V
Undervoltage setting range	≤ 320 V
AC voltage measurement range L-N / L-L	320 ... 400 V
Rated base frequency	45 ... 65 Hz

Main circuit

Number of contacts	1 CO
Available contact materials	⚡ AgNi
Rated voltage	250 V AC
Rated current	6 A
Minimum load	10 mA, 5 V
Inrush current	15 A, 20 ms
Rated load DC	fig. 3
Rated load AC-1	1,500 VA
Mechanical endurance (cycles)	30 000 000
Electrical endurance at rated load AC-1 (cycles)	fig. 2

Insulation

Rated test voltage measuring / measuring circuit	2 kV rms / 1 min
Rated test voltage measuring circuit / main circuit	2 kV rms / 1 min
Rated test voltage open contact	1 kV rms / 1 min
Pollution degree	2
Overvoltage category	III

General data

Storage temperature (no ice)	-40 ... 85 °C
Operation temperature	-25 ... 60 °C
Dimensions	fig. 4
Weight	300 g
Ingress Protection	IP 20
Housing material	PC

Product references

Description	Type	400
Three phase monitoring	SSU31/AC...V	✓

Other voltages on request. Please contact support@comatreleco.com.
«...» List coil voltage to complete product references

Accessories

Socket	S3-M
Retaining spring I steel	HF-24
Transparent front cover kit for CT3x	FS-23
Frontpanel mounting set	FZ-23



fig. 1. Wiring diagram

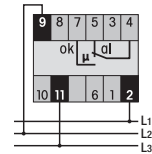


fig. 2. AC voltage endurance

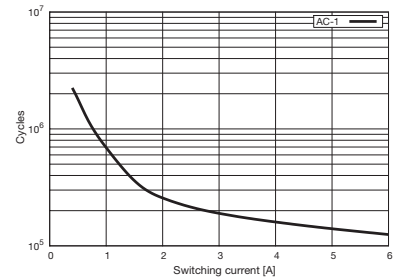


fig. 3. DC load limit curve

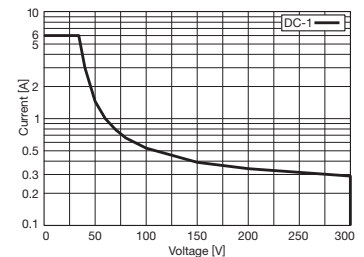
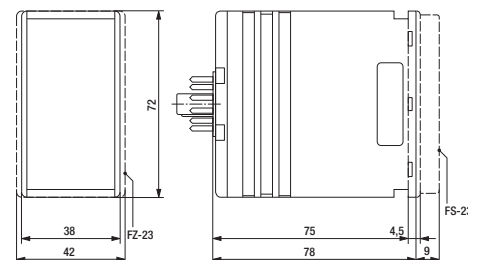


fig. 4. Dimensions (mm)



Technical approvals, conformities

Standards IEC/EN 60947

Approvals

3.3 Voltage Monitoring - pluggable

SSU33L

3 phase + N | 1 CO | voltage monitoring

Power supply

Nominal voltage	230 V AC	400 V AC
Operating voltage range	160 ... 275 V	280 ... 470 V
Power consumption AC / DC	3 VA / -	3 VA / -
Frequency range	50 Hz	50 Hz

Measuring circuit

Measured parameters	U, $\Delta\Phi$, Δf	
Monitoring functions	Under, over, phase failure, phase sequence	
Number of voltage measurement inputs	4 (L1 / L2 / L3 / N)	3 (L1 / L2 / L3)
Rated AC voltage L-N / L-L	230 V / -	- / 400 V
Undervoltage setting range	≤ 160 V	≤ 280 V
Overvoltage setting range	≥ 275 V	≥ 480 V
AC voltage measurement range L-N / L-L	160 ... 275 V / -	- / 280 ... 480 V
Voltage difference setting range L-N / L-L	20 ... 100 V / 35 ... 173 V	20 ... 100 V / 35 ... 173 V
Rated base frequency	50 Hz	50 Hz
Frequency difference setting range L-N / L-L	3 ... 15 Hz	3 ... 15 Hz
Phase angle difference setting range L-N / L-L	3 ... 15°	3 ... 15°
Alarm delay	0.2 ... 5 s	0.2 ... 5 s

Main circuit

Number of contacts	1 CO
Available contact materials	⚡ AgNi
Rated voltage	250 V AC
Rated current	6 A
Minimum load	10 mA, 5 V
Inrush current	15 A, 20 ms
Rated load DC	fig. 3
Rated load AC-1	1,500 VA
Mechanical endurance (cycles)	30 000 000
Electrical endurance at rated load AC-1 (cycles)	fig. 2

Insulation

Rated test voltage measuring / measuring circuit	2 kV rms / 1 min
Rated test voltage measuring circuit / main circuit	2 kV rms / 1 min
Rated test voltage open contact	1 kV rms / 1 min
Pollution degree	2
Overvoltage category	III

General data

Storage temperature (no ice)	-40 ... 85 °C
Operation temperature	-25 ... 60 °C
Dimensions	fig. 4
Weight	300 g
Ingress Protection	IP 20
Housing material	PC

Product references

Description	Type	230	400
Three phase monitoring + N	SSU33L/AC230V	✓	
Three phase monitoring	SSU33L/AC400V		✓
Other voltages on request. Please contact support@comatreleco.com.			
«...» List coil voltage to complete product references			

Accessories

Socket	S3-M
Retaining spring steel	HF-24
Transparent front cover kit for CT3x	FS-23
Frontpanel mounting set	FZ-23



fig. 1. Wiring diagram

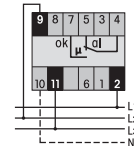


fig. 2. AC voltage endurance

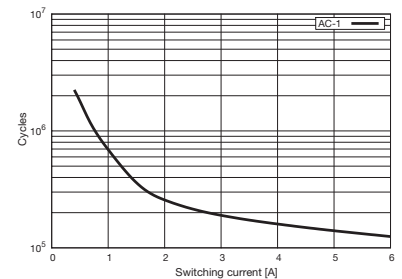


fig. 3. DC load limit curve

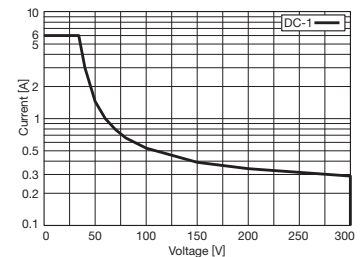
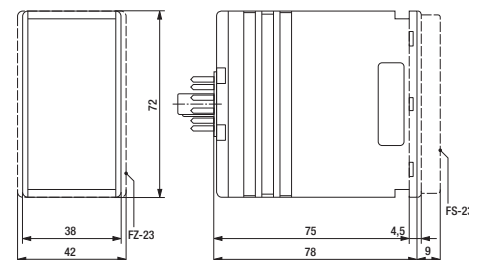


fig. 4. Dimensions (mm)



Technical approvals, conformities

Standards IEC/EN 60947

Approvals

3.3 Voltage Monitoring - pluggable

SSU33R

3 phase + N | 1 CO | voltage monitoring

Power supply

Nominal voltage	230 V AC	400 V AC
Operating voltage range	160 ... 275 V	280 ... 470 V
Power consumption AC / DC	3 VA / -	3 VA / -
Frequency range	50 Hz	50 Hz

Measuring circuit

Measured parameters	U, $\Delta\Phi$, Δf	
Monitoring functions	Under, over, phase failure, phase sequence	
Number of voltage measurement inputs	4 (L1 / L2 / L3 / N)	3 (L1 / L2 / L3)
Rated AC voltage L-N / L-L	230 V / 400 V	- / 400 V
Undervoltage setting range	≤ 160 V	≤ 280 V
Overvoltage setting range	≥ 275 V	≥ 480 V
AC voltage measurement range L-N / L-L	160 ... 275 V / -	- / 280 ... 480 V
Voltage difference setting range L-N / L-L	20 ... 100 V / 35 ... 173 V	- / 35 ... 173 V
Rated base frequency	50 Hz	50 Hz
Frequency difference setting range L-N / L-L	3 ... 15 Hz	3 ... 15 Hz
Phase angle difference setting range L-N / L-L	3 ... 15°	3 ... 15°
Alarm delay	0.2 ... 5 s	0.2 ... 5 s

Main circuit

Number of contacts	1 CO
Available contact materials	AgNi
Rated voltage	250 V AC
Rated current	6 A
Minimum load	10 mA, 5 V
Inrush current	15 A, 20 ms
Rated load DC	fig. 3
Rated load AC-1	1,500 VA
Mechanical endurance (cycles)	30 000 000
Electrical endurance at rated load AC-1 (cycles)	fig. 2

Insulation

Rated test voltage measuring / measuring circuit	2 kV rms / 1 min
Rated test voltage measuring circuit / main circuit	2 kV rms / 1 min
Rated test voltage open contact	1 kV rms / 1 min
Pollution degree	2
Overvoltage category	III

General data

Storage temperature (no ice)	-40 ... 85 °C
Operation temperature	-25 ... 60 °C
Dimensions	fig. 4
Weight	300 g
Ingress Protection	IP 20
Housing material	PC

Product references

Description	Type	400
Three phase monitoring	SSU33R/AC...V	✓

Other voltages on request. Please contact support@comatreleco.com.
«...» List control circuit voltage to complete product references.

Accessories

Socket	S3-MR
Retaining spring I steel	HF-24
Transparent front cover kit for CT3x	FS-23
Frontpanel mounting set	FZ-23



fig. 1. Wiring diagram

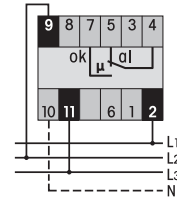


fig. 2. AC voltage endurance

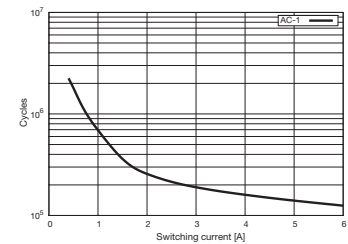


fig. 3. DC load limit curve

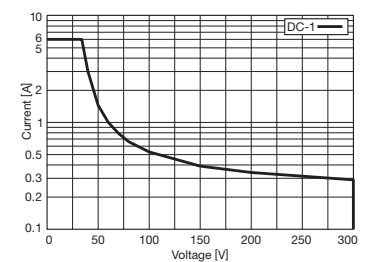
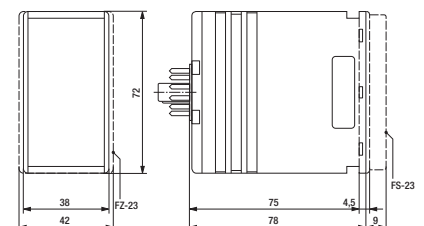


fig. 4. Dimensions (mm)







Technical approvals, conformities

Standards IEC/EN 60947

Railway EN 45545-2; EN 50155

Approvals

3.4 Current Monitoring

	Type	Pin	Page
MRI Series			
1 phase 1 CO current monitoring	MRI11		302
1 phase 1 CO current monitoring	MRI11R		303
3 phase 2 CO current monitoring	MRI32		304
3 phase 2 CO current monitoring	MRI32R		305

3.4 Current Monitoring

MRI11

1 phase | 1 CO | current monitoring

Power supply

Nominal voltage	12 ... 48 V UC	110 ... 240 V UC
Operating voltage range	10 ... 60 V	85 ... 250 V
Power consumption AC / DC	3.2 VA / 1.6 W	2.6 VA / 1.5 W
Frequency range	16 ... 63 Hz	16 ... 63 Hz

Measuring circuit

Measured parameters	I, f
Min. setting step, resolution	0.1 A / 1 Hz
Monitoring functions	Under, over, inside, outside
Number of voltage measurement inputs	1
Number of current measurement inputs	1
Rated measurement current	5 A
Measurement current range	0.1 ... 5 A
Undercurrent setting range	0.1 ... 6 A
Overcurrent setting range	0.1 ... 6 A
Rated base frequency	15 ... 150 Hz
Alarm delay	Settings: "No Delay" = 10 ms; "ON Delay" = 0.5 ... 999.9 s; "OFF Delay": 0.5 ... 999.9 s
Alarm reset delay	Settings: "No Delay" = 10 ms; "ON Delay" = 0.5 ... 999.9 s; "OFF Delay": 0.5 ... 999.9 s

Main circuit

Number of contacts	1 CO
Available contact materials	⚡ AgNi
Rated voltage	250 V AC
Rated current	6 A
Minimum load	10 mA, 10 V
Inrush current	10 A, 10 ms
Rated load DC	fig. 3
Rated load AC-1	1,250 VA
Mechanical endurance (cycles)	30 000 000
Electrical endurance at rated load AC-1 (cycles)	fig. 2

Insulation

Rated test voltage measuring / measuring circuit	1.5 kV rms / 1 min
Rated test voltage measuring circuit / power supply	2 kV rms / 1 min
Rated test voltage measuring circuit / main circuit	2 kV rms / 1 min
Rated test voltage main circuit / power supply	2 kV rms / 1 min
Rated test voltage open contact	1.5 kV rms / 1 min
Pollution degree	2
Overtoltage category	III

General data

Storage temperature (no ice)	-40 ... 85 °C
Operation temperature	-40 ... 60 °C
Conductor cross section control / main circuit	2.5 mm ²
Nominal screw torque control / main circuit	0.6
Dimensions	fig. 4
Weight	107 g
Ingress Protection	IP 20
Housing material	PC

Product references

Description	Type	12-48	110-240
Single phase monitoring	MRI11/UC...V	✓	✓

Other voltages on request. Please contact support@comatreleco.com.
«...» List control circuit voltage to complete product references.



fig. 1. Wiring diagram

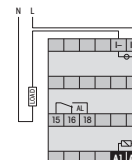


fig. 2. AC voltage endurance

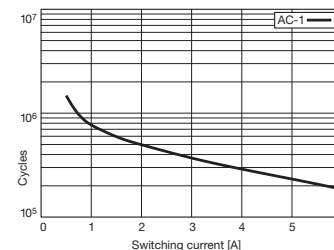


fig. 3. DC load limit curve

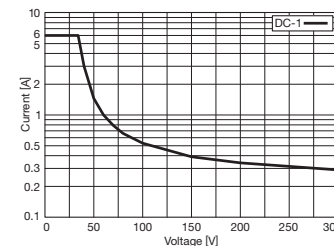
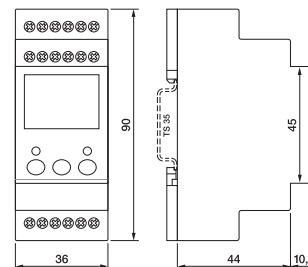


fig. 4. Dimensions (mm)



Technical approvals, conformities

Standards EN 60730-1; EN 60947-1; EN 61000-6-2; EN 61000-6-3

Approvals

3.4 Current Monitoring

MRI11R

1 phase | 1 CO | current monitoring

Power supply

Nominal voltage	12 ... 48 V AC / DC	110 ... 240 V AC / DC
Operating voltage range	10 ... 60 V	85 ... 250 V
Power consumption AC / DC	3.2 VA / 1.6 W	2.6 VA / 1.5 W
Frequency range	16 ... 63 Hz	16 ... 63 Hz

Measuring circuit

Measured parameters	I, f
Min. setting step, resolution	0.1 A / 1 Hz
Monitoring functions	Under, over, inside, outside
Number of voltage measurement inputs	1
Rated measurement current	5 A
Measurement current range	0.1 ... 5 A
Undercurrent setting range	0.1 ... 6 A
Overcurrent setting range	0.1 ... 6 A
Rated base frequency	15 ... 150 Hz
Alarm delay	0.5 ... 999.9 s
Alarm reset delay	0.5 ... 999.9 s

Main circuit

Number of contacts	1 CO
Available contact materials	⚡ AgNi
Rated voltage	250 V AC
Rated current	6 A
Minimum load	10 mA, 10 V
Inrush current	10 A, 10 ms
Rated load DC	fig. 3
Rated load AC-1	1,250 VA
Mechanical endurance (cycles)	30 000 000
Electrical endurance at rated load AC-1 (cycles)	fig. 2

Insulation

Rated test voltage measuring / measuring circuit	1.5 kV rms / 1 min
Rated test voltage measuring circuit / power supply	2 kV rms / 1 min
Rated test voltage measuring circuit / main circuit	2 kV rms / 1 min
Rated test voltage main circuit / power supply	2 kV rms / 1 min
Rated test voltage open contact	1.5 kV rms / 1 min
Pollution degree	2
Overvoltage category	III

General data

Storage temperature (no ice)	-40 ... 85 °C
Operation temperature	-40 ... 60 °C
Conductor cross section control / main circuit	2.5 mm ²
Nominal screw torque control / main circuit	0.6
Dimensions	fig. 4
Weight	107 g
Ingress Protection	IP 20
Housing material	PC

Product references

Description	Type	12-48	110-240
Single phase monitoring	MRI11R/UC...V	✓	✓

Other voltages on request. Please contact support@comatreleco.com.
«...» List control circuit voltage to complete product references.

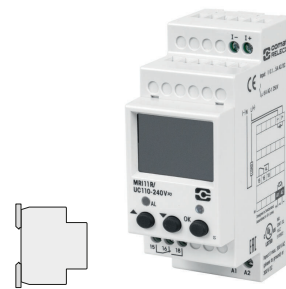


fig. 1. Wiring diagram

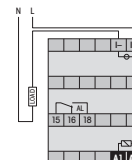


fig. 2. AC voltage endurance

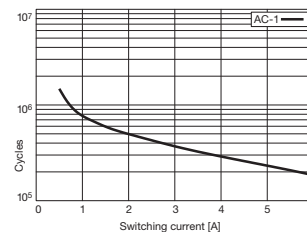


fig. 3. DC load limit curve

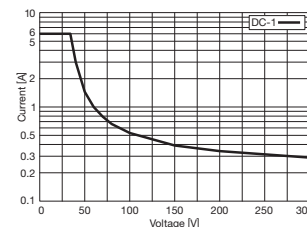


fig. 4. Dimensions (mm)

Technical approvals, conformities

Standards EN 60730-1; EN 60947-1; EN 61000-6-2; EN 61000-6-3
Railway EN 45545-2; EN 50155

Approvals

3.4 Current Monitoring

MRI32

3 phase | 2 CO | current monitoring



Power supply

Nominal voltage	12 ... 48 V UC	110 ... 240 V UC
Operating voltage range	10 ... 60 V	85 ... 250 V
Power consumption AC / DC	3.2 VA / 1.6 W	2.6 VA / 1.5 W
Frequency range	16 ... 63 Hz	16 ... 63 Hz

Measuring circuit

Measured parameters	I, f
Min. setting step, resolution	0.1 A / 1 Hz
Monitoring functions	Under, over, inside, outside
Number of current measurement inputs	3
Rated measurement current	5 A
Measurement current range	0.1 ... 5 A
Undercurrent setting range	0.1 ... 6 A
Overcurrent setting range	0.1 ... 6 A
Rated base frequency	15 ... 150 Hz
Alarm delay	0.5 ... 999.9 s
Alarm reset delay	0.5 ... 999.9 s

Main circuit

Number of contacts	2 CO
Available contact materials	⚡ AgNi
Rated voltage	250 V AC
Rated current	6 A
Minimum load	10 mA, 10 V
Inrush current	10 A, 10 ms
Rated load DC	fig. 3
Rated load AC-1	1,250 VA
Mechanical endurance (cycles)	30 000 000
Electrical endurance at rated load AC-1 (cycles)	fig. 2

Insulation

Rated test voltage measuring / measuring circuit	1.5 kV rms / 1 min
Rated test voltage measuring circuit / power supply	2 kV rms / 1 min
Rated test voltage measuring circuit / main circuit	2 kV rms / 1 min
Rated test voltage main circuit / power supply	2 kV rms / 1 min
Rated test voltage main / main circuit	1.5 kV rms / 1 min
Rated test voltage open contact	1.5 kV rms / 1 min
Pollution degree	2
Overvoltage category	III

General data

Storage temperature (no ice)	-40 ... 85 °C
Operation temperature	-40 ... 60 °C
Conductor cross section control / main circuit	2.5 mm ²
Nominal screw torque control / main circuit	0.6
Dimensions	fig. 4
Weight	125 g
Ingress Protection	IP 20
Housing material	PC

Product references

Description	Type	12-48	110-240
Three phase monitoring	MRI32/UC...V	✓	✓

Other voltages on request. Please contact support@comatreleco.com.
«...» List control circuit voltage to complete product references.



fig. 1. Wiring diagram

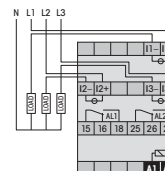


fig. 2. AC voltage endurance

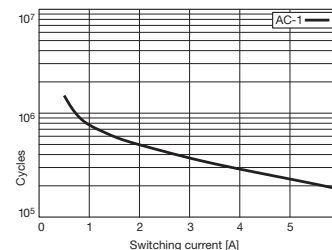


fig. 3. DC load limit curve

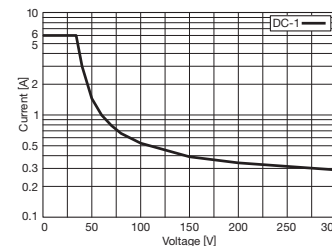
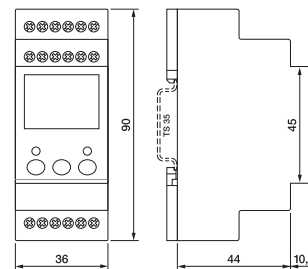


fig. 4. Dimensions (mm)



Technical approvals, conformities

Standards EN 60730-1; EN 60947-1; EN 61000-6-2; EN 61000-6-3

Approvals

3.4 Current Monitoring

MRI32R

3 phase | 2 CO | current monitoring

Power supply

Nominal voltage	12 ... 48 V AC / DC	110 ... 240 V AC / DC
Operating voltage range	10 ... 60 V	85 ... 250 V
Power consumption AC / DC	3.2 VA / 1.6 W	2.6 VA / 1.5 W
Frequency range	16 ... 63 Hz	16 ... 63 Hz

Measuring circuit

Measured parameters	I, f
Min. setting step, resolution	0.1 A / 1 Hz
Monitoring functions	Under, over, inside, outside
Number of voltage measurement inputs	3
Rated measurement current	5 A
Measurement current range	0.1 ... 5 A
Undercurrent setting range	0.1 ... 6 A
Overcurrent setting range	0.1 ... 6 A
Rated base frequency	15 ... 150 Hz
Alarm delay	0.5 ... 999.9 s
Alarm reset delay	0.5 ... 999.9 s

Main circuit

Number of contacts	2 CO
Available contact materials	⚡ AgNi
Rated voltage	250 V AC
Rated current	6 A
Minimum load	10 mA, 10 V
Inrush current	10 A, 10 ms
Rated load DC	fig. 3
Rated load AC-1	1,250 VA
Mechanical endurance (cycles)	30 000 000
Electrical endurance at rated load AC-1 (cycles)	fig. 2

Insulation

Rated test voltage measuring / measuring circuit	1.5 kV rms / 1 min
Rated test voltage measuring circuit / power supply	2 kV rms / 1 min
Rated test voltage measuring circuit / main circuit	2 kV rms / 1 min
Rated test voltage main circuit / power supply	2 kV rms / 1 min
Rated test voltage main / main circuit	1.5 kV rms / 1 min
Rated test voltage open contact	1.5 kV rms / 1 min
Pollution degree	2
Overvoltage category	III

General data

Storage temperature (no ice)	-40 ... 85 °C
Operation temperature	-40 ... 60 °C
Conductor cross section control / main circuit	2.5 mm ²
Nominal screw torque control / main circuit	0.6
Dimensions	fig. 4
Weight	125 g
Ingress Protection	IP 20
Housing material	PC

Product references

Description	Type	12-48	110-240
Three phase monitoring	MRI32R/UC...V	✓	✓

Other voltages on request. Please contact support@comatreleco.com.
«...» List control circuit voltage to complete product references.



fig. 1. Wiring diagram

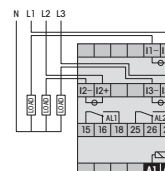


fig. 2. AC voltage endurance

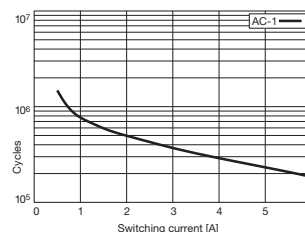


fig. 3. DC load limit curve

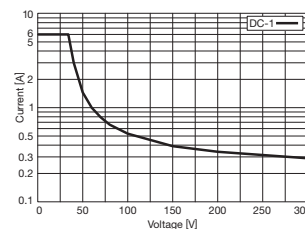
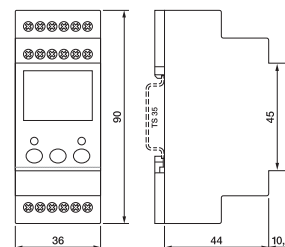


fig. 4. Dimensions (mm)



Technical approvals, conformities

Standards EN 60730-1; EN 60947-1; EN 61000-6-2; EN 61000-6-3
Railway EN 45545-2; EN 50155

Approvals

3.5 Motor Protection - pluggable

	Type	Pin	Page
TSR Series			
Motor protection PTC 1 + 1 CO	TSR19		308

TSR19

Motor protection | PTC | 1 + 1 CO



Power supply

Nominal voltage	24 ... 48 V UC	230 V AC
Operating voltage range	0.85 ... 1.15 U _N	0.85 ... 1.15 U _N
Power consumption AC / DC	2.5 VA / 1.5 W	2.5 VA / 1.5 W
Frequency range	0, 50, 60 Hz	50, 60 Hz

Measuring circuit

Measured parameters	Ω
Monitoring functions	over, sensor ground fault, sensor break
Resistance, OK range	100 ... 1 800 Ω
Clixon, OK range	0 ... 1 800 Ω
Failure threshold	≤ 50 Ω, ≥ 2 250 Ω, ≤ 1 kΩ (to ground)
Alarm delay	2.5 s

Main circuit

Number of contacts	1 + 1 CO
Available contact materials	⚡ AgNi
Rated voltage	250 V AC
Rated current	6 A
Minimum load	10 mA, 12 V
Rated load DC	fig. 3
Rated load AC-1	1,250 VA
Mechanical endurance (cycles)	30 000 000
Electrical endurance at rated load AC-1 (cycles)	fig. 2

Insulation

Rated test voltage measuring / measuring circuit	2 kV rms / 1 min
Rated test voltage measuring circuit / power supply	2 kV rms / 1 min
Rated test voltage measuring circuit / main circuit	2 kV rms / 1 min
Rated test voltage main circuit / power supply	2 kV rms / 1 min
Rated test voltage main / main circuit	2 kV rms / 1 min
Rated test voltage open contact	2 kV rms / 1 min
Pollution degree	2
Overvoltage category	III

General data

Storage temperature (no ice)	-40 ... 85 °C
Operation temperature	-25 ... 60 °C
Dimensions	fig. 4
Weight	210 g
Ingress Protection	IP 20
Housing material	PC

Product references

Description	Type	24-48	230
Motor protection, AC supply	TSR19/AC...V		✓

Motor protection, AC/DC supply TSR19/UC...V ✓

Other voltages on request. Please contact support@comatreleco.com.
 «...» List control circuit voltage to complete product references.

Accessories

Socket	S3-M
Retaining spring I steel	HF-24
Transparent front cover kit for CT3x	FS-23
Frontpanel mounting set	FZ-23

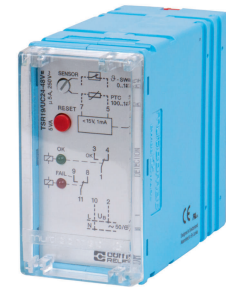


fig. 1. Wiring diagram

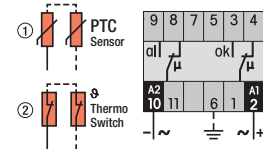


fig. 2. AC voltage endurance

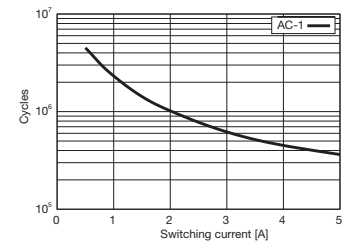


fig. 3. DC load limit curve

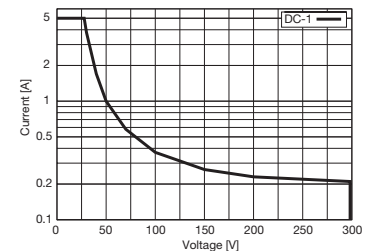
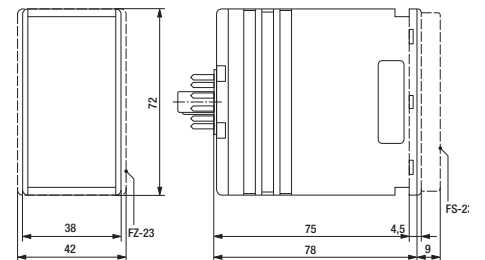


fig. 4. Dimensions (mm)



Technical approvals, conformities

Standards IEC/EN 60947



3.6 Isolation Monitoring

	Type	Pin	Page
ESU Series			
DC Isolation monitoring 1 NO + 2 CO	ESU-D2.C2354		310

3.6 Isolation Monitoring

ESU-D2.C2354

DC Isolation monitoring | 1 NO + 2 CO

Power supply

Nominal voltage	24 ... 48 V UC
Operating voltage range	16.8 ... 60 V
Power consumption AC / DC	2 VA / 2 W
Frequency range	0, 40 ... 60 Hz

Measuring circuit

Measured parameters	Ω
Monitoring functions	under, ground fault
Rated DC voltage U+ / U-	60 V
Overvoltage setting range	> 60 VDC
Circuit / ground resistance measurement range	1 ... 50 k Ω
Pre alarm setting range	4 ... 30 k Ω
Main alarm	≤ 4 k Ω
Alarm delay	0.1 ... 10 s

Main circuit

Number of contacts	1 NO + 2 CO
Available contact materials	⚡ AgNi
Rated voltage	250 V AC
Rated current	5 A
Minimum load	10 mA, 12 V
Rated load DC	fig. 3
Rated load AC-1	1,250 VA
Mechanical endurance (cycles)	5 000 000
Electrical endurance at rated load AC-1 (cycles)	1 000 000

Insulation

Pollution degree	2
Overvoltage category	III

General data

Storage temperature (no ice)	-40 ... 85 °C
Operation temperature	-40 ... 70 °C
Conductor cross section control / main circuit	2.5 mm ² , 2 x 1.5 mm ²
Nominal screw torque control / main circuit	0.5
Dimensions	fig. 4
Weight	250 g
Ingress Protection	IP 20
Housing material	PA

Product references

Description	Type	24-48
DC Isolation monitoring, railway version	ESU-D2.C2354/UC...V	✓

Other voltages on request. Please contact support@comatreleco.com.
«...» List control circuit voltage to complete product references.

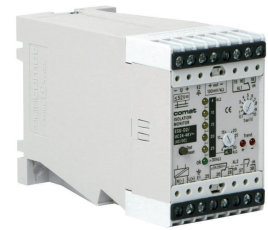


fig. 1. Wiring diagram

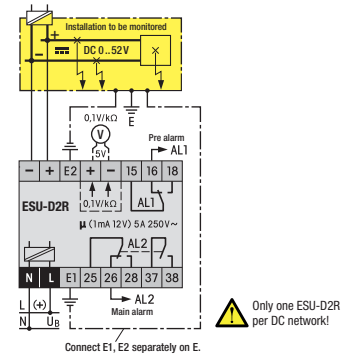


fig. 2. DC load limit curve

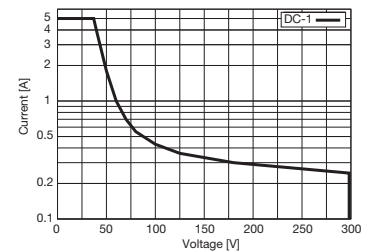
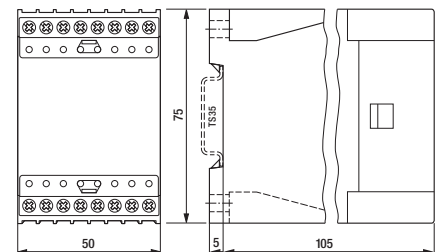


fig. 3. Dimensions (mm)



Technical approvals, conformities

Standards EN 61000-3; EN 61000-6-2;
IEC/EN 60947
Railway EN 45545-2; EN 50155

Approvals

3.7 Monitoring Modules

	Type	Pin	Page
CT Series			
Current Monitoring	CT515R		312
Voltage Monitoring	CT524R		313

CT515R

Current Monitoring

Power supply

Nominal voltage	36 V DC
Operating voltage range	18 ... 45 V
Power consumption DC	≤ 0.5 W

Measuring circuit

Measured parameters	I
Monitoring functions	Under, over, inside, outside
Rated measurement current	2 A
Measurement current range	0 ... 3 A
Undercurrent setting range	0 ... 2 A
Overcurrent setting range	0 ... 2 A
Alarm delay	100 ms / 500 ms / 2 s
Alarm reset delay	100 ms

General data

Storage temperature (no ice)	-40 ... 85 °C
Operation temperature	-40 ... 70 °C
Dimensions	fig. 2
Weight	25 g
Ingress Protection	IP 20
Housing material	PC

Product references

Description	Type	36
Current Monitoring	CT515R/DC...V	✓
Other voltages on request. Please contact support@comatreleco.com.		
«...» List control circuit voltage to complete product references.		

Accessories

Socket	S3-M0R, FS-C/5 (BEUTEL/UNIT 5 STK/PCS)
S5-MR	S5-MR



fig. 1. Wiring diagram

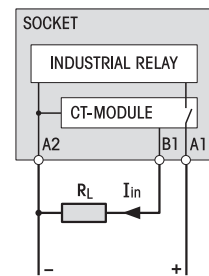
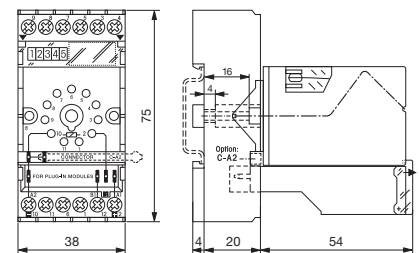


fig. 2. Dimensions (mm)



Technical approvals, conformities

Standards EN 60947-1; EN 61000-6-2; EN 61000-6-3
 Railway EN 45545-2; EN 50155

Approvals

CT524R

Voltage Monitoring

Power supply

Nominal voltage	24 V DC
Operating voltage range	18 ... 30 V
Power consumption AC / DC	≤ 0.5 W

Measuring circuit

Measured parameters	U
Monitoring functions	Under, over, inside, outside
DC voltage measurement range U+ / U-	0 ... 30 V
Undervoltage setting range	0 ... 30 V
Overvoltage setting range	0 ... 30 V
Alarm delay	100 ms / 500 ms / 2 s
Alarm reset delay	100 ms

General data

Storage temperature (no ice)	-40 ... 85 °C
Operation temperature	-40 ... 70 °C
Dimensions	fig. 2
Weight	25 g
Ingress Protection	IP 20
Housing material	PC

Product references

Description	Type	24
Voltage monitoring, railway version	CT524R/DC...V	✓
Other voltages on request. Please contact support@comatreleco.com.		
«...» List control circuit voltage to complete product references.		

Accessories

Socket	S3-M0R, FS-C/5 (BEUTEL/UNIT 5 STK/PCS)
S5-MR	S5-MR



fig. 1. Wiring diagram

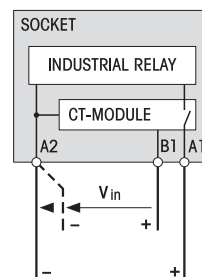
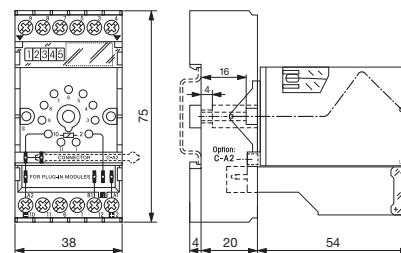


fig. 2. Dimensions (mm)





Technical approvals, conformities

Standards EN 60947-1; EN 61000-6-2; EN 61000-6-3
 Railway EN 45545-2; EN 50155

Approvals

3.8 Suppressor module

	Type	Pin	Page
CEM Series			
Suppressor module	CEM01		316
CRC Series			
Overvoltage protection	CRC02		317

3.8 Suppressor module

CEM01

Suppressor module

Power supply

Nominal voltage	24 ... 240 V UC
Operating voltage range	19 ... 250 V
Frequency range	15 ... 63 Hz

General data

Storage temperature (no ice)	-40 ... 85 °C
Operation temperature	-25 ... 60 °C
Conductor cross section control / main circuit	0.08 ... 2.5 mm ²
Dimensions	fig. 2
Weight	15 g
Ingress Protection	IP20
Housing material	PA 66

Product references

Description	Type	24-240
Suppressor module	CEM01/UC...V	✓

Other voltages on request. Please contact support@comatreleco.com.

«...» List control circuit voltage to complete product references.



fig. 1. Wiring diagram

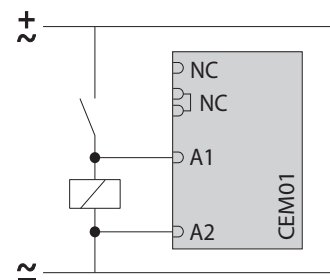
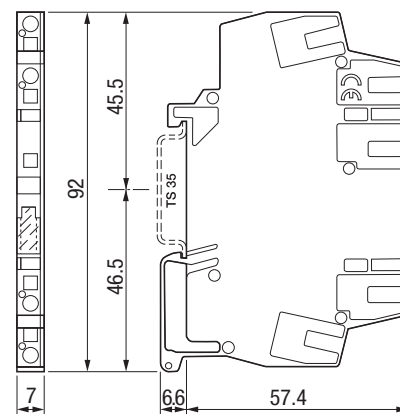


fig. 2. Dimensions (mm)



Technical approvals, conformities

Standards EN 60730-1; EN 61000-6-2; EN 61000-6-3

Approvals

3.8 Suppressor module

CRC02

Overvoltage protection

Power supply

Nominal voltage	24 V UC
Operating voltage range	0 ... 30 V DC / 0 ... 38 V AC
Frequency range	47 ... 63 Hz

General data

Storage temperature (no ice)	-40 ... 85 °C
Operation temperature	-25 ... 60 °C
Conductor cross section control / main circuit	2.5 mm ² , 2 x 1.5 mm ²
Nominal screw torque control / main circuit	0.4 Nm
Dimensions	fig. 2
Weight	70 g
Ingress Protection	IP20
Housing material	PC

Product references

Description	Type	24
Overvoltage protection	CRC02/UC...V	✓
Other voltages on request. Please contact support@comatreleco.com.		
«...» List control circuit voltage to complete product references.		



fig. 1. Wiring diagram

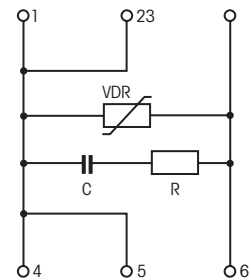
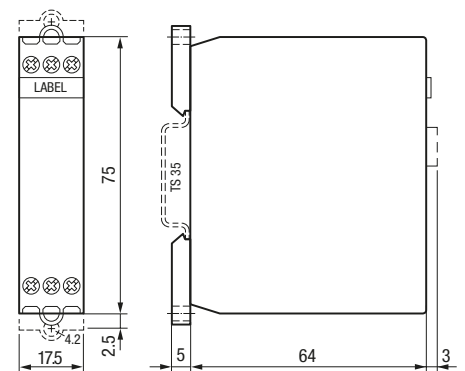


fig. 2. Dimensions (mm)



Technical approvals, conformities

Standards EN 60730-1; EN 61000-6-2; EN 61000-6-3

Approvals

3.9 Monitoring relay accessories

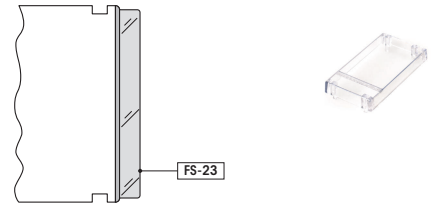
	Type	Pin	Page
Accessories			
Transparent front cover kit for CT3x	FS-23		320
Front panel mounting set Retaining clip	FZ-23		320

FS-23

Transparent front cover kit for CT3x

Product references

Description	Type
Transparent front cover kit for CT3x	FS-23

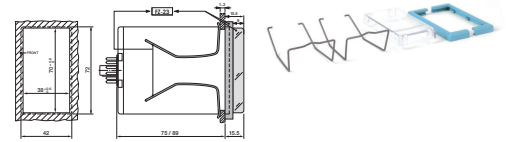


FZ-23

Front panel mounting set | Retaining clip

Product references

Description	Type
Front panel mounting kit	FZ-23



3.10 Current transformer

	Type	Pin	Page
MRE-CT Series			
Current Transformer up to 100 / 5 A	MRE-CT313		322
Current Transformer up to 750 / 5 A	MRE-CT314		323
Current Transformer up to 1500 / 5 A	MRE-CT614		324
Current Transformer up to 2000 A / 5 A	MRE-CT1233		325

3.10 Current transformer

MRE-CT313

Current Transformer | up to 100 / 5 A

Power supply

Operating voltage range < 720 V

Measuring circuit

Measurement current range $\leq 1 \times I_N$
 Max. current $60 \times I_N, 1 \text{ s (max. 100 kA)}$
 Power consumption at 5 A 0.36 VA/m (2.5 mm² wire)
 Rated base frequency 50 ... 60 Hz

Insulation

Rated test voltage measuring / measuring circuit 3 kV rms / 1 min, $U_m < 720 \text{ V}$

General data

Storage temperature (no ice) -25 ... 70 °C
 Operation temperature -5 ... 50 °C
 Dimensions fig. 2
 Ingress Protection IP20
 Housing material ABS

Product references

Description	Type	50	100
Class 1, power 2.5 VA	MRE-CT313-100/5A/2.5-1		✓
Class 1, power 1 VA	MRE-CT313-50/5A/1-1	✓	

Other transmission ratio on request. Please contact support@comatreleco.com.

"..." List primary current to complete product references.



fig. 1. Wiring diagram

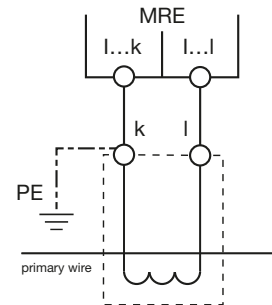
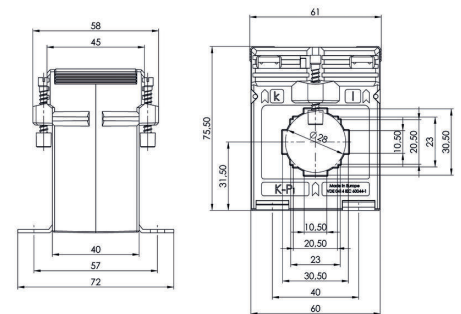


fig. 2. Dimensions (mm)



Technical approvals, conformities

Standards IEC/EN 61869

Approvals

3.10 Current transformer

MRE-CT314

Current Transformer | up to 750 / 5 A

Power supply

Operating voltage range < 720 V

Measuring circuit

Measurement current range $\leq 1 \times I_N$
 Max. current $60 \times I_N$, 1 s (max. 100 kA)
 Power consumption at 5 A 0.36 VA/m (2.5 mm² wire)
 Rated base frequency 50 ... 60 Hz

Insulation

Rated test voltage measuring / measuring circuit 3 kV rms / 1 min, $U_m < 720$ V

General data

Storage temperature (no ice) -25 ... 70 °C
 Operation temperature -5 ... 50 °C
 Dimensions fig. 2
 Ingress Protection IP20
 Housing material ABS

Product references

Description	Type
Class 0.5, power 2.5 VA	MRE-CT314-100/5A/2.5-0.5
Class 0.2s, power 2.5 VA	MRE-CT314-150/5A/2.5-0.2S
Class 0.5, power 2.5 VA	MRE-CT314-150/5A/2.5-0.5
Class 0.2s, power 2.5 VA	MRE-CT314-200/5A/2.5-0.2S
Class 0.5, power 2.5 VA	MRE-CT314-200/5A/2.5-0.5
Class 0.2s, power 2.5 VA	MRE-CT314-250/5A/2.5-0.2S
Class 0.5, power 2.5 VA	MRE-CT314-250/5A/2.5-0.5
Class 0.2s, power 5 VA	MRE-CT314-300/5A/5-0.2S
Class 0.5, power 5 VA	MRE-CT314-300/5A/5-0.5
Class 0.2s, power 5 VA	MRE-CT314-400/5A/5-0.2S
Class 0.5, power 5 VA	MRE-CT314-400/5A/5-0.5
Class 0.2s, power 5 VA	MRE-CT314-500/5A/5-0.2S
Class 0.5, power 5 VA	MRE-CT314-500/5A/5-0.5
Class 0.2s, power 5 VA	MRE-CT314-600/5A/5-0.2S
Class 0.5, power 5 VA	MRE-CT314-600/5A/5-0.5
Class 0.2s, power 5 VA	MRE-CT314-750/5A/5-0.2S
Class 0.5, power 5 VA	MRE-CT314-750/5A/5-0.5

Other transmission ratio on request. Please contact support@comatreleco.com.

