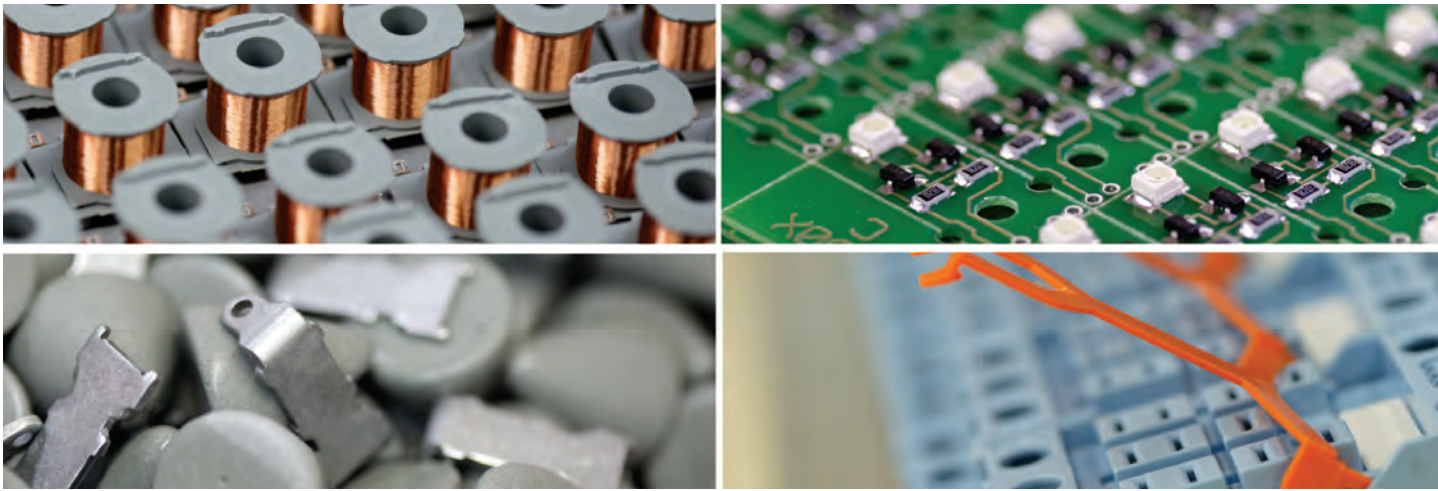


WORLD OF RELAYS

Marine & Shipping Catalogue

WoR 3.0 | English



ComatReleco at a glance

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

Designed in Switzerland, assembled in...

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

Customer orientation and quality management

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

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

Headquarters in Switzerland – international presence

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

W O R L D O F R E L A Y S

Find your suitable documentation

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



GENERAL-, TRANSPORTATION & RAILWAY-, SOLID STATE RELAY-CATALOGUE, PLC & HMI CATALOGUE

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

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1 Relays & Contactors

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Product range

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

Relays C2, C3, C4, C5, R4

35 x 35 mm round plug-in relay, 8- or 11-terminals multipole connectors with 2 or 3 contacts up to 10 A and different contact types and contact materials.
Standard relay 35 x 35 mm with flat blade connectors with up to 4 contacts and up to 16 A with 4 contacts.

Relays C7, C9, R7, R9

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

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

Overall width 13 mm with up to 2 electromechanical 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 SSR

Solid State Relays are suitable to either switch AC or DC loads up to 6 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.

Basic identification principle (type designation code electromechanical relays)

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

1. Relay application

- C = Industrial relays
- R = Railway relays

2. Product family

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

3. Relay type

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

7. (*) Special requirements

- H = Orange button. No lockable function
- N = Black button. No function

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

8. Relay with LED

- X = relays with LED

9. Nominal coil voltage specification

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

10. Ref. nnnn

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

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

4. Number of contacts

- 1-4 = Number of contacts

5. Definition of contact material / SSR type

This code may differ depending on type.
Examples:

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

6. Describes the options

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

Relays C2-C9, R4, R7, R9

Protection against transients

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

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

Transients carried in the line

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

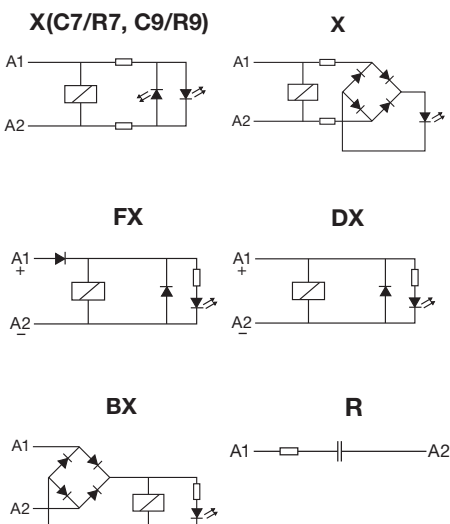
Normally a relay is unaffected by these pulses, but if a diode is connected in association with the coil, it must be capable of withstanding an inverse voltage higher than those of the incoming peaks.

Protection circuits

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

ComatReleco Relays are available with integrated protection circuits.

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



Relays C10-C12, R10, R12

LED and protection circuit connected to coil.

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

Protection against pulses

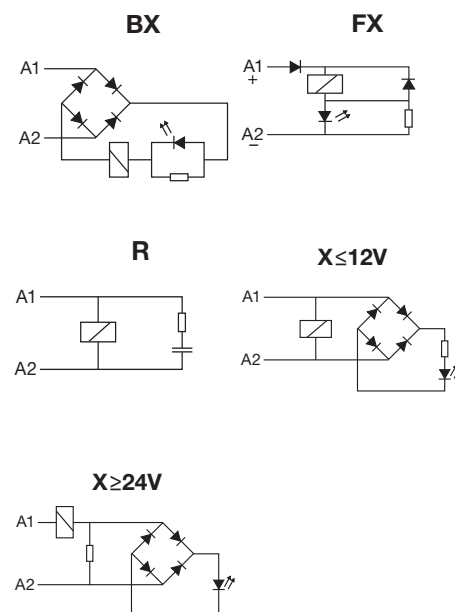
When a relay coil is disconnected, reverse voltage peaks may arise and reach very high values. Said peaks can transmit to the coil associated line and other relays or semiconductors can be affected.

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

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

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

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



Contacts

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

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 5µm) are offered for applications in aggressive atmosphere.

Relays with gold contacts are approved for relatively high currents (e.g. 6A, 250V), but in practice values of 200mA, 30V 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 500A, 2.5ms). For some applications AgNi contacts with gold flashing (0.2µm) are available. The purpose is corrosion protection during storage. Tin oxide is specially appropriated for load with high-inrush current.

Minimum load

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

Contact resistance

Initial values of resistance of contact can vary with the use, load and others conditions. Typical values when the relay is new is about 50mΩ.

Contact spacing

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

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

Switching capacity

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

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

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 2000V. 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 230V this may reach more than 90H. When a relay is switched off, self-inductance results in a self-induced voltage that may affect the switching source (destruction of transistors, EMC problems).

Drive voltages

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

Pick-up voltage, Release voltage

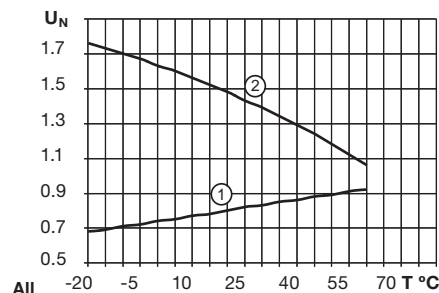
The pick-up voltage is the voltage at which the relay engages safely. For DC the typical trip voltage is approx. 65% of U_{nom} , for AC approx. 75%. The release voltage, on the other hand, is approx. 25% or 60% respectively.

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

Operating voltage range

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

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



General design

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

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

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

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

Coil connections

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

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

Relays

General Information

Standards, conformities

All ComatReleco relays feature the CE mark to indicate that CE standards apply e.g. 2kV 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 CCC, CE, EAC, FCC, cURus, cULus, RCM, UKCA, Lloyd's Register. The associated information is provided in the data sheets.

Switching classes

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

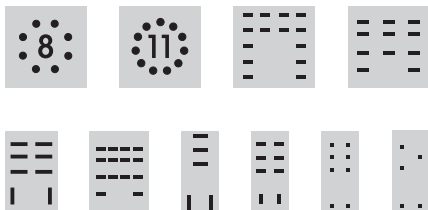
Example:

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

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



Main technical approvals and standards

Country	Technical approval
China	 Authority: CQC Specification GB14048.5-2001
Europe	 Authority: CENELEC
Armenia / Belarus / Kazakhstan / Kyrgyzstan / Russia	 Authority: KORPORATSIA STANDART Specification TP TC 004/2011
USA	 Authority: USA
USA / Canada	 Authority: UL Specification C 22.2; UL 60947
Australia / New Zealand	 Authority: Australia/New Zealand
England / Scotland / Wales	 Authority: GB
Worldwide	 Authority: Lloyd's Register
Europe / Worldwide	 Railway EN 50155

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

Pollution category

Cat. 1

Dry, non-conductive contamination without further effect

Cat. 2

Occasional conductive contamination, short duration due to moisture condensation

Cat. 3

Dry, non-conductive and conductive contamination with moisture condensation

Cat. 4

Contamination with persistent conductivity through conductive dust, rain

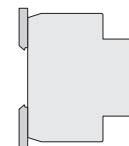
Protection class IP according to EN 60529 and other standards. Industrial relays and their sockets can be classified as follows:

Socket IP20: Contact safety

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

Electrical Distributor DIN 45mm

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



Further information and tips

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

Example

If the number of cycles is expected to exceed several 100.000 operations per year (e.g. clock generators, fast running machines), an electronic solution is no doubt more appropriate, although we also offer solutions for this type of application. In AC applications crosstalk caused by long control leads is often a problem and can result in constant humming of the relay or even inadvertent triggering due to interference.

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

Characteristics of various loads:

Heating circuits

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

Incandescent lamps, halogen lamps

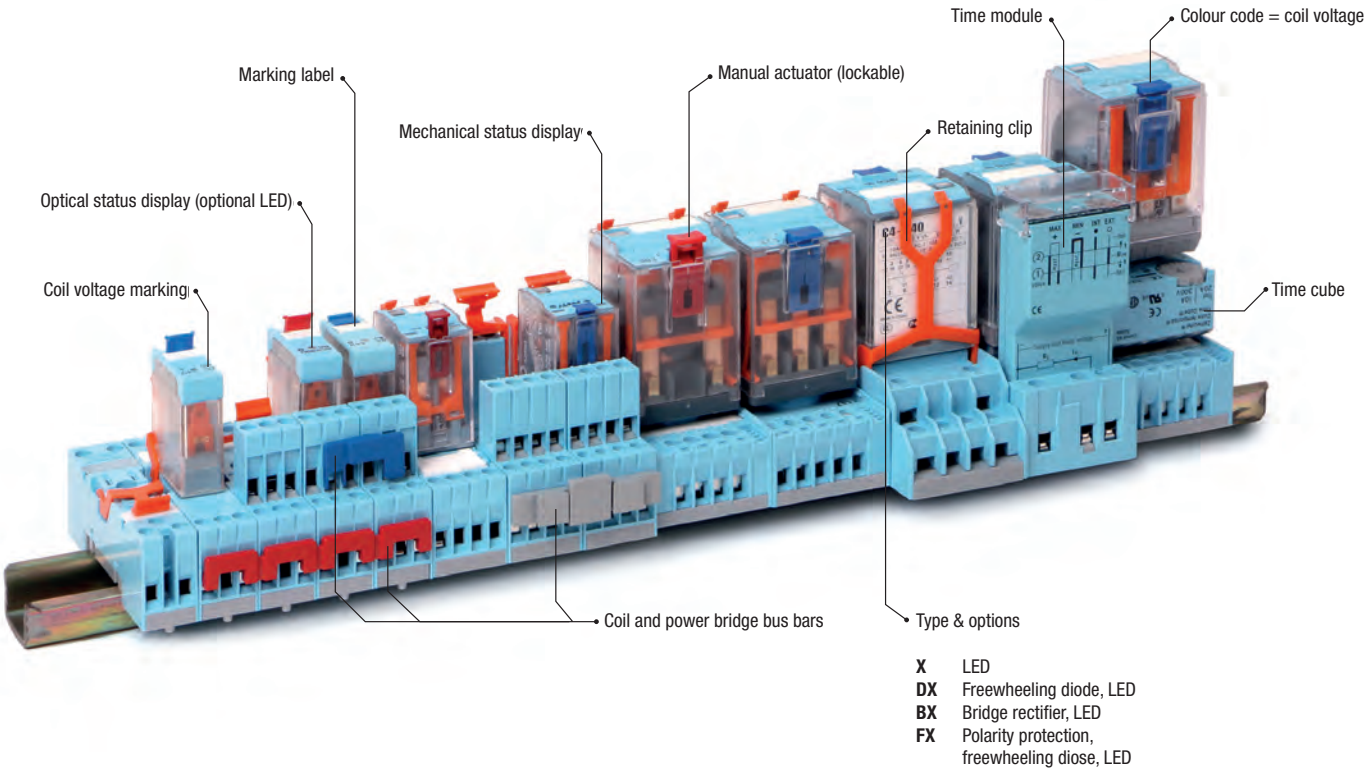
Switch-on currents during a few ms in the range 10 ... 18 x rated. Switch-off at rated load.

Low-energy lamps








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

Transformers, AC contactors

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





Five colours for an easier identification of coil voltage

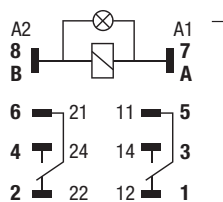
	AC	red: 230 V AC (North America 120 V AC)	If you don't want to have the lockable function, you can use the orange button.
	AC	dark red: others V AC	
	UC	grey: V AC/DC	 Orange button, no lockable function, push only
	DC	blue: 24 V DC	 Black button, no function
	DC	dark blue: others V DC	

Comprehensive technical label

C7-A20X⁰¹ → Part number

 DC 0.9 W → Coil details

 10 A / 250 V AC-1
μ 10A / 30 V D C-1 → Maximum switching capacity according to EN 60947 (IEC 947)

 → Additional circuit diagram for coil
Electric diagram showing all additions to the coil





→ Wiring diagram with sequential and DIN numbers

Relays

How to select the correct relay?

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


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

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

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RELECO

Notes

1.1 Interface Relays - pluggable

	Type	Pin	Page
C12 / R12 Series			
2 pole changeover contact faston	C12-A2x		12

1.1 Interface Relays - pluggable

C12-A2x

2 pole | changeover contact | faston

Main circuit

Available contact materials

AgNi + 0.2 µ Au for C12-A21

AgNi + 5 µ Au for C12-A22

Recommended minimum contact load

10 mA / 10 V for C12-A21

5 mA / 5 V for C12-A22

Maximum contact load AC

5 A / 250 V AC-1

Maximum contact load DC

5 A / 30 V DC-1

Inrush current

15 A, 20 ms

AC load

1200 VA

DC load

fig. 3.

