

1.0 Relays & Contactors

Industrial Relays

General Information

Product range

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

Industrial Relays C2, C3, C4, C5

35 x 35 mm round plug-in relay, 8- or 11-terminals multipole connector according to IEC 67 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 3 contacts.

Industrial Relays C7, C9

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

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

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 CSS

CSS Relays are suitable to either switch AC or DC loads up to 3 A. For AC relays a distinction is made between synchronously (zero crossing) and asynchronously switching versions. For switching transformer loads we recommended 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.

* Special requirements

H = Orange button. No lockable function
N = Black button. No function
P = PCB pins

E = Lap transparent cover
T = Close transparent cover (lamp)

PT = PCB pins, 3.5mm grid, transparent cover
PTL = PCB pins, 5mm grid, transparent cover

If other requirements, please consult.

Basic identification principle (type designation code electromechanical relays)

C **n(n)** **-** **T** **X** **y** **z(*)z** **/...V** **RF-nnnn**

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.

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

X = Electric position indicating device with LED

Describes the options

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

Definition of contact material

This code may differ depending on type.
Examples:

0 in the standard range stands for AgNi
1–9 see contact material for each type

Number of contacts

Relay type

A = Standard (general-purpose) contact
E = Sensitive drive with 500 mW coil power
G = Refers to a NO contact
H = Single-point contact + twin contact load to signal current circuit for switching state feedback. 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.
N = Sensitive drive 800 mW coil power
R = Code for remanence relays, drive-specific ID
S = Sensitive drive with 250 mW exciter input
T = Twin contact for signal and control circuit
W = With tungsten contact for maximum switch-on currents
X = Relay high power, double make contact.

Basic type refers to the product line

Numbers between 2 and 12 and 20, 30 are used.

Normal industrial relay code

Relays with code R are used for railway series.

Coil accessories

General Information

Industrial Relays C2-C9

Protection against transients

When the coil is disconnected from an electro-magnet, 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 or with modules plugged into sockets S3-MP or S3-MS.

X LED indication with rectifier.

For DC and AC relays up to 250 V

Note: LED connected, in series with the coil @ 220 VDC in QRC types.

D Free-wheeling diode.

DX Free-wheeling diode + LED

Dampens transients caused by the relay coil on de-energisation.

F Polarity + free wheeling diode.

FX Polarity + free wheeling diode + LED

A diode in series with the coil protects the relay from reverse connection.

B Bridge rectifier incorporated

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.

Industrial Relays C10-C18

LED and protection circuit connected to coil.

X LED with no polarity, (standard)
Coils ≤ 12 V CC y CA

LED rectifier bridge in parallel

X LED with no polarity, (standard)
Coils ≥ 24 V ... CC y CA

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 ADC coils

Rectifier bridge for AC/DC relays

R LED not available (option)

RC protection against pulses on AC

Protection against pulses

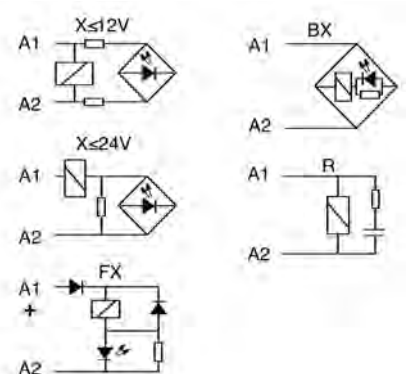
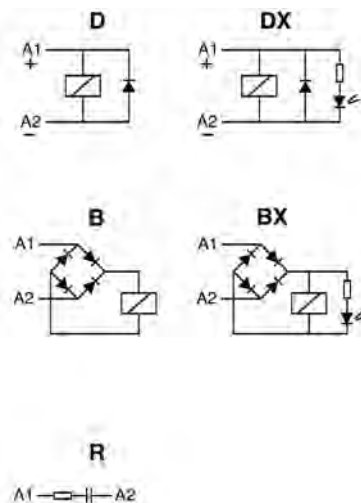
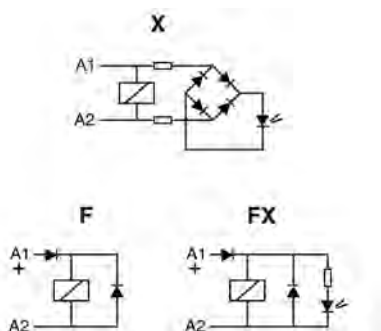
When a relay coil is disconnected, reverse voltage peaks may arise and reach very high values. Said peaks can transmit to the coil associated line and other relays or semiconductors can be affected.

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. < 24 V, < 100 mA.

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 µm) 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 µm) are available. The purpose is corrosion protection during storage. There is no other purpose.

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 mΩ.

Contact spacing

Normally all contacts have an air gap between 0.5 ... 1.5 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 special relays: series connections with a 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 AC1 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 °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 °C. The tolerance is ± 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 90 H. 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.

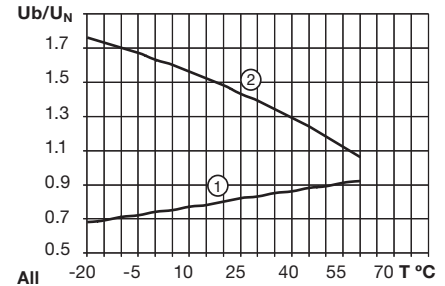
For DC these voltages are strongly temperature-dependent, according to the temperature coefficient of Cu. This is not the case for AC, where the inductive resistance is the controlling factor, which is practically constant over a wide temperature range.

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. 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 overvoltages temporary may occur for short periods. If in doubt please consult our specialists.



General design

ComatRelco 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, freewheeling 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, ComatRelco 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 freewheeling 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 freewheeling 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.

Industrial Relays

General Information

Standards, conformities

While CE marking of relays/sockets is controversial, since relays are sometimes regarded as components to which the marking requirement does not apply, all ComatReleco relays feature the CE mark to indicate that CE standards may also be applied to the relays, e.g. 2 kV surge resistance according to EN 61000-4-5.

A significant and not generally available characteristic is that the coils and in particular the connections are able to withstand the voltage spikes that may occur in practice.

In addition, the relays feature various technical approvals depending on the respective relay code, and they comply with further standards and guidelines. The main technical approvals include 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.

Examples:

AC-1 = Ohmic AC load

AC-3 = Motor loads

AC-15 = Power contactors, solenoid valves, solenoids

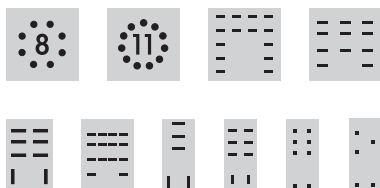
DC-1 = Ohmic DC load

DC-13 = DC contactors, solenoids

UL60947 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 the 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, all plug-in relays and the sockets are labelled with a corresponding symbol.



Main technical approvals and standards

Country	Technical approval
China	 Authority: CQC Specification GB14048.5-2001
Russia	 Authority: KORPORATSIA STANDART Specification TP TC 004/2011
USA	 Authority: UL Specification C 22.2; UL 60947
United Kingdom	 Authority: GB Lloyd's Register of Shipping

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

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.

Railway Applications

Solutions for the transport market need to guarantee safety, security and comfort. The applications are expected to last a long time under challenging conditions. Be it for high-speed trains, metros, subways or other rail vehicles

- in tunnels, on bridges, in train stations, airports, on the open track, or in harbor facilities, the Comat Releco Group has the right solution for different kind of applications.

We offer a wide range of relays, control and monitoring devices that are developed in compliance with the European Railway Standard EN 50155 (including also EN 61373, EN 45545 and NF F 16-101/102).

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 problem and can result in constant humming of the relay or even inadvertent triggering due to interference. Here, too, we offer solutions.

Various, apparently 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 loads, particularly if they are inductive.

Circuits with relays and their connections often require a level of developer skill that is frequently no longer offered during standard education and training.

Your supplier will be very happy to provide expert advice

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.

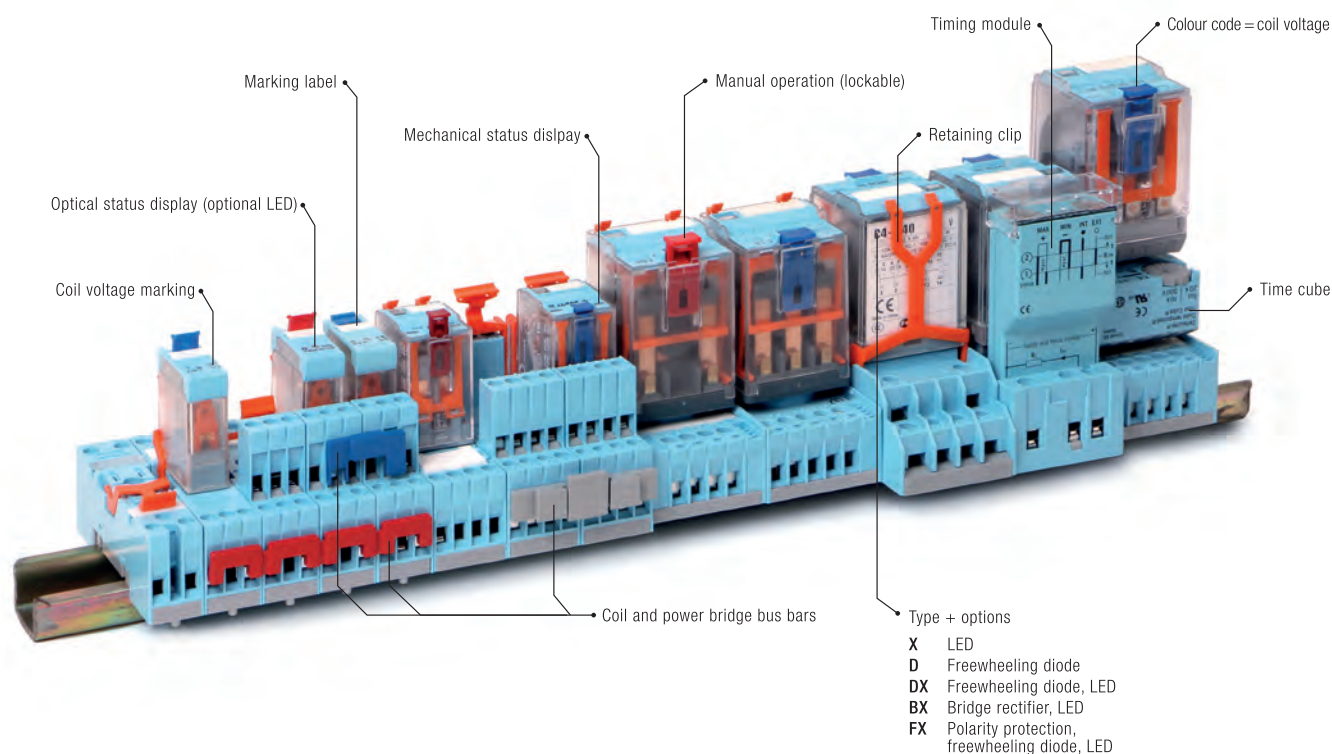
Low-energy lamps

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. High inductive switch-off energy is possible. The load must be connected, not least due to EMC problems.


Five colours for an easier identification of coil voltage

	AC red: 230 V AC (North America 120 V AC)
	AC dark red: others V AC
	UC grey: V AC/DC
	DC blue: 24 VDC
	DC dark blue: others VDC

If you don't want to have the lockable function, you can use the orange "orange - push button".
SO - OP for MRC - C and S9 - OP for QRC
(BAG 5 PCS)

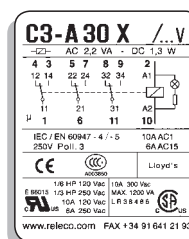


Orange - push button

A black blanking plug is available if you don't want a test button.
S= - NP for MR - C and S9 - NP
for QRC (BAG 5 PCS)



Blanking plug

Comprehensive technical label


Part number
Coil details
Additional circuit diagram for coil
Electric diagram showing all additions to the coil
Wiring diagram with sequential and DIN numbers
Maximum switching capacity
according to EN 60947 (IEC 947)
Approvals

- Level of switching current and voltage of the application?
- DC or AC switching?
- Inductive or capacitive load?
- Expected number of switching cycles?

Symbol	Voltage	Current	Use	Type	Material
Signal relays 	100 mV...5V	10 µA...1 mA	Low-level signals, Standard signals (0...10V/ 4...20mA)	Gold-plated double contact	 AgNi + Ag
Control relays 	5V...30V	1 mA...100 mA	PLC inputs, Control circuits	double contact	 AgNi
				Gold-plated Single Contact	 AgNi + Ag
			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 proce- dures, 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 proce- dures, high reliability, noiseless switching	Semiconductor	 Mosfet (DC) Triac (AC)

Notes

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1.1 Interface Relays - pluggable

Application	Types	Pins	Contacts	AC ratings	DC ratings	Socket
C10 Series						
Interface standard relay	C10-A1x			10 A / 250 V	10 A / 30 V	S10
DC load switching	C10-G1x			10 A / 250 V	10 A / 30 V	S10
Low switching load	C10-T1x			6 A / 250 V	6 A / 30 V	S10
C12 Series						
Interface relay	C12-A2x			5 A / 250 V	5 A / 30 V	S12
Interface DC relay	C12-G2x			5 A / 250 V	5 A / 30 V	S12
C16 Series						
Interface DC relay	C16-A25PTL			7 A / 250 V	7 A / 30 V	S18
C18 Series						
Interface DC relay	C18-A15PT			10 A / 250 V	10 A / 30 V	S16
Interface DC relay	C18-A15PTL			10 A / 250 V	10 A / 30 V	S16
Interface DC relay	C18-B15PTL			16 A / 250 V	16 A / 30 V	S18

C10-A1x**1 pole | changeover contact | plug-in Faston**

Maximum contact load	10 A/250 V AC-1	0.5 A/110 V DC-1
	10 A/30 V DC-1	0.2 A/220 V DC-1
	13 A/250 V AC-1	0.2 A/220 V DC-1
Recommended minimum contact load	10 mA/10 V Code 0.5	
	5 mA/5 V Code 8	

Contacts

Material	Standard	Code 0	⚡ AgNi
	Optional	Code 8	⚡ AgNi + 5 μ Au
	Optional	Code 5	⚡ AgSnO ₂
Rated Load			10 A
Switch-on current max. (20 ms)			30 A (120 A for code 5)
Switching voltage max.			250 V
AC load (Fig 1)			2.5 kVA
DC load			see fig. 2

Coil

Coil resistance	see table; tolerance ± 10 %
Pick-up voltage	≤ 0.8 × U _N
Release voltage	≥ 0.1 × U _N
Nominal power	1.1 VA (AC)/0.7 W (DC)

Coil table

V AC	Ω	mA	VDC	Ω	mA
24	290	45	12	224	53
48	1200	23	24	742	32
115	7.300	9.5	48	3.500	13.7
230	28.800	4.7	110	19.900	5.5

Insulation

Contact open	Volt rms / 1 min
Contact/coil	1000 V
Insulation resistance at 500 V	5 kV
Insulation, IEC 61810-1	≥ 1 GΩ
	4 kV

Specifications

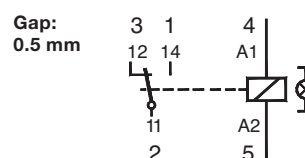
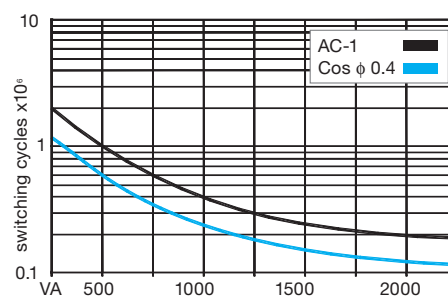
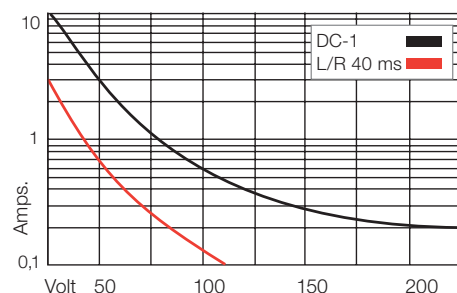
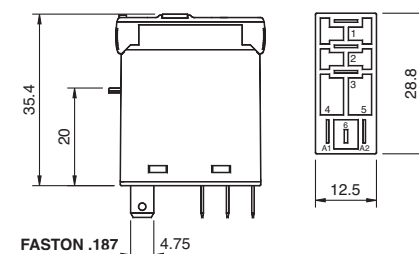
Ambient temperature operation/storage	-40 ... 70 °C / -40 ... 80 °C (no ice)
Pick-up time/bounce time	10 ms/ ≤ 1 ms
Release time/bounce time	5 ms/ ≤ 3 ms
Mechanical life ops	AC: 10 Mill./DC: 20 Mill.
DC voltage endurance at rated load	≥ 100 000 switching cycles
Switching frequency at rated load	≤ 1200/h
Weight	21 g

Product References**V AC 50 Hz/60 Hz: 24, 48, 115 (120), 230 (240)****LED****RC Suppressor****VDC 12, 24, 48, 110****LED****Polarity and free wheeling diode****V AC/DC bridge rectifier 24 V, 48 V**

Other voltages on request

C10-A10/AC...V
C10-A10X/AC...V
C10-A10R/AC...V**C10-A18/AC...V**
C10-A18X/AC...V
C10-A18R/AC...V**C10-A15/AC...V**
C10-A15X/AC...V
C10-A15R/AC...V**C10-A10/DC...V**
C10-A10X/DC...V
C10-A10FX/DC...V**C10-A18/DC...V**
C10-A18X/DC...V
C10-A18FX/DC...V**C10-A15/DC...V**
C10-A15X/DC...V
C10-A15FX/DC...V**C10-A10BX/UC...V****C10-A18BX/UC...V****C10-A15BX/UC...V**

"..." List Coil Voltage to complete Product References

AccessoriesSocket: **S10, S10-P****Connection diagram****Fig.1 AC voltage endurance****Fig. 2 DC load limit curve****Dimensions****Technical approvals, conformities**

IEC/EN 61810; IEC/EN 60947

C10-G1x**1 pole | normally open contact | plug-in Faston**

Maximum contact load	10 A/250 V AC-1	0.8 A/110 V DC-1
	10 A/30 V DC-1	0.4 A/220 V DC-1
Recommended minimum contact load	10 mA/10 V Code 0.5	
	5 mA/5 V Code 8	

Contacts

Material	Standard	Code 0	⚡ AgNi
	Optional	Code 8	⚡ AgNi + 5 μ Au
	Optional	Code 5	⚡ AgSnO ₂
Rated Load			10 A
Switch-on current max. (20 ms)			30 A (120 A for code 5)
Switching voltage max.			250 V
AC load (Fig 1)			2.5 kVA
DC load			see Fig. 2

Coil

Coil resistance	see table; tolerance ± 10 %
Pick-up voltage	≤ 0.8 × U _N
Release voltage	≥ 0.1 × U _N
Nominal power	1.1 VA (AC)/0.7 W (DC)

Coil table

V AC	Ω	mA	VDC	Ω	mA
24	290	45	12	224	53
48	1200	23	24	742	32
115	7.300	9.5	48	3.500	13.7
230	28.800	4.7	110	19.900	5.5

Insulation

	Volt rms / 1 min
Contact open	2000 V
Contact/coil	5 kV
Insulation resistance at 500 V	≥ 1 GΩ
Insulation, IEC 61810-1	4 kV

Specifications

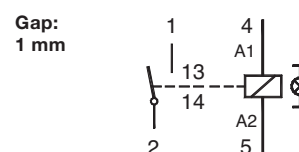
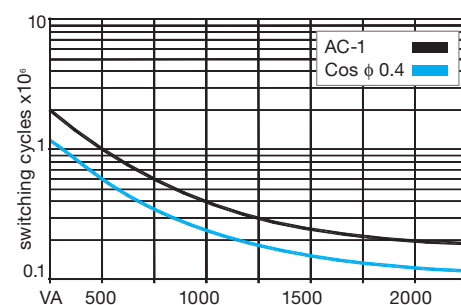
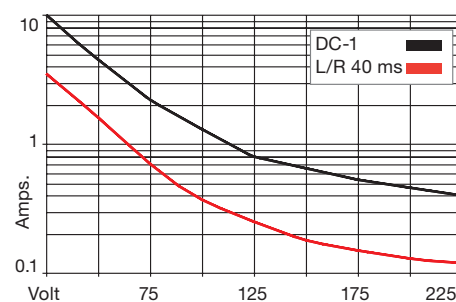
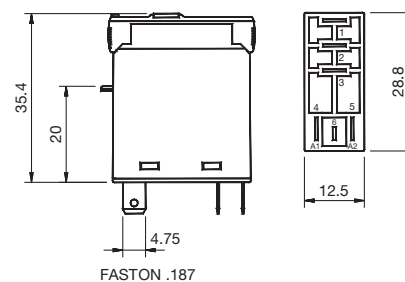
Ambient temperature operation/storage	-40 ... 70 °C / -40 ... 80 °C (no ice)
Pick-up time/bounce time	10 ms/≤ 1 ms
Release time/bounce time	8 ms
Mechanical life ops	AC: 10 Mill./DC: 20 Mill.
DC voltage endurance at rated load	≥ 100 000 switching cycles
Switching frequency at rated load	≤ 1200/h
Weight	21 g

Product References**V AC 50 Hz/60 Hz: 24, 48, 115 (120), 230 (240)****LED****RC Suppressor****VDC 12, 24, 48, 110****LED****Polarity and free wheeling diode****AC/DC bridge rectifier 24 V, 48 V**

Other voltages on request

C10-G10/AC ... V
C10-G10X/AC ... V
C10-G10R/AC...V
C10-G10/DC ... V
C10-G10X/DC ... V
C10-G10FX/DC ... V
C10-G10BX/DC ... V
C10-G15/AC ... V
C10-G15X/AC ... V
C10-G15R/AC...V
C10-G15/DC ... V
C10-G15X/DC ... V
C10-G15FX/DC... V
C10-G15BX/UC... V

"..." List Coil Voltage to complete Product References

AccessoriesSocket: **S10, S10-P****Connection diagram****Fig.1 AC voltage endurance****Fig. 2 DC load limit curve****Dimensions****Technical approvals, conformities**

C10-T1x**1 pole | changeover twin contact | plug-in Faston**

Maximum contact load	6 A/250 V	AC-1	0.5 A/110 V	DC-1
	6 A/30 V	DC-1	0.2 A/220 V	DC-1
Recommended minimum contact load	5 mA/5 V	Code 1		
	1 mA/5 V	Code 3		

Contacts

Material	Standard	Code 1	AgNi + 0.2 μ Au
	Optional	Code 3	AgNi + 5 μ Au
Rated Load			6 A
Switch-on current max. (20 ms)			15 A
Switching voltage max			250 V
AC load (Fig 1)			1.5 kVA
DC load			see fig. 2

Coil

Coil resistance	see table; tolerance ± 10 %
Pick-up voltage	≤ 0.8 × U _N
Release voltage	≥ 0.1 × U _N
Nominal power	1.1 VA (AC)/0.7 W (DC)

Coil table

V AC	Ω	mA	VDC	Ω	mA
24	290	45	12	224	53
48	1200	23	24	742	32
115	7.300	9.5	48	3.500	13.7
230	28.800	4.7	110	19.900	5.5

Insulation

Contact open	Volt rms / 1 min
Contact/coil	1000 V
Insulation resistance at 500 V	5 kV
Insulation, IEC 61810-1	≥1 GΩ
	4 kV

Specifications

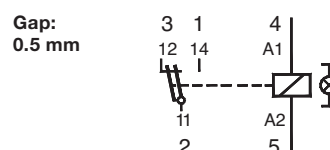
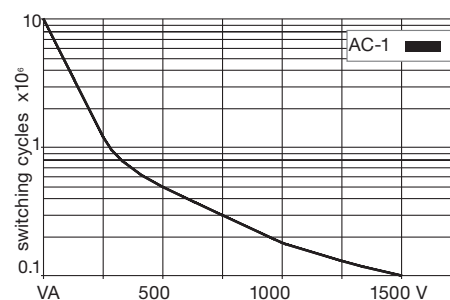
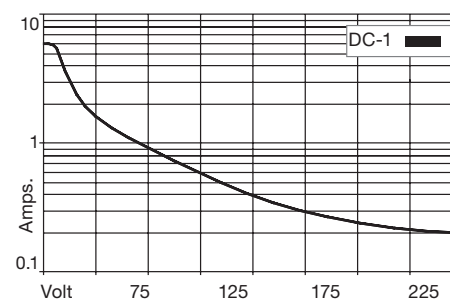
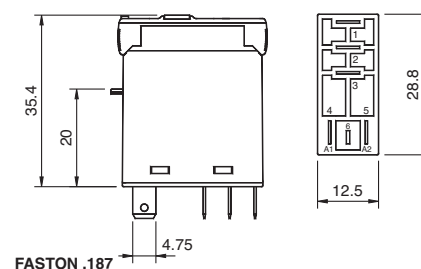
Ambient temperature operation/storage	-40 ... 70 °C / -40 ... 80 °C (no ice)
Pick-up time/bounce time	10 ms/≤ 1 ms
Release time/bounce time	5 ms/≤ 3 ms
Mechanical life ops	AC: 10 Mill./DC: 20 Mill.
DC voltage endurance at rated load	≥100 000 switching cycles
Switching frequency at rated load	1200/h
Weight	21 g

Product References**V AC 50 Hz/60 Hz: 24, 48, 115 (120), 230 (240)****LED****RC Suppressor****VDC12, 24, 48, 110****LED****Polarity and free wheeling diode****AC/DC bridge rectifier 24 V, 48 V**

Other voltages on request

C10-T11/AC ... V
C10-T11X/AC ... V
C10-T11R/AC...V
C10-T11/DC ... V
C10-T11X/DC ... V
C10-T11FX/DC ... V
C10-T11BX/UC ... V
C10-T13/AC ... V
C10-T13X/AC ... V
C10-T13R/AC...V
C10-T13/DC ... V
C10-T13X/DC ... V
C10-T13FX/DC ... V
C10-T13BX/UC ... V

"... " List Coil Voltage to complete Product References

AccessoriesSocket: **S10, S10-P****Connection diagram****Fig.1 AC voltage endurance****Fig. 2 DC load limit curve****Dimensions****Technical approvals, conformities**

C12-A2x**2 pole | changeover contact | plug-in Faston****TURCK****comat**
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Maximum contact load	5 A/250 V AC-1	0.5 A/110 V DC-1
	5 A/30 V DC-1	0.2 A/220 V DC-1
Recommended minimum contact load	10 mA/10 V Code 1	
	5 mA/5 V Code 2	

Contacts

Material	Standard	Code 1	AgNi + 0.2 µ Au
	Optional	Code 2	AgNi + 5 µ Au
Rated Load			5 A
Switch-on current max. (20 ms)			15 A
Switching voltage max.			250 V
AC load (Fig 1)			1.2 kVA
DC load			see fig. 2

Coil

Coil resistance	see table; tolerance ± 10 %
Pick-up voltage	≤ 0.8 × U _N
Release voltage	≥ 0.1 × U _N
Nominal power	1.1 VA (AC)/0.7 W (DC)

Coil table

V AC	Ω	mA	VDC	Ω	mA
24	290	45	12	224	53
48	1200	23	24	742	32
115	7.300	9.5	48	3.500	13.7
230	28.800	4.7	110	19.900	5.5

Insulation

	Volt rms / 1 min
Contact open	1000 V
Contact/contact	3000 V
Contact/coil	5 kV
Insulation resistance at 500 V	≥ 1 GΩ
Insulation, IEC 61810-1	4 kV

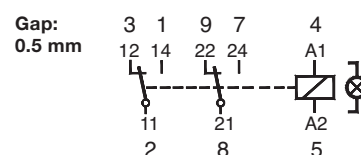
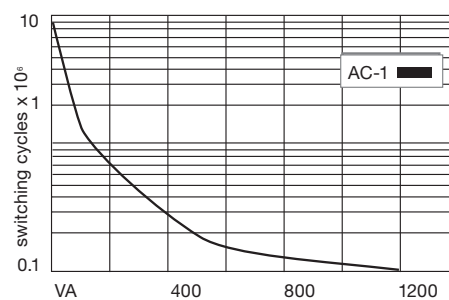
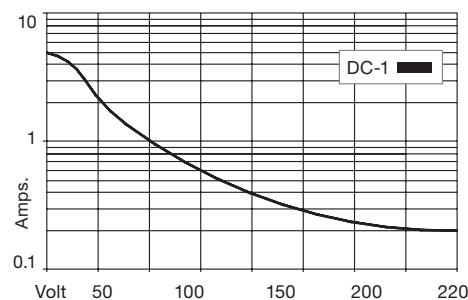
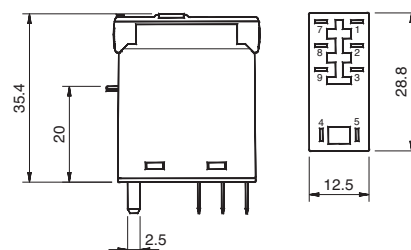
Specifications

Ambient temperature operation/storage	-40 ... 60 °C / -40 ... 80 °C (no ice)
Pick-up time/bounce time	10 ms/≤ 1 ms
Release time/bounce time	5 ms/≤ 3 ms
Mechanical life ops	AC: 10 Mill./DC: 20 Mill.
DC voltage endurance at rated load	≥ 100 000 switching cycles
Switching frequency at rated load	≤ 1200/h
Weight	21 g

Product References**V AC 50 Hz/60 Hz: 24, 48, 115 (120), 230 (240)****LED****RC Suppressor****VDC 12, 24, 48, 110****LED****Polarity and free wheeling diode****AC/DC bridge rectifier 24 V, 48 V**