"..." List primary current to complete product references.



fig. 1. Wiring diagram

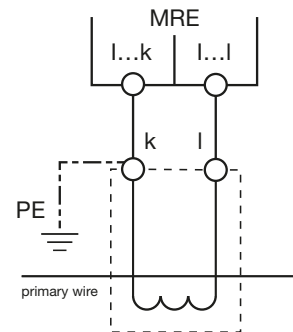
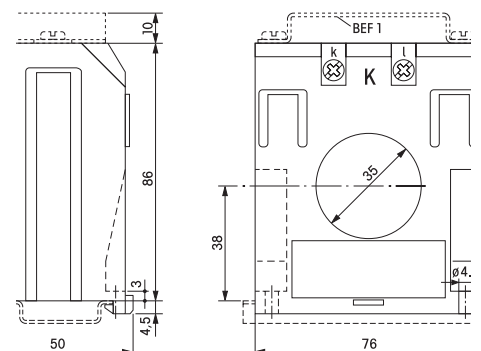


fig. 2. Dimensions (mm)



Technical approvals, conformities

Standards IEC/EN 61869

Approvals

3.10 Current transformer

MRE-CT614

Current Transformer | up to 1500 / 5 A

Power supply

Operating voltage range < 720 V

Measuring circuit

Measurement current range $\leq 1 \times I_N$
 Max. current $60 \times I_N, 1 \text{ s (max. 100 kA)}$
 Power consumption at 5 A 0.36 VA/m (2.5 mm² wire)
 Rated base frequency 50 ... 60 Hz

Insulation

Rated test voltage measuring / measuring circuit 3 kV rms / 1 min, $U_m < 720 \text{ V}$

General data

Storage temperature (no ice) -25 ... 70 °C
 Operation temperature -5 ... 50 °C
 Dimensions fig. 2
 Ingress Protection IP20
 Housing material ABS

Product references

Description	Type
Class 0.2s, power 10 VA	MRE-CT614-1000/5A/10-0.2S
Class 0.5, power 10 VA	MRE-CT614-1000/5A/10-0.5
Class 0.2s, power 10 VA	MRE-CT614-1250/5A/10-0.2S
Class 0.5, power 10 VA	MRE-CT614-1250/5A/10-0.5
Class 0.2s, power 10 VA	MRE-CT614-1500/5A/10-0.2s
Class 0.5, power 10 VA	MRE-CT614-1500/5A/10-0.5

Other transmission ratio on request. Please contact support@comatreleco.com.
 “...” List primary current to complete product references.



fig. 1. Wiring diagram

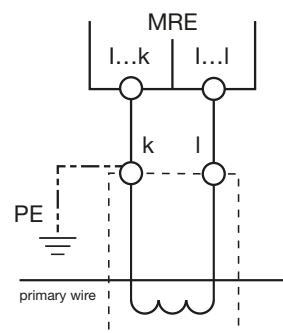
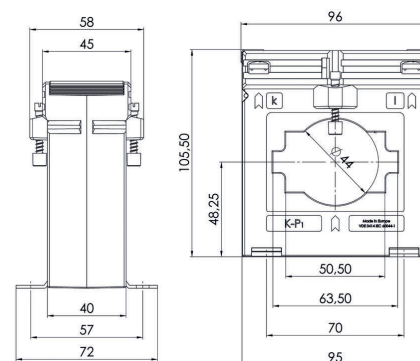


fig. 2. Dimensions (mm)



Technical approvals, conformities

Standards IEC/EN 61869

Approvals

3.10 Current transformer

MRE-CT1233

Current Transformer | up to 2000 A / 5 A

Power supply

Operating voltage range < 720 V

Measuring circuit

Measurement current range $\leq 1 \times I_N$
 Max. current $60 \times I_N, 1 \text{ s (max. 100 kA)}$
 Power consumption at 5 A 0.36 VA/m (2.5 mm² wire)
 Rated base frequency 50 ... 60 Hz

Insulation

Rated test voltage measuring / measuring circuit 3 kV rms / 1 min, $U_m < 720 \text{ V}$

General data

Storage temperature (no ice) -25 ... 70 °C
 Operation temperature -5 ... 50 °C
 Dimensions fig. 2
 Ingress Protection IP20
 Housing material ABS

Product references

Description	Type
Class 0.2s, power 10 VA	MRE-CT1233-2000/5A/10-0.2S

Other transmission ratio on request. Please contact support@comatreleco.com.
 "... List primary current to complete product references.



fig. 1. Wiring diagram

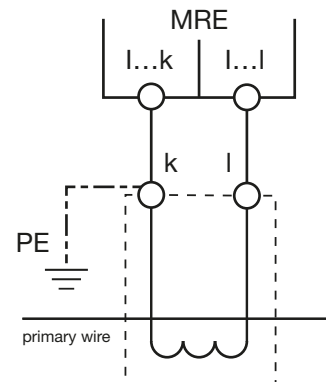
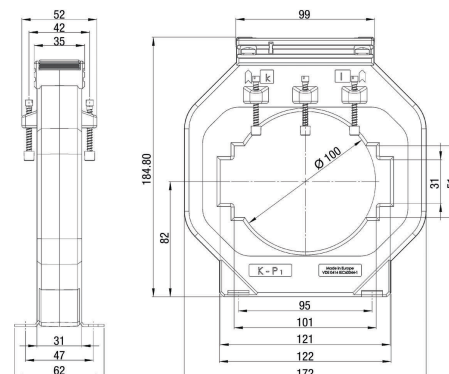


fig. 2. Dimensions (mm)



Technical approvals, conformities

Standards IEC/EN 61869

Approvals

4 Sockets

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Type	Description	EC-11	S2-B	S2-P0	S3-B	S3-S	S3-MR	S3-M0 / S3-M1	S3-M0R / S3-M1R	S4-J	S4-GR	S4-P	S5-M	S5-P	S5-SSY	S7-C	S7-IO	S7-GR	S7-P
B20-A (BAG 5 PCS)	A2-Connector blue																		
B20-G (BAG 5 PCS)	A2-Connector grey																		
B20-R (BAG 5 PCS)	A2-Connector red																		
C-A2 (BAG 50PCS)	A2-Connector						●	●											
C-A2 (BAG 5PCS)	A2-Connector							●					●						
CP-07B (BAG 50PCS)	Retaining clip, plastic															●		●	
CP-16 (BAG 10 PCS)	Retaining clip, plastic																		
CP-24B (BAG 10 PCS)	Retaining clip, plastic																		
HF-32 (BAG 10 PCS)	Retaining clip, steel		●	●	●	●	●	●					●						
HF-33 (BAG 10 PCS)	Retaining clip, steel		●	●	●	●	●	●											
RC0047-100/AC250V (BAG 5PCS)	RC-Suppressor module															●			
RC1/UC110-240V	RC-Suppressor module						●	●	●				●						
RD1/DC12-220V	Freewheeling diode module						●	●	●				●						
RD2/DC12-220V	Freewheeling diode module							●					●						
RDL2/DC24-60V	Freewheeling diode module with LED							●					●						
RDL2/DC6-24V	Freewheeling diode module with LED							●					●						
RDL2/UC110-240V	Freewheeling diode module with LED							●					●						
S10-BB (BAG 20 PCS)	A2-Connector																		
S10-C/CP-17B (BAG 10 PCS)	Retaining clip, plastic																		
S10-CPI (BAG 10 PCS)	Retaining clip, plastic																		
S30-CM (BAG 10 PCS)	Retaining clip, plastic		●		●	●													
S3-BC (BAG 5 PCS)	Coding ring 5 PCS				●	●	●	●											
S3-C (BAG 10 PCS)	Retaining clip, steel									●	●								
S4-CL (BAG 10 PCS)	Retaining clip, steel											●							
S5-C (BAG 10 PCS)	Retaining clip, steel													●	●				
S5M-CP	Retaining clip, plastic												●						
S7-BB (BAG 20 PCS)	A2-Connector															●	●	●	
S7-CPI (BAG 10 PCS)	Retaining clip, plastic																		
S9-C/CP-01B (BAG 10 PCS)	Retaining clip, plastic																	●	
S9-G (BAG 10 PCS)	Panel adapter															●	●	●	
S9M-BX (BAG 5 PCS)	Bridge bar																		
S9M-V1 (BAG 5 PCS)	Bridge bar																		
S9M-V4 (BAG 5 PCS)	Bridge bar																		
SC-3 (BAG 10 PCS)	A1-, B1-connector												●						
Sxx-BBPI (BAG 20 PCS)	A2-Connector																		
TM-1	Push-in tool																		
V10-A (BAG 5 PCS)	Bridge bar twofold blue																		
V10-G (BAG 5 PCS)	Bridge bar twofold grey																		
V10-R (BAG 5 PCS)	Bridge bar twofold red																		
V40-A (BAG 5 PCS)	Bridge bar fourfold blue																		
V40-G (BAG 5 PCS)	Bridge bar fourfold grey																		
V40-R (BAG 5 PCS)	Bridge bar fourfold red																		

Type	Description	S7-PI	S7-PIR	S9-M	S9-P	S9-PI	S9-PIR	S10	S10-GR	S10-P	S10-PI	S10-PIR	S12	S12-P	S12-PI	S12-PIR	S16-M	S18-M	S18-M
B20-A (BAG 5 PCS)	A2-Connector blue												●						
B20-G (BAG 5 PCS)	A2-Connector grey												●						
B20-R (BAG 5 PCS)	A2-Connector red												●						
C-A2 (BAG 50PCS)	A2-Connector	●	●			●	●				●	●			●	●			
C-A2 (BAG 5PCS)	A2-Connector																		
CP-07B (BAG 50PCS)	Retaining clip, plastic																		
CP-16 (BAG 10 PCS)	Retaining clip, plastic																●	●	
CP-24B (BAG 10 PCS)	Retaining clip, plastic									●				●					
HF-32 (BAG 10 PCS)	Retaining clip, steel																		
HF-33 (BAG 10 PCS)	Retaining clip, steel																		
RC0047-100/AC250V (BAG 5PCS)	RC-Suppressor module																		
RC1/UC110-240V	RC-Suppressor module																		
RD1/DC12-220V	Freewheeling diode module																		
RD2/DC12-220V	Freewheeling diode module																		
RDL2/DC24-60V	Freewheeling diode module with LED																		
RDL2/DC6-24V	Freewheeling diode module with LED																		
RDL2/UC110-240V	Freewheeling diode module with LED																		
S10-BB (BAG 20 PCS)	A2-Connector							●	●										
S10-C/CP-17B (BAG 10 PCS)	Retaining clip, plastic							●	●										
S10-CPI (BAG 10 PCS)	Retaining clip, plastic										●	●			●	●			
S30-CM (BAG 10 PCS)	Retaining clip, plastic																		
S3-BC (BAG 5 PCS)	Coding ring 5 PCS																		
S3-C (BAG 10 PCS)	Retaining clip, steel																		
S4-CL (BAG 10 PCS)	Retaining clip, steel																		
S5-C (BAG 10 PCS)	Retaining clip, steel																		
S5M-CP	Retaining clip, plastic																		
S7-BB (BAG 20 PCS)	A2-Connector																		
S7-CPI (BAG 10 PCS)	Retaining clip, plastic	●	●			●	●												
S9-C/CP-01B (BAG 10 PCS)	Retaining clip, plastic																		
S9-G (BAG 10 PCS)	Panel adapter																		
S9M-BX (BAG 5 PCS)	Bridge bar																		
S9M-V1 (BAG 5 PCS)	Bridge bar																		
S9M-V4 (BAG 5 PCS)	Bridge bar																		
SC-3 (BAG 10 PCS)	A1-, B1-connector																		
Sxx-BBPI (BAG 20 PCS)	A2-Connector	●	●			●	●				●	●			●	●			
TM-1	Push-in tool	●	●			●	●				●	●			●	●			
V10-A (BAG 5 PCS)	Bridge bar twofold blue												●						
V10-G (BAG 5 PCS)	Bridge bar twofold grey												●						
V10-R (BAG 5 PCS)	Bridge bar twofold red												●						
V40-A (BAG 5 PCS)	Bridge bar fourfold blue												●						
V40-G (BAG 5 PCS)	Bridge bar fourfold grey												●						
V40-R (BAG 5 PCS)	Bridge bar fourfold red												●						

Retaining clip selection for socket and relay

Socket type	C2	C2 + CT2 Timecube	C3 / R3	C3 + CT3 Timecube	C4 / R4	C5	C7	C9	C10 / CSS	C12	C16 PTL / C18 PTL	C18-A15PT
EC-11			HF-32									
S2-B	S30-CM HF-32	HF-33										
S2-P0	HF-32											
S3-B			S30-CM HF-32	HF-33								
S3-S			S30-CM HF-32	HF-33								
S3-M(x)			HF-32	HF-33								
S4-J / -GR					S3-C CP-15B S3-C							
S4-P					S4-CL							
S5-SSY						S5-C						
S5-M						S5M-CP HF-32						
S7-C							S7-CPO CP-07B					
S7-IO / -GR							S9-C CP-01B					
S7-P							S7-CPO CP-07B					
S7-PI							S7-CPI					
S7-PIR							S7-CPI					
S9-M								S9-C CP-01B				
S9-P								S7-CPO CP-07B				
S9-PI							S7-CPI	S7-CPI				
S9-PIR							S7-CPI	S7-CPI				
S10 / -GR									S10-C CP-17B			
S10-P									CP-24B			
S10-PI									S10-CPI	S10-CPI		
S10-PIR									S10-CPI	S10-CPI		
S12 / -GR										S10-C CP-17B		
S12-P										CP-24B		
S12-PI									S10-CPI	S10-CPI		
S12-PIR									S10-CPI	S10-CPI		
S16-M											CP-16	
S18-M												CP-16

Retaining clip selection for socket and relay

Socket type	C21	C21 + CT2 Timecube	C22	C22 + CT2 Timecube	C31	C31 + CT3 Timecube	C32	C32 + CT3 Zeitwürfel	R7	R9	R10	R12	CSS
EC-11					HF-32	HF-33	HF-32	HF-33					
S2-B	HF-32	HF-33	HF-32	HF-33									
S2-P0													
S3-B					S30-CM HF-32	HF-33	S30-CM HF-32	HF-33					
S3-S					S30-CM HF32	HF-33	S30-CM HF32	HF-33					
S3-M(x)					HF-32	HF-33	HF-32	HF-33					
S4-J / -GR													
S4-P													
S5-SSY													
S5-M													
S7-C													
S7-I0 / -GR									S7-CPO CP-07B				
S7-P													
S7-PI													
S7-PIR									S7-CPI				
S9-M													
S9-P													
S9-PI													
S9-PIR										S7-CPI			
S10 / -GR											S10-C CP-17B		
S10-P													
S10-PI													S10-CPI
S10-PIR											S10-CPI		
S12 / -GR												S10-C CP-17B	
S12-P													
S12-PI													
S12-PIR												S10-CPI	
S16-M													
S18-M													

Socket selection for industrial & railway Relays



Socket Type	C2	C3 / R3	C4 / R4	C5	C7	C9	C10	C12	C16PTL / C18PTL	C18-A15PT	C21	C22	C31	C32	R7	R9	R10	R12	R-Module	CSS	CS2 / CS3 / C64	C55 / C56	C83 / C85	CT2	CT3	CT32 / CT33 / CT36	CT1515 / CT1524	KDM
EC-11		●											●	●														
S2-B	●																							●				
S2-P0 *	●																							●				
S3-B		●											●	●								●	●			●		
S3-C		●											●	●								●	●			●		
S3-S		●											●	●								●	●			●		
S3-P0 *																						●	●			●		
S3-M0 / S3-M0R		●											●	●						●						●	●	
S3-M1 / S3-M1R		●											●	●								●	●			●		
S3-M / S3-MR		●											●	●								●	●			●		
S4-J / -GR			●																									
S4-L *			●																									
S4-P			●																									
S5-M				●																●						●	●	
S5-L *				●																								
S5-P				●																								
S5-SSY				●																								
S7-C					●											●				●			●					●
S7-10 / -GR					●											●				●								
S7-16 *					●											●				●								
S7-P *					●											●				●								
S7-PI					●																							
S7-PIR															●													
S9-M						●																						
S9-P						●																						
S9-PI						●																						
S9-PIR																●												
S10 / -GR							●																					
S10-P							●																					
S10-PI							●																					
S10-PIR																	●				●							
S12								●																				
S12-P								●																				
S12-PI								●																				
S12-PIR																			●									
S16-M									●												●							
S18-M										●											●							

* Discontinued, limited units may be still available from stock.

4.1 8-Pin Sockets

	Type	Pin	Page
8-Pin Sockets			
8-pin C2 Relay socket Time Cubes compatible screw terminal	S2-B		334

4.1 8-Pin Sockets

S2-B

8-pin C2 Relay socket | Time Cubes compatible | screw terminal

General data

Rated load	10 A / 300 V
Dielectric strength	
- All terminals / DIN rail	2.5 kV rms / 1 min
- Terminal / terminal	2.5 kV rms / 1 min
Conductor cross section	
- Single wire	4 mm ² / AWG 12 or 2 x 2.5mm ² / AWG 14
- Multi wire (un-crimped)	0.34 mm ² / AWG 22 ... 2.5 mm ² / AWG 14
Nominal screw torque	0.7 Nm
Screw Dimension	M3 Pozi slot
Mounting	TH35 (EN 60715) or back panel mounting
Storage temperature (no ice)	-40 ... 80 °C
Operation temperature	-40 ... 60 °C
Weight	48 g
Housing material	PA / PC

Included Accessories

Retaining clip plastic	S30-CM/10 (BAG 10 PCS)
--------------------------	------------------------

Optional Accessories

Retaining spring steel	HF-32 (BAG 10 PCS), HF-33 (BAG 10 PCS)
--------------------------	--



fig. 1. Wiring diagram

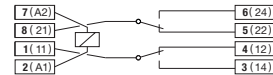
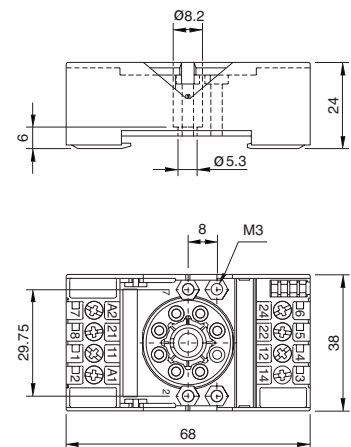


fig. 2. Dimensions (mm)














Technical approvals, conformities

Standards EN 60664-1

Approvals

4.2 11-Pin-Sockets

	Type	Pin	Page
11-Pin Series			
11-pin C3 Relay socket Time Cubes compatible screw terminal	S3-B		336
11-pin C3 Relay socket Time Cubes compatible screw terminal	S3-S		337
11-pin C3 Relay socket Time Cubes compatible screw terminal	EC-11		338
11-pin C3 Relay socket Time & Monitoring Module compatible screw terminal	S3-M		339
11-pin R3 Relay socket Time & Monitoring Module compatible screw terminal	S3-MR		340
11-pin C3 Relay socket Time & Monitoring Module compatible screw terminal	S3-M0 / S3-M1		341
11-pin R3 Relay socket Time & Monitoring Module compatible screw terminal	S3-M0R / S3-M1R		342
11-pin C5 Relay socket screw terminal	S5-M		343
11-pin C5 Relay socket screw terminal	S5-MR		344
11-pin C5 Relay socket PCB	S5-P		345
11-pin C5 Relay socket screw terminal	S5-SSY		346

S3-B**11-pin C3 Relay socket | Time Cubes compatible | screw terminal****General data**

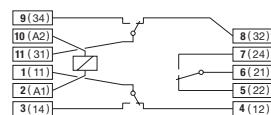
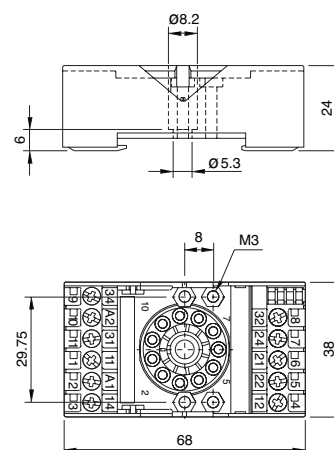
Rated load	10 A / 300 V
Dielectric strength	
- All terminals / DIN rail	2.5 kV rms / 1 min
- Terminal / terminal	2.5 kV rms / 1 min
Conductor cross section	
- Single wire	4 mm ² / AWG 12 or 2 x 2.5mm ² / AWG 14
- Multi wire (un-crimped)	0.34 mm ² / AWG 22 ... 2.5 mm ² / AWG 14
Nominal screw torque	0.7 Nm
Screw Dimension	M3 Pozi slot
Mounting	TH35 (EN 60715) or back panel mounting
Storage temperature (no ice)	-40 ... 80 °C
Operation temperature	-40 ... 60 °C
Weight	55 g
Housing material	PA / PC

Included Accessories

Retaining clip plastic	S30-CM/10 (BAG 10 PCS)
--------------------------	------------------------

Optional Accessories

Retaining spring steel	HF-33 (BAG 10 PCS), HF-32 (BAG 10 PCS)
Coding ring	S3-BC (BAG 5 PCS)

**fig. 1. Wiring diagram****fig. 2. Dimensions (mm)****Technical approvals, conformities**

Standards EN 60664-1

Approvals     

S3-S

11-pin C3 Relay socket | Time Cubes compatible | screw terminal

General data

Rated load	10 A / 250 V
Dielectric strength	
- All terminals / DIN rail	2.5 kV rms / 1 min
- Terminal / terminal	2.5 kV rms / 1 min
Conductor cross section	
- Single wire	4 mm ² / AWG 12 or 2 x 2.5mm ² / AWG 14
- Multi wire (un-crimped)	0.34 mm ² / AWG 22 ... 2.5 mm ² / AWG 14
Nominal screw torque	0.8 Nm
Screw Dimension	M3.5 Pozi slot
Mounting	TH35 (EN 60715) or back panel mounting
Storage temperature (no ice)	-40 ... 80 °C
Operation temperature	-40 ... 60 °C
Weight	69 g
Housing material	PA / PC

Included Accessories

Retaining clip plastic	S30-CM/10 (BAG 10 PCS)
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Optional Accessories

Retaining spring steel	HF-32 (BAG 10 PCS), HF-33 (BAG 10 PCS)
Coding ring	S3-BC (BAG 5 PCS)

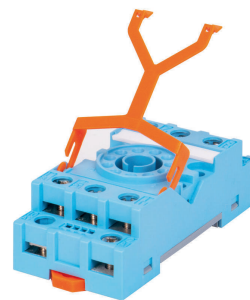


fig. 1. Wiring diagram

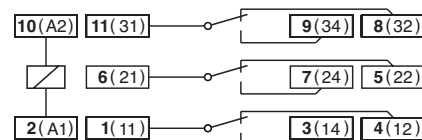
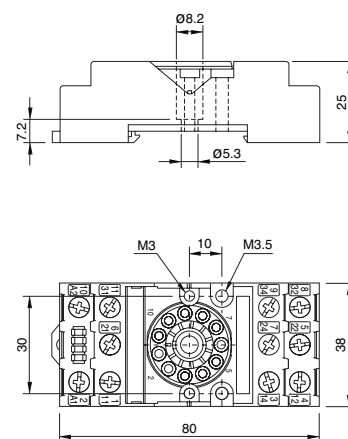


fig. 2. Dimensions (mm)



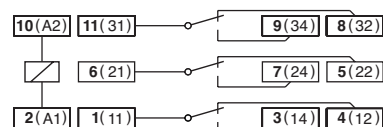
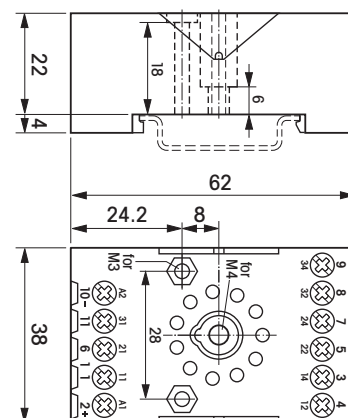
Technical approvals, conformities

Standards EN 60664-1

Approvals

EC-11**11-pin C3 Relay socket | Time Cubes compatible | screw terminal****General data**

Rated load	10 A / 400 V
Dielectric strength	
- All terminals / DIN rail	2.5 kV rms / 1 min
- Terminal / terminal	2.5 kV rms / 1 min
Conductor cross section	
- Single wire	4 mm ² / AWG 12 or 2 x 2.5mm ² / AWG 14
- Multi wire (un-crimped)	0.34 mm ² / AWG 22 ... 2.5 mm ² / AWG 14
Nominal screw torque	0.8 Nm
Screw Dimension	M3.5 Pozi slot
Mounting	TH35 (EN 60715) or back panel mounting
Storage temperature (no ice)	-40 ... 80 °C
Operation temperature	-25 ... 60 °C
Weight	56 g
Housing material	PA / PC

**fig. 1. Wiring diagram****fig. 2. Dimensions (mm)****Technical approvals, conformities**

Standards EN 60664-1

Approvals       

S3-M

11-pin C3 Relay socket | Time & Monitoring Module compatible | screw terminal



General data

Rated load	10 A / 250 V
Dielectric strength	
- All terminals / DIN rail	2.5 kV rms / 1 min
- Terminal / terminal	2.5 kV rms / 1 min
Conductor cross section	
- Single wire	1 x 6 mm ² / AWG 10, 2 x 1.5 mm ² / AWG 16
- Multi wire (un-crimped)	1 x 4 mm ² / AWG 12, 2 x 1.5 mm ² / AWG 16
Nominal screw torque	0.7 Nm
Screw Dimension	M3 Pozi slot
Mounting	TH35 (EN 60715) or back panel mounting
Storage temperature (no ice)	-40 ... 80 °C
Operation temperature	-25 ... 60 °C
Weight	61 g
Housing material	PA / PC

Included Accessories

4-pole potential bridge bar	C-A2 (BAG 5PCS)
-----------------------------	-----------------

Optional Accessories

Retaining spring steel	HF-32 (BAG 10 PCS), HF-33 (BAG 10 PCS)
Coding ring	S3-BC (BAG 5 PCS)
Freewheeling diode module for S3-M, S3-M0, S5-M	RD1/DC12-220V
RC-Suppressor module	RC1/UC110-240V
4-pole potential bridge bar	C-A2 (BAG 50PCS)



fig. 1. Wiring diagram

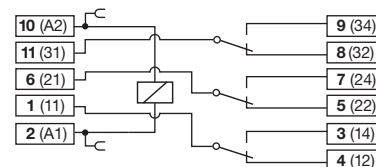
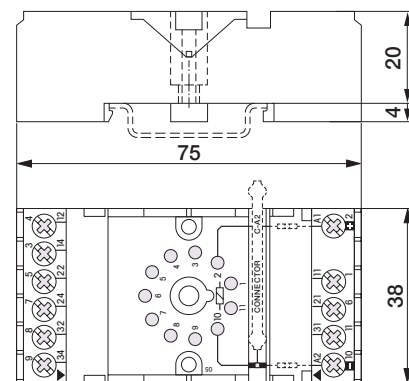


fig. 2. Dimensions (mm)



Technical approvals, conformities

Standards EN 60664-1



S3-MR

11-pin R3 Relay socket | Time & Monitoring Module compatible | screw terminal

General data

Rated load	10 A / 250 V
Dielectric strength	
- All terminals / DIN rail	2.5 kV rms / 1 min
- Terminal / terminal	2.5 kV rms / 1 min
Conductor cross section	
- Single wire	1 x 6 mm ² / AWG 10, 2 x 1.5 mm ² / AWG 16
- Multi wire (un-crimped)	1 x 4 mm ² / AWG 12, 2 x 1.5 mm ² / AWG 16
Nominal screw torque	0.7 Nm
Screw Dimension	M3 Pozi slot
Mounting	TH35 (EN 60715) or back panel mounting
Storage temperature (no ice)	-40 ... 80 °C
Operation temperature	-40 ... 70 °C
Weight	61 g
Housing material	PA

Included Accessories

4-pole potential bridge bar	C-A2 (BAG 5PCS)
-----------------------------	-----------------

Optional Accessories

Retaining spring I steel	HF-32 (BAG 10 PCS), HF-33 (BAG 10 PCS)
Coding ring	S3-BC (BAG 5 PCS)
Freewheeling diode module for S3-M, S3-M0, S5-M	RD1/DC12-220V
RC-Suppressor module	RC1/UC110-240V
4-pole potential bridge bar	C-A2 (BAG 50PCS)



fig. 1. Wiring diagram

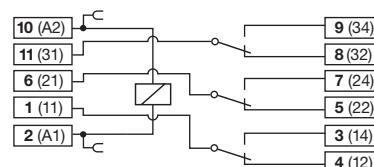
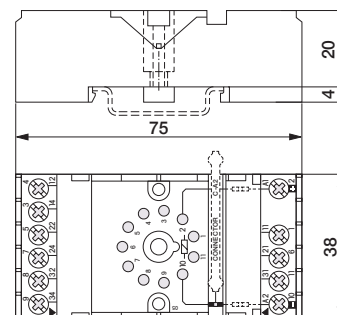


fig. 2. Dimensions (mm)

**Technical approvals, conformities**

Standards EN 60664-1

Railway EN 45545-2; EN 50155

Approvals  

S3-M0 / S3-M1

11-pin C3 Relay socket | Time & Monitoring Module compatible | screw terminal

General data

Rated load	10 A / 250 V
Dielectric strength	
- All terminals / DIN rail	2.5 kV rms / 1 min
- Terminal / terminal	2.5 kV rms / 1 min
Conductor cross section	
- Single wire	1 x 6 mm ² / AWG 10, 2 x 1.5 mm ² / AWG 16
- Multi wire (un-crimped)	1 x 4 mm ² / AWG 12, 2 x 1.5 mm ² / AWG 16
Nominal screw torque	0.7 Nm
Screw Dimension	M3 Pozi slot
Mounting	TH35 (EN 60715) or back panel mounting
Storage temperature (no ice)	-40 ... 80 °C
Operation temperature	-25 ... 60 °C
Weight	61 g
Housing material	PA / PC

Included Accessories

4-pole potential bridge bar	C-A2 (BAG 5PCS)
-----------------------------	-----------------

Optional Accessories

Retaining spring steel	HF-32 (BAG 10 PCS), HF-33 (BAG 10 PCS)
Coding ring	S3-BC (BAG 5 PCS)
Freewheeling diode module for S3-M, S3-M0, S5-M	RD1/DC12-220V
RC-Suppressor module	RC2/UC110-240V, RC1/UC110-240V
4-pole potential bridge bar	C-A2 (BAG 50PCS)



fig. 1. Wiring diagram

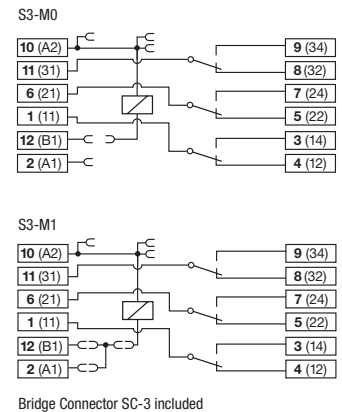
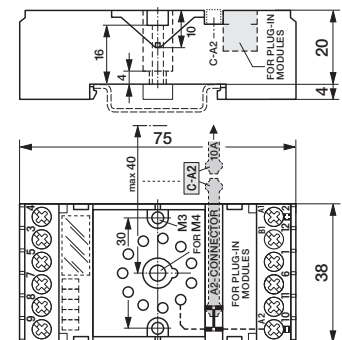


fig. 2. Dimensions (mm)



Technical approvals, conformities

Standards EN 60664-1

Approvals

4.2 11-Pin-Sockets S3-M0R / S3-M1R

11-pin R3 Relay socket | Time & Monitoring Module compatible | screw terminal

General data

Rated load	10 A / 250 V
Dielectric strength	
- All terminals / DIN rail	2.5 kV rms / 1 min
- Terminal / terminal	2.5 kV rms / 1 min
Conductor cross section	
- Single wire	1 x 6 mm ² / AWG 10, 2 x 1.5 mm ² / AWG 16
- Multi wire (un-crimped)	1 x 4 mm ² / AWG 12, 2 x 1.5 mm ² / AWG 16
Nominal screw torque	0.7 Nm
Screw Dimension	M3 Pozi slot
Mounting	TH35 (EN 60715) or back panel mounting
Storage temperature (no ice)	-40 ... 80 °C
Operation temperature	-40 ... 70 °C
Weight	61 g
Housing material	PA

Included Accessories

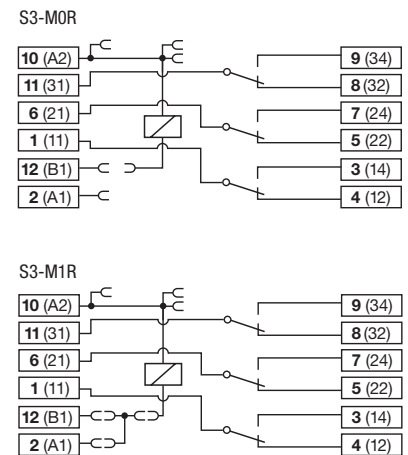
4-pole potential bridge bar	C-A2 (BAG 5PCS)
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Optional Accessories

Retaining spring steel	HF-32 (BAG 10 PCS), HF-33 (BAG 10 PCS)
Coding ring	S3-BC (BAG 5 PCS)
Freewheeling diode module for S3-M, S3-M0, S5-M	RD1/DC12-220V
RC-Suppressor module	RC1/UC110-240V
4-pole potential bridge bar	C-A2 (BAG 50PCS)

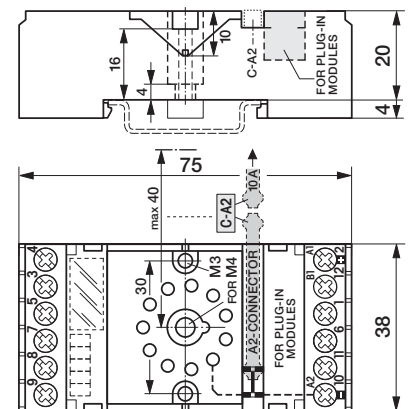


fig. 1. Wiring diagram



Bridge Connector SC-3 included

fig. 2. Dimensions (mm)



Technical approvals, conformities

Standards EN 60664-1
Railway EN 45545-2; EN 50155

Approvals

S5-M

11-pin C5 Relay socket | screw terminal

General data

Rated load	16 A / 400 V
Dielectric strength	
- All terminals / DIN rail	4 kV rms / 1 min
- Terminal / terminal	4 kV rms / 1 min
Conductor cross section	
- Single wire	1 x 6 mm ² / AWG 10, 2 x 2.5 mm ² / AWG 14
- Multi wire (un-crimped)	1 x 6 mm ² / AWG 10, 2 x 1.5 mm ² / AWG 16
Nominal screw torque	0.8 Nm
Screw Dimension	M3.5 Pozi slot
Mounting	TH35 (EN 60715) or back panel mounting
Storage temperature (no ice)	-40 ... 80 °C
Operation temperature	-40 ... 60 °C
Weight	92 g
Housing material	PA / PC

Included Accessories

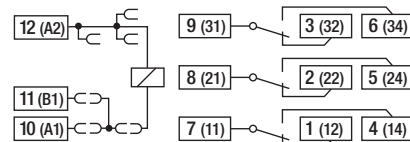
Retaining clip plastic	S5M-CP
4-pole potential bridge bar	C-A2 (BAG 5PCS)

Optional Accessories

Retaining spring steel	HF-32 (BAG 10 PCS)
A1-, B1-connector for S3-Mx, S5-M	SC-3 (BAG 10 PCS)
4-pole potential bridge bar	C-A2 (BAG 50PCS)

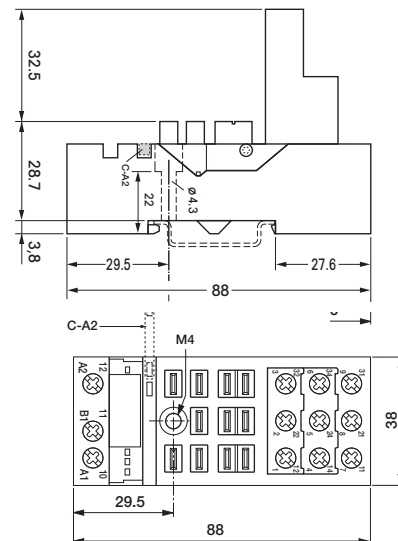


fig. 1. Wiring diagram



With Bridge Connector SC-3

fig. 2. Dimensions (mm)



Technical approvals, conformities

Standards EN 60664-1

Approvals

S5-MR

11-pin C5 Relay socket | screw terminal

General data

Rated load	16 A / 400 V
- All terminals / DIN rail	4 kV rms / 1 min
- Terminal / terminal	4 kV rms / 1 min
- Single wire	1 x 6 mm ² / AWG 10, 2 x 2.5 mm ² / AWG 14
- Multi wire (un-crimped)	1 x 6 mm ² / AWG 10, 2 x 2.5 mm ² / AWG 16
Nominal screw torque	0.8 Nm
Screw Dimension	M3.5 Pozi slot
Mounting	TH35 (EN 60715) or back panel mounting
Storage temperature (no ice)	-40 ... 80 °C
Operation temperature	-40 ... 70 °C
Weight	92 g
Housing material	PA

Included Accessories

Retaining clip plastic	S5M-CP
4-pole potential bridge bar	C-A2 (BAG 5PCS)

Optional Accessories

Retaining spring steel	HF-32 (BAG 10 PCS)
A1-, B1-connector for S3-Mx, S5-M	SC-3 (BAG 10 PCS)
4-pole potential bridge bar	C-A2 (BAG 50PCS)

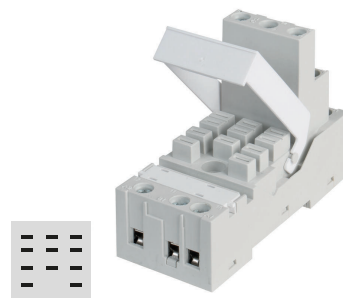
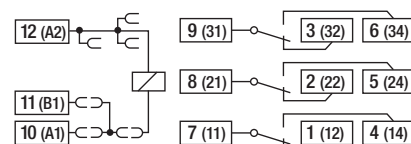
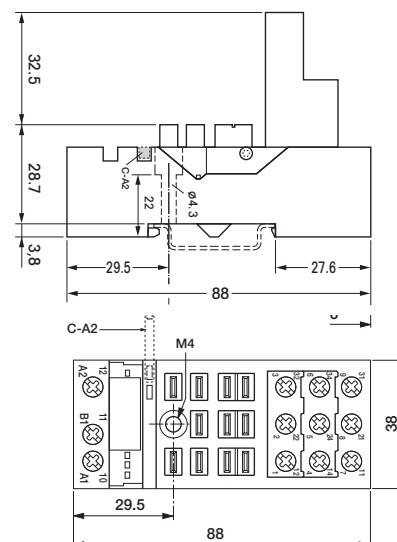


fig. 1. Wiring diagram



With Bridge Connector SC-3

fig. 2. Dimensions (mm)



Technical approvals, conformities

Standards EN 60664-1

Railway EN 45545-2; EN 50155

Approvals

S5-P

11-pin C5 Relay socket | PCB

General data

Rated load	16 A / 400 V
Dielectric strength	
- Pin / pin	2.5 kV rms / 1 min
Storage temperature (no ice)	-40 ... 80 °C
Operation temperature	-40 ... 60 °C
Weight	20 g
Housing material	PBT

Optional Accessories

Retaining spring steel	S5-C (BAG 10 PCS)
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fig. 1. Printed circuit lay-out (mm)

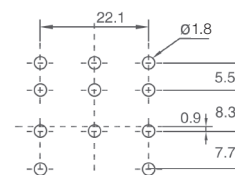
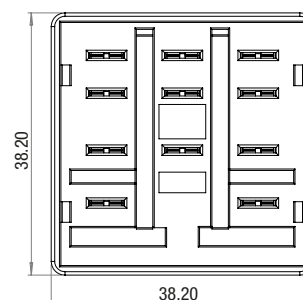
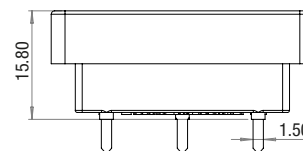


fig. 2. Dimensions (mm)



Technical approvals, conformities

Standards EN 60664-1

Approvals

S5-SSY**11-pin C5 Relay socket | screw terminal****General data**

Rated load	16 A / 400 V
Dielectric strength	
- All terminals / DIN rail	4 kV rms / 1 min
- Terminal / terminal	4 kV rms / 1 min
Conductor cross section	
- Single wire	1 x 6 mm ² / AWG 10, 2 x 2.5 mm ² / AWG 14
- Multi wire (un-crimped)	1 x 6 mm ² / AWG 10, 2 x 1.5 mm ² / AWG 16
Nominal screw torque	0.8 Nm
Screw Dimension	M3.5 Pozi slot
Mounting	TH35 (EN 60715) or back panel mounting
Storage temperature (no ice)	-40 ... 80 °C
Operation temperature	-40 ... 60 °C
Weight	92 g
Housing material	PA

Included Accessories

Retaining spring steel	S5-C
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Optional Accessories

Retaining spring steel	S5-C (BAG 10 PCS)
4-pole potential bridge bar	C-A2 (BAG 5PCS), C-A2 (BAG 50PCS)
A1-, B1-connector for S3-Mx, S5-M	SC-3 (BAG 10 PCS)

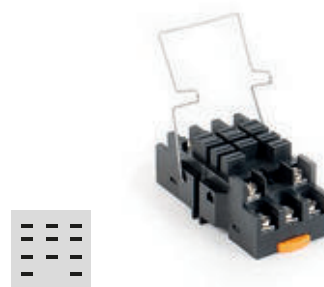


fig. 1. Wiring diagram

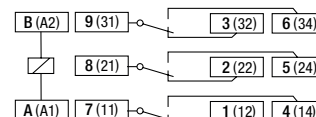
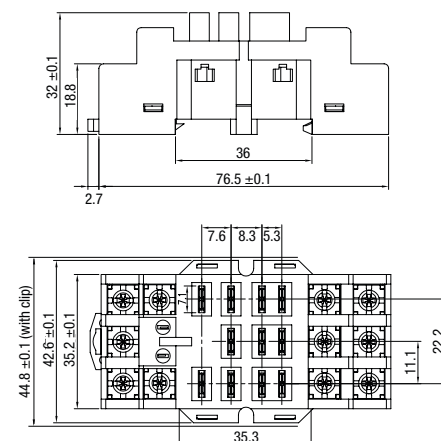



fig. 2. Dimensions (mm)