Rated current

5 A

Mechanical endurance (cycles)

≥ 10 000 000

Electrical endurance at rated load AC-1 (cycles)

≥ 100 000

Control circuit

Nominal voltage

see table product references

Operating voltage range

0.8 U_N ... 1.1 U_N

Pick-up voltage

≤ 0.8 U_N

Release voltage

≥ 0.1 U_N

Power consumption AC / DC

1.1 VA / 0.7 W

Coil table

V AC	Ohm	mA	V DC	Ohm	mA
12	82	71	12	224	54
24	290	45	24	742	32
230	28 874	4.7	110	19 923	5.5

Insulation

Test voltage open contact

1 kV / 1 min

Test voltage contact / contact

3 kV / 1 min

Test voltage contact / coil

5 kV / 1 min

Pollution degree

3

Overtoltage category

III

Insulation resistance at 500 V

≥ 1 GΩ

General data

Ambient temperature storage (no ice)

-40 ... 80 °C

Ambient temperature operation

-40 ... 70 °C

Pick-up time / bounce time

10 ms / ≤ 1 ms

Release time / bounce time

5 ms / ≤ 3 ms

Maximum switching frequency at rated load

1200 / h

Dimension

fig. 4.

Weight

21 g

Housing material

PA / PC

Product references

Description	Type (x refers to contact material)	12	24	110	230	240
AC / DC bridge rectifier & LED	C12-A2xBX/UC...V		✓			
AC 50 Hz	C12-A2x/AC...V	✓	✓		✓	
RC Suppressor	C12-A2xR/AC...V				✓	
LED	C12-A2xX/AC...V	✓	✓		✓	✓
DC	C12-A2x/DC...V	✓	✓	✓		
LED & Polarity & Free wheeling diode	C12-A2xFX/DC...V	✓	✓	✓		
LED	C12-A2xX/DC...V	✓	✓	✓		

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

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

Accessories

Socket

S12 R

S12-P R

S12-PI



fig. 1. Wiring diagram

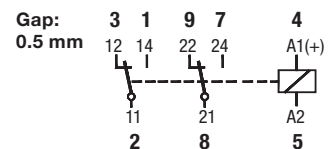


fig. 2. AC voltage endurance

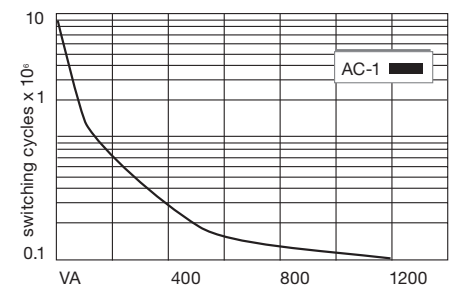


fig. 3. DC load limit curve

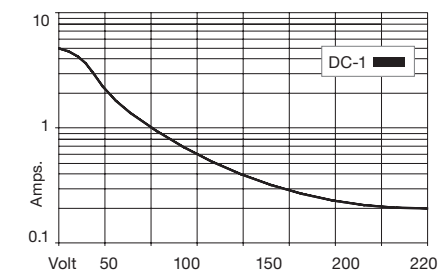
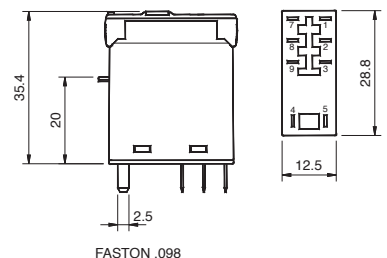


fig. 4. Dimension (mm)



Technical approvals, conformities

Standards IEC/EN 60947; IEC/EN 61810

Approvals      

1.2

Interface Relays

	Type	Pin	Page
CRINT Series			
1 pole changeover contact	CRINT-C1x1		15
1 pole changeover contact	CRINT-C1x2		16

CRINT Product Key

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

1. Product family

CRINT

2. Type

C = Combined version (Socket and Relay)

3. Contact

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

4. Connection type

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

5. Output

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

6. Options

- = Standard version
- R = Railway version

7. Supply voltage

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

8. Nominal voltage

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

RELAY Only

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

1. Product family

CRINT

2. Type

R = Relay

4. Control voltage

DC

5. Rated control voltage

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

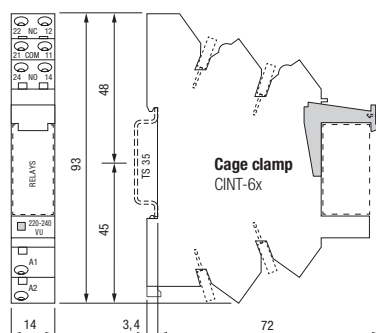
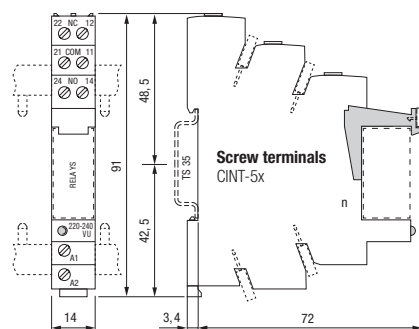
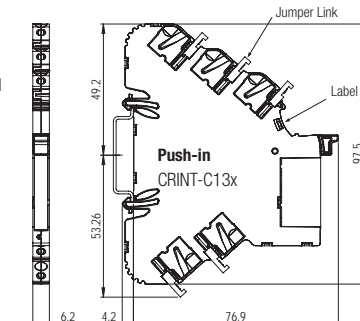
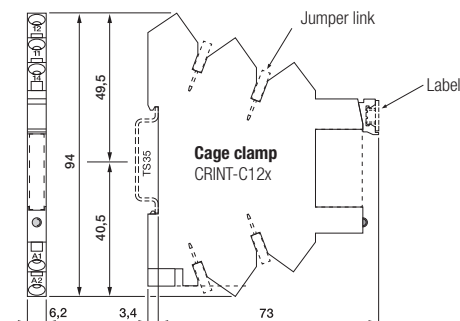
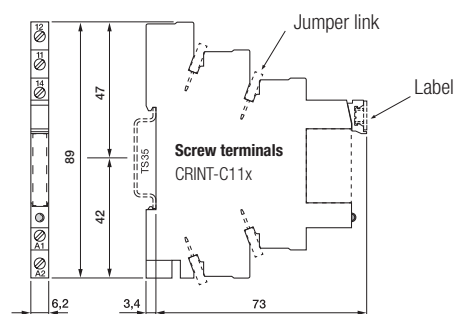
3. Contact

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

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

CRINT-C1xx & CINT-C5x/C6x

Dimension (mm)



1.2 Interface Relays

CRINT-C1x1

1 pole | changeover contact

Main circuit

Available contact materials	AgSnO ₂
Recommended minimum contact load	10 mA / 5 V
Maximum contact load AC	6 A / 250 V AC-1
Maximum contact load DC	6 A / 30 V DC-1
Inrush current	15 A, 2.5 ms
AC load	1500 VA
DC load	fig. 3.
Rated current	6 A
Mechanical endurance (cycles)	≥ 1 000 000
Electrical endurance at rated load AC-1 (cycles)	≥ 10 000

Control circuit

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

Insulation

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

General data

Ambient temperature storage (no ice)	-40 ... 85 °C
Ambient temperature operation	-40 ... 70 °C
Pick-up time / bounce time	7 ms / ≤ 8 ms
Release time / bounce time	15 ms / ≤ 4 ms
Conductor cross section screw terminal	2.5 mm ²
Conductor cross section spring cage	0.75 ... 2.5 mm ²
Protection degree	IP 20
Mounting	TH 35 (EN 60715)
Dimension	fig. 4.
Weight	30 g
Housing material	PA

Product references

Description	Type (x refers to contact material)	12	24	48	60	110-125	220-240
Screw terminal	CRINT-C111/UC...V	✓	✓	✓	✓	✓	✓
Cage clamp terminal	CRINT-C121/UC...V	✓	✓	✓	✓	✓	✓
Push-in	CRINT-C131/UC...V		✓				

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

Accessories

Jumper link blue	CRINT-BR20-BU (BAG 5 PCS)
Jumper link red	CRINT-BR20-RD (BAG 5 PCS)
Jumper link black	CRINT-BR20-BK (BAG 5 PCS)
Label plate	CRINT-LAB (BAG 4X16 PCS)
Spacer	CRINT-SEP (BAG 5 PCS)
Marking strip	BS11-PI (50m tape)

Replacement relays

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

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

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



fig. 1. Wiring diagram

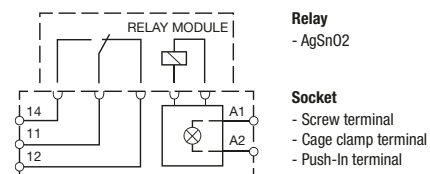


fig. 2. AC voltage endurance

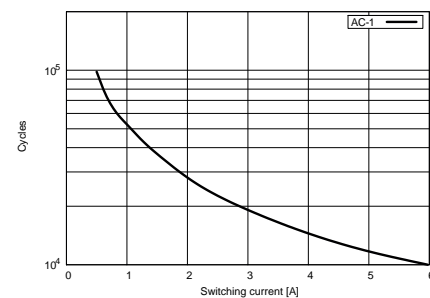


fig. 3. DC load limit curve

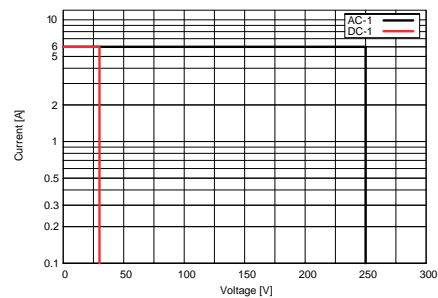
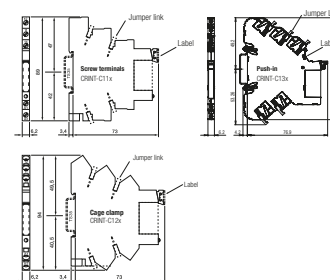


fig. 4. Dimension (mm)



Technical approvals, conformities

Standards IEC/EN 61810-1

Approvals CE cULus ENEC

1.2 Interface Relays

CRINT-C1x2

1 pole | changeover contact

Main circuit

Available contact materials	AgSnO ₂ + 3 μ Au
Recommended minimum contact load	1 mA / 1 V
Maximum contact load AC	6 A / 250 V AC-1
Maximum contact load DC	6 A / 30 V DC-1
Inrush current	15 A, 2.5 ms
AC load	1500 VA
DC load	fig. 3.
Rated current	6 A
Mechanical endurance (cycles)	≥ 1 000 000
Electrical endurance at rated load AC-1 (cycles)	≥ 10 000

Control circuit

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

Insulation

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

General data

Ambient temperature storage (no ice)	-40 ... 85 °C
Ambient temperature operation	-40 ... 70 °C
Pick-up time / bounce time	7 ms / ≤ 8 ms
Release time / bounce time	15 ms / ≤ 4 ms
Conductor cross section screw terminal	2.5 mm ²
Conductor cross section spring cage	0.75 ... 2.5 mm ²
Protection degree	IP 20
Mounting	TH 35 (EN 60715)
Dimension	fig. 4.
Weight	30 g
Housing material	PA

Product references

Description	Type (x refers to contact material)	12	24	48	60	110-125	220-240
Screw terminal	CRINT-C112/UC...V	✓	✓	✓	✓	✓	✓
Cage clamp terminal	CRINT-C122/UC...V	✓	✓	✓	✓	✓	✓

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

Accessories

Jumper link blue	CRINT-BR20-BU (BAG 5 PCS)
Jumper link red	CRINT-BR20-RD (BAG 5 PCS)
Jumper link black	CRINT-BR20-BK (BAG 5 PCS)
Label plate	CRINT-LAB (BAG 4X16 PCS)
Spacer	CRINT-SEP (BAG 5 PCS)
Marking strip	BS11-PI (50m tape)

Replacement relays

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

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

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



fig. 1. Wiring diagram

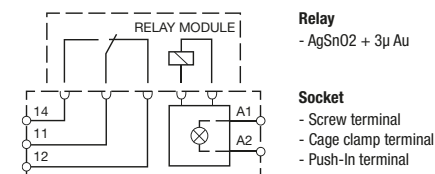


fig. 2. AC voltage endurance

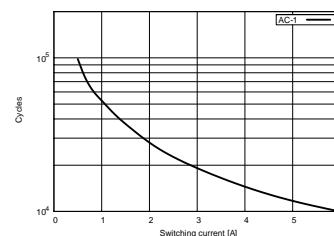


fig. 3. DC load limit curve

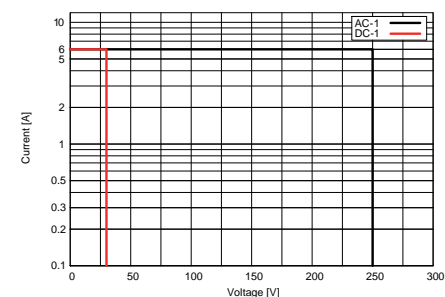
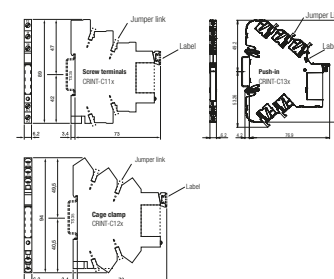


fig. 4. Dimension (mm)



















Technical approvals, conformities

Standards IEC/EN 61810-1

Approvals

1.3 Industrial Relays - pluggable

	Type	Pin	Page
C2 Series			
2 pole changeover contact	C2-A2x		19
C3 Series / R3 Series			
3 pole changeover contact	C3-A3x		20
C4 Series / R4 Series			
4 pole changeover contact faston	C4-A4x		21
C5 Series			
2 pole changeover contact faston	C5-A20		22
3 pole changeover contact faston	C5-A3x		23
1 pole normally open serial contact with blow magnet faston	C5-M10		24
C7 Series / R7 Series			
1 pole changeover contact faston	C7-A10		25
2 pole changeover contact faston	C7-A2x		26
2 pole normally open contact faston	C7-G20		27
2 pole changeover power and twin contact faston	C7-H23		28
2 pole changeover twin contact faston	C7-T2x		29
1 pole normally open tungsten pre-contact faston	C7-W10		30
1 pole normally open serial contact faston	C7-X10		31
C9 Series / R9 Series			

	Type	Pin	Page
4 pole changeover contact faston	C9-A4x		32
2 pole changeover contact sensitive coil faston	C9-E21		33
2 pole changeover contact remanence faston	C9-R21		34

Main circuit

Available contact materials

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

Recommended minimum contact load

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

Maximum contact load AC

10 A / 250 V AC-1

Maximum contact load DC

10 A / 30 V DC-1

Inrush current

30 A, 20 ms

AC load

2500 VA

DC load

fig. 3.

Rated current

10 A

Mechanical endurance (cycles)

≥ 20 000 000

Electrical endurance at rated load AC-1 (cycles)

≥ 500 000

Control circuit

Nominal voltage

see table product references

Operating voltage range

 $0.8 U_N \dots 1.1 U_N$

Pick-up voltage

 $\leq 0.8 U_N$

Release voltage

 $\geq 0.1 U_N$

Power consumption AC / DC

2.2 VA / 1.3 W

Coil table

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

Insulation

Test voltage open contact

1 kV / 1 min

Test voltage contact / contact

2.5 kV / 1 min

Test voltage contact / coil

2.5 kV / 1 min

Pollution degree

3

Overvoltage category

III

Insulation resistance at 500 V

≥ 1 GΩ

General data

Ambient temperature storage (no ice)

-40 ... 80 °C

Ambient temperature operation

-40 ... 70 °C

Pick-up time / bounce time

16 ms / ≤ 3 ms

Release time / bounce time

8 ms / ≤ 1 ms

Maximum switching frequency at rated load

1200 / h

Dimension

fig. 4.

