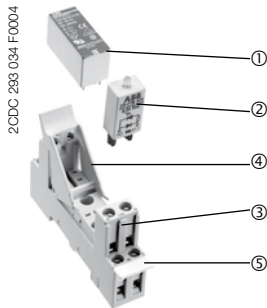


Pluggable interface relays CR-P

Pcb relays

Data sheet



CR-P

- ① Interface relay
- ② Pluggable function module
- ③ Socket
- ④ Holder
- ⑤ Marker

Features

- 9 different rated control supply voltages U_s :
DC versions: 12 V, 24 V, 48 V, 110 V
AC versions: 24 V, 48 V, 110 V, 120 V, 230 V
- Output: 1 c/o (SPDT) contact (16 A) or 2 c/o (SPDT) contacts (8 A)
- Cadmium-free contact material
- Suited for logical and standard sockets
- Width on socket: 15,5 mm
- Pluggable function modules: reverse polarity protection/free wheeling diode, LED indication, RC elements, overvoltage protection, time modules

Approvals

- UL508
- CAN/CSA C22.2 No.14
- CAN/CSA C22.2 No.14
- VDE
- GOST
- CCC
- RMRS

Marks

CE CE

Order data

| Type | Rated control supply voltage U_s | Order code |
|-----------------------------------|------------------------------------|---------------------------|
| 1 c/o (SPDT) contact: 250 V, 16 A | | |
| CR-P012DC1 | 12 V DC | 1SVR 405 600 R4000 |
| CR-P024DC1 | 24 V DC | 1SVR 405 600 R1000 |
| CR-P048DC1 | 48 V DC | 1SVR 405 600 R6000 |
| CR-P110DC1 | 110 V DC | 1SVR 405 600 R8000 |
| CR-P024AC1 | 24 V AC | 1SVR 405 600 R0000 |
| CR-P048AC1 | 48 V AC | 1SVR 405 600 R5000 |
| CR-P110AC1 | 110 V AC | 1SVR 405 600 R7000 |
| CR-P120AC1 | 120 V AC | 1SVR 405 600 R2000 |
| CR-P230AC1 | 230 V AC | 1SVR 405 600 R3000 |
| 2 c/o (SPDT) contacts: 250 V, 8 A | | |
| CR-P012DC2 | 12 V DC | 1SVR 405 601 R4000 |
| CR-P024DC2 | 24 V DC | 1SVR 405 601 R1000 |
| CR-P048DC2 | 48 V DC | 1SVR 405 601 R6000 |
| CR-P110DC2 | 110 V DC | 1SVR 405 601 R8000 |
| CR-P024AC2 | 24 V AC | 1SVR 405 601 R0000 |
| CR-P048AC2 | 48 V AC | 1SVR 405 601 R5000 |
| CR-P110AC2 | 110 V AC | 1SVR 405 601 R7000 |
| CR-P120AC2 | 120 V AC | 1SVR 405 601 R2000 |
| CR-P230AC2 | 230 V AC | 1SVR 405 601 R3000 |

Bold printed products = stocked products. Packing unit = 10 pieces.