**Technical approvals, conformities**

Standards EN 60664-1

Approvals    

4.3 14 Pin Sockets

	Type	Pin	Page
14-Pin Series			
14-pin C4 Relay socket screw terminal	S4-J		348
14-pin R4 Relay socket screw terminal	S4-GR		349

S4-J

14-pin C4 Relay socket | screw terminal

General data

Rated load	10 A / 250 V
Dielectric strength	
- All terminals / DIN rail	2.5 kV rms / 1 min
- Terminal / terminal	2.5 kV rms / 1 min
Conductor cross section	
- Single wire	1.5 mm ² / AWG 16 or 2 x 1.5 mm ² / AWG 16
- Multi wire (un-crimped)	0.34 mm ² / AWG 22 ... 1 mm ² / AWG 18
Nominal screw torque	0.8 Nm
Screw Dimension	M3.5 Phillips-slot (combo)
Mounting	TH35 (EN 60715) or back panel mounting
Storage temperature (no ice)	-40 ... 80 °C
Operation temperature	-40 ... 60 °C
Weight	80 g
Housing material	PA / PC

Optional Accessories

Retaining clip plastic	S3-CM/CP-15B
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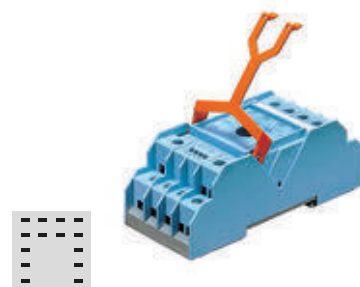


fig. 1. Wiring diagram

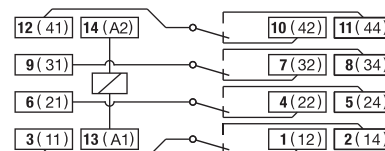
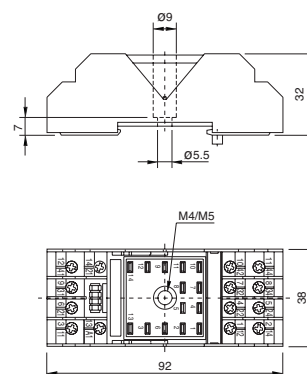


fig. 2. Dimensions (mm)



Technical approvals, conformities

Standards EN 60664-1

Approvals

S4-GR

14-pin R4 Relay socket | screw terminal

General data

Rated load	10 A / 250 V
Dielectric strength	
- All terminals / DIN rail	2.5 kV rms / 1 min
- Terminal / terminal	2.5 kV rms / 1 min
Conductor cross section	
- Single wire	1.5 mm ² / AWG 16 or 2 x 1.5 mm ² / AWG 16
- Multi wire (un-crimped)	0.34 mm ² / AWG 22 ... 1 mm ² / AWG 18
Nominal screw torque	0.8 Nm
Screw Dimension	M3.5 Phillips-slot (combo)
Mounting	TH35 (EN 60715) or back panel mounting
Storage temperature (no ice)	-40 ... 80 °C
Operation temperature	-40 ... 70 °C
Weight	80 g
Housing material	PA

Optional Accessories

Retaining clip plastic	S3-CM/CP-15B
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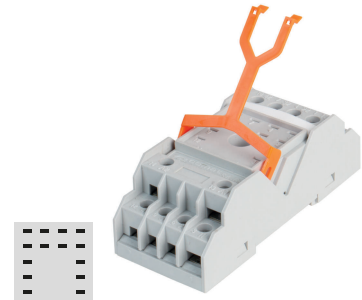


fig. 1. Wiring diagram

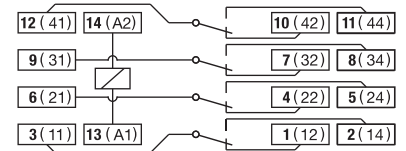
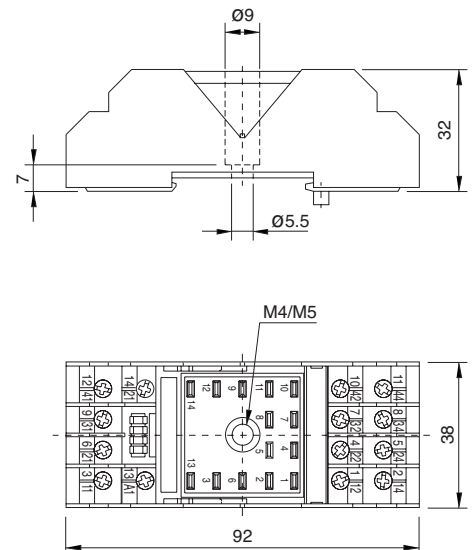


fig. 2. Dimensions (mm)













Technical approvals, conformities

Standards EN 60664-1
 Railway EN 45545-2; EN 50155

Approvals

4.4 8/14-Pin Sockets

	Type	Pin	Page
8/14-Pin Series			
8-pin C7 Relay socket Push-In	S7-PI		352
8-pin socket for R7 relay Push-In	S7-PIR		353
8-pin C7 Relay socket RC-Suppressor module compatible screw terminal	S7-C		354
8-pin C7 Relay socket screw terminal	S7-IO		355
8-pin socket for R7 relay screw terminal	S7-GR		356
8-pin C7 Relay socket PCB	S7-P		357
14-pin C9 Relay socket Push-In	S9-PI		358
14-pin socket for R9 relay Push-In	S9-PIR		359
14-pin C9 Relay socket screw terminal	S9-M		360
14-pin C9 Relay socket PCB	S9-P		361

S7-PI

8-pin C7 Relay socket | Push-In

General data

Rated load	10 A / 250 V
Dielectric strength	
- All terminals / DIN rail	2.5 kV rms / 1 min
- Terminal / terminal	2.5 kV rms / 1 min
- Contact / coil terminal	2.5 kV rms / 1 min
Conductor cross section	
- Single wire	2 x 0.34 mm ² / AWG 22 ... 2 x 2.5 mm ² / AWG 14
- Multi wire (un-crimped)	2 x 0.34 mm ² / AWG 22 ... 2 x 2.5 mm ² / AWG 14
- Multi wire (crimped)	2 x 0.34 mm ² / AWG 22 ... 2 x 1.5 mm ² / AWG 16
Mounting	TH35 (EN 60715)
Storage temperature (no ice)	-40 ... 80 °C
Operation temperature	-40 ... 60 °C
Weight	46 g
Housing material	PA

Included Accessories

Retaining clip plastic	S7-CPI
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Optional Accessories

Retaining clip plastic	S7-CPI (BAG 10 PCS)
Bridge A2 for Sx-PI / Sx-PIR	Sxx-BBPI (BAG 20 PCS)
2-pole potential bridge bar	Sxx-BBPI2 (BAG 20 PCS)
Multi-operation tool kit	OT-PI kit
Marking strip for Push-in	BS11-PI (50m tape)

Applicable tools

Operation tool	ISO 2380-1 Shape A, width: 2.5 mm
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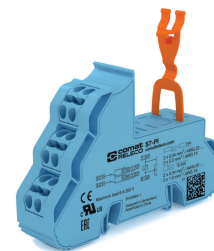


fig. 1. Wiring diagram

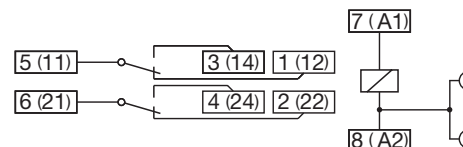
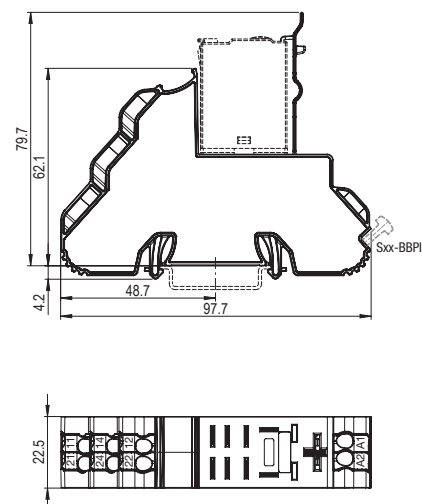


fig. 2. Dimensions (mm)



Technical approvals, conformities

Standards EN 60664-1

Approvals

S7-PIR

8-pin socket for R7 relay | Push-In

General data

Rated load	10 A / 250 V
Dielectric strength	
- All terminals / DIN rail	2.5 kV rms / 1 min
- Terminal / terminal	2.5 kV rms / 1 min
- Contact / coil terminal	2.5 kV rms / 1 min
Conductor cross section	
- Single wire	2 x 0.34 mm ² / AWG 22 ... 2 x 2.5 mm ² / AWG 14
- Multi wire (un-crimped)	2 x 0.34 mm ² / AWG 22 ... 2 x 2.5 mm ² / AWG 14
- Multi wire (crimped)	2 x 0.34 mm ² / AWG 22 ... 2 x 1.5 mm ² / AWG 16
Mounting	TH35 (EN 60715)
Storage temperature (no ice)	-40 ... 80 °C
Operation temperature	-40 ... 70 °C
Weight	46 g
Housing material	PA

Included Accessories

Retaining clip plastic	S7-CPI
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Optional Accessories

Retaining clip plastic	S7-CPI (BAG 10 PCS)
Bridge A2 for Sx-PI / Sx-PIR	Sxx-BBPI (BAG 20 PCS)
2-pole potential bridge bar	Sxx-BBPI2 (BAG 20 PCS)
Multi-operation tool kit	OT-PI kit
Marking strip for Push-in	BS11-PI (50m tape)

Applicable tools

Operation tool	ISO 2380-1 Shape A, width: 2.5 mm
----------------	-----------------------------------

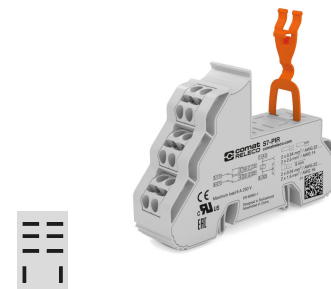


fig. 1. Wiring diagram

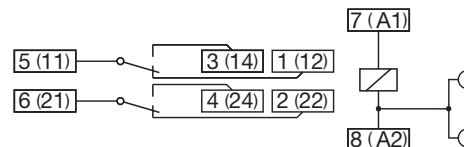
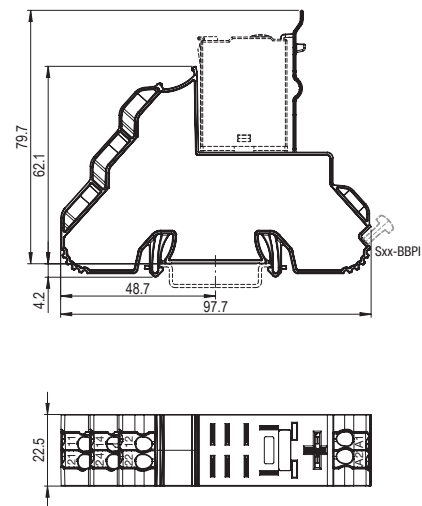


fig. 2. Dimensions (mm)



Technical approvals, conformities

Standards EN 60664-1

Railway EN 45545-2; EN 50155

Approvals

S7-C

8-pin C7 Relay socket | RC-Suppressor module compatible | screw terminal

General data

Rated load	10 A, 16 A for 1 pole / 250 V
Dielectric strength	
- All terminals / DIN rail	2.5 kV rms / 1 min
- Terminal / terminal	2.5 kV rms / 1 min
Conductor cross section	
- Single wire	4 mm ² / AWG 12, 2 x 1.5 mm ² / AWG 16
- Multi wire (un-crimped)	2.5 mm ² / AWG 14, 2 x 1 mm ² / AWG 18
Nominal screw torque	0.7 Nm
Screw Dimension	M3 Pozi slot
Mounting	TH35 (EN 60715) or back panel mounting
Storage temperature (no ice)	-40 ... 80 °C
Operation temperature	-40 ... 60 °C (50 °C for 16 A)
Weight	37 g
Housing material	PA / PC

Included Accessories

Retaining clip plastic	CP-07B
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Optional Accessories

Retaining clip plastic	CP-07B (BAG 50PCS) S7-BB (BAG 20 PCS)
Panel adapter for S7-C, S7-IO, S9-M	S9-G (BAG 10 PCS)
RC-Suppressor module	RC0047-100/AC250V (BAG 5PCS)

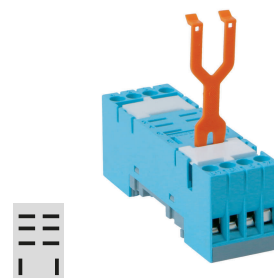


fig. 1. Wiring diagram

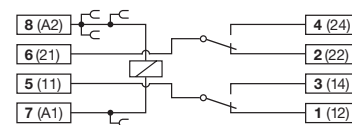
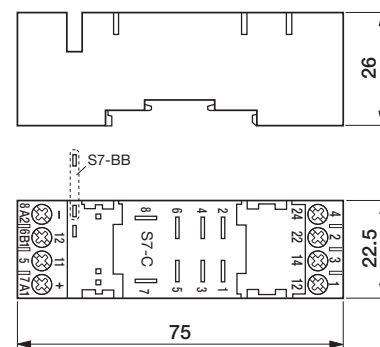


fig. 2. Dimensions (mm)



Technical approvals, conformities

Standards EN 60664-1

Approvals

S7-IO

8-pin C7 Relay socket | screw terminal

General data

Rated load	10 A / 250 V
Dielectric strength	
- All terminals / DIN rail	2.5 kV rms / 1 min
- Terminal / terminal	2.5 kV rms / 1 min
Conductor cross section	
- Single wire	4 mm ² / AWG 12, 2 x 2.5 mm ² / AWG 14
- Multi wire (un-crimped)	0.34 mm ² / AWG 22 ... 2.5 mm ² / AWG 14
Nominal screw torque	0.7 Nm
Screw Dimension	M3 Pozi slot
Mounting	TH35 (EN 60715) or back panel mounting
Storage temperature (no ice)	-40 ... 80 °C
Operation temperature	-40 ... 60 °C
Weight	38 g
Housing material	PA / PC

Included Accessories

Retaining clip plastic	S9-C
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Optional Accessories

Retaining clip plastic	S9-C (BAG 10 PCS)
	S7-BB (BAG 20 PCS)
Panel adapter for S7-C, S7-IO, S9-M	S9-G (BAG 10 PCS)



fig. 1. Wiring diagram

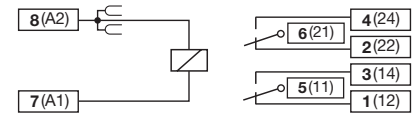
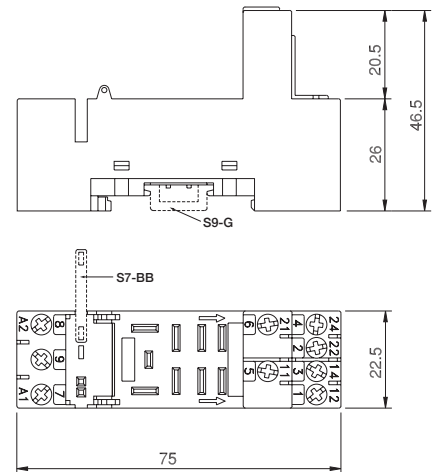


fig. 2. Dimensions (mm)



Technical approvals, conformities

Standards EN 60664-1

Approvals

S7-GR

8-pin socket for R7 relay | screw terminal

General data

Rated load	10 A / 250 V
Dielectric strength	
- All terminals / DIN rail	2.5 kV rms / 1 min
- Terminal / terminal	2.5 kV rms / 1 min
Conductor cross section	
- Single wire	4 mm ² / AWG 12, 2 x 2.5 mm ² / AWG 14
- Multi wire (un-crimped)	0.34 mm ² / AWG 22 ... 2.5 mm ² / AWG 14
Nominal screw torque	0.7 Nm
Screw Dimension	M3 Pozi slot
Mounting	TH35 (EN 60715) or back panel mounting
Storage temperature (no ice)	-40 ... 80 °C
Operation temperature	-40 ... 70 °C
Weight	38 g
Housing material	PA

Included Accessories

Retaining clip plastic	S9-C
--------------------------	------

Optional Accessories

Retaining clip plastic	S9-C (BAG 10 PCS)
	S7-BB (BAG 20 PCS)
Panel adapter for S7-C, S7-IO, S9-M	S9-G (BAG 10 PCS)

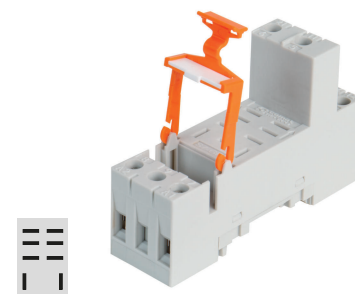


fig. 1. Wiring diagram

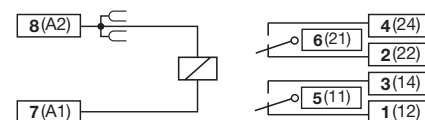
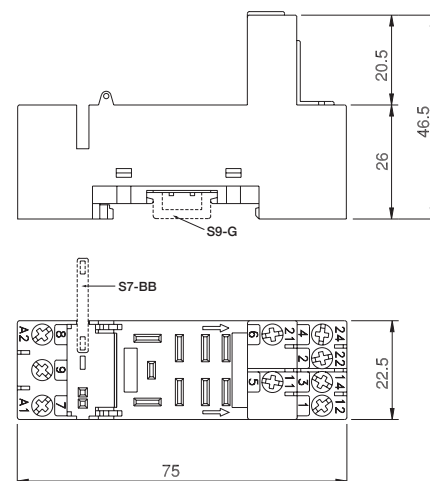


fig. 2. Dimensions (mm)



Technical approvals, conformities

Standards EN 60664-1
 Railway EN 45545-2; EN 50155

Approvals

S7-P

8-pin C7 Relay socket | PCB

General data

Rated load	10 A / 250 V
Dielectric strength	
- Pin / pin	2.5 kV rms / 1 min
Storage temperature (no ice)	-40 ... 80 °C
Operation temperature	-40 ... 60 °C
Weight	10 g
Housing material	PBT

Included Accessories

Retaining clip plastic	CP-07B
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Optional Accessories

Retaining clip plastic	CP-07B (BAG 50PCS)
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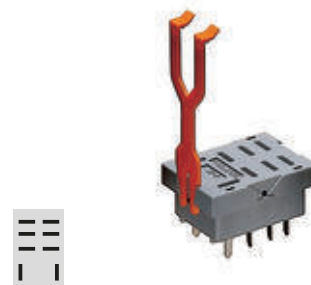


fig. 1. Printed circuit lay-out (mm)

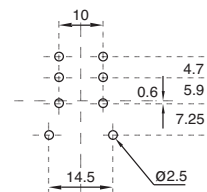
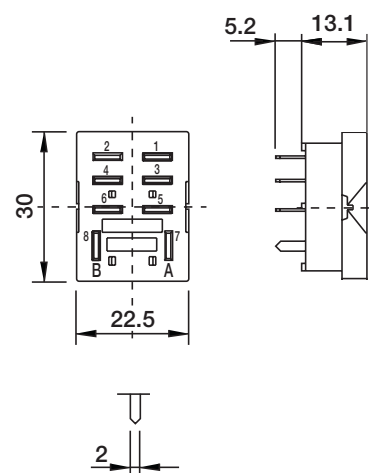


fig. 2. Dimensions (mm)



Technical approvals, conformities

Standards EN 60664-1

Approvals

S9-PI

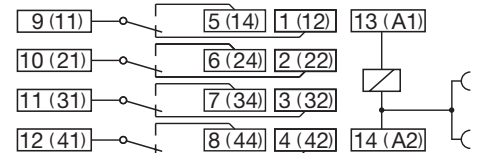
14-pin C9 Relay socket | Push-In

General data

Rated load	6 A / 250 V
Dielectric strength	
- All terminals / DIN rail	2.5 kV rms / 1 min
- Terminal / terminal	2.5 kV rms / 1 min
- Contact / coil terminal	2.5 kV rms / 1 min
Conductor cross section	
- Single wire	2 x 0.34 mm ² / AWG 22 ... 2 x 2.5 mm ² / AWG 14
- Multi wire (un-crimped)	2 x 0.34 mm ² / AWG 22 ... 2 x 2.5 mm ² / AWG 14
- Multi wire (crimped)	2 x 0.34 mm ² / AWG 22 ... 2 x 1.5 mm ² / AWG 16
Mounting	TH35 (EN 60715)
Storage temperature (no ice)	-40 ... 80 °C
Operation temperature	-40 ... 60 °C
Weight	62 g
Housing material	PA



fig. 1. Wiring diagram



Included Accessories

Retaining clip plastic	S7-CPI
Marking strip for Push-in	BS11-PI (50m tape)

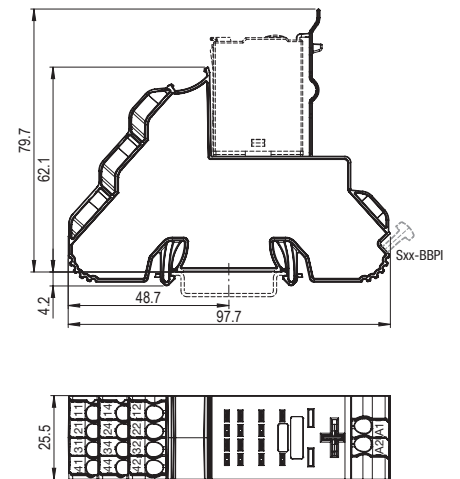
Optional Accessories

Retaining clip plastic	S7-CPI (BAG 10 PCS)
Bridge A2 for Sx-PI / Sx-PIR	Sxx-BBPI (BAG 20 PCS)
2-pole potential bridge bar	Sxx-BBPI2 (BAG 20 PCS)
4-pole potential bridge bar	Sxx-BBPI4 (BAG 20 PCS)
Multi-operation tool kit	OT-PI kit

Applicable tools

Operation tool	ISO 2380-1 Shape A, width: 2.5 mm
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fig. 2. Dimensions (mm)



Technical approvals, conformities

Standards EN 60664-1

Approvals

S9-PIR

14-pin socket for R9 relay | Push-In

General data

Rated load	6 A / 250 V
Dielectric strength	
- All terminals / DIN rail	2.5 kV rms / 1 min
- Terminal / terminal	2.5 kV rms / 1 min
- Contact / coil terminal	2.5 kV rms / 1 min
Conductor cross section	
- Single wire	2 x 0.34 mm ² / AWG 22 ... 2 x 2.5 mm ² / AWG 14
- Multi wire (un-crimped)	2 x 0.34 mm ² / AWG 22 ... 2 x 2.5 mm ² / AWG 14
- Multi wire (crimped)	2 x 0.34 mm ² / AWG 22 ... 2 x 1.5 mm ² / AWG 16
Mounting	TH35 (EN 60715)
Storage temperature (no ice)	-40 ... 80 °C
Operation temperature	-40 ... 70 °C
Weight	62 g
Housing material	PA

Included Accessories

Retaining clip plastic	S7-CPI
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Optional Accessories

Retaining clip plastic	S7-CPI (BAG 10 PCS)
Bridge A2 for Sx-PI / Sx-PIR	Sxx-BBPI (BAG 20 PCS)
2-pole potential bridge bar	Sxx-BBPI2 (BAG 20 PCS)
4-pole potential bridge bar	Sxx-BBPI4 (BAG 20 PCS)
Multi-operation tool kit	OT-PI kit
Marking strip for Push-in	BS11-PI (50m tape)

Applicable tools

Operation tool	ISO 2380-1 Shape A, width: 2.5 mm
----------------	-----------------------------------



fig. 1. Wiring diagram

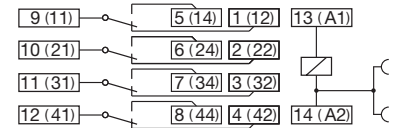
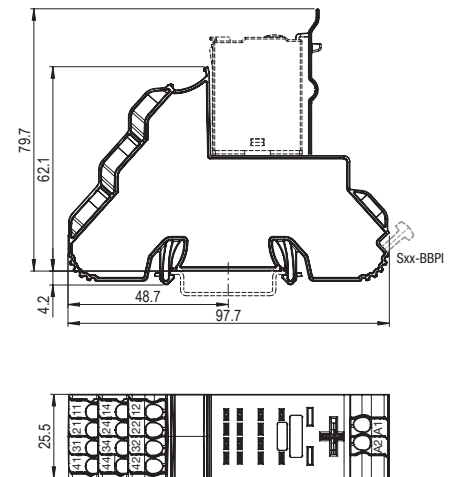


fig. 2. Dimensions (mm)



Technical approvals, conformities

Standards EN 60664-1
 Railway EN 45545-2; EN 50155



S9-M

14-pin C9 Relay socket | screw terminal

General data

Rated load	6 A / 250 V
Dielectric strength	
- All terminals / DIN rail	2.5 kV rms / 1 min
- Terminal / terminal	2.5 kV rms / 1 min
Conductor cross section	
- Single wire	4 mm ² / AWG 12, 2 x 2.5 mm ² / AWG 14
- Multi wire (un-crimped)	0.34 mm ² / AWG 22 ... 2.5 mm ² / AWG 14
Nominal screw torque	0.7 Nm
Screw Dimension	M3 Pozi slot
Mounting	TH35 (EN 60715) or back panel mounting
Storage temperature (no ice)	-40 ... 80 °C
Operation temperature	-40 ... 60 °C
Weight	54 g
Housing material	PA / PC

Included Accessories

Retaining clip plastic	S9-C
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Optional Accessories

Retaining clip plastic	S9-C (BAG 10 PCS)
Panel adapter for S7-C, S7-IO, S9-M	S9-G (BAG 10 PCS)
2-pole potential bridge bar for S9-M	S9M-V1 (BAG 5 PCS), S9M-V4 (BAG 5 PCS), S9M-BX (BAG 5 PCS)

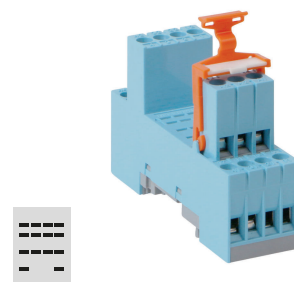


fig. 1. Wiring diagram

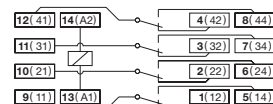
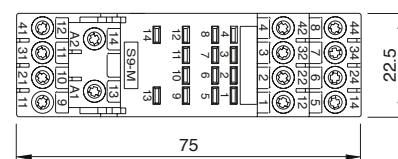
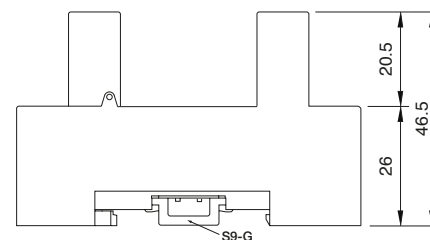


fig. 2. Dimensions (mm)



Technical approvals, conformities

Standards EN 60664-1

Approvals

S9-P

14-pin C9 Relay socket | PCB

General data

Rated load	6 A / 150 V
Dielectric strength	
- Pin / pin	1.5 kV rms / 1 min
Storage temperature (no ice)	-40 ... 80 °C
Operation temperature	-40 ... 60 °C
Weight	12 g
Housing material	PBT

Accessories

Retaining clip plastic	CP-07B (BAG 50PCS)
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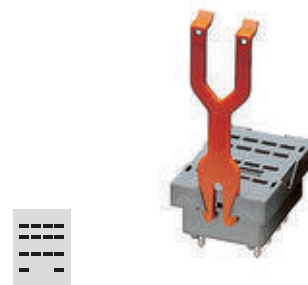


fig. 1. Printed circuit lay-out (mm)

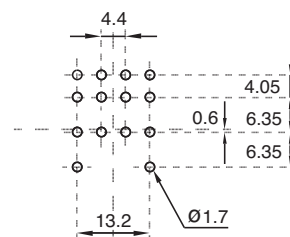
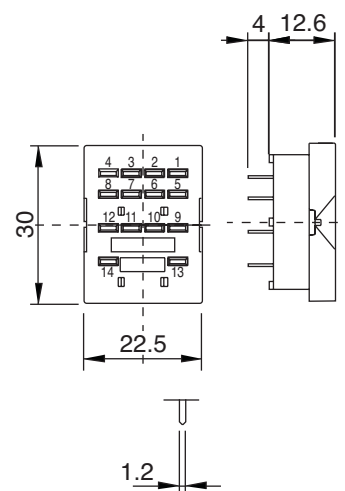


fig. 2. Dimensions (mm)



Technical approvals, conformities

Standards EN 60664-1

Approvals

4.5 5/8-Pin Sockets

	Type	Pin	Page
5/8-Pin Series			
5-pin C10 Relay socket Push-In	S10-PI		364
5-pin socket for R10 relay Push-In	S10-PIR		365
5-pin C10 Relay socket screw terminal	S10		366
5-pin socket for R10 relay screw terminal	S10-GR		367
5-pin C10 Relay socket PCB	S10-P		368
8-pin C12 Relay socket Push-In	S12-PI		369
8-pin socket for R12 relay Push-In	S12-PIR		370
8-pin C12 Relay socket screw terminal	S12		371
8-pin socket for R12 relay screw terminal	S12-GR		372
8-pin C12 Relay socket PCB	S12-P		373
8-pin C16/C18 Relay socket grid 5 mm screw terminal	S16-M		374
8-pin C16/C18 Relay socket grid 3.5 mm screw terminal	S18-M		375

S10-PI**5-pin C10 Relay socket | Push-In****General data**

Rated load	10 A / 250 V
Dielectric strength	
- All terminals / DIN rail	2.5 kV rms / 1 min
- Terminal / terminal	2.5 kV rms / 1 min
- Contact / coil terminal	2.5 kV rms / 1 min
Conductor cross section	
- Single wire	2 x 0.34 mm ² / AWG 22 ... 2 x 2.5 mm ² / AWG 14
- Multi wire (un-crimped)	2 x 0.34 mm ² / AWG 22 ... 2 x 2.5 mm ² / AWG 14
- Multi wire (crimped)	2 x 0.34 mm ² / AWG 22 ... 2 x 1.5 mm ² / AWG 16
Mounting	TH35 (EN 60715)
Storage temperature (no ice)	-40 ... 80 °C
Operation temperature	-40 ... 60 °C
Weight	33 g
Housing material	PA

Included Accessories

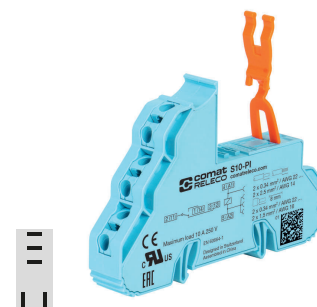
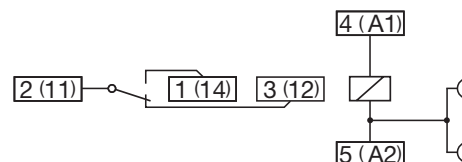
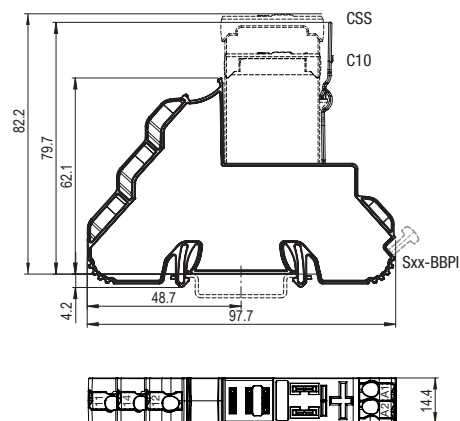
Retaining clip plastic	S10-CPI
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Optional Accessories

Retaining clip plastic	S10-CPI (BAG 10 PCS)
Bridge A2 for Sx-PI / Sx-PIR	Sxx-BBPI (BAG 20 PCS)
Multi-operation tool kit	OT-PI kit
Marking strip for Push-in	BS11-PI (50m tape)

Applicable tools

Operation tool	ISO 2380-1 Shape A, width: 2.5 mm
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**fig. 1. Wiring diagram****fig. 2. Dimensions (mm)****Technical approvals, conformities**

Standards EN 60664-1

Approvals

S10-PIR

5-pin socket for R10 relay | Push-In

General data

Rated load	10 A / 250 V
Dielectric strength	
- All terminals / DIN rail	2.5 kV rms / 1 min
- Terminal / terminal	2.5 kV rms / 1 min
- Contact / coil terminal	2.5 kV rms / 1 min
Conductor cross section	
- Single wire	2 x 0.34 mm ² / AWG 22 ... 2 x 2.5 mm ² / AWG 14
- Multi wire (un-crimped)	2 x 0.34 mm ² / AWG 22 ... 2 x 2.5 mm ² / AWG 14
- Multi wire (crimped)	2 x 0.34 mm ² / AWG 22 ... 2 x 1.5 mm ² / AWG 16
Mounting	TH35 (EN 60715)
Storage temperature (no ice)	-40 ... 80 °C
Operation temperature	-40 ... 70 °C
Weight	33 g
Housing material	PA

Included Accessories

Retaining clip plastic	S10-CPI
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Optional Accessories

Retaining clip plastic	S10-CPI (BAG 10 PCS)
Bridge A2 for Sx-PI / Sx-PIR	Sxx-BBPI (BAG 20 PCS)
Multi-operation tool kit	OT-PI kit
Marking strip for Push-in	BS11-PI (50m tape)

Applicable tools

Operation tool	ISO 2380-1 Shape A, width: 2.5 mm
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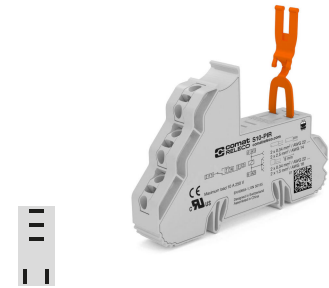


fig. 1. Wiring diagram

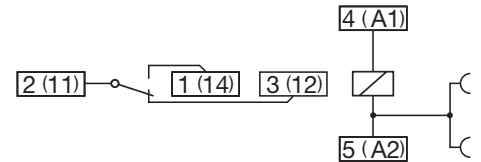
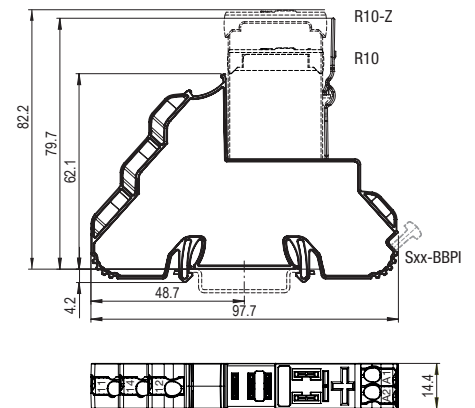


fig. 2. Dimensions (mm)



Technical approvals, conformities

Standards EN 60664-1

Railway EN 45545-2; EN 50155



Approvals

S10**5-pin C10 Relay socket | screw terminal****General data**

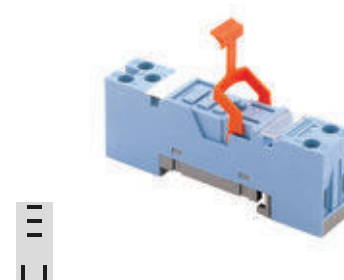
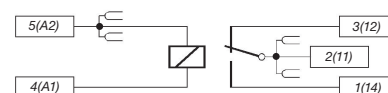
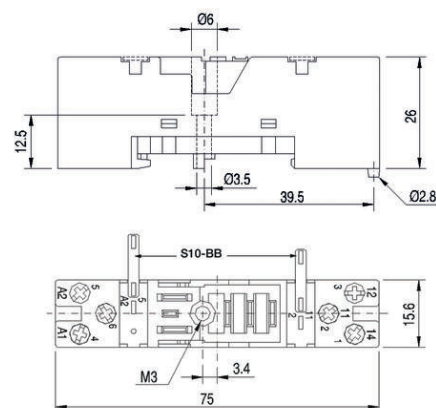
Rated load	10 A / 250 V
Dielectric strength	
- All terminals / DIN rail	5 kV rms / 1 min
- Terminal / terminal	2.5 kV rms / 1 min
- Contact / coil terminal	5 kV rms / 1 min
Conductor cross section	
- Single wire	4 mm ² / AWG 12, 2 x 2.5 mm ² / AWG 14
- Multi wire (un-crimped)	0.34 mm ² / AWG 22 ... 2.5 mm ² / AWG 14
Nominal screw torque	0.7 Nm
Screw Dimension	M3 Pozi slot
Mounting	TH35 (EN 60715) or back panel mounting
Storage temperature (no ice)	-40 ... 80 °C
Operation temperature	-40 ... 60 °C
Weight	23 g
Housing material	PA / PC

Included Accessories

Retaining clip plastic	S10-C
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Optional Accessories

Retaining clip plastic	S10-C/CP-17B (BAG 10 PCS)
A2-Bridge for S10	S10-BB (BAG 20 PCS)
Bridge bar twofold	V10-A (BAG 5 PCS), V10-G (BAG 5 PCS), V10-R (BAG 5 PCS)
4-pole potential bridge bar for S10 / S12	V40-A (BAG 5 PCS), V40-G (BAG 5 PCS), V40-R (BAG 5 PCS)

**fig. 1. Wiring diagram****fig. 2. Dimensions (mm)****Technical approvals, conformities**

Standards EN 60664-1

Approvals

S10-GR

5-pin socket for R10 relay | screw terminal

General data

Rated load	10 A / 250 V
Dielectric strength	
- All terminals / DIN rail	5 kV rms / 1 min
- Terminal / terminal	2.5 kV rms / 1 min
- Contact / coil terminal	5 kV rms / 1 min
Conductor cross section	
- Single wire	4 mm ² / AWG 12, 2 x 2.5 mm ² / AWG 14
- Multi wire (un-crimped)	0.34 mm ² / AWG 22 ... 2.5 mm ² / AWG 14
Nominal screw torque	0.7 Nm
Screw Dimension	M3 Pozi slot
Mounting	TH35 (EN 60715) or back panel mounting
Storage temperature (no ice)	-40 ... 80 °C
Operation temperature	-40 ... 70 °C
Weight	23 g
Housing material	PA

Included Accessories

Retaining clip plastic	S10-C
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Optional Accessories

Retaining clip plastic	S10-C/CP-17B (BAG 10 PCS)
A2-Bridge for S10	S10-BB (BAG 20 PCS)
Bridge bar twofold	V10-A (BAG 5 PCS), V10-G (BAG 5 PCS), V10-R (BAG 5 PCS)
4-pole potential bridge bar for S10 / S12	V40-A (BAG 5 PCS), V40-G (BAG 5 PCS), V40-R (BAG 5 PCS)

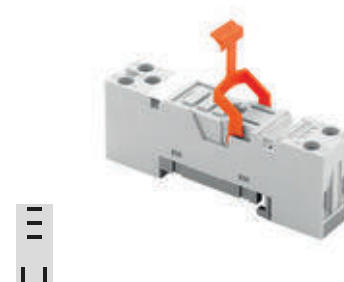


fig. 1. Wiring diagram

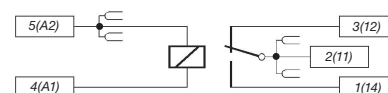
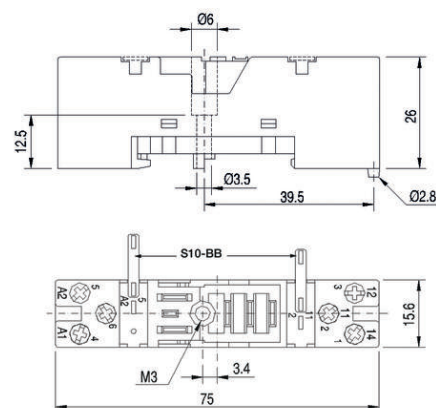


fig. 2. Dimensions (mm)

**Technical approvals, conformities**

Standards EN 60664-1

Railway EN 45545-2; EN 50155

Approvals  

S10-P

5-pin C10 Relay socket | PCB

General data

Rated load	10 A / 250 V
Dielectric strength	5 kV rms / 1 min
Storage temperature (no ice)	-40 ... 80 °C
Operation temperature	-40 ... 60 °C
Weight	7 g
Housing material	PBT

Accessories

Retaining clip plastic	CP-24B
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fig. 1. Wiring diagram

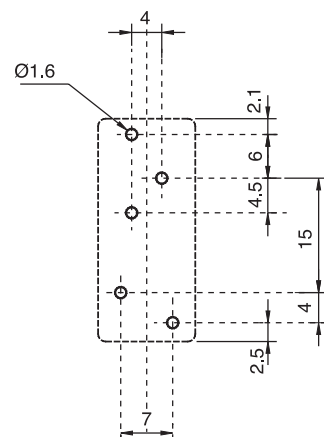
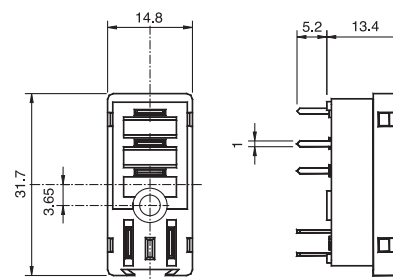


fig. 2. Dimensions (mm)



Technical approvals, conformities

Standards EN 60664-1

Approvals

S12-PI

8-pin C12 Relay socket | Push-In

General data

Rated load	5 A / 250 V
Dielectric strength	
- All terminals / DIN rail	2.5 kV rms / 1 min
- Terminal / terminal	2.5 kV rms / 1 min
- Contact / coil terminal	2.5 kV rms / 1 min
Conductor cross section	
- Single wire	2 x 0.34 mm ² / AWG 22 ... 2 x 2.5 mm ² / AWG 14
- Multi wire (un-crimped)	2 x 0.34 mm ² / AWG 22 ... 2 x 2.5 mm ² / AWG 14
- Multi wire (crimped)	2 x 0.34 mm ² / AWG 22 ... 2 x 1.5 mm ² / AWG 16
Mounting	TH35 (EN 60715)
Storage temperature (no ice)	-40 ... 80 °C
Operation temperature	-40 ... 60 °C
Weight	39 g
Housing material	PA

Included Accessories

Retaining clip plastic	S10-CPI
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Optional Accessories

Retaining clip plastic	S10-CPI (BAG 10 PCS)
Bridge A2 for Sx-PI / Sx-PIR	Sxx-BBPI (BAG 20 PCS)
2-pole potential bridge bar	Sxx-BBPI2 (BAG 20 PCS)
Multi-operation tool kit	OT-PI kit
Marking strip for Push-in	BS11-PI (50m tape)

Applicable tools

Operation tool	ISO 2380-1 Shape A, width: 2.5 mm
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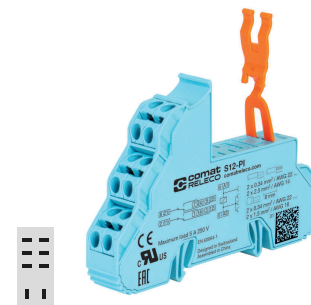


fig. 1. Wiring diagram

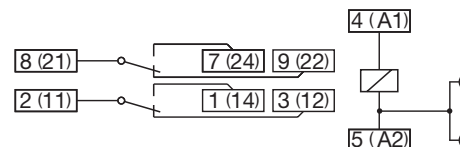
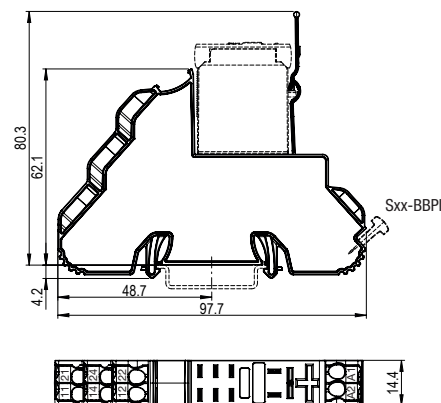


fig. 2. Dimensions (mm)