Other voltages on request

"..." List Coil Voltage to complete Product References

AccessoriesSocket: **S12, S12-P****Connection diagram****Fig.1 AC voltage endurance****Fig. 2 DC load limit curve****Dimensions**

FASTON .098

Technical approvals, conformities

IEC/EN 61810; IEC/EN 60947

C12-G2x**2 pole | normally open contact | plug-in Faston**

Maximum contact load	5 A/250 V	AC-1	0.8 A/110 V	DC-1
	5 A/30 V	DC-1	0.4 A/220 V	DC-1
Recommended minimum contact load	10 mA/10 V	Code 1		
	5 mA/5 V	Code 2		

Contacts

Material	Standard	Code 1	AgNi + 0.2 μ Au
	Optional	Code 2	AgNi + 5 μ Au
Rated Load			5 A
Switch-on current max. (20 ms)			15 A
Switching voltage max.			250 V
AC load (Fig 1)			1.2 kVA
DC load			see Fig. 2

Coil

Coil resistance	see table; tolerance ± 10 %
Pick-up voltage	≥ 0.8 x U _N
Release voltage	≥ 0.1 x U _N
Nominal power	1.1 VA (AC)/0.7 W (DC)

Coil table

V AC	Ω	mA	VDC	Ω	mA
24	290	45	12	224	53
48	1200	23	24	742	32
115	7.300	9.5	48	3.500	13.7
230	28.800	4.7	110	19.900	5.5

Insulation

	Volt rms / 1 min
Contact open	2000 V
Contact/contact	3000 V
Contact/coil	5 kV
Insulation resistance at 500 V	≥1 GΩ
Insulation, IEC 61810-1	4 kV

Specifications

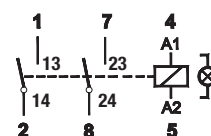
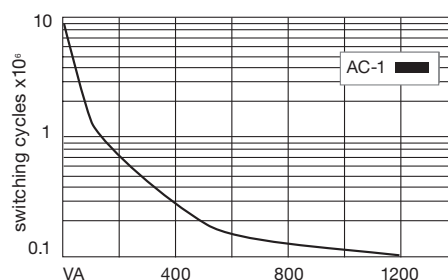
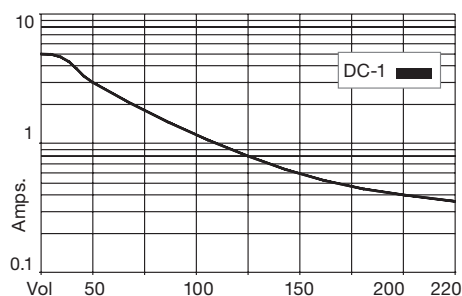
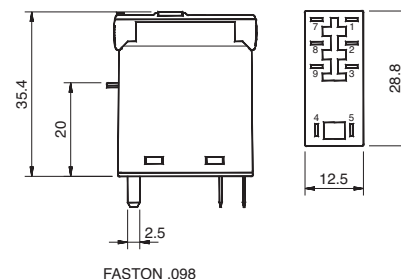
Ambient temperature operation/storage	-40 ... 60 °C / -40 ... 80 °C (no ice)
Pick-up time/bounce time	10 ms/≤ 1 ms
Release time/bounce time	5 ms/≤ 3 ms
Mechanical life ops	AC: 10 Mill./DC: 20 Mill.
DC voltage endurance at rated load	≥100 000 switching cycles
Switching frequency at rated load	≤ 1200/h
Weight	21 g

Product References**V AC 50 Hz/60 Hz:** 24, 48, 115, (120), 230, (240)**LED****RC Suppressor****VDC 12, 24, 48, 110****LED****Polarity and free wheeling diode****AC/DC bridge rectifier 24 V, 48 V**

Other voltages on request

C12-G21/AC ... V
C12-G21X/AC ... V
C12-G21R/AC ... V
C12-G21/DC ... V
C12G21X/DC ... V
C12-G21FX/DC ... V
C12-G21BX/UC ... V
C12-G22/AC ... V
C12-G22X/AC ... V
C12-G22R/AC ... V
C12-G22/DC ... V
C12-G22X/DC ... V
C12-G22FX/DC ... V
C12-G22BX/UC ... V

"..." List Coil Voltage to complete Product References

AccessoriesSocket: **S12, S12-P****Connection diagram**Gap:
1 mm**Fig.1 AC voltage endurance****Fig. 2 DC load limit curve****Dimensions**

FASTON .098

Technical approvals, conformities

IEC/EN 61810; IEC/EN 60947

C16-A25PTL**2 pole | 8-pin | changeover contact | Grid 5mm****TURCK****comat**
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Maximum contact load	7 A/250V AC-1
	7 A/30V DC-1
Recommended minimum contact load	1 mA/1V AC/DC

Contacts

Material	⚡ AgSnO ₂
Rated Load	7 A
Switching voltage max.	250V
Switch-on current max. (500ms)	15 A
Bounce time	2 ms

Coil

Coil resistance	see table; tolerance $\pm 10\%$
Pick-up voltage	75 % of U _N (DC) / 80 % of U _N (AC)
Release voltage	$\leq 0.1 U_N$ (DC) / $\leq 0.3 U_N$ (AC)
Nominal power	1 VA (AC) / 0.53 W (DC) @ 23 °C

Coil Data (DC voltage)

Coil Voltage Code	Nominal Voltage (V DC)	Coil Resistance (Ω) $\pm 10\%$	Must operate voltage max. (VDC)	Must release voltage min (VDC)
12	12	270	9.00	1.2
24	24	1080	18.00	2.4
36	36	1350	27.00	3.6
48	48	4340	36.00	4.8
110	110	22830	82.5	11

Coil Data (AC voltage 50/60Hz)

Coil Voltage Code	Nominal Voltage (VAC)	Coil Resistance (Ω) $\pm 10\%$	Must operate voltage max. (VAC)	Must release voltage min (VAC)	Max. allowable voltage (VAC)
24	24	253	19.2	7.2	26.4
110	110	5819	88.0	33	121
230	230	23276	184	69	253

Insulation

Insulation resistance (coil to contact)	$\geq 100 M\Omega$ @ 500V DC, 50 % RH
Dielectric strength	5 kV
Coil to contact	5000 Vrms, 1 min
Contact to contact	1000 Vrms, 1 min

Specifications

Ambient temperature operation/storage	-55 ... 70 °C / -55...70 °C (no ice)
Pick-up time	10ms
Release time	5ms
Mechanical/ electrical life ops	$\geq 1 \times 10\,000\,000 / 1 \times 100\,000$
Weight	17 g
Max. switching frequency	20Hz
Tightness	RT2
Weight	17 g

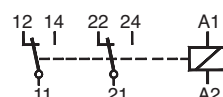
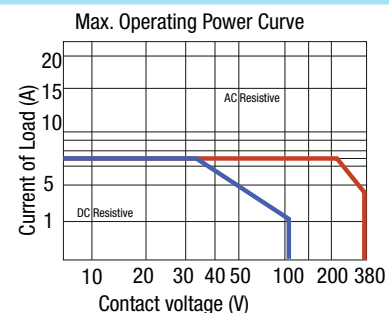
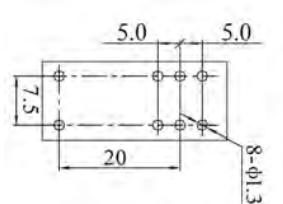
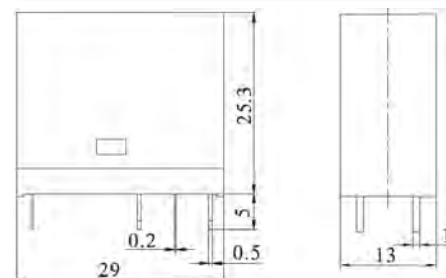
Product References**V AC 50 Hz/60 Hz: 24, 110 (120), 230 (240)**
VDC 12, 24, 48**C16-A25PTL/AC ...V**
C16-A25PTL/DC ...V

Other voltages on request

"..." List Coil Voltage to complete Product References

Accessories

Socket	S16-M
Retaining clip, plastic	CP-16
Label	BS16-K (BAG 10 PCS)
Modules	See datasheet socket S16-M

**Connection diagram****Fig.1 Max. Operating Power Curve****Dimensions****Technical approvals, conformities**

IEC/EN 61810; IEC/EN 60947

C18-A15PT**1 pole | 5-pin | changeover contact | Grid 3.5mm**

Maximum contact load	10 A/250V AC-1
	10 A/30V DC-1
Recommended minimum contact load	1 mA/1V AC/DC

Contacts

Material	⚡ AgSnO ₂
Rated Load	10 A
Switching voltage max.	250V
Switch-on current max. (500ms)	25 A
Bounce time	2 ms

Coil

Coil resistance	see table; tolerance $\pm 10\%$
Pick-up voltage	75 % of U _N (DC) / 80 % of U _N (AC)
Release voltage	$\leq 0.1 U_N$ (DC) / $\leq 0.3 U_N$ (AC)
Nominal power	1 VA (AC) / 0.53 W (DC) @ 23 °C

Coil Data (DC voltage)

Coil Voltage Code	Nominal Voltage (VDC)	Coil Resistance (Ω) $\pm 10\%$	Must operate voltage max. (VDC)	Must release voltage min (VDC)
12	12	270	9.00	1.2
24	24	1080	18.00	2.4
36	36	1350	27.00	3.6
48	48	4340	36.00	4.8
110	110	22830	82.5	11

Coil Data (AC voltage 50/60 Hz)

Coil Voltage Code	Nominal Voltage (VAC)	Coil Resistance (Ω) $\pm 10\%$	Must operate voltage max. (VAC)	Must release voltage min (VAC)	Max. allowable voltage (VAC)
24	24	253	19.2	7.2	26.4
110	110	5819	88.0	33	121
230	230	23276	184	69	253

Insulation

Insulation resistance (coil to contact)	$\geq 100 \text{ M}\Omega$ @ 500V DC, 50% RH
Dielectric strength	5 kV
Coil to contact	5000Vrms, 1 min
Contact to contact	1000Vrms, 1 min

Specifications

Ambient temperature operation/storage	-55 ... 70 °C / -55 ... 70 °C (no ice)
Pick-up time	10ms
Release time	5ms
Mechanical/electrical life ops	$\geq 1 \times 10\,000\,000 / 1 \times 100\,000$
Weight	17 g
Max. switching frequency	20Hz
Tightness	RT2
Weight	17 g

Product References**V AC 50 Hz/60 Hz: 24, 110 (120), 230 (240)****VDC 12, 24, 36, 48, 110**

Other voltages on request

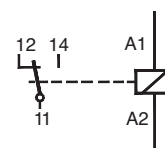
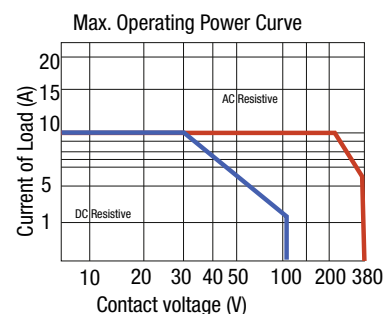
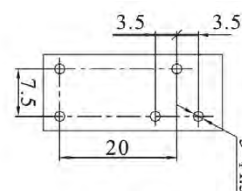
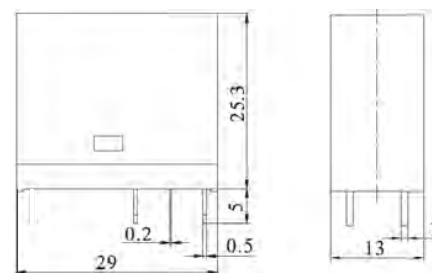
C18-A15PT/AC...V**C18-A15PT/DC...V**

"..." List Coil Voltage to complete Product References

Accessories

Socket
Retaining clip, plastic
Label
Modules

S18-M
CP-16
BS16-K (BAG 10 PCS)
See datasheet socket S18-M

**Connection diagram****Fig.1 Max. Operating Power Curve****Dimension****Technical approvals, conformities**

IEC/EN 61810; IEC/EN 60947

C18-A15PTL**1 pole | 5-pin | changeover contact | plug-in | Grid 5mm****TURCK****comat
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Maximum contact load	10 A/250V AC-1
	10 A/30V DC-1
Recommended minimum contact load	1 mA/1 V AC/DC

Contacts

Material	⚡ AgSnO ₂
Rated Load	10 A
Switching voltage max.	250 V
Switch-on current max. (500ms)	25 A
Bounce time	2 ms

Coil

Coil resistance	see table; tolerance $\pm 10\%$
Pick-up voltage	75 % of U _N (DC) / 80 % of U _N (AC)
Release voltage	$\leq 0.1 U_N$ (DC) / $\leq 0.3 U_N$ (AC)
Nominal power	1 VA (AC) / 0.53 W (DC) @ 23 °C

Coil Data (DC voltage)

Coil Voltage Code	Nominal Voltage (V DC)	Coil Resistance (Ω) $\pm 10\%$	Must operate voltage max. (VDC)	Must release voltage min (VDC)
12	12	270	9.00	1.2
24	24	1080	18.00	2.4
36	36	1350	27.00	3.6
48	48	4340	36.00	4.8
110	110	22830	82.5	11

Coil Data (AC voltage 50/60Hz)

Coil Voltage Code	Nominal Voltage (VAC)	Coil Resistance (Ω) $\pm 10\%$	Must operate voltage max. (VAC)	Must release voltage min (VAC)	Max. allowable voltage (VAC)
24	24	253	19.2	7.2	26.4
110	110	5819	88.0	33	121
230	230	23276	184	69	253

Insulation

Insulation resistance (coil to contact)	$\geq 100 M\Omega$ @ 500V DC, 50 % RH
Dielectric strength	5 kV
Coil to contact	5000 Vrms, 1 min
Contact to contact	1000 Vrms, 1 min

Specifications

Ambient temperature operation/storage	-55 ... 70 °C / -55...70 °C (no ice)
Pick-up time	10 ms
Release time	5 ms
Mechanical / electrical life ops	$\geq 1 \times 10\,000\,000 / 1 \times 100\,000$
Weight	17 g
Max. switching frequency	20 Hz
Tightness	RT2
Weight	17 g

Product References**V AC 50 Hz/60 Hz: 24, 110 (120), 230 (240)****VDC 12, 24, 36, 48, 110**

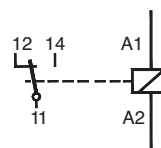
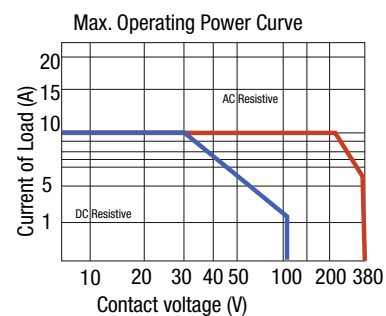
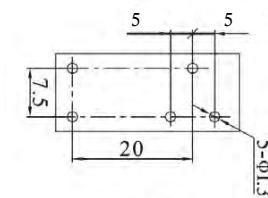
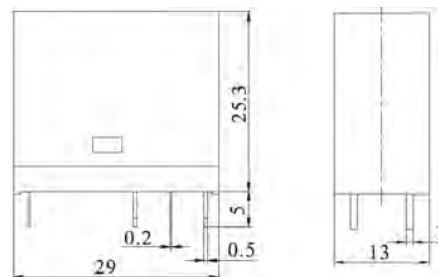
Other voltages on request

C18-A15PTL/AC...V**C18-A15PTL/DC...V**

"..." List Coil Voltage to complete Product References

Accessories

Socket	S16-M
Retaining clip, plastic	CP-16
Label	BS16-K (BAG 10 PCS)
Modules	See datasheet socket S16-M

**Connection diagram****Fig.1 Max. Operating Power Curve****Dimensions**

Standard

Technical approvals, conformities

C18-B15PTL**1 pole | 8-pin | changeover contact | Grid 5mm**

Maximum contact load	16 A/250V AC-1
	16 A/30V DC-1
Recommended minimum contact load	1 mA/1V AC/DC

Contacts

Material	⚡ AgSnO ₂
Rated Load	16 A
Switching voltage max.	250V
Switch-on current max. (500ms)	25 A
Bounce time	2 ms

Coil

Coil resistance	see table; tolerance $\pm 10\%$
Pick-up voltage	75 % of U _N (DC) / 80 % of U _N (AC)
Release voltage	$\leq 0.1 U_N$ (DC) / $\leq 0.3 U_N$ (AC)
Nominal power	1 VA (AC) / 0.53 W (DC) @ 23 °C

Coil Data (DC voltage)

Coil Voltage Code	Nominal Voltage (VDC)	Coil Resistance (Ω) $\pm 10\%$	Must operate voltage max. (VDC)	Must release voltage min (VDC)
12	12	270	9.00	1.2
24	24	1080	18.00	2.4
36	36	1350	27.00	3.6
48	48	4340	36.00	4.8
110	110	22830	82.5	11

Coil Data (AC voltage 50/60 Hz)

Coil Voltage Code	Nominal Voltage (VAC)	Coil Resistance (Ω) $\pm 10\%$	Must operate voltage max. (VAC)	Must release voltage min (VAC)	Max. allowable voltage (VAC)
24	24	253	19.2	7.2	26.4
110	110	5819	88.0	33	121
230	230	23276	184	69	253

Insulation

Insulation resistance (coil to contact)	$\geq 100 \text{ M}\Omega$ @ 500V DC, 50% RH
Dielectric strength	5 kV
Coil to contact	5000Vrms, 1 min
Contact to contact	1000Vrms, 1 min

Specifications

Ambient temperature operation/storage	-55 ... 70 °C / -55 ... 70 °C (no ice)
Pick-up time	10 ms
Release time	5 ms
Mechanical/electrical life ops	$\geq 1 \times 10\,000\,000 / 1 \times 100\,000$
Weight	17 g
Max. switching frequency	20 Hz
Tightness	RT2
Weight	17 g

Product References**V AC 50 Hz/60 Hz: 24, 110 (120), 230 (240)****VDC 12, 24, 36, 48, 110**

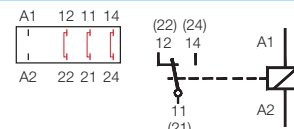
Other voltages on request

C18-B15PTL/AC...V**C18-B15PTL/DC...V**

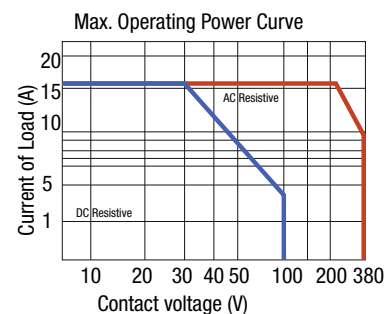
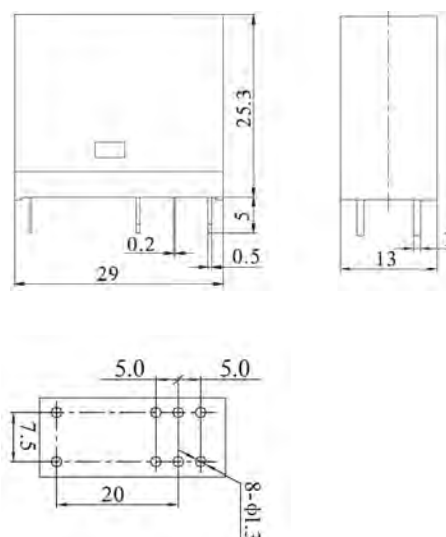
"..." List Coil Voltage to complete Product References

Accessories

Socket	S16-M
Retaining clip, plastic	CP-16
Label	BS16-K (BAG 10 PCS)
Modules	See datasheet socket S16-M

**Connection diagram**

⚠ When switching over 10 A, it is necessary to add jumpers between the terminals on the relay socket S16-M. Jumper terminals: 22-12, 21-11 and 24-14. The resulting schematic is above.

Fig.1 Max. Operating Power Curve**Dimensions****Technical approvals, conformities**

IEC/EN 61810; IEC/EN 60947

1

Notes

This image shows a full page of blank graph paper. The grid consists of small, uniform squares formed by thin, light gray lines. There are no margins, text, or other markings on the page.

1.2 Interface Relays

Application	Types	Contacts	AC ratings	DC ratings
CRINT Series				
High power contact AgSnO ₂	CRINT-1x1		6 A / 250 V	6 A / 30 V
Low power contact AgSnO ₂ + 3μ Au	CRINT-1x2		6 A / 250 V	6 A / 30 V
DC solid state switch	CRINT-1x5 (see page 82)		-	2 A / 24 V
AC solid state switch	CRINT-1x8 (see page 83)		1 A / 240 V	-

CRINT Product Key

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

1. Product family
CRINT

2. Type
C = Combined version (Socket and Relay)

3. Contact
1 = One change-over contact

4. Connection type
1 = Screw terminal
2 = Cage clamp terminal

5. Output
1 = AgSnO_2
2 = $\text{AgSnO}_2 + 3\mu\text{Au}$
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

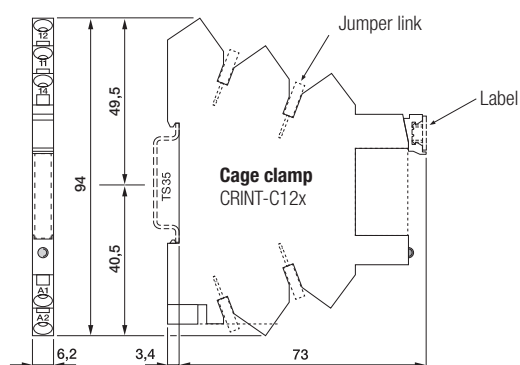
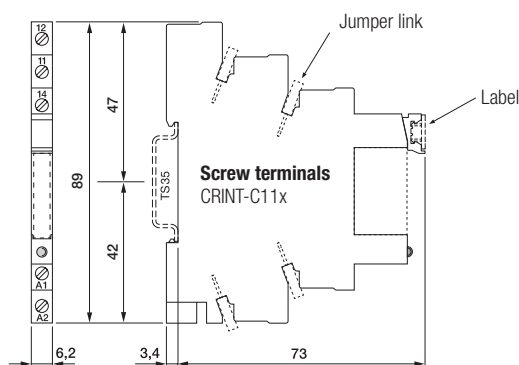
3. Contact
11 = AgSnO_2
12 = $\text{AgSnO}_2 + 3\mu\text{Au}$
15 = NO / Solid-state DC
18 = NO / Solid-state AC

4. Supply voltage
DC

5. Nominal voltage
12 V, 24 V, 48 V, 60 V*

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

Dimensions [mm]



Max. contact load		6 A, 250 V AC-1	6 A, 30 V DC-1
Contact			
Type		1 CO	
Material		 AgSnO ₂	
Switching current I _{TH}		6 A 250 V AC	
Recommended minimal load		100 mA / 12 V	
Switching power DC-1 30 V		180 W	
Switching power AC-1 230 V		1500 VA	
Switching power AC-15 230 V		300 VA	
Peak inrush current		15 A/2.5 ms	
Coil			
Operation voltage AC 50/60 Hz / DC		0.8 ... 1.25 U _N	
Nominal power DC/AC		408 / 900 mW	
Insulation			
Test voltage I / O		6 kV rms / 1 min	
Pollution degree		3	
Over voltage category		III	
Open contact		1000 Vrms dielectric strength 1 min	
Standard		EN61810-5	
Specifications			
Ambient temperature: operation / storage		-40 ... +70 °C / -40 ... +85 °C (no ice)	
Typical response time @ V _n		7 ms	
Typical release time @ V _n		15 ms	
Switching cycles: mech./elec.		10 x 1 000 000 / 3 x 10 000	
Cond. cross section screw terminal		2.5 mm ²	
Cond. cross section spring cage		0.75 ... 2.5 mm ²	
Protection degree		IP 20	
Mounting position		any, TS35 or Back Panel Mounting	
Housing material		Polyamide PA6	
Weight		30 g	

Product ReferencesScrew terminal: **CRINT-C111/UC...V**Cage clamp terminal: **CRINT-C121/UC...V**
 "... " List Coil Voltage to complete
 Product References

UC12V
UC24V
UC48V
UC60V
UC110-125V
UC220-240V
Accessories
 Jumper link:

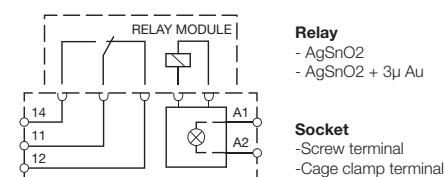
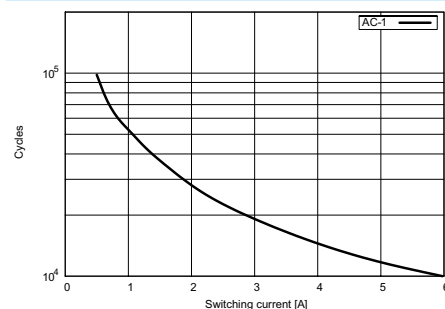
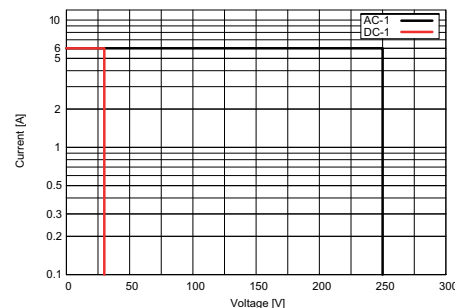
blue:	CRINT-BR20-BU (BAG 5 PCS)
red:	CRINT-BR20-RD (BAG 5 PCS)
black:	CRINT-BR20-BK (BAG 5 PCS)

 Label plate: **CRINT-LAB (BAG 4x16 PCS)**
 Spacer: **CRINT-SEP (BAG 5 PCS)**

 Replacement relays:
CRINT-R11/DC...V

 "... " List Coil Voltage to complete
 Product References

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

DC12V
DC24V
DC48V
DC60V*
**Connection diagram****Fig.1 AC voltage endurance****Fig. 2 DC load limit curve****Dimensions p. 30****Technical approvals, conformities**

IEC/EN 61810

1.2 Interface Relays

CRINT 1x2 series

1 pole | changeover contact

Max. contact load	6 A, 250 V AC-1	6 A, 30 V DC-1
Contact		
Type	1 CO	
Material	AgSnO ₂ + 5μ Au	
Switching current I _{TH}	6 A 250 V AC	
Recommended minimal load	10 mA / 6 V	
Switching power DC-1 30 V	180 W	
Switching power AC-1 230 V	1500 VA	
Switching power AC-15 230 V	300 VA	
Peak inrush current	15 A/2.5 ms	
Coil		
Operation voltage AC 50/60 Hz / DC	0.8 ... 1.25 U _N	
Nominal power DC/AC	408 / 900 mW	
Insulation		
Test voltage I / O	6 kV rms / 1 min	
Pollution degree	3	
Over voltage category	III	
Open contact	1000 Vrms dielectric strength 1 min	
Standard	EN61810-5	
Specifications		
Ambient temperature: operation / storage	-40 ... +70 °C / -40 ... +85 °C (no ice)	
Typical response time @ V _n	7 ms	
Typical release time @ V _n	15 ms	
Switching cycles: mech./elec.	10 x 1 000 000 / 3 x 10 000	
Cond. cross section screw terminal	2.5 mm ²	
Cond. cross section spring cage	0.75 ... 2.5 mm ²	
Protection degree	IP 20	
Mounting position	any, TS35 or Back Panel Mounting	
Housing material	Polyamide PA6	
Weight	30 g	

Product References

Screw terminal: **CRINT-C112/UC...V**

Cage clamp terminal: **CRINT-C122/UC...V**

"..." List Coil Voltage to complete
Product References

UC12V
UC24V
UC48V
UC60V
UC110-125V
UC220-240V

Accessories

Jumper link:

blue: **CRINT-BR20-BU (BAG 5 PCS)**
red: **CRINT-BR20-RD (BAG 5 PCS)**
black: **CRINT-BR20-BK (BAG 5 PCS)**

Label plate: **CRINT-LAB (BAG 4x16 PCS)**
Spacer: **CRINT-SEP (BAG 5 PCS)**

Replacement relays:

CRINT-R12/DC...V

"..." List Coil Voltage to complete
Product References

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

DC12V
DC24V
DC48V
DC60V*



Connection diagram

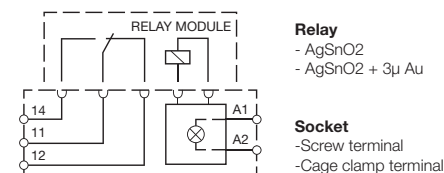


Fig.1 AC voltage endurance

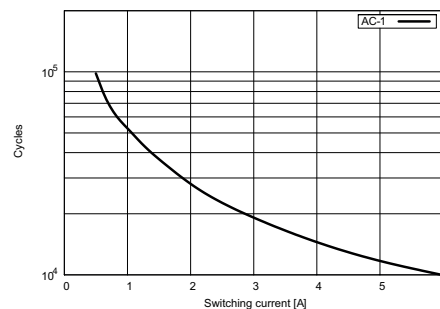
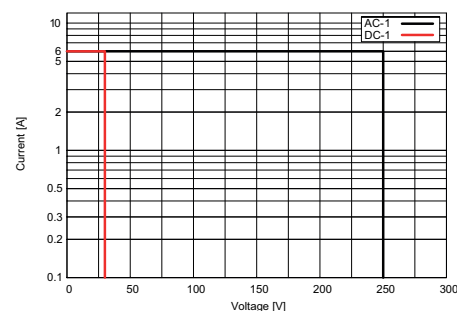


Fig. 2 DC load limit curve



Dimensions p. 30

Technical approvals, conformities

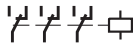
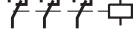
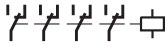
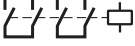
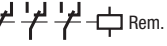


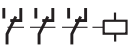
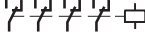
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Notes

This image shows a full page of blank graph paper. The grid consists of thin, light gray horizontal and vertical lines that intersect to form small squares across the entire surface. There are no margins, text, or other markings on the paper.