Weight

79 g

Housing material

PA / PC

Product references

Description	Type (x refers to contact material)	12	24	48	110	115	120	220	230
AC / DC bridge rectifier & LED	C2-A2xBX/UC.V		✓	✓					
AC 50 Hz	C2-A20/AC.V		✓						
AC 50 Hz	C2-A2x/AC.V	✓	✓	✓		✓	✓		✓
RC Suppressor	C2-A2xR/AC.V		✓			✓			✓
LED	C2-A2xX/AC.V	✓	✓	✓		✓	✓		✓
DC	C2-A20/DC.V		✓						
LED & Polarity & Free wheeling diode	C2-A28FX/DC.V				✓				
DC	C2-A2x/DC.V	✓	✓	✓	✓			✓	
LED & Free wheeling diode	C2-A2xDX/DC.V	✓	✓	✓	✓			✓	
LED & Polarity & Free wheeling diode	C2-A2FX/DC.V	✓	✓	✓	✓		✓	✓	
LED	C2-A2xX/DC.V	✓	✓	✓	✓				✓

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

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

Accessories

Socket

S2-B R

Blanking plug

S0-NP (BAG 10PCS)



fig. 1. Wiring diagram

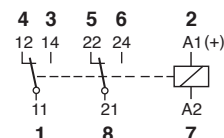


fig. 2. AC voltage endurance

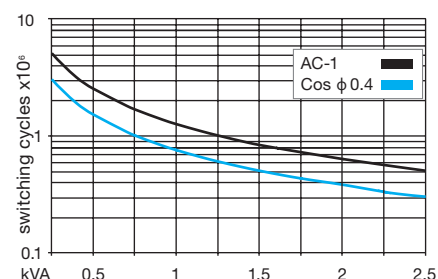


fig. 3. DC load limit curve

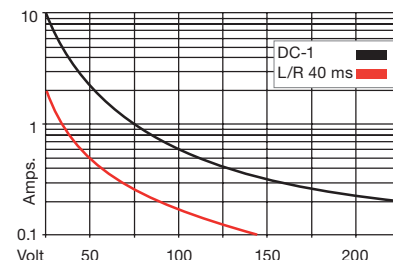
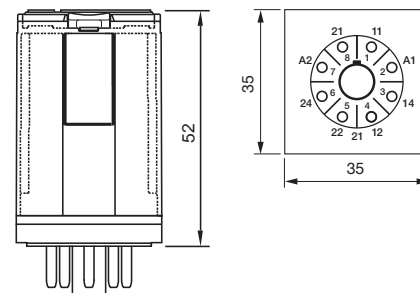


fig. 4. Dimension (mm)

**Technical approvals, conformities**

Standards IEC/EN 60947; IEC/EN 61810

Approvals

1.3 Industrial Relays - pluggable

C3-A3x

3 pole | changeover contact

Main circuit

Available contact materials

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

Recommended minimum contact load

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

Maximum contact load AC

10 A / 250 V AC-1

Maximum contact load DC

10 A / 30 V DC-1

Inrush current

30 A, 20 ms

AC load

2500 VA

DC load

fig. 3.

Rated current

10 A

Mechanical endurance (cycles)

≥ 20 000 000

Electrical endurance at rated load AC-1 (cycles)

≥ 500 000

Control circuit

Nominal voltage

see table product references

Operating voltage range

0.8 U_N ... 1.1 U_N

Pick-up voltage

≤ 0.8 U_N

Release voltage

≥ 0.1 U_N

Power consumption AC / DC

2.2 VA / 1.3 W

Coil table

V AC	Ohm	mA	V DC	Ohm	mA
12	16	185	12	115	104
24	67	96	24	480	50
230	7 078	10	110	9 216	12
			220	38 720	5.7

Insulation

Test voltage open contact

1 kV / 1 min

Test voltage contact / contact

2.5 kV / 1 min

Test voltage contact / coil

2.5 kV / 1 min

Pollution degree

3

Overtoltage category

III

Insulation resistance at 500 V

≥ 1 GΩ

General data

Ambient temperature storage (no ice)

-40 ... 80 °C

Ambient temperature operation

-40 ... 70 °C

Pick-up time / bounce time

16 ms / ≤ 3 ms

Release time / bounce time

8 ms / ≤ 1 ms

Maximum switching frequency at rated load

1200 / h

Dimension

fig. 4.

Weight

81 g

Housing material

PA / PC

Product references

Description	Type (x refers to contact material)	12	24	110	120	220	230	240
AC / DC bridge rectifier & LED	C3-A3xBX/UC...V	✓	✓					
AC 50 Hz	C3-A3x/AC...V	✓	✓	✓			✓	✓
RC Suppressor	C3-A3xR/AC...V		✓				✓	
LED	C3-A3xX/AC...V	✓	✓	✓			✓	✓
DC	C3-A3x/DC...V	✓	✓	✓		✓		
LED & Free wheeling diode	C3-A3xDX/DC...V	✓	✓	✓				✓
LED & Polarity & Free wheeling diode	C3-A3xFX/DC...V	✓	✓	✓				✓
LED	C3-A3xX/DC...V	✓	✓	✓	✓			

Accessories

Socket

S3-B R
S3-S R
S3-M
S3-M0
S3-M1
S0-NP (BAG 10PCS)

Blanking plug



fig. 1. Wiring diagram

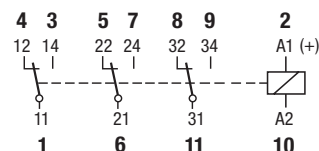


fig. 2. AC voltage endurance

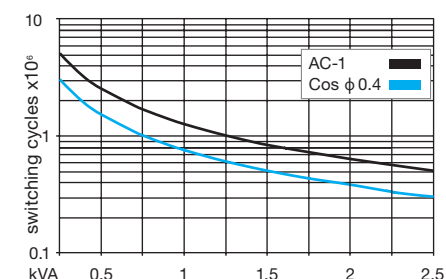


fig. 3. DC load limit curve

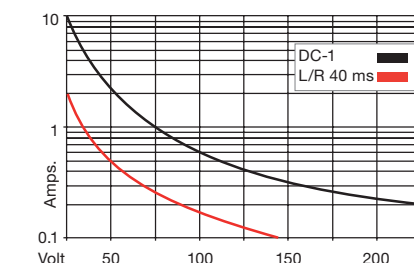
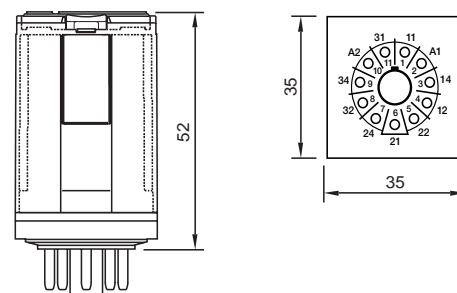


fig. 4. Dimension (mm)



Technical approvals, conformities

Standards IEC/EN 60947; IEC/EN 61810

Approvals CE cULus R EAC CCC

C4-A4x**4 pole | changeover contact | faston****Main circuit**

Available contact materials

- ⚡ AgNi for C4-A40
- ⚡ AgNi + 5 μ Au for C4-A48

Recommended minimum contact load

10 mA / 5 V for C4-A40
5 mA / 5 V for C4-A48

Maximum contact load AC

10 A / 250 V AC-1

Maximum contact load DC

10 A / 30 V DC-1

Inrush current

30 A, 20 ms

AC load

2500 VA

DC load

fig. 3.

Rated current

10 A

Mechanical endurance (cycles)

≥ 20 000 000

Electrical endurance at rated load AC-1 (cycles)

≥ 500 000

Control circuit

Nominal voltage

see table product references

Operating voltage range

0.8 U_N ... 1.1 U_N

Pick-up voltage

≤ 0.8 U_N

Release voltage

≥ 0.1 U_N

Power consumption AC / DC

2.4 VA / 1.4 W

Coil table

V AC	Ohm	mA	V DC	Ohm	mA
24	65	103	12	105	115
230	6 850	10.4	24	414	58
			42	1 290	33
			48	1 664	29
			110	8 117	14

Insulation

Test voltage open contact

1 kV / 1 min

Test voltage contact / contact

2.5 kV / 1 min

Test voltage contact / coil

2.5 kV / 1 min

Pollution degree

3

Overvoltage category

III

Insulation resistance at 500 V

≥ 1 GΩ

General data

Ambient temperature storage (no ice)

-40 ... 80 °C

Ambient temperature operation

-40 ... 60 °C

Pick-up time / bounce time

20 ms / ≤ 3 ms

Release time / bounce time

8 ms / ≤ 1 ms

Maximum switching frequency at rated load

1200 / h

Dimension

fig. 4.

Weight

90 g

Housing material

PA / PC

Product references

Description	Type (x refers to contact material)	12	24	48	110	230
AC / DC bridge rectifier & LED	C4-A4xBX/UC..V	✓	✓			
AC 50 Hz	C4-A4x/AC..V	✓	✓			✓
AC 50 Hz	C4-A4xR/AC..V		✓			✓
LED	C4-A4xX/AC..V	✓	✓			✓
DC	C4-A4x/DC..V	✓	✓	✓	✓	
LED & Free wheeling diode	C4-A4DX/DC.V	✓	✓		✓	
LED & Polarity & Free wheeling diode	C4-A4FX/DC..V	✓	✓		✓	
LED	C4-A4xX/DC..V	✓	✓		✓	

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

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

Accessories

Socket

S4-J R

S4-L

S4-P

Blanking plug

S0-NP (BAG 10PCS)

Wall mounting adapter

S5-R (BAG 5 PCS)

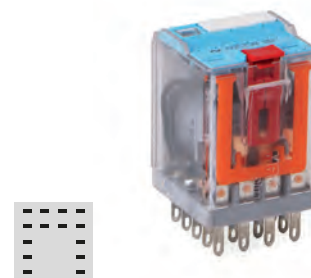


fig. 1. Wiring diagram

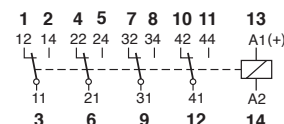


fig. 2. AC voltage endurance

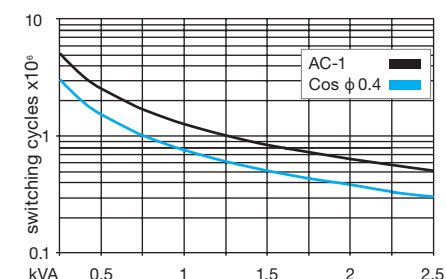


fig. 3. DC load limit curve

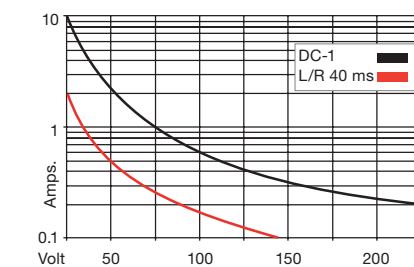
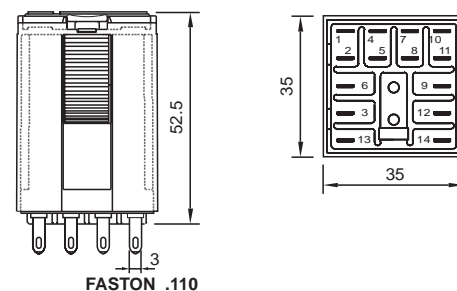


fig. 4. Dimension (mm)

**Technical approvals, conformities**

Standards IEC/EN 60947; IEC/EN 61810

Approvals



1.3 Industrial Relays - pluggable

C5-A20

2 pole | changeover contact | faston

Main circuit

Available contact materials	AgNi
Recommended minimum contact load	10 mA / 10 V
Maximum contact load AC	16 A / 400 V AC-1
Maximum contact load DC	16 A / 30 V DC-1
Inrush current	40 A, 20 ms
AC load	4000 VA
DC load	fig. 3.
Rated current	16 A
Mechanical endurance (cycles)	≥ 20 000 000
Electrical endurance at rated load AC-1 (cycles)	≥ 300 000

Control circuit

Nominal voltage	see table product references
Operating voltage range	$0.8 U_N \dots 1.1 U_N$
Pick-up voltage	$\leq 0.8 U_N$
Release voltage	$\geq 0.1 U_N$
Power consumption AC / DC	2.4 VA / 1.4 W

Coil table

V AC	Ohm	mA	V DC	Ohm	mA
12	15.6	769	12	105	115
24	65	100	24	414	58
230	6 800	10	110	8 117	14

Insulation

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

General data

Ambient temperature storage (no ice)	-40 ... 80 °C
Ambient temperature operation	-40 ... 60 °C
Pick-up time / bounce time	20 ms / ≤ 3 ms
Release time / bounce time	10 ms / ≤ 1 ms
Maximum switching frequency at rated load	1200 / h
Dimension	fig. 4.
Weight	90 g
Housing material	PA / PC

Product references

Description	Type	12	24	110	230
AC / DC bridge rectifier & LED	C5-A20BX/UC.V		✓		
AC 50 Hz	C5-A20/AC.V	✓	✓		
RC Suppressor	C5-A20R/AC.V			✓	✓
LED	C5-A20X/AC.V	✓	✓		
DC	C5-A20/DC.V	✓	✓	✓	
LED & Free wheeling diode	C5-A20DX/DC.V	✓	✓		
LED & Polarity & Free wheeling diode	C5-A20FX/DC.V			✓	
LED	C5-A20X/DC.V	✓	✓	✓	

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

Accessories

Socket	S5-M R S5-P R
Blanking plug	S0-NP (BAG 10PCS)
Wall mounting adapter	S5-R (BAG 5 PCS)



fig. 1. Wiring diagram

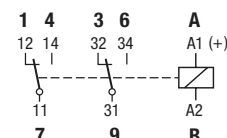


fig. 2. AC voltage endurance

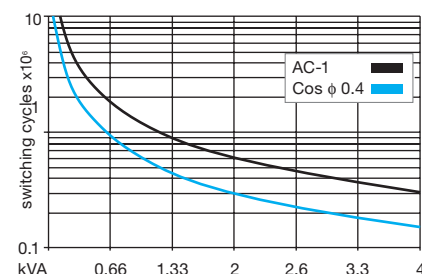


fig. 3. DC load limit curve

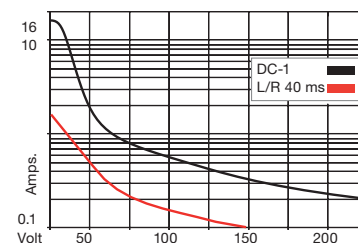
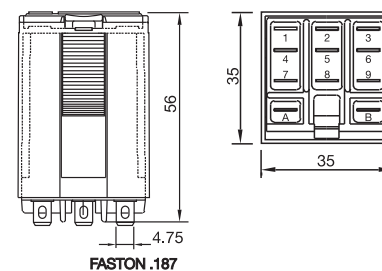


fig. 4. Dimension (mm)