Technical approvals, conformities

Standards EN 60664-1

Approvals

S12-PIR**8-pin socket for R12 relay | Push-In****General data**

Rated load	5 A / 250 V
Dielectric strength	
- All terminals / DIN rail	2.5 kV rms / 1 min
- Terminal / terminal	2.5 kV rms / 1 min
- Contact / coil terminal	2.5 kV rms / 1 min
Conductor cross section	
- Single wire	2 x 0.34 mm ² / AWG 22 ... 2 x 2.5 mm ² / AWG 14
- Multi wire (un-crimped)	2 x 0.34 mm ² / AWG 22 ... 2 x 2.5 mm ² / AWG 14
- Multi wire (crimped)	2 x 0.34 mm ² / AWG 22 ... 2 x 1.5 mm ² / AWG 16
Mounting	TH35 (EN 60715)
Storage temperature (no ice)	-40 ... 80 °C
Operation temperature	-40 ... 70 °C
Weight	39 g
Housing material	PA

Included Accessories

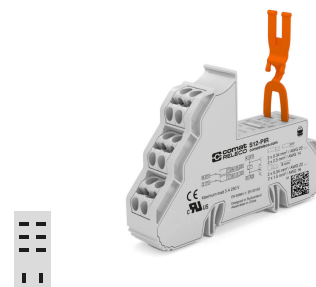
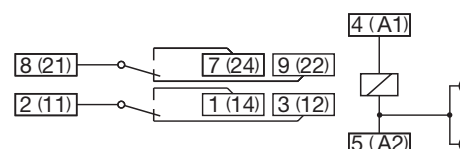
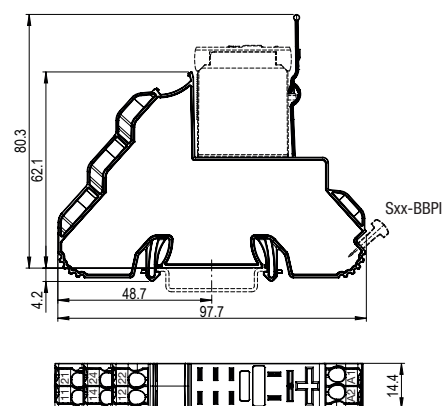
Retaining clip plastic	S10-CPI
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Optional Accessories

Retaining clip plastic	S10-CPI (BAG 10 PCS)
Bridge A2 for Sx-PI / Sx-PIR	Sxx-BBPI (BAG 20 PCS)
2-pole potential bridge bar	Sxx-BBPI2 (BAG 20 PCS)
Multi-operation tool kit	OT-PI kit
Marking strip for Push-in	BS11-PI (50m tape)

Applicable tools

Operation tool	ISO 2380-1 Shape A, width: 2.5 mm
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**fig. 1. Wiring diagram****fig. 2. Dimensions (mm)****Technical approvals, conformities**

Standards EN 60664-1

Railway EN 45545-2; EN 50155







Approvals

S12

8-pin C12 Relay socket | screw terminal

General data

Rated load	5 A / 250 V
Dielectric strength	
- All terminals / DIN rail	5 kV rms / 1 min
- Terminal / terminal	2.5 kV rms / 1 min
- Contact / coil terminal	5 kV rms / 1 min
Conductor cross section	
- Single wire	4 mm ² / AWG 12, 2 x 2.5 mm ² / AWG 14
- Multi wire (un-crimped)	0.34 mm ² / AWG 22 ... 2.5 mm ² / AWG 14
Nominal screw torque	0.7 Nm
Screw Dimension	M3 Pozi slot
Mounting	TH35 (EN 60715) or back panel mounting
Storage temperature (no ice)	-40 ... 80 °C
Operation temperature	-40 ... 60 °C
Weight	31 g
Housing material	PA / PC

Included Accessories

Retaining clip plastic	S10-C
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Optional Accessories

A2-Connector	B20-A (BAG 5 PCS), B20-G (BAG 5 PCS), B20-R (BAG 5 PCS)
Bridge bar twofold	V10-A (BAG 5 PCS), V10-G (BAG 5 PCS), V10-R (BAG 5 PCS)
4-pole potential bridge bar for S10 / S12	V40-A (BAG 5 PCS), V40-G (BAG 5 PCS), V40-R (BAG 5 PCS)

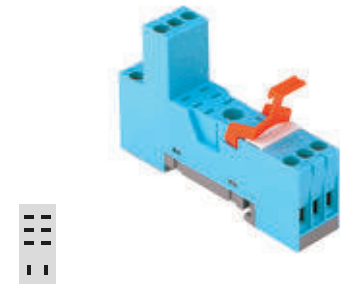


fig. 1. Image

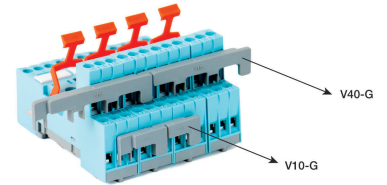


fig. 2. Image

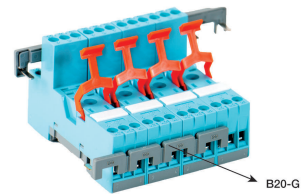


fig. 3. Wiring diagram

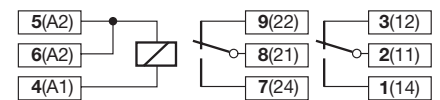
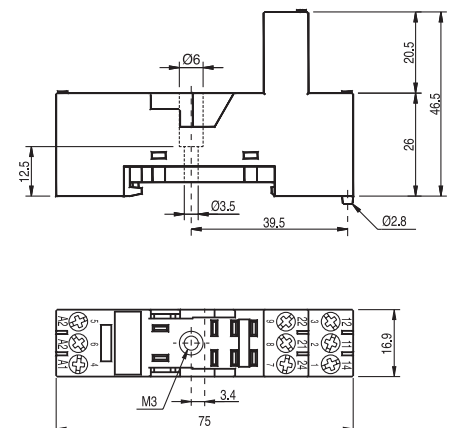


fig. 4. Dimensions (mm)



Technical approvals, conformities

Standards EN 60664-1

Approvals

S12-GR

8-pin socket for R12 relay | screw terminal

General data

Rated load	5 A / 250 V
- All terminals / DIN rail	5 kV rms / 1 min
- Terminal / terminal	2.5 kV rms / 1 min
- Contact / coil terminal	5 kV rms / 1 min
Conductor cross section	
- Single wire	4 mm ² / AWG 12, 2 x 2.5 mm ² / AWG 14
- Multi wire (un-crimped)	0.34 mm ² / AWG 22 ... 2.5 mm ² / AWG 14
Nominal screw torque	0.7 Nm
Screw Dimension	M3 Pozi slot
Mounting	TH35 (EN 60715) or back panel mounting
Storage temperature (no ice)	-40 ... 80 °C
Operation temperature	-40 ... 70 °C
Weight	31 g
Housing material	PA

Included Accessories

Retaining clip plastic	S10-C
--------------------------	-------

Optional Accessories

A2-Connector	B20-A (BAG 5 PCS), B20-G (BAG 5 PCS), B20-R (BAG 5 PCS)
Bridge bar twofold	V10-A (BAG 5 PCS), V10-G (BAG 5 PCS), V10-R (BAG 5 PCS)
4-pole potential bridge bar for S10 / S12	V40-A (BAG 5 PCS), V40-G (BAG 5 PCS), V40-R (BAG 5 PCS)

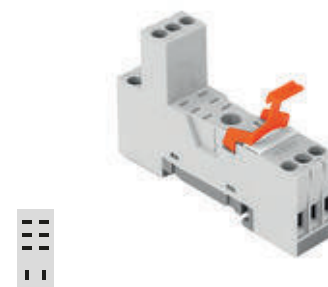


fig. 1. Image

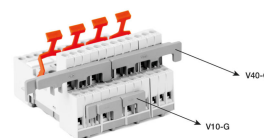


fig. 2. Image

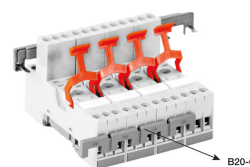


fig. 3. Wiring diagram

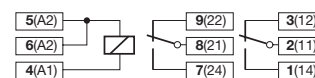
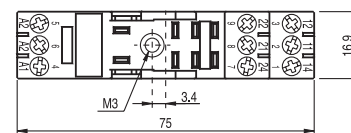
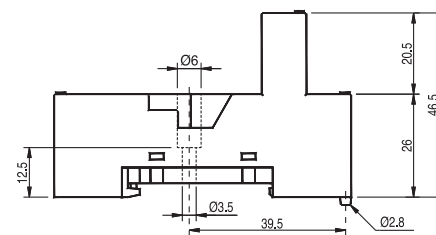


fig. 4. Dimensions (mm)



Technical approvals, conformities

Standards EN 60664-1

Railway EN 45545-2; EN 50155

Approvals

S12-P

8-pin C12 Relay socket | PCB

General data

Rated load	5 A / 250 V
Dielectric strength	
- Pin / pin	3 kV rms / 1 min
Storage temperature (no ice)	-40 ... 80 °C
Operation temperature	-40 ... 60 °C
Weight	7 g
Housing material	PBT

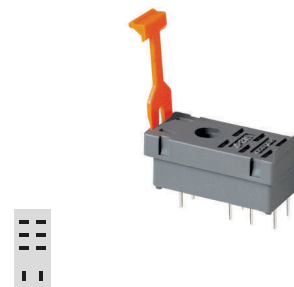


fig. 1. Printed circuit lay-out (mm)

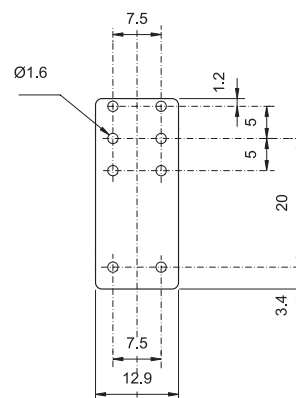
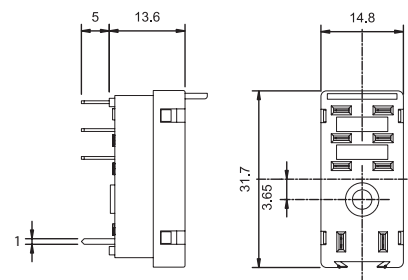


fig. 2. Dimensions (mm)



Technical approvals, conformities

Standards EN 60664-1

Approvals

S16-M

8-pin C16/C18 Relay socket | grid 5 mm | screw terminal

General data

Rated load	10 A / 300 V
Dielectric strength	
- All terminals / DIN rail	3 kV rms / 1 min
- Terminal / terminal	3 kV rms / 1 min
- Contact / coil terminal	3 kV rms / 1 min
Conductor cross section	
- Single wire	1 x 2.5 mm ² / AWG 20
- Multi wire (un-crimped)	1 x 2.5 mm ² / AWG 14 or 2 x 1.0 mm ² / AWG 18
Nominal screw torque	0.7 Nm
Screw Dimension	M3 Pozzi slot
Mounting	TH35 (EN 60715) or back panel mounting
Storage temperature (no ice)	-40 ... 80 °C
Operation temperature	-40 ... 60 °C
Weight	42 g
Housing material	PA

Included Accessories

Retaining clip plastic	CP-16
--------------------------	-------

Optional Accessories

Module for socket: free wheeling diode	RD16/DC12-240V
Green LED & freewheeling diode module	RDL16/DC6-24V, RDL16/DC24-48V, RDL16/DC110-240V
RC-Suppressor module	RC16/UC6-24V, RC16/UC24-60V, RC16/UC110-240V
	RL16/UC6-24V, RL16/UC24-48V, RL16/UC110-240V



fig. 1. Wiring diagram

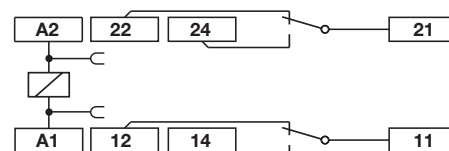
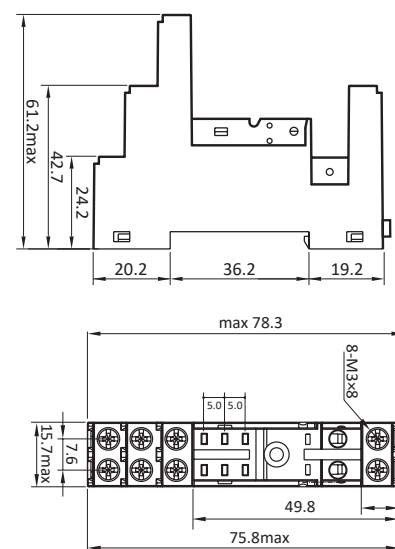


fig. 2. Dimensions (mm)

**Technical approvals, conformities**

Standards EN 60664-1

Approvals    

S18-M

8-pin C16/C18 Relay socket | grid 3.5 mm | screw terminal



General data

Rated load	10 A / 300 V
Dielectric strength	
- All terminals / DIN rail	3 kV rms / 1 min
- Terminal / terminal	3 kV rms / 1 min
- Contact / coil terminal	3 kV rms / 1 min
Conductor cross section	
- Single wire	1 x 0.5 mm ² / AWG 20
- Multi wire (un-crimped)	1 x 2.5 mm ² / AWG 14 or 2 x 1.0 mm ² / AWG 18
Nominal screw torque	0.7 Nm
Screw Dimension	M3 Pozzi slot
Mounting	TH35 (EN 60715) or back panel mounting
Storage temperature (no ice)	-40 ... 80 °C
Operation temperature	-40 ... 60 °C
Weight	42 g
Housing material	PA

Included Accessories

Retaining clip plastic	CP-16
--------------------------	-------

Optional Accessories

Module for socket: free wheeling diode	RD16/DC12-240V
Green LED & freewheeling diode module	RDL16/DC6-24V, RDL16/DC24-48V, RDL16/DC110-240V
RC-Suppressor module	RC16/UC6-24V, RC16/UC24-60V, RC16/UC110-240V
	RL16/UC6-24V, RL16/UC24-48V, RL16/UC110-240V



fig. 1. Wiring diagram

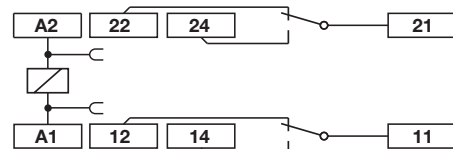
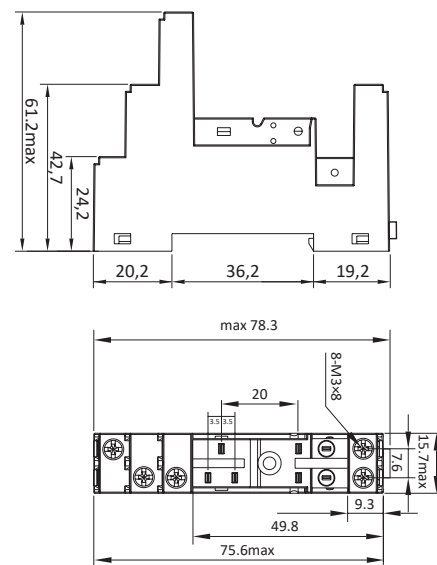


fig. 2. Dimensions (mm)



Technical approvals, conformities

Standards EN 60664-1

Approvals

4.6 Socket Accessories

	Type	Pin	Page
Socket Accessories			
A1-, B1-connector for S3-Mx, S5-M	SC-3		380
A2-Connector for S12	B20		380
A2-Connector for S3-M, S5-M, S5-MR	C-A2		380
A2-Bridge for S10	S10-BB		380
A2-Bridge for S7-IO and S7-GR	S7-BB		380
2-pole potential bridge bar for S9-M	S9M-BX		380
Bridge A2 for Sx-PI/Sx-PIR	Sxx-BBPI		381
2-pole potential bridge bar for S7-PI(R), S9-PI(R) and S12-PI(R)	Sxx-BBPI2		381
4-pole potential bridge bar for S9-PI(R) and S9-PI(R)	Sxx-BBPI4		381
2-pole potential bridge bar for S9-M	S9M-V1		381
4-pole potential bridge bar for S9-M	S9M-V4		381
2-pole potential bridge bar for S10-M / S12	V10		381
4-pole potential bridge bar for S10 / S12	V40		381
Coding ring for S3-B, S3-S	S3-BC		382
Freewheeling diode module for S3-M, S3-M0, S5-M	RD1		382
Module for socket: free wheeling diode	RD16		382
Freewheeling diode module for S3-M, S3-M0, S5-M	RD2		382
Freewheeling diode module for S3-M, S3-M0, S5-M	RD3		382

	Type	Pin	Page
Green LED & freewheeling diode module	RDL16		383
Freewheeling diode module for S3-M, S3-M0, S5-M	RDL2		383
Panel adapter for S7-C, S7-IO, S9-M	S9-G		383
RC-Suppressor module	RC0047-100		383
RC-Suppressor module	RC1		383
Marking strip for Sx-PI & Sx-PIR sockets	BS11-PI (50m)		384
Retaining clip plastic	CP-07B		384
Retaining clip plastic	CP-16		384
Retaining clip plastic	Retaining clip		384
Retaining spring for SSU,TSR Steel	HF-24		384
Retaining spring for C2, C2, C3, C3x relays Steel	HF-32		385
Retaining spring for C2, C3 + Time Cubes Steel	HF-33		385
Retaining spring for CSx, C5x, C6x Steel	HF-50		385
Multi-operation tool kit for Sx-PI & Sx-PIR sockets	OT-PI kit		385
RC-Suppressor module	RC16		386
RC-Suppressor module	RC2		386
Module for socket: green LED	RL16		386
Retaining clip plastic	S10-C/CP-17B		386
Retaining clip plastic	S10-CPI		387
Marking label white	S10-RH		387
Transparent cover	S10-RT		387
Retaining clip plastic	S30-CM/10		387
Retaining clip plastic	S3-CM		387

	Type	Pin	Page
Retaining spring Steel	S4-C		387
Retaining spring for S4-P, S4-L, S5-P, S5-L Steel	S4-CL		388
Retaining spring for C5 / C5x Relays steel	S5-C		388
Retaining clip plastic	S5M-CP		388
Wall mounting adapter for C4, C5	S5-R		388
Retaining clip plastic	S7-CPG		388
Retaining clip plastic	S7-CPI		389
Retaining clip plastic	S9-C		389

SC-3

A1-, B1-connector for S3-Mx, S5-M

Product references

Description	Type
A1-, B1-connector for S3-Mx, S5-M	SC-3 (BAG 10 PCS)

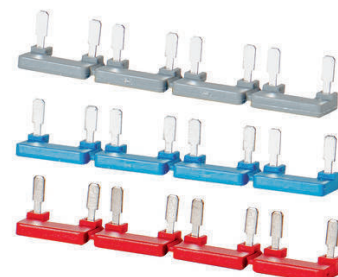


B20

A2-Connector for S12

Product references

Description	Type
A2-Connector for S12 blue	B20-A (BAG 5 PCS)
A2-Connector for S12 grey	B20-G (BAG 5 PCS)
A2-Connector for S12 red	B20-R (BAG 5 PCS)

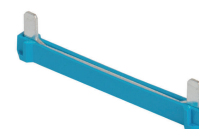


C-A2

A2-Connector for S3-M, S5-M, S5-MR

Product references

Description	Type
A2-Connector for S3-M, S5-M, S5-MR	C-A2 (BAG 50PCS)
A2-Connector for S3-M, S5-M, S5-MR	C-A2 (BAG 5PCS)



S10-BB

A2-Bridge for S10

Product references

Description	Type
A2-Connector for S10	S10-BB (BAG 20 PCS)



S7-BB

A2-Bridge for S7-IO and S7-GR

Product references

Description	Type
A2-Connector for S7-C, S7-IO	S7-BB (BAG 20 PCS)



S9M-BX

2-pole potential bridge bar for S9-M

Product references

Description	Type
Bridge bar twofold	S9M-BX (BAG 5 PCS) R



Sxx-BBPI

Bridge A2 for Sx-PI/Sx-PIR

Product references

Description	Type
A2-Connector for Push-In sockets	Sxx-BBPI (BAG 20 PCS)



Sxx-BBPI2

2-pole potential bridge bar for S7-PI(R), S9-PI(R) and S12-PI(R)

General data

Rated load 6 A

Product references

Description	Type
Bridge bar twofold for Push-in sockets	Sxx-BBPI2 (BAG 20 PCS)



Sxx-BBPI4

4-pole potential bridge bar for S9-PI(R) and S9-PI(R)

General data

Rated load 6 A

Product references

Description	Type
Bridge bar fourfold for Push-in sockets	Sxx-BBPI4 (BAG 20 PCS)



S9M-V1

2-pole potential bridge bar for S9-M

Product references

Description	Type
Bridge bar twofold	S9M-V1 (BAG 5 PCS) R



S9M-V4

4-pole potential bridge bar for S9-M

Product references

Description	Type
Bridge bar fourfold	S9M-V4 (BAG 5 PCS) R



V10

2-pole potential bridge bar for S10-M / S12

Product references

Description	Type
Bridge bar twofold blue	V10-A (BAG 5 PCS)
Bridge bar twofold grey	V10-G (BAG 5 PCS)
Bridge bar twofold red	V10-R (BAG 5 PCS)



V40

4-pole potential bridge bar for S10 / S12

Product references

Description	Type
Bridge bar fourfold blue	V40-A (BAG 5 PCS)
Bridge bar fourfold grey	V40-G (BAG 5 PCS)
Bridge bar fourfold red	V40-R (BAG 5 PCS)

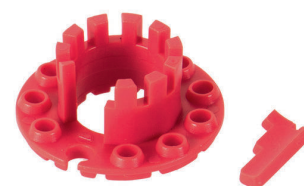


S3-BC

Coding ring for S3-B, S3-S

Product references

Description	Type
Coding ring 5 PCS	S3-BC (BAG 5 PCS)



RD1

Freewheeling diode module for S3-M, S3-M0, S5-M

Product references

Description	Type
Freewheeling diode module	RD1/DC12-220V



RD16

Module for socket: free wheeling diode

Product references

Description	Type
Module for socket: free wheeling diode	RD16/DC12-240V



RD2

Freewheeling diode module for S3-M, S3-M0, S5-M

Product references

Description	Type
Freewheeling diode module	RD2/DC...V



RD3

Freewheeling diode module for S3-M, S3-M0, S5-M

Product references

Description	Type
Freewheeling diode module	RD3/DC...V



RDL16

Green LED & freewheeling diode module

Product references

Description	Type
Freewheeling diode module with LED	RDL16/DC...V



RDL2

Freewheeling diode module for S3-M, S3-M0, S5-M

Product references

Description	Type
Freewheeling diode module with LED	RDL2/DC...V



S9-G

Panel adapter for S7-C, S7-IO, S9-M

Product references

Description	Type
Panel adapter	S9-G (BAG 10 PCS)

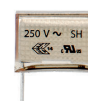


RC0047-100

RC-Suppressor module

Product references

Description	Type
RC-Suppressor module 250 V AC for S7-C	RC0047-100/AC250V (BAG 5PCS)



RC1

RC-Suppressor module

Product references

Description	Type
RC-Suppressor module 110 - 240 V UC for S3-M, S3-M0, S5-M	RC1/UC...V



BS11-PI (50m)

Marking strip for Sx-PI & Sx-PIR sockets

Product references

Description	Type
Marking strip Roll of 50 m	BS11-PI (50m tape)



CP-07B

Retaining clip | plastic

Product references

Description	Type
Retaining clip plastic for S7-C	CP-07B (BAG 50PCS) R
Retaining clip plastic for S7-C	CP-07B for C7 / C7x Relays



CP-16

Retaining clip | plastic

Product references

Description	Type
Retaining clip plastic for S16-M, S18-M	CP-16 (BAG 10 PCS)



Retaining clip

Retaining clip | plastic

Product references

Description	Type
Retaining clip	CP-24B



HF-24

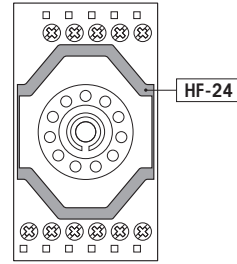
Retaining spring for SSU,TSR | Steel

General data

Mounting fig. 1 Mounting

Product references

Description	Type
Retaining spring steel	HF-24



HF-32

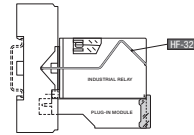
Retaining spring for C2, C2, C3, C3x relays | Steel

General data

Mounting fig. 1 Mounting

Product references

Description	Type
Retaining spring steel	HF-32 (BAG 10 PCS)



HF-33

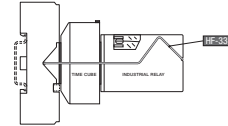
Retaining spring for C2, C3 + Time Cubes | Steel

General data

Mounting fig. 1 Mounting

Product references

Description	Type
Retaining spring steel	HF-33 (BAG 10 PCS)



HF-50

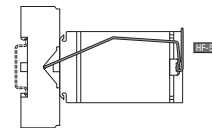
Retaining spring for CSx, C5x, C6x | Steel

General data

Mounting fig. 1 Mounting

Product references

Description	Type
Retaining spring steel	HF-50 (BAG 10 PCS)



OT-PI kit

Multi-operation tool kit for Sx-PI & Sx-PIR sockets

General data

Weight 30 g

Product references

Description	Type
Operating tool	OT-PI kit



RC16

RC-Suppressor module

Product references

Description	Type
RC-Suppressor module	RC16/UC...V

RC2

RC-Suppressor module

Product references

Description	Type
RC-Suppressor module	RC2/UC...V

RL16

Module for socket: green LED

Product references

Description	Type
Module for socket: green LED	RL16/UC110-240V
Module for socket: green LED	RL16/UC24-48V
Module for socket: green LED	RL16/UC6-24V

S10-C/CP-17B

Retaining clip | plastic

Product references

Description	Type
Retaining clip plastic for S10 10 PCS	S10-C/CP-17B (BAG 10PCS) R
Retaining clip plastic for S10 10 PCS	S10-C



S10-CPI

Retaining clip | plastic

Product references

Description	Type
Retaining clip plastic for S10-PI(R), S12-PI(R)	S10-CPI (BAG 10 PCS)
Retaining clip plastic for S10-PI(R), S12-PI(R)	S10-CPI



S10-RH

Marking label | white

Product references

Description	Type
Marking label	S10-RH (BAG 10 PCS)



S10-RT

Transparent cover

Product references

Description	Type
Transparent cover	S10-RT (BAG 20 PCS)



S30-CM/10

Retaining clip | plastic

Product references

Description	Type
Retaining clip plastic for S2-B, S3-B, S3-S	S30-CM/10 (10-PIECES)

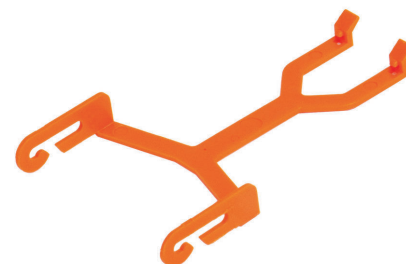


S3-CM

Retaining clip | plastic

Product references

Description	Type
Retaining clip plastic	S3-CM

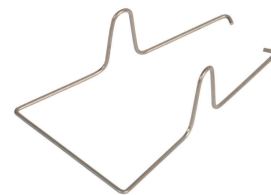


S4-C

Retaining spring | Steel

Product references

Description	Type
Retaining spring steel	S4-C (BAG 10 PCS)

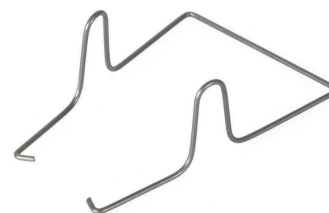


S4-CL

Retaining spring for S4-P, S4-L, S5-P, S5-L | Steel

Product references

Description	Type
Retaining spring steel	S4-CL (BAG 10 PCS)

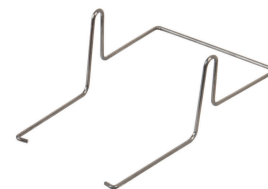


S5-C

Retaining spring for C5 / C5x Relays | steel

Product references

Description	Type
Retaining spring steel	S5-C (BAG 10 PCS) R
Retaining spring steel	S5-C



S5M-CP

Retaining clip | plastic

Product references

Description	Type
Retaining clip plastic for S5-M	S5M-CP



S5-R

Wall mounting adapter for C4, C5

Product references

Description	Type
Wall mounting adapter for C4, C5	S5-R (BAG 5 PCS)



S7-CPG

Retaining clip | plastic

Product references

Description	Type
Retaining clip plastic	S7-CPG



S7-CPI

Retaining clip | plastic

Product references

Description	Type
Retaining clip plastic for S7-PI(R), S9-PI(R)	S7-CPI (BAG 10 PCS)
Retaining clip plastic for S7-PI(R), S9-PI(R)	S7-CPI



S9-C

Retaining clip | plastic

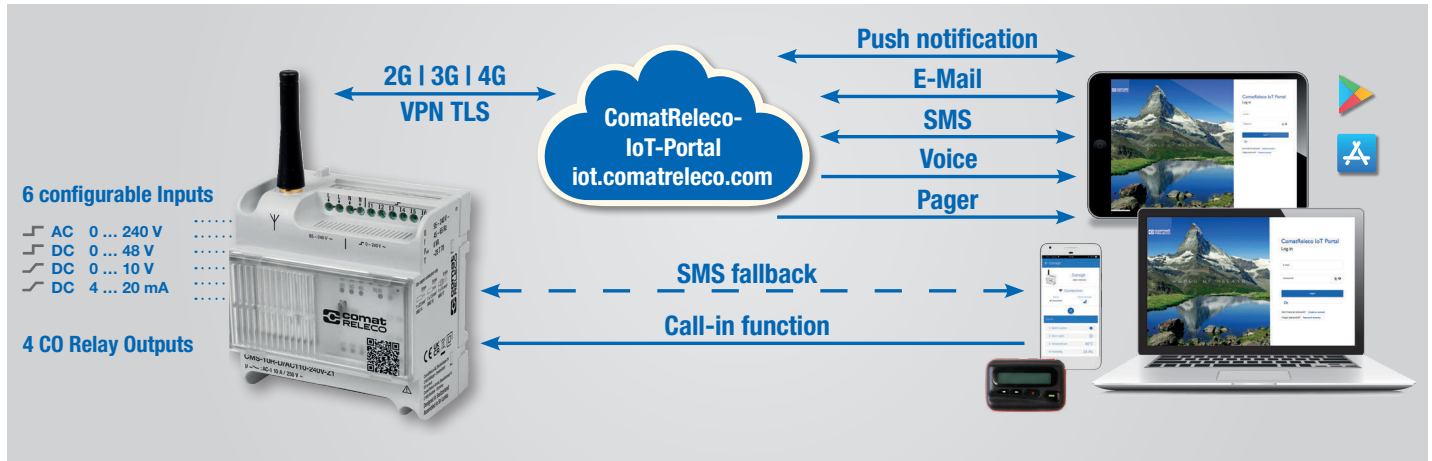
Product references

Description	Type
Retaining clip plastic for S9-M 10 PCS	S9-C/CP-01B (BAG 10 PCS)
Retaining clip plastic	S9-C



5 Remote Monitoring & Control

Chapter	Page
5.1 ComatReleco Messaging System	395
5.2 ComatReleco Messaging System Accessories	403



2G, 3G, 4G communication with embedded SIM

The CMS-10R is a remote monitoring and control unit for industrial and building technologies. It reports status changes of the digital or analog inputs through the mobile network via push notification, e-mail or SMS. The outputs are controlled via push notification from a web browser or Smart App. If required, the configured outputs can also be switched to the device via a telephone call (call-in function). The CMS-10R automatically selects the network generation with the highest field strength on site.

Thanks to the cloud solution with the IoT portal, there are no additional telephone subscription fees, these are included in the service profile.

You manage your user profile according to your needs. Various profiles are available for optimal use of the device. The annual license fee - free of charge in the first year of operation - as well as the costs incurred for any SMS traffic are billed via the embedded invoice platform. The payments can be easily completed through invoicing or digital channels.

Easy to configure

Wherever you are: You can switch and operate as you like. 4 steps and you are there:

- Log in to the ComatReleco IoT Portal - iot.comatreleco.com
- Selection of the desired hardware
- Define the bill-to party
- Configure and connect the device

Your added values

- ComatReleco Messaging System incl. M2M embedded SIM card + iOS or Android App
- No additional SIM required, plug'n play system
- Push notification via web browser / iOS / Android App, E-mail or SMS
- Remote device configuration via web browser
- Unique devices - ID for secure integration into the Swiss based cloud solution
- High operational reliability through VPN and TLS technologies
- Minimal operating costs thanks to web communication

Basic identification principle (type ComatReleco Messaging System)

1		2		3		4		5	6	7		8
CMS-10R	-	DAC	/	DC12-48V	-	Z2	-				-	KIT

1. Product family

2. Inputs

- D** = 6 x digital
- DA** = 6 x digital or analog 0 ... 10 V
- DAC** = 4 x digital or analog 0 ... 10 V / 2 x 4 ... 20 mA

3. Nominal voltage:

- AC110-240V** = 110 V ... 240 V ~
- DC12-48V** = 10 V ... 48 V ==

4. Zone:

- Z1** = Version for zone 1 (weltweit)
- Z2** = Version for zone 2 (Europe, Middle East, Africa, Korea, Thailand)

5. Connection type:

- = Screw terminal
- = Cage Clamp

6. Options:

- G** = Standard version
- G** = GPS

7. Special:

- R** = Standard version
- R** = Railway version

8. Packaging:

- = CMS-10R including device antenna stubby 50 mm
- KIT1** = CMS-10R-... including CMS-ANT-MAG2/2.5M & HDR-15-24
- KIT2** = CMS-10R-... including CMS-ANT-MAG2/2.5M & HDR-30-24
- BOX1** = CMS-10R-... in the box with terminals
- BOX2** = CMS-10R-... in the box without terminals




	Description	Detail	CMS-10R-D	CMS-10R-DA	CMS-10R-DAC	
General	Notification at startup		●	●	●	
	Notification at connected		●	●	●	
	Notification at shutdown		●	●	●	
	Notification at disconnected		●	●	●	
	Notification at period event count reached		●	●	●	
	Periodic notification	hourly, daily, weekly, monthly	●	●	●	
	Up to five receivers per notification selectable *		●	●	●	
	Notification escalation *		●	●	●	
Inputs	Digital inputs		●	●	●	
	Analogue 0 ... 10 V / digital inputs			●	●	
	Analogue inputs 4 ... 20 mA				●	
	Notification digital input "on"		●	●	●	
	Notification digital input "off"		●	●	●	
	Analogue value: configurable scaling		●	●	●	
	Notification of analogue value in event of value change	Change > x		●	●	
	Periodic notification of analogue values	hourly, daily, weekly, monthly		●	●	
	Outputs	Relay outputs		●	●	●
SMS control messages			●	●	●	
Call-in function			●	●	●	
Auto switch OFF time		0.1 s ... 23 h 59 m 59 s	●	●	●	

* Depending upon chosen subscription plan

Frequency bands

Standard	Zone	Frequency bands
2G E-GSM	Z1	E-GSM: B2 (1900 MHz), B3 (1800 MHz), B5 (850 MHz), B8 (900 MHz)
	Z2	E-GSM: B3 (1800 MHz), B8 (900 MHz)
3G E-UTRA	Z1	E-UTRA: B1 (2100 MHz), B2 (1900 MHz), B4 (1700 MHz), B5 (850 MHz), B6 (800 MHz), B8 (900 MHz), B19 (800 MHz)
	Z2	E-UTRA: B1 (2100 MHz), B8 (900 MHz)
4G LTE	Z1	LTE-FDD: B1 (2100 MHz), B2 (1900 MHz), B3 (1800 MHz), B4 (1700 MHz), B5 (850 MHz), B7 (2600 MHz), B8 (900 MHz), B12 (700MHz), B13 (700 MHz), B18 (850 MHz), B19 (850 MHz), B20 (800 MHz), B25 (1900 MHz), B26 (850 MHz), B28 (700 MHz) LTE-TDD: B38 (2600 MHz), B39 (1900 MHz), B40 (2300 MHz), B41 (2500 MHz)
	Z2	LTE-FDD: B1 (2100 MHz), B3 (1800 MHz), B7 (2600 MHz), B8 (900 MHz), B20 (800 MHz), B28A (700 MHz)

5.1 ComatReleco Messaging System

	Type	Pin	Page
CMS Series			
6 Digital Inputs 4 Relay Outputs CO 95 ... 240 V AC	CMS-10R-D		396
6 D/A Inputs 0 ... 10 V 4 Relay Outputs CO 10 ... 48 V DC	CMS-10R-DA		398
4 D/A 0 ... 10 V 2 Analog Inputs 4 ... 20 mA 4 Relay Outputs 10 ... 48 V DC	CMS-10R-DAC		400

5.1 ComatReleco Messaging System

CMS-10R-D

6 Digital Inputs | 4 Relay Outputs CO | 95 ... 240 V AC

Power supply

Nominal operating voltage	95 ... 240 V AC
Maximum power consumption	6 VA
Typical power consumption (without any output set)	< 1 VA
Additional power consumption per output	0.45 VA
Frequency range	45 ... 65 Hz

Inputs

Number of digital inputs	6
Maximal voltage digital inputs	240 V AC
Logic high level digital inputs	> 24 V AC
Logic low level digital inputs	< 12 V AC
Sampling rate per channel	10 Hz

Outputs

Number of relay outputs	4
Type of terminal	CO
Contact material	⚡ AgNi
Rated voltage	250 V AC
Maximum switching voltage	400 V AC
Recommended minimum load	10 mA, 12 V
Rated current AC-1	10 A (Identical current value for all outputs)
Rated load AC-1	3 kVA
Rated load DC	see. fig. 2
Inrush current	80 A, 20 ms
Electrical endurance at rated load AC-1 (cycles)	> 30 000

Communication

eSIM	Embedded
Communication Standards	E-GSM (2G), E-UTRA (3G), LTE (4G)
Frequency bands Z1	E-GSM: B2, B3, B5, B8 E-UTRA: B1, B2, B4, B5, B6, B8, B19 LTE-FDD: B1, B2, B3, B4, B5, B7, B8, B12, B13, B18, B19, B20, B25, B26, B28 LTE-TDD: B38, B39, B40, B41
Coverage Z1	Worldwide
Frequency bands Z2	E-GSM: B3, B8 E-UTRA: B1, B8 LTE-FDD: B1, B3, B7, B8, B20, B28A
Coverage Z2	Europe, Middle East, Africa, South Korea, Thailand
Antenna connector type	SMA female
Antenna impedance	50 Ω
Antenna return loss	> 10 dB

Insulation

Insulation type	Reinforced
Insulation rating between all ports	2 kV / 1 min
Pollution degree	2
Overvoltage category	II

Housing and environmental conditions

Storage temperature (no ice)	-40 ... 85 °C / -40 ... 185 °F
Operation temperature	-25 ... 70 °C / -13 ... 158 °F
Ingress Protection	IP 40
Weight	280 g
Operation Position	any
Housing material	PA
Dimensions	see fig. 3

Wiring

Conductor cross section control / main circuit	2.5 mm ² , AWG14 (Stranded) / 4 mm ² , AWG12 (Wire) Use copper conductors only
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Product references

Description	Type	110-240
Messaging System	CMS-10R-D/AC110-240V-Z1	✓
Messaging System	CMS-10R-D/AC110-240V-Z1-C	✓
Messaging System	CMS-10R-D/AC110-240V-Z2	✓
Messaging System	CMS-10R-D/AC110-240V-Z2-C	✓

"..." List control circuit voltage to complete product references. | For customized kits please contact support.