1.3 Industrial Relays - pluggable

Application	Types	Pins	Contacts	AC ratings	DC ratings	Socket
C2 Series						
General purpose	C2-A2x			10 A / 250 V	0.5 A / 110 V	S2
C3 Series						
General purpose	C3-A3x			10 A / 250 V	0.5 A / 110 V	S3
Low switching load	C3-T3x			6 A / 250 V	6 A / 30 V	S3
DC load switching	C3-G3x		1.7mm 	10 A / 250 V	1.2 A / 110 V	S3
DC load switching with magnetic blow out	C3-M1x		>3mm 	10 A / 250 V	10 A / 220 V	S3
DC load switching double make	C3-X1x		>3mm 	10 A / 250V	7 A / 110 V	S3
Latching relay	C3-R2x		 Rem.	10 A / 250 V	0.5 A / 110 V	S3
Sensitive coil 800 mW	C3-N3x			10 A / 250 V	0.5 A / 110 V	S3
C4 Series						
General purpose	C4-A4x			10 A / 250 V	0.5 A / 110 V	S4
DC load switching double make	C4-X2x		2x >3mm 	10 A / 250 V	7 A / 110 V	S4
Latching relay	C4-R3x		 Rem.	10 A / 250 V	0.5 A / 110 V	S4

Application	Types	Pins	Contacts	AC ratings	DC ratings	Socket
C5 Series						
Power relay	C5-A2x			16 A / 400 V	0.5 A / 110 V	S5
Power relay	C5-A3x			16 A / 400 V	0.5 A / 110 V	S5
DC load switching	C5-G3x		1.7mm 	16 A / 400 V	1.2 A / 110 V	S5
DC load switching double make	C5-X1x		>3mm 	16 A / 400 V	7 A / 110 V	S5
DC load switching with magnetic blow out	C5-M1x		>3mm 	16 A / 400 V	10 A / 220 V	S5
DC load switching with magnetic blow out	C5-M2x		>3mm 	16 A / 250 V	7 A / 110 V	S5
Latching relay	C5-R2x		 Rem.	10 A / 400 V	10 A / 30 V	S5
C7 Series						
Miniature power relay	C7-A1x			16 A / 250 V	0.5 A / 110 V	S7
General purpose	C7-A2x			10 A / 250 V	0.5 A / 110 V	S7
Low switching load	C7-T2x			6 A / 250 V	6 A / 30 V	S7
DC load switching	C7-G2x			10 A / 250 V	0.8 A / 110 V	S7
General purpose and low switching load	C7-H2x			10 A / 250 V	10 A / 30 V	S7
DC load switching double make	C7-X1x		>3mm 	10 A / 250 V	6 A / 110 V	S7
Power relay for high inrush current	C7-W1x			10 A / 250 V	–	S7
C9 Series						
Miniature relay	C9-A4x			5 A / 250 V	5 A / 30 V	S9
Sensitive Coil 500mW ... 800mW	C9-E2x			5 A / 250 V	5 mA / 30 V	S9
Latching relay	C9-R2x			5 A / 120 V	5 A / 30 V	S9

C2-A2x**2 pole | changeover contact | plug-in****TURCK****comat**
RELECO
WORLD OF RELAYS

Maximum contact load	10 A/250 V AC-1	0.5 A/110 V DC-1
	10 A/30 V DC-1	0.2 A/220 V DC-1
Recommended minimum contact load	10 mA/10 V Code 0	
	5 mA/5 V Code 8	

Contacts

Material	Standard	Code 0	⚡ AgNi
	Optional	Code 8	⚡ AgNi + 5 μ Au
Max. switching current			10 A
Max. peak inrush current (20 ms.)			30 A
Max. switching voltage			250 V
Max. AC load (Fig 1 1)			2.5 kVA
Max. DC load			See Fig 2

Coils

Coil resistance	see table; tolerance ± 10 %
Pick up voltage	≤ 0.8 × U _N
Pick up voltage	≥ 0.1 × U _N
Nominal power	2.2 VA (AC)/1.3 W (DC)

Table

V AC	Ω	mA	VDC	Ω	mA
24	67	92	24	443	54
48	296	46	48	1K8	27
115	1K7	19	110	9K	12
230	7K1	9.5	220	36K1	6

Insulation

	Volt rms / 1 min
Open contact	1000 V
Between adjacent poles	2.5 kV
Between contacts and coil	2.5 kV
Insulation resistance at 500 V	≥ 1 GΩ
Insulation, IEC 61810-1	2.5 kV

Specifications

Ambient temperature operation/storage	-40...60 °C / -40 ... 80 °C (no ice)
Pick-up time + bounce time	16 ms/≤ 3 ms
Release time + bounce time	8 ms/≤ 1 ms
Mechanical life ops	AC: 10 Mill./DC: 20 Mill.
DC voltage endurance at rated load	≥ 100 000 ops. switching cycles
Operating frequency at nominal load	≤ 1200/ops/h
Weight	79 g

Product References**V AC 50 Hz/60 Hz: 24, 48, 115 (120), 230 (240)****LED****RC Suppressor****VDC 24, 48, 110, 220****LED****Free wheeling diode****Polarity and free wheeling diode****AC/DC bridge rectifier 24 V, 48 V, 60 V**

Other voltages on request

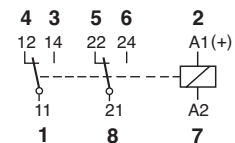
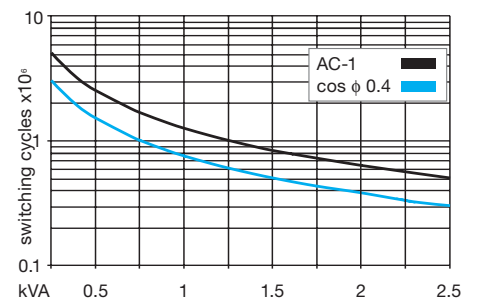
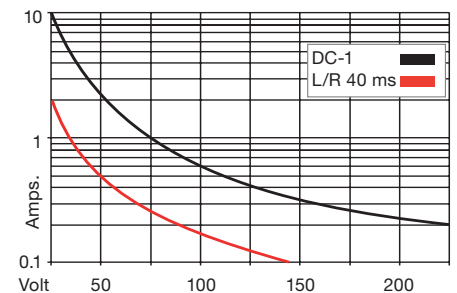
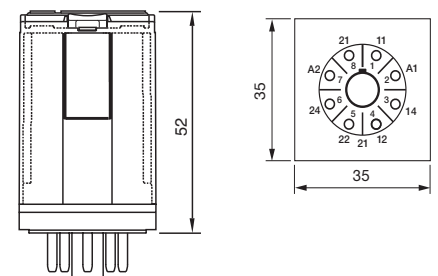
C2-A20/AC ... V	C2-A28/AC ... V
C2-A20X/AC ... V	C2-A28X/AC ... V
C2-A20R/AC ... V	C2-A28R/AC ... V
C2-A20/DC ... V	C2-A28/DC ... V
C2-A20X/DC ... V	C2-A28X/DC ... V
C2-A20DX/DC ... V	C2-A28DX/DC ... V
C2-A20FX/DC ... V	C2-A28FX/DC ... V
C2-A20BX/UC ... V	C2-A28BX/UC ... V

"..." List Coil Voltage to complete Product References

Accessories (See also Section Sockets)

Socket:

Blanking Plug:

S2-B, S2-PO**SO-NP (BAG 10 PCS)****Connection diagram****Fig.1 AC voltage endurance****Fig. 2 DC load limit curve****Dimensions****Technical approvals, conformities**

IEC/EN 61810; IEC/EN 60947

C3-A3x**3 pole | changeover contact | plug-in****TURCK****comat**
RELECO
WORLD OF RELAYS

Maximum contact load	10 A/250	AC-1	0.5 A/110 V	DC-1
	10 A/30	DC-1	0.2 A/220 V	DC-1
Recommended minimum contact load	10 mA/10 V	Code 0, 9		
	5 mA/5 V	Code 8		

Contacts

Material	Standard	Code 0	⚡ AgNi
	Optional	Code 8	⚡ AgNi + 5 μ Au
	Optional	Code 9	⚡ AgNi + 0.2 μ Au
Rated Load			10 A
Switch-on current max. (20 ms)			30 A
Switching voltage max.			250 V
AC load (Fig 1)			2.5 kVA
DC load			see Fig. 2

Coil

Coil resistance	see table; tolerance ± 10 %
Pick-up voltage	≤ 0.8 × U _N
Release voltage	≥ 0.1 × U _N
Nominal power	2.2 VA (AC)/1.3 W (DC)

Coil table

V AC	Ω	mA	VDC	Ω	mA
24	67	92	24	480	50
48	296	46	48	1K8	26
115	1K7	19	110	9K	12
230	7K1	9.5	220	36K1	6

Insulation

	Volt rms / 1 min
Contact open	1000 V
Contact/contact	2.5 kV
Contact/coil	2.5 kV
Insulation resistance at 500 V	≥ 1 GΩ
Insulation, IEC 61810-1	2.5 kV

Specifications

Ambient temperature operation/storage	-40...60 °C / -40 ... 80 °C (no ice)
Pick-up time/bounce time	16 ms/≤ 3 ms
Release time/bounce time	8 ms/≤ 1 ms
Mechanical life ops	AC: 10 Mill./DC: 20 Mill.
DC voltage endurance at rated load	≥ 100 000 switching cycles
Switching frequency at rated load	≤ 1200/ops/h
Weight	81 g

Product References**V AC 50 Hz/60 Hz: 24, 48, 115 (120), 230 (240)****LED****RC Suppressor****VDC 24, 48, 110, 220****LED****Free wheeling diode****Polarity and free wheeling diode****AC/DC bridge rectifier 24 V, 48 V, 60 V**

Other voltages on request

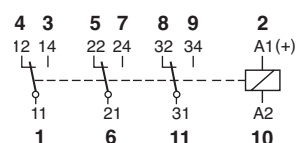
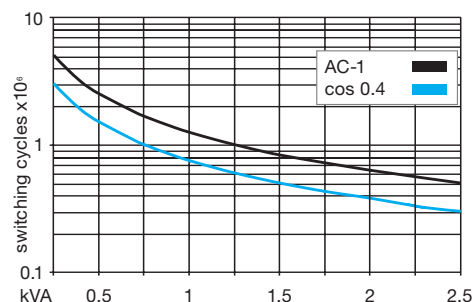
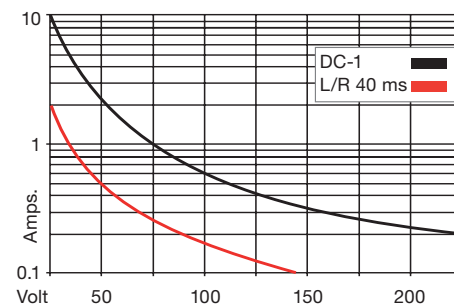
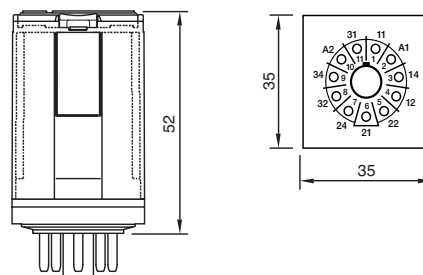
"..." List Coil Voltage to complete Product References

Accessories (See also Section Sockets)

Socket:

S3-B, S3-S, S3-L, S3-PO, S3-MB0, S3-MB1

Blanking Plug:

SO-NP (BAG 10 PCS)**Connection diagram****Fig.1 AC voltage endurance****Fig. 2 DC load limit curve****Dimensions****Technical approvals, conformities**

IEC/EN 61810; IEC/EN 60947

C3-T3x**3 pole | changeover twin contact | plug-in****TURCK****comat**
RELECO
WORLD OF RELAYS

Maximum contact load	6 A/250 V	AC-1	6 A/30 V	DC-1
Recommended minimum contact load	5 mA/5 V	Code 1		
	1 mA/5 V	Code 2		

Contacts

Material	Standard	Code 1	AgNi + 0.2 µ Au
	Optional	Code 2	AgNi + 5 µ Au
Rated Load			6 A
Switch-on current max. (20 ms)			15 A
Switching voltage max.			250 V
AC load (Fig 1)			1.2 kVA
DC load			see Fig. 2

Coil

Coil resistance	see table; tolerance ± 10 %
Pick-up voltage	≤ 0.8 × U _N
Release voltage	≥ 0.1 × U _N
Nominal power	2.2 VA (AC)/1.3 W (DC)

Coil table

V AC	Ω	mA	VDC	Ω	mA
24	67	92	24	480	50
48	296	46	48	1K8	26
115	1K7	19	110	9K	12
230	7K1	9.5	220	36K1	6

Insulation

	Volt rms / 1 min
Contact open	1000 V
Contact/contact	2.5 kV
Contact/coil	2.5 kV
Insulation resistance at 500 V	≥ 1 GΩ
Insulation, EN 61810-1	2.5 kV

Specifications

Ambient temperature operation/storage	-40 ... 70 °C / -40 ... 80 °C (no ice)
Pick-up time/bounce time	8 ms/≤ 3 ms
Release time/bounce time	18 ms/≤ 1 ms
Mechanical life ops	AC: 10 Mill./DC: 20 Mill.
DC voltage endurance at rated load	≥ 100 000 switching cycles
Switching frequency at rated load	≤ 1200/ops/h
Weight	81 g

Product References**V AC 50 Hz/60 Hz: 24, 48, 115 (120), 230 (240)****LED****RC Suppressor****VDC 24, 48, 110, 220****LED****Free wheeling diode****Polarity and free wheeling diode****AC/DC bridge rectifier 24 V, 48 V, 60 V**

Other voltages on request

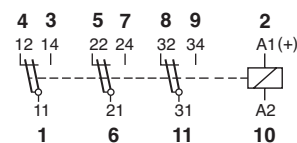
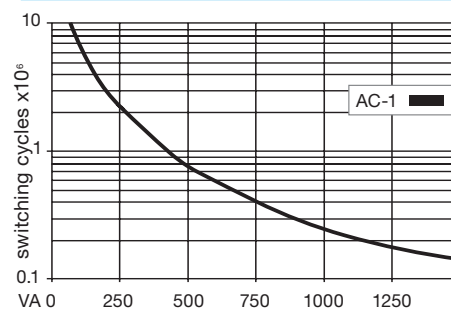
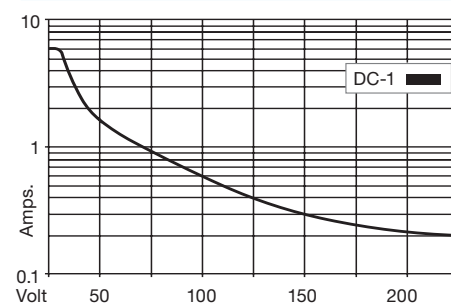
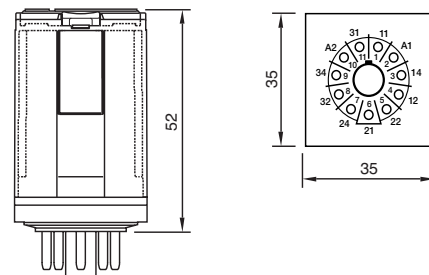
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C3-T31X/AC ... V
C3-T31R/AC ... V**C3-T31/DC ... V**
C3-T31X/DC ... V
C3-T31DX/DC ... V
C3-T31FX/DC ... V**C3-T31BX/UC ... V****C3-T32/AC ... V**
C3-T32X/AC ... V
C3-T32R/AC ... V**C3-T32/DC ... V**
C3-T32X/DC ... V
C3-T32DX/DC ... V
C3-T32FX/DC ... V**C3-T32BX/UC ... V**

"..." List Coil Voltage to complete Product References

Accessories (See also Section Sockets)

Socket:

Blanking Plug:

S3-B, S3-S, S3-L, S3-PO, S3-MB0, S3-MB1
SO-NP (BAG 10 PCS)**Connection diagram****Fig.1 AC voltage endurance****Fig. 2 DC load limit curve****Dimensions****Technical approvals, conformities**

IEC/EN 61810; IEC/EN 60947

C3-G3x**3 pole | normally open contact | plug-in****TURCK****comat**
RELECO
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Maximum contact load	10 A 250 V AC-1	1.2 A/110 V DC-1
	10 A 30 V DC-1	0.4 A/220 V DC-1

Contacts

Material	Standard	Code 0	⚡ AgNi
Rated Load			10 A
Switch-on current max. (20 ms)			30 A
Switching voltage max.			250 V
AC load (Fig 1)			2.5 kVA
DC load			see Fig. 2

Coil

Coil resistance	see table; tolerance $\pm 10\%$
Pick-up voltage	$\leq 0.8 \times U_N$
Release voltage	$\geq 0.1 \times U_N$
Nominal power	2.4 VA (AC)/1.6 W (DC)

Coil table

V AC	Ω	mA	VDC	Ω	mA
24	65	100	24	360	66
48	286	50	48	1K4	34
115	1K7	21	110	7K6	15
230	6K8	10	220	30K3	7.5

Insulation

	Volt rms / 1 min
Contact open	2000 V
Contact/contact	2.5 kV
Contact/coil	2.5 kV
Insulation resistance at 500 V	$\geq 1 \text{ G}\Omega$
Insulation, IEC 61810-1	2.5 kV

Specifications

Ambient temperature operation/storage	-40...60 °C / -40 ... 80 °C (no ice)
Pick-up time/bounce time	20 ms/ ≤ 3 ms
Release time/bounce time	8 ms/ ≤ 1 ms
Mechanical life ops	AC: 10 Mill./DC: 20 Mill.
DC voltage endurance at rated load	$\geq 100\,000$ switching cycles
Switching frequency at rated load	≤ 1200 /ops/ h
Weight	81 g

Product References**V AC 50 Hz/60 Hz: 24, 48, 115 (120), 230 (240)****LED****RC Suppressor****C3-G30/AC ... V**
C3-G30X/AC ... V
C3-G30R/AC ... V**VDC 24, 48, 110, 220****LED****Free wheeling diode****Polarity and free wheeling diode****C3-G30/DC ... V**
C3-G30X/DC ... V
C3-G30DX/DC... V
C3-G30FX/DC ... V**AC/DC bridge rectifier 24 V, 48 V, 60 V**

Other voltages on request

C3-G30BX/UC ... V

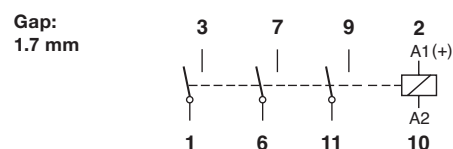
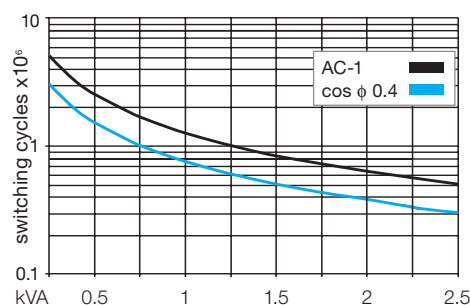
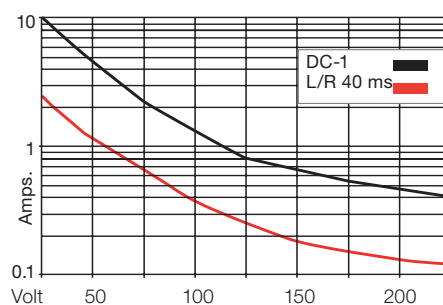
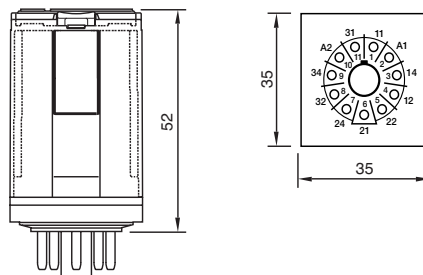
"..." List Coil Voltage to complete Product References

Accessories (See also Section Sockets)

Socket:

S3-B, S3-S, S3-L, S3-PO, S3-MB0, S3-MB1

Blanking Plug:

SO-NP (BAG 10 PCS)**Connection diagram****Fig.1 AC voltage endurance****Fig. 2 DC load limit curve****Dimensions****Technical approvals, conformities**

IEC/EN 61810; IEC/EN 60947

C3-M1x**1 pole | normally open serial contact with blow magnet | plug-in****TURCK****comat**
RELECO
WORLD OF RELAYS**Maximum contact load** **10 A 250 V AC-1** **10 A 220 V DC-1****Contacts**

Material	Standard	Code 0	⚡ AgNi
Rated Load			10 A
Switch-on current max. (20 ms)			30 A
Switching voltage max.			250 V
AC load (Fig 1)			2.5 kVA
DC load			see Fig. 2

Coil

Coil resistance	see table; tolerance $\pm 10\%$
Pick-up voltage	$\leq 0.8 \times U_N$
Release voltage	$\geq 0.1 \times U_N$
Nominal power	2.4 VA (AC) / 1.3 W (DC)

Coil table

V AC	Ω	mA	VDC	Ω	mA
24	65	100	24	480	50
48	286	50	48	1K8	26
115	1K7	21	110	9K	12
230	6K8	10	220	29K	7.5

Insulation

	Volt rms / 1 min
Contact open	2500 V
Contact/contact	2.5 kV
Contact/coil	2.5 kV
Insulation resistance at 500 V	$\geq 1 \text{ G}\Omega$
Insulation, IEC 61810-1:	2.5 KV

Specifications

Ambient temperature operation/storage	-40 ... 70 °C (55° C AC) / -40 ... 80 °C (no ice)
Pick-up time/bounce time	20 ms/ ≤ 3 ms
Release time/bounce time	10 ms/ ≤ 1 ms
Mechanical life ops	AC: 10 Mill./DC: 20 Mill.
DC voltage endurance	see fig. 2
Switching frequency at rated load	$\leq 1200/\text{h}$
Weight	90 g

Product References**V AC 50 Hz/60 Hz: 24, 48, 115 (120), 230 (240)****LED****RC Suppressor****VDC 24, 48, 110, 220****LED****Free wheeling diode****Polarity and free wheeling diode****AC/DC bridge rectifier 24 V, 48 V, 60 V**

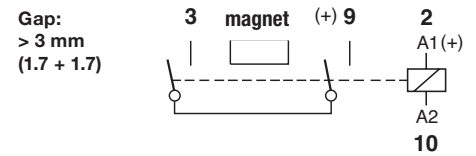
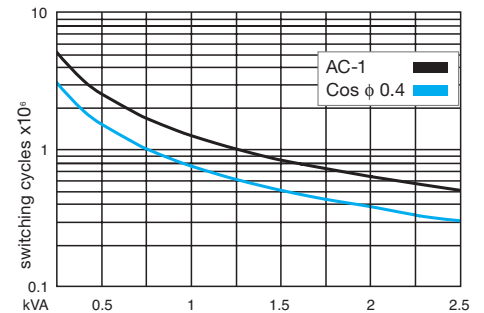
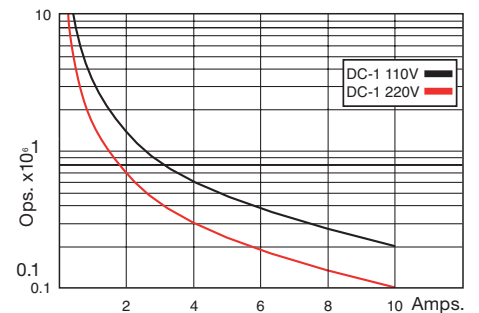
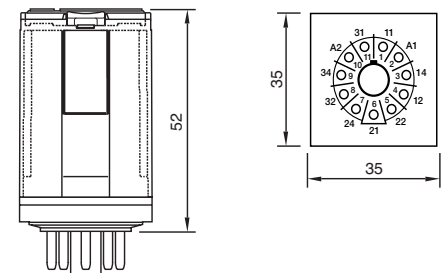
Other voltages on request

"... " List Coil Voltage to complete Product References

Accessories (See also Section Sockets)

Socket:

Blanking Plug:

S3-B, S3-S, S3-L, S3-PO, S3-MB0, S3-MB1
SO-NP (BAG 10 PCS)**Connection diagram****Fig.1 AC voltage endurance****Fig. 2 DC voltage endurance****Dimensions****Technical approvals, conformities**

IEC/EN 61810; IEC/EN 60947

C3-X1x**1 pole | normally open serial contact | plug-in**

Maximum contact load	10 A/250 V AC-1	7 A/110 V DC-1
	10 A/30 V DC-1	1.2 A/220 V DC-1

Contacts

Material	Standard	Code 0	⚡ AgNi
Rated Load			10 A
Switch-on current max. (20 ms)			30 A
Switching voltage max.			250 V
AC load (Fig 1)			2.5 kVA
DC load			see Fig. 2

Coil

Coil resistance	see table; tolerance $\pm 10\%$
Pick-up voltage	$\leq 0.8 \times U_N$
Release voltage	$\geq 0.1 \times U_N$
Nominal power	2.4 VA (AC)/1.3 W (DC)

Coil table

V AC	Ω	mA	VDC	Ω	mA
24	65	100	24	480	54
48	286	50	48	1K8	26
115	1K7	21	110	9K	12
230	6K8	10	220	29K	7.5

Insulation

Contact open	Volt rms / 1 min
Contact/contact	2500 V
Contact/coil	2.5 kV
Insulation resistance at 500 V	$\geq 1 \text{ G}\Omega$
Insulation, IEC 61810-1	2.5 kV

Specifications

Ambient temperature operation/storage	-40...60 °C / -40 ... 80 °C (no ice)
Pick-up time/bounce time	18 ms/ ≤ 3 ms
Release time/bounce time	8 ms/ ≤ 1 ms
Mechanical life ops	AC: 10 Mill./DC: 20 Mill.
DC voltage endurance at rated load	$\geq 100\,000$ switching cycles
Switching frequency at rated load	≤ 1200 /ops/h
Weight	83 g

Product References**V AC 50 Hz/60 Hz: 24, 48, 115 (120), 230 (240)****LED****RC Suppressor****VDC 24, 48, 110, 220****LED****Free wheeling diode****Polarity and free wheeling diode****AC/DC bridge rectifier 24 V, 48 V, 60 V**

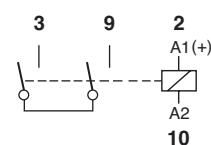
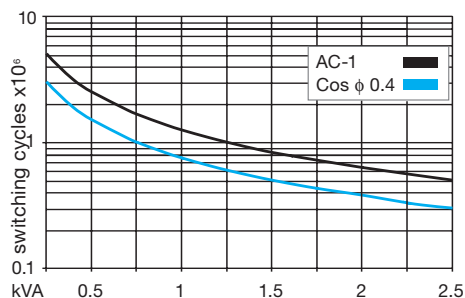
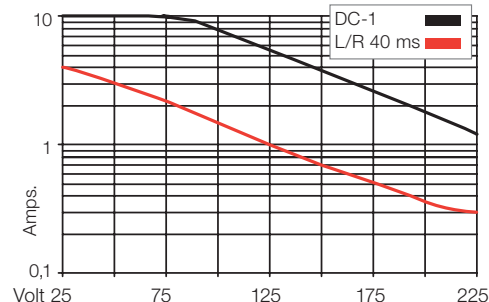
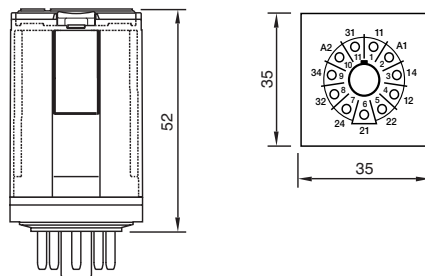
Other voltages on request

"..." List Coil Voltage to complete Product References

Accessories (See also Section Sockets)

Socket:

Blanking Plug:

**S3-B, S3-S, S3-L, S3-PO, S3-MB0, S3-MB1
SO-NP (BAG 10 PCS)****TURCK****comat
RELECO**
WORLD OF RELAYS**Connection diagram**Gap:
> 3 mm
(1.7 + 1.7)**Fig.1 AC voltage endurance****Fig. 2 DC load limit curve****Dimensions****Technical approvals, conformities**

IEC/EN 61810; IEC/EN 60947

C3-R2x**2 pole | changeover contact | retentive | plug-in****TURCK****comat**
RELECO
WORLD OF RELAYS

Maximum contact load	10 A/250 V AC-1	0.5 A/110 V DC-1
	10 A/30 V DC-1	0.2 A/220 V DC-1
Recommended minimum contact load	10 mA/10 V Code 0	
	5 mA/5 V Code 8	

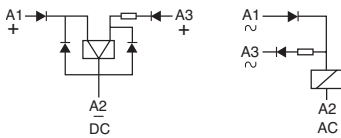
Contacts

Material	Standard	Code 0	⚡ AgNi
	Optional	Code 8	⚡ AgNi + 5 µ Au

Rated Load	10 A
Switch-on current max. (20 ms)	30 A
Switching voltage max.	250 V
AC load (Fig 1)	2.5 kVA
DC load	see Fig. 2

Coil

Coil resistance	see table; tolerance $\pm 10\%$
ON pulse power	1.5 VA/W
OFF pulse power	0.5 VA/W
Pull-in ON/OFF	$\leq 0.8 \times U_N$

Internal Diagram:**Coil table**

V AC	mA ON	mA OFF	VDC	mA ON	mA OFF
24	75	12	12	125	41
48	38	6	24	63	21
115	16	2.5	48	31	10
230	8	1.3	110	14	4.5

Insulation

	Volt rms / 1 min
Contact open	1000 V
Contact/contact	2.5 kV
Contact/coil	2.5 kV
Insulation resistance at 500 V	$\geq 1 \text{ G}\Omega$
Insulation, IEC 61810-1	2.5 kV