Technical approvals, conformities

Standards IEC/EN 60947; IEC/EN 61810



Main circuit

Available contact materials

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

Recommended minimum contact load	10 mA / 10 V
Maximum contact load AC	16 A / 400 V AC-1
Maximum contact load DC	16 A / 30 V DC-1
Inrush current	40 A, 20 ms
AC load	4000 VA
DC load	fig. 3.
Rated current	16 A
Mechanical endurance (cycles)	≥ 20 000 000
Electrical endurance at rated load AC-1 (cycles)	≥ 300 000

Control circuit

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

Coil table

V AC	Ohm	mA	V DC	Ohm	mA
12	15.6	769	12	111	109
24	65	100	24	443	58
230	6 800	10	110	9 216	13

Insulation

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

General data

Ambient temperature storage (no ice)	-40 ... 80 °C
Ambient temperature operation	-40 ... 60 °C
Pick-up time / bounce time	20 ms / ≤ 3 ms
Release time / bounce time	10 ms / ≤ 1 ms
Maximum switching frequency at rated load	1200 / h
Dimension	fig. 4.
Weight	95 g
Housing material	PA / PC

Product references

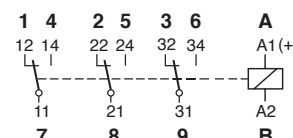
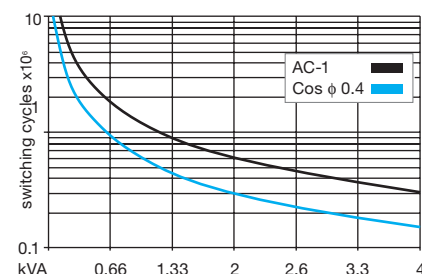
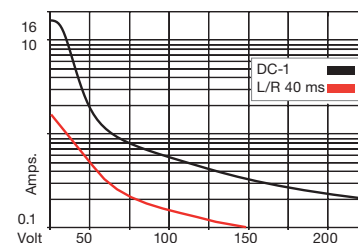
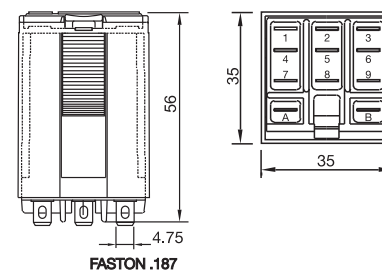
Description	Type (x refers to contact material)	12	24	110	230	240
AC / DC bridge rectifier & LED	C5-A3xBX/UC..V	✓	✓			
AC 50 Hz	C5-A3x/AC..V	✓	✓		✓	✓
RC Suppressor	C5-A3xR/AC.V		✓		✓	
LED	C5-A3xX/AC..V		✓			✓
DC	C5-A3x/DC..V	✓	✓	✓		
LED & Free wheeling diode	C5-A3xDX/DC.V	✓	✓	✓		
LED & Polarity & Free wheeling diode	C5-A3xFX/DC..V	✓	✓	✓		
LED	C5-A3xX/DC..V	✓	✓	✓		

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

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

Accessories

Socket	S5-M R
	S5-P R
Blanking plug	S0-NP (BAG 10PCS)
Wall mounting adapter	S5-R (BAG 5 PCS)

**fig. 1. Wiring diagram****fig. 2. AC voltage endurance****fig. 3. DC load limit curve****fig. 4. Dimension (mm)****Technical approvals, conformities**

Standards IEC/EN 60947; IEC/EN 61810

Approvals

C5-M10**1 pole | normally open serial contact with blow magnet | faston****Main circuit**

Available contact materials	AgNi
Recommended minimum contact load	10 mA / 10 V
Maximum contact load AC	16 A / 400 V AC-1
Maximum contact load DC	10 A / 220 V DC-1
Inrush current	40 A, 20 ms
AC load	4000 VA
DC load	2200 W
Rated current	16 A
Mechanical endurance (cycles)	≥ 20 000 000
Electrical endurance at rated load AC-1 (cycles)	≥ 300 000

Control circuit

Nominal voltage	see table product references
Operating voltage range	$0.8 U_N \dots 1.1 U_N$
Pick-up voltage	$\leq 0.8 U_N$
Release voltage	$\geq 0.1 U_N$
Power consumption AC / DC	2.4 VA / 1.3 W

Coil table

V AC	Ohm	mA	V DC	Ohm	mA
24	65	100	12	111	109
48	286	50	24	443	55
115	1 700	21	48	1 796	27
230	6 800	10	60	2 829	22
			110	9 216	12
			220	36 155	7

Insulation

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

General data

Ambient temperature storage (no ice)	-40 ... 80 °C
Ambient temperature operation	-40 ... 60 °C
Pick-up time / bounce time	20 ms / ≤ 3 ms
Release time / bounce time	10 ms / ≤ 1 ms
Maximum switching frequency at rated load	1200 / h
Dimension	fig. 4.
Weight	90 g
Housing material	PA / PC

Product references

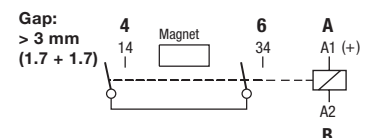
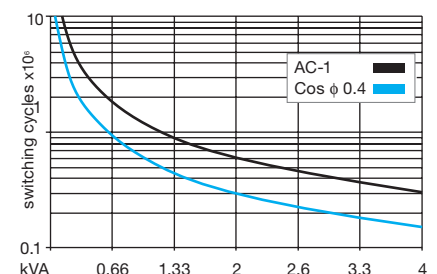
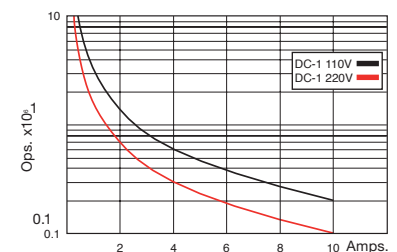
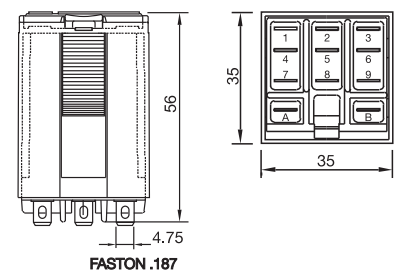
Description	Type	12	24	48	60	110	115	220	230
AC 50 Hz	C5-M10/AC..V		✓				✓		✓
RC Suppressor	C5-M10R/AC..V			✓					
LED	C5-M10X/AC..V		✓				✓		✓
DC	C5-M10/DC..V	✓	✓	✓		✓		✓	
LED & Free wheeling diode	C5-M10DX/DC..V	✓	✓	✓	✓	✓		✓	
LED & Polarity & Free wheeling diode	C5-M10FX/DC..V		✓	✓		✓		✓	
LED	C5-M10X/DC..V	✓	✓	✓		✓		✓	

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

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

Accessories

Socket	S5-M R
	S5-P R
Blanking plug	SO-NP (BAG 10PCS)
Wall mounting adapter	S5-R (BAG 5 PCS)

**fig. 1. Wiring diagram****fig. 2. AC voltage endurance****fig. 3. DC load limit curve****fig. 4. Dimension (mm)****Technical approvals, conformities**

Standards IEC/EN 60947; IEC/EN 61810

Approvals

Main circuit

Available contact materials	AgNi
Recommended minimum contact load	10 mA / 10 V
Maximum contact load AC	16 A / 250 V AC-1
Maximum contact load DC	16 A / 24 V DC-1
Inrush current	40 A, 20 ms
AC load	4000 VA
DC load	fig. 3.
Rated current	16 A
Mechanical endurance (cycles)	≥ 10 000 000
Electrical endurance at rated load AC-1 (cycles)	≥ 300 000 / ≥ 100 000

Control circuit

Nominal voltage	see table product references
Operating voltage range	$0.8 U_N \dots 1.1 U_N$
Pick-up voltage	$\leq 0.8 U_N$
Release voltage	$\geq 0.1 U_N$
Power consumption AC / DC	1.2 VA / 1.3 W

Coil table

V AC	Ohm	mA	V DC	Ohm	mA
12	42	122	12	158	76
24	166	59	24	632	38
230	15 248	6.7	110	13 286	8

Insulation

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

General data

Ambient temperature storage (no ice)	-40 ... 80 °C
Ambient temperature operation	-40 ... 60 °C
Pick-up time / bounce time	16 ms / ≤ 3 ms
Release time / bounce time	8 ms / ≤ 1 ms
Maximum switching frequency at rated load	1200 / h
Dimension	fig. 4.
Weight	43 g
Housing material	PA / PC

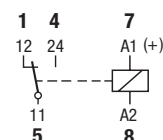
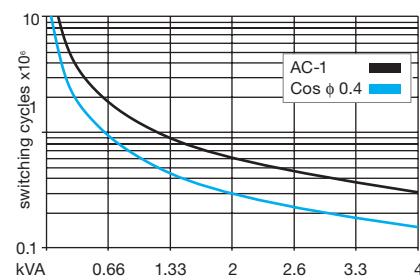
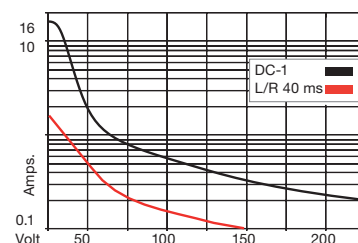
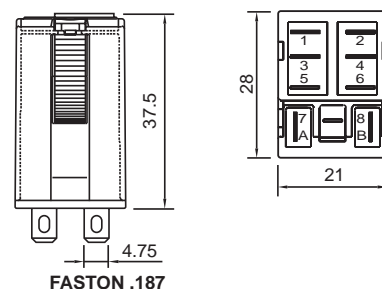
Product references

Description	Type	12	24	110	230	240
LED	C7-A10X/AC...V	✓	✓		✓	✓
LED & Free wheeling diode	C7-A10DX/DC...V		✓			
LED & Polarity & Free wheeling diode	C7-A10FX/DC...V	✓	✓			
LED	C7-A10X/DC...V	✓	✓	✓		

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

Accessories

Socket	S7-C R S7-I0 R S7-P S7-PI
Push-in socket	S9-NP (BAG 10 PCS)
Blanking plug	S9-OP (BAG 10 PCS)
Test Button w/o locking for C7/C9	

**fig. 1. Wiring diagram****fig. 2. AC voltage endurance****fig. 3. DC load limit curve****fig. 4. Dimension (mm)****Technical approvals, conformities**

Standards IEC/EN 60947; IEC/EN 61810

Approvals

1.3 Industrial Relays - pluggable

C7-A2x

2 pole | changeover contact | faston

Main circuit

Available contact materials

- ⚡ AgNi for C7-A20
- ⚡ AgNi + 5 µ Au for C7-A28

Recommended minimum contact load

10 mA / 10 V for C7-A20
1 mA / 1 V for C7-A28

Maximum contact load AC

10 A / 250 V AC-1

Maximum contact load DC

10 A / 24 V DC-1

Inrush current

30 A, 20 ms

AC load

2500 VA

DC load

fig. 3.

Rated current

10 A

Mechanical endurance (cycles)

≥ 10 000 000

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

≥ 300 000 / ≥ 100 000

Control circuit

Nominal voltage

see table product references

Operating voltage range

0.8 U_N ... 1.1 U_N

Pick-up voltage

≤ 0.8 U_N

Release voltage

≥ 0.1 U_N

Power consumption AC / DC

1.2 VA / 1 W

Coil table

V AC	Ohm	mA	V DC	Ohm	mA
12	42	122	12	158	76
24	166	59	24	632	38
48	644	0	48	2 530	19
115	3 812	12.5	60	3 953	15
230	15 248	6.7	110	13 286	8
			220	53 146	4

Insulation

Test voltage open contact

1 kV / 1 min

Test voltage contact / contact

2.5 kV / 1 min

Test voltage contact / coil

2.5 kV / 1 min

Pollution degree

3

Overvoltage category

III

Insulation resistance at 500 V

≥ 1 GΩ

General data

Ambient temperature storage (no ice)

-40 ... 80 °C

Ambient temperature operation

-40 ... 60 °C

Pick-up time / bounce time

16 ms / ≤ 3 ms

Release time / bounce time

8 ms / ≤ 1 ms

Maximum switching frequency at rated load

1200 / h

Dimension

fig. 4.

Weight

43 g

Housing material

PA / PC

Product references

Description	Type (x refers to contact material)	12	24	48	60	110	115	220	230
AC / DC bridge rectifier & LED	C7-A2xBX/UC...V	✓	✓	✓	✓				
AC 50 Hz	C7-A2x/AC...V	✓	✓				✓		✓
LED	C7-A2xX/AC...V	✓	✓	✓			✓		✓
DC	C7-A2x/DC...V	✓	✓	✓	✓	✓		✓	
LED & Free wheeling diode	C7-A2xDX/DC...V		✓						
LED & Polarity & Free wheeling diode	C7-A2xFX/DC...V	✓	✓	✓					
LED	C7-A2xX/DC...V	✓	✓	✓	✓	✓		✓	

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

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

Accessories

Socket

S7-C R

S7-IO R

S7-P

Push-in socket

S7-PI

Blanking plug

S9-NP (BAG 10 PCS)

Test Button w/o locking for C7/C9

S9-OP (BAG 10 PCS)



fig. 1. Wiring diagram

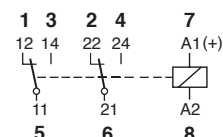


fig. 2. AC voltage endurance

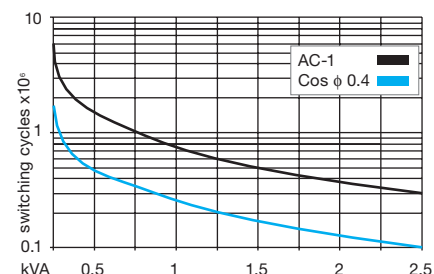


fig. 3. DC load limit curve

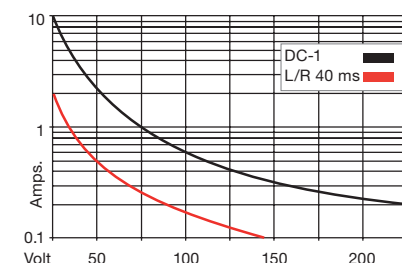
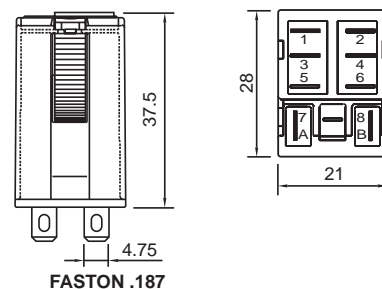


fig. 4. Dimension (mm)



Technical approvals, conformities

Standards IEC/EN 60947; IEC/EN 61810

Approvals

C7-G20**2 pole | normally open contact | faston****Main circuit**

Available contact materials	AgNi
Recommended minimum contact load	10 mA / 10 V
Maximum contact load AC	10 A / 250 V AC-1
Maximum contact load DC	10 A / 30 V DC-1
Inrush current	30 A, 20 ms
AC load	2500 VA
DC load	fig. 3.
Rated current	10 A
Mechanical endurance (cycles)	≥ 10 000 000
Electrical endurance at rated load AC-1 / DC-1 (cycles)	≥ 300 000 / ≥ 100 000

Control circuit

Nominal voltage	see table product references
Operating voltage range	$0.8 U_N \dots 1.1 U_N$
Pick-up voltage	$\leq 0.8 U_N$
Release voltage	$\geq 0.1 U_N$
Power consumption AC / DC	1.5 VA / 1.5 W