Included Accessories

Antennas for indoor use	CMS-ANT-STUB/INT-50MM
-------------------------	-----------------------



fig. 1. Wiring diagram

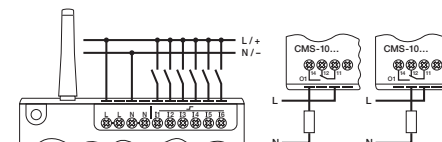


fig. 2. Max. breaking capacity RZ

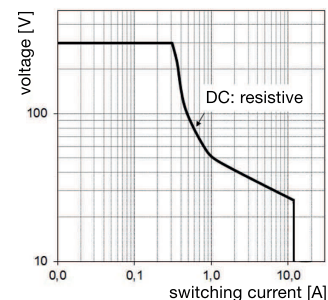
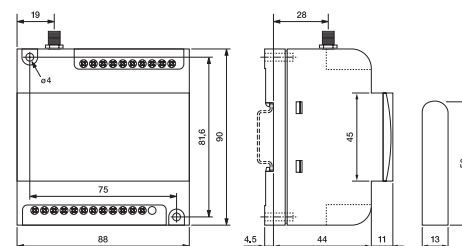


fig. 3. Dimensions (mm)



Technical approvals, conformities

Standards CISPR 32 / EN 55032; ETSI EN 301511; ETSI EN 301908-1/-2/-13; IEC/EN/AS/NZS 61558-1/-2; IEC/EN/BSI/AS/NZS/SANS 62368; IEC/EN/BSI/UL/CSA 60730; IEC 60381-1/-2; IEC 61000-6-2/-3; IEC 62368-1

Approvals

CMS-10R-D

6 Digital Inputs | 4 Relay Outputs CO | 95 ... 240 V AC



Optional Accessories

Antennas for indoor use
Antennas for outdoor use

Antenna connector
Antenna cables

Power supply
Indoor temperature sensor
Temperature / humidity sensor
Exterior temperature sensor
PT100 / PT1000 digital transmitter
Level probe (liquid)

CMS-ANT-BLADE/INT-150MM, CMS-ANT-MAG1/INT-2.5M
CMS-ANT-MAG2/EXT-2.0M, CMS-ANT-BRACK/EXT-5M, CMS-ANT-PUCK/EXT-3M
CMS-ANT-SMA
CMS-ANT-KAB/2.5M, CMS-ANT-KAB/5M, CMS-ANT-KAB/10M, CMS-ANT-KAB/20M
HDR-15-24, HDR-30-24
RF01-U2-D
KS-110
WF50 EXT-U4
MV LKM 274
PS1



fig. 1. Wiring diagram

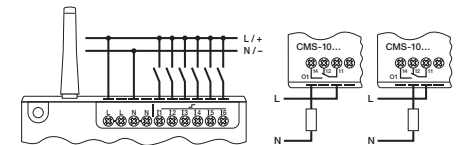


fig. 2. Max. breaking capacity RZ

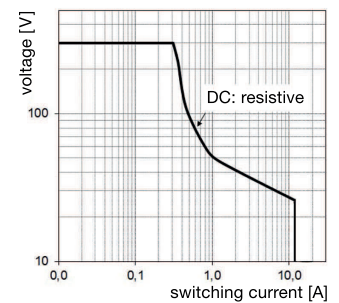
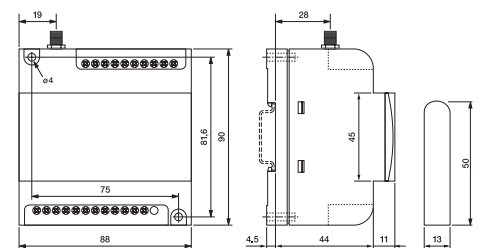


fig. 3. Dimensions (mm)



Technical approvals, conformities

Standards CISPR 32 / EN 55032; ETSI EN 301511; ETSI EN 301908-1/-2/-13; IEC/EN/AS/NZS 61558-1/-2; IEC/EN/BSI/AS/NZS/SANS 62368; IEC/EN/BSI/UL/CSA 60730; IEC 60381-1/-2; IEC 61000-6-2/-3; IEC 62368-1

Approvals

5.1 ComatReleco Messaging System

CMS-10R-DA

6 D/A Inputs 0 ... 10 V | 4 Relay Outputs CO | 10 ... 48 V DC

Power supply

Nominal operating voltage	10 ... 48 V DC
Maximum power consumption	6 W
Typical power consumption (without any output set)	< 1 W
Additional power consumption per output	0.45 W

Inputs

Number of analogue voltage / digital inputs	6
Maximal voltage digital inputs	48 V DC
Logic high level digital inputs	> 6.0 V DC
Logic low level digital inputs	< 4.0 V DC
Nominal range analogue voltage inputs	0 ... 10 V, Compliant with IEC 60381-2
Voltage input impedance	196 k Ω
Resolution of analogue inputs	12 Bit
Measurement category	2
Sampling rate per channel	10 Hz

Outputs

Number of relay outputs	4
Type of terminal	CO
Contact material	⚡ AgNi
Rated voltage	250 V AC
Maximum switching voltage	400 V AC
Recommended minimum load	10 mA, 12 V
Rated current AC-1	10 A
Rated load AC-1	3 kVA
Rated load DC	see fig. 2
Inrush current	80 A, 20 ms
Electrical endurance at rated load AC-1 (cycles)	> 30 000

Communication

eSIM	Embedded
Communication Standards	E-GSM (2G), E-UTRA (3G), LTE (4G)
Frequency bands Z1	E-GSM: B2, B3, B5, B8 E-UTRA: B1, B2, B4, B5, B6, B8, B19 LTE-FDD: B1, B2, B3, B4, B5, B7, B8, B12, B13, B18, B19, B20, B25, B26, B28 LTE-TDD: B38, B39, B40, B41
Coverage Z1	Worldwide
Frequency bands Z2	E-GSM: B3, B8 E-UTRA: B1, B8 LTE-FDD: B1, B3, B7, B8, B20, B28A
Coverage Z2	Europe, Middle East, Africa, South Korea, Thailand
Antenna connector type	SMA female
Antenna impedance	50 Ω
Antenna return loss	> 10 dB

Insulation

Insulation type	Reinforced
Insulation rating between all ports	2 kV / 1 min
Pollution degree	2
Overvoltage category	II

Housing and environmental conditions

Storage temperature (no ice)	-40 ... 85 °C / -40 ... 185 °F
Operation temperature	-25 ... 70 °C / -13 ... 158 °F
Ingress Protection	IP 40
Weight	260 g
Operation Position	any
Housing material	PA
Dimensions	see fig. 3

Wiring

Conductor cross section control / main circuit	2.5 mm ² , AWG14 (Stranded) / 4 mm ² , AWG12 (Wire) Use copper conductors only
--	--



fig. 1. Wiring diagram

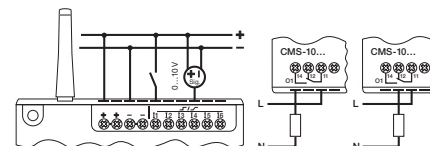


fig. 2. Max. breaking capacity RZ

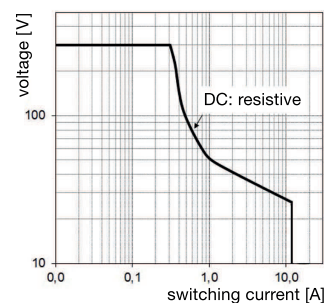
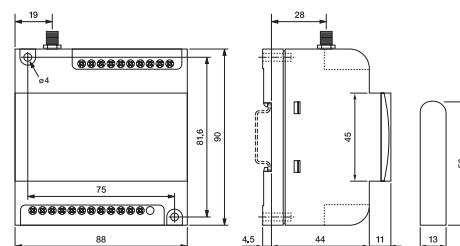


fig. 3. Dimensions (mm)



Technical approvals, conformities

Standards CISPR 32 / EN 55032; ETSI EN 301511; ETSI EN 301908-1/-2/-13; IEC/EN/BSI/AS/NZS/SANS 62368; IEC/EN/BSI/UL/CSA 60730; IEC 60381-1/-2; IEC 61000-6-2/-3; IEC 62368-1

Approvals

5.1 ComatReleco Messaging System

CMS-10R-DA

6 D/A Inputs 0 ... 10 V | 4 Relay Outputs CO | 10 ... 48 V DC



Product references

Description	Type	12-48
Messaging System	CMS-10R-DA/DC12-48V-Z1	✓
Messaging System	CMS-10R-DA/DC12-48V-Z1-C	✓
Messaging System KIT	CMS-10R-DA/DC12-48V-Z1-KIT1	✓
Messaging System KIT	CMS-10R-DA/DC12-48V-Z1-KIT2	✓
Messaging System	CMS-10R-DA/DC12-48V-Z2	✓
Messaging System	CMS-10R-DA/DC12-48V-Z2-C	✓
Messaging System KIT	CMS-10R-DA/DC12-48V-Z2-KIT1	✓
Messaging System KIT	CMS-10R-DA/DC12-48V-Z2-KIT2	✓

"..." List control circuit voltage to complete product references. | For customized kits please contact support.

Included Accessories

Antennas for indoor use CMS-ANT-STUB/INT-50MM

Optional Accessories

Antennas for indoor use CMS-ANT-BLADE/INT-150MM, CMS-ANT-MAG1/INT-2.5M
 Antennas for outdoor use CMS-ANT-MAG2/EXT-2.0M, CMS-ANT-BRACK/EXT-5M, CMS-ANT-PUCK/EXT-3M
 Antenna connector CMS-ANT-SMA
 Antenna cables CMS-ANT-KAB/2.5M, CMS-ANT-KAB/5M, CMS-ANT-KAB/10M, CMS-ANT-KAB/20M
 Power supply HDR-15-24, HDR-30-24
 Indoor temperature sensor RF01-U2-D
 Temperature / humidity sensor KS-110
 Exterior temperature sensor WF50 EXT-U4
 PT100 / PT1000 digital transmitter MV LKM 274
 Level probe (liquid) PS1



fig. 1. Wiring diagram

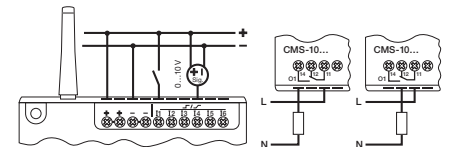


fig. 2. Max. breaking capacity RZ

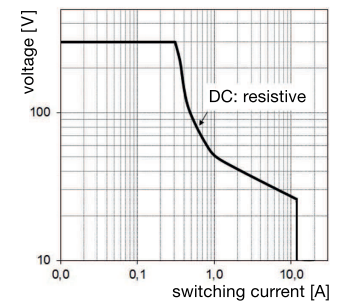
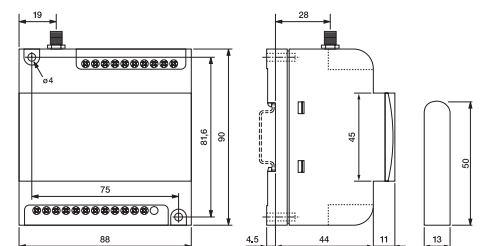


fig. 3. Dimensions (mm)



Technical approvals, conformities

Standards CISPR 32 / EN 55032; ETSI EN 301511; ETSI EN 301908-1/-2/-13; IEC/EN/BSI/AS/NZS/SANS 62368; IEC/EN/BSI/UL/CSA 60730; IEC 60381-1/-2; IEC 61000-6-2/-3; IEC 62368-1

Approvals

5.1 ComatReleco Messaging System

CMS-10R-DAC

4 D/A 0 ... 10 V | 2 Analog Inputs 4 ... 20 mA | 4 Relay Outputs | 10 ... 48 V DC

Power supply

Nominal operating voltage	10 ... 48 V DC
Maximum power consumption	6 W
Typical power consumption (without any output set)	< 1 W
Additional power consumption per output	0.45 W

Inputs

Number of analogue voltage / digital inputs	4
Number of analogue current inputs	2
Maximal voltage digital inputs	48 V DC
Logic high level digital inputs	> 6.0 V DC
Logic low level digital inputs	< 4.0 V DC
Nominal range analogue voltage inputs	0 ... 10 V, Compliant with IEC 60381-2
Voltage input impedance	196 kΩ
Nominal range analogue current inputs	4 ... 20 mA, Compliant with IEC 60381-1
Current input impedance	150 Ω
Resolution of analogue inputs	12 Bit
Measurement category	2
Sampling rate per channel	10 Hz

Outputs

Number of relay outputs	4
Type of terminal	C0
Contact material	⚡ AgNi
Rated voltage	250 V AC
Maximum switching voltage	400 V AC
Recommended minimum load	10 mA / 12 V
Rated current AC-1	10 A
Rated load AC-1	3 kVA
Rated load DC	see. fig. 2
Inrush current	80 A, 20 ms
Electrical endurance at rated load AC-1 (cycles)	> 30 000

Communication

eSIM	Embedded
Communication Standards	E-GSM (2G), E-UTRA (3G), LTE (4G)
Frequency bands Z1	E-GSM: B2, B3, B5, B8 E-UTRA: B1, B2, B4, B5, B6, B8, B19 LTE-FDD: B1, B2, B3, B4, B5, B7, B8, B12, B13, B18, B19, B20, B25, B26, B28 LTE-TDD: B38, B39, B40, B41
Coverage Z1	Worldwide
Frequency bands Z2	E-GSM: B3, B8 E-UTRA: B1, B8 LTE-FDD: B1, B3, B7, B8, B20, B28A
Coverage Z2	Europe, Middle East, Africa, South Korea, Thailand
Antenna connector type	SMA female
Antenna impedance	50 Ω
Antenna return loss	> 10 dB

Insulation

Insulation type	Reinforced
Insulation rating between all ports	2 kV / 1 min
Pollution degree	2
Overvoltage category	II

Housing and environmental conditions

Storage temperature (no ice)	-40 ... 85 °C / -40 ... 185 °F
Operation temperature	-25 ... 70 °C / -13 ... 158 °F
Ingress Protection	IP 40
Weight	260 g
Operation Position	any
Housing material	PA
Dimensions	see fig. 3

Wiring

Conductor cross section control / main circuit	2.5 mm ² , AWG14 (Stranded) / 4 mm ² , AWG12 (Wire) Use copper conductors only
--	--



fig. 1. Wiring diagram

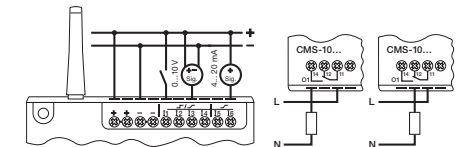


fig. 2. Max. breaking capacity RZ

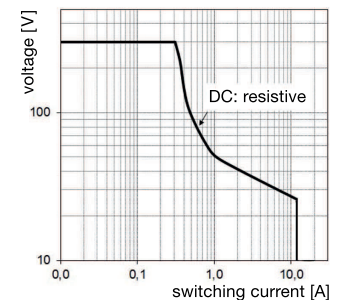
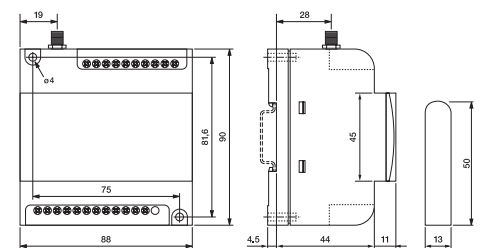


fig. 3. Dimensions (mm)



Technical approvals, conformities

Standards CISPR 32 / EN 55032; ETSI EN 301511; ETSI EN 301908-1/-2/-13; IEC/EN/BSI/AS/NZS/SANS 62368; IEC/EN/BSI/UL/CSA 60730; IEC 60381-1/-2; IEC 61000-6-2/-3

Approvals

CMS-10R-DAC

4 D/A 0 ... 10 V | 2 Analog Inputs 4 ... 20 mA | 4 Relay Outputs | 10 ... 48 V DC



Product references

Description	Type	12-48
Messaging System	CMS-10R-DAC/DC12-48V-Z1	✓
Messaging System	CMS-10R-DAC/DC12-48V-Z1-C	✓
Messaging System KIT	CMS-10R-DAC/DC12-48V-Z1-KIT1	✓
Messaging System KIT	CMS-10R-DAC/DC12-48V-Z1-KIT2	✓
Messaging System	CMS-10R-DAC/DC12-48V-Z2	✓
Messaging System	CMS-10R-DAC/DC12-48V-Z2-C	✓
Messaging System KIT	CMS-10R-DAC/DC12-48V-Z2-KIT1	✓
Messaging System KIT	CMS-10R-DAC/DC12-48V-Z2-KIT2	✓

“...” List control circuit voltage to complete product references. | For customized kits please contact support.

Included Accessories

Antennas for indoor use CMS-ANT-STUB/INT-50MM

Optional Accessories

Antennas for indoor use CMS-ANT-BLADE/INT-150MM, CMS-ANT-MAG1/INT-2.5M
 Antennas for outdoor use CMS-ANT-MAG2/EXT-2.0M, CMS-ANT-BRACK/EXT-5M, CMS-ANT-PUCK/EXT-3M
 Antenna connector CMS-ANT-SMA
 Antenna cables CMS-ANT-KAB/2.5M, CMS-ANT-KAB/5M, CMS-ANT-KAB/10M, CMS-ANT-KAB/20M
 Power supply HDR-15-24, HDR-30-24
 Indoor temperature sensor RF01-U2-D
 Temperature / humidity sensor KS-110
 Exterior temperature sensor WF50 EXT-U4
 PT100 / PT1000 digital transmitter MV LKM 274
 Level probe (liquid) PS1



fig. 1. Wiring diagram

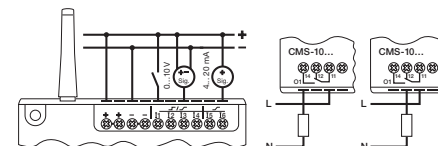


fig. 2. Max. breaking capacity RZ

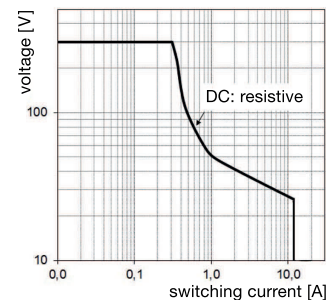
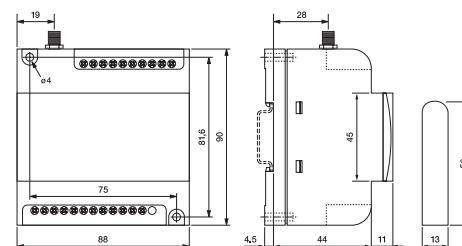


fig. 3. Dimensions (mm)






Technical approvals, conformities

Standards CISPR 32 / EN 55032; ETSI EN 301511; ETSI EN 301908-1/-2/-13; IEC/EN/BSI/AS/NZS/SANS 62368; IEC/EN/BSI/UL/CSA 60730; IEC 60381-1/-2; IEC 61000-6-2/-3

Approvals

5.2 ComatReleco Messaging System Accessories

	Type	Pin	Page
ComatReleco Messaging System Accessories			
Power supply 24 V DC 15 W 30W	HDR-15-24, HDR-30-24		405
Antennas			
GSM device antenna 50 mm for indoor use without cable	CMS-ANT-STUB/INT-50MM		406
GSM device antenna 150 mm for indoor use without cable	CMS-ANT-BLADE/INT-150MM		406
GSM magnetic mount antenna for indoor use 2.5 m cable	CMS-ANT-MAG1/INT-2.5M		406
GSM magnetic mount antenna for outdoor use 2 m cable	CMS-ANT-MAG2/EXT-2.0M		406
GSM antenna with mounting bracket for outdoor use 5 m cable	CMS-ANT-BRACK/EXT-5M		406
GSM puck antenna for outdoor use 3 m cable	CMS-ANT-PUCK/EXT-3M		407
GSM/GPS puck antenna for outdoor use 3 m cable	CMS-ANT-PUCK-GPS/EXT-3M		407
GSM antenna connector angled 90° plug (male) / jack (female)	CMS-ANT-SMA		407
GSM adapter SMA plug (male) to FME plug (male)	CMS-ANT-ADAPT		407
GSM Antenna cable SMA plug (male) / jack (female) 2.5 m 5 m 10 m 20 m	CMS-ANT-KAB		408
Sensory			
Analogue transmitter for PT100 / PT1000 0 ... 10 V output	MV-LKM-254		409
Digital transmitter for PT100 / PT1000 0 ... 10 V output	MV-LKM-274		409
Indoor temperature sensor 0 ... 50 °C 0 ... 10 V output	RF01-U2-D		409
Thermostat 5 ... 30 °C Cooling or heating 1 CO	RTBSB-001-010		409
Exterior temperature sensor -50 ... 50 °C 0 ... 10 V output	WF50 EXT-04		409

	Type	Pin	Page
Level probe (liquid) 0 ... 25 bar 0 ... 10 V output	PS1		410

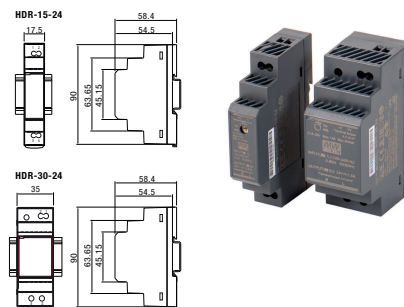
HDR-15-24, HDR-30-24

Power supply | 24 V DC | 15 W | 30W

Product references

Description	Type
Power supply 15 W, 24 V DC	HDR-15-24
Power supply 30 W, 24 V DC	HDR-30-24

Other power and voltages on request. Please contact support@comatreleco.com.



CMS-ANT-ADAPT

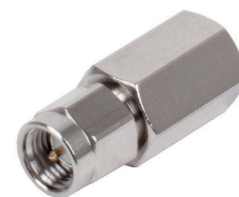
GSM adapter SMA plug (male) to FME plug (male)

Housing and environmental conditions

Weight 9 g

Product references

Description	Type
Antenna connector	CMS-ANT-ADAPT



CMS-ANT-KAB

GSM Antenna cable | SMA plug (male) / jack (female) | 2.5 m | 5 m | 10 m | 20 m

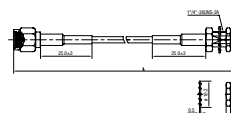
Housing and environmental conditions

Storage temperature (no ice) -20 ... 80 °C
 Operation temperature -20 ... 80 °C
 Ingress Protection IP 67 only when mated
 Weight 90 g (2.5 m) | 180 g (5 m) | 340 g (10 m) | 630 g (20 m)
 Housing material PE
 Dimensions see fig. 2

Product references

Description	Type
Antenna cable	CMS-ANT-KAB/...M

"..." List cable length to complete product references.
 Other cable length on request. Please contact support@comatreleco.com.

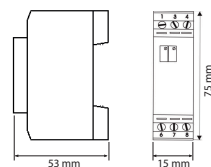


MV-LKM-254

Analogue transmitter for PT100 / PT1000 | 0 ... 10 V output

Housing and environmental conditions

Storage temperature (no ice)	-25 ... 85 °C
Operation temperature	-25 ... 85 °C
Ingress Protection	IP 20
Weight	35 g
Housing material	PC-F
Dimensions	see fig. 2



Product references

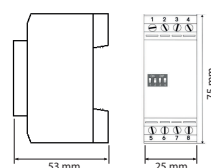
Description	Type
Transmitter PT100/PT1000	MV LKM 254

MV-LKM-274

Digital transmitter for PT100 / PT1000 | 0 ... 10 V output

Housing and environmental conditions

Storage temperature (no ice)	-25 ... 70 °C
Operation temperature	-25 ... 70 °C
Weight	60 g
Dimensions	see fig. 2



Product references

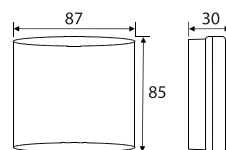
Description	Type
Transmitter PT100/PT1000	MV LKM 274

RF01-U2-D

Indoor temperature sensor | 0 ... 50 °C | 0 ... 10 V output

Housing and environmental conditions

Storage temperature (no ice)	-20 ... 60 °C
Operation temperature	0 ... 50 °C
Ingress Protection	IP 20
Weight	67 g
Housing material	ABS
Dimensions	see fig. 2



Product references

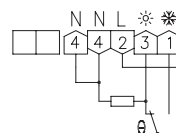
Description	Type
Room temperature sensor with display	RF01-U2-D

RTBSB-001-010

Thermostat | 5 ... 30 °C | Cooling or heating | 1 CO

Housing and environmental conditions

Storage temperature (no ice)	-20 ... 60 °C
Operation temperature	5 ... 30 °C
Ingress Protection	IP 30
Weight	90 g
Housing material	ABS



Product references

Description	Type
Room thermostat 5 ... 30 °C	RTBSB-001-010

WF50 EXT-04

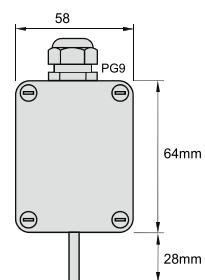
Exterior temperature sensor | -50 ... 50 °C | 0 ... 10 V output

Housing and environmental conditions

Operation temperature	-30 ... 70 °C
Ingress Protection	IP 65
Weight	99 g
Housing material	PA with stainless steel
Dimensions	see fig. 1

Product references

Description	Type
Exterior temperature sensor	WF50 EXT-U4



PS1

Level probe (liquid) | 0 ... 25 bar | 0 ... 10 V output

Housing and environmental conditions

Storage temperature (no ice)	5 ... 70 °C
Operation temperature	5 ... 70 °C
Ingress Protection	IP 68
Weight	550 g

Product references

Description	Type
Level probe	PS1



6 Softstarter

Chapter	Page
6.1 Softstarter	413
6.2 DC Motor Controller	425

6.1 Softstarter

	Type	Pin	Page
CTC Series			
3 phase 400 V 15 A Starting Torque Limiter	CTC3415		414
3 phase 400 V 25 A Starting Torque Limiter	CTC3425		415
CCL Series			
3 phase 400 V 15 A Compressor Starting Torque Limiter	CCL33H415US		416
CCM Series			
3 phase 400 V 3 A Starting Torque Limiter	CCM3H403USi		417
3 phase 400 V 15 A Starting Torque Limiter	CCM3H415		418
3 phase 400 V 15 A Starting Torque Limiter with direct switch	CCM3H415DS		419
3 phase 400 V 25 A Starting Torque Limiter	CCM3H425		420
3 phase 480 V 30 A Starting Torque Limiter	CCM33H530USi		421
3 phase 480 V 50 A Starting Torque Limiter	CCM33H550USi		422
3 phase 400 V 25 A Starting Torque Limiter with dynamic brake	CCMB3H425		423

6.1 Softstarter

CTC3415

3 phase | 400 V | 15 A | Starting Torque Limiter

Main circuit

Number of outputs	3
Controlled phases	1
Output type	⚡ SCR
Rated voltage	400 V
Output voltage range	208 ... 400 V AC
Reverse voltage	1,200 V _{rrm}
Peak reverse voltage	1,300 V _{rrm}
Rated current AC-53a	15 A
Minimum load	50 mA
Leakage current	5 mA
Rated limit load	1,800 A ² s
Switching frequency (cycles / h)	3,000

Control circuit

Release time	1 Periode
Ramp-up time	0.5 ... 5 s
Torque adjustment	0 ... 85 %
Frequency range	50 / 60 Hz

Insulation

Rated insulation voltage	660 V
Rated impulse withstand voltage open contact	4 kV / 1 min
Pollution degree	3
Overvoltage category	III

General data

Storage temperature (no ice)	-20 ... 80 °C
Operation temperature	-5 ... 40 °C
Ambient temperature operation derated power	-5 ... 60 °C, 0.7 I _N
Conductor cross section control / main circuit	1.5 mm ² / 4 mm ²
Nominal screw torque control / main circuit	0.5 Nm / 1.2 Nm
Dimensions	fig. 2
Weight	650 g
Ingress Protection	IP 20
Housing material	PPO
Mounting	TH35 (EN 60715) or back panel mounting

Product references

Description	Type
Starting Torque Limiter, 3 phase	CTC3415
Other devices on request. Please contact support@comatreleco.com.	

Accessories

Thermal overload protection	P82-100C
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fig. 1. Wiring diagram

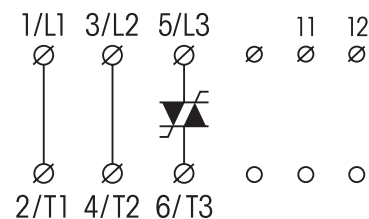
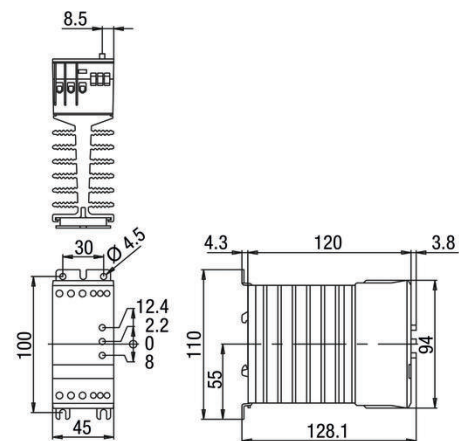


fig. 2. Dimensions (mm)



Technical approvals, conformities

Standards IEC/EN 60947-2

Approvals

6.1 Softstarter

CTC3425

3 phase | 400 V | 25 A | Starting Torque Limiter

Main circuit

Number of outputs	3
Controlled phases	1
Output type	⚡ SCR
Rated voltage	400 V
Output voltage range	208 ... 400 V AC
Reverse voltage	1,200 V _{rrm}
Peak reverse voltage	1,300 V _{rrm}
Rated current AC-53a	25 A
Minimum load	50 mA
Leakage current	5 mA
Rated limit load	6,300 A ² s
Switching frequency (cycles / h)	3,000

Control circuit

Release time	1 Periode
Ramp-up time	0.5 ... 5 s
Torque adjustment	0 ... 85 %
Frequency range	50 / 60 Hz

Insulation

Rated insulation voltage	660 V
Rated impulse withstand voltage open contact	4 kV / 1 min
Pollution degree	3
Overvoltage category	III

General data

Storage temperature (no ice)	-20 ... 80 °C
Operation temperature	-5 ... 40 °C
Ambient temperature operation derated power	-5 ... 60 °C, 0.7 I _N
Conductor cross section control / main circuit	1.5 mm ² / 4 mm ²
Nominal screw torque control / main circuit	0.5 Nm / 1.2 Nm
Dimensions	fig. 2
Weight	650 g
Ingress Protection	IP 20
Housing material	PPO
Mounting	TH35 (EN 60715) or back panel mounting

Product references

Description	Type
Starting Torque Limiter, 3 phase	CTC3425
Other devices on request. Please contact support@comatreleco.com.	

Accessories

Thermal overload protection	P82-100C
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fig. 1. Wiring diagram

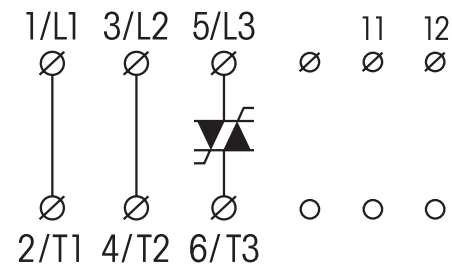
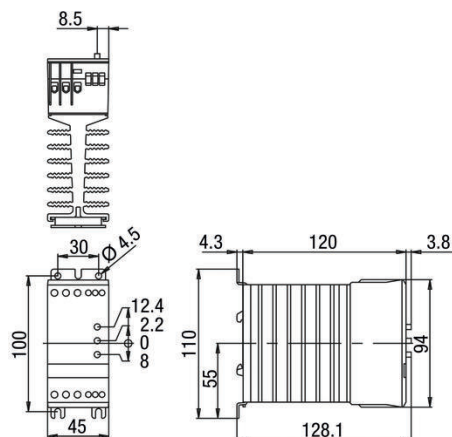


fig. 2. Dimensions (mm)



Technical approvals, conformities

Standards IEC/EN 60947-2

Approvals

6.1 Softstarter CCL33H415US

3 phase | 400 V | 15 A | Compressor Starting Torque Limiter



Main circuit

Number of outputs	3
Controlled phases	3
Output type	⚡ SCR
Bypass	Integrated
Rated voltage	400 V
Output voltage range	230 ... 400 V AC
Reverse voltage	1,200 V _{rrm}
Peak reverse voltage	1,300 V _{rrm}
Rated current AC-58	15 A
Minimum load	1.5 A
Leakage current	5 mA
Inrush current	90 A
Rated limit load	610 A ² s
Switching frequency (cycles / h)	12

Control circuit

Nominal voltage	230 V AC
Operating voltage range	0.85 ... 1.15 U _N
Release voltage	110 V AC
Pick-up time	500 ms
Release time	500 ms

Insulation

Rated insulation voltage	660 V
Rated impulse withstand voltage open contact	4 kV / 1 min
Pollution degree	3
Overvoltage category	III

General data

Storage temperature (no ice)	-20 ... 80 °C
Operation temperature	-20 ... 65 °C
Conductor cross section control / main circuit	2.5 mm ² / 6 mm ²
Dimensions	fig. 2
Weight	470 g
Ingress Protection	IP 20
Housing material	PPE
Mounting	TH35 (EN 60715) or back panel mounting

Product references

Description	Type
Compressor Starting Torque Limiter, 3 phase	CCL33H415US
Other devices on request. Please contact support@comatreleco.com.	



fig. 1. Wiring diagram

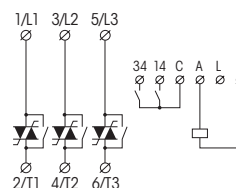
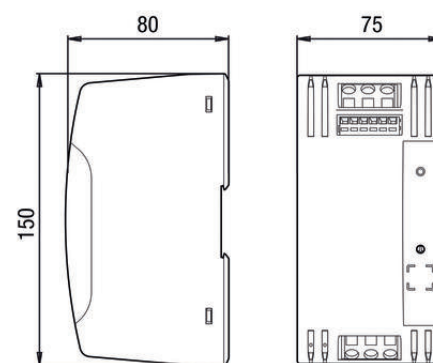


fig. 2. Dimensions (mm)



Technical approvals, conformities

Standards IEC/EN 60947-4-2

Approvals

6.1 Softstarter

CCM3H403USi

3 phase | 400 V | 3 A | Starting Torque Limiter



Main circuit

Number of outputs	3
Controlled phases	2
Output type	⚡ SCR
Bypass	Integrated
Rated voltage	400 V
Output voltage range	400 ... 480 V AC
Reverse voltage	1,200 V _{rrm}
Peak reverse voltage	1,300 V _{rrm}
Rated current AC-53b	3 A
Minimum load	250 mA
Leakage current	5 mA
Inrush current	18 A
Rated limit load	72 A ² s
Switching frequency (cycles / h)	120

Control circuit

Operating voltage range	24 ... 230 V AC/DC
Release voltage	5V AC/DC
Ramp-up time	0.5 ... 10 s
Ramp-down time	0.5 ... 10 s
Torque adjustment	0 ... 85 %
Frequency range	50 / 60 Hz

Insulation

Rated insulation voltage	660 V
Rated impulse withstand voltage open contact	4 kV / 1 min
Pollution degree	3
Overvoltage category	III

General data

Storage temperature (no ice)	-20 ... 80 °C
Operation temperature	-5 ... 40 °C
Ambient temperature operation derated power	-5 ... 60 °C
Conductor cross section control / main circuit	2.5 mm ² / 4 mm ²
Nominal screw torque control / main circuit	0.5 Nm / 1.2 Nm
Dimensions	fig. 2
Weight	270 g
Ingress Protection	IP 20
Housing material	PPO
Mounting	TH35 (EN 60715) or back panel mounting

Product references

Description	Type
Starting Torque Limiter, 3 phase	CCM3H403USi
Other devices on request. Please contact support@comatreleco.com.	

Accessories

Thermal overload protection	P82-100C
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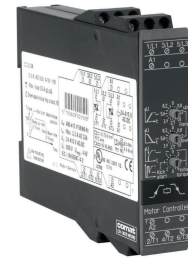


fig. 1. Wiring diagram

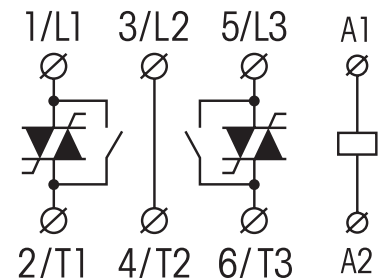
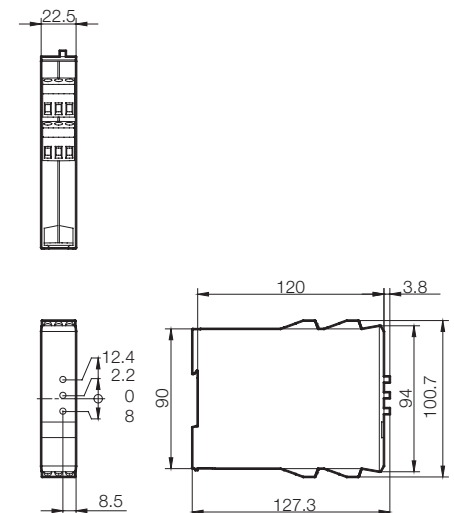


fig. 2. Dimensions (mm)



Technical approvals, conformities

Standards IEC/EN 60947-4-2

Approvals

6.1 Softstarter CCM3H415

3 phase | 400 V | 15 A | Starting Torque Limiter

Main circuit

Number of outputs	3
Controlled phases	2
Output type	SCR
Rated voltage	400 V
Output voltage range	400 ... 480 V AC
Reverse voltage	1,200 V _{rrm}
Peak reverse voltage	1,300 V _{rrm}
Rated current AC-53b	15 A
Minimum load	250 mA
Leakage current	5 mA
Inrush current	90 A
Rated limit load	1,800 A ² s
Switching frequency (cycles / h)	3,000

Control circuit

Operating voltage range	24 ... 230 V AC/DC
Release voltage	5 V AC/DC
Ramp-up time	0.5 ... 10 s
Ramp-down time	0.5 ... 10 s
Torque adjustment	0 ... 85 %
Frequency range	50 / 60 Hz

Insulation

Rated insulation voltage	660 V
Rated impulse withstand voltage open contact	4 kV / 1 min
Pollution degree	3
Overtoltage category	III

General data

Storage temperature (no ice)	-20 ... 80 °C
Operation temperature	-5 ... 40 °C
Ambient temperature operation derated power	-5 ... 60 °C
Conductor cross section control / main circuit	2.5 mm ² / 4 mm ²
Nominal screw torque control / main circuit	0.5 Nm / 1.2 Nm
Dimensions	fig. 2
Weight	650 g
Ingress Protection	IP 20
Housing material	PPO
Mounting	TH35 (EN 60715) or back panel mounting

Product references

Description	Type
Starting Torque Limiter, 3 phase	CCM3H415
Other devices on request. Please contact support@comatreleco.com.	

Accessories

Thermal overload protection	P82-100C
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fig. 1. Wiring diagram

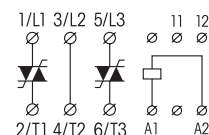
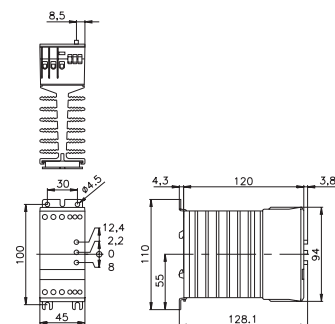


fig. 2. Dimensions (mm)



Technical approvals, conformities

Standards IEC/EN 60947-4-2

Approvals

6.1 Softstarter CCM3H415DS

3 phase | 400 V | 15 A | Starting Torque Limiter with direct switch

Main circuit

Number of outputs	3
Controlled phases	2
Output type	⚡ SCR
Rated voltage	400 V
Output voltage range	400 ... 480 V AC
Reverse voltage	1,200 V _{rrm}
Peak reverse voltage	1,300 V _{rrm}
Rated current AC-53b	15 A
Minimum load	250 mA
Leakage current	5 mA
Inrush current	90 A
Rated limit load	1,800 A ² s
Switching frequency (cycles / h)	3,000

Control circuit

Operating voltage range	24 ... 230 V AC/DC
Release voltage	5 V AC/DC
Ramp-up time	N. A. (direct switch)
Ramp-down time	N. A. (direct switch)
Torque adjustment	N. A. (direct switch)
Frequency range	50 / 60 Hz

Insulation

Rated insulation voltage	660 V
Rated impulse withstand voltage open contact	4 kV / 1 min
Pollution degree	3
Overvoltage category	III

General data

Storage temperature (no ice)	-20 ... 80 °C
Operation temperature	-5 ... 40 °C
Ambient temperature operation derated power	-5 ... 60 °C
Conductor cross section control / main circuit	2.5 mm ² / 4 mm ²
Nominal screw torque control / main circuit	0.5 Nm / 1.2 Nm
Dimensions	fig. 2
Weight	650 g
Ingress Protection	IP 20
Housing material	PPO
Mounting	TH35 (EN 60715) or back panel mounting

Product references

Description	Type
Starting Torque Limiter, 3 phase	CCM3H415DS
Other devices on request. Please contact support@comatreleco.com.	

Accessories

Thermal overload protection	P82-100C
-----------------------------	----------



fig. 1. Wiring diagram

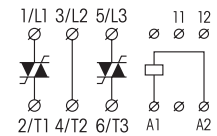
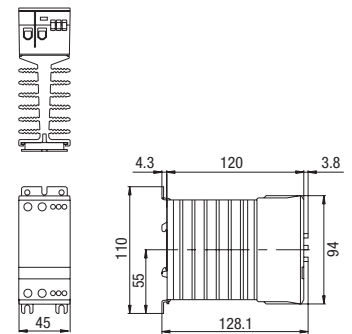


fig. 2. Dimensions (mm)



Technical approvals, conformities

Standards IEC/EN 60947-4-2

Approvals

6.1 Softstarter CCM33H530USi

3 phase | 480 V | 30 A | Starting Torque Limiter

Main circuit

Number of outputs	3
Controlled phases	3
Output type	⚡ SCR
Bypass	Externally
Rated voltage	400 V
Output voltage range	200 ... 480 V AC
Reverse voltage	1,200 V _{rrm}
Peak reverse voltage	1,300 V _{rrm}
Rated current AC-53b	30 A
Minimum load	3 A
Leakage current	5 mA
Inrush current	180 A, 450 ms A
Rated limit load	6,300 A ² s
Switching frequency (cycles / h)	120

Control circuit

Operating voltage range	24 ... 230 V AC/DC
Release voltage	5 V AC/DC
Ramp-up time	0.5 ... 30 s
Ramp-down time	0.5 ... 60 s
Torque adjustment	0 ... 85 %
Frequency range	50 / 60 Hz

Insulation

Rated insulation voltage	660 V
Rated impulse withstand voltage open contact	4 kV / 1 min
Pollution degree	3
Overtoltage category	III

General data

Storage temperature (no ice)	-20 ... 80 °C
Operation temperature	-5 ... 40 °C
Ambient temperature operation derated power	-5 ... 60 °C
Conductor cross section control / main circuit	2.5 mm ² / 6 mm ²
Nominal screw torque control / main circuit	0.5 Nm / 1.2 Nm
Dimensions	fig. 2
Weight	1 050 g
Ingress Protection	IP 20
Housing material	PPE
Mounting	TH35 (EN 60715) or back panel mounting

Product references

Description	Type
Starting Torque Limiter, 3 phase	CCM33H530USi
Other devices on request. Please contact support@comatreleco.com.	

Accessories

Thermal overload protection	P82-100C
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fig. 1. Wiring diagram

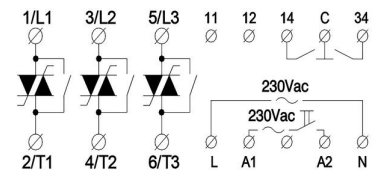
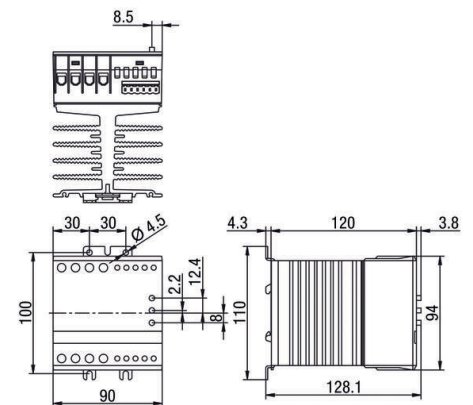


fig. 2. Dimensions (mm)



Technical approvals, conformities

Standards IEC/EN 60947-4-2

Approvals

6.1 Softstarter CCM33H550USi

3 phase | 480 V | 50 A | Starting Torque Limiter



Main circuit

Number of outputs	3
Controlled phases	3
Output type	⚡ SCR
Bypass	Externally
Rated voltage	400 V
Output voltage range	200 ... 480 V AC
Reverse voltage	1,200 V _{rrm}
Peak reverse voltage	1,300 V _{rrm}
Rated current AC-53b	50 A
Minimum load	3 A
Leakage current	5 mA
Inrush current	300 A, 450 ms A
Rated limit load	25,300 A ² s
Switching frequency (cycles / h)	120

Control circuit

Operating voltage range	24 ... 230 V AC/DC
Release voltage	5 V AC/DC
Ramp-up time	0.5 ... 30 s
Ramp-down time	0.5 ... 60 s
Torque adjustment	0 ... 85 %
Frequency range	50 / 60 Hz

Insulation

Rated insulation voltage	660 V
Rated impulse withstand voltage open contact	4 kV / 1 min
Pollution degree	3
Overvoltage category	III

General data

Storage temperature (no ice)	-20 ... 80 °C
Operation temperature	-5 ... 40 °C
Ambient temperature operation derated power	-5 ... 60 °C
Conductor cross section control / main circuit	2.5 mm ² / 6 mm ²
Nominal screw torque control / main circuit	0.5 Nm / 1.2 Nm
Dimensions	fig. 2
Weight	2 500 g
Ingress Protection	IP 20
Housing material	PPE
Mounting	TH35 (EN 60715) or back panel mounting

Product references

Description	Type
Starting Torque Limiter, 3 phase	CCM33H550USi
Other devices on request. Please contact support@comatreleco.com.	

