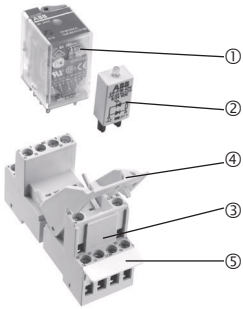


Pluggable interface relays CR-M

Miniature relays

Data sheet

2 CDC 293 035 F0004



CR-M

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

Features

- Standard miniature relays with mechanical status indication
- 12 different supply voltages:
DC versions: 12 V, 24 V, 48 V, 60 V, 110 V, 125 V, 220 V
AC versions: 24 V, 48 V, 110 V, 120 V, 230 V
- Output contacts: 2 c/o (12 A), 3 c/o (10 A) or 4 c/o (6 A)
- Available with or without LED
- 4-c/o version optionally equipped with gold contacts
- Integrated test button for manual actuation and locking of output contacts (blue = DC, orange = AC)
- Cadmium-free contact material
- Width on socket: 27 mm
- Suited for logical and standard sockets
- Pluggable function modules: reverse polarity protection, LED indication, RC elements, overvoltage protection

Approvals



(not 125 V DC versions)



(only 4-c/o contact version)

Marks



Ordering data

| Type | Supply voltage | Order code |
|---|-----------------|---------------------------|
| Interface relays without LED 2 c/o contacts: 250 V, 12 A | | |
| CR-M012DC2 | 12 V DC | 1SVR 405 611 R4000 |
| CR-M024DC2 | 24 V DC | 1SVR 405 611 R1000 |
| CR-M048DC2 | 48 V DC | 1SVR 405 611 R6000 |
| CR-M060DC2 | 60 V DC | 1SVR 405 611 R4200 |
| CR-M110DC2 | 110 V DC | 1SVR 405 611 R8000 |
| CR-M125DC2 | 125 V DC | 1SVR 405 611 R8200 |
| CR-M220DC2 | 220 V DC | 1SVR 405 611 R9000 |
| CR-M024AC2 | 24 V AC | 1SVR 405 611 R0000 |
| CR-M048AC2 | 48 V AC | 1SVR 405 611 R5000 |
| CR-M110AC2 | 110 V AC | 1SVR 405 611 R7000 |
| CR-M120AC2 | 120 V AC | 1SVR 405 611 R2000 |
| CR-M230AC2 | 230 V AC | 1SVR 405 611 R3000 |

Bold printed products = stocked products. Packing unit = 10 pieces.
Sockets and pluggable function modules see separate data sheets.

Pluggable interface relays CR-M

Miniature relays

Data sheet

Ordering data (continued)