Coil table

V AC	Ohm	mA	V DC	Ohm	mA
24	166	59	12	95	127
48	664	0	24	379	63
115	3 812	12.5	48	1 518	30
230	15 248	6.7	72	5 692	13
			110	7 973	14
			220	53 146	4

Insulation

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

General data

Ambient temperature storage (no ice)	-40 ... 80 °C
Ambient temperature operation	-40 ... 60 °C
Pick-up time / bounce time	20 ms / ≤ 3 ms
Release time / bounce time	10 ms / ≤ 1 ms
Maximum switching frequency at rated load	1200 / h
Dimension	fig. 4.
Weight	43 g
Housing material	PA / PC

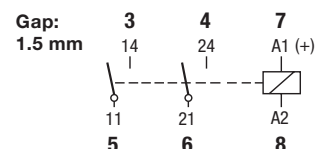
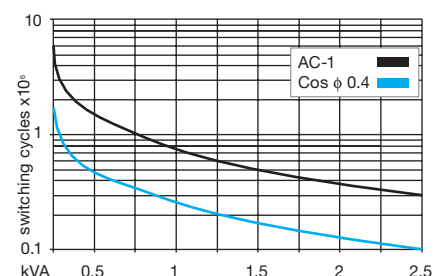
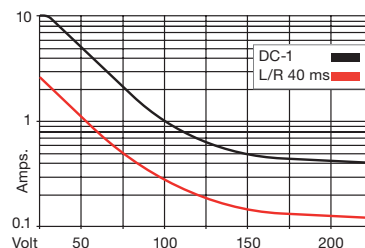
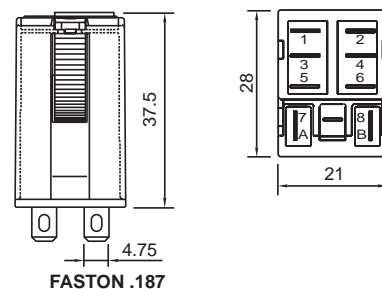
Product references

Description	Type	12	24	48	72	110	115	120	230
AC 50 Hz	C7-G20/AC...V		✓					✓	
LED	C7-G20X/AC...V			✓			✓	✓	✓
DC	C7-G20/DC...V	✓	✓	✓	✓	✓			
LED & Free wheeling diode	C7-G20DX/DC...V		✓						
LED & Polarity & Free wheeling diode	C7-G20FX/DC...V		✓	✓		✓			
LED	C7-G20X/DC...V	✓	✓	✓		✓		✓	

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

Accessories

Socket	S7-C R S7-IO R S7-P
Push-in socket	S7-PI
Blanking plug	S9-NP (BAG 10 PCS)
Test Button w/o locking for C7/C9	S9-OP (BAG 10 PCS)

**fig. 1. Wiring diagram****fig. 2. AC voltage endurance****fig. 3. DC load limit curve****fig. 4. Dimension (mm)****Technical approvals, conformities**

Standards IEC/EN 60947; IEC/EN 61810

Approvals

Main circuit

Available contact materials

⚡ AgNi = Power contact

⚡ AgNi + 5 µ Au = Twin contact

Recommended minimum contact load

10 mA / 10 V on power contact

5 mA / 5 V on twin contact

Maximum contact load AC

10 A / 250 V AC-1

Maximum contact load DC

10 A / 30 V DC-1

Inrush current

30 A, 20 ms

AC load

2500 VA

DC load

fig. 3.

Rated current

10 A

Mechanical endurance (cycles)

≥ 10 000 000

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

≥ 300 000 / ≥ 100 000

Control circuit

Nominal voltage

see table product references

Operating voltage range

0.8 U_N ... 1.1 U_N

Pick-up voltage

≤ 0.8 U_N

Release voltage

≥ 0.1 U_N

Power consumption AC / DC

1.2 VA / 1 W

Coil table

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

Insulation

Test voltage open contact

1 kV / 1 min

Test voltage contact / contact

2.5 kV / 1 min

Test voltage contact / coil

2.5 kV / 1 min

Pollution degree

3

Overvoltage category

III

Insulation resistance at 500 V

≥ 1 GΩ

General data

Ambient temperature storage (no ice)

-40 ... 80 °C

Ambient temperature operation

-40 ... 60 °C

Pick-up time / bounce time

16 ms / ≤ 3 ms

Release time / bounce time

8 ms / ≤ 1 ms

Maximum switching frequency at rated load

1200 / h

Dimension

fig. 4.

Weight

43 g

Housing material

PA / PC

Product references

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

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

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

Accessories

Socket

S7-C R

S7-IO R

S7-P

S7-PI

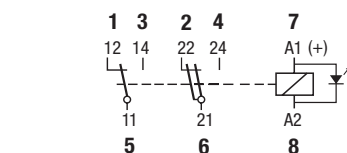
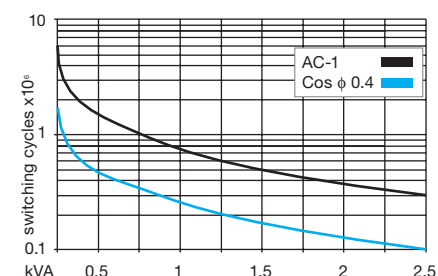
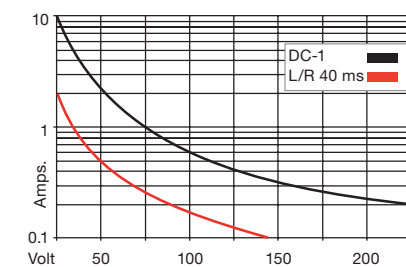
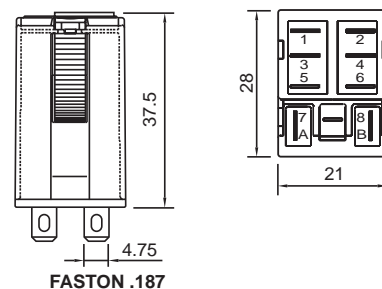
Push-in socket

S9-NP (BAG 10 PCS)

Blanking plug

S9-OP (BAG 10 PCS)

Test Button w/o locking for C7/C9


**fig. 1. Wiring diagram****fig. 2. AC voltage endurance****fig. 3. DC load limit curve****fig. 4. Dimension (mm)****Technical approvals, conformities**


Standards IEC/EN 60947; IEC/EN 61810

Approvals

C7-T2x**2 pole | changeover twin contact | faston****Main circuit**

Available contact materials

 AgNi + 0.2 μ Au for C7-T21

 AgNi + 5 μ Au for C7-T22

Recommended minimum contact load

5 mA / 5 V for C7-T21

1 mA / 1 V for C7-T22

Maximum contact load AC

6 A / 250 V AC-1

Maximum contact load DC

6 A / 30 V DC-1

Inrush current

15 A, 20 ms

AC load

1200 VA

DC load

fig. 3.

Rated current

6 A

Mechanical endurance (cycles)

≥ 10 000 000

Electrical endurance at rated load AC-1 (cycles)

≥ 150 000 / ≥ 100 000

Control circuit

Nominal voltage

see table product references

Operating voltage range

0.8 U_N ... 1.1 U_N

Pick-up voltage

≤ 0.8 U_N

Release voltage

≥ 0.1 U_N

Power consumption AC / DC

1.2 VA / 1 W

Coil table

V AC	Ohm	mA	V DC	Ohm	mA
12	42	122	12	158	76
24	166	59	24	632	38
48	664	0	48	2 530	19
115	3 812	12.5	110	13 286	8
230	15 248	6.7	220	53 146	4

Insulation

Test voltage open contact

1 kV / 1 min

Test voltage contact / contact

2.5 kV / 1 min

Test voltage contact / coil

2.5 kV / 1 min

Pollution degree

3

Overvoltage category

III

Insulation resistance at 500 V

≥ 1 GΩ

General data

Ambient temperature storage (no ice)

-40 ... 80 °C

Ambient temperature operation

-40 ... 60 °C

Pick-up time / bounce time

16 ms / ≤ 3 ms

Release time / bounce time

8 ms / ≤ 1 ms

Maximum switching frequency at rated load

1200 / h

Dimension

fig. 4.

Weight

43 g

Housing material

PA / PC

Product references

Description	Type (x refers to contact material)	12	24	48	110	115	220	230
AC / DC bridge rectifier & LED	C7-T2xBX/UC...V	✓	✓					
AC 50 Hz	C7-T2x/AC...V		✓			✓		✓
LED	C7-T2xX/AC...V	✓	✓			✓		✓
DC	C7-T2x/DC...V	✓	✓	✓	✓		✓	
LED & Free wheeling diode	C7-T2xDX/DC...V		✓					
LED & Polarity & Free wheeling diode	C7-T2xFX/DC...V	✓	✓	✓	✓		✓	
LED	C7-T2xX/DC...V	✓	✓	✓	✓		✓	

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

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

Accessories

Socket

S7-C R

S7-I0 R

S7-P

S7-PI

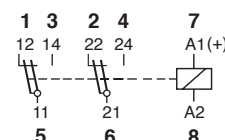
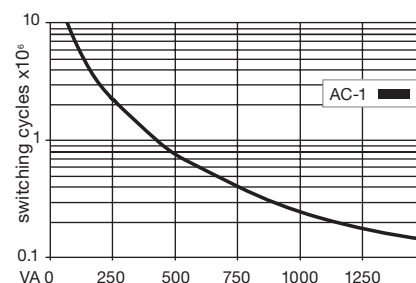
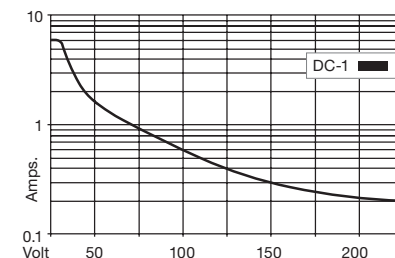
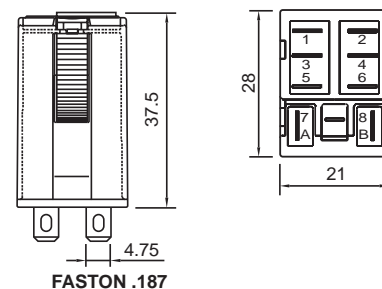
Push-in socket

Blanking plug

S9-NP (BAG 10 PCS)

Test Button w/o locking for C7/C9

S9-OP (BAG 10 PCS)

**fig. 1. Wiring diagram****fig. 2. AC voltage endurance****fig. 3. DC load limit curve****fig. 4. Dimension (mm)****Technical approvals, conformities**

Standards IEC/EN 60947; IEC/EN 61810

Approvals     

Main circuit

Available contact materials

⚡ Tungsten = Pre-contact

⚡ AgNi = Main contact

Recommended minimum contact load

10 mA / 10 V

Maximum contact load AC

10 A / 250 V AC-1

Inrush current

500 A, 2.5 ms

AC load

2500 VA

DC load

fig. 3.

Rated current

10 A

Mechanical endurance (cycles)

≥ 10 000 000

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

≥ 300 000 / ≥ 100 000

Control circuit

Nominal voltage

see table product references

Operating voltage range

 $0.8 U_N \dots 1.1 U_N$

Pick-up voltage

 $\leq 0.8 U_N$

Release voltage

 $\geq 0.1 U_N$

Power consumption AC / DC

1.5 VA / 1.5 W

Coil table

V AC	Ohm	mA	V DC	Ohm	mA
24	166	59	12	95	127
48	664	0	24	379	63
115	3 812	12.5	48	1 518	30
230	15 248	6.7			

Insulation

Test voltage open contact

1 kV / 1 min

Test voltage contact / coil

2.5 kV / 1 min

Pollution degree

3

Overvoltage category

III

Insulation resistance at 500 V

≥ 1 GΩ

General data

Ambient temperature storage (no ice)

-40 ... 80 °C

Ambient temperature operation

-40 ... 60 °C

Pick-up time / bounce time

20 ms / ≤ 3 ms

Release time / bounce time

10 ms / ≤ 1 ms

Maximum switching frequency at rated load

1200 / h

Dimension

fig. 4.

Weight

43 g

Housing material

PA / PC

Product references

Description	Type	12	24	48	60	115	230
AC / DC bridge rectifier & LED	C7-W10BX/UC...V		✓				
AC 50 Hz	C7-W10/AC...V			✓		✓	✓
LED	C7-W10X/AC...V						✓
DC	C7-W10/DC...V	✓		✓	✓		
LED & Polarity & Free wheeling diode	C7-W10FX/DC...V		✓				
LED	C7-W10X/DC...V	✓					

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

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

Accessories

Socket

S7-C R

S7-IO R

S7-P

S7-PI

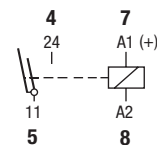
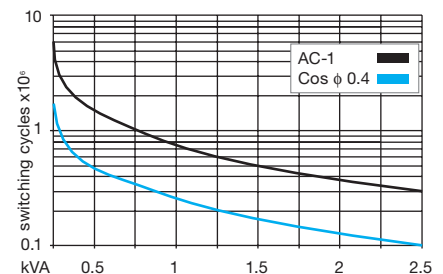
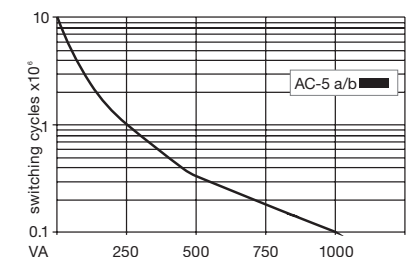
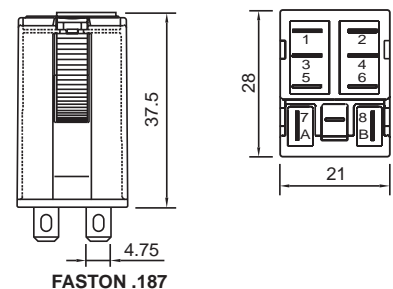
Push-in socket

S9-NP (BAG 10 PCS)

Blanking plug

S9-OP (BAG 10 PCS)

Test Button w/o locking for C7/C9

**fig. 1. Wiring diagram****fig. 2. AC voltage endurance****fig. 3. DC load limit curve****fig. 4. Dimension (mm)****Technical approvals, conformities**

Standards IEC/EN 60947; IEC/EN 61810

Approvals 

C7-X10**1 pole | normally open serial contact | faston****Main circuit**

Available contact materials	AgNi
Recommended minimum contact load	10 mA / 10 V
Maximum contact load AC	10 A / 250 V AC-1
Maximum contact load DC	10 A / 30 V DC-1
Inrush current	30 A, 20 ms
AC load	2500 VA
DC load	fig. 3.
Rated current	10 A
Mechanical endurance (cycles)	≥ 10 000 000
Electrical endurance at rated load AC-1 / DC-1 (cycles)	≥ 300 000 / ≥ 100 000

Control circuit

Nominal voltage	see table product references
Operating voltage range	$0.8 U_N \dots 1.1 U_N$
Pick-up voltage	$\leq 0.8 U_N$
Release voltage	$\geq 0.1 U_N$
Power consumption AC / DC	1.5 VA / 1.3 W

Coil table

V AC	Ohm	mA	V DC	Ohm	mA
24	166	59	12	95	127
230	15 248	6.7	24	379	63
			110	7 973	14