Pluggable interface relays CR-P

Pcb relays

Data sheet

Ordering data - Accessories

Function modules

| Type | Rated control supply voltage | Version | Order code |
|---|------------------------------|--------------------------------|---------------------------|
| Diode - Reverse polarity protection | | | |
| CR-P/M 22 | 6-230 V DC | A1+, A2- | 1SVR 405 651 R0000 |
| Diode and LED - Reverse polarity protection | | | |
| CR-P/M 42 | 6-24 V DC | red, A1+, A2- | 1SVR 405 652 R0000 |
| CR-P/M 42V | 6-24 V DC | green, A1+, A2- | 1SVR 405 652 R1000 |
| CR-P/M 42B | 24-60 V DC | red, A1+, A2- | 1SVR 405 652 R4000 |
| CR-P/M 42BV | 24-60 V DC | green, A1+, A2- | 1SVR 405 652 R4100 |
| CR-P/M 42C | 110-230 V DC | red, A1+, A2- | 1SVR 405 652 R9000 |
| CR-P/M 42CV | 110-230 V DC | green, A1+, A2- | 1SVR 405 652 R9100 |
| RC element - Arc elimination | | | |
| CR-P/M 52B | 6-24 V AC | | 1SVR 405 653 R0000 |
| CR-P/M 52D | 24-60 V AC | | 1SVR 405 653 R4000 |
| CR-P/M 52C | 110-230 V AC | | 1SVR 405 653 R1000 |
| Diode and LED | | | |
| CR-P/M 62 | 6-24 V AC/DC | red, for DC: A1+, A2- | 1SVR 405 654 R0000 |
| CR-P/M 62V | 6-24 V AC/DC | green, for DC: A1+, A2- | 1SVR 405 654 R1000 |
| CR-P/M 62E | 24-60 V AC/DC | red, for DC: A1+, A2- | 1SVR 405 654 R4000 |
| CR-P/M 62EV | 24-60 V AC/DC | green, for DC: A1+, A2- | 1SVR 405 654 R4100 |
| CR-P/M 92 | 110-230 V AC/DC | red, for DC: A1+, A2- | 1SVR 405 654 R0100 |
| CR-P/M 92V | 110-230 V AC/DC | green, for DC: A1+, A2- | 1SVR 405 654 R1100 |
| Varistor and LED - Overvoltage protection | | | |
| CR-P/M 62C | 6-24 V AC/DC | red, for DC: A1+, A2- | 1SVR 405 655 R0000 |
| CR-P/M 62CV | 6-24 V AC/DC | green, for DC: A1+, A2- | 1SVR 405 655 R1000 |
| CR-P/M 62D | 24-60 V AC/DC | red, for DC: A1+, A2- | 1SVR 405 655 R4000 |
| CR-P/M 62DV | 24-60 V AC/DC | green, for DC: A1+, A2- | 1SVR 405 655 R4100 |
| CR-P/M 92C | 110-230 V AC/DC | red, for DC: A1+, A2- | 1SVR 405 655 R0100 |
| CR-P/M 92CV | 110-230 V AC/DC | green, for DC: A1+, A2- | 1SVR 405 655 R1100 |
| Varistor - Overvoltage protection | | | |
| CR-P/M 72 | 24 V AC | | 1SVR 405 656 R0000 |
| CR-P/M 72A | 115 V AC | | 1SVR 405 656 R1000 |
| CR-P/M 82 | 230 V AC | | 1SVR 405 656 R2000 |

Time modules

| Type | Timing function | Order code |
|------------------|-------------------|---------------------------|
| Time module | | |
| CR-P/M T1 | ON-delay | 1SVR 405 657 R0000 |
| CR-P/M T2 | Impulse-ON | 1SVR 405 657 R0100 |

Bold printed products = stocked products. Packing unit = 10 pieces.

Pluggable interface relays CR-P

Pcb relays

Data sheet

Sockets

| Type | Version | Connection | Order code |
|------------------------------|------------------------------|---------------|---------------------------|
| Logical sockets | | | |
| CR-PLS | with safety isolation | screw | 1SVR 405 650 R0000 |
| CR-PLSx | | screw | 1SVR 405 650 R0100 |
| CR-PLC | | spring | 1SVR 405 650 R0200 |
| Standard socket | | | |
| CR-PSS | | screw | 1SVR 405 650 R1000 |
| Accessories for CR-P sockets | | | |
| CR-PH | Plastic holder | | 1SVR 405 659 R0000 |
| CR-PJ | Jumper bar | | 1SVR 405 658 R5000 |

Bold printed products = stocked products. Packing unit = 10 pieces.

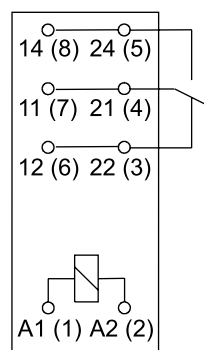
Application

Interface relays are electromechanic and electronic input and output modules for electrical isolation, levelling, noise suppression or signal amplification between control unit and process.