Specifications

Ambient temperature operation/storage	-40...60 °C / -40 ... 80 °C (no ice)
Minimum pulse length for ON/OFF	50 ms
Mechanical life ops	10 Mill.
DC voltage endurance at rated load	$\geq 100\,000$ switching cycles
Switching frequency at rated load	≤ 1200 /ops/h
Weight	81 g

Product References**V AC 50 Hz/60 Hz: 24, 48, 115, 230****C3-R20N/AC ... V****C3-R28N/AC ... V****VDC 12, 24, 48, 110**

Other voltages on request

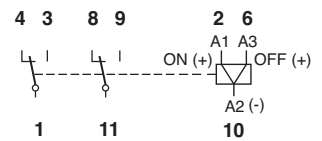
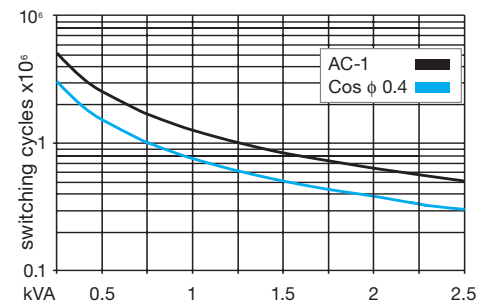
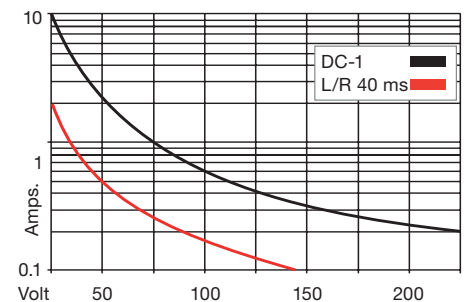
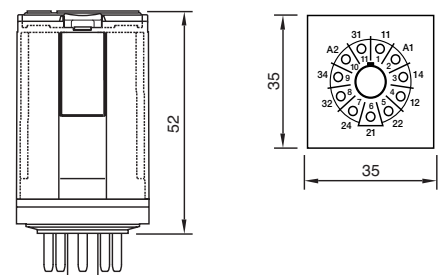
C3-R20N/DC ... V**C3-R28N/DC ... V**

"... "List Coil Voltage to complete Product References

Accessories (See also Section Sockets)

Socket:

Blanking Plug:

S3-B, S3-S, S3-L, S3-PO, S3-MB0, S3-MB1
SO-NP (BAG 10 PCS)**Connection diagram****Fig.1 AC voltage endurance****Fig. 2 DC load limit curve****Dimensions****Technical approvals, conformities**

IEC/EN 61810; IEC/EN 60947

Maximum contact load	6 A/250 V	AC-1	6 A/30 V	DC-1
Recommended minimum contact load	10 mA/10 V	Code 4		
	5 mA/5 V	Code 8		

Contacts

Material	Standard	Code 4	AgNi + 0.2 µ Au
	Optional	Code 8	AgNi + 10 µ Au
Rated Load			6 A
Switch-on current max. (20 ms)			15 A
Switching voltage max.			250 V
AC load (Fig 1)			1.5 kVA
DC load			see Fig. 2

Coil

Coil resistance	see table; tolerance $\pm 10\%$
Pick-up voltage	$\leq 0.8 \times U_N$
Release voltage	$\geq 0.1 \times U_N$
Nominal power	800 mW

Coil table

V AC	Ω	mA	VDC	Ω	mA
24	67	92	24	480	50
48	296	46	48	1K8	26
115	1K7	19	110	9K	12
230	7K1	9.5	220	36K1	6

Insulation

Contact open	1000 V
Contact/contact	2.5 kV
Contact/coil	2.5 kV
Insulation resistance at 500 V	≥1 GΩ
Insulation, IEC 61810-1	2.5 kV

Specifications

Ambient temperature operation/storage	-40...60 °C /-40 ... 80 °C (no ice)
Pick-up time/bounce time	18 ms/≤ 3 ms
Release time/bounce time	10 ms/≤ 1 ms
Mechanical life ops	DC: 20 Mill.
DC voltage endurance at rated load	≥ 100 000 switching cycles
Switching frequency at rated load	≤ 1200/ops/h
Weight	90 g

Product References

VDC 24, 48, 60, 110

Free wheeling diode

Polarity and free wheeling diode

Other voltages on request

C3-N34/DC ... V	C3-N38/DC ... V
C3-N34D/DC ... V	C3-N38D/DC ... V
C3-N34F/DC ... V	C3-N38F/DC ... V

"..." List Coil Voltage to complete Product References

Accessories (See also Section Sockets)

Socket:

Blanking Plug:

**S3-B, S3-S, S3-L, S3-PO, S3-MB0, S3-MB1
SO-NP (BAG 10 PCS)**



Connection diagram

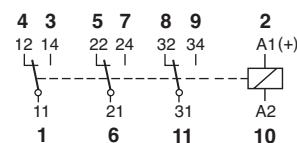


Fig.1 AC voltage endurance

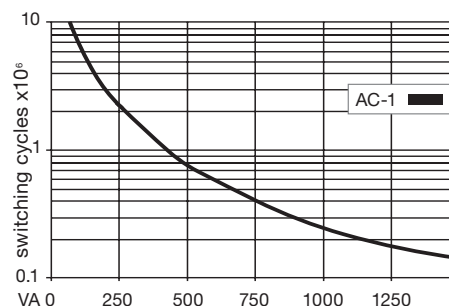
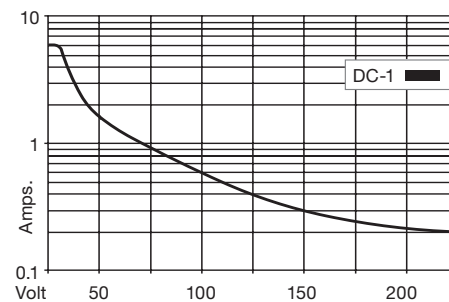
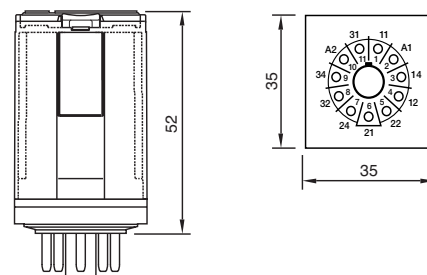


Fig. 2 DC load limit curve



Dimensions



Technical approvals, conformities



IEC/EN 61810; IEC/EN 60947

C4-A4x**4 pole | changeover contact | plug-in Faston**

Maximum contact load	10 A/250 V AC-1	0.5 A/110 V DC-1
	10 A/30 V DC-1	0.2 A/220 V DC-1
Recommended minimum contact load	5 mA/5 V	Code 8

Contacts

Material	Standard	Code 0	⚡ AgNi
	Optional	Code 8	⚡ AgNi + 5 μ Au
Rated Load			10 A
Switch-on current max. (20 ms)			30 A
Switching voltage max.			250 V
AC load (Fig 1)			2.5 kVA
DC load			see Fig. 2

Coil

Coil resistance	see table; tolerance ± 10 %
Pick-up voltage	≤ 0.8 × U _N
Release voltage	≥ 0.1 × U _N
Nominal power	2.4 VA (AC)/1.4 W (DC)

Coil table

V AC	Ω	mA	VDC	Ω	mA
24	65	100	24	414	58
48	286	50	48	1K6	30
115	1K7	21	110	8K1	13
—	—	—	120-125	10K	12.3
230	6K8	10	220	35K7	6.2

Insulation

	Volt rms / 1 min
Contact open	1000 V
Contact/contact	2.5 kV
Contact/coil	2.5 kV
Insulation resistance at 500 V	≥ 1 GΩ
Insulation, IEC 61810-1	2.5 kV

Specifications

Ambient temperature operation/storage	-40...60 °C / -40 ... 80 °C (no ice)
Pick-up time/bounce time	20 ms/≤ 3 ms
Release time/bounce time	8 ms/≤ 1 ms
Mechanical life ops	AC: 10 Mill./DC: 20 Mill.
DC voltage endurance at rated load	≥ 100 000 switching cycles
Switching frequency at rated load	≤ 1200/ops/h
Weight	90 g

Product References**V AC 50 Hz/60 Hz: 24, 48, 115, (120), 230, (240)****LED****RC Suppressor****VDC 24, 48, 110, 220****LED****Free wheeling diode****Polarity and free wheeling diode****AC/DC bridge rectifier 24 V, 48 V, 60 V**

Other voltages on request

C4-A40/AC ... V**C4-A40X/AC ... V****C4-A40R/AC ... V****C4-A40/DC ... V****C4-A40X/DC ... V****C4-A40DX/DC ... V****C4-A40FX/DC ... V****C4-A40BX/UC ... V****C4-A48/AC ... V****C4-A48X/AC ... V****C4-A48R/AC ... V****C4-A48/DC ... V****C4-A48X/DC ... V****C4-A48DX/DC ... V****C4-A48FX/DC ... V****C4-A48BX/UC ... V**

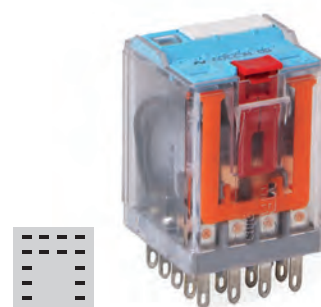
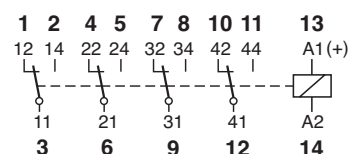
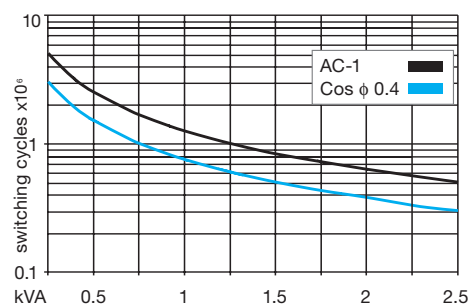
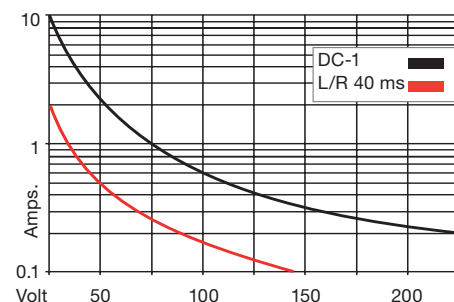
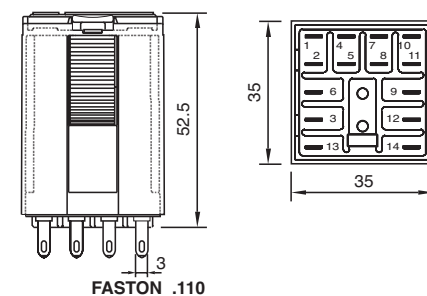
"..." List Coil Voltage to complete Product References

Accessories (See also Section Sockets)

Socket:

Wall Mounting Adapter:

Blanking Plug:

S4-J, S4-L, S4-P**S5-R (BAG 5 PCS)****SO-NP (BAG 10 PCS)****Connection diagram****Fig.1 AC voltage endurance****Fig. 2 DC load limit curve****Dimensions****Technical approvals, conformities**

IEC/EN 61810; IEC/EN 60947

C4-X2x**2 pole | normally open serial contact | plug-in Faston****TURCK****comat**
RELECO
WORLD OF RELAYS

Maximum contact load	10 A/250 V AC-1	7 A/110 V DC-1
	10 A/30 V DC-1	1.2 A/220 V DC-1

Contacts

Material	Standard	Code 0	⚡ AgNi
Rated Load			10 A
Switch-on current max. (20 ms)			30 A
Switching voltage max			250 V
AC load (Fig 1)			2.5 kVA
DC load			see Fig. 2

Coil

Coil resistance	see table; tolerance $\pm 10\%$
Pick-up voltage	$\leq 0.8 \times U_N$
Release voltage	$\geq 0.1 \times U_N$
Nominal power	2.4 VA (AC)/1.3 W (DC)

Coil table

V AC	Ω	mA	VDC	Ω	mA
24	65	100	24	443	54
48	286	50	48	1K8	27
115	1K7	21	110	9K2	12
230	6k8	10	220	30K3	6

Insulation

Contact open	Volt rms / 1 min
Contact/contact	2500 V
Contact/coil	2.5 kV
Insulation resistance at 500 V	$\geq 1 \text{ G}\Omega$
Insulation, IEC 61810-1	2.5 kV

Specifications

Ambient temperature operation/storage	-40...60 °C / -40 ... 80 °C (no ice)
Pick-up time/bounce time	20 ms/ ≤ 3 ms
Release time/bounce time	8 ms/ ≤ 1 ms
Mechanical life ops	AC: 10 Mill./DC: 20 Mill.
DC voltage endurance at rated load	$\geq 100\,000$ switching cycles
Switching frequency at rated load	≤ 1200 /ops/h
Weight	90 g

Product References**V AC 50 Hz/60 Hz: 24, 48, 115, (120), 230, (240)****LED****RC Suppressor**

C4-X20/AC ... V
C4-X20X/AC ... V
C4-X20R/AC ... V

VDC 24, 48, 110, 220**LED****Free wheeling diode****Polarity and free wheeling diode**

C4-X20/DC ... V
C4-X20X/DC ... V
C4-X20DX/DC ... V
C4-X20FX/DC ... V

AC/DC bridge rectifier 24 V, 48 V, 60 V

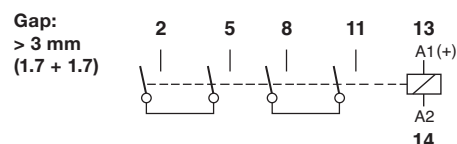
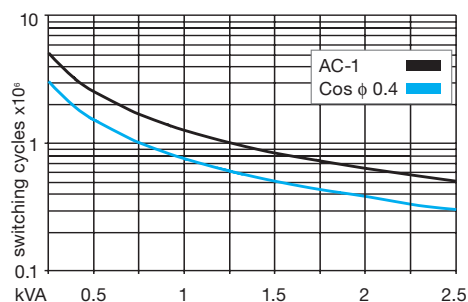
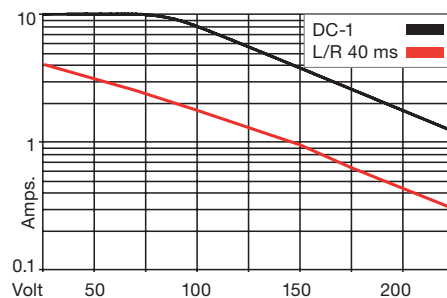
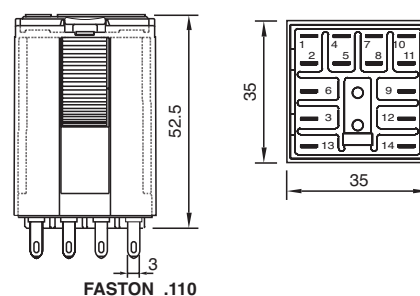
Other voltages on request

C4-X20BX/UC ... V

"..." List Coil Voltage to complete Product References

Accessories (See also Section Sockets)

Socket:	S4-J, S4-L, S4-P
Wall Mounting Adapter:	S5-R (BAG 5 PCS)
Blanking Plug:	SO-NP (BAG 10 PCS)

**Connection diagram****Fig.1 AC voltage endurance****Fig. 2 DC load limit curve****Dimensions****Technical approvals, conformities**

IEC/EN 61810; IEC/EN 60947

C4-R3x**3 pole | changeover contact | retentive | plug-in**

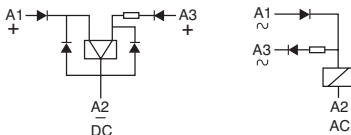
Maximum contact load	10 A/250 V AC-1	0.5 A/110 V DC-1
	10 A/10 V DC-1	0.2 A/220 V DC-1
Recommended minimum contact load	5 mA/5 V Code 8	

Contacts

Material	Standard	Code 0	⚡ AgNi
	Optional	Code 8	⚡ AgNi + 5 μ Au
Rated Load			10 A
Switch-on current max. (20 ms)			30 A
Switching voltage max.			250 V
AC load			2.5 kVA
DC load			see Fig. 2

Coil

Coil resistance	see table; tolerance ± 10 %
ON pulse power	1.5 VA/W
OFF pulse power	0.5 VA/W
Pull-in ON/OFF	1 Winding for AC, 2 Windings for DC ≤ 0.8 x U _N

Internal Diagram:**Coil table**

V AC	mA ON	mA OFF	VDC	mA ON	mA OFF
24	75	12	12	125	41
48	38	6	24	63	21
115	16	2.5	48	31	10
230	8	1.3	110	14	4.5

Insulation

Contact open	Volt rms / 1 min
Contact/contact	1000 V
Contact/coil	2.5 kV
Insulation resistance at 500 V	≥ 1 GΩ
Insulation, IEC 61810-1	2.5 kV

Specifications

Ambient temperature operation/storage	-40...60 °C / -40 ... 80 °C (no ice)
Minimum pulse length for ON/OFF	50 ms
Mechanical life ops	AC: 10 Mill./DC: 20 Mill. switching cycles
DC voltage endurance at rated load	≥ 100 000 switching cycles
Switching frequency at rated load	≤ 1200/h
Weight	95 g

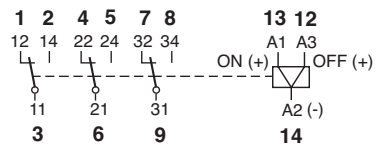
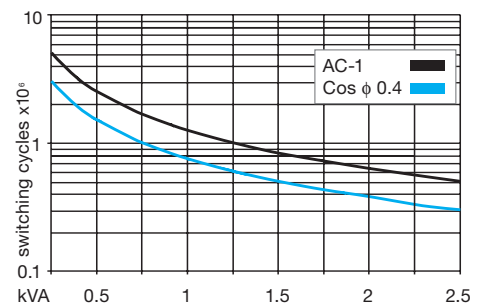
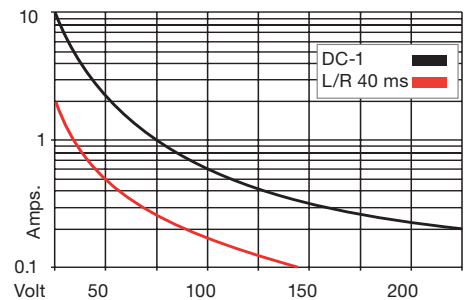
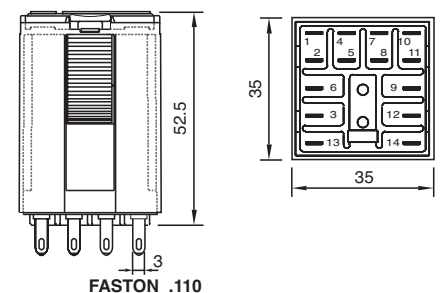
Product References**V AC 50 Hz/60 Hz: 24, 48, 115, 230****VDC 12, 24, 48, 110**

Other voltages on request

"..." List Coil Voltage to complete Product References

Accessories (See also Section Sockets)

Socket:	S4-J, S4-L, S4-P
Wall Mounting Adapter:	S5-R (BAG 5 PCS)
Blanking Plug:	SO-NP (BAG 10 PCS)

**Connection diagram****Fig.1 AC voltage endurance****Fig. 2 DC load limit curve****Dimensions****Technical approvals, conformities**

IEC/EN 61810; IEC/EN 60947

C5-A2x**2 pole | changeover contact | plug-in Faston**

Maximum contact load	16 A/400 V AC-1	0.5 A/110 V DC-1
	16 A/30 V DC-1	0.2 A/220 V DC-1

Contacts

Material	Standard	Code 0	⚡ AgNi
Rated Load			16 A
Switch-on current max. (20 ms)			40 A
Switching voltage max.			400 V
AC load (Fig 1)			4 kVA
DC load			see Fig. 2

Coil

Coil resistance	see table; tolerance $\pm 10\%$
Pick-up voltage	$\leq 0.8 \times U_N$
Release voltage	$\geq 0.1 \times U_N$
Nominal power	2.4 VA (AC)/1.4 W (DC)

Coil table

V AC	Ω	mA	VDC	Ω	mA
24	65	100	24	414	58
48	286	50	48	1K6	30
115	1K7	21	110	8K1	13
230	6K8	10	220	30K3	6
400	18K8	6			

Insulation

	Volt rms / 1 min
Contact open	1000 V
Contact/contact	4 kV
Contact/coil	4 kV
Insulation resistance at 500 V	$\geq 3 \text{ G}\Omega$
Insulation, IEC 61810-1	4 kV

Specifications

Ambient temperature operation/storage	-40...60 °C / -40 ... 80 °C (no ice)
Pick-up time/bounce time	20 ms/ ≤ 3 ms
Release time/bounce time	10 ms/ ≤ 1 ms
Mechanical life ops	AC: 10 Mill./DC: 20 Mill.
DC voltage endurance at rated load	$\geq 100\,000$ switching cycles
Switching frequency at rated load	≤ 1200 /ops/h
Weight	90 g

Product References**V AC 50 Hz/60 Hz: 24, 48, 115 (120), 230 (240)****LED****RC Suppressor (max 250 V)****C5-A20/AC ... V****C5-A20X/AC ... V****C5-A20R/AC ... V****VDC 24, 48, 110, 220****LED****Free wheeling diode****Polarity and free wheeling diode****C5-A20/DC ... V****C5-A20X/DC ... V****C5-A20DX/DC ... V****C5-A20FX/DC ... V****AC/DC bridge rectifier 24 V, 48 V, 60 V****C5-A20BX/UC ... V**

Other voltages on request

"..." List Coil Voltage to complete Product References

Accessories (See also Section Sockets)

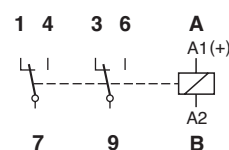
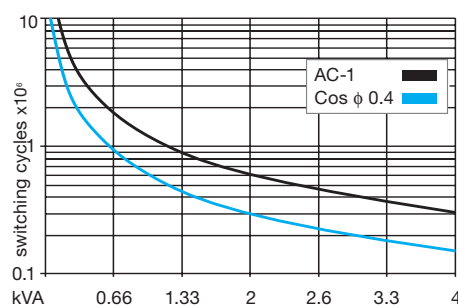
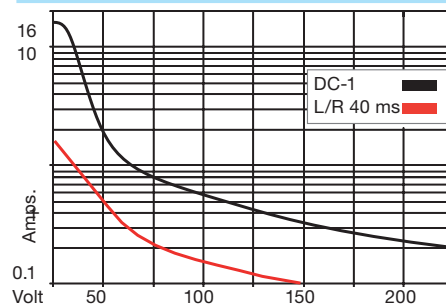
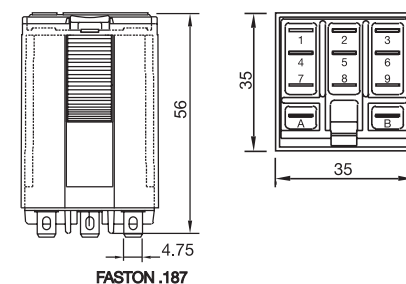
Socket:

S5-M, S5-P

Wall Mounting Adapter:

S5-R (BAG 5 PCS)

Blanking Plug:

SO-NP (BAG 10 PCS)**TURCK****comat**
RELECO
WORLD OF RELAYS**Connection diagram****Fig.1 AC voltage endurance****Fig. 2 DC load limit curve****Dimensions****Technical approvals, conformities**

IEC/EN 61810; IEC/EN 60947

C5-A3x**3 pole | changeover contact | plug-in Faston**

Maximum contact load	16 A/400 V AC-1	0.5 A/110 V DC-1
	16 A/30 V DC-1	0.2 A/220 V DC-1

Contacts

Material	Standard	Code 0	 AgNi
	Optional	Code 5	 AgSnO ₂
Rated Load			16 A
Switch-on current max. (20 ms)			40 A
Switching voltage max.			400 V
AC load (Fig 1)			4 kVA
DC load			see Fig. 2

Coil

Coil resistance	see table; tolerance $\pm 10\%$
Pick-up voltage	$\leq 0.8 \times U_N$
Release voltage	$\geq 0.1 \times U_N$
Nominal power	2.4 VA (AC)/1.4 W (DC)

Coil table

V AC	Ω	mA	VDC	Ω	mA
24	65	100	24	414	58
48	286	50	48	1K6	30
115	1K7	21	110	8K1	13
230	6K8	10	220	30K3	6.2
400	18K8	6			

Insulation

	Volt rms / 1 min
Contact open	1000 V
Contact/contact	4 kV
Contact/coil	4 kV
Insulation resistance at 500 V	$\geq 3 \text{ G}\Omega$
Insulation, IEC 61810-1	4 kV

Specifications

Ambient temperature operation/storage	-40...60 °C / -40 ... 80 °C (no ice)
Pick-up time/bounce time	20 ms/ ≤ 3 ms
Release time/bounce time	10 ms/ ≤ 1 ms
Mechanical life ops	AC: 10 Mill./DC: 20 Mill.
DC voltage endurance at rated load	$\geq 100\,000$ switching cycles
Switching frequency at rated load	$\leq 1200/\text{h}$
Weight	95 g

Product References**V AC 50 Hz/60 Hz: 24, 48, 115, (120), 230, (240)****LED****RC Suppressor (max 250 V)****VDC 24, 48, 110, 220****LED****Free wheeling diode****Polarity and free wheeling diode****AC/DC bridge rectifier 24 V, 48 V, 60 V**

Other voltages on request

C5-A30/AC ... V**C5-A30X/AC ... V****C5-A30R/AC ... V****C5-A30/DC ... V****C5-A30X/DC ... V****C5-A30DX/DC ... V****C5-A30FX/DC ... V****C5-A30BX/UC ... V****C5-A35/AC ... V****C5-A35X/AC ... V****C5-A35R/AC ... V****C5-A35/DC ... V****C5-A35X/DC ... V****C5-A35DX/DC ... V****C5-A35FX/DC ... V****C5-A35BX/UC ... V**

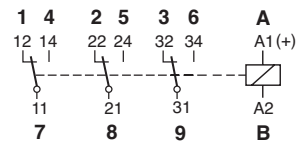
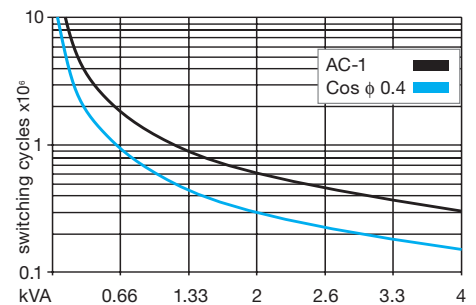
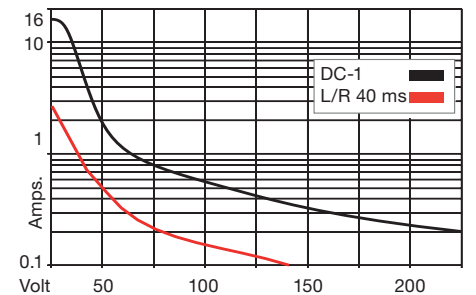
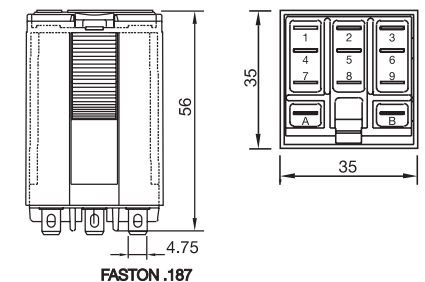
"..." List Coil Voltage to complete Product References

Accessories (See also Section Sockets)

Socket:

Wall Mounting Adapter:

Blanking Plug:

S5-M, S5-P**S5-R (BAG 5 PCS)****SO-NP (BAG 10 PCS)****Connection diagram****Fig.1 AC voltage endurance****Fig. 2 DC load limit curve****Dimensions****Technical approvals, conformities**

IEC/EN 61810; IEC/EN 60947

C5-G3x**3 pole | normally open contact | plug-in Faston****TURCK****comat**
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WORLD OF RELAYS

Maximum contact load	16 A/400 V AC-1	1.2 A/110 V DC-1
	16 A/30 V DC-1	0.4 A/220 V DC-1

Contacts

Material	Standard	Code 0	⚡ AgNi
	Optional	Code 5	⚡ AgSnO ₂
Rated Load			16 A
Switch-on current max. (20 ms)			40 A
Switching voltage max.			400 V
AC load (Fig 1)			4 kVA
DC load			see Fig. 2

Coil

Coil resistance	see table; tolerance $\pm 10\%$
Pick-up voltage	$\leq 0.8 \times U_N$
Release voltage	$\geq 0.1 \times U_N$
Nominal power	2.4 VA (AC)/1.6 W (DC)

Coil table

V AC	Ω	mA	VDC	Ω	mA
24	65	100	12	90	133
48	286	50	24	373	66
115	1K7	21	48	1K4	34
230	6K8	10	110	7K6	15
400	18K8	6	220	30K3	7.5

Insulation

Contact open	Volt rms / 1 min
Contact/contact	2000 V
Contact/coil	4 kV
Insulation resistance at 500 V	$\geq 3 \text{ G}\Omega$
Insulation, IEC 61810-1	4 kV

Specifications

Ambient temperature operation/storage	-40...60 °C / -40 ... 80 °C (no ice)
Pick-up time/bounce time	20 ms/ ≤ 3 ms
Release time/bounce time	10 ms/ ≤ 1 ms
Mechanical life ops	AC: 10 Mill./DC: 20 Mill.
DC voltage endurance at rated load	$\geq 100\,000$ switching cycles
Switching frequency at rated load	$\leq 1200/\text{h}$
Weight	95 g

Product References**V AC 50 Hz/60 Hz: 24, 48, 115, (120), 230, (240)****LED****RC Suppressor (max 250 V)****VDC 12, 24, 48, 110, 220****LED****Free wheeling diode****Polarity and free wheeling diode****AC/DC bridge rectifier 24 V, 48 V, 60 V**