Accessories

Thermal overload protection	P82-100C
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fig. 1. Wiring diagram

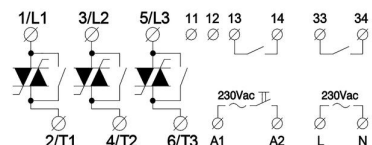
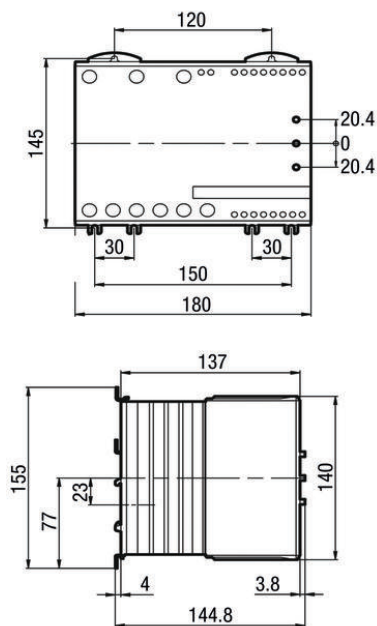


fig. 2. Dimensions (mm)



Technical approvals, conformities


Standards IEC/EN 60947-4-2

Approvals

6.1 Softstarter CCMB3H425

3 phase | 400 V | 25 A | Starting Torque Limiter with dynamic brake

Main circuit

Number of outputs	3
Controlled phases	2
Output type	 SCR
Bypass	Externally
Rated voltage	400 V
Output voltage range	400 ... 480 V AC
Reverse voltage	1,600 V _{rrm}
Peak reverse voltage	1,650 V _{rrm}
Rated current AC-53a	25 A
Minimum load	1 A
Leakage current	5 mA
Inrush current	200 A
Rated limit load	6,300 A ² s

Control circuit

Operating voltage range	24 ... 230 V AC/DC
Release voltage	5 V AC/DC
Pick-up time	100 ms
Release time	100 ms
Ramp-up time	0.5 ... 10 s
Brake current	0 ... 85 %
Torque adjustment	0 ... 85 %
Frequency range	50 / 60 Hz
Pollution degree	3
Overvoltage category	III

General data

Storage temperature (no ice)	-20 ... 80 °C
Operation temperature	-5 ... 40 °C
Ambient temperature operation derated power	-5 ... 60 °C
Conductor cross section control / main circuit	2.5 mm ² / 6 mm ²
Dimensions	fig. 2
Weight	1 050 g
Ingress Protection	IP 20
Housing material	PPE
Mounting	TH35 (EN 60715) or back panel mounting

Product references

Description	Type
Starting torque limiter with dynamic brake, 3 phase	CCMB3H425

Accessories

Thermal overload protection	P82-100C
-----------------------------	----------



fig. 1. Wiring diagram

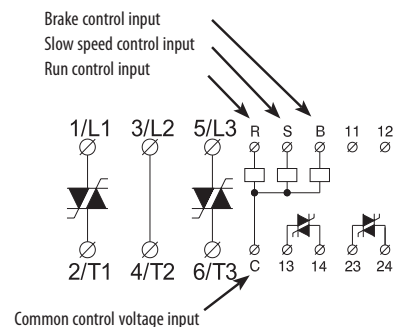
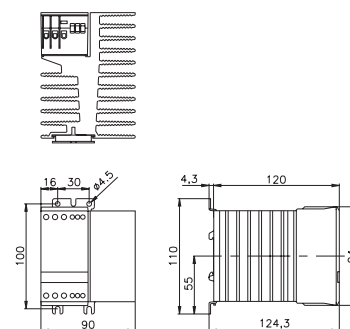


fig. 2. Dimensions (mm)







Technical approvals, conformities

Standards IEC/EN 60947-4-2

Approvals   

6.2 DC Motor Controller

	Type	Pin	Page
CMC Series			
DC motor controller, variable speed	CMC1		426
DC motor controller, variable speed	CMC14		427
DC motor controller analogue inputs 0 ... 10 V variable speed	CMC15		428
DC motor controller analogue inputs 4 ... 20 mA variable speed	CMC16		429
KDM Series			
DC Motor relay 1 Output for motor 1 Output für Brake resistor Faston	KDM3-24		430


CMC1

DC motor controller, variable speed

Power supply

Nominal voltage	12 ... 24 V DC
Operating voltage range	8 ... 28 V DC
Maximum current consumption without load	10 mA
Power consumption 12 V DC	120 mW
Power consumption 24 V DC	240 mW

Main circuit

Output type	 MOSFET
Rated voltage	24 V DC
Output voltage range	8 ... 28 V DC
Rated current	16 A
Maximum inrush current	20 A, 3 s
Rated limit load DC-5	384 W

Control circuit

Nominal voltage	12 ... 24 V DC
Operating voltage range	8 ... 28 V DC
Ramp up	0 ... 4 s
Ramp down	0 ... 4 s
Current consumption 12 V DC	3 mA
Current consumption 24 V DC	6 mA

General data

Storage temperature (no ice)	-40 ... 85 °C
Operation temperature	-25 ... 60 °C
Conductor cross section control / main circuit	2.5 mm ²
Nominal screw torque control / main circuit	0.6 Nm
Dimensions	fig. 3.
Weight	80 g
Ingress Protection	IP 20
Housing material	Aluminium
Mounting	TH35 (EN 60715) or back panel mounting

Product references

Description	Type	12-24
DC	CMC1/DC...V	✓

Other voltages on request. Please contact support@comatreleco.com.
«...» List coil voltage to complete product references

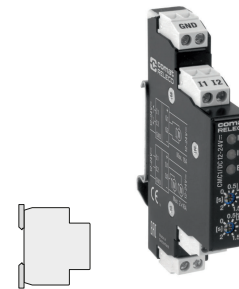


fig. 1. Wiring diagram

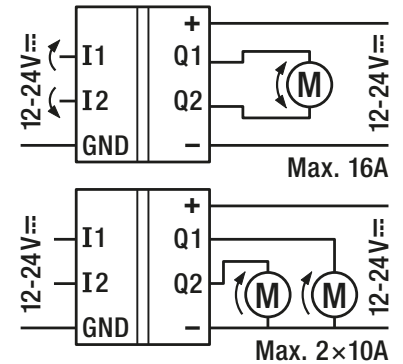


fig. 2. Function diagram

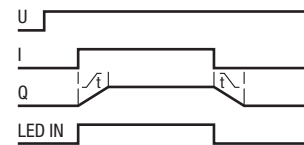
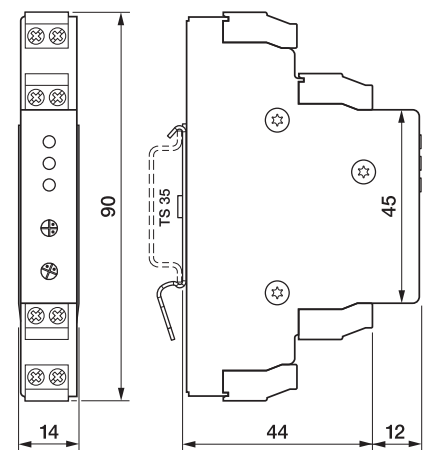


fig. 3. Dimensions (mm)



Technical approvals, conformities

Standards EN 55022; EN 60730-1; EN 61000-4; EN 61000-6

Approvals 

CMC14

DC motor controller, variable speed

Power supply

Nominal voltage	12 ... 24 V DC
Operating voltage range	8 ... 28 V DC
Maximum current consumption without load	10 mA
Power consumption 12 V DC	120 mW
Power consumption 24 V DC	240 mW

Main circuit

Output type	 MOSFET
Rated voltage	24 V DC
Output voltage range	8 ... 28 V DC
Rated current	10 A
Maximum inrush current	20 A, 3 s
Rated limit load DC-5	240 W

Control circuit

Nominal voltage	12 ... 24 V DC
Operating voltage range	8 ... 28 V DC
Ramp up	0 ... 4 s
Ramp down	0 ... 4 s
Current consumption 12 V DC	3 mA
Current consumption 24 V DC	6 mA

General data

Storage temperature (no ice)	-40 ... 85 °C
Operation temperature	-25 ... 70 °C
Conductor cross section control / main circuit	2.5 mm ²
Nominal screw torque control / main circuit	0.6 Nm
Dimensions	fig. 3.
Weight	80 g
Ingress Protection	IP 20
Housing material	Aluminium
Mounting	TH35 (EN 60715) or back panel mounting

Product references

Description	Type	12-24
DC	CMC14/DC...V	✓

Other voltages on request. Please contact support@comatreleco.com.
«...» List coil voltage to complete product references



fig. 1. Function diagram

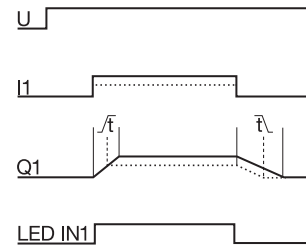
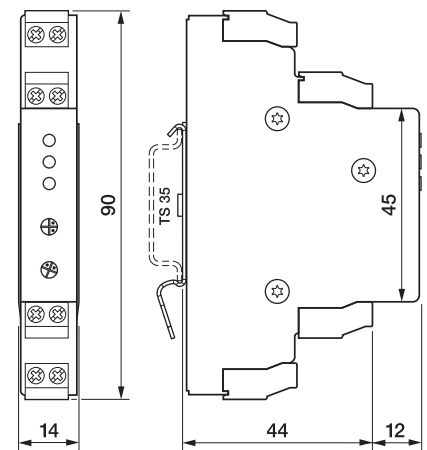


fig. 2. Dimensions (mm)



Technical approvals, conformities

Standards EN 55022; EN 60730-1; EN 61000-4; EN 61000-6

Approvals 

CMC15

DC motor controller | analogue inputs 0 ... 10 V | variable speed



Power supply

Nominal voltage	0 ... 10 V DC
Operating voltage range	8 ... 28 V DC
Maximum current consumption without load	10 mA
Power consumption 12 V DC	120 mW
Power consumption 24 V DC	240 mW

Main circuit

Output type	MOSFET
Rated voltage	24 V DC
Output voltage range	8 ... 28 V DC
Rated current	10 A
Maximum inrush current	20 A, 3 s
Rated limit load DC-5	240 W

Control circuit

Nominal voltage	12 ... 24 V DC
Operating voltage range	8 ... 28 V DC
Ramp up	0 ... 2 s
Ramp down	0 ... 2 s

General data

Storage temperature (no ice)	-40 ... 85 °C
Operation temperature	-25 ... 70 °C
Conductor cross section control / main circuit	2.5 mm ²
Nominal screw torque control / main circuit	0.6 Nm
Dimensions	fig. 3.
Weight	80 g
Ingress Protection	IP 20
Housing material	Aluminium
Mounting	TH35 (EN 60715) or back panel mounting

Product references

Description	Type	12-24
DC	CMC15/DC...V	✓

Other voltages on request. Please contact support@comatreleco.com.
«...» List coil voltage to complete product references

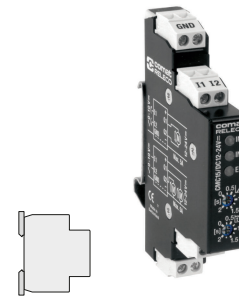


fig. 1. Wiring diagram

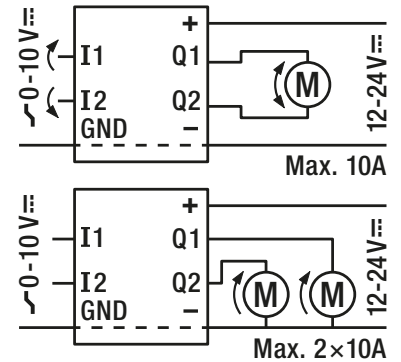


fig. 2. Function diagram

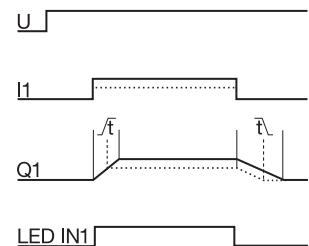
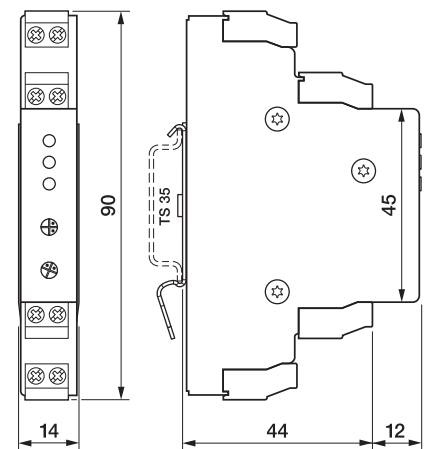


fig. 3. Dimensions (mm)



Technical approvals, conformities

Standards EN 55022; EN 60730-1; EN 61000-4; EN 61000-6



CMC16

DC motor controller | analogue inputs 4 ... 20 mA | variable speed



Power supply

Nominal voltage	4 ... 20 A
Operating voltage range	8 ... 28 V DC
Maximum current consumption without load	10 mA
Power consumption 12 V DC	120 mW
Power consumption 24 V DC	240 mW

Main circuit

Output type	MOSFET
Rated voltage	24 V DC
Output voltage range	8 ... 28 V DC
Rated current	10 A
Maximum inrush current	20 A, 3 s
Rated limit load DC-5	240 W

Control circuit

Nominal voltage	12 ... 24 V DC
Operating voltage range	8 ... 28 V DC
Ramp up	0 ... 2 s
Ramp down	0 ... 2 s

General data

Storage temperature (no ice)	-40 ... 85 °C
Operation temperature	-25 ... 70 °C
Conductor cross section control / main circuit	2.5 mm ²
Nominal screw torque control / main circuit	0.6 Nm
Dimensions	fig. 3.
Weight	80 g
Ingress Protection	IP 20
Housing material	Aluminium
Mounting	TH35 (EN 60715) or back panel mounting

Product references

Description	Type	12-24
DC	CMC16/DC...V	✓

Other voltages on request. Please contact support@comatreleco.com.
«...» List coil voltage to complete product references



fig. 1. Wiring diagram

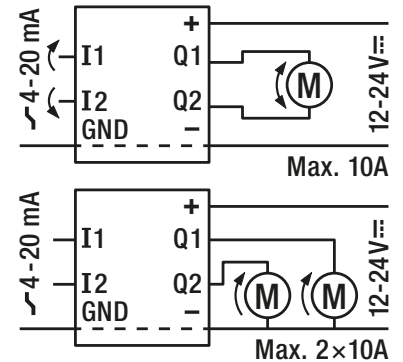


fig. 2. Function diagram

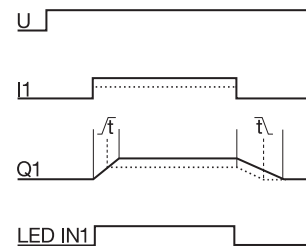
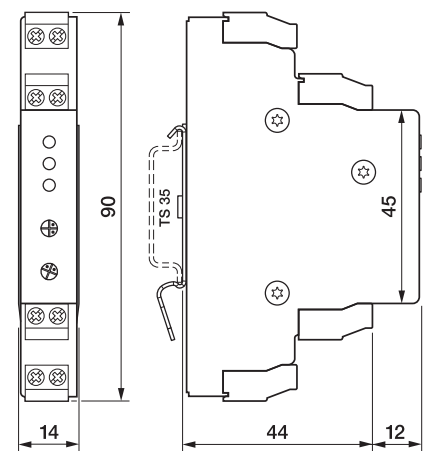


fig. 3. Dimensions (mm)



Technical approvals, conformities

Standards EN 55022; EN 60730-1; EN 61000-4; EN 61000-6

Approvals

6.2 DC Motor Controller

KDM3-24

DC Motor relay | 1 Output for motor | 1 Output für Brake resistor | Faston

Power supply

Nominal voltage	12 ... 24 V DC
Operating voltage range	9 ... 28 V DC
Power consumption 12 V DC	36 mW
Power consumption 24 V DC	24 mW

Main circuit

Output type	⚡ PNP Transistor
Output voltage range	10 ... 32 V DC
Rated current	3 A
Maximum inrush current	20 A, 1 s

Control circuit

Nominal operating current range	3 mA @ 12 V DC / 10 mA @ 24 V DC
---------------------------------	----------------------------------

General data

Storage temperature (no ice)	-40 ... 85 °C
Operation temperature	-25 ... 60 °C
Dimensions	fig. 4.
Weight	27 g
Ingress Protection	IP 40
Housing material	Noryl
Mounting	Faston

Housing and environmental conditions

Storage temperature (no ice)	-40 ... 85 °C
Operation temperature	-25 ... 60 °C
Ingress Protection	IP 40
Weight	27 g
Operation Position	any
Housing material	Noryl

Product references

Description	Type	12-24
DC	KDM3-24/DC...V	✓

Other voltages on request. Please contact support@comatreleco.com.
«...» List coil voltage to complete product references

Hint: No extra braking resistor is needed, if the voltage/current is less than 60V/10A.



fig. 1. Wiring diagram

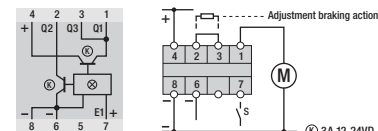


fig. 2. Function diagram

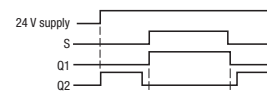


fig. 3. Output current vs. duty cycle

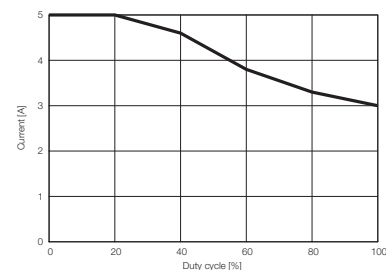
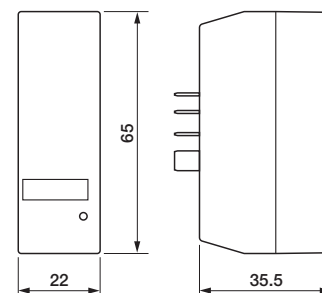


fig. 4. Dimensions (mm)



Technical approvals, conformities





Standards EN 50081-1; EN 50082-2; IEC/EN 61000-4-5

Approvals

7 PLC & HMI

Chapter	Page
7.1 ComatReleco BoxX 2	433
7.2 ComatReleco BoxX 2 Accessories	439
7.3 M91 Series	441
7.4 Jazz Series	445
7.5 Samba™ Series	447
7.6 Vision™ Series	451
7.7 UniStream® Series	465
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7.1 ComatReleco BoxX 2

	Type	Pin	Page
AF-10			
6 digital inputs AC 4 relay outputs / NO	AF-10MR-A2-CAP		434
6 digital / analog inputs DC 4 relay outputs / NO	AF-10MR-D2-CAP		435
AF-20			
12 digital inputs AC 8 relay outputs / NO	AF-20MR-A2-CAP		436
12 digital / analog inputs DC 8 relay outputs / NO	AF-20MR-D2-CAP		437

AF-10MR-A2-CAP**6 digital inputs AC | 4 relay outputs / NO****Power supply**

Nominal voltage	100 ... 240 V AC
Operating voltage range	85 ... 260 V AC
Power consumption AC	6 VA

Inputs

Number of digital or analog inputs	6
Nominal voltage digital inputs	80 ... 240 V AC
Delay time	50 ms

Outputs

Digital output	25 000 switch cycles
Output type	Relay
Number of relay outputs	4
Type of terminal	NO
Rated voltage	250 V AC
Rated current	10 A

Memory

Storage capacity	Program 64 k / 127 function block
Programming language	Function block diagram (FBD)
Resistor load / Lamp load	10 Hz
Induced load	2 Hz

Communication

Interface	support 2 channel with RS485 and 1 channel with program interfaces
Baud rate	9 600 bps / 19 200 bps
Protocol	Self-defined protocol / MODBUS RTU protocol (only read)

General data

Storage temperature (no ice)	-40 ... 70 °C
Operation temperature	-20 ... 70 °C
Dimensions	see fig. 2
Weight	205 g
Mounting	DIN rail or Wall (M3)
Ingress Protection	IP 20
Housing material	ABS
Relative humidity, no condensation	5 ... 95 %

Wiring

Conductor cross section control / main circuit	1 x 2.5 mm ² 2 x 1.5 mm ²
--	--

Product references

Description	Type	110-240
6 digital inputs AC 4 relay outputs	AF-10MR-A2-CAP/AC110-240V	✓

Other devices on request. Please contact support@comatreleco.com.

The Quick II software is available free of charge on www.comatreleco.com at downloads.

Accessories

Display - pluggable	AF-HMI
Front cover	AF-CAP
Programming cable	AF-DUSB2



fig. 1. Wiring diagram

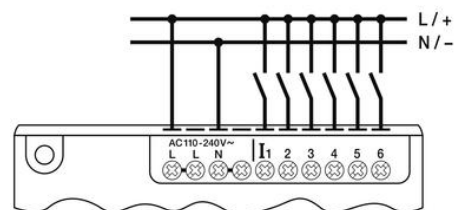
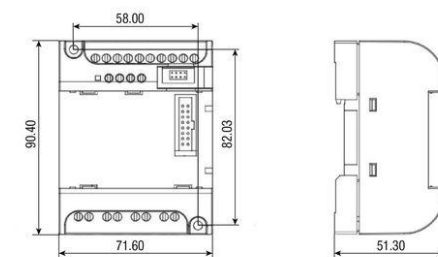


fig. 2. Dimensions (mm)

**Technical approvals, conformities**

Standards IEC/EN 55032; IEC/EN 55035;
IEC/EN 61000-3-2; IEC/EN
61000-3-3

Approvals  

AF-10MR-D2-CAP**6 digital / analog inputs DC | 4 relay outputs / NO****Power supply**

Nominal voltage	12 ... 24 V DC
Operating voltage range	10 ... 28 V DC
Power consumption DC	< 4 W

Inputs

Number of digital or analog inputs	6
Nominal voltage digital inputs	10 ... 24 V DC
Delay time	50 ms

Outputs

Digital output	25 000 switch cycles
Output type	Relay
Number of relay outputs	4
Type of terminal	NO
Rated voltage	250 V AC
Rated current	10 A

Memory

Storage capacity	Program 64 k / 127 function block
Programming language	Function block diagram (FBD)
Resistor load / Lamp load	10 Hz
Induced load	2 Hz

Communication

Interface	support 2 channel with RS485 and 1 channel with program interfaces
Baud rate	9 600 bps / 19 200 bps
Protocol	Self-defined protocol / MODBUS RTU protocol (only read)

General data

Storage temperature (no ice)	-40 ... 70 °C
Operation temperature	-20 ... 70 °C
Dimensions	see fig. 2
Weight	209 g
Mounting	DIN rail or Wall (M3)
Ingress Protection	IP 20
Housing material	ABS
Relative humidity, no condensation	5 ... 95 %

Wiring

Conductor cross section control / main circuit	1 x 2.5 mm ² 2 x 1.5 mm ²
--	--

Product references

Description	Type	24
6 digital inputs AC 4 relay outputs	AF-10MR-D2-CAP/DC24V	✓

Other devices on request. Please contact support@comatreleco.com.

The Quick II software is available free of charge on www.comatreleco.com at downloads.

Accessories

Display - pluggable	AF-HMI
Front cover	AF-CAP
Programming cable	AF-DUSB2



fig. 1. Wiring diagram

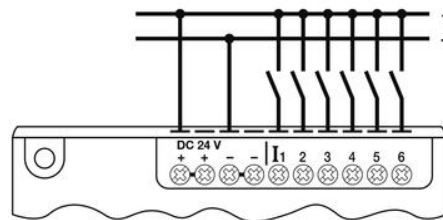
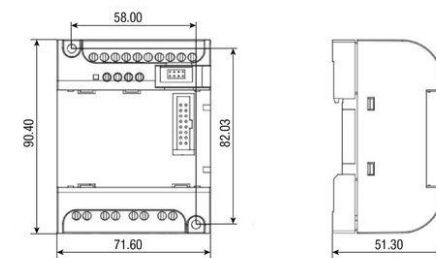


fig. 2. Dimensions (mm)

**Technical approvals, conformities**Standards IEC/EN 55032; IEC/EN 55035;
IEC/EN 61000-3-2; IEC/EN
61000-3-3Approvals   

AF-20MR-A2-CAP**12 digital inputs AC | 8 relay outputs / NO****Power supply**

Nominal voltage	100 ... 240 V AC
Operating voltage range	85 ... 260 V AC
Power consumption AC	10 VA

Inputs

Number of digital or analog inputs	12
Nominal voltage digital inputs	80 ... 240 V AC
Delay time	50 ms

Outputs

Digital output	25 000 switch cycles
Output type	Relay
Number of relay outputs	8
Type of terminal	NO
Rated voltage	250 V AC
Rated current	10 A

Memory

Storage capacity	Program 64 k / 127 function block
Programming language	Function block diagram (FBD)
Resistor load / Lamp load	10 Hz
Induced load	2 Hz

Communication

Interface	support 2 channel with RS485 and 1 channel with program interfaces
Baud rate	9 600 bps / 19 200 bps
Protocol	Self-defined protocol / MODBUS RTU protocol (only read)

General data

Storage temperature (no ice)	-40 ... 70 °C
Operation temperature	-20 ... 70 °C
Dimensions	see fig. 2
Weight	348 g
Mounting	DIN rail or Wall (M3)
Ingress Protection	IP 20
Housing material	ABS
Relative humidity, no condensation	5 ... 95 %

Wiring

Conductor cross section control / main circuit	1 x 2.5 mm ² 2 x 1.5 mm ²
--	--

Product references

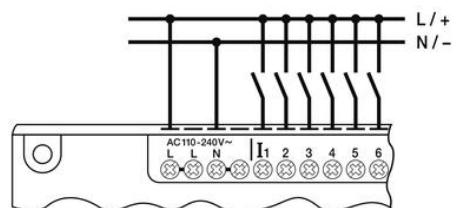
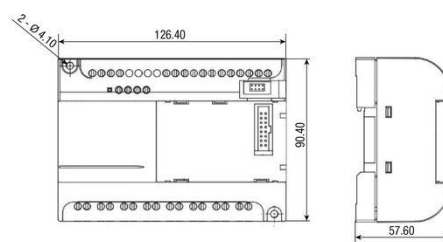
Description	Type	110-240
12 digital inputs 8 relay outputs	AF-20MR-A2-CAP/AC110-240V	✓

Other devices on request. Please contact support@comatreleco.com.

The Quick II software is available free of charge on www.comatreleco.com at downloads.

Accessories

Display - pluggable	AF-HMI
Front cover	AF-CAP
Programming cable	AF-DUSB2

**fig. 1. Wiring diagram****fig. 2. Dimensions (mm)****Technical approvals, conformities**

Standards IEC/EN 55032; IEC/EN 55035;
IEC/EN 61000-3-2; IEC/EN
61000-3-3

Approvals  

AF-20MR-D2-CAP**12 digital / analog inputs DC | 8 relay outputs / NO****Power supply**

Nominal voltage	12 ... 24 V DC
Operating voltage range	10 ... 28 V DC
Power consumption DC	< 5 W

Inputs

Number of digital or analog inputs	12
Nominal voltage digital inputs	10 ... 24 V DC
Delay time	50 ms

Outputs

Digital output	25 000 switch cycles
Output type	Relay
Number of relay outputs	8
Type of terminal	NO
Rated voltage	250 V AC
Rated current	10 A

Memory

Storage capacity	Program 64 k / 127 function block
Programming language	Function block diagram (FBD)
Resistor load / Lamp load	10 Hz
Induced load	2 Hz

Communication

Interface	support 2 channel with RS485 and 1 channel with program interfaces
Baud rate	9 600 bps / 19 200 bps
Protocol	Self-defined protocol / MODBUS RTU protocol (only read)

General data

Storage temperature (no ice)	-40 ... 70 °C
Operation temperature	-20 ... 70 °C
Dimensions	see fig. 2
Weight	340 g
Mounting	DIN rail or Wall (M3)
Ingress Protection	IP 20
Housing material	ABS
Relative humidity, no condensation	5 ... 95 %

Wiring

Conductor cross section control / main circuit	1 x 2.5 mm ² 2 x 1.5 mm ²
--	--

Product references

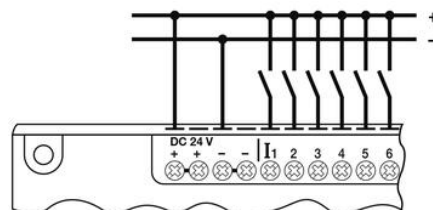
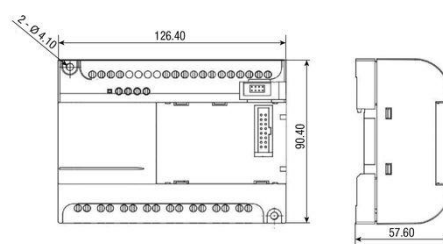
Description	Type	24
12 digital inputs 8 relay outputs	AF-20MR-D2-CAP/DC24V	✓

Other devices on request. Please contact support@comatreleco.com.

The Quick II software is available free of charge on www.comatreleco.com at downloads.

Accessories

Display - pluggable	AF-HMI
Front cover	AF-CAP
Programming cable	AF-DUSB2

**fig. 1. Wiring diagram****fig. 2. Dimensions (mm)****Technical approvals, conformities**Standards IEC/EN 55032; IEC/EN 55035;
IEC/EN 61000-3-2; IEC/EN
61000-3-3Approvals 

7.2 ComatReleco BoxX 2 Accessories

	Type	Pin	Page
AF-Series			
Front cover	AF-CAP		440
Programming cable	AF-DUSB2		440
Display - pluggable	AF-HMI		440

AF-CAP

Front cover

General data

Dimensions	45 x 71 x 12 mm
Weight	11 g
Mounting	Pluggable on AF-10 and AF-20
Housing material	ABS

Product references

Description	Type
Front cover	AF-CAP



AF-DUSB2

Programming cable

General data

Dimensions	1 430 x 40 x 17 mm
Weight	95 g
Housing material	ABS

Product references

Description	Type
Programming cable	AF-DUSB2



AF-HMI

Display - pluggable

General data


Storage temperature (no ice)	-40 ... 70 °C
Operation temperature	-20 ... 70 °C
Dimensions	45 x 71 x 16 mm
Weight	38 g
Mounting	Pluggable on AF-10 and AF-20
Ingress Protection	IP 20
Housing material	ABS
Relative humidity, no condensation	5 ... 95 %

Product references

Description	Type
Display - pluggable	AF-HMI



7.3 M91 Series

	Type	Pin	Page
M91 Series			
M91-2-xxx	M91		442

7.3 M91 Series

M91

M91-2-xxx

HMI	
Display	STN LCD, 2 lines x 16 characters
Number of keys	15
Number of definable displays	80

Power supply	
Nominal voltage	12 ... 24 V DC
Operating voltage range	10.2 ... 28.8 V DC
Power consumption AC / DC	- / 6.24 W
Frequency range	Rated frequency

Inputs	
Number of digital inputs	10
Number of encoder inputs*	3, 16 Bit, 10 kHz
Number of analog inputs*	1, 10 Bit, 0-10 V, 0-20 mA, 4-20 mA
Nominal voltage digital inputs	12 V DC 24 V DC
High level threshold digital inputs	8 V DC 17 V DC
Number of temperature inputs	Number of temperature inputs
	*Occupies up to two terminals of the digital inputs.

Outputs	
Number of relay outputs	6
Number of transistor outputs	6
Number of analog outputs	2
Rated voltage AC	230 V
Rated current	5 A

Memory	
Number of ladder code memory (virtual)	36 KB
Number of memory bits (coils)	256
Number of memory integers (registers)	256
Number of timers	64
Database size	1024 integers (indirect access)
Execution time	12 µs / Bit
Memory card	Micro SD-Card

Communication	
Connections	RS232 RS485 Ethernet optional
Protocol	Modbus, OPC

General data	
Storage temperature (no ice)	-20 ... 60 °C / -4 ... 140 °F
Operation temperature	0 ... 50 °C / 32 ... 122 °F
Back-up battery	CR2450N, 7 years typical at 25 °C, battery back-up for RTC and system data, including variable data
Dimensions	see fig. 1
Mounting	DIN rail, Panel
Ingress Protection	IP 20 / NEMA1 (DIN-rail mounted), IP 65 / NEMA4X (Panel mounted)
Relative humidity, no condensation	10 ... 95 %

Product references

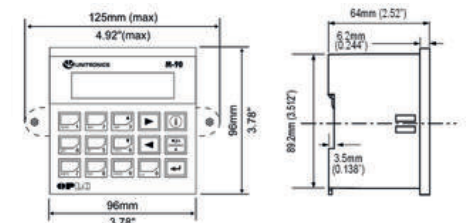
Description	Type	12-24	24
10 digital, 3 HSC/shaft encoder, 1 analog inputs 6 digital relay outputs	M91-2-R1	✓	
10 digital, 3 HSC/shaft encoder, 2 analog inputs 6 digital relay outputs	M91-2-R2C	✓	
22 digital, 3 HSC/shaft encoder, 2 analog inputs 12 digital relay outputs	M91-2-R34		✓
6 digital, 1 HSC/shaft encoder, 6 analog inputs 6 digital relay outputs	M91-2-R6C		✓
12 digital, 2 HSC/shaft encoder inputs 12 digital transistor outputs	M91-2-T1	✓	
12 digital, 3 HSC/shaft encoder, 2 analog inputs 12 digital transistor outputs	M91-2-T2C	✓	
22 digital, 3 HSC/shaft encoder inputs 16 digital transistor outputs	M91-2-T38		✓
12 digital, 1 HSC/shaft encoder, 2 analog, 2 TC inputs 10 digital transistor, 1 analog outputs	M91-2-UA2		✓
12 digital, 2 HSC/shaft encoder, 2 analog, 2 PT100/TC inputs 12 digital transistor outputs	M91-2-UN2	✓	

Other devices on request. Please contact support@comatreleco.com.

The U90 Ladder software is available free of charge on www.unitronicsplc.com at downloads.



fig. 1. Dimensions (mm)



Technical approvals, conformities

Approvals

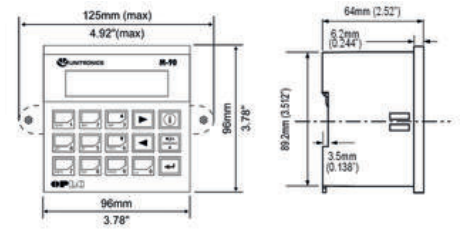
Accessories

I/O Expansion Modules

IO-AI4-A02, IO-AI8, IO-A06X, IO-ATC8, IO-D16A3-R016, IO-DI16, IO-DI8ACH, IO-DI8-R04, IO-PT400, IO-PT4K, IO-LC1, IO-LC3, IO-R08, IO-R016



fig. 1. Dimensions (mm)



Technical approvals, conformities

Approvals

7.4 Jazz Series

	Type	Pin	Page
Jazz 20			
JZ20-xxx	Jazz		446

7.4 Jazz Series

Jazz

JZ20-xxx

HMI	
Display	STN LCD, 2 lines x 16 characters
Number of keys	16
Power supply	
Nominal voltage	24 V DC
Operating voltage range	20.4 ... 28.8 V DC
Power consumption AC / DC	- / 2.4 W
Inputs	
Number of digital inputs	6
Nominal voltage digital inputs	24 V DC
High level threshold digital inputs	17 V DC
Outputs	
Number of relay outputs	4
Rated voltage AC	250 V
Rated current	5 A
Memory	
Number of ladder code memory (virtual)	48 KB
Number of memory bits (coils)	256
Number of memory integers (registers)	64
	256
Number of timers	64
Execution time	1.5 µs / Bit
Communication	
Connections	USB Mini-B RS232 optional RS485 optional Ethernet optional
Resolution	2 lines, 16 characters
Protocol	Modbus, OPC
General data	
Storage temperature (no ice)	-20 ... 60 °C / -4 ... 140 °F
Operation temperature	0 ... 50 °C / 32 ... 122 °F
Back-up battery	7 years typical at 25 °C, battery back-up for RTC and system data, including variable data.
Dimensions	see fig. 1
Mounting	DIN rail, Panel
Ingress Protection	IP 20 / NEMA1 (DIN-rail mounted), IP 65 / NEMA4X (Panel mounted)
Relative humidity, no condensation	10 ... 95 %

Product references

Description	Type	24
6 digital inputs 4 relay outputs	JZ20-J-R10	✓
6 digital, 2 d/a, 2 analog inputs 6 relay outputs	JZ20-J-R16	✓
6 digital, 3 HSC/shaft encoder, 2 d/a, 2 analog inputs 6 relay outputs	JZ20-J-R16HS	✓
6 digital inputs 4 transistor outputs	JZ20-J-T10	✓
6 digital, 2 d/a, 2 analog inputs 8 transistor outputs	JZ20-J-T18	✓
16 digital, 2 d/a, 2 analog inputs 20 transistor outputs	JZ20-J-T40	✓
9 digital, 1 HSC, 2 d/a, 2 analog inputs, 2 PT100/TC 5 relay, 2 transistor, 2 analog outputs	JZ20-J-UA24	✓
9 digital, 2 d/a, 1 analog, 1 PT100/TC inputs 5 relay, 2 transistor outputs	JZ20-J-UN20	✓
6 digital inputs AC 4 relay outputs	JZ20-R10	✓
6 digital, 2 d/a, 2 analog inputs 6 relay outputs	JZ20-R16	✓
6 digital inputs 4 transistor outputs	JZ20-T10	✓
6 digital, 2 d/a, 2 analog inputs 8 transistor outputs	JZ20-T18	✓
16 digital, 2 d/a, 2 analog inputs 20 transistor outputs	JZ20-T40	✓
9 digital, 2 d/a, 1 analog, 1 PT100/TC inputs 5 relay, 2 transistor outputs	JZ20-UN20	✓

Other devices on request. Please contact support@comatreleco.com.

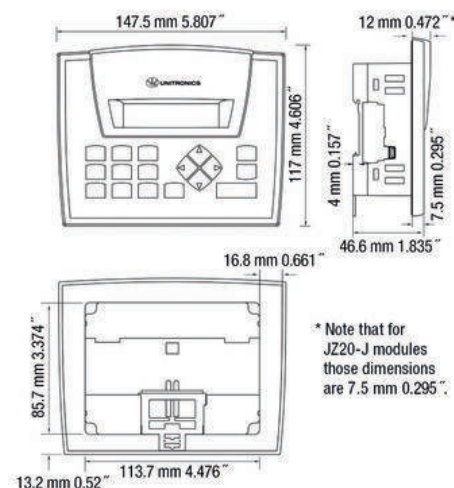
The U90 Ladder software is available free of charge on www.unitronicsplc.com at downloads.

Accessories

Jazz Add-on ports and Accessories	JZ-PRG, JZ-RS4, MJ20-ET1, MJ20-JZ-SL1, MJ20-MEM1, USB2-CAB200
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fig. 1. Dimensions (mm)



Technical approvals, conformities

Approvals

7.5 Samba™ Series

	Type	Pin	Page
SM35-J			
SM35-J-xxx	SM35		448
SM43-J			
SM43-J-xxx	SM43		449
SM70-J			
SM70-J-xxx	SM70		450

7.5 Samba™ Series

SM35

SM35-J-xxx

HMI	
Display	3.5" touchscreen, TFT, LCD, resistive, analog, 65 536 colors (16 bit)
Resolution	320 x 240 pixels (QVGA)
Number of definable displays	24

Power supply	
Nominal voltage	24 V DC
Operating voltage range	20.4 ... 28.8 V DC

Memory	
Number of ladder code memory (virtual)	112 KB
Number of memory bits (coils)	512
Number of memory integers (registers)	256
Number of timers	32
Execution time	15 µs / kb

Communication	
Connections	RS232 CAN optional RS485
Protocol	MODBUS TCP, SNMP v1, CANopen, UniCAN, CANlayer2, BACnet, KNX and M-Bus via gateway, FB Protocol: for any 3rd party protocol

General data	
Storage temperature (no ice)	-20 ... 60 °C / -4 ... 140 °F
Operation temperature	0 ... 50 °C / 32 ... 122 °F
Back-up battery	7 years typical at 25 °C, battery back-up for RTC and system data, including variable data
Dimensions	see fig. 1
Mounting	DIN rail, Panel
Ingress Protection	IP 20 / NEMA1 (DIN-rail mounted), IP 65 / NEMA4X (Panel mounted)
Relative humidity, no condensation	10 ... 95 %

Product references

Description	Type	24
10 digital, 2 d/a inputs 8 relay outputs	SM35-J-R20	✓
12 digital, 1 HSC/shaft encoder, 2 analog inputs, 2 PT100/TC 8 relay, 2 analog outputs	SM35-J-RA22	✓
10 digital, 2 d/a inputs 8 transistor outputs	SM35-J-T20	✓
12 digital, 1 HSC/shaft encoder, 2 analog inputs, 2 PT100/TC 8 transistor, 2 analog outputs	SM35-J-TA22	✓

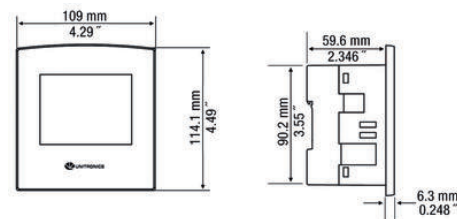
Other devices on request. Please contact support@comatreleco.com.
The VisiLogic software is available free of charge on www.unitronicsplc.com at downloads.

Accessories

Additional Comm Ports I/O Expansion Modules	V100-17-ET2, V100-17-RS4, V100-17-RS4X, V100-17-CAN EX-A2X, EX-RC1, IO-AI4-A02, IO-AI8, IO-A06X, IO-ATC8, IO-D16A3-RO16, IO-DI16, IO-DI16-L, IO-DI8ACH, IO-DI8-RO4, IO-DI8-RO4-L, IO-DI8-RO8, IO-DI8-TO8, IO-LC1, IO-LC3, IO-PT400, IO-PT4K, IO-RO16, IO-RO8, IO-RO8-L, IO-TO16
Routers	UCR-ST-B5-EU, UCR-ST-B8-EU
DIN rail kit for UCR B5/B8	UCR-OP-B5-DIN



fig. 1. Dimensions (mm)



Technical approvals, conformities

Standards IEC 60068-2-27; IEC 60068-2-6

Approvals

HMI	
Display	4.3" Touchscreen, TFT, LCD, resistive, analog, 65 536 colors (16 bit)
Resolution	480 x 272 pixels
Number of definable displays	24

Power supply	
Nominal voltage	24 V DC
Operating voltage range	20.4 ... 28.8 V DC

Memory	
Number of ladder code memory (virtual)	192 KB
Number of memory bits (coils)	512
Number of memory integers (registers)	256
Number of timers	32
Execution time	15 µs / kb

Communication	
Connections	USB CAN RS232 RS485
Protocol	MODBUS TCP, SNMP v1, CANopen, UniCAN, CANlayer2, BACnet, KNX and M-Bus via gateway, FB Protocol: for any 3rd party protocol

General data	
Storage temperature (no ice)	-20 ... 60 °C / -4 ... 140 °F
Operation temperature	0 ... 50 °C / 32 ... 122 °F
Back-up battery	7 years typical at 25 °C, battery back-up for RTC and system data, including variable data.
Dimensions	see fig. 1
Mounting	DIN rail, Panel
Ingress Protection	IP 20 / NEMA1 (DIN-rail mounted), IP 65 / NEMA4X (Panel mounted)
Relative humidity, no condensation	10 ... 95 %

Product references

Description	Type	24
10 digital, 2 d/a inputs 8 relay outputs	SM43-J-R20	✓
12 digital, 1 HSC/shaft encoder, 2 analog inputs, 2 PT100/TC 8 relay, 2 analog outputs	SM43-J-RA22	✓
10 digital, 2 d/a inputs 8 transistor outputs	SM43-J-T20	✓
12 digital, 1 HSC/shaft encoder, 2 analog inputs, 2 PT100/TC 8 transistor, 2 analog outputs	SM43-J-TA22	✓

Other devices on request. Please contact support@comatreleco.com.