Operating mode

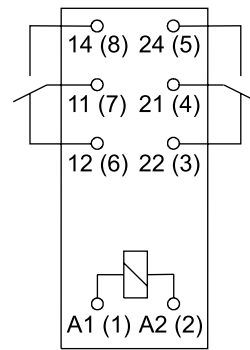
When power supply is applied, the output contacts get closed. When control supply voltage is switched off, the contacts fall back into their starting position.

Connection diagrams



CR-P with 1 c/o (SPDT) contact

A1-A2 Control supply voltage
11(21)-12(22)/14(24) Relay output



CR-P with 2 c/o (SPDT) contacts

A1-A2 Control supply voltage
11-12/14 21-22/24 Relay outputs

Pluggable interface relays CR-P

Pcb relays

Data sheet

Technical data

| Type | CR-P...1 and CP-P...2 | | | | | | | |
|--------------------------------|-----------------------|-----------------|-------------------------|---------------------------|-----------------|-------------|----------------------------|------------------------------|
| Input circuit - Supply circuit | A1-A2 | | | | | | | |
| | Rated voltage | Rated frequency | Make voltage (at 20 °C) | Maxium voltage (at 20 °C) | Break voltage | Rated power | Coil resistance (at 20 °C) | Tolerance of coil resistance |
| DC coils | 12 V DC | - | 8.4 V DC | 30.6 V DC | $\geq 0.1 U_s$ | 0.4-0.48 W | 360 Ω | $\pm 10\%$ |
| | 24 V DC | - | 16.8 V DC | 61.2 V DC | $\geq 0.1 U_s$ | 0.4-0.48 W | 1440 Ω | $\pm 10\%$ |
| | 48 V DC | - | 33.6 V DC | 122.4 V DC | $\geq 0.1 U_s$ | 0.4-0.48 W | 5700 Ω | $\pm 10\%$ |
| | 110 V DC | - | 77 V DC | 280 V DC | $\geq 0.1 U_s$ | 0.4-0.48 W | 25200 Ω | $\pm 10\%$ |
| AC coils | 24 V AC | 50 / 60 Hz | 19.2 V AC | 28.8 V AC | $\geq 0.15 U_s$ | 0.75 VA | 400 Ω | $\pm 10\%$ |
| | 48 V AC | 50 / 60 Hz | 38.4 V AC | 57.6 V AC | $\geq 0.15 U_s$ | 0.75 VA | 1550 Ω | $\pm 10\%$ |
| | 110 V AC | 50 / 60 Hz | 88 V AC | 132 V AC | $\geq 0.15 U_s$ | 0.75 VA | 8900 Ω | $\pm 10\%$ |
| | 120 V AC | 50 / 60 Hz | 96 V AC | 144 V AC | $\geq 0.15 U_s$ | 0.75 VA | 10200 Ω | $\pm 10\%$ |
| | 230 V AC | 50 / 60 Hz | 184 V AC | 276 V AC | $\geq 0.15 U_s$ | 0.75 VA | 38500 Ω | $\pm 10\%$ |