Other voltages on request

C5-G30/AC ... V
C5-G30X/AC ... V
C5-G30R/AC ... V
C5-G30/DC ... V
C5-G30X/DC ... V
C5-G30DX/DC ... V
C5-G30FX/DC ... V
C5-G30BX/UC ... V
C5-G35/AC ... V
C5-G35X/AC ... V
C5-G35R/AC ... V
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C5-G35FX/DC ... V
C5-G35BX/UC ... V

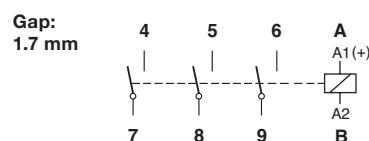
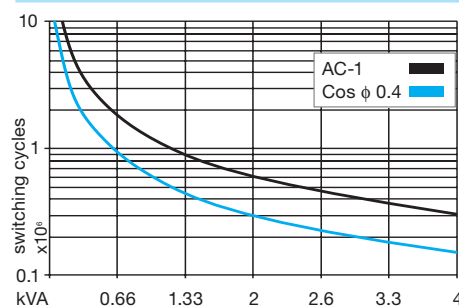
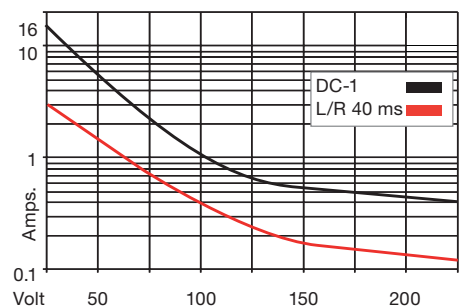
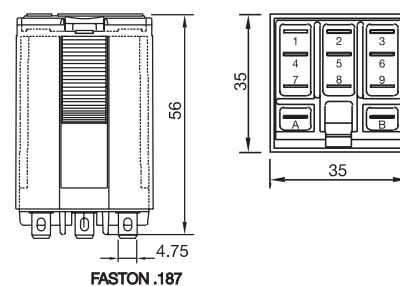
"..." List Coil Voltage to complete Product References

Accessories (See also Section Sockets)

Socket:

Wall Mounting Adapter:

Blanking Plug:

S5-M, S5-P**S5-R (BAG 5 PCS)****SO-NP (BAG 10 PCS)****Connection diagram****Fig.1 AC voltage endurance****Fig. 2 DC load limit curve****Dimensions****Technical approvals, conformities**

IEC/EN 61810; IEC/EN 60947

C5-X1x**1 pole | normally open serial contact | plug-in Faston**

Maximum contact load	16 A/400 V AC-1	7 A/110 V DC-1
	16 A/30 V DC-1	1.2 A/220V DC-13

Contacts

Material	Standard	Code 0	⚡ AgNi
Rated Load			16 A
Switch-on current max. (20 ms)			40 A
Switching voltage max.			400 V
AC load (Fig 1)			4 kVA
DC load			see Fig. 2

Coil

Coil resistance	see table; tolerance $\pm 10\%$
Pick-up voltage	$\leq 0.8 \times U_N$
Release voltage	$\geq 0.1 \times U_N$
Nominal power	2.4 VA (AC)/1.3 W (DC)

Coil table

V AC	Ω	mA	VDC	Ω	mA
24	65	100	12	110	108
48	286	50	24	443	54
115	1K7	21	48	1K7	27
230	6K8	10	110	9K2	12
400	18K8	6	220	30K3	6.2

Insulation

	Volt rms / 1 min
Contact open	4 kV
Contact/contact	4 kV
Contact/coil	4 kV
Insulation resistance at 500 V	$\geq 3 \text{ G}\Omega$
Insulation, IEC 61810-1	4 kV

Specifications

Ambient temperature operation/storage	-40...60 °C / -40 ... 80 °C (no ice)
Pick-up time/bounce time	20 ms/ ≤ 3 ms
Release time/bounce time	10 ms/ ≤ 1 ms
Mechanical life ops	AC: 10 Mill./DC: 20 Mill.
DC voltage endurance at rated load	$\geq 100\,000$ switching cycles
Switching frequency at rated load	$\leq 1200/\text{h}$
Weight	90 g

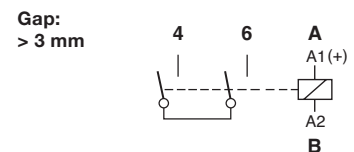
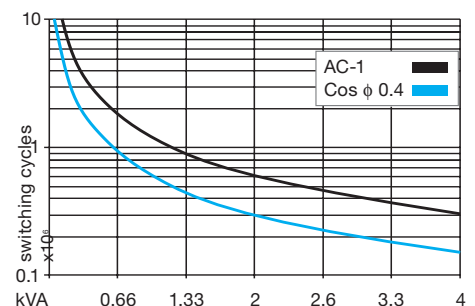
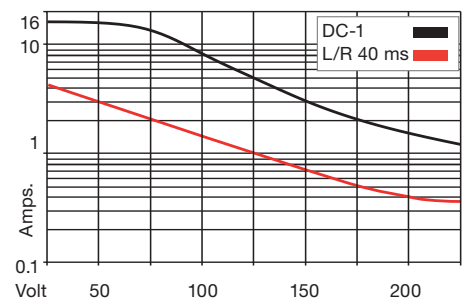
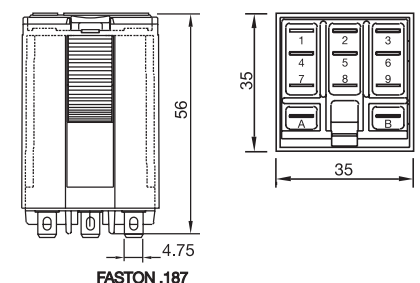
Product References**V AC 50 Hz/60 Hz: 24, 48, 115 (120), 230 (240)****LED****RC Suppressor (max 250 V)****VDC 12, 24, 48, 110, 220****LED****Free wheeling diode****Polarity and free wheeling diode****AC/DC bridge rectifier 24 V, 48 V, 60 V**

Other voltages on request

"..." List Coil Voltage to complete Product References

Accessories (See also Section Sockets)

Socket:	S5-M, S5-P
Wall Mounting Adapter:	S5-R (BAG 5 PCS)
Blanking Plug:	SO-NP (BAG 10 PCS)

**Connection diagram****Fig.1 AC voltage endurance****Fig. 2 DC load limit curve****Dimensions****Technical approvals, conformities**

IEC/EN 61810; IEC/EN 60947

C5-M1x**1 pole | normally open serial contact with blow magnet | plug-in Faston****TURCK****comat**
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Maximum contact load	16 A/400 V AC-1	10 A/220 V DC-1
	3.6 A/110 V DC-13	2 A/220 V DC-13

Contacts

Material	Standard	Code 0	⚡ AgNi
Rated Load			16 A
Switch-on current max. (20 ms)			40 A
Switching voltage max.			400 V
AC load (Fig 1)			4 kVA
DC load			see Fig. 2

Coil

Coil resistance	see table; tolerance $\pm 10\%$
Pick-up voltage	$\leq 0.8 \times U_N$
Release voltage	$\geq 0.1 \times U_N$
Nominal power	2.4 VA (AC)/1.3 W (DC)

Coil table

V AC	Ω	mA	VDC	Ω	mA
24	65	100	12	110	108
48	286	50	24	443	54
115	1K7	21	48	1K7	27
230	6K8	10	110	9K2	12
400	18K8	6	220	30K3	6.2

Insulation

	Volt rms / 1 min
Contact open	4000 V
Contact/contact	4 kV
Contact/coil	4 kV
Insulation resistance at 500 V	$\geq 3 \text{ G}\Omega$
Insulation, IEC 61810-1	4 kV

Specifications

Ambient temperature operation/storage	-40...60 °C / -40 ... 80 °C (no ice)
Pick-up time/bounce time	20 ms/ ≤ 3 ms
Release time/bounce time	10 ms/ ≤ 1 ms
Mechanical life ops	AC: 10 Mill./DC: 20 Mill.
DC voltage endurance	see fig. 2
Switching frequency at rated load	$\leq 1200/\text{h}$
Weight	90 g

Product References**V AC 50 Hz/60 Hz: 24, 48, 115 (120), 230 (240)****LED****RC Suppressor (max 250 V)****VDC 12, 24, 48, 110, 220****LED****Free wheeling diode****Polarity and free wheeling diode****AC/DC bridge rectifier 24 V, 48 V, 60 V**

Other voltages on request

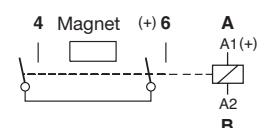
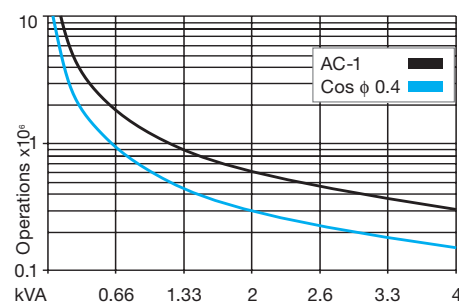
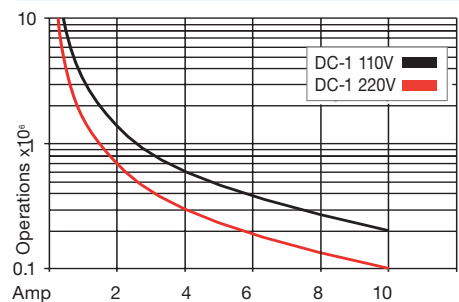
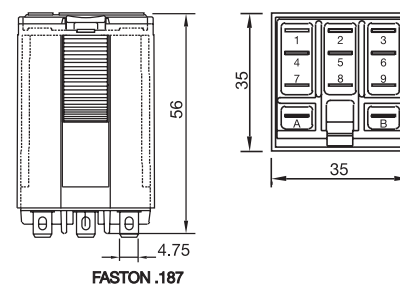
"..." List Coil Voltage to complete Product References

Accessories (See also Section Sockets)

Socket:

Wall Mounting Adapter:

Blanking Plug:

S5-M, S5-P**S5-R (BAG 5 PCS)****SO-NP (BAG 10 PCS)****Connection diagram**Gap:
> 3 mm
(1.7 + 1.7)**Fig.1 AC voltage endurance****Fig. 2 DC voltage endurance****Dimensions****Technical approvals, conformities**

IEC/EN 61810; IEC/EN 60947

C5-M2x**TURCK****comat**
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WORLD OF RELAYS**2 pole | normally open contact with blow magnet | plug-in Faston**

Maximum contact load	16 A / 250 V AC-1	7 A / 110 V DC-1 3 A / 220 V DC-1
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Contacts

Material	Standard	Code 0	⚡ AgNi
Rated Load			16 A
Switch-on current max. (20 ms)			40 A
Switching voltage max.			250 V
AC load (Fig 1)			4 kVA
DC load			see Fig. 2

Coil

Coil resistance	see table; tolerance $\pm 10\%$
Pick-up voltage	$\geq 0.8 \times U_N$
Release voltage	$\geq 0.1 \times U_N$
Nominal power	2.4 VA (AC) / 1.6 W (DC)

Coil table

V AC	Ω	mA	VDC	Ω	mA
24	65	100	12	90	133
48	286	50	24	373	66
115	1K7	21	48	1K4	33
230	6K8	10.4	110	7K6	15

Insulation

	Volt rms / 1 min
Contact open	2 kV
Contact/contact	4 kV
Contact/coil	3 kV
Insulation resistance at 500 V	$\geq 3 \text{ G}\Omega$
Insulation, EN 60947/IEC 61810-1:	4 kV

Specifications

Ambient temperature operation/storage	-40...60 °C / -40 ... 80 °C (no ice)
Pick-up time/bounce time	20 ms/ ≤ 3 ms
Release time/bounce time	10 ms/ ≤ 1 ms
Mechanical life ops	AC: 10 Mill./DC: 20 Mill. switching cycles
DC Rated load	$\geq 75\,000$ switching cycles
Switching frequency at rated load	$\leq 1200/\text{h}$
Weight	90 g

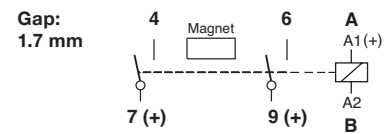
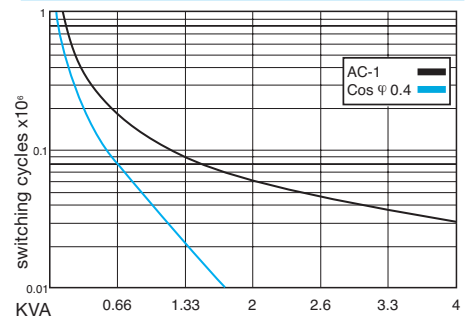
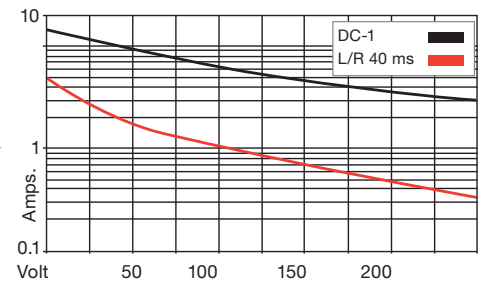
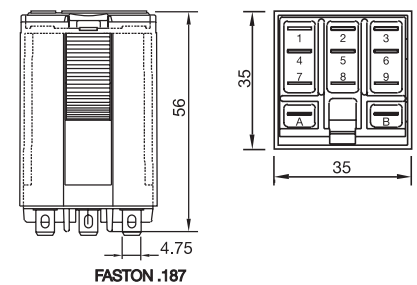
Product References**V AC 50 Hz/60 Hz: 24, 48, 115 (120), 230 (240)****LED****RC Suppressor****VDC 12, 24, 48, 110, 220****LED****Free wheeling diode****Polarity and free wheeling diode****AC/DC bridge rectifier 24 V, 48 V, 60 V**

Other voltages on request

"... " List Coil Voltage to complete Product References

Accessories (See also Section Sockets)

Socket:	S5-M, S5-P
Wall Mounting Adapter:	S5-R (BAG 5 PCS)
Blanking Plug:	SO-NP (BAG 10 PCS)

**Connection diagram****Fig.1 AC voltage endurance****Fig. 2 DC load limit curve****Dimensions****Technical approvals, conformities**

IEC/EN 61810; IEC/EN 60947

C5-R2x**2 pole | changeover contact | retentive | plug-in****TURCK****comat**
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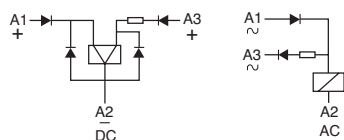
Maximum contact load	10 A/400 V AC-1	10 A/30 V DC-1
	0.2 A/250 V DC-1	0.5 A/110 V DC-1

Contacts

Material	Standard	Code 0	⚡ AgNi
Rated Load			10 A
Switch-on current max. (20 ms)			30 A
Switching voltage max.			400 V
AC load (Fig 1)			4 kVA
DC load			see Fig. 2

Coil

Coil resistance	see table; tolerance $\pm 10\%$
ON pulse power	1.5 VA/W
OFF pulse power	0.5 VA/W
1 winding for AC, 2 winding for DC	
Pull-in ON/OFF	$< 0.8 \times U_N$

Internal Diagram:**Coil table**

V AC	mA ON	mA OFF	VDC	mA ON	mA OFF
24	75	12	12	125	41
48	38	6	24	63	21
115	16	2.5	48	31	10
230	8	1.3	110	14	4.5

Insulation

Contact open	Volt rms / 1 min
Contact/contact	1000 V
Contact/contact	4 kV
Contact/coil	4 kV
Insulation resistance at 500 V	$\geq 3 \text{ G}\Omega$
Insulation, EN 60947/IEC 61810-1	4 kV

Specifications

Ambient temperature operation/storage	-40...60 °C / -40 ... 80 °C (no ice)
Minimum pulse ON/OFF	50 ms
Mechanical life ops	AC: 10 Mill./DC: 20 Mill.
DC voltage endurance at rated load	$\geq 100\,000$ switching cycles
Switching frequency at rated load	$\leq 1200/\text{h}$
Weight	95 g

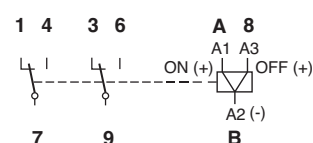
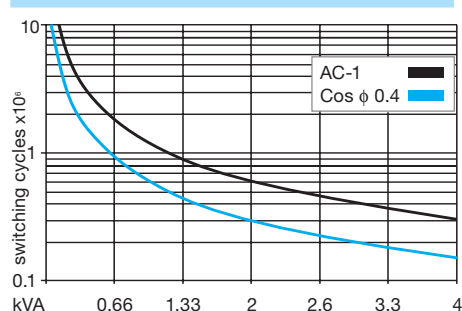
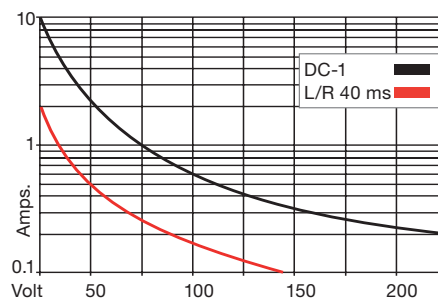
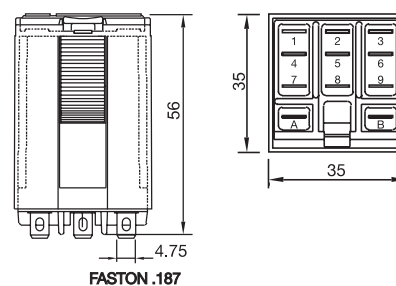
Product References**V AC 50 Hz/60 Hz: 24, 48, 115, 230****C5-R20/AC ... V****VDC : 12, 24, 48, 110,****C5-R20/DC ... V**

Other voltages on request

"..." List Coil Voltage to complete Product References

Accessories (See also Section Sockets)

Socket:	S5-M, S5-P
Wall Mounting Adapter:	S5-R (BAG 5 PCS)
Blanking Plug:	SO-NP (BAG 10 PCS)

**Connection diagram****Fig.1 AC voltage endurance****Fig. 2 DC load limit curve****Dimensions****Technical approvals, conformities**

IEC/EN 61810; IEC/EN 60947

C7-A1x**1 pole | changeover contact | plug-in Faston**

Maximum contact load	16 A/250 V AC-1	0.5 A/110 V DC-1
	16 A/24 V DC-1	0.2 A/220 V DC-1

Contacts

Material	Standard	Code 0	⚡ AgNi
Rated Load			16 A
Switch-on current max. (20 ms)			40 A (120 A for code 5)
Switching voltage max.			250 V
AC load (Fig 1)			4 kVA
DC load			see Fig. 2
Relay compatible with socket S7-C			

Coil

Coil resistance	see table; tolerance $\pm 10\%$
Pick-up voltage	$\leq 0.8 \times U_N$
Release voltage	$\geq 0.1 \times U_N$
Nominal power	1.2 VA (AC)/1.3 W (DC)

Coil table

V AC	Ω	mA	VDC	Ω	mA
24	174	50	12	111	108
48	686	25	24	432	55
115	4K3	10.4	48	1K7	28
230	18K6	5.2	110	9K2	12

Insulation

Contact open	Volt rms / 1 min
Contact/coil	1000 V
Insulation resistance at 500 V	2.5 kV
Insulation, IEC 61810-1	$\geq 1 \text{ G}\Omega$
	2.5 kV

Specifications

Ambient temperature operation/storage	-40...60 °C / -40 ... 80 °C (no ice)
Pick-up time/bounce time	16 ms/ ≤ 3 ms
Release time/bounce time	8 ms/ ≤ 1 ms
Mechanical life ops	AC: 10 Mill./DC: 20 Mill.
AC/DC voltage endurance at rated load	$\geq 100\,000$ switching cycles
Switching frequency at rated load	$\leq 1200/\text{h}$
Weight	43 g

Product References

V AC 50 Hz/60 Hz: 24, 48, 115 (120), 230 (240) LED

C7-A10/AC ... V
C7-A10X/AC ... V

VDC 12, 24, 48, 110

LED

Free wheeling diode (only 24 DC)

Polarity and free wheeling diode

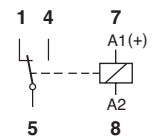
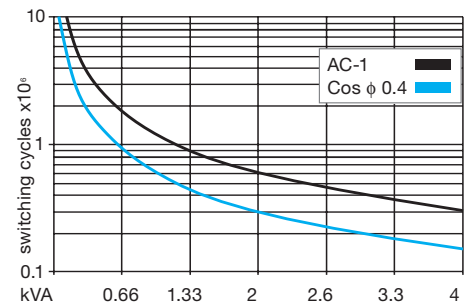
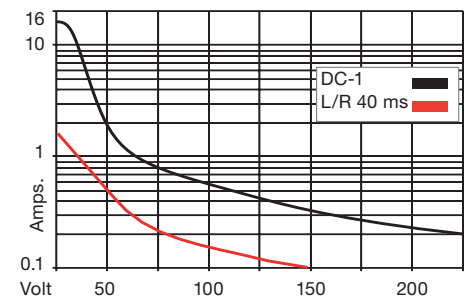
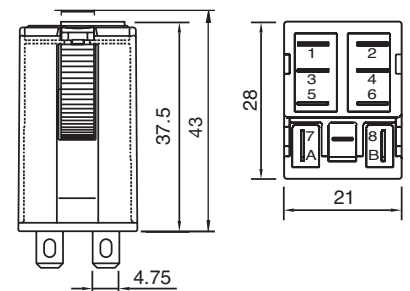
C7-A10/DC ... V
C7-A10X/DC ... V
C7-A10DX/DC 24 V
C7-A10FX/DC ... V

Other voltages on request

"..." List Coil Voltage to complete Product References

Accessories (See also Section Sockets)

Socket:	S7-C, S7-IO, S7-P
Push only:	S9-OP (BAG 10 PCS)
Blanking Plug:	S9-NP (BAG 10 PCS)

**Connection diagram****Fig.1 AC voltage endurance****Fig. 2 DC load limit curve****Dimensions****Technical approvals, conformities**

IEC/EN 61810; IEC/EN 60947

C7-A2x**2 pole | changeover contact | plug-in Faston****TURCK****comat**
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WORLD OF RELAYS

Maximum contact load	10 A/250 V	AC-1	0.5 A/110 V	DC-1
	10 A/30 V	DC-1	0.2 A/220 V	DC-1
Recommended minimum contact load	10 mA/10 V	Code 0		
	5 mA/5 V	Code 8		

Contacts

Material	Standard	Code 0	⚡ AgNi
	Optional	Code 8	⚡ AgNi + 5 μ Au
Rated Load			10 A
Switch-on current max. (20 ms)			30 A
Switching voltage max.			250 V
AC load (Fig 1)			2.5 kVA
DC load			see Fig. 2

Coil

Coil resistance	see table; tolerance ± 10 %
Pick-up voltage	≤ 0.8 × U _N
Release voltage	≥ 0.1 × U _N
Nominal power	1.2 VA (AC)/1 W (DC)

Coil table

V AC	Ω	mA	VDC	Ω	mA
24	174	50	12	148	85
48	686	25	24	594	43
115	4K3	10.4	48	2K3	21
230	18K6	5.2	110	11K4	10

Insulation

Contact open	Volt rms / 1 min
Contact/contact	1000 V
Contact/contact	2.5 kV
Contact/coil	2.5 kV
Insulation resistance at 500 V	≥ 1 GΩ
Insulation, IEC 61810-1	2.5 kV

Specifications

Ambient temperature operation/storage	-40...60 °C / -40 ... 80 °C (no ice)
Pick-up time/bounce time	16 ms/≤ 3 ms
Release time/bounce time	8 ms/≤ 1 ms
Mechanical life ops	AC: 10 Mill./DC: 20 Mill.
DC voltage endurance at rated load	≥ 100 000 switching cycles
Switching frequency at rated load	≤ 1200/h
Weight	43 g

Product References**V AC 50 Hz/60 Hz: 24, 48, 115 (120), 230 (240)****LED**

C7-A20/AC ... V	C7-A28/AC ... V
C7-A20X/AC ... V	C7-A28X/AC ... V

VDC 12, 24, 48, 110**LED**

C7-A20/DC ... V	C7-A28/DC ... V
C7-A20X/DC ... V	C7-A28X/DC ... V

Free wheeling diode (only 24 DC)

C7-A20DX/DC 24 V	C7-A28DX/DC 24 V
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Polarity and free wheeling diode

C7-A20FX/DC ... V	C7-A28FX/DC ... V
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AC/DC bridge rectifier 24 V, 48 V, 60 V

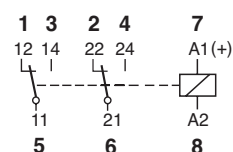
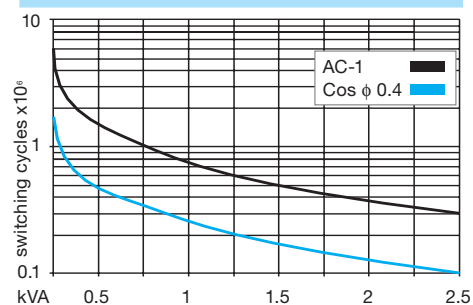
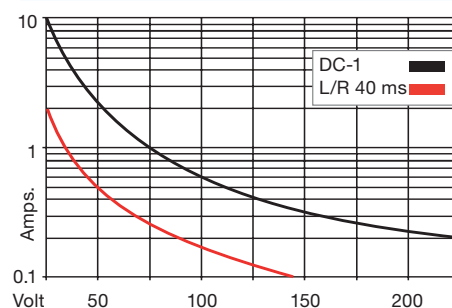
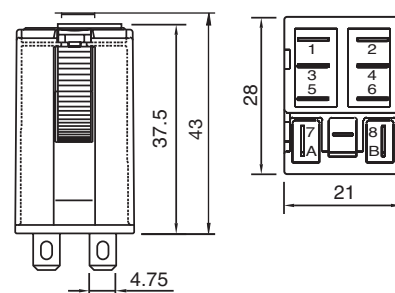
C7-A20BX/UC ... V	C7-A28BX/UC ... V
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Other voltages on request

"..." List Coil Voltage to complete Product References

Accessories (See also Section Sockets)

Socket:	S7-C, S7-IO, S7-P,
Push only:	S9-OP (BAG 10 PCS)
Blanking Plug:	S9-NP (BAG 10 PCS)

**Connection diagram****Fig.1 AC voltage endurance****Fig. 2 DC load limit curve****Dimensions****Technical approvals, conformities**

IEC/EN 61810; IEC/EN 60947

C7-T2x**2 pole | changeover twin contact | plug-in**

Maximum contact load	6 A/250 V	AC-1	6 A/30 V	DC-1
Recommended minimum contact load	5 mA/5 V	Code 1		
	1 mA/5 V	Code 2		

Contacts

Material	Standard	Code 1	AgNi + 0.2 µ Au
	Optional	Code 2	AgNi + 5 µ Au
Rated Load			6 A
Switch-on current max. (20 ms)			15 A
Switching voltage max.			250 V
AC load (Fig 1)			1.2 kVA
DC load			see fig. 2

Coil

Coil resistance	see table; tolerance ± 10 %
Pick-up voltage	≤ 0.8 × U _N
Release voltage	≥ 0.1 × U _N
Nominal power	1.2 VA (AC)/1 W (DC)

Coil table

V AC	Ω	mA	VDC	Ω	mA
24	174	50	12	148	85
48	686	25	24	594	43
115	4K3	10.4	48	2K3	21
230	18K6	5.2	110	11K4	10

Insulation

	Volt rms / 1 min
Contact open	1000 V
Contact/contact	2.5 kV
Contact/coil	2.5 kV
Insulation resistance at 500 V	≥ 1 GΩ
Insulation, IEC 61810-1	2.5 kV

Specifications

Ambient temperature operation/storage	-40...60 °C / -40 ... 80 °C (no ice)
Pick-up time/bounce time	16 ms/≤ 3 ms
Release time/bounce time	8 ms/≤ 1 ms
Mechanical life ops	AC: 10 Mill./DC: 20 Mill.
DC voltage endurance at rated load	≥ 100 000 switching cycles
Switching frequency at rated load	≤ 1200/h
Weight	43 g

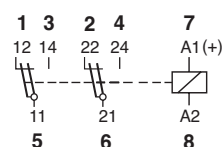
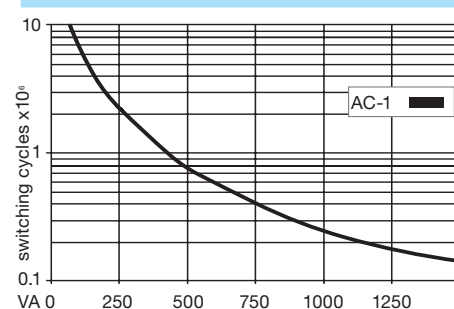
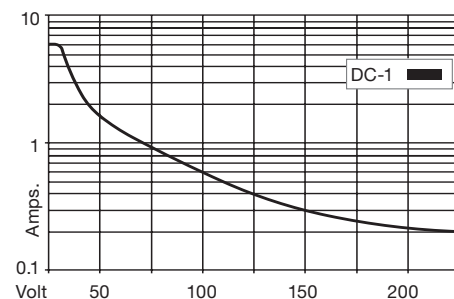
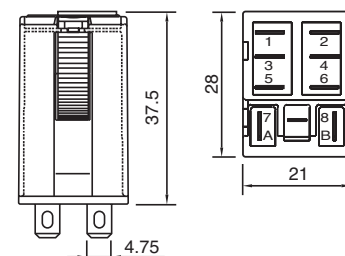
Product References**V AC 50 Hz/60 Hz: 230 (240)****LED****VDC 110****LED****Free wheeling diode (only 24 DC)****Polarity and free wheeling diode****AC/DC bridge rectifier 24 V, 48 V**