Insulation

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

General data

Ambient temperature storage (no ice)	-40 ... 80 °C
Ambient temperature operation	-40 ... 60 °C
Pick-up time / bounce time	20 ms / ≤ 3 ms
Release time / bounce time	10 ms / ≤ 1 ms
Maximum switching frequency at rated load	1200 / h
Dimension	fig. 4.
Weight	43 g
Housing material	PA / PC

Product references

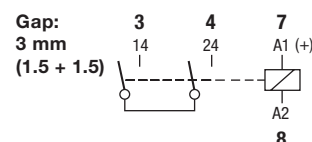
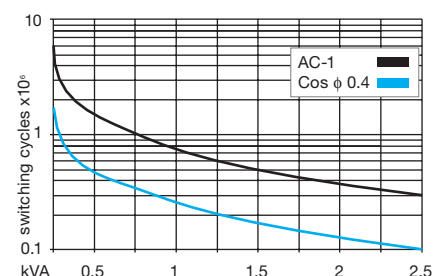
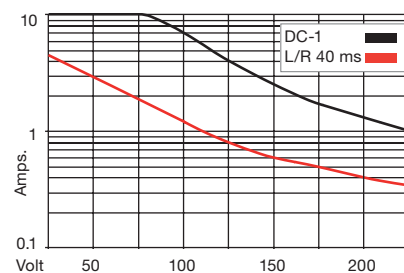
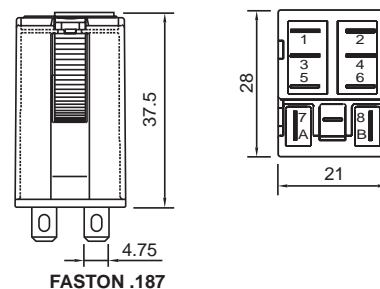
Description	Type	12	24	110	230	240
AC 50 Hz	C7-X10/AC...V				✓	
LED	C7-X10X/AC...V		✓		✓	✓
DC	C7-X10/DC...V	✓		✓		
LED & Free wheeling diode	C7-X10DX/DC...V		✓			
LED & Polarity & Free wheeling diode	C7-X10FX/DC...V	✓	✓	✓		
LED	C7-X10X/DC...V	✓	✓			

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

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

Accessories

Socket	S7-C R S7-I0 R S7-P S7-PI
Push-in socket	S9-NP (BAG 10 PCS)
Blanking plug	S9-OP (BAG 10 PCS)
Test Button w/o locking for C7/C9	

**fig. 1. Wiring diagram****fig. 2. AC voltage endurance****fig. 3. DC load limit curve****fig. 4. Dimension (mm)****Technical approvals, conformities**

Standards IEC/EN 60947; IEC/EN 61810

Approvals

1.3 Industrial Relays - pluggable

C9-A4x

4 pole | changeover contact | faston

Main circuit

Available contact materials

AgNi + 0.2 µ Au for C9-A41

AgNi + 5 µ Au for C9-A42

Recommended minimum contact load

1 mA / 1 V

Maximum contact load AC

5 A / 250 V AC-1

Maximum contact load DC

5 A / 30 V DC-1

Inrush current

15 A, 20 ms

AC load

1250 VA

DC load

fig. 3.

Rated current

5 A

Mechanical endurance (cycles)

≥ 10 000 000

Electrical endurance at rated load AC-1 (cycles)

≥ 100 000

Control circuit

Nominal voltage

see table product references

Operating voltage range

0.8 U_N ... 1.1 U_N

Pick-up voltage

≤ 0.8 U_N

Release voltage

≥ 0.1 U_N

Power consumption AC / DC

1.2 VA / 1 W

Coil table

V AC	Ohm	mA	V DC	Ohm	mA
12	42	122	12	158	76
24	166	59	24	632	38
230	15 248	6.7	110	13 286	8
			220	53 146	4

Insulation

Test voltage open contact

1 kV / 1 min

Test voltage contact / contact

2 kV / 1 min

Test voltage contact / coil

2.5 kV / 1 min

Pollution degree

3

Overvoltage category

III

Insulation resistance at 500 V

≥ 1 GΩ

General data

Ambient temperature storage (no ice)

-40 ... 80 °C

Ambient temperature operation

-40 ... 60 °C

Pick-up time / bounce time

10 ms / ≤ 3 ms

Release time / bounce time

6 ms / ≤ 1 ms

Maximum switching frequency at rated load

1200 / h

Dimension

fig. 4.

Weight

43 g

Housing material

PA / PC

Product references

Description	Type (x refers to contact material)	12	24	110	220	230
AC / DC bridge rectifier & LED	C9-A4xBX/UC...V	✓	✓			
AC 50 Hz	C9-A4x/AC...V	✓	✓		✓	✓
LED	C9-A4xX/AC...V	✓	✓			✓
DC	C9-A4x/DC...V	✓	✓	✓		
LED & Free wheeling diode	C9-A4xDX/DC...V		✓			
LED & Polarity & Free wheeling diode	C9-A4xFX/DC...V	✓	✓	✓	✓	
LED	C9-A4xX/DC...V	✓	✓	✓		

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

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

Accessories

Socket

S9-M R

S9-P R

S9-PI

Blanking plug

S9-NP (BAG 10 PCS)

Test Button w/o locking for C7/C9

S9-OP (BAG 10 PCS)



fig. 1. Wiring diagram

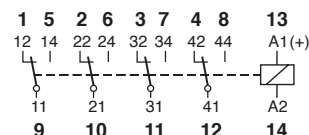


fig. 2. AC voltage endurance

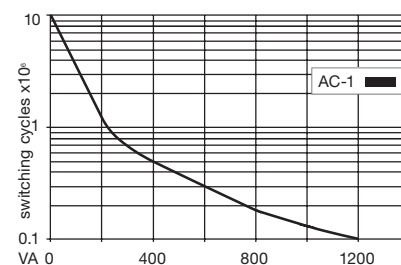


fig. 3. DC load limit curve

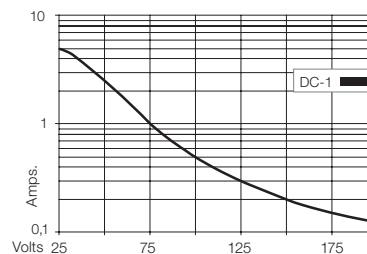
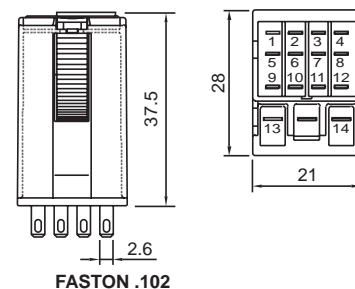


fig. 4. Dimension (mm)



Technical approvals, conformities

Standards IEC/EN 60947; IEC/EN 61810

Approvals

1.3 Industrial Relays - pluggable

C9-E21

2 pole | changeover contact | sensitive coil | faston

Main circuit

Available contact materials	AgNi + 0.2 μ Au
Recommended minimum contact load	10 mA / 10 V
Maximum contact load AC	5 A / 250 V AC-1
Maximum contact load DC	5 A / 30 V DC-1
Inrush current	15 A, 20 ms
AC load	1200 VA
DC load	fig. 3.
Rated current	5 A
Mechanical endurance (cycles)	≥ 10 000 000
Electrical endurance at rated load AC-1 (cycles)	≥ 100 000

Control circuit

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

Coil table

V AC	Ohm	mA	V DC	Ohm	mA
12	65	68	12	279	43
24	255	0	24	1 140	21
48	1 022	0	48	4 467	10.7
60	1 516	13.6	60	7 053	8.5
115	5 865	0	110	23 449	4.7
230	23 900	3.2			

Insulation

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

General data

Ambient temperature storage (no ice)	-40 ... 80 °C
Ambient temperature operation	-40 ... 60 °C
Pick-up time / bounce time	10 ms / ≤ 3 ms
Release time / bounce time	6 ms / ≤ 1 ms
Maximum switching frequency at rated load	1200 / h
Dimension	fig. 4.
Weight	40 g
Housing material	PA / PC

Product references

Description	Type	12	24	48	110	220	230
AC / DC bridge rectifier & LED	C9-E21BX/UC...V		✓				
LED	C9-E21X/AC...V	✓	✓	✓			✓
LED & Polarity & Free wheeling diode	C9-E21FX/DC...V	✓	✓		✓	✓	

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

Accessories

Socket	S9-M R S9-P R S9-PI
Blanking plug	S9-NP (BAG 10 PCS)
Test Button w/o locking for C7/C9	S9-OP (BAG 10 PCS)



fig. 1. Wiring diagram

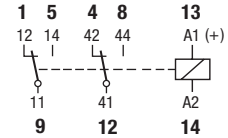


fig. 2. AC voltage endurance

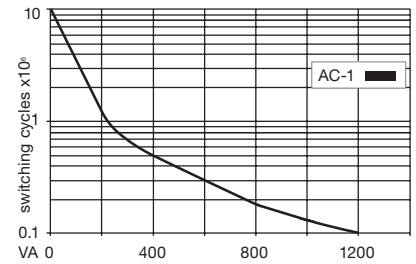


fig. 3. DC load limit curve

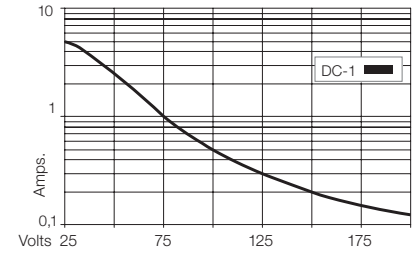
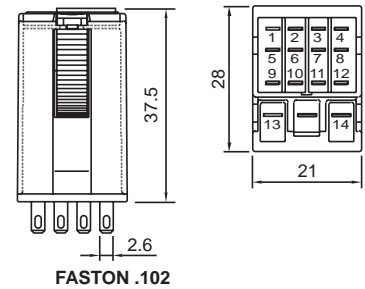


fig. 4. Dimension (mm)



Technical approvals, conformities

Standards IEC/EN 60947; IEC/EN 61810



1.3 Industrial Relays - pluggable

C9-R21

2 pole | changeover contact | remanence | faston

Main circuit

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

Control circuit

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

Coil table

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

Insulation

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

General data

Ambient temperature storage (no ice)	-40 ... 80 °C
Ambient temperature operation	-40 ... 60 °C
Minimum pulse length ON / OFF	50 ms
Maximum switching frequency at rated load	1200 / h
Dimension	fig. 4.
Weight	43 g
Housing material	PA / PC

Product references

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

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

Accessories

Socket	S9-M R S9-P R S9-PI
Blanking plug	S0-NP (BAG 10PCS)
Test Button w/o locking for C7/C9	S9-OP (BAG 10 PCS)



fig. 1. Wiring diagram

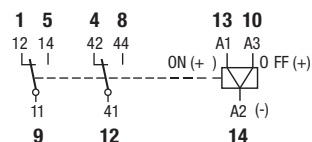


fig. 2. AC voltage endurance

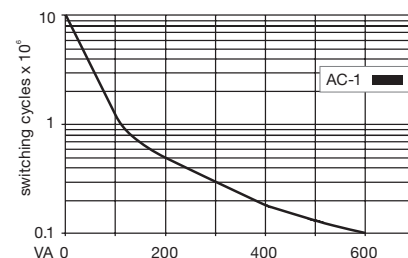


fig. 3. DC load limit curve

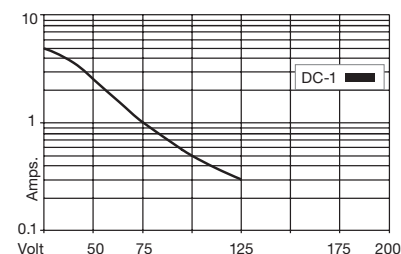
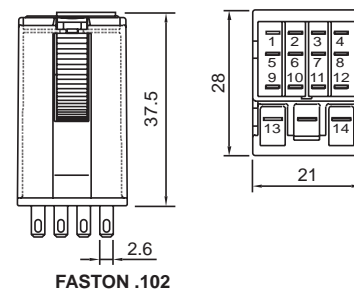


fig. 4. Dimension (mm)



Technical approvals, conformities

Standards IEC/EN 60947; IEC/EN 61810

Approvals


2 Sockets

Chapter	Page
2.1 8-Pin Sockets	38
2.2 11-Pin Sockets	40
2.3 14-Pin Sockets	46
2.4 8/14-Pin Sockets	48
2.5 5/8-Pin Sockets	54

Notizen

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2.1 8-Pin Sockets

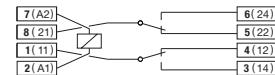
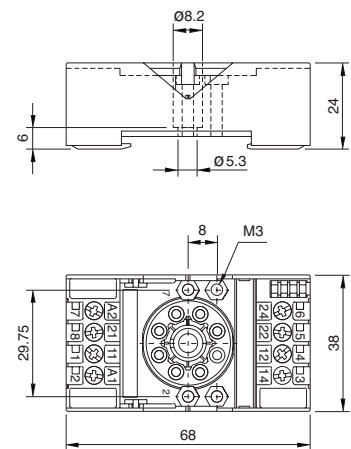
	Type	Pin	Page
8-Pin Series			
8-pin C2 Relay socket Time Cubes compatible	S2-B		38

S2-B**8-pin C2 Relay socket | Time Cubes compatible****General data**

Rated load	10 A / 300 V
Dielectric strength	
- All terminals / DIN rail	2.5 kV rms / 1 min
- Terminal / terminal	2.5 kV rms / 1 min
Cross-section of connecting wire	
- Single wire	4 mm ² / AWG 12 or 2 x 2.5mm ² / AWG 14
- Multi wire (un-crimped)	0.34 mm ² / AWG 22 ... 2.5 mm ² / AWG 14
Nominal screw torque	0.7 Nm
Screw Dimension	M3 Pozi slot
Mounting	TH35 (EN 60715) or back panel mounting
Ambient temperature storage (no ice)	-40 ... 80 °C
Ambient temperature operation	-40 ... 60 °C
Weight	48 g
Housing material	PA / PC

Optional Accessories





Retaining clip, plastic	HF-32 (BAG 10 PCS)
	HF-33 (BAG 10 PCS)
	S30-CM/10 (BAG 10 PCS) R

**fig. 1. Wiring diagram****fig. 2. Dimension (mm)****Technical approvals, conformities**

Standards EN 60664-1

Approvals   

2.2 11-Pin Sockets

	Type	Pin	Page
11-Pin Series			
11-pin C3 Relay socket Time Cubes compatible	S3-B		40
11-pin C3 Relay socket Time & Monitoring Module compatible	S3-M		41
11-pin C3 Relay socket Time & Monitoring Module compatible	S3-M0 / S3-M1		42
11-pin C5 Relay socket	S5-M		43

S3-B

11-pin C3 Relay socket | Time Cubes compatible

General data

Rated load	10 A / 300 V
Dielectric strength	
- All terminals / DIN rail	2.5 kV rms / 1 min
- Terminal / terminal	2.5 kV rms / 1 min
Cross-section of connecting wire	
- Single wire	4 mm² / AWG 12 or 2 x 2.5mm² / AWG 14
- Multi wire (un-crimped)	0.34 mm² / AWG 22 ... 2.5 mm² / AWG 14
Nominal screw torque	0.7 Nm
Screw Dimension	M3 Pozi slot
Mounting	TH35 (EN 60715) or back panel mounting
Ambient temperature storage (no ice)	-40 ... 80 °C
Ambient temperature operation	-40 ... 60 °C
Weight	55 g
Housing material	PA / PC