| Type | CR-P...1 | | CR-P...2 | |
|---|----------------------------|--|-----------------------|--|
| Output circuit(s) - Relay contact(s) | 11-12/14 | | 11-12/14, 21-22/24 | |
| Number of contacts | 1 c/o (SPDT) contact | | 2 c/o (SPDT) contacts | |
| Contact material | AgNi | | | |
| Rated operational voltage U_o (VDE 0110, IEC 60947-1) | 250 V | | | |
| Min. switching voltage | 5 V | | | |
| Max. switching voltage | DC | 300 V DC | | |
| | AC | 400 V AC | | |
| Min. switching current | 5 mA | | | |
| Conventional free-air thermal current I_{th} | 16 A | | 8 A | |
| Rated operational current (IEC 60947-5-1) | AC12 (resistive) | 230 V | 16 A | 8 A |
| | AC15 (inductive) | 230 V | 1.5 A | 1 A |
| | DC12 (resistive) | 24 V | 16 A | 8 A |
| | DC13 (inductive) | 24 V | 2 A | 2 A |
| Min. switching power | 0.3 W | | | |
| Max. switching power | AC1 | 4000 VA | 2000 VA | |
| Contact resistance | $\leq 100 \text{ m}\Omega$ | | | |
| Max. switching capacity | rated load AC1 | 600 switching cycles / h | | |
| | without load | 72000 switching cycles / h | | |
| Lifetime | mechanical | $> 3 \times 10^7$ switching cycles | | |
| | electrical AC1 (resistive) | $> 0.7 \times 10^5$ switching cycles (16 A, 250 V) | | $> 10^5$ switching cycles (8 A, 250 V) |
| | cos φ | see curve „Reduction factor“ | | |
| Response time | typ. 7 ms | | | |
| Release time | typ. 3 ms | | | |

Pluggable interface relays CR-P

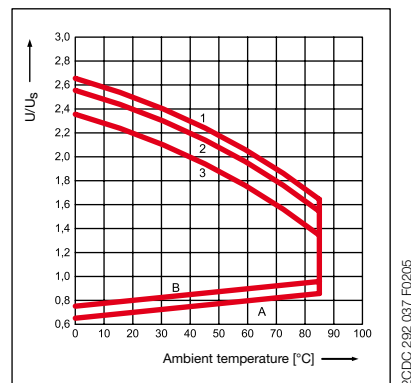
Pcb relays

Data sheet

| Isolation data | | | |
|---|--------------------------------------|-----------------------------|--------------|
| Rated insulation voltage | 400 V AC | | |
| Insulation class | C250 / B400 | | |
| Overvoltage category | (IEC/EN 61810-5) | III | |
| Polution degree | 3 | | |
| Rated impulse withstand voltage U_{imp} between | coil and contacts | 5 kV AC | |
| | open contacts | 1 kV AC | |
| | c/o (SPDT) contacts | - | 2.5 kV AC |
| Clearance / creepage distance | between coil and contacts | ≥ 10 mm / ≥ 10 mm | |
| General data | | | |
| Dimensions (L x W x H) | when mounted | 29 x 12.7 x 15.7 mm | |
| Weight | 14 g (0.031 lb) | | |
| Type of connection | by socket | | |
| Mounting position | any | | |
| Mounting | on socket (see accessories) | | |
| Degree of protection | IP 67 | | |
| Environmental data | | | |
| Temperature range | operation | DC | -40...+85 °C |
| | | AC | -40...+70 °C |
| | storage | -40...+85 °C | |
| Vibration resistance (10-150 Hz) | n/o | 10 g | |
| | n/c | 5 g | |
| Shock resistance | | 30 g | 20 g |
| Standards | | | |
| Product standard | EN 61810-1, EN 60255-23, IEC 60664-1 | | |
| Low Voltage Directive | 73/23/EEC | | |

Technical diagrams

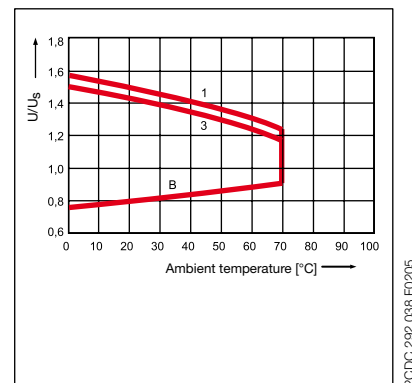
Operating range of DC coil



Relation between switching voltage and ambient temperature:

A unloaded contacts, coil temperature = ambient temperature
 B continued with I_{th} (16 A at CR-P ... 1 and 8 A at CR-P ... 2) loaded contacts,

Operating range of AC coil



Permitted overload on coil:

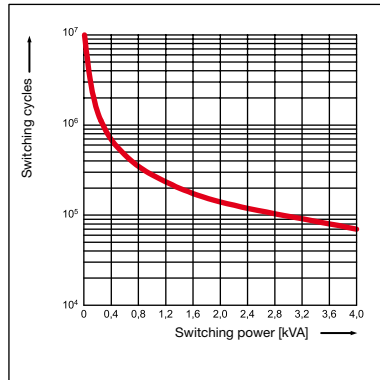
1 at unloaded contacts
 2 at 50 % rated load
 3 at rated load

Pluggable interface relays CR-P

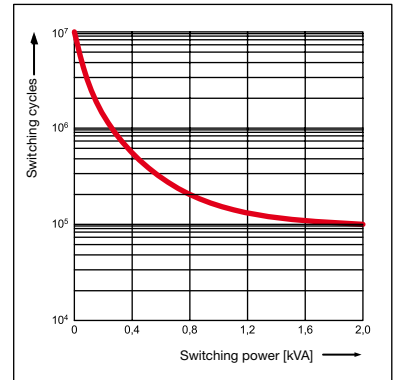
Pcb relays

Data sheet

Load limit curves - Electrical lifetime at resistive AC load

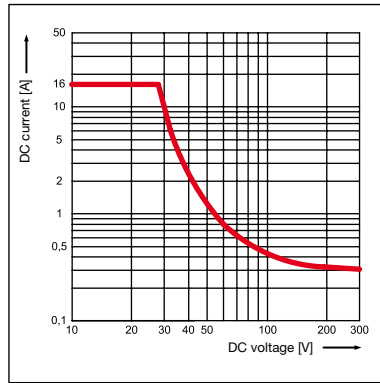


Versions with 1 c/o (SPDT) contact (CR-P ... 1)

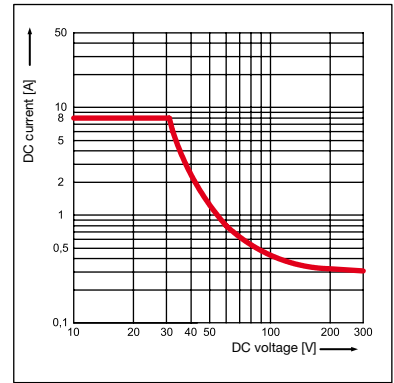


Versions with 2 c/o (SPDT) contacts (CR-P ... 2)

Load limit curves - Maximum switching power at resistive DC load

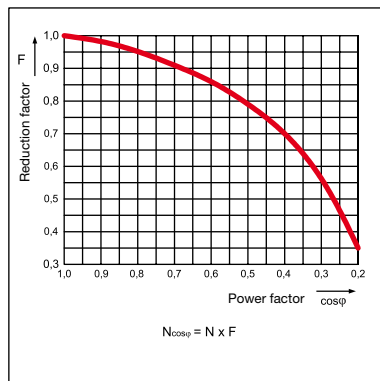


Versions with 1 c/o (SPDT) contact (CR-P ... 1)



Versions with 2 c/o (SPDT) contacts (CR-P ... 2)

Reduction factor F at inductive AC load



Versions with 1 or 2 c/o (SPDT) contacts (CR-P ... 1 and CR-P ... 2)

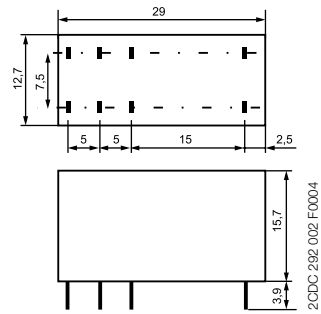
Pluggable interface relays CR-P

Pcb relays

Data sheet

Dimensions

in mm



Further documentation

| Document title | Document type | Document number |
|-----------------------------------|---------------|--------------------|
| Sockets CR-P | Data sheet | 2CDC 117 004 D0203 |
| Jumper bar CR-PJ | Data sheet | 2CDC 117 015 D0201 |
| Pluggable function modules CR-P/M | Data sheet | 2CDC 117 007 D0204 |
| Pluggable time modules CR-P/M T | Data sheet | 2CDC 117 011 D0201 |



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