Other voltages on request

"... " List Coil Voltage to complete Product References

Accessories (See also Section Sockets)

Socket:	S7-C, S7-IO, S7-P,
Push only:	S9-OP (BAG 10 PCS)
Blanking Plug:	S9-NP (BAG 10 PCS)

C7-T21/AC ... V
C7-T21X/AC ... V**C7-T22X/AC ... V****C7-T21/DC ... V**
C7-T21X/DC ... V
C7-T21DX/DC 24 V
C7-T21FX/DC ... V**C7-T22/DC ... V**
C7-T22X/DC ... V
C7-T22X/DC 24 V
C7-T22FX/DC ... V**C7-T21BX/UC ... V****C7-T22BX/UC ... V****Connection diagram****Fig.1 AC voltage endurance****Fig. 2 DC load limit curve****Dimensions****Technical approvals, conformities**

IEC/EN 61810; IEC/EN 60947

C7-G2x**2 pole | normally open contact | plug-in Faston****TURCK****comat**
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WORLD OF RELAYS

Maximum contact load	10 A/250 V AC-1	0.8 A/110 V DC-1
	10 A/30 V DC-1	0.4 A/220 V DC-1

Contacts

Material	Standard	Code 0	⚡ AgNi
Rated Load			10 A
Switch-on current max. (20 ms)			30 A
Switching voltage max			250 V
AC load (Fig 1)			2.5 kVA
DC load			see fig. 2

Coil

Coil resistance	see table; tolerance $\pm 10\%$
Pick-up voltage	$\leq 0.8 \times U_N$
Release voltage	$\geq 0.1 \times U_N$
Nominal power	1.5 VA (AC)/1.5 W (DC)

Coil table

V AC	Ω	mA	VDC	Ω	mA
24	153	62	12	99	121
48	611	31	24	388	61
115	3K6	13	48	1K5	32
230	14K6	6.5	110	8K	14

Insulation

Contact open	Volt rms / 1 min
Contact/contact	2000 V
Contact/coil	2.5 kV
Insulation resistance at 500 V	$\geq 1 \text{ G}\Omega$
Insulation, IEC 61810-1	2.5 kV

Specifications

Ambient temperature operation/storage	-40...60 °C / -40 ... 80 °C (no ice)
Pick-up time/bounce time	20 ms/ ≤ 3 ms
Release time/bounce time	10 ms/ ≤ 1 ms
Mechanical life ops	AC: 10 Mill./DC: 20 Mill.
DC voltage endurance at rated load	$\geq 100\,000$ switching cycles
Switching frequency at rated load	$\leq 1200/\text{h}$
Weight	43 g

Product References**V AC 50 Hz/60 Hz: 24, 48, 115 (120), 230 (240) LED****C7-G20/AC ... V**
C7-G20X/AC ... V**VDC 12, 24, 48, 110****LED****C7-G20/DC ... V**
C7-G20X/DC ... V
C7-G20FX/DC ... V**Polarity and free wheeling diode****AC/DC bridge rectifier 24 V, 48 V, 60 V**

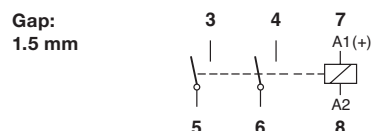
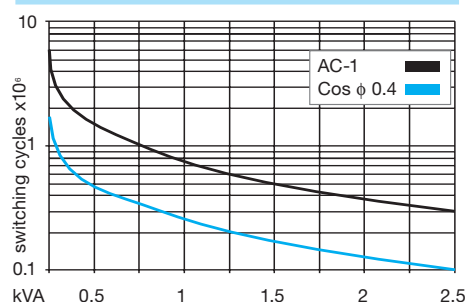
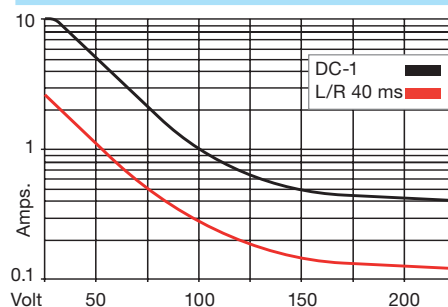
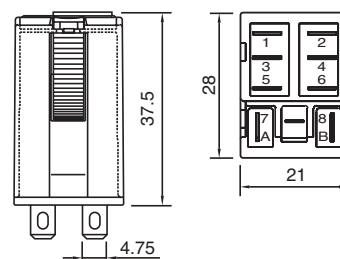
Other voltages on request

C7-G20BX/UC ... V

"..." List Coil Voltage to complete Product References

Accessories (See also Section Sockets)

Socket:	S7-C, S7-IO, S7-P,
Push only:	S9-OP (BAG 10 PCS)
Blanking Plug:	S9-NP (BAG 10 PCS)

**Connection diagram****Fig.1 AC voltage endurance****Fig. 2 DC load limit curve****Dimensions****Technical approvals, conformities**

IEC/EN 61810; IEC/EN 60947

C7-H2x**2 pole | changeover contact | plug-in Faston****TURCK****comat**
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WORLD OF RELAYS

Maximum contact load	10 A / 250 V AC-1	6 A / 250 V	AC-1
	10 A / 30 V DC-1	6 A / 30 V	DC-1
Recommended minimum contact load	10 mA/10 V (Power contacts)		
	5 mA/5V (twin contacts)		

Contacts

Material	Standard	Code 3	⚡ ⚡ AgNi + 3 μ Au
Rated Load			10 A
Switch-on current max. (20 ms)			30 A
Switching voltage max.			2,5 kV
AC load (Fig 1)			2,5 VA
DC load			see fig. 2

Coil

Coil resistance	see table; tolerance ± 10 %
Pick-up voltage	≤ 0.8 x U _N
Release voltage	≥ 0.1 x U _N
Nominal power	1.2 VA (AC)/1 W (DC)

Coil table

V AC	Ω	mA	VDC	Ω	mA
230	18K6	5.2	24	594	43

Insulation

	Volt rms / 1 min
Contact open	1000 V
Contact/contact	2.5 kV
Contact/coil	2.5 kV
Insulation, IEC 61810-1	2.5 kV

Specifications

Ambient temperature operation/storage	-40...60 °C / -40 ... 80 °C (no ice)
Pick-up time/bounce time	16 ms/≤ 3 ms
Release time/bounce time	8 ms/≤ 1 ms
Mechanical life ops	AC: 10 Mill./DC: 20 Mill.
DC voltage endurance at rated load	≥100 000 switching cycles
Switching frequency at rated load	≤ 1200/h
Weight	43 g

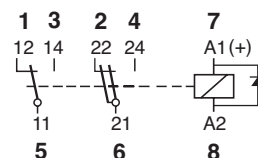
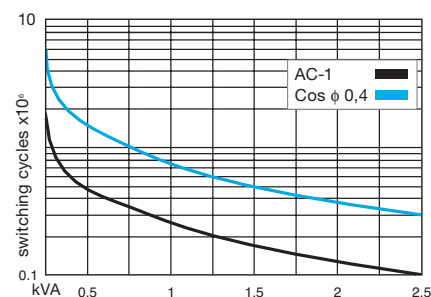
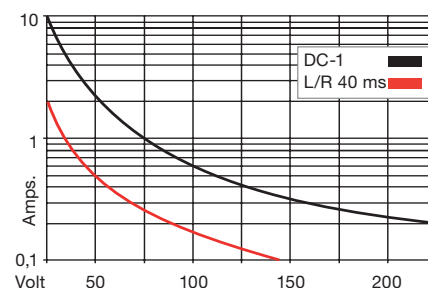
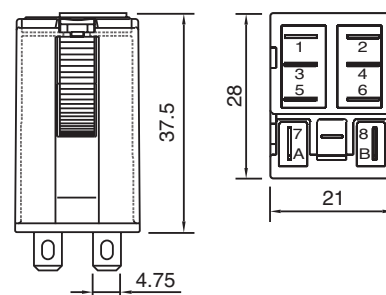
Product References**LED (only 230 V AC)****Free wheeling diode (only 24 DC)****C7-H23X/AC 230 V**
C7-H23X/DC 24 V

Other voltages on request

"..." List Coil Voltage to complete Product References

Accessories (See also Section Sockets)

Socket:	S7-C, S7-IO, S7-P,
Push only:	S9-OP (BAG 10 PCS)
Blanking Plug:	S9-NP (BAG 10 PCS)

**Connection diagram****Fig.1 AC voltage endurance****Fig. 2 DC load limit curve****Dimensions****Technical approvals, conformities**

IEC 61810; EN 60947

C7-X1x**1 pole | normally open serial contact | plug-in Faston**

Maximum contact load	10 A/250 V AC-1	6 A/110 V DC-1
	10 A/30 V DC-1	1 A/220 V DC-1

Contacts

Material	Standard	Code 0	⚡ AgNi
Rated Load			10 A
Switch-on current max. (20 ms)			30 A
Switching voltage max.			250 V
AC load			2.5 kVA
DC load			see Fig. 2

Coil

Coil resistance	see table; tolerance $\pm 10\%$
Pick-up voltage	$\leq 0.8 \times U_N$
Release voltage	$\geq 0.1 \times U_N$
Nominal power	1.5 VA (AC)/1.3 W (DC)

Coil table

V AC	Ω	mA	VDC	Ω	mA
24	153	62	12	111	108
48	611	31	24	432	55
115	3K6	13	48	1K7	27
230	14K6	6.5	110	9K2	12

Insulation

Contact open	Volt rms / 1 min
Contact/coil	2.5 kV
Insulation resistance at 500 V	$\geq 1 \text{ G}\Omega$
Insulation, IEC 61810-1	2.5 kV

Specifications

Ambient temperature operation/storage	-40...60 °C / -40 ... 80 °C (no ice)
Pick-up time/bounce time	20 ms/ ≤ 3 ms
Release time/bounce time	10 ms/ ≤ 1 ms
Mechanical life ops	AC: 10 Mill./DC: 20 Mill.
DC voltage endurance at rated load	$\geq 100\,000$ switching cycles
Switching frequency at rated load	$\leq 1200/\text{h}$
Weight	43 g

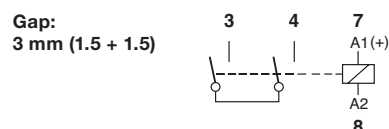
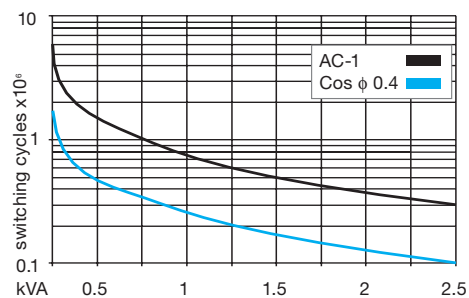
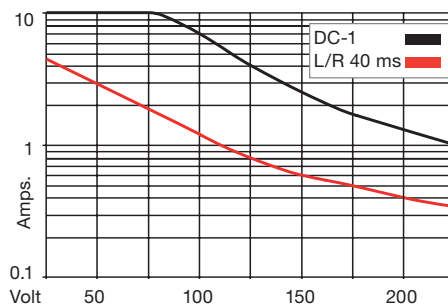
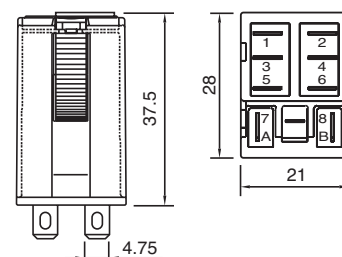
Product References**V AC 50 Hz/60 Hz: 24, 48, 115 (120), 230 (240) LED****VDC 12, 24, 48, 110****LED****Free wheeling diode (only 24 DC)****Polarity and free wheeling diode****AC/DC bridge rectifier 24 V, 48 V, 60 V**

Other voltages on request

"..." List Coil Voltage to complete Product References

Accessories (See also Section Sockets)

Socket:	S7-C, S7-IO, S7-P,
Push only:	S9-OP (BAG 10 PCS)
Blanking Plug:	S9-NP (BAG 10 PCS)

TURCK**comat**
RELECO
WORLD OF RELAYS**Connection diagram****Fig.1 AC voltage endurance****Fig. 2 DC load limit curve****Dimensions****Technical approvals, conformities**

IEC/EN 61810; IEC/EN 60947

C7-W1x**TURCK****comat**
RELECO
WORLD OF RELAYS**1 pole | normally open tungsten pre-contact | plug-in Faston**

Maximum contact load: 10 A/250 V AC-1 6 A / 250 V AC-5a/b
Recommended minimum contact load: 10 mA/10 V

Contacts

Material	Standard	Code 0	⚡ AgNi/W
Rated Load			10 A
Switch-on current max. (2.5 ms)			500 A
Switching voltage max.			250 V
AC load (Fig 1)			2.5 kVA
DC load			see fig. 2

Coil

Coil resistance	see table; tolerance $\pm 10\%$
Pick-up voltage	$\leq 0.8 \times U_N$
Release voltage	$\geq 0.1 \times U_N$
Nominal power	1.5 VA (AC)/1.5 W (DC)

Coil table

V AC	Ω	mA	VDC	Ω	mA
24	153	62	12	99	121
48	611	31	24	388	61
115	3K6	13	48	1K5	32
230	14K5	6.5	110	8K	14

Insulation

Contact open	Volt rms / 1 min
Contact/coil	1000 V
Insulation resistance at 500 V	2.5 kV
Insulation, IEC 61810-1	$\geq 1 \text{ G}\Omega$
	2.5 kV

Specifications

Ambient temperature operation/storage	-40...60 °C / -40 ... 80 °C (no ice)
Pick-up time/bounce time	20 ms/ ≤ 3 ms
Release time/bounce time	10 ms/ ≤ 1 ms
Mechanical life ops	AC: 10 Mill./DC: 20 Mill.
DC voltage endurance at rated load	$\geq 100\,000$ switching cycles
Switching frequency at rated load	$\leq 1200/\text{h}$
Weight	43 g

Product References

V AC 50 Hz/60 Hz: 24, 48, 115 (120), 230 (240)
LED

VDC 12, 24, 48, 110

LED

Polarity and free wheeling diode

AC/DC bridge rectifier 24 V, 48 V, 60 V

Other voltages on request

C7-W10/AC ... V
C7-W10X/AC ... V

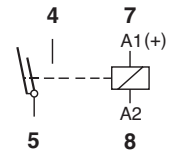
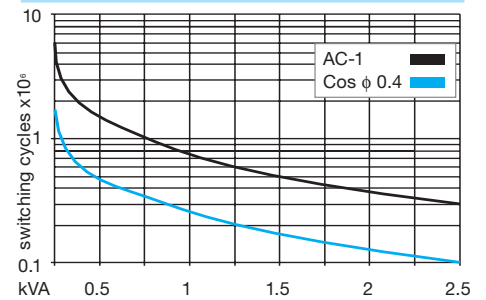
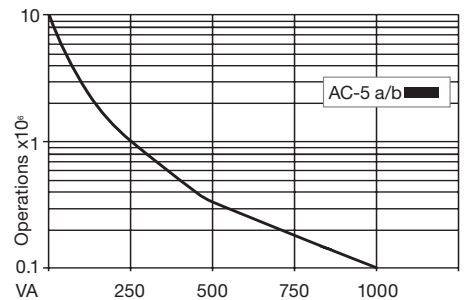
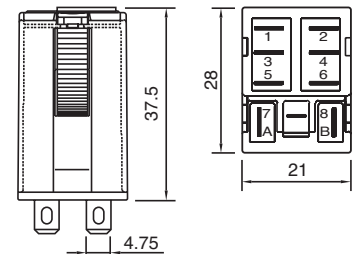
C7-W10/DC ... V
C7-W10X/DC ... V
C7-W10FX/DC ... V

C7-W10BX/UC ... V

"..." List Coil Voltage to complete Product References

Accessories (See also Section Sockets)

Socket:	S7-C, S7-IO, S7-P,
Push only:	S9-OP (BAG 10 PCS)
Blanking Plug:	S9-NP (BAG 10 PCS)

**Connection diagram****Fig.1 AC voltage endurance****Fig. 2 DC load limit curve****Dimensions****Technical approvals, conformities**

IEC/EN 61810; IEC/EN 60947

C9-A4x**4 pole | changeover contact | plug-in Faston****TURCK****comat**
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WORLD OF RELAYS

Maximum contact load	5 A/250 V AC-1	5 A/30 V DC-1
Recommended minimum contact load	10 mA/10 V Code 1	
	1 mA/5 V Code 2	

Contacts

Material	Standard	Code 1	AgNi + 0.2 µ Au
	Optional	Code 2	AgNi + 5 µ Au
Rated Load			5 A
Switch-on current max. (20 ms)			15 A
Switching voltage max (same polarity)			250 V
AC load (Fig 1)			1250 VA
DC load			see Fig. 2

Coil

Coil resistance	see table; tolerance ± 10 %
Pick-up voltage	≤ 0.8 x U _N
Release voltage	≥ 0.1 x U _N
Nominal power	1.2 VA (AC)/1 W (DC)

Coil table

V AC	Ω	mA	VDC	Ω	mA
24	174	50	12	148	81
48	686	25	24	594	40
115	4K3	10.4	48	2K3	21
230	18K6	5.2	110	11K4	11

Insulation

	Volt rms / 1 min
Contact open	1000 V
Contact/contact	2 kV
Contact/coil	2.5 kV
Insulation resistance at 500 V	≥ 1 GΩ
Insulation, IEC 61810-1	2.5 kV

Specifications

Ambient temperature operation/storage	-40...60 °C / -40 ... 80 °C (no ice)
Pick-up time/bounce time	10 ms/≤ 3 ms
Release time/bounce time	6 ms/≤ 1 ms
Mechanical life ops	AC: 10 Mill./DC: 20 Mill.
DC voltage endurance at rated load	≥ 100 000 switching cycles
Switching frequency at rated load	≤ 1200/h
Weight	43 g

Product References**V AC 50 Hz/60 Hz: 24, 48, 115, 230 (240)****LED****VDC 12, 24, 48, 110****LED****Free wheeling diode (only 24 DC)****Polarity and free wheeling diode****AC/DC bridge rectifier 24 V, 48 V, 60 V**

Other voltages on request

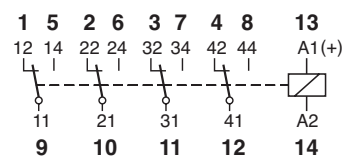
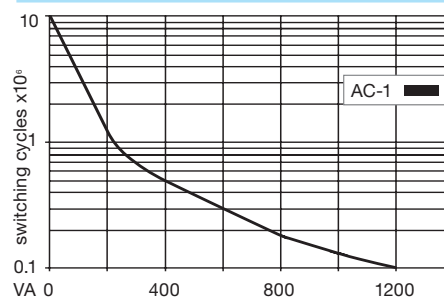
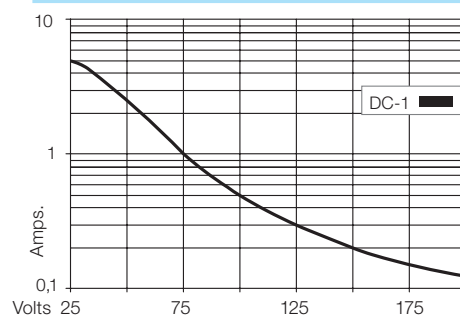
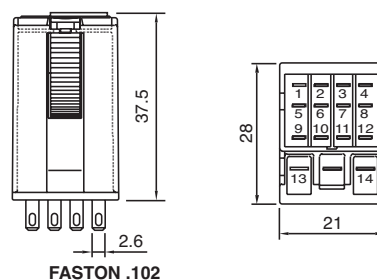
"..." List Coil Voltage to complete Product References

Accessories (See also Section Sockets)

Socket:	S9-M, S9-P
Push only:	S9-OP (BAG 10 PCS)
Blanking Plug:	S9-NP (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

**Connection diagram****Fig.1 AC voltage endurance****Fig. 2 DC load limit curve****Dimensions****Technical approvals, conformities**

IEC/EN 61810; IEC/EN 60947

C9-E2x**TURCK****2 pole | changeover contact | sensitive coil | plug-in Faston**

Maximum contact load	5 A/250 V	AC-1	5 A/30 V	DC-1
Recommended minimum contact load	10 mA/10 V	Code 1		

Contacts

Material	Standard	Code 1	AgNi + 0.2 µ Au
Rated Load			5 A
Switch-on current max. (20 ms)			15 A
Switching voltage max.			250 V
AC load (Fig 1)			1200 VA
DC load			see fig. 2

Coil

Coil resistance	see table; tolerance ± 10 %
Pick-up voltage	≤ 0.8 × U _N
Release voltage	≥ 0.1 × U _N
Nominal power	0.8 VA (AC)/0.5 W (DC)

Coil table

V AC	Ω	mA	VDC	Ω	mA
24	238	33	12	288	42
48	1K	17	24	1K1	21
115	5K9	7	48	4K6	10
230	23K9	3.5	110	24K2	4.5

Insulation

	Volt rms / 1 min
Contact open	1000 V
Contact/contact	2.5 kV
Contact/coil	2.5 kV
Insulation resistance at 500 V	≥ 1 GΩ
Insulation, IEC 61810-1	2.5 kV

Specifications

Ambient temperature operation/storage	-40...60 °C / -40 ... 80 °C (no ice)
Pick-up time/bounce time	10 ms/≤ 3 ms
Release time/bounce time	6 ms/≤ 1 ms
Mechanical life	AC: 10 Mill./DC: 20 Mill.
DC voltage endurance at rated load	≥ 100 000 switching cycles
Switching frequency at rated load	≤ 1200/h
Weight	40 g

Product References

V AC 50 Hz/60 Hz: 24, 48, 115, 230 (240)
LED

VDC 12, 24, 48, 110, 220
LED

Free wheeling diode (only 24 DC)

Polarity and free wheeling diode

AC/DC bridge rectifier 24 V, 48 V, 60 V

Other voltages on request

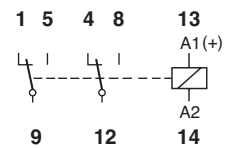
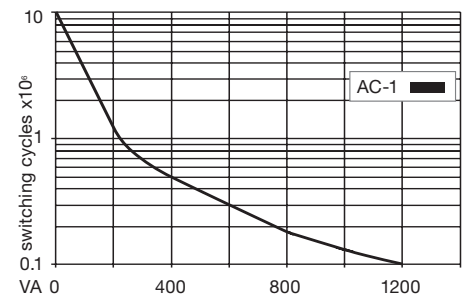
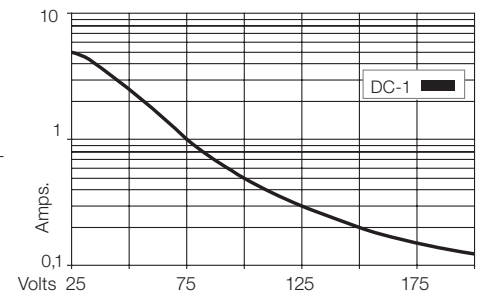
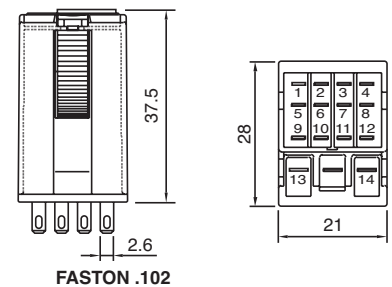
"..." List Coil Voltage to complete Product References

Accessories (See also Section Sockets)

Socket:	S9-M, S9-P
Push only:	S9-OP (BAG 10 PCS)
Blanking Plug:	S9-NP (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

**Connection diagram****Fig.1 AC voltage endurance****Fig. 2 DC load limit curve****Dimensions****Technical approvals, conformities**

IEC/EN 61810; IEC/EN 60947

C9-R2x**2 pole | changeover contact | retentive | plug-in Faston****TURCK****comat**
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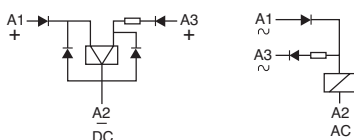
Maximum contact load	5 A/120V AC-1	5 A/30 V DC-1
Recommended minimum contact load	10 mA/10 V	

Contacts

Material	Standard	Code 1	AgNi + 0.2 µ Au
Rated Load			5 A
Switch-on current max. (20 ms)			15 A
Switching voltage max.			120V
AC load			600 VA
DC load			see Fig. 2

Coil

Coil resistance	see table; tolerance ± 10 %
ON pulse power	1.2 VA/W
OFF pulse power	0.3 VA/W
1 winding for AC, 2 winding for DC	

Internal Diagram:**Coil table**

V AC	mA ON	mA OFF	VDC	mA ON	mA OFF
24	50	8	12	100	25
48	25	4	24	50	12
115	10	2	48	25	6
230	5	1	60	20	5

Insulation

Contact open	Volt rms / 1 min
Contact/contact	1000 V
Contact/coil	2 kV
Insulation resistance at 500 V	2 kV
Insulation, IEC 61810-1	≥1 GΩ
	2.5 kV

Specifications

Ambient temperature operation/storage	-40...60 °C / -40 ... 80 °C (no ice)
Minimum pulse ON/OFF	50 ms
Mechanical life	AC: 10 Mill./DC: 20 Mill.
DC voltage endurance at rated load	≥100 000 switching cycles
Switching frequency at rated load	≤ 1200/h
Weight	43 g

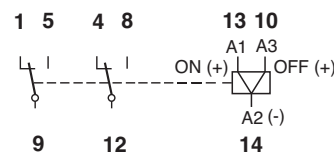
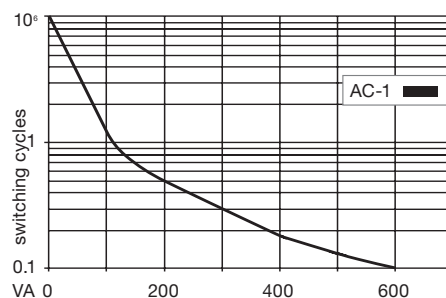
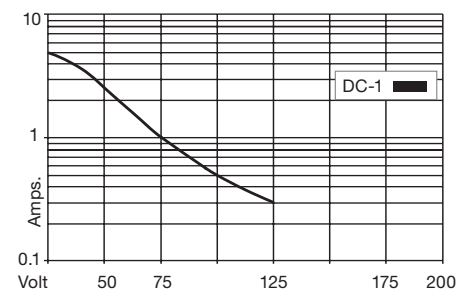
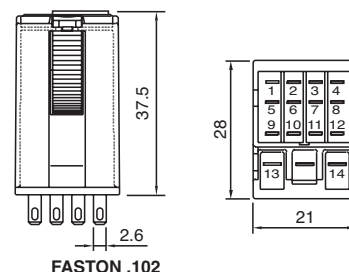
Product References**AC 50 Hz/60 Hz: 24, 48, 115, 230****C9-R21/AC ... V****DC 12, 24, 48, 60****C9-R21/DC ... V**

Other voltages on request

"..." List Coil Voltage to complete Product References

Accessories (See also Section Sockets)

Socket:	S9-M, S9-P
Push only:	S9-OP (BAG 10 PCS)
Blanking Plug:	S9-NP (BAG 10 PCS)

**Connection diagram****Fig.1 AC voltage endurance****Fig. 2 DC load limit curve****Dimensions****Technical approvals, conformities**

IEC/EN 61810; IEC/EN 60947



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

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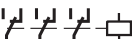
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Notes

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1.4

Extended Lifetime Relays

Application	Types	Pins	Contacts	Contact ratings	Socket
C3x Series					
Long Life, Railway	C31			10 A / 250 V	S3
Long Life, reliable switching of lower loads, Railway	C32			5 A / 250 V	S3



Maximum contact load	10 A / 250 V AC-1
	10 A / 30 V DC-1
Recommended minimum contact load	50 mA / 10 V

Contacts

Material	⚡ AgCuNi
Rated operational current	10 A
Max. inrush current (20 ms)	40 A
Rated switching voltage	250 V
Max. AC load	2500 VA AC-1
Max. DC load 30V / 230V DC-1 (Fig. 2)	300W / 90 W

Coils (Values are valid at 20 °C)

Pick-up voltage	$\leq 0.8 \times U_N$
Release voltage AC / DC	$> 0.15 \times U_N / > 0.05 \times U_N$
Nominal power AC / DC	2.5 VA / 1.2 W

Coil Table

V_N AC	Ω	mA	V_N DC	Ω	mA
24	52	104	12	115	104
48	240	55	24	480	50
115	1350	23	48	1850	26
230	5600	11.5	110	9000	12
			220	29000	7.6

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

Insulation

Contact Open	1.5 kV rms / 1 min
Contact Contact	1.5 kV rms / 1 min
Contact Coil	2 kV rms / 1 min

Specifications

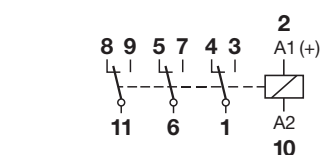
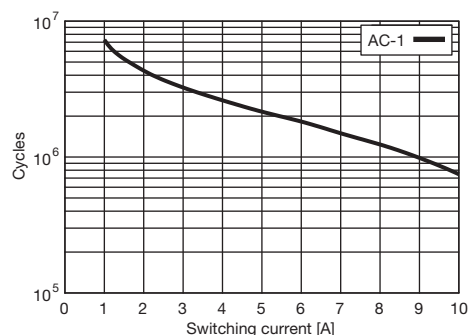
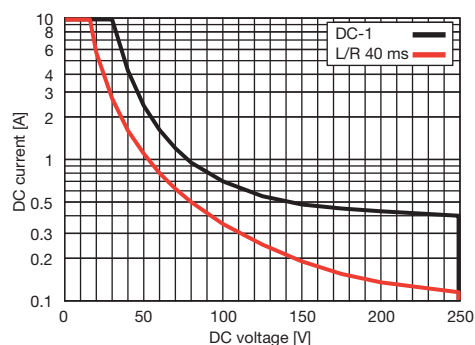
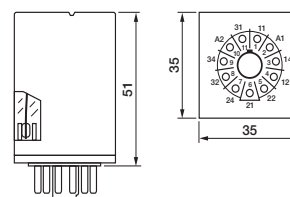
Ambient temperature operation, storage	-40 ... +70 °C (no ice)
Pickup time AC / DC	3 ... 10 ms / ≤ 12 ms
Release time AC / DC	2 ... 15 ms / ≤ 3.5 ms
Bounce time NO contact AC / DC	3 ... 6 ms / approx. 3.5 ms
Mechanical life	$\geq 100\,000\,000$ operations
Operating frequency at nominal load	≤ 360 operations / h
Weight	80 g