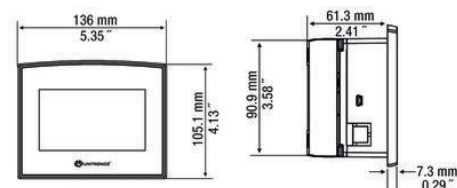
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Accessories

Additional Comm Ports I/O Expansion Modules	V100-17-ET2, V100-17-RS4, V100-17-RS4X, V100-17-CAN EX-A2X, IO-DI8-T08, IO-DI8-R04, EX90-DI18-R08, IO-DI8-R08, IO-DI16, IO-T016, IO-R08, IO-R016, IO-DI8ACH, IO-AI4-A02, IO-PT400, IO-PT4K, IO-A06X, IO-LC1, IO-LC3, IO-ATC8, IO-AI8, IO-D16A3-R016, EX-D16A3-R08, EX-D16A3-T016, EX-RC1
Routers	UCR-ST-B5-EU, UCR-ST-B8-EU
DIN rail kit for UCR B5/B8	UCR-OP-B5-DIN



fig. 1. Dimensions (mm)

**Technical approvals, conformities**

Standards IEC 60068-2-27; IEC 60068-2-6

Approvals    

HMI	
Display	7.0" touchscreen, TFT, LCD, resistive, analog, 65 536 colors (16 bit)
Resolution	800 x 480 pixels (WVGA)
Number of definable displays	24

Power supply	
Nominal voltage	24 V DC
Operating voltage range	20.4 ... 28.8 V DC

Memory	
Number of ladder code memory (virtual)	192 KB
Number of memory bits (coils)	512
Number of memory integers (registers)	256
Number of timers	32
Execution time	15 µs / kb

Communication	
Connections	USB RS232 RS485 CAN
Protocol	MODBUS TCP, SNMP V1, CANopen, UniCAN, CANlayer2, BACnet, KNX and M-Bus via gateway, FB Protocol: for any 3rd party protocol

General data	
Storage temperature (no ice)	-20 ... 60 °C / -4 ... 140 °F
Operation temperature	0 ... 50 °C / 32 ... 122 °F
Back-up battery	7 years typical at 25 °C, battery back-up for RTC and system data, including variable data.
Dimensions	see fig. 1
Mounting	DIN rail, Panel
Ingress Protection	IP 20 / NEMA1 (DIN-rail mounted), IP 65 / NEMA4X (Panel mounted)
Relative humidity, no condensation	10 ... 95 %

Product references

Description	Type	24
10 digital, 2 d/a inputs 8 relay outputs	SM70-J-R20	✓
12 digital, 1 HSC/shaft encoder, 2 analog inputs, 2 PT100/TC 8 relay, 2 analog outputs	SM70-J-RA22	✓
10 digital, 2 d/a inputs 8 transistor outputs	SM70-J-T20	✓
12 digital, 1 HSC/shaft encoder, 2 analog inputs, 2 PT100/TC 8 transistor, 2 analog outputs	SM70-J-TA22	✓

Other devices on request. Please contact support@comatreleco.com.

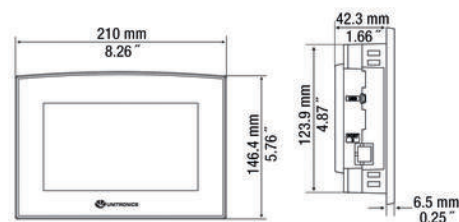
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Accessories

Additional Comm Ports I/O Expansion Modules	V100-17-ET2, V100-17-RS4, V100-17-RS4X, V100-17-CAN IO-DI8-T08, IO-DI8-R04, IO-DI8-R08, EX90-DI18-R08, IO-DI16, IO-T016, IO-R08, IO-R016, IO-DI8ACH, IO-AI4-A02, IO-PT400, IO-PT4K, IO-A06X, IO-LC1, IO-LC3, IO-ATC8, IO-AI8, IO-D16A3-R016, EX-D16A3-R08, EX-D16A3-T016, EX-A2X, EX-RC1
Routers	UCR-ST-B5-EU, UCR-ST-B8-EU
DIN rail kit for UCR B5/B8	UCR-OP-B5-DIN



fig. 1. Dimensions (mm)

**Technical approvals, conformities**

Standards IEC 60068-2-27; IEC 60068-2-6

Approvals    

7.6 Vision™ Series

	Type	Pin	Page
Vision 120			
V120-22-xxx	V120		453
Vision 130			
V130-33-xxx	V130		454
Vision 230			
V230-13-xxx	V230		455
Vision 280			
V280-18-xxx	V280		456
Vision 430			
V430-J-xxx	V430		457
Vision 350			
V350-35-xxx	V350		458
Vision 560			
V560-xxx	V560		459
Vision 570			
V570-57-xxx	V570		460
Vision 700			
V700-xxx	V700		461
Vision 1040			

	Type	Pin	Page
V1040-xxx	V1040		462
<hr/>			
Vision 1210			
V1210-xxx	V1210		463
<hr/>			

HMI	
Display	2.4" display, STN, LCD
Resolution	128 x 64 pixels
Number of keys	16

Power supply	
Nominal voltage	12 ... 24 V DC
Operating voltage range	10.2 ... 28.8 V DC

Memory	
Number of ladder code memory (virtual)	448 KB
Number of memory bits (coils)	4,096
Number of memory integers (registers)	2,048
Number of timers	192
Execution time	48 µs / kb

Communication	
Connections	RS232 RS485

General data	
Storage temperature (no ice)	-20 ... 60 °C / -4 ... 140 °F
Operation temperature	0 ... 50 °C / 32 ... 122 °F
Back-up battery	CR2450, 7 years typical at 25 °C, battery back-up for RTC and system data, including variable data
Dimensions	see fig. 1
Mounting	DIN rail, Panel
Ingress Protection	IP 20 / NEMA1 (DIN-rail mounted), IP 65 / NEMA4X (Panel mounted)
Relative humidity, no condensation	10 ... 95 %

Product references

Description	Type	12-24
10 digital, 3 HSC/shaft encoder, 2 analog inputs 6 digital relay outputs	V120-22-R2C	✓
22 digital, 3 HSC/shaft encoder, 2 analog inputs 12 digital relay outputs	V120-22-R34	✓
6 digital, 1 HSC/shaft encoder, 6 analog inputs 6 digital relay outputs	V120-22-R6C	✓
12 digital, 1 HSC/shaft encoder, 2 analog inputs, 2 PT100/TC 8 relay, 2 analog outputs	V120-22-RA22	✓
12 digital, 2 HSC/shaft encoder inputs 12 digital transistor outputs	V120-22-T1	✓
12 digital, 3 HSC/shaft encoder, 2 analog inputs 12 digital transistor outputs	V120-22-T2C	✓

Other devices on request. Please contact support@comatreleco.com.

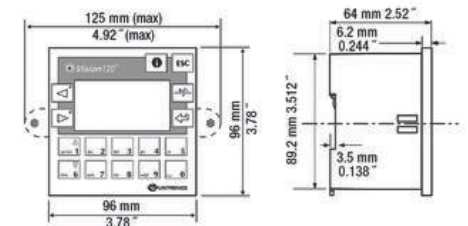
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Accessories

Additional Comm Ports	V100-17-ET2
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fig. 1. Dimensions (mm)

**Technical approvals, conformities**

Approvals

HMI

Display	2.4" display, STN, LCD
Resolution	128 x 64 pixels
Number of keys	20
Number of definable displays	1,024

Power supply

Nominal voltage	12 ... 24 V DC
Operating voltage range	10.2 ... 28.8 V DC

Memory

Number of ladder code memory (virtual)	512 KB
Number of memory bits (coils)	4,096
Number of memory integers (registers)	2,048
Number of timers	192
Execution time	20 µs / kb
Memory card	Micro SD-Card

Communication

Connections	RS232
	RS485
	CAN optional

General data

Storage temperature (no ice)	-20 ... 60 °C / -4 ... 140 °F
Operation temperature	0 ... 50 °C / 32 ... 122 °F
Back-up battery	7 years typical at 25 °C, battery back-up for RTC and system data, including variable data
Dimensions	see fig. 1
Mounting	DIN rail, Panel
Ingress Protection	IP 20 / NEMA1 (DIN-rail mounted), IP 65 / NEMA4X (Panel mounted)
Relative humidity, no condensation	10 ... 95 %

Product references

Description	Type	24
20 digital, 2 d/a inputs 12 relay outputs	V130-33-R34	✓
8 digital, 2 d/a, 2 TC/PT100/digital inputs 8 relay, 2 analog outputs	V130-33-RA22	✓
10 digital, 2 d/a inputs 12 transistor outputs	V130-33-T2	✓
20 digital, 2 d/a inputs 16 transistor outputs	V130-33-T38	✓
8 digital, 2 d/a, 2 TC/PT100/digital inputs 10 transistor, 2 analog outputs	V130-33-TA24	✓
10 digital, 2 d/a inputs 6 relay, 2 high-speed transistor outputs	V130-33-TR20	✓
20 digital, 2 d/a inputs 8 relay, 4 high-speed transistor outputs	V130-33-TR34	✓
6 digital, 2 d/a, 4 analog inputs 6 relay, 2 high-speed transistor outputs	V130-33-TR6	✓
8 digital, 2 d/a, 2 TC/PT100/digital inputs 4 relay, 2 analog, 4 high-speed transistor outputs	V130-33-TRA22	✓

Other devices on request. Please contact support@comatreleco.com.

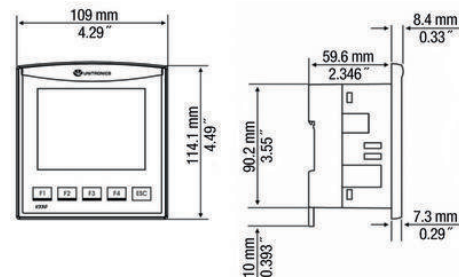
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Accessories

Additional Comm Ports	V100-17-CAN, V100-17-ET2, V100-17-PB1, V100-17-RS4, V100-17-RS4X
I/O Expansion Modules	IO-DI8-T08, IO-DI8-R04, IO-DI8-R08, EX90-DI18-R08, IO-DI16, IO-TO16, IO-R08, IO-RO16, IO-DI8ACH, IO-AI4-A02, IO-PT400, IO-PT4K, IO-A06X, IO-LC1, IO-LC3, IO-ATC8, IO-AI8, IO-D16A3-R016, EX-D16A3-R08, EX-D16A3-T016, EX-A2X, EX-RC1
Routers	UCR-ST-B5-EU, UCR-ST-B8-EU
DIN rail kit for UCR B5/B8	UCR-OP-B5-DIN



fig. 1. Dimensions (mm)

**Technical approvals, conformities**

Standards IEC 60068-2-27; IEC 60068-2-6

Approvals    

HMI	
Display	3.2" display, STN, LCD
Resolution	128 x 64 pixels
Number of keys	24
Number of definable displays	255

Power supply	
Nominal voltage	12 ... 24 V DC
Operating voltage range	10.2 ... 28.8 V DC
Power consumption AC / DC	- / 2.5 W

Memory	
Number of ladder code memory (virtual)	1,000 KB
Number of memory bits (coils)	4,096
Number of memory integers (registers)	2,048
Number of timers	192
Execution time	30 µs / kb

Communication	
Connections	RS232 RS485 CAN Ethernet optional

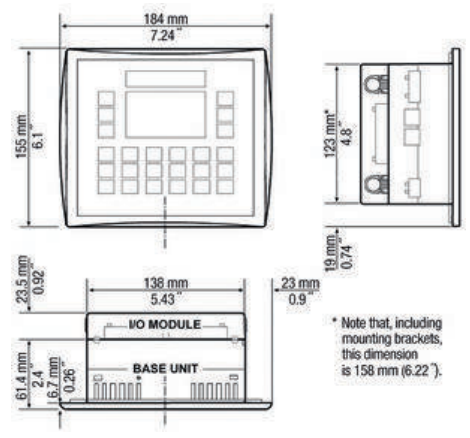
General data	
Storage temperature (no ice)	-20 ... 60 °C / -4 ... 140 °F
Operation temperature	0 ... 50 °C / 32 ... 122 °F
Back-up battery	7 years typical at 25 °C, battery back-up for RTC and system data, including variable data
Dimensions	see fig. 1
Weight	429 g
Mounting	DIN rail, Panel with brackets
Ingress Protection	IP 20 / NEMA1 (DIN-rail mounted), IP 65 / NEMA4X (Panel mounted)
Relative humidity, no condensation	5 ... 95 %

Product references		
Description	Type	12-24
PLC & HMI	V230-13-B20B	✓
Other devices on request. Please contact support@comatreleco.com.		
The VisiLogic software is available free of charge on www.unitronicsplc.com at downloads.		

Accessories	
Snap-in I/O modules	V200-18-E1B, V200-18-E2B, V200-18-E3XB, V200-18-E46B, V200-18-E4XB, V200-18-E5B, V200-18-E62B, V200-18-E6B
Additional Comm Ports	V200-19-ET2, V200-19-RS4-X
I/O Expansion Modules	IO-DI8-T08, IO-DI8-R04, IO-DI8-R08, IO-DI16, IO-T016, IO-R08, IO-R016, IO-DI8ACH, IO-AI4-A02, IO-PT400, IO-PT4K, IO-A06X, IO-LC1, IO-LC3, IO-ATC8, IO-AI8, IO-D16A3-R016, EX-D16A3-R08, EX-D16A3-T016, EX-A2X, EX-RC1
Routers	UCR-ST-B5-EU, UCR-ST-B8-EU
DIN rail kit for UCR B5/B8	UCR-OP-B5-DIN



fig. 1. Dimensions (mm)



Technical approvals, conformities



7.6 Vision™ Series

V280

V280-18-xxx

HMI	
Display	4.7" touchscreen, FSTN CCFL, resistive, analog, 65 536 (16 bit) colors
Resolution	320 x 240 pixels (QVGA)
Number of keys	27
Number of definable displays	255

Power supply	
Nominal voltage	12 ... 24 V DC
Operating voltage range	10.2 ... 28.8 V DC
Power consumption AC / DC	5.4 W

Memory	
Number of ladder code memory (virtual)	1,000 KB
Number of memory bits (coils)	4,096
Number of memory integers (registers)	2,048
Number of timers	192
Execution time	30 µs / kb

Communication	
Connections	RS232 RS485 CAN Ethernet optional

General data	
Storage temperature (no ice)	-20 ... 60 °C / -4 ... 140 °F
Operation temperature	0 ... 50 °C / 32 ... 122 °F
Back-up battery	7 years typical at 25 °C, battery back-up for RTC and system data, including variable data
Dimensions	see fig. 1
Weight	860 g
Mounting	DIN rail, Panel with brackets
Ingress Protection	IP 20 / NEMA1 (DIN-rail mounted), IP 65 / NEMA4X (Panel mounted)
Relative humidity, no condensation	5 ... 95 %

Product references

Description	Type	12-24
PLC & HMI	V280-18-B20B	✓

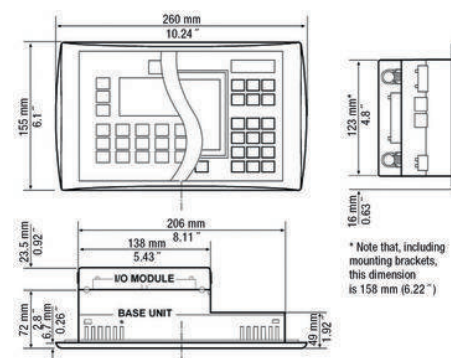
Other devices on request. Please contact support@comatreleco.com.
The VisiLogic software is available free of charge on www.unitronicsplc.com at downloads.

Accessories

Snap-in I/O modules	V200-18-E1B, V200-18-E2B, V200-18-E3XB, V200-18-E46B, V200-18-E4XB, V200-18-E5B, V200-18-E62B, V200-18-E6B
Additional Comm Ports	V200-19-ET2, V200-19-RS4-X
I/O Expansion Modules	IO-DI8-T08, IO-DI8-R04, IO-DI8-R08, IO-DI16, IO-T016, IO-R08, IO-R016, IO-DI8ACH, IO-AI4-A02, IO-PT400, IO-PT4K, IO-AO6X, IO-LC1, IO-LC3, IO-ATC8, IO-AI8, IO-D16A3-R016, EX-D16A3-R08, EX-D16A3-T016, EX-A2X, EX-RC1
Routers	UCR-ST-B5-EU, UCR-ST-B8-EU
DIN rail kit for UCR B5/B8	UCR-OP-B5-DIN



fig. 1. Dimensions (mm)



Technical approvals, conformities



HMI	
Display	4.3" touchscreen, TFT, LCD, resistive, analog, 65 536 colors (16 bit)
Resolution	480 x 272 pixels
Number of keys	5
Number of definable displays	1,024

Power supply	
Nominal voltage	24 V DC
Operating voltage range	10.2 ... 28.8 V DC

Memory	
Number of ladder code memory (virtual)	1,000 KB
Number of memory bits (coils)	8,192
Number of memory integers (registers)	4,096
Number of timers	384
Execution time	15 µs / kb
Memory card	Micro SD-Card

Communication	
Connections	RS232 RS485 USB CAN optional
Protocol	MODBUS TCP, SNMP V1, CANopen, CANlayer2, UniCAN, BACnet, KNX and M-Bus via gateway, FB Protocol: for any 3rd party protocol

General data	
Storage temperature (no ice)	-20 ... 60 °C / -4 ... 140 °F
Operation temperature	0 ... 50 °C / 32 ... 122 °F
Back-up battery	CR2450, 7 years typical at 25 °C, battery back-up for RTC and system data, including variable data
Dimensions	see fig. 1
Mounting	DIN rail, Panel
Ingress Protection	IP 20 / NEMA1 (DIN-rail mounted), IP 65 / NEMA4X (Panel mounted)
Relative humidity, no condensation	10 ... 95 %

Product references

Description	Type	24
20 digital, 2 d/a inputs 12 relay outputs	V430-J-R34	✓
8 digital, 2 d/a, 2 TC/PT100/digital inputs 8 relay, 2 analog outputs	V430-J-RA22	✓
6 digital, 2 d/a, 14 analog inputs 6 relay outputs	V430-J-RH6	✓
10 digital, 2 d/a inputs 12 transistor outputs	V430-J-T2	✓
20 digital, 2 d/a inputs 16 transistor outputs	V430-J-T38	✓
8 digital, 2 d/a, 2 TC/PT100/digital inputs 10 transistor, 2 analog outputs	V430-J-TA24	✓
20 digital, 2 d/a inputs 8 relay, 4 high-speed transistor outputs	V430-J-TR34	✓
8 digital, 2 d/a, 2 TC/PT100/digital inputs 4 relay, 2 analog, 4 high-speed transistor outputs	V430-J-TRA22	✓

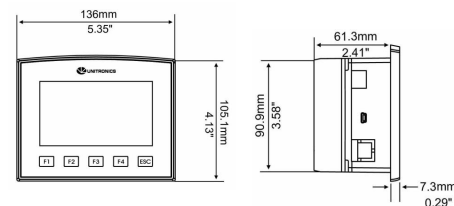
Other devices on request. Please contact support@comatreleco.com.
The VisiLogic software is available free of charge on www.unitronicsplc.com at downloads.

Accessories

Additional Comm Ports	V100-17-ET2, V100-17-RS4, V100-17-RS4X, V100-17-CAN, V100-17-PB1
I/O Expansion Modules	IO-DI8-T08, IO-DI8-R04, IO-DI8-R08, EX90-DI18-R08, IO-DI16, IO-T016, IO-R08, IO-R016, IO-DI8ACH, IO-AI4-A02, IO-PT400, IO-PT4K, IO-A06X, IO-LC1, IO-LC3, IO-ATC8, IO-AI8, IO-D16A3-R016, EX-D16A3-R08, EX-D16A3-T016, EX-A2X, EX-RC1
Routers	UCR-ST-B5-EU, UCR-ST-B8-EU
DIN rail kit for UCR B5/B8	UCR-OP-B5-DIN



fig. 1. Dimensions (mm)

**Technical approvals, conformities**

Standards IEC 60068-2-27; IEC 60068-2-6

Approvals

7.6 Vision™ Series

V350

V350-35-xxx

HMI	
Display	3.5" touchscreen, TFT, LCD, resistive, analog, 65 536 (16 bit) colors
Resolution	320 x 240 pixels
Number of keys	5
Number of definable displays	1,024

Power supply	
Nominal voltage	12 ... 24 V DC
Operating voltage range	10.2 ... 28.8 V DC

Memory	
Number of ladder code memory (virtual)	1,000 KB
Number of memory bits (coils)	8,192
Number of memory integers (registers)	4,096
Number of timers	384
Execution time	15 µs / kb
Memory card	Micro SD-Card

Communication	
Connections	RS232 RS485 USB CAN optional
Protocol	MODBUS TCP, SNMP V1, CANopen, UniCAN, CANlayer2, BACnet, KNX and M-Bus via gateway, FB Protocol: for any 3rd party protocol

General data	
Storage temperature (no ice)	-20 ... 60 °C / -4 ... 140 °F
Operation temperature	0 ... 50 °C / 32 ... 122 °F
Back-up battery	CR2450, 7 years typical at 25 °C, battery back-up for RTC and system data, including variable data
Dimensions	see fig. 1
Mounting	DIN rail, Panel
Ingress Protection	IP 20 / NEMA1 (DIN-rail mounted), IP 65 / NEMA4X (Panel mounted)
Relative humidity, no condensation	10 ... 95 %

Product references

Description	Type	24
20 digital, 2 d/a inputs 12 relay outputs	V350-35-R34	✓
8 digital, 2 d/a, 2 TC/PT100/digital inputs 8 relay, 2 analog outputs	V350-35-RA22	✓
10 digital, 2 d/a inputs 12 transistor outputs	V350-35-T2	✓
20 digital, 2 d/a inputs 16 transistor outputs	V350-35-T38	✓
8 digital, 2 d/a, 2 TC/PT100/digital inputs 10 transistor, 2 analog outputs	V350-35-TA24	✓
10 digital, 2 d/a inputs 6 relay, 2 high-speed transistor outputs	V350-35-TR20	✓
20 digital, 2 d/a inputs 8 relay, 4 high-speed transistor outputs	V350-35-TR34	✓
6 digital, 2 d/a, 4 analog inputs 6 relay, 2 high-speed transistor outputs	V350-35-TR6	✓
8 digital, 2 d/a, 2 TC/PT100/digital inputs 4 relay, 2 analog, 4 high-speed transistor outputs	V350-35-TRA22	✓
20 digital, 2 d/a inputs 12 relay outputs	V350-J-R34	✓
8 digital, 2 d/a, 2 TC/PT100/digital inputs 8 relay, 2 analog outputs	V350-J-RA22	✓
10 digital, 2 d/a inputs 12 transistor outputs	V350-J-T2	✓
20 digital, 2 d/a inputs 16 transistor outputs	V350-J-T38	✓
10 digital, 2 d/a inputs 6 relay, 2 high-speed transistor outputs	V350-J-TR20	✓
8 digital, 2 d/a, 2 TC/PT100/digital inputs 10 transistor, 2 analog outputs	V350-S-TA24	✓

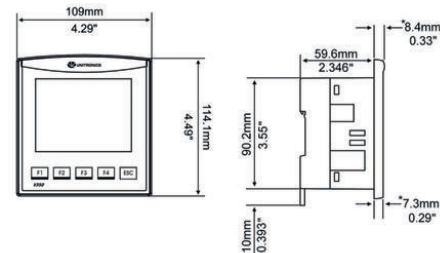
Other devices on request. Please contact support@comatreleco.com.
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Accessories

Additional Comm Ports	V100-17-ET2, V100-17-RS4, V100-17-RS4X, V100-17-CAN, V100-17-PB1
I/O Expansion Modules	IO-DI8-T08, IO-DI8-R04, IO-DI8-R08, EX90-DI18-R08, IO-DI16, IO-T016, IO-R08, IO-R016, IO-DI8ACH, IO-AI4-A02, IO-PT400, IO-PT4K, IO-A06X, IO-LC1, IO-LC3, IO-ATC8, IO-AI8, IO-D16A3-R016, EX-D16A3-R08, EX-D16A3-T016, EX-A2X, EX-RC1
Routers	UCR-ST-B5-EU, UCR-ST-B8-EU
DIN rail kit for UCR B5/B8	UCR-OP-B5-DIN



fig. 1. Dimensions (mm)



Technical approvals, conformities

Standards IEC 60068-2-27; IEC 60068-2-6

Approvals

HMI	
Display	5.7" touchscreen, TFT, LCD, resistive, analog, 65 536 (16 bit) colors
Resolution	320 x 240 pixels (QVGA)
Number of keys	24
Number of definable displays	1,024

Power supply	
Nominal voltage	12 ... 24 V DC
Operating voltage range	10.2 ... 28.8 V DC

Memory	
Number of ladder code memory (virtual)	2,000 KB
Number of memory bits (coils)	8,192
Number of memory integers (registers)	4,096
Number of timers	384
Execution time	9 µs / kb
Memory card	Micro SD-Card

Communication	
Connections	RS232 RS485 USB CAN Ethernet optional
Protocol	MODBUS TCP, SNMP V1, CANopen, CANlayer2, UniCAN, BACnet, KNX and M-Bus via gateway, FB Protocol for any 3rd party protocol

General data	
Storage temperature (no ice)	-20 ... 60 °C / -4 ... 140 °F
Operation temperature	0 ... 50 °C / 32 ... 122 °F
Back-up battery	7 years typical at 25 °C, battery back-up for RTC and system data, including variable data
Dimensions	see fig. 1
Weight	750 g
Mounting	Panel with brackets
Ingress Protection	IP 20 / NEMA1 (case), IP 65 / NEMA4X (front panel)
Relative humidity, no condensation	5 ... 95 %

Product references

Description	Type	12-24
PLC & HMI	V560-T25B	✓

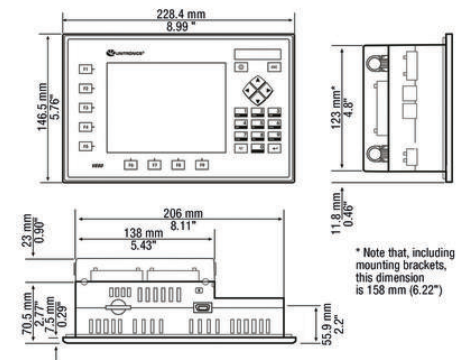
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Accessories

Additional Comm Ports	V200-19-ET2, V200-19-RS4-X
Snap-in I/O modules	V200-18-E1B, V200-18-E2B, V200-18-E3XB, V200-18-E4XB, V200-18-E5B, V200-18-E62B, V200-18-E46B
I/O Expansion Modules	IO-DI8-T08, IO-DI8-R04, IO-DI8-R08, IO-DI16, IO-T016, IO-R08, IO-R016, IO-DI8ACH, IO-AI4-A02, IO-PT400, IO-PT4K, IO-A06X, IO-LC1, IO-LC3, IO-ATC8, IO-AI8, IO-D16A3-R016, EX-D16A3-R08, EX-D16A3-T016, EX-A2X, EX-RC1
Routers	UCR-ST-B5-EU, UCR-ST-B8-EU
DIN rail kit for UCR B5/B8	UCR-OP-B5-DIN



fig. 1. Dimensions (mm)

**Technical approvals, conformities**

Approvals    

HMI	
Display	5.7" touchscreen, TFT, LCD, resistive, analog, 65 536 (16 bit) colors
Resolution	320 x 240 pixels (QVGA)
Number of definable displays	1,024

Power supply	
Nominal voltage	12 ... 24 V DC
Operating voltage range	10.2 ... 28.8 V DC

Memory	
Number of ladder code memory (virtual)	2,000 KB
Number of memory bits (coils)	8,192
Number of memory integers (registers)	4,096
Number of timers	384
Execution time	9 µs / kb
Memory card	Micro SD-Card

Communication	
Connections	RS232 RS485 USB CAN Ethernet optional
Protocol	MODBUS TCP, SNMP V1, CANopen, CANlayer2, UniCAN, BACnet, KNX and M-Bus via gateway, FB Protocol for any 3rd party protocol

General data	
Storage temperature (no ice)	-20 ... 60 °C / -4 ... 140 °F
Operation temperature	0 ... 50 °C / 32 ... 122 °F
Back-up battery	7 years typical at 25 °C, battery back-up for RTC and system data, including variable data
Dimensions	see fig. 1
Weight	750 g
Mounting	Panel with brackets
Ingress Protection	IP 20 / NEMA1 (case), IP 65 / NEMA4X (front Panel)
Relative humidity, no condensation	5 ... 95 %

Product references

Description	Type	12-24
PLC & HMI	V570-57-T20B-J	✓

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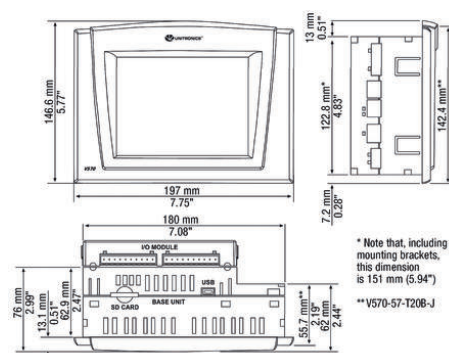
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Accessories

Additional Comm Ports	V200-19-ET2, V200-19-RS4-X
Snap-in I/O modules	V200-18-E1B, V200-18-E2B, V200-18-E3XB, V200-18-E46B, V200-18-E4XB, V200-18-E5B, V200-18-E62B, V200-18-E6B
I/O Expansion Modules	IO-DI8-T08, IO-DI8-R04, IO-DI8-R08, EX90-DI18-R08, IO-DI16, IO-T016, IO-R08, IO-R016, IO-DI8ACH, IO-AI4-A02, IO-PT400, IO-PT4K, IO-A06X, IO-LC1, IO-LC3, IO-ATC8, IO-AI8, IO-D16A3-R016, EX-D16A3-R08, EX-D16A3-T016, EX-A2X, EX-RC1
Routers	UCR-ST-B5-EU, UCR-ST-B8-EU
DIN rail kit for UCR B5/B8	UCR-OP-B5-DIN



fig. 1. Dimensions (mm)

**Technical approvals, conformities**

Approvals   

HMI	
Display	7" Touchscreen, TFT, LCD, resistive, analog, 65 536 (16 bit) colors
Resolution	800 x 480 pixels (QVGA)
Number of definable displays	1,024

Power supply	
Nominal voltage	12 ... 24 V DC
Operating voltage range	10.2 ... 28.8 V DC

Memory	
Number of ladder code memory (virtual)	2,000 KB
Number of memory bits (coils)	8,192
Number of memory integers (registers)	4,096
Number of timers	384
Execution time	9 µs / kb
Memory card	Micro SD-Card

Communication	
Connections	RS232 RS485 USB Ethernet CAN optional
Protocol	MODBUS TCP, SNMP V1, CANopen, CANlayer2, UniCAN, BACnet, KNX and M-Bus via gateway, FB Protocol for any 3rd party protocol

General data	
Storage temperature (no ice)	-20 ... 60 °C / -4 ... 140 °F
Operation temperature	0 ... 50 °C / 32 ... 122 °F
Back-up battery	CR2450, 7 years typical at 25 °C, battery back-up for RTC and system data, including variable data
Dimensions	see fig. 1
Weight	640 g
Mounting	Panel
Ingress Protection	IP 20 / NEMA1 (case), IP 65 / NEMA4X (front panel)
Relative humidity, no condensation	10 ... 95 %

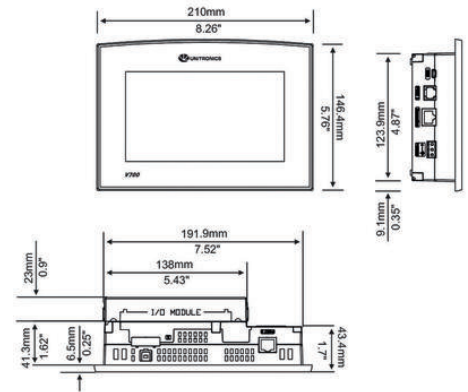
Product references		
Description	Type	12-24
PLC & HMI	V700-T20BJ	✓

Other devices on request. Please contact support@comatreleco.com.
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Accessories	
Additional Comm Ports	V100-17-RS4, V100-17-RS4X, V100-17-CAN, V100-17-PB1
Snap-in I/O modules	V200-18-E1B, V200-18-E2B, V200-18-E3XB, V200-18-E46B, V200-18-E4XB, V200-18-E5B, V200-18-E62B, V200-18-E6B
I/O Expansion Modules	IO-DI8-T08, IO-DI8-R04, IO-DI8-R08, IO-DI16, IO-T016, IO-R08, IO-R016, IO-DI8ACH, IO-AI4-AO2, IO-PT400, IO-PT4K, IO-AO6X, IO-LC1, IO-LC3, IO-ATC8, IO-AI8, IO-D16A3-R016, EX-D16A3-R08, EX-D16A3-T016, EX-A2X, EX-RC1
Routers	UCR-ST-B5-EU, UCR-ST-B8-EU
DIN rail kit for UCR B5/B8	UCR-OP-B5-DIN



fig. 1. Dimensions (mm)



Technical approvals, conformities

Standards IEC 60068-2-27; IEC 60068-2-6

Approvals

7.6 Vision™ Series

V1040

V1040-xxx

HMI	
Display	10.4" touchscreen, TFT, LCD, resistive, analog, 65 536 (16 bit) colors
Resolution	800 x 600 pixels (SVGA)
Number of keys	9
Number of definable displays	1,024
Power supply	
Nominal voltage	24 V DC
Operating voltage range	20.4 ... 28.8 V DC
Memory	
Number of ladder code memory (virtual)	2,000 KB
Number of memory bits (coils)	8,192
Number of memory integers (registers)	4,096
Number of timers	384
Execution time	9 µs / kb
Communication	
Connections	RS232 RS485 USB CAN
Protocol	MODBUS TCP, SNMP V1, CANopen, CANlayer2, UniCAN, BACnet, KNX and M-Bus via gateway, FB Protocol: for any 3rd party protocol
General data	
Storage temperature (no ice)	-20 ... 60 °C / -4 ... 140 °F
Operation temperature	0 ... 50 °C / 32 ... 122 °F
Back-up battery	7 years typical at 25 °C, battery back-up for RTC and system data, including variable data see fig. 1
Dimensions	see fig. 1
Weight	1.5 kg
Mounting	Panel with brackets
Ingress Protection	IP 20 / NEMA1 (case), IP 65 / NEMA4X (front Panel)
Relative humidity, no condensation	5 ... 95 %

Product references

Description	Type	12-24
PLC & HMI	V1040-T20B	✓

Other devices on request. Please contact support@comatreleco.com.

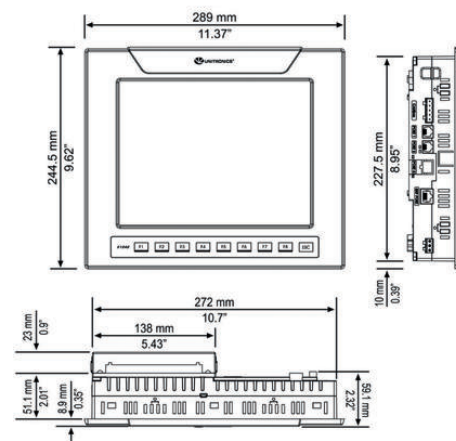
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Accessories

Additional Comm Ports	V200-19-ET2, V200-19-RS4-X
Snap-in I/O modules	V200-18-E1B, V200-18-E2B, V200-18-E3XB, V200-18-E46B, V200-18-E4XB, V200-18-E5B, V200-18-E62B, V200-18-E6B
I/O Expansion Modules	IO-DI8-T08, IO-DI8-R04, IO-DI8-R08, EX90-DI18-R08, IO-DI16, IO-T016, IO-R08, IO-R016, IO-DI8ACH, IO-AI4-A02, IO-PT400, IO-PT4K, IO-A06X, IO-LC1, IO-LC3, IO-ATC8, IO-AI8, IO-D16A3-R016, EX-D16A3-R08, EX-D16A3-T016, EX-A2X, EX-RC1
Routers	UCR-ST-B5-EU, UCR-ST-B8-EU
DIN rail kit for UCR B5/B8	UCR-OP-B5-DIN



fig. 1. Dimensions (mm)



Technical approvals, conformities



Approvals

HMI	
Display	12.1" touchscreen, TFT, LCD, resistive, analog, 65 536 (16 bit) colors
Resolution	800 x 600 pixels (SVGA)
Number of definable displays	1,024

Power supply	
Nominal voltage	24 V DC
Operating voltage range	20.4 ... 28.8 V DC

Memory	
Number of ladder code memory (virtual)	2,000 KB
Number of memory bits (coils)	8,192
Number of memory integers (registers)	4,096
Number of timers	384
Execution time	9 µs / kb

Communication	
Connections	RS232 RS485 USB CAN Ethernet optional

General data	
Storage temperature (no ice)	-20 ... 60 °C / -4 ... 140 °F
Operation temperature	0 ... 50 °C / 32 ... 122 °F
Back-up battery	7 years typical at 25 °C, battery back-up for RTC and system data, including variable data
Dimensions	see fig. 1
Weight	1.7 kg
Mounting	Panel with brackets
Ingress Protection	IP 20 / NEMA1 (case), IP 65 / NEMA4X (front Panel)
Relative humidity, no condensation	5 ... 95 %

Product references

Description	Type	12-24
PLC & HMI	V1210-T20BJ	✓

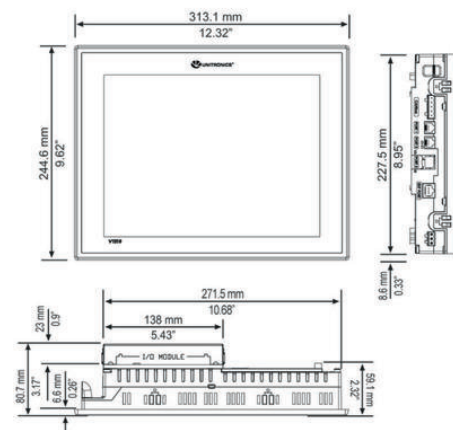
Other devices on request. Please contact support@comatreleco.com.
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Accessories

Additional Comm Ports	V200-19-ET2, V200-19-RS4-X
Snap-in I/O modules	V200-18-E1B, V200-18-E2B, V200-18-E3XB, V200-18-E46B, V200-18-E4XB, V200-18-E5B, V200-18-E62B, V200-18-E6B
I/O Expansion Modules	IO-DI8-T08, IO-DI8-R04, IO-DI8-R08, EX90-DI18-R08, IO-DI16, IO-TO16, IO-R08, IO-R016, IO-DI8ACH, IO-AI4-A02, IO-PT400, IO-PT4K, IO-A06X, IO-LC1, IO-LC3, IO-ATC8, IO-AI8, IO-D16A3-R016, EX-D16A3-R08, EX-D16A3-T016, EX-A2X, EX-RC1
Routers	UCR-ST-B5-EU, UCR-ST-B8-EU
DIN rail kit for UCR B5/B8	UCR-OP-B5-DIN



fig. 1. Dimensions (mm)

**Technical approvals, conformities**

Approvals

7.7 UniStream® Series

	Type	Pin	Page
UniStream 5" Built-in			
US5-Bxx-xxx	UniStream 5" Built-in		466
UniStream 7" Built-in			
US7-Bxx-xxx	UniStream 7" Built-in		468
UniStream 10.1" Built-in			
US10-Bxx-xxx	UniStream 10.1" Built-in		470
UniStream PLC			
USC-B3-xxx, USC-B5-xxx, USC-B10-xxx	USC		472
USL-xxx-xxx	USL		473
UniStream Modular			
USP-xxx	UniStream Modular		474

7.7 UniStream® Series

UniStream 5" Built-in

US5-Bxx-xxx

HMI	
Display	5" (16:9) touchscreen, TFT, LCD, 65 536 (16 bit) colors
Resolution	800 x 480 pixels (WVGA)
Power supply	
Nominal voltage	24 V DC
Memory	
Number of ladder code memory (virtual)	1,000 KB
Execution time	0.13 µs
Memory card	Micro SD-Card
Internal memory	RAM: 512 MB (-B5) / 1 GB (-B10) ROM: 3 GB system memory (-B5) / 6 GB (-B10) ROM: 1 GB user memory (-B5) / 2 GB (-B10)
Communication	
Connections	RS232 RS485 CAN
Modules	Add up to 3 COM modules
Protocol	MQTT Client, EtherNet/IP, MODBUS TCP, CANopen, CANlayer2, UniCAN, SNMP, BACnet, KNX and M-Bus via gateway, Message Composer for 3rd party protocols
General data	
Storage temperature (no ice)	-30 ... 70 °C / -22 ... 158 °F
Operation temperature	-20 ... 55 °C / -4 ... 131 °F
Back-up battery	Model: 3V CR2032, Battery lifetime: 4 years typical at 25 °C, Battery Low detection and indication (via the HMI and via System Tag)
Dimensions	see fig. 1
Mounting	Panel with brackets
Ingress Protection	IP 66 / NEMA4X (Front face), IP 20 / NEMA1 (Rear side)
Relative humidity, no condensation	5 ... 95 %

Product references

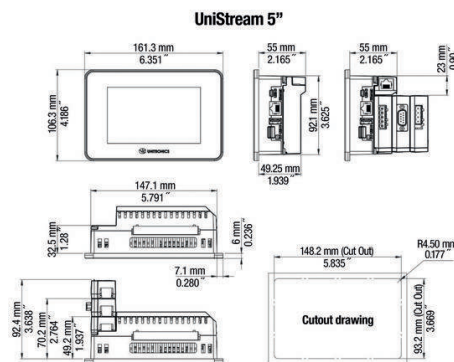
Description	Type	12-24	24
No built-in I/Os	US5-B10-B1	✓	
24 digital, including 4 HSC, 2 analog inputs 12 relay outputs	US5-B10-R38		✓
14 digital, including 2 HSC, 2 analog, 2 temperature inputs 8 relay, 2 analog outputs	US5-B10-RA28		✓
10 digital, 2 analog inputs 12 transistor, PNP, including 2 PWM outputs	US5-B10-T24		✓
24 digital, including 4 HSC, 2 analog inputs 16 transistor, PNP, including 2 PWM outputs	US5-B10-T42		✓
14 digital, including 2 HSC, 2 analog, 2 temperature inputs 10 transistor, PNP, including 2 PWM, 2 analog outputs	US5-B10-TA30		✓
10 digital, 2 analog inputs 12 transistor, PNP, including 2 PWM outputs	US5-B10-TR22		✓
No built-in I/Os	US5-B5-B1	✓	
24 digital, including 4 HSC, 2 analog inputs 12 relay outputs	US5-B5-R38	✓	
14 digital, including 2 HSC, 2 analog, 2 temperature inputs 8 relay, 2 analog outputs	US5-B5-RA28	✓	
10 digital, 2 analog inputs 12 transistor, PNP, including 2 PWM outputs	US5-B5-T24	✓	
24 digital, including 4 HSC, 2 analog inputs 16 transistor, PNP, including 2 PWM outputs	US5-B5-T42	✓	
14 digital, including 2 HSC, 2 analog, 2 temperature inputs 10 transistor, PNP, including 2 PWM, 2 analog outputs	US5-B5-TA30	✓	
10 digital, 2 analog inputs 2 transistor, NPN, including 2 PWM, 8 relay outputs	US5-B5-TR22	✓	

Other devices on request. Please contact support@comatreleco.com.