Optional Accessories

Retaining clip, plastic	S30-CM/10 (BAG 10 PCS) R HF-32 (BAG 10 PCS) HF-33 (BAG 10 PCS)
Coding ring	S3-BC (BAG 5 PCS)



fig. 1. Wiring diagram

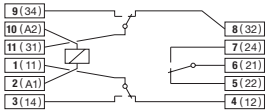
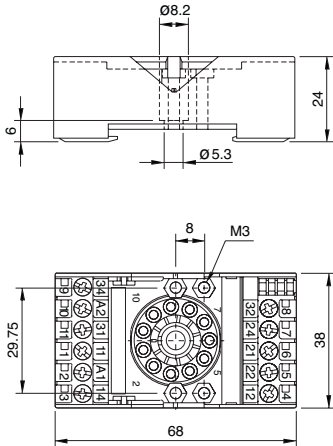


fig. 2. Dimension (mm)



Technical approvals, conformities

Standards EN 60664-1

Approvals      

S3-M

11-pin C3 Relay socket | Time & Monitoring Module compatible

General data

Rated load	10 A / 250 V
Dielectric strength	
- All terminals / DIN rail	2.5 kV rms / 1 min
- Terminal / terminal	2.5 kV rms / 1 min
Cross-section of connecting wire	
- Single wire	1 x 6 mm ² / AWG 10, 2 x 1.5 mm ² / AWG 16
- Multi wire (un-crimped)	1 x 4 mm ² / AWG 12, 2 x 1.5 mm ² / AWG 16
Nominal screw torque	0.7 Nm
Screw Dimension	M3 Pozi slot
Mounting	TH35 (EN 60715) or back panel mounting
Ambient temperature storage (no ice)	-40 ... 80 °C
Ambient temperature operation	-25 ... 60 °C
Weight	61 g
Housing material	PA / PC

Optional Accessories

Retaining clip, plastic	HF-32 (BAG 10 PCS) HF-33 (BAG 10 PCS) S3-BC (BAG 5 PCS)
Coding ring	C-A2 (BAG 5PCS)
A2-Connector	RC1/UC110-240V
RC-Suppressor module	RD1/DC12-220V
Freewheeling diode module	



fig. 1. Wiring diagram

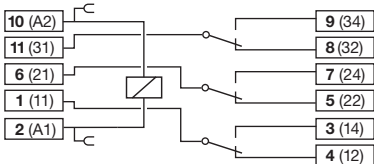
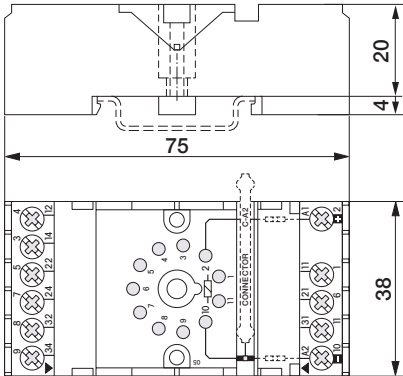


fig. 2. Dimension (mm)



Technical approvals, conformities

Standards EN 60664-1

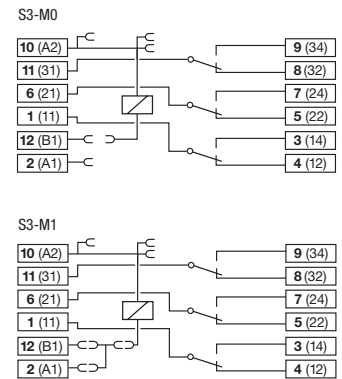
Approvals    

S3-M0 / S3-M1**11-pin C3 Relay socket | Time & Monitoring Module compatible****General data**

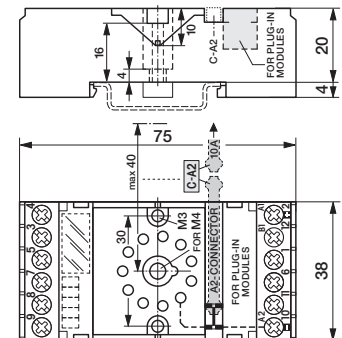
Rated load	10 A / 250 V
Dielectric strength	
- All terminals / DIN rail	2.5 kV rms / 1 min
- Terminal / terminal	2.5 kV rms / 1 min
Cross-section of connecting wire	
- Single wire	1 x 6 mm ² / AWG 10, 2 x 1.5 mm ² / AWG 16
- Multi wire (un-crimped)	1 x 4 mm ² / AWG 12, 2 x 1.5 mm ² / AWG 16
Nominal screw torque	0.7 Nm
Screw Dimension	M3 Pozi slot
Mounting	TH35 (EN 60715) or back panel mounting
Ambient temperature storage (no ice)	-40 ... 80 °C
Ambient temperature operation	-25 ... 60 °C
Weight	61 g
Housing material	PA / PC

Optional Accessories

Retaining clip, plastic	HF-32 (BAG 10 PCS)
	HF-33 (BAG 10 PCS)
Coding ring	S3-BC (BAG 5 PCS)
A2-Connector	C-A2 (BAG 5PCS)
Freewheeling diode module	RD1/DC12-220V
RC-Suppressor module	RC2/UC110-240V
	RC1/UC110-240V

**fig. 1. Wiring diagram**

Bridge Connector SC-3 included

fig. 2. Dimension (mm)**Technical approvals, conformities**

Standards EN 60664-1

 Approvals   

2.2 11-Pin Sockets
S5-M
11-pin C5 Relay socket

General data	
Rated load	16 A / 400 V
Dielectric strength	
- All terminals / DIN rail	4 kV rms / 1 min
- Terminal / terminal	4 kV rms / 1 min
Cross-section of connecting wire	
- Single wire	1 x 6 mm ² / AWG 10, 2 x 2.5 mm ² / AWG 14
- Multi wire (un-crimped)	1 x 6 mm ² / AWG 10, 2 x 1.5 mm ² / AWG 16
Nominal screw torque	1 Nm
Screw Dimension	M3.5 Pozi slot
Mounting	TH35 (EN 60715) or back panel mounting
Ambient temperature storage (no ice)	-40 ... 80 °C
Ambient temperature operation	-40 ... 60 °C
Weight	92 g
Housing material	PA / PC

Included Accessories	
Retaining clip, plastic	S5M-CP

Optional Accessories	
Retaining clip, plastic	HF-32 (BAG 10 PCS)
A2-Connector	C-A2 (BAG 5PCS)
A1-, B1-Connector	SC-3 (BAG 10 PCS)



fig. 1. Wiring diagram

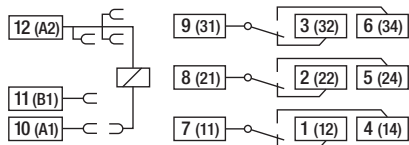
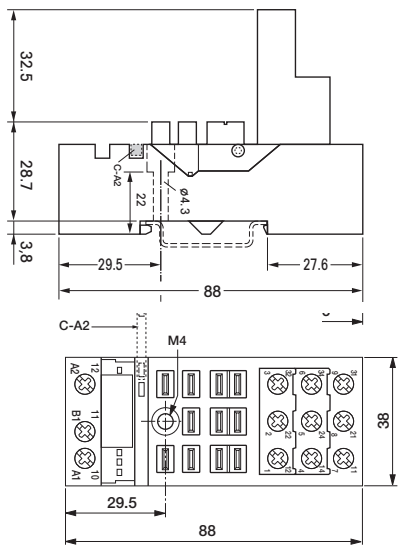


fig. 2. Dimension (mm)



Technical approvals, conformities


Standards EN 60664-1

Approvals   

Notes

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2.3 14-Pin Sockets

	Type	Pin	Page
14-Pin Series			
14-pin C4 Relay socket	S4-J		46

2.3 14-Pin Sockets
S4-J
14-pin C4 Relay socket



General data	
Rated load	10 A / 250 V
Dielectric strength	
- All terminals / DIN rail	2.5 kV rms / 1 min
- Terminal / terminal	2.5 kV rms / 1 min
Cross-section of connecting wire	
- Single wire	1.5 mm ² / AWG 16 or 2 x 1.5 mm ² / AWG 16
- Multi wire (un-crimped)	0.34 mm ² / AWG 22 ... 1 mm ² / AWG 18
Nominal screw torque	1 Nm
Screw Dimension	M3.5 Philips-slot (combo)
Mounting	TH35 (EN 60715) or back panel mounting
Ambient temperature storage (no ice)	-40 ... 80 °C
Ambient temperature operation	-40 ... 60 °C
Weight	80 g
Housing material	PA / PC

Optional Accessories	
Retaining clip, plastic	S3-C (BAG 10 PCS)



fig. 1. Wiring diagram

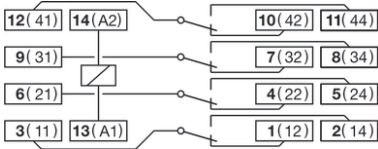
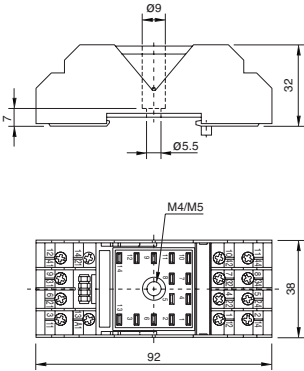


fig. 2. Dimension (mm)








Technical approvals, conformities

Standards EN 60664-1

Approvals   

2.4 8/14-Pin Sockets

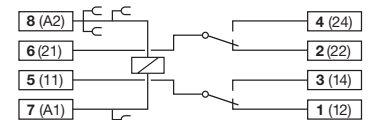
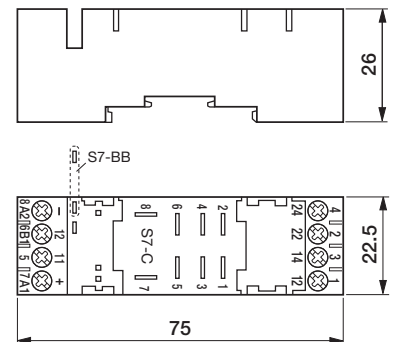
	Type	Pin	Page
8/14-Pin Series			
8-pin C7 Relay socket RC-Suppressor module compatible	S7-C		48
8-pin C7 Relay socket	S7-IO		49
8-pin C7 Relay socket Push-In	S7-PI		50
14-pin C9 Relay socket	S9-M		51
14-pin C9 Relay socket Push-In	S9-PI		52

S7-C**8-pin C7 Relay socket | RC-Suppressor module compatible****General data**

Rated load	10 A, 16 A for 1 pole / 250 V
Dielectric strength	
- All terminals / DIN rail	2.5 kV rms / 1 min
- Terminal / terminal	2.5 kV rms / 1 min
Cross-section of connecting wire	
- Single wire	4 mm ² / AWG 12, 2 x 1.5 mm ² / AWG 16
- Multi wire (un-crimped)	2.5 mm ² / AWG 14, 2 x 1 mm ² / AWG 18
Nominal screw torque	0.7 Nm
Screw Dimension	M3 Pozi slot
Mounting	TH35 (EN 60715) or back panel mounting
Ambient temperature storage (no ice)	-40 ... 80 °C
Ambient temperature operation	-40 ... 60 °C (50 °C for 16 A)
Weight	37 g
Housing material	PA / PC

Optional Accessories

Retaining clip, plastic	CP-07B (BAG 50PCS) R
A2-Connector	S7-BB (BAG 20 PCS)
Panel adapter	S9-G (BAG 10 PCS)
RC-Suppressor module	RC0047-100/AC250V (BAG 5PCS)

**fig. 1. Wiring diagram****fig. 2. Dimension (mm)****Technical approvals, conformities**

Standards EN 60664-1

Approvals    

General data

Rated load	10 A / 250 V
Dielectric strength	
- All terminals / DIN rail	2.5 kV rms / 1 min
- Terminal / terminal	2.5 kV rms / 1 min
Cross-section of connecting wire	
- Single wire	4 mm ² / AWG 12, 2 x 2.5 mm ² / AWG 14
- Multi wire (un-crimped)	0.34 mm ² / AWG 22 ... 2.5 mm ² / AWG 14
Nominal screw torque	0.7 Nm
Screw Dimension	M3 Pozi slot
Mounting	TH35 (EN 60715) or back panel mounting
Ambient temperature storage (no ice)	-40 ... 80 °C
Ambient temperature operation	-40 ... 60 °C
Weight	38 g
Housing material	PA / PC

Optional Accessories

Retaining clip, plastic	S9-C/CP-01B (BAG 10 PCS) R
A2-Connector	S7-BB (BAG 20 PCS)
Panel adapter	S9-G (BAG 10 PCS)



fig. 1. Wiring diagram

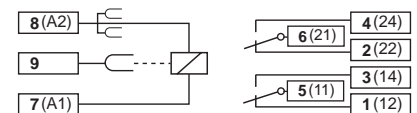
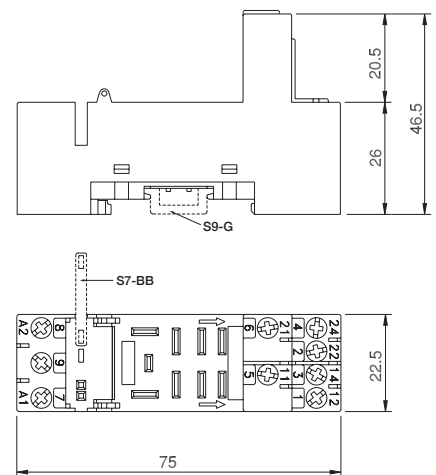


fig. 2. Dimension (mm)



Technical approvals, conformities

Standards EN 60664-1

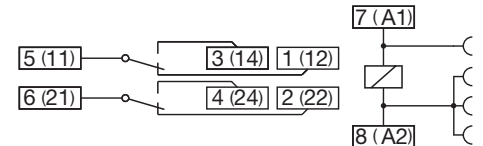
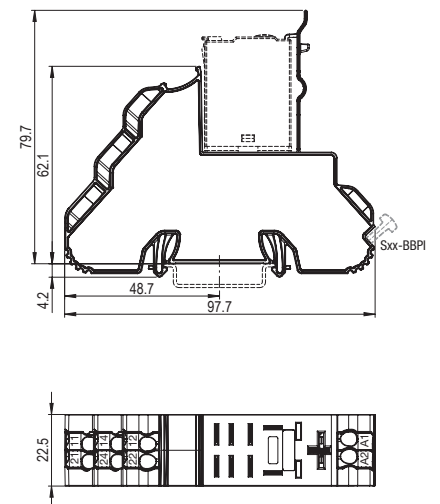
Approvals

S7-PI**8-pin C7 Relay socket | Push-In****General data**

Rated load	10 A / 250 V
Dielectric strength	
- All terminals / DIN rail	2.5 kV rms / 1 min
- Terminal / terminal	2.5 kV rms / 1 min
- Contact / coil terminal	2.5 kV rms / 1 min
Cross-section of connecting wire	
- Single wire	2 x 0.34 mm ² / AWG 22 ... 2 x 2.5 mm ² / AWG 14
	Use copper conductors only
	Max. jacket diameter 4.0 mm
	Stripping length 8 mm
- Multi wire (un-crimped)	2 x 0.34 mm ² / AWG 22 ... 2 x 2.5 mm ² / AWG 14
	Use copper conductors only
	Max. jacket diameter 4.0 mm
	Stripping length 8 mm
- Multi wire (crimped)	2 x 0.34 mm ² / AWG 22 ... 2 x 1.5 mm ² / AWG 16
	Use copper conductors only
	Max. jacket diameter 4.0 mm
	Stripping length 8 mm
Mounting	TH35 (EN 60715)
Ambient temperature storage (no ice)	-40 ... 80 °C
Ambient temperature operation	-40 ... 60 °C
Weight	46 g
Housing material	PA