Product References**AC 50 Hz / 60 Hz: 24, 48, 115, 230 (240)****LED****DC: 12, 24, 48, 110, 220****Free wheeling diode****LED + Free wheeling diode****Railway EN 50155**
C31/AC...V
C31L/AC...V
C31/DC...V
C31D/DC...V
C31DL/DC...V
C31D/R DC...V

"..." List Coil Voltage to complete Product References

Accessories

Socket:	S3-B, S3-S, S3-L, S3-PO, S3-MB0, S3-MB1
Blanking Plug:	SO-NP (BAG 10 PCS)

**Connection diagram****Fig.1 AC voltage endurance****Fig. 2 DC load limit curve****Dimensions****Technical approvals, conformities**
 IEC/EN 61810; IEC/EN 60947; IEC/EN 50155
 IEC/EN 61373; IEC/EN 45545
 NF F 16-101/102

C32**3 pole | changeover twin contact | plug-in****TURCK**
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Maximum contact load	6 A / 250 V AC-1
	6 A / 30 V DC-1
Recommended minimum contact load	1 mA / 5 V

Contacts

Material	AgCuNi
Rated operational current	6 A
Max. inrush current (20 ms)	15 A
Rated switching voltage AC-1	250 V
Max. AC load	1500 VA AC-1
Max. DC load 30V / 230V DC-1 (Fig. 2)	200 W / 90 W

Coils (Values are valid at 20 °C)

Pick-up voltage	$\leq 0.8 \times U_N$
Release voltage AC / DC	$> 0.15 \times U_N / > 0.05 \times U_N$
Nominal power AC / DC	2.5 VA / 1.2 W

Coil Table

V_N AC	Ω	mA	V_N DC	Ω	mA
24	52	104	12	115	104
48	240	55	24	480	50
115	1350	23	48	1850	26
230	5600	11.5	110	9000	12
			220	29000	7.6

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

Insulation

Contact Open	1.5 kV rms / 1 min
Contact Contact	1.5 kV rms / 1 min
Contact Coil	2 kV rms / 1 min

Specifications

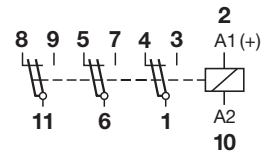
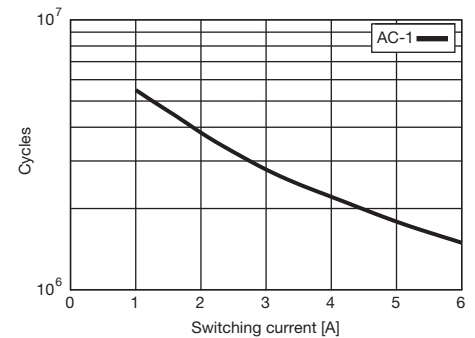
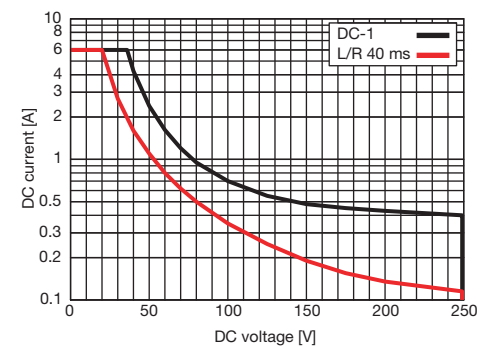
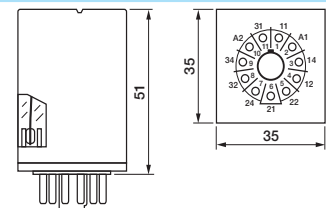
Ambient temperature operation, storage	-40 ... +70 °C (no ice)
Pickup time AC / DC	3 ... 10 ms / ≤ 12 ms
Release time AC / DC	2 ... 15 ms / ≤ 3.5 ms
Bounce time NO contact AC / DC	3 ... 6 ms / approx. 3.5 ms
Mechanical life	$\geq 100\,000\,000$ operations
Operating frequency at nominal load	≤ 360 operations / h
Weight	80 g

Product References**AC 50 Hz / 60 Hz: 24, 48, 115, 230 (240)****LED****DC: 12, 24, 48, 110, 220****Free wheeling diode****LED + Free wheeling diode****Railway EN 50155**
C32/AC...V
C32L/AC...V
C32/DC...V
C32D/DC...V
C32DL/DC...V
C32D/R DC...V

" ..." List Coil Voltage to complete Product References

Accessories

Socket:	S3-B, S3-S, S3-L, S3-PO, S3-MB0, S3-MB1
Blanking Plug:	SO-NP (BAG 10 PCS)

**Connection diagram****Fig.1 AC voltage endurance****Fig. 2 DC load limit curve****Dimensions****Technical approvals, conformities**
 IEC/EN 61810; IEC/EN 60947; IEC/EN 50155
 IEC/EN 61373; IEC/EN 45545
 NF F 16-101/102

Notes

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1.5 Solid State Relays

Application	Types	Pins	Contacts	AC ratings	DC ratings	Socket
CSS Series						
AC Solid state relay, Instantaneous switching	CSS-I			3 A / 250 V	-	S10
AC Solid state relay synch. to zero crossing	CSS-Z			3 A / 250 V	-	S10
NPN Solid state relay	CSS-N			-	6 A / 48 V	S10
PNP Solid state relay	CSS-P			-	6 A / 48 V	S10
CRINT Series						
DC solid state switch	CRINT-1x5			-	2 A / 24 V	-
AC solid state switch	CRINT-1x8			1 A / 240 V	-	-

CSS-I**1 pole | normally open solid state AC | plug-in Faston**

Output	1 N/O contact
Operating range	3 A, 24 ... 250 V AC, 50/60 Hz
Minimum contact load	35 mA

Control circuit

Input voltage range	5 ... 48 VDC
Input current	10 mA

Output circuit

	Instantaneous
Max. output current	3 A
Min. output current	35 mA
Output voltage range	24...250 V AC
Inrush current	150 A/10 ms
Residual current	1 mA
I ² t value	210 A ² s

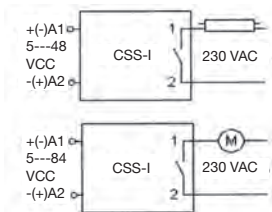
Specifications

Ambient temperature operation/storage	-40 ... 70 °C / -40 ... 85 °C (no ice)
Pick-up time	0.06 ms
Release time	0.06 ms
Weight	28 g

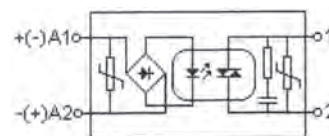
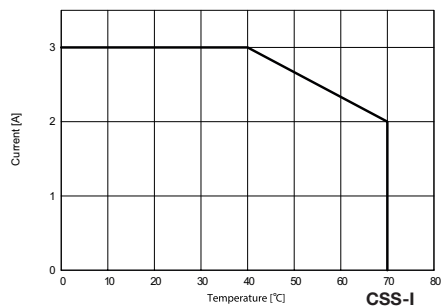
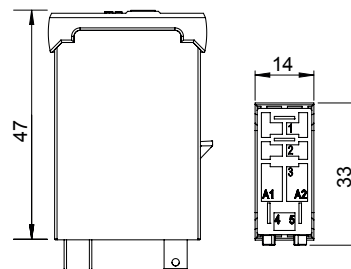
Applications

It is specially suitable to switch inductive loads up to 3A/250 V AC.

For switching loads with a high inrush or overcurrent as transformers, motors or fluorescents, the maximum output current will limit to 2 A.

**Product References****VDC 5-48****CSS-I12X/DC5-48V****Accessories**

Socket: **S10, S10-P**

**Fig. 1 CSS-I diagram****Tab. 2 AC derating curve****Dimensions****Technical approvals, conformities**

IEC/EN 60947

CSS-Z**1 pole | normally open solid state AC | plug-in Faston**

Output	1 N/O contact
Operating range	3 A, 24 ... 250 V AC, 50/60 Hz
Minimum contact load	35 mA

Control parameters

Input voltage range	5 ... 48 VDC
Input current	10 mA

Output	Synchronized zero
Max. output current	3 A
Min. output current	35 mA
Output voltage range	24 ... 250 V AC
Inrush current	150 A/10 ms
Residual current	1 mA
I _t value	210 A ² s

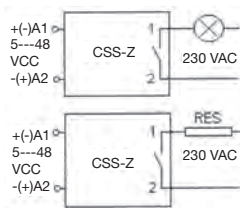
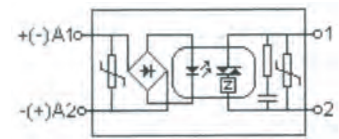
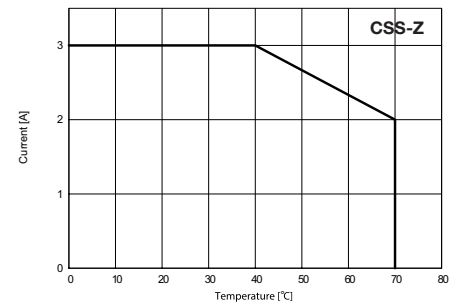
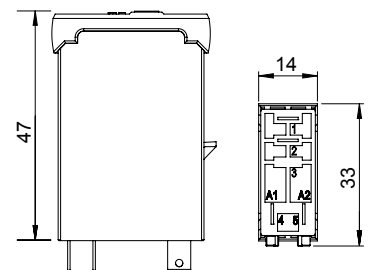
Specifications

Ambient temperature operation/storage	-40...70 °C / -40 ... 85 °C (no ice)
Pick-up time	10 ms
Release time	10 ms
Weight	28 g

Applications

Switches ohmic AC loads up to 3 A/250 V AC in the zero-point of the tension and avoids any over-current peak in the connection.

Suitable for switching resistors, incandescent lamps, signalling equipment, etc. Not suitable for inductive loads

**Product References****VDC 5-48****CSS-Z12X/DC5-48V****Accessories**
 Socket: **S10, S10-P**
**Fig. 1 CSS-Z diagram****Tab. 2 AC derating curve****Dimensions****Technical approvals, conformities**

IEC/EN 60947

CSS-N**1 pole | normally open solid state DC | plug-in Faston**

Output	1 N/O contact
Operating range	6 A, 5 ... 48 VDC
Minimum contact load	1 mA

Control parameters

Input voltage range	5 ... 48 VDC
Input current	4 mA

Output

Type	NPN
Max. output current	6 A
Output voltage range	5 ... 48 VDC
Switch-on current max.	40 A / 10 ms
Max. voltage drop	≤ 0.14 VDC
Residual current	0.1 mA

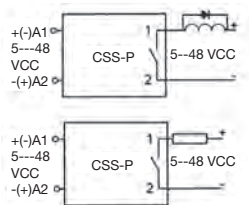
Specifications

Ambient temperature operation/storage	-40 ... 70 °C/-40 ... 85 °C (no ice)
Test voltage between input/output	4 kV rms/1 min.
Turn-on delay	0.06 ms
Release delay	0.06 ms
Weight	28 g

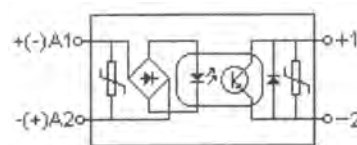
Applications

For switching heating elements, electro valves, motors, PLC input/output signals, solenoids, incandescent and fluorescent lamps, etc. (up to 48 VDC).

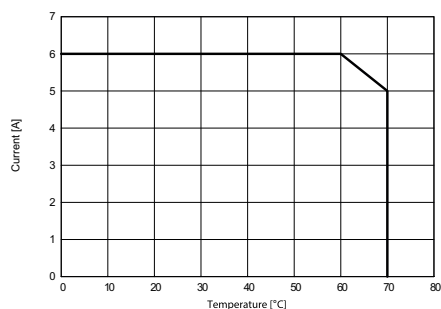
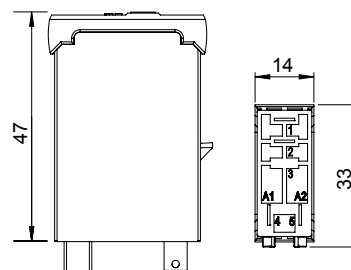
Inductive loads must be shunted with an antiparallel diode.

**Product References****VDC 5–48****CSS-N13X/DC5–48V****Accessories**

Socket: **S10, S10-P**

**Fig. 1 CSS-N diagram**

Negative common

Tab. 2 AC derating curve**Dimensions****Technical approvals, conformities**

IEC/EN 60947

CSS-P**1 pole | normally open solid state DC | plug-in Faston**

Output	1 N/O contact
Operating range	6 A, 5 ... 48 VDC
Minimum contact load	1 mA

Control parameters

Input voltage range	5 ... 48 VDC
Input current	4 mA

Output

Type	PNP
Max. output current	6 A
Output voltage range	5 ... 48 VDC
Max. switch-on current	40 A / 10 ms
Max. voltage drop	0.14 VDC
Residual current	0.1 mA

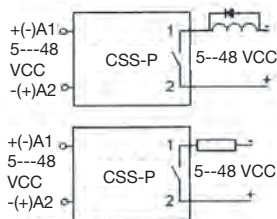
Specifications

Ambient temperature operation/storage	-40 ... 70 °C / -40 ... 85 °C (no ice)
Turn-on delay	0.06 ms
Release delay	0.06 ms
Weight	28 g

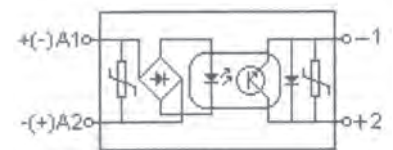
Applications

For switching heating elements, electro valves, motors, PLC input/output signals, solenoids, incandescent and fluorescent lamps, etc. (up to 48 VDC).

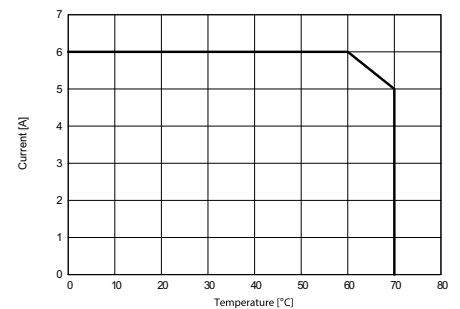
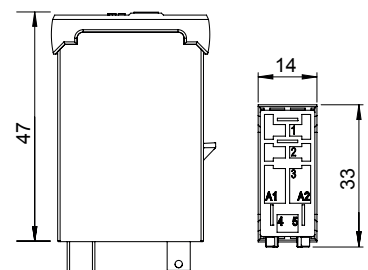
Inductive loads must be shunted with an antiparallel diode.

**Product References****VDC 5-48****CSS-P13X/DC5-48V****Accessories**

Socket:

S10, S10-P**Fig. 1 CSS-P diagram**

Positive common

Tab. 2 AC derating curve**Dimensions****Technical approvals, conformities**

IEC/EN 60947

Max. contact load**2 A, 24 V DC-1****Contact**

Type	1 NO (Solid state DC)
Material	Mosfet
Switching current _{TH}	2 A 24 V DC
Recommended minimal load	20 mA / 5 V
Peak inrush current	48 A/10 ms

Coil

Operation voltage AC 50/60 Hz / DC	0.8 ... 1.25 U _N
Nominal power DC/AC	160 / — mW

Insulation

Test voltage I / O	2.5 kV rms / 1 min
Pollution degree	3
Over voltage category	III
Open contact	1000 Vrms dielectric strength 1 min
Standard	EN61810-5

Specifications

Ambient temperature: operation / storage	-30 ... +70 °C / -40 ... +85 °C (no ice)
Typical response time @ V _n	1 ms
Typical release time @ V _n	1 ms
Cond. cross section screw terminal	2.5 mm ²
Cond. cross section spring cage	0.75 ... 2.5 mm ²
Protection degree	IP 20
Mounting position	any, TS-35 or Back Panel Mounting
Housing material	Polyamide PA6

Product ReferencesScrew terminal: **CRINT-C115/UC...V**Cage clamp terminal: **CRINT-C125/UC...V**

"..." List Coil Voltage to complete Product References

UC12V
UC24V
UC48V
UC60V
UC110-125V
UC220-240V
Accessories

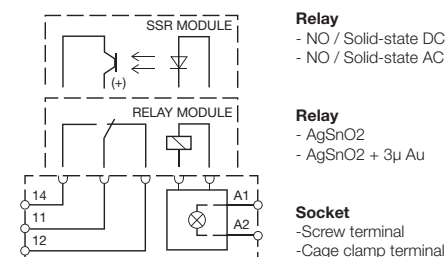
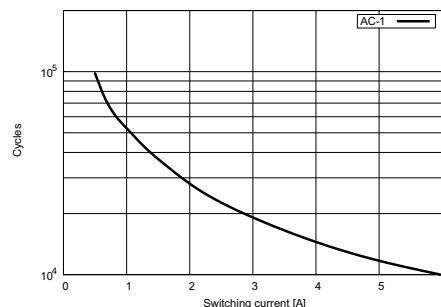
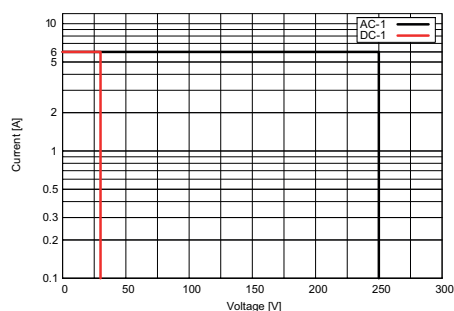
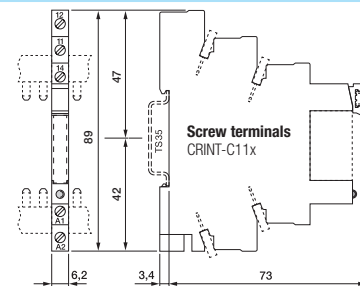
Jumper link:	blue: CRINT-BR20-BU (BAG 5 PCS)
	red: CRINT-BR20-RD (BAG 5 PCS)
	black: CRINT-BR20-BK (BAG 5 PCS)

Label plate:	CRINT-LAB (BAG 4x16 PCS)
Spacer:	CRINT-SEP (BAG 5 PCS)

Replacement relays:
CRINT-R15/DC...V

"..." List Coil Voltage to complete Product References

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

DC12V
DC24V
DC48V
DC60V*
**Connection diagram****Fig.1 AC voltage endurance****Fig. 2 DC load limit curve****Dimensions****Technical approvals, conformities**

IEC/EN 60810

Contact

Type	1 NO (Solid state AC)
Material	Triac
Switching current I_{TH}	1 A 240 V AC
Recommended minimal load	22 mA / 12 V
Peak inrush current	80 A/10 ms

Coil

Operation voltage AC 50/60 Hz / DC	0.8 ... 1.25 U_N
Nominal power DC/AC	150 / — mW

Insulation

Test voltage I / O	2.5 kV rms / 1 min
Pollution degree	3
Over voltage category	III
Open contact	1000 Vrms dielectric strength 1 min
Standard	EN61810-5

Specifications

Ambient temperature: operation / storage	-30 ... +70 °C / -40 ... +85 °C (no ice)
Typical response time @ V_n	1 ms
Typical release time @ V_n	1 ms
Cond. cross section screw terminal	2.5 mm ²
Cond. cross section spring cage	0.75 ... 2.5 mm ²
Protection degree	IP 20
Mounting position	any, TS-35 or Back Panel Mounting
Housing material	Polyamide PA6

Product ReferencesScrew terminal: **CRINT-C118/UC...V**Cage clamp terminal: **CRINT-C128/UC...V**

"... " List Coil Voltage to complete Product References

UC12V
UC24V
UC48V
UC60V
UC110-125V
UC220-240V

Accessories

Jumper link:	blue: CRINT-BR20-BU (BAG 5 PCS)
	red: CRINT-BR20-RD (BAG 5 PCS)
	black: CRINT-BR20-BK (BAG 5 PCS)

Label plate:	CRINT-LAB (BAG 4x16 PCS)
Spacer:	CRINT-SEP (BAG 5 PCS)

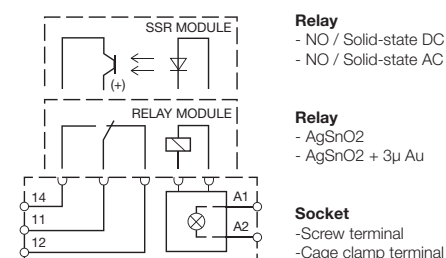
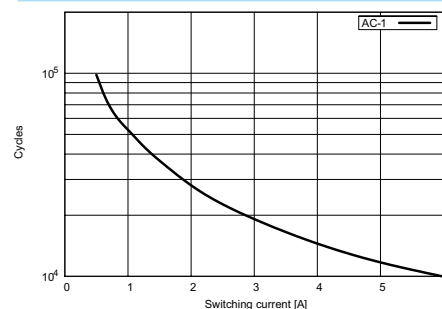
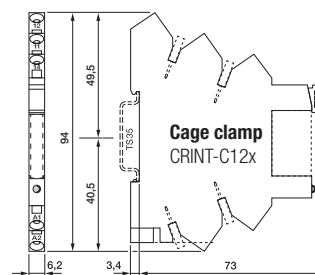
Replacement relays:

CRINT-R18/DC...V

"... " List Coil Voltage to complete Product References

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

DC12V
DC24V
DC60V*

**Connection diagram****Fig.1 AC voltage endurance****Fig. 2 DC load limit curve****Dimensions****Technical approvals, conformities**

IEC/EN 60810

Notes

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1.6 Installation Relays

Application	Types	Contacts	AC ratings	DC ratings
CHI Series				
1-Pole High Inrush Relay	CHI14	1	16 A / 250 V	-
3-Pole High Inrush Relay	CHI34	3+1	16 A / 250 V	-

CHI14**1-Pole High Inrush Relay**

Maximum contact load	16 A / 250 V AC-1
Recommended minimum contact load	100 mA / 12 V

Contacts

Material	W / AgSnO ₂
Rated operational current at 40 °C / 60 °C	16 A / 13 A
Max. inrush current	165 A / 20 ms
	800 A / 200 µs
Max. switching voltage AC-1	250 V
Max. AC load AC-1 (Fig.1)	4 kVA

Power supply- and control input

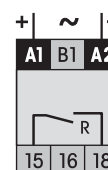
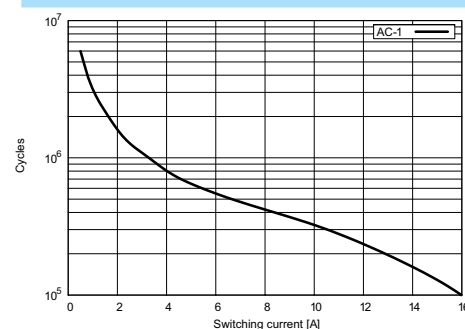
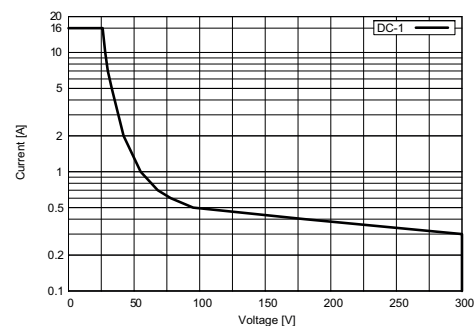
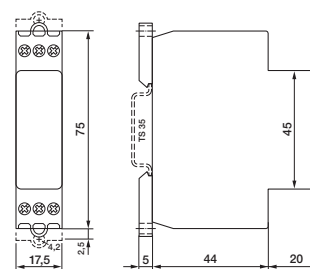
Nominal voltage (A1, B1)	UC 24-240 V (UC = AC / DC)
Operating voltage range	16.8 ... 250 V
Power consumption	1.2 VA / 0.43 W
Frequency range	16 ... 60 Hz

Insulation

Test voltage open contact	1 kV rms / 1 min
Test voltage between contacts and control input	2.5 kV rms / 1 min

General Specifications

Ambient temperature storage /operation	-40 ... 85 °C / -40 ... 60 °C (no ice)
Mechanical life of contact	5 x 1 000 000 operations
Conductor cross section	Stranded wire 2.5 mm ² , 2 x 1.5 mm ²
Protection degree	IP 20
Nominal screw torque	0.4 Nm
Housing material	Lexan
Weight	70 g

Product References**UC (AC/DC) 15...60 Hz****CHI14/UC24-240V****Connection diagram****Fig.1 AC voltage endurance****Fig. 2 DC load limit curve****Dimensions****Technical approvals, conformities**

Maximum contact load	16 A / 250 V AC-1
Recommended minimum contact load	100 mA / 12 V

Contacts

Number of contacts	3
Material	W / AgSnO ₂
Rated operational current at 40 °C / 60 °C	16 A / 13 A
Max. inrush current	165 A / 20 ms
	800 A / 200 µs
Max. switching voltage AC-1	250 V
Max. AC load AC-1 (Fig.1)	4 kVA

Auxiliary Contacts

Number of contacts	1
Nominal current at 25 °C / 60 °C	90 mA / 60 mA
Inrush current	1 A / 100 µs
Nominal voltage AC/DC	24 V
Contact Material	Semiconductor

Supply U_B (1-N)

Nominal operating voltage (AC/DC)	110...240 V
Operating voltage (AC/DC)	80...250 V
Frequency range	47...63 Hz
Power consumption	3.45 VA

Power supply- and control input

Nominal voltage (A1, A2)	UC 24-240 V (UC = AC / DC)
Operating voltage range	16.8 ... 250 V
Power consumption	30 VA / 30 mW
Frequency range	47...63 Hz

Insulation

Test voltage open contact	1 kV rms / 1 min
Test voltage between contacts and control input	2.5 kV rms / 1 min
Test voltage between contacts	2.5 kV rms / 1 min

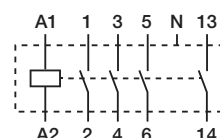
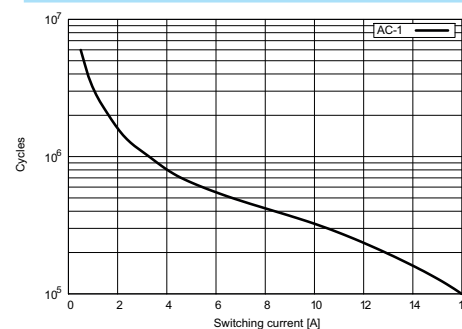
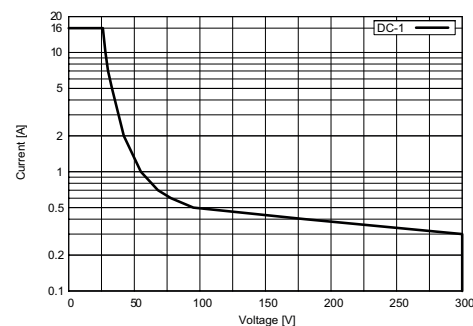
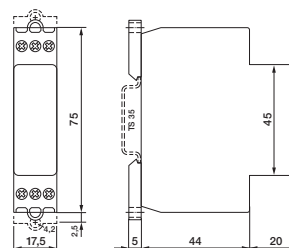
General Specifications

Ambient temperature storage /operation	-40 ... 85 °C / -25 ...60 °C (no ice)
Mechanical life of contact	5 x 1 000 000 operations
Conductor cross section	Stranded wire 2.5 mm ² , 2 x 1.5 mm ²
Protection degree	IP 20
Nominal screw torque	0.6 Nm
Housing material	Lexan
Weight	125 g

Product References

UC (AC/DC) 47...63 Hz

CHI34/UC24-240V

**Connection diagram****Fig.1 AC voltage endurance****Fig. 2 DC load limit curve****Dimensions****Technical approvals, conformities**

EAC
EN 61000-6-3; EN 61000-6-2

Notes

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1.8 Solid State Contactors

Application	Types	AC ratings	DC ratings
CC1 Series			
15 A Single phase 230 V AC	CC1H215	15 A / 230 V AC	-
30 A Single phase 230 V AC	CC1H230	30 A / 230 V AC	-
50 A Single phase 230 V AC	CC1H250	50 A / 230 V AC	-
15 A Single phase 400 V AC	CC1H415	15 A / 400 V AC	-
30 A Single phase 400 V AC	CC1H430	30 A / 400 V AC	-
50 A Single phase 400 V AC	CC1H450	50 A / 400 V AC	-
CC3 Series			
10 A Triple phase 400 V AC	CC3H410	10 A / 400 V AC	-
20 A Triple phase 400 V AC	CC3H420	20 A / 400 V AC	-
CCR Series			
10 A Three phase reversing contactor 400 V AC	CCR3H410	10 A / 400 V AC	-
CPC Series			
30 A Single phase 400 V AC	CPC1230	30 A / 400 V AC	-
50 A Single phase 230 V AC	CPC1250	50 A / 230 V AC	-
30 A Single phase 400 V AC	CPC1430	30 A / 400 V AC	-
50 A Single phase 400 V AC	CPC1450	50 A / 400 V AC	-

CC1H215**15 A | Single phase 230 V AC****Output**

Switching element	Thyristor
Numbers of phases	1
Nominal voltage (U_{nom})	230 V AC
Output voltage range	12 – 240 V AC
Frequency	50/60 Hz
Reverse voltage	1000 V _{rrm}
Peak reverse voltage	1100 V _{rsm}
Min. load	10 mA
Max. leakage current	1 mA
Operation current AC-1/51 @ U_{nom}	15 A
Operation current AC-3 @ U_{nom}	15 A
Operation current AC-55b @ U_{nom}	15 A
Operation current AC-56a @ U_{nom}	15 A
Response/Release time	20 ms
Limit load	1800 A ² s

Input

Voltage	24 – 230 V AC/DC
Min. voltage	20.4 V AC/DC
Max. voltage	253 V AC/DC
Release voltage	7.2 V AC/DC
Max. current	6 mA

Insulation

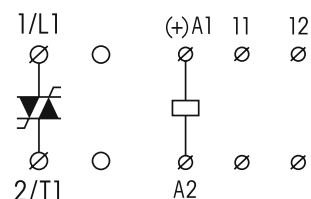
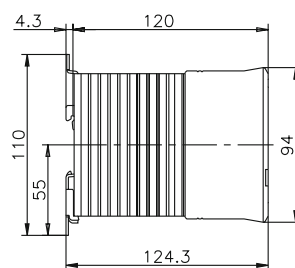
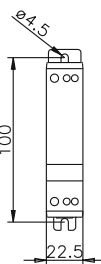
Insulation voltage	4 kV
Dielectric strength	660 V

Specifications

Ambient temperature storage/operation	-20 ... 80°C / -5 ... 40°C (no ice)
Connection terminals	Screw terminal 6 mm ²
Protection degree	IP 20
Mounting	TS-35 or Back Panel Mounting
Housing material	PPE / Aluminium
Weight	270 g

Product References

Solid State Contactor 1ph.