The UniLogic software is available free of charge on www.unitronicsplc.com at downloads.



fig. 1. Dimensions (mm)



Technical approvals, conformities

Approvals

7.7 UniStream® Series
UniStream 5" Built-in
US5-Bxx-xxx

Accessories

Expansion Adapters

UAG-CX-XKP125, UAG-CX-XKP300, UAG-CX-XKPL600, UAG-CX-XKPL1200, UAG-CX-XKPL1500, UAG-CX-XKPL2000, UAG-CX-XKPL3000

Uni-COM

I/O Expansion Modules

UAC-CX-01RS2, UAC-CX-01RS4, UAC-CX-01CAN
 IO-DI8-T08, IO-DI8-R04, IO-DI8-R08, EX90-DI18-R08, IO-T016, IO-R08, IO-R016, IO-DI8ACH, IO-AI4-A02, IO-PT400, IO-PT4K, IO-A06X, IO-LC1, IO-LC3, IO-ATC8, IO-AI8, IO-D16A3-R016, EX-D16A3-R08, EX-D16A3-T016, EX-A2X, EX-RC1

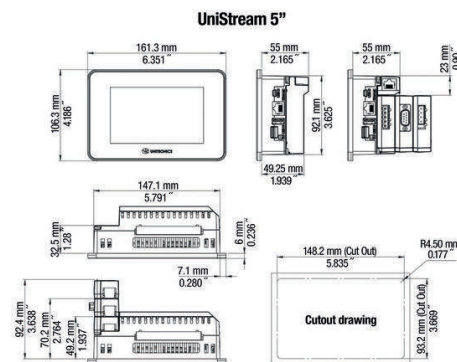
Routers

DIN rail kit for UCR B5/B8

UCR-ST-B5-EU, UCR-ST-B8-EU
 UCR-OP-B5-DIN



fig. 1. Dimensions (mm)



Technical approvals, conformities

Approvals

7.7 UniStream® Series

UniStream 7" Built-in

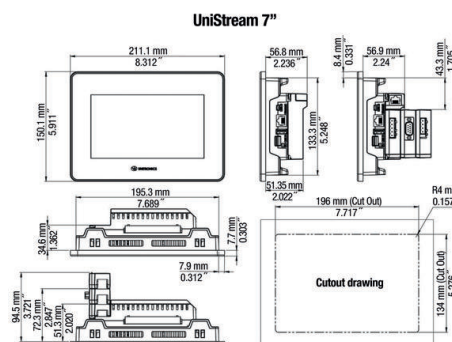
US7-Bxx-xxx



HMI	
Display	7" (16:9) touchscreen, TFT, LCD, 65 536 (16 bit) colors
Resolution	800 x 480 pixels (WVGA)
Power supply	
Nominal voltage	24 V DC
Memory	
Number of ladder code memory (virtual)	1,000 KB
Execution time	0.13 µs
Memory card	Micro SD-Card
Internal memory	RAM: 512 MB (-B5) / 1 GB (-B10) ROM: 3 GB system memory (-B5) / 6 GB (-B10) ROM: 1 GB user memory (-B5) / 2 GB (-B10)
Communication	
Connections	RS232 RS485 CAN
Modules	Add up to 3 COM modules
Protocol	MQTT Client, EtherNet/IP, MODBUS TCP, CANopen, CANlayer2, UniCAN, SNMP, BACnet, KNX and M-Bus via gateway, Message Composer for 3rd party protocols
General data	
Storage temperature (no ice)	-30 ... 70 °C / -22 ... 158 °F
Operation temperature	-20 ... 55 °C / -4 ... 131 °F
Back-up battery	Model: 3V CR2032, Battery lifetime: 4 years typical at 25 °C, battery back-up for all memory and RTC
Dimensions	see fig. 1
Mounting	Panel with brackets
Ingress Protection	IP 20 / NEMA1 (case), IP 66 / NEMA4X (front Panel)
Relative humidity, no condensation	5 ... 95 %



fig. 1. Dimensions (mm)



Technical approvals, conformities

Approvals

Product references

Description	Type	12-24	24
No built-in I/Os	US7-B10-B1	✓	
24 digital, including 4 HSC, 2 analog inputs 12 relay outputs	US7-B10-R38		✓
14 digital, including 2 HSC, 2 analog, 2 temperature inputs 8 relay, 2 analog outputs	US7-B10-RA28		✓
10 digital, 2 analog inputs 12 transistor, PNP, including 2 PWM outputs	US7-B10-T24		✓
24 digital, including 4 HSC, 2 analog inputs 16 transistor, PNP, including 2 PWM outputs	US7-B10-T42		✓
14 digital, including 2 HSC, 2 analog, 2 temperature inputs 10 transistor, PNP, including 2 PWM, 2 analog outputs	US7-B10-TA30		✓
10 digital, 2 analog inputs 2 transistor, NPN, including 2 PWM, 8 relay outputs	US7-B10-TR22		✓
No built-in I/Os	US7-B5-B1	✓	
24 digital, including 4 HSC, 2 analog inputs 12 relay outputs	US7-B5-R38		✓
14 digital, including 2 HSC, 2 analog, 2 temperature inputs 8 relay, 2 analog outputs	US7-B5-RA28		✓
10 digital, 2 analog inputs 12 transistor, PNP, including 2 PWM outputs	US7-B5-T24		✓
24 digital, including 4 HSC, 2 analog inputs 16 transistor, PNP, including 2 PWM outputs	US7-B5-T42		✓
14 digital, including 2 HSC, 2 analog, 2 temperature inputs 10 transistor, PNP, including 2 PWM, 2 analog outputs	US7-B5-TA30		✓
10 digital, 2 analog inputs 2 transistor, NPN, including 2 PWM, 8 relay outputs	US7-B5-TR22		✓

Other devices on request. Please contact support@comatreleco.com.

The UniLogic software is available free of charge on www.unitronicsplc.com at downloads.

7.7 UniStream® Series
UniStream 7" Built-in
US7-Bxx-xxx



Accessories

Expansion Adapters

UAG-CX-XKP125, UAG-CX-XKP300, UAG-CX-XKPL600, UAG-CX-XKPL1200, UAG-CX-XKPL1500, UAG-CX-XKPL2000, UAG-CX-XKPL3000

Uni-COM

I/O Expansion Modules

UAC-CX-01RS2, UAC-CX-01RS4, UAC-CX-01CAN
 IO-DI8-T08, IO-DI8-R04, IO-DI8-R08, IO-DI16, IO-T016, IO-R08, IO-R016, IO-DI8ACH, IO-AI4-A02, IO-PT400, IO-PT4K, IO-A06X, IO-LC1, IO-LC3, IO-ATC8, IO-AI8, IO-D16A3-R016, EX-D16A3-R08, EX-D16A3-T016, EX-A2X, EX-RC1

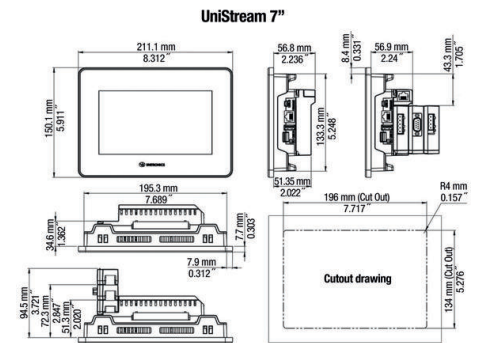
Routers

DIN rail kit for UCR B5/B8

UCR-ST-B5-EU, UCR-ST-B8-EU
 UCR-OP-B5-DIN



fig. 1. Dimensions (mm)



Technical approvals, conformities

Approvals

7.7 UniStream® Series
UniStream 10.1" Built-in
US10-Bxx-xxx



HMI	
Display	10.1" (16:9) touchscreen, TFT, LCD, 65 536 (16 bit) colors
Resolution	1 024 x 600 pixels (WSVGA)

Power supply	
Nominal voltage	24 V DC

Memory	
Number of ladder code memory (virtual)	1,000 KB
Execution time	0.13 µs
Memory card	Micro SD-Card
Internal memory	RAM: 512 MB (-B5) / 1 GB (-B10) ROM: 3 GB system memory (-B5) / 6 GB (-B10) ROM: 1 GB user memory (-B5) / 2 GB (-B10)

Communication	
Connections	RS232 RS485 CAN
Modules	Add up to 3 COM modules
Protocol	MQTT Client, EtherNet/IP, MODBUS TCP, CANopen, CANlayer2, UniCAN, SNMP, BACnet, KNX and M-Bus via gateway, Message Composer for 3rd party protocols

General data	
Storage temperature (no ice)	-30 ... 70 °C / -22 ... 158 °F
Operation temperature	-20 ... 55 °C / -4 ... 131 °F
Back-up battery	Model : 3V CR2032, Battery lifetime: 4 years typical at 25 °C, battery back-up for all memory and RTC
Dimensions	see fig. 1
Mounting	Panel with brackets
Ingress Protection	IP 66 / NEMA4X (front face) ,IP 20 / NEMA1 (reare side)
Relative humidity, no condensation	5 ... 95 %

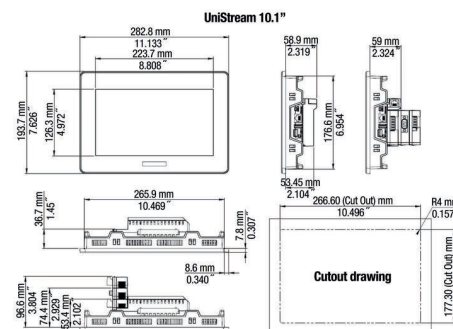
Product references

Description	Type	12-24	24
No built-in I/Os	US10-B10-B1	✓	
24 digital, including 4 HSC, 2 analog inputs 12 relay outputs	US10-B10-R38		✓
14 digital, including 2 HSC, 2 analog, 2 temperature inputs 8 relay, 2 analog outputs	US10-B10-RA28		✓
10 digital, 2 analog inputs 12 transistor, PNP, including 2 PWM outputs	US10-B10-T24		✓
24 digital, including 4 HSC, 2 analog inputs 16 transistor, PNP, including 2 PWM outputs	US10-B10-T42		✓
14 digital, including 2 HSC, 2 analog, 2 temperature inputs 10 transistor, PNP, including 2 PWM, 2 analog outputs	US10-B10-TA30		✓
10 digital, 2 analog inputs 2 transistor, NPN, including 2 PWM, 8 relay outputs	US10-B10-TR22		✓
24 digital, including 4 HSC, 2 analog inputs 12 relay outputs	US10-B5		✓
No built-in I/Os	US10-B5-B1	✓	
24 digital, including 4 HSC, 2 analog inputs 16 transistor, PNP, including 2 PWM outputs	US10-B5-R42		✓
14 digital, including 2 HSC, 2 analog, 2 temperature inputs 8 relay, 2 analog outputs	US10-B5-RA28		✓
10 digital, 2 analog inputs 12 transistor, PNP, including 2 PWM outputs	US10-B5-T24		✓
14 digital, including 2 HSC, 2 analog, 2 temperature inputs 10 transistor, PNP, including 2 PWM, 2 analog outputs	US10-B5-TA30		✓
10 digital, 2 analog inputs 2 transistor, NPN, including 2 PWM, 8 relay outputs	US10-B5-TR22		✓

Other devices on request. Please contact support@comatreleco.com.
 The UniLogic software is available free of charge on www.unitronicsplc.com at downloads.



fig. 1. Dimensions (mm)



Technical approvals, conformities



7.7 UniStream® Series
UniStream 10.1" Built-in
US10-Bxx-xxx



Accessories

Expansion Adapters

UAG-CX-XKP125, UAG-CX-XKP300, UAG-CX-XKPL600, UAG-CX-XKPL1200, UAG-CX-XKPL1500, UAG-CX-XKPL2000, UAG-CX-XKPL3000

Uni-COM

I/O Expansion Modules

UAC-CX-01RS2, UAC-CX-01RS4, UAC-CX-01CAN
 IO-DI8-T08, IO-DI8-R04, IO-DI8-R08, EX90-DI18-R08, IO-DI16, IO-T016, IO-R08, IO-R016, IO-DI8ACH, IO-AI4-A02, IO-PT400, IO-PT4K, IO-A06X, IO-LC1, IO-LC3, IO-ATC8, IO-AI8, IO-D16A3-R016, EX-D16A3-R08, EX-D16A3-T016, EX-A2X, EX-RC1

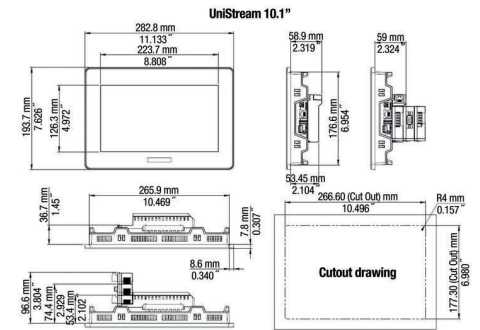
Routers

DIN rail kit for UCR B5/B8

UCR-ST-B5-EU, UCR-ST-B8-EU
 UCR-OP-B5-DIN



fig. 1. Dimensions (mm)



Technical approvals, conformities

Approvals

USC**USC-B3-xxx, USC-B5-xxx, USC-B10-xxx****Memory**

Number of ladder code memory (virtual)	1,000 KB
Execution time	0.13 µs
Memory card	Micro SD-Card

Communication

Connections	RS232 RS485
Modules	Add up to 3 COM modules
Protocol	MQTT Client, EtherNET/IP, MODUS: Serial & TCP/IP, CANopen, CANlayer2, UniCAN, SNMP, BACnet, KNX and M-Bus via gateway, Message Composer for 3rd party protocols

General data

Storage temperature (no ice)	-30 ... 70 °C / -22 ... 158 °F
Operation temperature	-20 ... 55 °C / -4 ... 131 °F
Back-up battery	Model: 3V CR2032 Lithium battery, Battery lifetime: 4 years typical, at 25 °C, Battery Low detection and indication (via BATT. LOW indicator and via System Tag).
Dimensions	see fig. 1
Mounting	DIN rail
Ingress Protection	IP 20 / NEMA1
Relative humidity, no condensation	5 ... 95 %

Product references

Description	Type	12-24
PLC	USC-B10-B1	✓
PLC	USC-B10-R38	✓
PLC	USC-B10-RA28	✓
PLC	USC-B10-T24	✓
PLC	USC-B10-T42	✓
PLC	USC-B10-TA30	✓
PLC	USC-B10-TR22	✓
PLC	USC-B3-R20	✓
PLC	USC-B3-T20	✓
PLC	USC-B5-B1	✓
PLC	USC-B5-R38	✓
PLC	USC-B5-RA28	✓
PLC	USC-B5-T24	✓
PLC	USC-B5-T42	✓
PLC	USC-B5-TA30	✓
PLC	USC-B5-TR22	✓

Other devices on request. Please contact support@comatreleco.com.

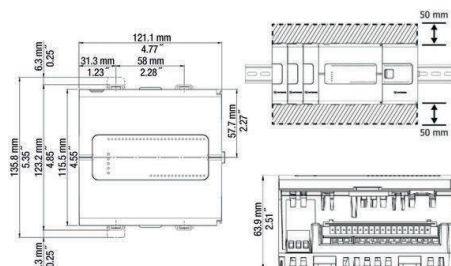
The UniLogic software is available free of charge on www.unitronicsplc.com at downloads.

Accessories

Expansion Adapters	UAG-XK125, UAG-XKP125, UAG-XKP300
Uni-COM	UAC-01RS2, UAC-02RS2
I/O Expansion Modules	IO-DI8-T08, IO-DI8-R04, IO-DI8-R08, EX90-DI18-R08, IO-DI16, IO-T016, IO-R08, IO-R016, IO-DI8ACH, IO-AI4-A02, IO-PT400, IO-PT4K, IO-A06X, IO-LC1, IO-LC3, IO-ATC8, IO-AI8, IO-D16A3-R016, EX-D16A3-R08, EX-D16A3-T016, EX-A2X, EX-RC1
Routers	UCR-ST-B5-EU, UCR-ST-B8-EU
DIN rail kit for UCR B5/B8	UCR-OP-B5-DIN



fig. 1. Dimensions (mm)

**Technical approvals, conformities**

Standards IEC 60068-2-27; IEC 60068-2-6

Approvals

HMI	
Display	Touchscreen, TFT, resistive, analog, 65 536 (16 bit) colors, 16M (24 bit) colors (15.6")
Resolution	800 x 480 (WVGA) 5", 800 x 480 (WVGA) 7", 1 024 x 600 (WSVGA) 10.1" and 1 366 x 768 15.6"

Power supply	
Nominal voltage	12 ... 24 V DC
Operating voltage range	10.2 ... 28.8 V DC

Communication	
Connections	Ethernet USB

General data	
Storage temperature (no ice)	-30 ... 70 °C / -22 ... 158 °F
Operation temperature	-20 ... 55 °C / -4 ... 131 °F
Dimensions	106.3 x 161.3 x 32.7 (5"), 150.5 x 211.5 x 34.9 (7"), 193.7 x 282.8 x 44.5 (10.1"), 265.1 x 55.6 x 411.1 (15.6")
Weight	280 g (5"), 600 g (7"), 1 000 g (10.1"), 2 900 g (15.6")
Mounting	Panel with brackets
Ingress Protection	IP 20 / NEMA1 (Rear side), IP 65/66 / NEMA4X (Front face)
Relative humidity, no condensation	5 ... 95 %

Product references

Description	Type	12-24
HMI Panel	USL-050-B05	✓
HMI Panel	USL-070-B05	✓
HMI Panel	USL-101-B05	✓
HMI Panel	USL-156-B05	✓

Other devices on request. Please contact support@comatreleco.com.
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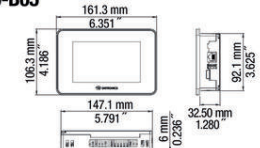
Accessories

I/O Expansion Modules	IO-DI8-T08, IO-DI8-R04, IO-DI8-R08, IO-DI16, IO-T016, IO-R08, IO-R016, IO-DI8ACH, IO-AI4-A02, IO-PT400, IO-PT4K, IO-A06X, IO-LC1, IO-LC3, IO-ATC8, IO-AI8, IO-D16A3-R016, EX-D16A3-R08, EX-D16A3-T016, EX-A2X, EX-RC1
Routers	UCR-ST-B5-EU, UCR-ST-B8-EU
DIN rail kit for UCR B5/B8	UCR-OP-B5-DIN

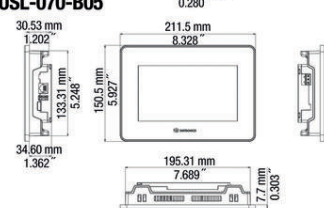


fig. 1. Dimensions (mm)

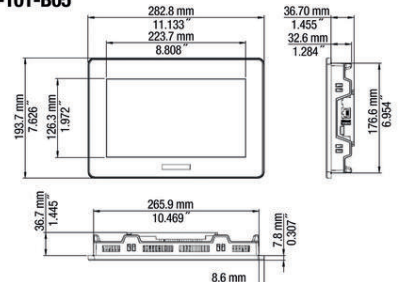
USL-050-B05



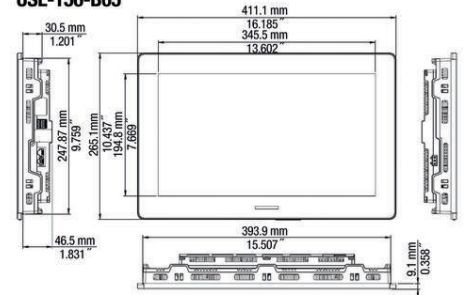
USL-070-B05



USL-101-B05



USL-156-B05



Technical approvals, conformities

Standards IEC 60068-2-27; IEC 60068-2-6

Approvals

7.7 UniStream® Series UniStream Modular USP-xxx

HMI	
Display	Touchscreen, TFT, LCD, resistive, analog, 65 536 (16 bit) colors
Resolution	800 x 480 (QVGA) 7" (16:9), 800 x 600 (SVGA) 10.4" (4:3), 1366 x 768 15.6" (16:9)

Power supply	
Nominal voltage	12 ... 24 V DC
Operating voltage range	10.2 ... 28.8 V DC

Memory	
Memory card	Micro SD-Card

Communication	
Connections	Ethernet USB

General data	
Storage temperature (no ice)	-30 ... 70 °C / -22 ... 158 °F
Operation temperature	-20 ... 55 °C / -4 ... 131 °F
Dimensions	150.1 x 211.1 x 49.1 (7"), 295.9 x 228.8 x 46.8 (10.4"), 411.1 x 265.1 x 55.6 (15.6")
Weight	700 g (7"), 1 450 g (10.4"), 1 600 g (15.6")
Mounting	Panel with brackets
Ingress Protection	IP 20 / NEMA1 (case), IP 65/IP66 / NEMA4X (front panel)
Relative humidity, no condensation	5 ... 95 %

Product references

Description	Type	12-24
PLC	USC-P-B10	✓
HMI Panel	USP-070-B08	✓
HMI Panel	USP-070-B10	✓
HMI Panel	USP-104-B10	✓
HMI Panel	USP-104-M10	✓
HMI Panel	USP-156-B10	✓

Other devices on request. Please contact support@comatreleco.com.
The VisiLogic software is available free of charge on www.unitronicsplc.com at downloads.

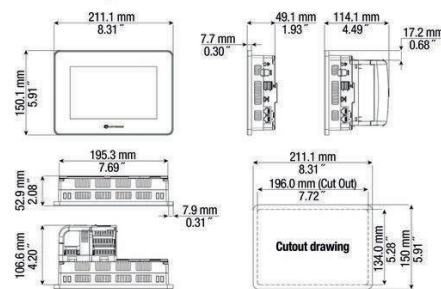
Accessories

Expansion Adapters	UAG-XK125, UAG-XKP125, UAG-XK300, UAG-XKP300, UAG-XKPL600, UAG-XKPL1200, UAG-XKPL1500, UAG-XKPL2000, UAG-XKPL3000
Uni-COM I/O Expansion Modules	UAC-01RS2, UAC-02RS2 IO-DI8-T08, IO-DI8-R04, IO-DI8-R08, IO-DI16, IO-T016, IO-R08, IO-R016, IO-DI8ACH, IO-AI4-A02, IO-PT400, IO-PT4K, IO-A06X, IO-LC1, IO-LC3, IO-ATC8, IO-AI8, IO-D16A3-R016, EX-D16A3-R08, EX-D16A3-T016, EX-A2X, EX-RC1
Routers	UCR-ST-B5-EU, UCR-ST-B8-EU
DIN rail kit for UCR B5/B8	UCR-OP-B5-DIN

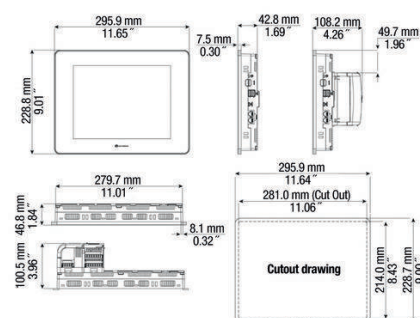


fig. 1. Dimensions (mm)

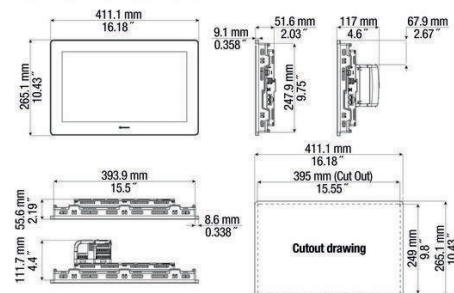
USP-070-x08, USP-070-x10 7" Panel



USP-104-x10, USP-104-M10 10.4" Panel



USP-156-x10 15.6" Panel









Technical approvals, conformities

Standards IEC 60068-2-27; IEC 60068-2-6

Approvals

7.8 Accessories & Modules

	Type	Pin	Page
Accessories & Modules			
GW-xxx	Comm Gateways		477
I/O Expansion Modules for Vision series			
EXL-xxx	Expansion adapter cables		478
IO-xxx / EX-xxx / EXF-xxx / EXL-xxx	I/O Expansion Modules for Vision series		478
Vision & Samba COM Modules			
M90-19-xxx / MJ10-22-xxx / V100-17-xxx / V200-19-xxx	Vison & Samba COM Modules		479
Snap-In-I/O-Module			
V200-18-xxx	Snap-in I/O Module		480
Routers			
UCR-ST-xxx	Routers		481
UCR-OP-xxx	DIN rail kit for Routers		481
Uni-I/O modules			
UAG-XKxxx / UAG-CXxxx	Uni-I/O Modules		482
UID-xxx / UIA-xxx / UIS-xxx	Local I/O Modules		482
Uni-COM			
UAC-xxx / UAC-CB-xxx / UAC-CX-xxx	Uni-COM		483
Remote I/O			
URA-xxx / URB-xxx / URD-xxx / URS-xxx / URP-xxx	Remote I/O Modules via Ethernet		484

	Type	Pin	Page
Jazz Add-on ports and Accessories			
JZ-xxx, MJ20-xxx, USB2-xxx	Jazz Add-on ports and Accessories		485

Comm Gateways

GW-xxx

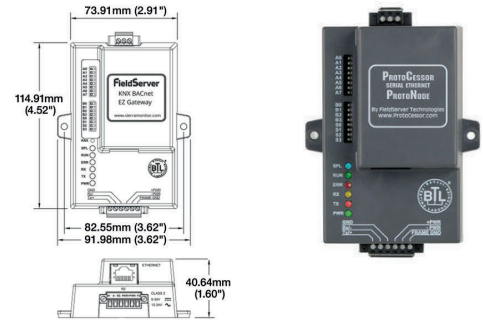
General data

Operation temperature	-40 ... 75 °C / -40 ... 167 °F
Dimensions	see fig. 1
Mounting	Wall mounting and DIN rail mounting bracket with FS-8915-35-QS
Relative humidity, no condensation	5 ... 90 %

Product references

Description	Type
Communication Gateways	GW-KNX1

Other devices on request. Please contact support@comatreleco.com.
The FieldServer software is available free of charge on <https://us.msasafety.com> to download



Expansion adapter cables

EXL-xxx

Product references

Description	Type
Expansion adapter cables	EXL-CAB050
Expansion adapter cables	EXL-CAB100
Expansion adapter cables	EXL-CAB1000
Expansion adapter cables	EXL-CAB200
Expansion adapter cables	EXL-CAB2000
Expansion adapter cables	EXL-CAB295
Expansion adapter cables	EXL-CAB400
Expansion adapter cables	EXL-CAB500
Expansion adapter cables	EXL-CAB600

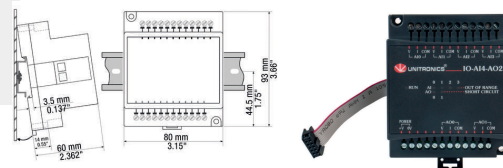


I/O Expansion Modules for Vision series

IO-xxx / EX-xxx / EXF-xxx / EXL-xxx

General data

Storage temperature (no ice)	-20 ... 60 °C / -4 ... 140 °F
Operation temperature	0 ... 50 °C / 32 ... 122 °F
Dimensions	see fig. 1
Mounting	DIN rail
Ingress Protection	IP 20 / NEMA1
Relative humidity, no condensation	5 ... 95 %



Product references

Description	Type
8 digital Inputs	IO-DI8ACH
4 analog inputs 2 analog outputs	IO-AI4-AO2
8 analog inputs	IO-AI8
6 analog outputs	IO-AO6X
8 Thermocouple	IO-ATC8
16 digital, 2 HSC, 3 analog inputs 16 relay outputs	IO-D16A3-R016
16 digital, 1 HSC inputs	IO-DI16
8 relay outputs	IO-DI8-R04
8 digital, 1 HSC inputs 8 relay outputs	IO-DI8-R08
8 digital, 1 HSC inputs 8 transistors outputs	IO-DI8-T08
1 digital, 1 loadcell/strain gauge inputs 2 transistor outputs	IO-LC1
1 digital, 3 loadcell/strain gauge inputs 2 transistor outputs	IO-LC3
4 PT100/Ni100/Ni120	IO-PT400
4 PT1000/Ni1000	IO-PT4K
16 relay outputs	IO-R016
8 relay outputs	IO-R08
16 transistor outputs	IO-T016
Local I/O module adapter	EX-A2X
Remote I/O module adapter	EX-RC1
16 digital, 2 HSC, 3 analog inputs 8 relay outputs	EX-D16A3-R08
16 digital, 1 HSC, 3 analog inputs 15 transistor, 1 PWM/HSO outputs	EX-D16A3-T016
8 digital, 1 HSC inputs 8 relay outputs	EX90-DI8-R08

Other devices on request. Please contact support@comatreleco.com.

Vison & Samba COM Modules

M90-19-xxx / MJ10-22-xxx / V100-17-xxx / V200-19-xxx

General data

Storage temperature (no ice)	-20 ... 60 °C / -4 ... 140 °F
Operation temperature	0 ... 50 °C / 32 ... 122 °F
Relative humidity, no condensation	10 ... 95 %

Product references

Description	Type
COM Modules	V200-19-ET2
COM Modules	V200-19-RS4
COM Modules	V100-17-CAN
COM Modules	V100-17-ET2
COM Modules	V100-17-PB1
COM Modules	V100-17-RS4
COM Modules	V100-17-RS4X
COM Modules	M90-19-R4

Other devices on request. Please contact support@comatreleco.com.

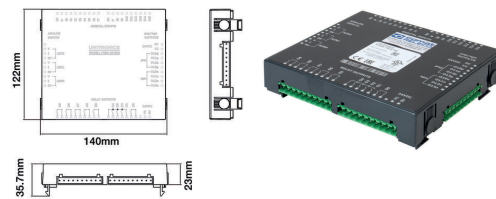


Snap-in I/O Module

V200-18-xxx

General data

Storage temperature (no ice)	-20 ... 60 °C / -4 ... 140 °F
Operation temperature	0 ... 50 °C / 32 ... 122 °F
Dimensions	see fig. 1
Ingress Protection	IP 20 / NEMA1
Relative humidity, no condensation	5 ... 95 %



Product references

Description	Type
16 digital, 2 HSC/shaft encoder, 3 analog inputs 4 transistor, 2 PWM/HSO, 10 relay outputs	V200-18-E1B
16 digital, 2 HSC/shaft encoder, 2 analog inputs 4 transistor, 2 PWM/HSO, 10 relay, 2 analog outputs	V200-18-E2B
18 digital, 2 HSC/shaft encoder, 4 analog PT100 inputs 2 transistor, 2 PWM/HSO, 15 relay, 4 analog outputs	V200-18-E3XB
18 digital, 2 HSC/shaft encoder, 9 analog inputs 2 transistor, 2 PWM/HSO, 15 relay, 2 analog outputs	V200-18-E46B
18 digital, 2 HSC/shaft encoder, 4 analog PT100 inputs 15 transistor, 2 PWM/HSO, 4 analog outputs	V200-18-E4XB
18 digital, 2 HSC/shaft encoder, 3 analog inputs 15 transistor, 2 PWM/HSO outputs	V200-18-E5B
30 digital, 2 HSC/shaft encoder, 2 analog inputs 30 transistor, 2 PWM/HSO outputs	V200-18-E62B

Other devices on request. Please contact support@comatreleco.com.

Routers

UCR-ST-xxx

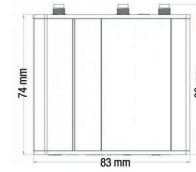
General data

Storage temperature (no ice)	-40 ... 75 °C / -40 ... 167 °F
Operation temperature	-40 ... 75 °C / -40 ... 167 °F
Mounting	DIN rail with DIN rail kit / M3 screws

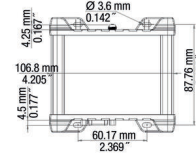
Product references

Description	Type
4G, 3G, 2G Cellular Router B5 for Europe	UCR-ST-B5-EU
4G, 3G, 2G Cellular Router B8 for Europe	UCR-ST-B8-EU
Other devices on request. Please contact support@comatreleco.com.	

UCR-ST-B5



UCR-ST-B8



DIN rail kit for Routers

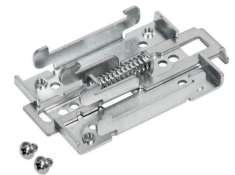
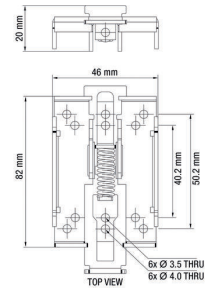
UCR-OP-xxx

General data

Dimensions	see fig. 1
Mounting	DIN rail

Product references

Description	Type
DIN rail kit for UCR B5/B8	UCR-OP-B5-DIN
Other devices on request. Please contact support@comatreleco.com.	



Uni-I/O Modules

UAG-XKxxx / UAG-CXxxx

General data

Storage temperature (no ice)	-30 ... 70 °C / -22 ... 140 °F
Operation temperature	-20 °C ... 55 °C / -4 ... 131 °F
Mounting	DIN rail
Ingress Protection	IP 20 / NEMA1
Relative humidity, no condensation	5 ... 95%



Product references

Description	Type
Short range adapter kit	UAG-CX-XK125
Short range adapter kit	UAG-CX-XKP300
Long range adapter kit	UAG-CX-XKPL1200
Long range adapter kit	UAG-CX-XKPL1500
Long range adapter kit	UAG-CX-XKPL2000
Long range adapter kit	UAG-CX-XKPL3000
Long range adapter kit	UAG-CX-XKPL600
Short range adapter kit	UAG-XK125
Short range adapter kit	UAG-XK300
Short range adapter kit	UAG-XKP125
Short range adapter kit	UAG-XKP300
Long range adapter kit	UAG-XKPL1200
Long range adapter kit	UAG-XKPL1500
Long range adapter kit	UAG-XKPL2000
Long range adapter kit	UAG-XKPL3000
Long range adapter kit	UAG-XKPL600

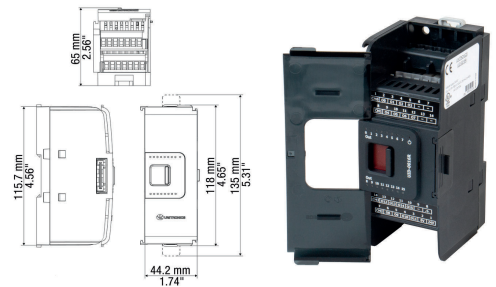
Other devices on request. Please contact support@comatreleco.com.

Local I/O Modules

UID-xxx / UIA-xxx / UIS-xxx

General data

Storage temperature (no ice)	-30 ... 70 °C / -22 ... 158 °F
Operation temperature	-20 ... 55 °C / -4 ... 131 °F
Dimensions	see fig. 1
Mounting	DIN rail
Ingress Protection	IP 20 / NEMA1
Relative humidity, no condensation	5 ... 95 %



Product references

Description	Type
6 analog outputs	UIA-006
4 analog inputs 2 analog outputs	UIA-0402N
8 analog inputs	UIA-0800N
16 relay outputs	UID-0016R
16 transistor outputs	UID-0016T
8 digital inputs 8 relay outputs	UID-0808R
8 digital inputs 8 transistor outputs	UID-0808T
8 digital, 2 HSC/shaft encoder inputs 8 transistor, 2 PWM/HSO outputs	UID-0808THS
16 digital inputs	UID-1600
16 digital inputs 16 relay outputs	UID-W1616R
16 Digital 16 Transistor	UID-W1616T
4 PT100/Ni100/Ni120	UIS-04PTN
8 Thermocouple	UIS-08TC
10 digital, 2 HSC/shaft encoder, 2 analog, 2 PT100/ Ni100/Ni120 inputs 2 Transistor, 2 PWM/HSO, 8 relay, 2 analog outputs	UIS-WCB1

Other devices on request. Please contact support@comatreleco.com.

Uni-COM

UAC-xxx / UAC-CB-xxx / UAC-CX-xxx

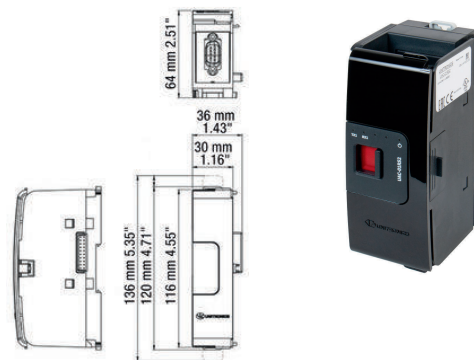
General data

Storage temperature (no ice)	-30 ... 70 °C / -22 ... 158 °F
Operation temperature	-20 ... 55 °C / -4 ... 131 °F
Dimensions	see fig. 1
Mounting	DIN rail
Ingress Protection	IP 20 / NEMA1
Relative humidity, no condensation	5 ... 95 %

Product references

Description	Type
Modules	UAC-01RS2
Modules	UAC-02RS2
CB Modules	UAC-CB-01CAN
CB Modules	UAC-CB-01RS2
CB Modules	UAC-CB-01RS4
CX Modules	UAC-CX-01CAN
CX Modules	UAC-CX-01RS2
CX Modules	UAC-CX-01RS4

Other devices on request. Please contact support@comatreleco.com.



Remote I/O Modules via Ethernet

URA-xxx / URB-xxx / URD-xxx / URS-xxx / URP-xxx

General data

Storage temperature (no ice)	-40 ... 70 °C / -40 ... 158 °F
Operation temperature	-40 ... 70 °C / -40 ... 158 °F
Dimensions	Slim modules – 12 mm only
Mounting	DIN rail
Ingress Protection	IP 20 / NEMA1
Relative humidity, no condensation	5 ... 90 %



Product references

Description	Type
4 analog current outputs 12-bit, 10 pin	URA-0004W
4 analog current outputs 12-bit, 10 pin	URA-0004X
4 analog current inputs 16-bit, 10 pin	URA-0004Y
4 analog voltage outputs 16-bit, 10 pin	URA-0004Z
8 analog current outputs 12-bit, 10 pin	URA-0008W
8 analog current outputs 12-bit, 10 pin	URA-0008X
8 analog current outputs 16-bit, 10 pin	URA-0008Y
8 analog voltage outputs 16-bit, 10 pin	URA-0008Z
16 analog voltage outputs 12-bit, 18 pin	URA-0016X-8
16 analog voltage outputs 16-bit, 18 pin	URA-0016Z-8
4 analog current inputs 12-bit, 10 pin	URA-04000
4 analog voltage inputs 12-bit, 10 pin	URA-0400P
4 analog current inputs 16-bit, 10 pin	URA-0400T
4 analog voltage inputs 16-bit, 10 pin	URA-0400U
8 analog current inputs 12-bit, 10 pin	URA-08000
8 analog current inputs 12-bit, 10 pin	URA-0800P
8 analog current inputs 16-bit, 10 pin	URA-0800T
8 analog voltage inputs 16-bit, 10 pin	URA-0800U
16 analog current inputs 12-bit, 18 pin	URA-16000-8
16 analog voltage inputs 12-bit, 18 pin	URA-1600P-8
16 analog current inputs 16-bit, 18 pin	URA-1600T-8
16 analog voltage inputs 16-bit, 18 pin	URA-1600U-8
4 relay outputs, 10 pin	URD-0004RH
4 relay outputs, 10 pin	URD-0004SK
4 solid state relay outputs, 110 V, 10 pin	URD-0004SM
4 solid state relay outputs, 24 V, 10 pin	URD-0004SN
8 digital outputs (sink), 10 pin	URD-0008CH
8 digital outputs (sink), 10 pin	URD-0008CI
8 digital outputs (sink), 10 pin	URD-0008NH
8 digital outputs (sink), 10 pin	URD-0008NI
16 digital outputs (sink), 18 pin	URD-0016CG-8
16 digital outputs (sink), 18 pin	URD-0016NG-8
32 digital inputs universal, 40 pin	URD-0032CG-4
32 digital outputs (sink), 40 pin	URD-0032NG-4
2 HSC/encoder inputs, 10 pin, 5 V DC	URD-0200D
2 HSC/encoder inputs, 10 pin, 24 V DC	URD-0200E
2 pulse outputs, 10 pin	URD-02PU
2 PWM outputs, 10 pin	URD-02PW
4 digital inputs, 120 V AC, 10 pin	URD-0400B
4 digital inputs, 240 V AC, 10 pin	URD-0400C
4 PWM outputs, 10 pin	URD-04PW
8 digital inputs universal, 10 pin	URD-0800
16 digital inputs universal, 18 pin	URD-1600-8
32 digital inputs universal, 40 pin	URD-3200-4
Input 24 V DC, Output system Power 5 V DC/1 A	URP-PS24V
2 loadcell/strain gauge, 18 pin	URS-02LC-8
4 RTD/resistance input, 10 pin	URS-04RT
4 thermocouple / mV input, 10 pin	URS-04TC
8 RTD/resistance input, 20 pin	URS-08RT-2
8 thermocouple / mV input, 20 pin	URS-08TC-2
UniStream EtherCAT Remote IO Adapter, 16 Modules	URB-EC1
UniStream Remote IO Adapter, 63 Modules	URB-TCP
UniStream Remote IO Adapter, 6 Modules	URB-TCP2
Other devices on request. Please contact support@comatreleco.com.	

Jazz Add-on ports and Accessories

JZ-xxx, MJ20-xxx, USB2-xxx

General data

Storage temperature (no ice)	-20 ... 60 °C / -4 ... 140 °F
Operation temperature	0 ... 50 °C / 32 ... 122 °F
Ingress Protection	IP 20 / NEMA 1
Relative humidity, no condensation	10 ... 95 %

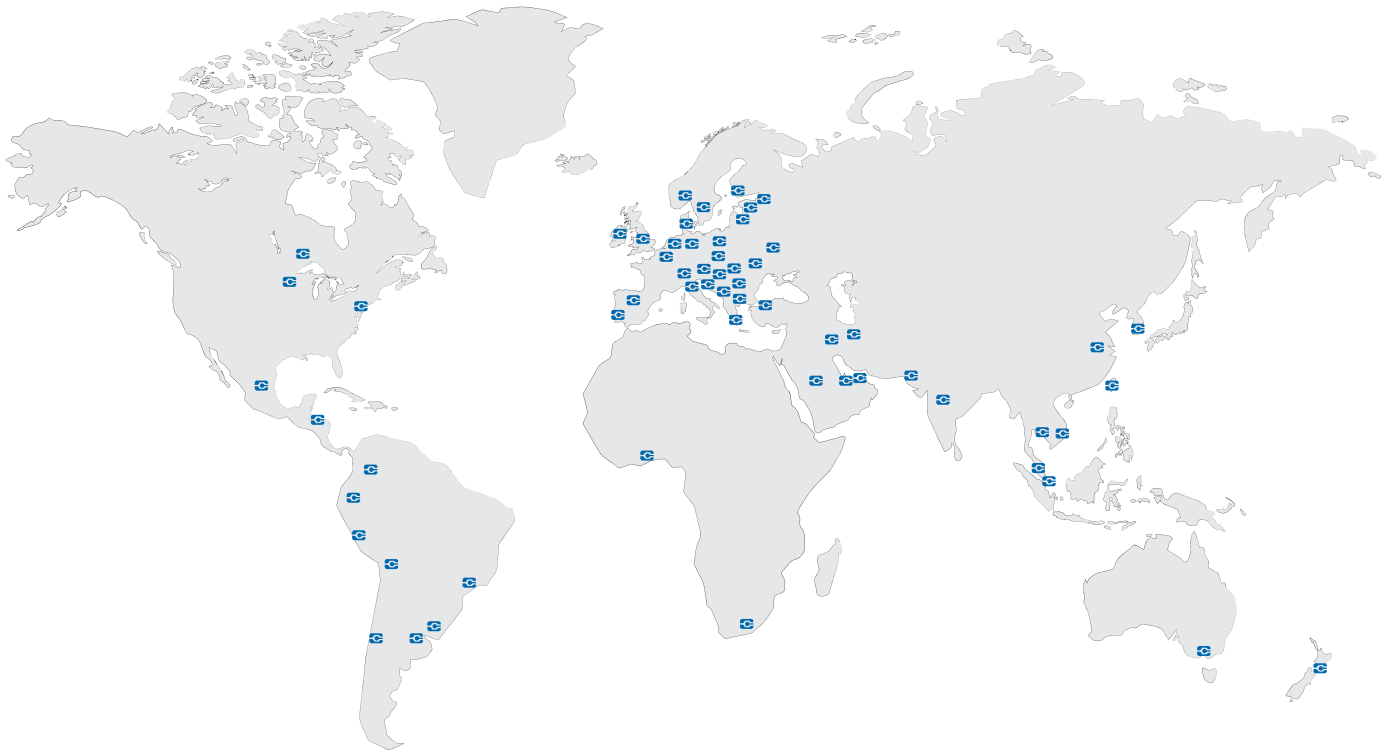
Product references

Description	Type
Jazz Add-on ports and Accessories	JZ-PRG
Jazz Add-on ports and Accessories	JZ-RS4
Jazz Add-on ports and Accessories	MJ20-ET1
Jazz Add-on ports and Accessories	MJ20-JZ-SL1
Jazz Add-on ports and Accessories	MJ20-MEM1
Jazz Add-on ports and Accessories	USB2-CAB200

Other devices on request. Please contact support@comatreleco.com.



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