Optional Accessories

Retaining clip, plastic	S7-CPI (BAG 10 PCS)
Bridge A2 for Sx-PI / Sx-PIR	Sxx-BBPI (BAG 20 PCS)
2-pole bridge bar	Sxx-BBPI2 (BAG 20 PCS)
4-pole bridge bar for main circuit terminals	Sxx-BBPI4 (BAG 20 PCS)
Multi-operation tool kit for Push-in sockets	OT-PI kit
Marking strip	BS11-PI (50m tape)

**fig. 1. Wiring diagram****fig. 2. Dimension (mm)****Technical approvals, conformities**

Standards EN 60664-1

Approvals     

2.4 8/14-Pin Sockets

S9-M

14-pin C9 Relay socket

General data

Rated load	6 A / 250 V
Dielectric strength	
- All terminals / DIN rail	2.5 kV rms / 1 min
- Terminal / terminal	2.5 kV rms / 1 min
Cross-section of connecting wire	
- Single wire	4 mm ² / AWG 12, 2 x 2.5 mm ² / AWG 14
- Multi wire (un-crimped)	0.34 mm ² / AWG 22 ... 2.5 mm ² / AWG 14
Nominal screw torque	0.7 Nm
Screw Dimension	M3 Pozi slot
Mounting	TH35 (EN 60715) or back panel mounting
Ambient temperature storage (no ice)	-40 ... 80 °C
Ambient temperature operation	-40 ... 60 °C
Weight	54 g
Housing material	PA / PC

Optional Accessories

Retaining clip, plastic	S9-C/CP-01B (BAG 10 PCS) R
Panel adapter	S9-G (BAG 10 PCS)
Bridge bar	S9M-V1 (BAG 5 PCS) R
	S9M-V4 (BAG 5 PCS) R
	S9M-BX (BAG 5 PCS) R



fig. 1. Wiring diagram

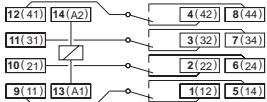
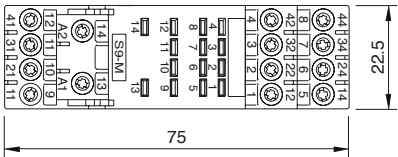
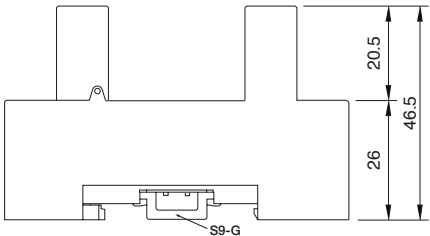


fig. 2. Dimension (mm)



Technical approvals, conformities

Standards EN 60664-1

Approvals     

S9-PI**14-pin C9 Relay socket | Push-In****General data**

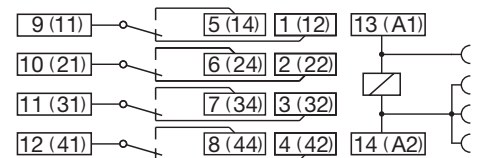
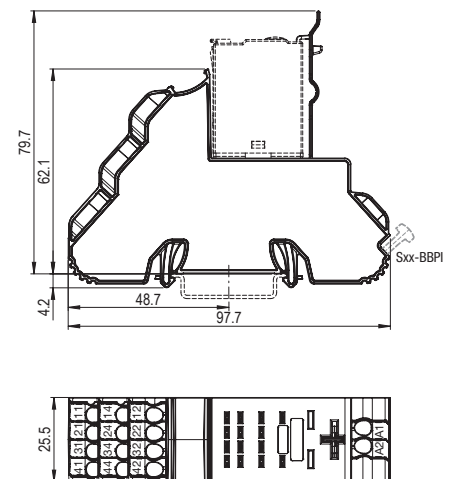
Rated load	6 A / 250 V
Dielectric strength	
- All terminals / DIN rail	2.5 kV rms / 1 min
- Terminal / terminal	2.5 kV rms / 1 min
- Contact / coil terminal	2.5 kV rms / 1 min
Cross-section of connecting wire	
- Single wire	2 x 0.34 mm ² / AWG 22 ... 2 x 2.5 mm ² / AWG 14
	Use copper conductors only
	Max. jacket diameter 4.0 mm
	Stripping length 8 mm
- Multi wire (un-crimped)	2 x 0.34 mm ² / AWG 22 ... 2 x 2.5 mm ² / AWG 14
	Use copper conductors only
	Max. jacket diameter 4.0 mm
	Stripping length 8 mm
- Multi wire (crimped)	2 x 0.34 mm ² / AWG 22 ... 2 x 1.5 mm ² / AWG 16
	Use copper conductors only
	Max. jacket diameter 4.0 mm
	Stripping length 8 mm
Mounting	TH35 (EN 60715)
Ambient temperature storage (no ice)	-40 ... 80 °C
Ambient temperature operation	-40 ... 60 °C
Weight	62 g
Housing material	PA

Optional Accessories

Retaining clip, plastic	S7-CPI (BAG 10 PCS)
Bridge A2 for Sx-PI / Sx-PIR	Sxx-BBPI (BAG 20 PCS)
2-pole bridge bar	Sxx-BBPI2 (BAG 20 PCS)
4-pole bridge bar for main circuit terminals	Sxx-BBPI4 (BAG 20 PCS)
Multi-operation tool kit for Push-in sockets	OT-PI kit
Marking strip	BS11-PI (50m tape)

Applicable tools



Operation tool	ISO 2380-1 Shape A, width: 2.5 mm
----------------	-----------------------------------

**fig. 1. Wiring diagram****fig. 2. Dimension (mm)****Technical approvals, conformities**

Standards EN 60664-1

Approvals     

2.5 5/8-Pin Sockets

	Type	Pin	Page
5/8-Pin Series			
8-pin C12 Relay socket	S12		54
8-pin C12 Relay socket Push-In	S12-PI		55

General data

Rated load	5 A / 250 V
Dielectric strength	
- All terminals / DIN rail	5 kV rms / 1 min
- Terminal / terminal	2.5 kV rms / 1 min
- Contact / coil terminal	5 kV rms / 1 min
Cross-section of connecting wire	
- Single wire	4 mm ² / AWG 12, 2 x 2.5 mm ² / AWG 14
- Multi wire (un-crimped)	0.34 mm ² / AWG 22 ... 2.5 mm ² / AWG 14
Nominal screw torque	0.7 Nm
Screw Dimension	M3 Pozi slot
Mounting	TH35 (EN 60715) or back panel mounting
Ambient temperature storage (no ice)	-40 ... 80 °C
Ambient temperature operation	-40 ... 60 °C
Weight	31 g
Housing material	PA / PC

Optional Accessories

A2-Connector, blue	B20-A (BAG 5 PCS)
A2-Connector, grey	B20-G (BAG 5 PCS)
A2-Connector, red	B20-R (BAG 5 PCS)
Bridge bar twofold blue	V10-A (BAG 5 PCS)
Bridge bar twofold grey	V10-G (BAG 5 PCS)
Bridge bar twofold red	V10-R (BAG 5 PCS)
Bridge bar fourfold blue	V40-A (BAG 5 PCS)
Bridge bar fourfold grey	V40-G (BAG 5 PCS)
Bridge bar fourfold red	V40-R (BAG 5 PCS)

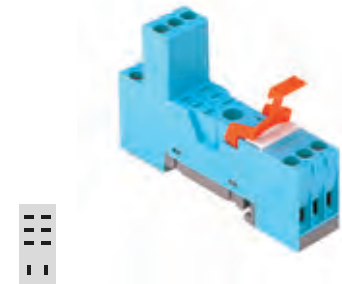


fig. 1. Image



fig. 2. Image

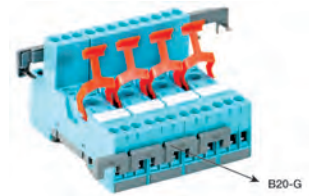


fig. 3. Wiring diagram

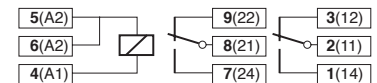
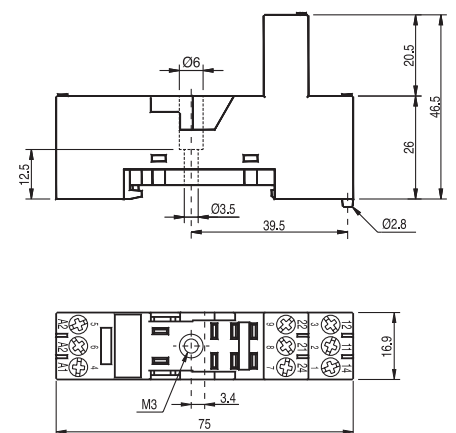


fig. 4. Dimension (mm)

**Technical approvals, conformities**

Standards EN 60664-1

 Approvals    

2.5 5/8-Pin Sockets
S12-PI
8-pin C12 Relay socket | Push-In

General data

Rated load	5 A / 250 V
Dielectric strength	
- All terminals / DIN rail	2.5 kV rms / 1 min
- Terminal / terminal	2.5 kV rms / 1 min
- Contact / coil terminal	2.5 kV rms / 1 min
Cross-section of connecting wire	
- Single wire	2 x 0.34 mm ² / AWG 22 ... 2 x 2.5 mm ² / AWG 14 Use copper conductors only Max. jacket diameter 4.0 mm Stripping length 8 mm
- Multi wire (un-crimped)	2 x 0.34 mm ² / AWG 22 ... 2 x 2.5 mm ² / AWG 14 Use copper conductors only Max. jacket diameter 4.0 mm Stripping length 8 mm
- Multi wire (crimped)	2 x 0.34 mm ² / AWG 22 ... 2 x 1.5 mm ² / AWG 16 Use copper conductors only Max. jacket diameter 4.0 mm Stripping length 8 mm
Mounting	TH35 (EN 60715)
Ambient temperature storage (no ice)	-40 ... 80 °C
Ambient temperature operation	-40 ... 60 °C
Weight	39 g
Housing material	PA

Optional Accessories

Retaining clip, plastic	S10-CPI (BAG 10 PCS)
Bridge A2 for Sx-PI / Sx-PIR	Sxx-BBPI (BAG 20 PCS)
2-pole bridge bar	Sxx-BBPI2 (BAG 20 PCS)
4-pole bridge bar for main circuit terminals	Sxx-BBPI4 (BAG 20 PCS)
Multi-operation tool kit for Push-in sockets	OT-PI kit
Marking strip	BS11-PI (50m tape)



fig. 1. Wiring diagram

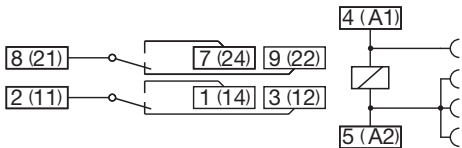
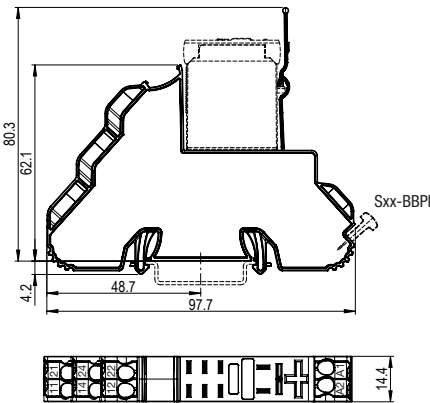


fig. 2. Dimension (mm)



Technical approvals, conformities

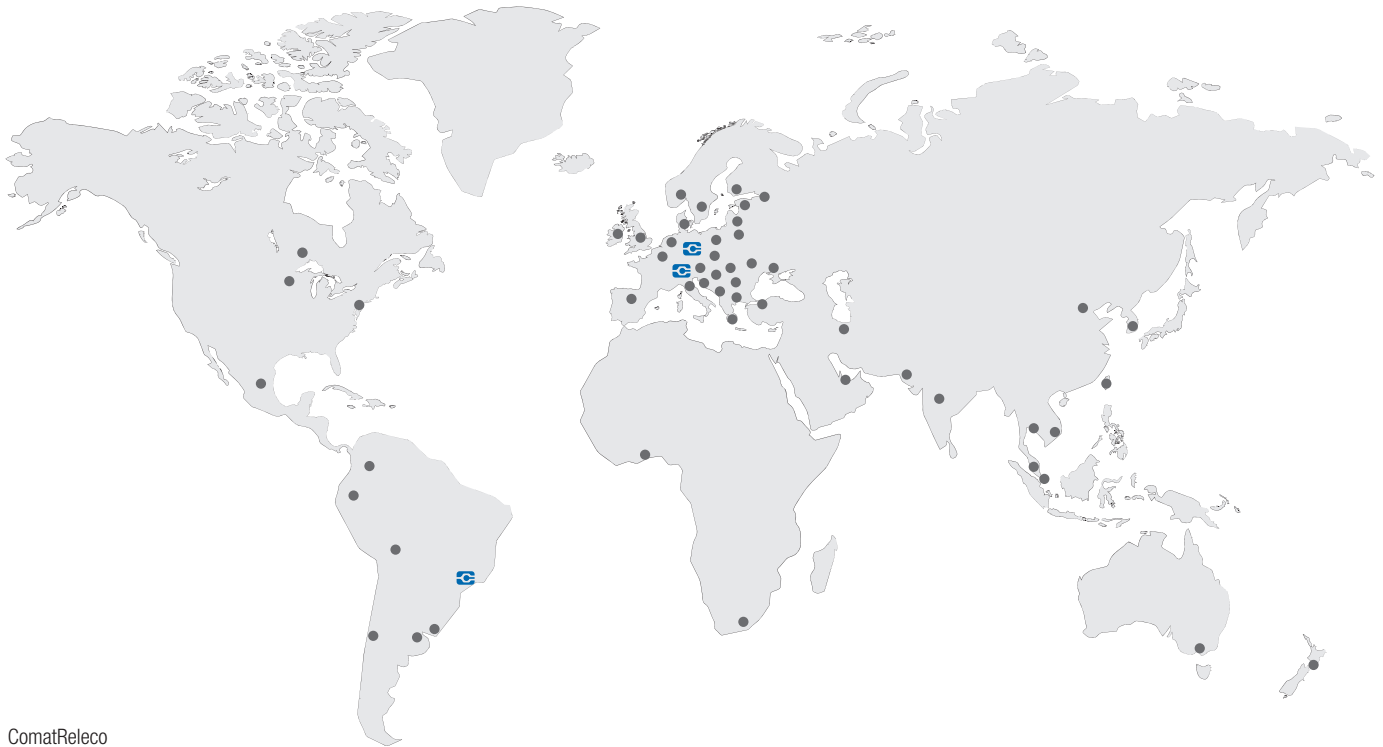
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Approvals     

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