**Connection diagram****Dimensions****Technical approvals, conformities**

IEC/EN 60947-4-3

CC1H230**30 A | Single phase 230 V AC****Output**

Switching element	Thyristor
Numbers of phases	1
Nominal voltage (U_{nom})	230 V AC
Output voltage range	12 – 240 V AC
Frequency	50/60 Hz
Reverse voltage	1000 V _{rrm}
Peak reverse voltage	1100 V _{rsm}
Min. load	10 mA
Max. leakage current	1 mA
Operation current AC-1/51 @ U_{nom}	30 A
Operation current AC-3 @ U_{nom}	15 A
Operation current AC-55b @ U_{nom}	20 A
Operation current AC-56a @ U_{nom}	15 A
Response/Release time	20 ms
Limit load	1800 A ² s

Input

Voltage	24 – 230 V AC/DC
Min. voltage	20.4 V AC/DC
Max. voltage	253 V AC/DC
Release voltage	7.2 V AC/DC
Max. current	6 mA

Insulation

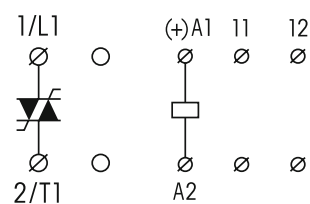
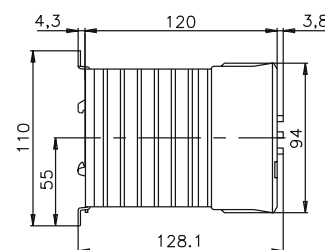
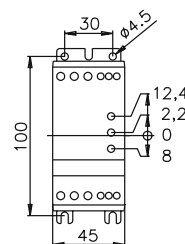
Insulation voltage	4 kV
Dielectric strength	660 V

Specifications

Ambient temperature storage/operation	-20 ... 80°C / -5 ... 40°C (no ice)
Connection terminals	Screw terminal 10 mm ²
Protection degree	IP 20
Mounting	TS-35 or Back Panel Mounting
Housing material	PPE / Aluminium
Weight	650 g

Product References

Solid State Contactor 1ph.

CC1H230**TURCK**
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**Connection diagram****Dimensions****Technical approvals, conformities**

IEC/EN 60947-4-3

CC1H250**50A | Single phase 230 V AC****Output**

Switching element	Thyristor
Numbers of phases	1
Nominal voltage (U_{nom})	230 V AC
Output voltage range	12 – 240 V AC
Frequency	50/60 Hz
Reverse voltage	1000 V _{rrm}
Peak reverse voltage	1100 V _{rsm}
Min. load	10 mA
Max. leakage current	1 mA
Operation current AC-1/51 @ U_{nom}	50 A
Operation current AC-3 @ U_{nom}	15 A
Operation current AC-55b @ U_{nom}	20 A
Operation current AC-56a @ U_{nom}	15 A
Response/Release time	20 ms
Limit load	1800 A ² s

Input

Voltage	24 – 230 V AC/DC
Min. voltage	20.4 V AC/DC
Max. voltage	253 V AC/DC
Release voltage	7.2 V AC/DC
Max. current	6 mA

Insulation

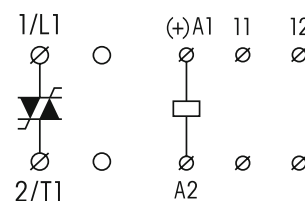
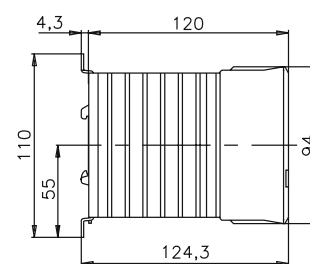
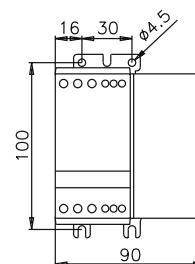
Insulation voltage	4 kV
Dielectric strength	660 V

Specifications

Ambient temperature storage/operation	-20 ... 80°C / -5 ... 40°C (no ice)
Connection terminals	Screw terminal 10 mm ²
Protection degree	IP 20
Mounting	TS-35 or Back Panel Mounting
Housing material	PPE / Aluminium
Weight	1050 g

Product References

Solid State Contactor 1ph.

CC1H250**Connection diagram****Dimensions****Technical approvals, conformities**

IEC/EN 60947-4-3

CC1H415**15 A | Single phase 400 V AC****Output**

Switching element	Thyristor
Numbers of phases	1
Nominal voltage (U_{nom})	400 V AC
Output voltage range	24 – 480 V AC
Frequency	50/60 Hz
Reverse voltage	1200 V _{rrm}
Peak reverse voltage	1300 V _{rsm}
Min. load	10 mA
Max. leakage current	1 mA
Operation current AC-1/51 @ U_{nom}	15 A
Operation current AC-3 @ U_{nom}	15 A
Operation current AC-55b @ U_{nom}	15 A
Operation current AC-56a @ U_{nom}	15 A
Response/Release time	20 ms
Limit load	1800 A ² s

Input

Voltage	24 – 230 V AC/DC
Min. voltage	20.4 V AC/DC
Max. voltage	253 V AC/DC
Release voltage	7.2 V AC/DC
Max. current	6 mA

Insulation

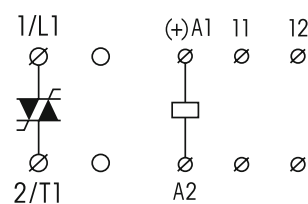
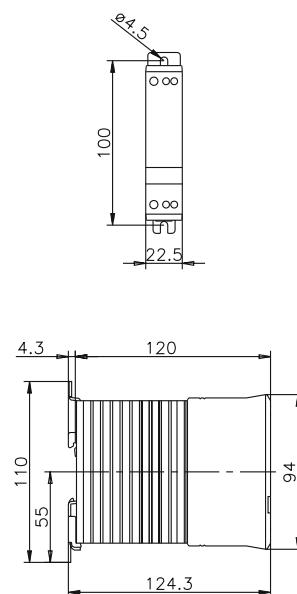
Insulation voltage	4 kV
Dielectric strength	660 V

Specifications

Ambient temperature storage/operation	-20 ... 80°C / -5 ... 40°C (no ice)
Connection terminals	Screw terminal 6 mm ²
Protection degree	IP 20
Mounting	TS-35 or Back Panel Mounting
Housing material	PPE / Aluminium
Weight	270 g

Product References

Solid State Contactor 1ph.

CC1H415**TURCK**
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**Connection diagram****Dimensions****Technical approvals, conformities**

IEC/EN 60947-4-3

CC1H430**30A | Single phase 400 V AC****Output**

Switching element	Thyristor
Numbers of phases	1
Nominal voltage (U_{nom})	400 V AC
Output voltage range	24 – 480 V AC
Frequency	50/60 Hz
Reverse voltage	1200 V _{rrm}
Peak reverse voltage	1300 V _{rsm}
Min. load	10 mA
Max. leakage current	1 mA
Operation current AC-1/51 @ U_{nom}	30 A
Operation current AC-3 @ U_{nom}	15 A
Operation current AC-55b @ U_{nom}	20 A
Operation current AC-56a @ U_{nom}	15 A
Response/Release time	20 ms
Limit load	1800 A ² s

Input

Voltage	24 – 230 V AC/DC
Min. voltage	20.4 V AC/DC
Max. voltage	253 V AC/DC
Release voltage	7.2 V AC/DC
Max. current	6 mA

Insulation

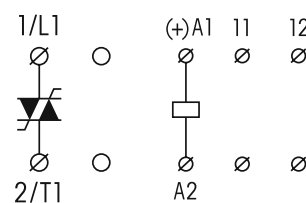
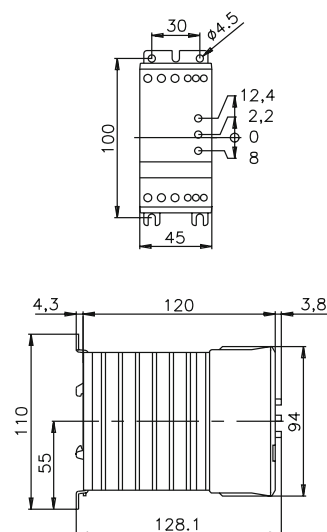
Insulation voltage	4 kV
Dielectric strength	660 V

Specifications

Ambient temperature storage/operation	-20 ... 80°C / -5 ... 40°C (no ice)
Connection terminals	Screw terminal 6 mm ²
Protection degree	IP 20
Mounting	TS-35 or Back Panel Mounting
Housing material	PPE / Aluminium
Weight	650 g

Product References

Solid State Contactor 1ph.

CC1H430**Connection diagram****Dimensions****Technical approvals, conformities**

IEC/EN 60947-4-3

CC1H450**50 A | Single phase 400 V AC****Output**

Switching element	Thyristor
Numbers of phases	1
Nominal voltage (U_{nom})	400 V AC
Output voltage range	24 – 480 V AC
Frequency	50/60 Hz
Reverse voltage	1200 V _{rrm}
Peak reverse voltage	1300 V _{rsm}
Min. load	10 mA
Max. leakage current	1 mA
Operation current AC-1/51 @ U_{nom}	50 A
Operation current AC-3 @ U_{nom}	15 A
Operation current AC-55b @ U_{nom}	20 A
Operation current AC-56a @ U_{nom}	15 A
Response/Release time	20 ms
Limit load	1800 A ² s

Input

Voltage	24 – 230 V AC/DC
Min. voltage	20.4 V AC/DC
Max. voltage	253 V AC/DC
Release voltage	7.2 V AC/DC
Max. current	6 mA

Insulation

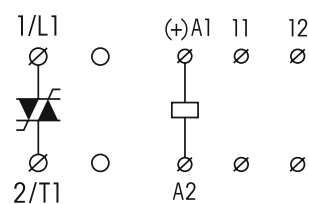
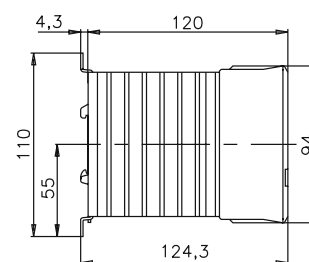
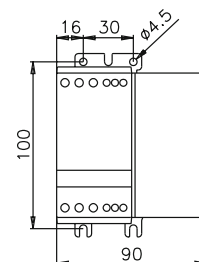
Insulation voltage	4 kV
Dielectric strength	660 V

Specifications

Ambient temperature storage/operation	-20 ... 80°C / -5 ... 40°C (no ice)
Connection terminals	Screw terminal 10 mm ²
Protection degree	IP 20
Mounting	TS-35 or Back Panel Mounting
Housing material	PPE / Aluminium
Weight	1050 g

Product References

Solid State Contactor 1ph.

CC1H450**TURCK**
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 WORLD OF RELAYS
**Connection diagram****Dimensions****Technical approvals, conformities**

 IEC/EN 60947-4-3

CC3H410**10A | Triple phase 400 V AC****Output**

Switching element	Thyristor
Numbers of phases	3
Nominal voltage (U_{nom})	400 V AC
Output voltage range	24 – 480 V AC
Frequency	50/60 Hz
Reverse voltage	1200 V _{rrm}
Peak reverse voltage	1300 V _{rsm}
Min. load	10 mA
Max. leakage current	1 mA
Operation current AC-1/51 @ U_{nom}	10 A
Operation current AC-3 @ U_{nom}	10 A
Operation current AC-55b @ U_{nom}	10 A
Operation current AC-56a @ U_{nom}	5 A
Response/Release time	20 ms
Limit load	610 A ² s

Input

Voltage	24 – 230 V AC/DC
Min. voltage	20.4 V AC/DC
Max. voltage	253 V AC/DC
Release voltage	7.2 V AC/DC
Max. current	6 mA

Insulation

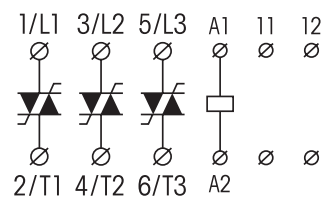
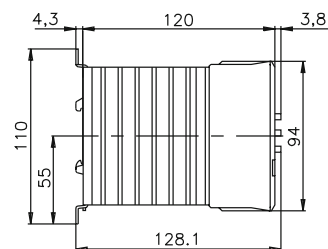
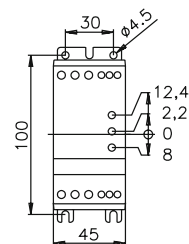
Insulation voltage	4 kV
Dielectric strength	660 V

Specifications

Ambient temperature storage/operation	-20 ... 80°C / -5 ... 40°C (no ice)
Connection terminals	Screw terminal 6 mm ²
Protection degree	IP 20
Mounting	TS-35 or Back Panel Mounting
Housing material	PPE / Aluminium
Weight	650 g

Product References

Solid State Contactor 3ph.

CC3H410**Connection diagram****Dimensions****Technical approvals, conformities**

IEC/EN 60947-4-3

CC3H420**20 A | Triple phase 400 V AC****Output**

Switching element	Thyristor
Numbers of phases	3
Nominal voltage (U_{nom})	400 V AC
Output voltage range	24 – 480 V AC
Frequency	50/60 Hz
Reverse voltage	1200 V _{rrm}
Peak reverse voltage	1300 V _{rsm}
Min. load	10 mA
Max. leakage current	1 mA
Operation current AC-1/51 @ U_{nom}	20 A
Operation current AC-3 @ U_{nom}	10 A
Operation current AC-55b @ U_{nom}	10 A
Operation current AC-56a @ U_{nom}	5 A
Response/Release time	20 ms
Limit load	610 A ² s

Input

Voltage	24 – 230 V AC/DC
Min. voltage	20.4 V AC/DC
Max. voltage	253 V AC/DC
Release voltage	7.2 V AC/DC
Max. current	6 mA

Insulation

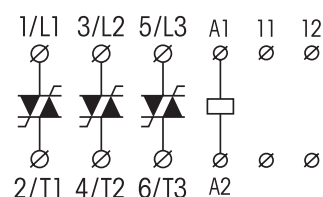
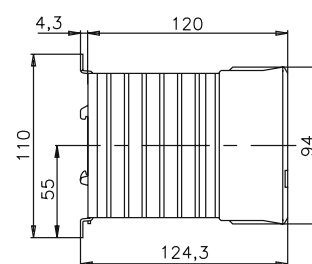
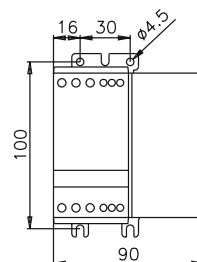
Insulation voltage	4 kV
Dielectric strength	660 V

Specifications

Ambient temperature storage/operation	-20 ... 80°C / -5 ... 40°C (no ice)
Connection terminals	Screw terminal 10 mm ²
Protection degree	IP 20
Mounting	TS-35 or Back Panel Mounting
Housing material	PPE / Aluminium
Weight	1050 g

Product References

Solid State Contactor 3ph.

CC3H420**TURCK**
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**Connection diagram****Dimensions****Technical approvals, conformities**

IEC/EN 60947-4-3

CCR3H410**10A | Three phase reversing contactor 400 V AC****Output**

Switching element	Thyristor
Numbers of phases	3
Nominal voltage (U_{nom})	400 V AC
Output voltage range	24 – 480 V AC
Frequency	50/60 Hz
Reverse voltage	1200 V _{rrm}
Peak reverse voltage	1300 V _{rsm}
Min. load	50 mA
Max. leakage current	5 mA
Operation current AC-1/51 @ U_{nom}	10 A
Operation current AC-53 @ U_{nom}	10 A
Response/Release time	20 ms
Limit load	610 A ² s

Input

Voltage	24 – 230 V AC/DC
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Insulation

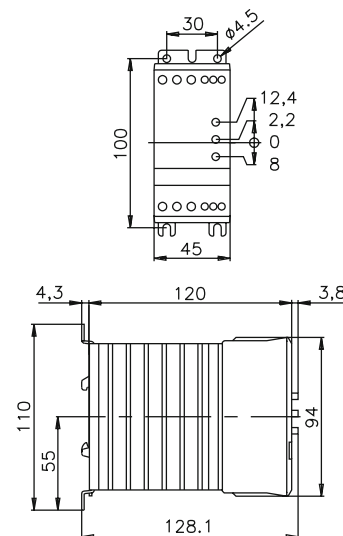
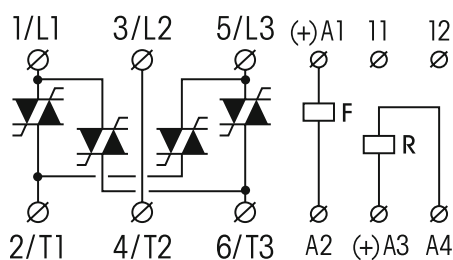
Insulation voltage	4 kV
Dielectric strength	660 V

Specifications

Ambient temperature storage/operation	-20 ... 80°C / -5 ... 40°C (no ice)
Connection terminals	Screw terminal 2.5 mm ²
Protection degree	IP 20
Mounting	TS-35 or Back Panel Mounting
Housing material	PPE / Aluminium
Weight	650 g

Product References

Reversing contactor

CCR3H410**Dimensions****Connection diagram****Technical approvals, conformities**

IEC/EN 60947-4-2

CPC1230**30 A | Single phase 400 V AC****Output**

Switching element	Thyristor
Numbers of phases	1
Nominal voltage (U_{nom})	230 V AC
Output voltage range	208 – 240 V AC
Frequency	50/60 Hz
Reverse voltage	1000 V _{rrm}
Peak reverse voltage	1100 V _{rsm}
Min. load	10 mA
Max. leakage current	1 mA
Operation current AC-1/51 @ U_{nom}	30 A
Operation current AC-3 @ U_{nom}	15 (non uL)
Operation current AC-55b @ U_{nom}	30 A
Operation current AC-56a @ U_{nom}	30 A
Response/Release time	20 ms
Limit load	1800 A ² s

Input

Voltage	24 V AC/DC
Control signal	0 – 10 V, 10 – 0 V 0 – 20 mA, 20 – 0 mA 4 – 20 mA, 20 – 4 mA
Potentiometer	0 – 10 k Ω , 10 – 0 k Ω

Insulation

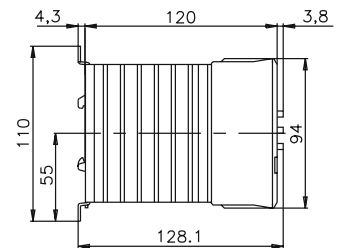
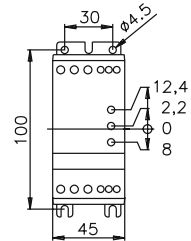
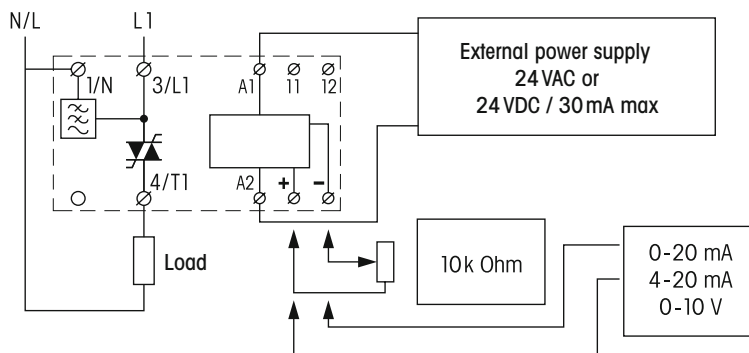
Insulation voltage	4 kV
Dielectric strength	660 V

Specifications

Ambient temperature storage/operation	-20 ... 80°C / -5 ... 40°C (no ice)
Connection terminals	Screw terminal 2.5 mm ²
Protection degree	IP 20
Mounting	TS-35 or Back Panel Mounting
Housing material	PPE / Aluminium
Weight	650 g

Product References

Performance Regulator

CPC1230**TURCK**
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**Dimensions****Connection diagram****Technical approvals, conformities**

IEC/EN 60947-4-3

CPC1250**50 A | Single phase 230 V AC****Output**

Switching element	Thyristor
Numbers of phases	1
Nominal voltage (U_{nom})	230 V AC
Output voltage range	208 – 240 V AC
Frequency	50/60 Hz
Reverse voltage	1000 V _{rrm}
Peak reverse voltage	1100 V _{rsm}
Min. load	10 mA
Max. leakage current	1 mA
Operation current AC-1/51 @ U_{nom}	50 A
Operation current AC-3 @ U_{nom}	15 (non uL)
Operation current AC-55b @ U_{nom}	30 A
Operation current AC-56a @ U_{nom}	30 A
Response/Release time	20 ms
Limit load	1800 A ² s

Input

Voltage	24 V AC/DC
Control signal	0 – 10 V, 10 – 0 V 0 – 20 mA, 20 – 0 mA 4 – 20 mA, 20 – 4 mA
Potentiometer	0 – 10 k Ω , 10 – 0 k Ω

Insulation

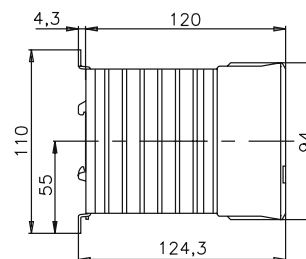
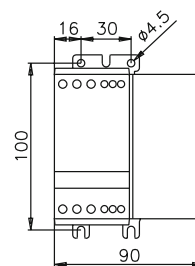
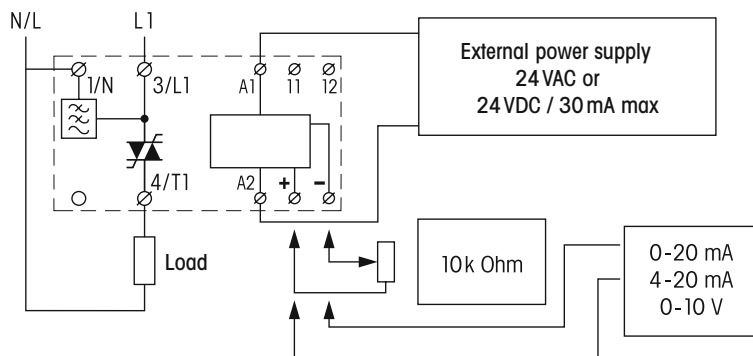
Insulation voltage	4 kV
Dielectric strength	660 V

Specifications

Ambient temperature storage/operation	-20 ... 80°C / -5 ... 40°C (no ice)
Connection terminals	Screw terminal 2.5 mm ²
Protection degree	IP 20
Mounting	TS-35 or Back Panel Mounting
Housing material	PPE / Aluminium
Weight	650 g

Product References

Performance Regulator

**Dimensions****Connection diagram****Technical approvals, conformities**

IEC/EN 60947-4-3

CPC1430**30 A | Single phase 400 V AC****Output**

Switching element	Thyristor
Numbers of phases	1
Nominal voltage (U_{nom})	400 V AC
Output voltage range	380 – 480 V AC
Frequency	50/60 Hz
Reverse voltage	1200 V _{rrm}
Peak reverse voltage	1300 V _{rsm}
Min. load	10 mA
Max. leakage current	1 mA
Operation current AC-1/51 @ U_{nom}	30 A
Operation current AC-3 @ U_{nom}	15 (non uL)
Operation current AC-55b @ U_{nom}	30 A
Operation current AC-56a @ U_{nom}	30 A
Response/Release time	20 ms
Limit load	1800 A ² s

Input

Voltage	24 V AC/DC
Control signal	0 – 10 V, 10 – 0 V 0 – 20 mA, 20 – 0 mA 4 – 20 mA, 20 – 4 mA
Potentiometer	0 – 10 k Ω , 10 – 0 k Ω

Insulation

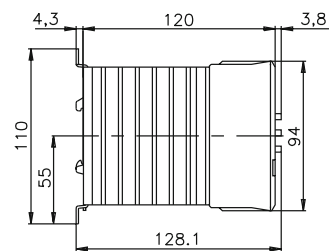
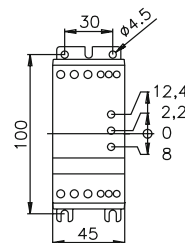
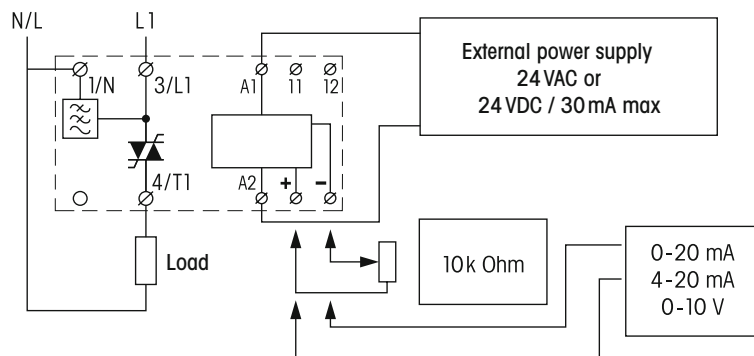
Insulation voltage	4 kV
Dielectric strength	660 V

Specifications

Ambient temperature storage/operation	-20 ... 80°C / -5 ... 40°C (no ice)
Connection terminals	Screw terminal 2.5 mm ²
Protection degree	IP 20
Mounting	TS-35 or Back Panel Mounting
Housing material	PPE / Aluminium
Weight	650 g

Product References

Performance Regulator

CPC1430**TURCK**
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**Dimensions****Connection diagram****Technical approvals, conformities**

IEC/EN 60947-4-3

CPC1450**50 A | Single phase 400 V AC****Output**

Switching element	Thyristor
Numbers of phases	1
Nominal voltage (U_{nom})	400 V AC
Output voltage range	380 – 480 V AC
Frequency	50/60 Hz
Reverse voltage	1200 V _{rrm}
Peak reverse voltage	1300 V _{rsm}
Min. load	10 mA
Max. leakage current	1 mA
Operation current AC-1/51 @ U_{nom}	50 A
Operation current AC-3 @ U_{nom}	15 (non uL)
Operation current AC-55b @ U_{nom}	30 A
Operation current AC-56a @ U_{nom}	30 A
Response/Release time	20 ms
Limit load	1800 A ² s

Input

Voltage	24 V AC/DC
Control signal	0 – 10 V, 10 – 0 V 0 – 20 mA, 20 – 0 mA 4 – 20 mA, 20 – 4 mA
Potentiometer	0 – 10 kΩ, 10 – 0 kΩ

Insulation

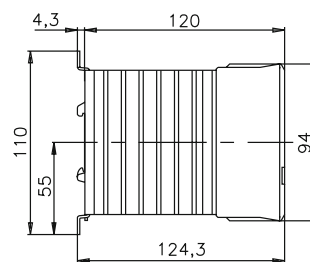
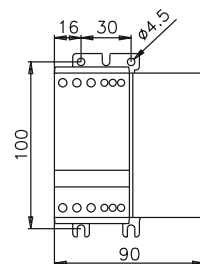
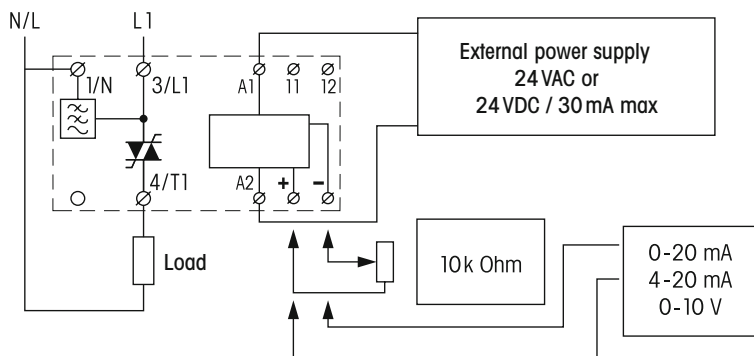
Insulation voltage	4 kV
Dielectric strength	660 V

Specifications

Ambient temperature storage/operation	-20 ... 80°C / -5 ... 40°C (no ice)
Connection terminals	Screw terminal 2.5 mm ²
Protection degree	IP 20
Mounting	TS-35 or Back Panel Mounting
Housing material	PPE / Aluminium
Weight	1050 g

Product References

Performance Regulator

**Dimensions****Connection diagram****Technical approvals, conformities**

IEC/EN 60947-4-3