| Type | Supply voltage | Order code |
|---|-----------------|---------------------------|
| Interface relays without LED 3 c/o contacts: 250 V, 10 A | | |
| CR-M012DC3 | 12 V DC | 1SVR 405 612 R4000 |
| CR-M024DC3 | 24 V DC | 1SVR 405 612 R1000 |
| CR-M048DC3 | 48 V DC | 1SVR 405 612 R6000 |
| CR-M060DC3 | 60 V DC | 1SVR 405 612 R4200 |
| CR-M110DC3 | 110 V DC | 1SVR 405 612 R8000 |
| CR-M125DC3 | 125 V DC | 1SVR 405 612 R8200 |
| CR-M220DC3 | 220 V DC | 1SVR 405 612 R9000 |
| CR-M024AC3 | 24 V AC | 1SVR 405 612 R0000 |
| CR-M048AC3 | 48 V AC | 1SVR 405 612 R5000 |
| CR-M110AC3 | 110 V AC | 1SVR 405 612 R7000 |
| CR-M120AC3 | 120 V AC | 1SVR 405 612 R2000 |
| CR-M230AC3 | 230 V AC | 1SVR 405 612 R3000 |
| Interface relays without LED 4 c/o contacts: 250 V, 6 A | | |
| CR-M012DC4 | 12 V DC | 1SVR 405 613 R4000 |
| CR-M024DC4 | 24 V DC | 1SVR 405 613 R1000 |
| CR-M048DC4 | 48 V DC | 1SVR 405 613 R6000 |
| CR-M060DC4 | 60 V DC | 1SVR 405 613 R4200 |
| CR-M110DC4 | 110 V DC | 1SVR 405 613 R8000 |
| CR-M125DC4 | 125 V DC | 1SVR 405 613 R8200 |
| CR-M220DC4 | 220 V DC | 1SVR 405 613 R9000 |
| CR-M024AC4 | 24 V AC | 1SVR 405 613 R0000 |
| CR-M048AC4 | 48 V AC | 1SVR 405 613 R5000 |
| CR-M110AC4 | 110 V AC | 1SVR 405 613 R7000 |
| CR-M120AC4 | 120 V AC | 1SVR 405 613 R2000 |
| CR-M230AC4 | 230 V AC | 1SVR 405 613 R3000 |
| Interface relays with LED 2 c/o contacts: 250 V, 12 A | | |
| CR-M012DC2L | 12 V DC | 1SVR 405 611 R4100 |
| CR-M024DC2L | 24 V DC | 1SVR 405 611 R1100 |
| CR-M048DC2L | 48 V DC | 1SVR 405 611 R6100 |
| CR-M060DC2L | 60 V DC | 1SVR 405 611 R4300 |
| CR-M110DC2L | 110 V DC | 1SVR 405 611 R8100 |
| CR-M125DC2L | 125 V DC | 1SVR 405 611 R8300 |
| CR-M220DC2L | 220 V DC | 1SVR 405 611 R9100 |
| CR-M024AC2L | 24 V AC | 1SVR 405 611 R0100 |
| CR-M048AC2L | 48 V AC | 1SVR 405 611 R5100 |
| CR-M110AC2L | 110 V AC | 1SVR 405 611 R7100 |
| CR-M120AC2L | 120 V AC | 1SVR 405 611 R2100 |
| CR-M230AC2L | 230 V AC | 1SVR 405 611 R3100 |

Bold printed products = stocked products. Packing unit = 10 pieces.
Sockets and pluggable function modules see separate data sheets.

Pluggable interface relays CR-M

Miniature relays

Data sheet

Ordering data (continued)

| Type | Supply voltage | Order code |
|---|-----------------|---------------------------|
| Interface relays with LED 3 c/o contacts: 250 V, 10 A | | |
| CR-M012DC3L | 12 V DC | 1SVR 405 612 R4100 |
| CR-M024DC3L | 24 V DC | 1SVR 405 612 R1100 |
| CR-M048DC3L | 48 V DC | 1SVR 405 612 R6100 |
| CR-M060DC3L | 60 V DC | 1SVR 405 612 R4300 |
| CR-M110DC3L | 110 V DC | 1SVR 405 612 R8100 |
| CR-M125DC3L | 125 V DC | 1SVR 405 612 R8300 |
| CR-M220DC3L | 220 V DC | 1SVR 405 612 R9100 |
| CR-M024AC3L | 24 V AC | 1SVR 405 612 R0100 |
| CR-M048AC3L | 48 V AC | 1SVR 405 612 R5100 |
| CR-M110AC3L | 110 V AC | 1SVR 405 612 R7100 |
| CR-M120AC3L | 120 V AC | 1SVR 405 612 R2100 |
| CR-M230AC3L | 230 V AC | 1SVR 405 612 R3100 |
| Interface relays with LED 4 c/o contacts: 250 V, 6 A | | |
| CR-M012DC4L | 12 V DC | 1SVR 405 613 R4100 |
| CR-M024DC4L | 24 V DC | 1SVR 405 613 R1100 |
| CR-M048DC4L | 48 V DC | 1SVR 405 613 R6100 |
| CR-M060DC4L | 60 V DC | 1SVR 405 613 R4300 |
| CR-M110DC4L | 110 V DC | 1SVR 405 613 R8100 |
| CR-M125DC4L | 125 V DC | 1SVR 405 613 R8300 |
| CR-M220DC4L | 220 V DC | 1SVR 405 613 R9100 |
| CR-M024AC4L | 24 V AC | 1SVR 405 613 R0100 |
| CR-M048AC4L | 48 V AC | 1SVR 405 613 R5100 |
| CR-M110AC4L | 110 V AC | 1SVR 405 613 R7100 |
| CR-M120AC4L | 120 V AC | 1SVR 405 613 R2100 |
| CR-M230AC4L | 230 V AC | 1SVR 405 613 R3100 |
| Interface relays with LED and gold contacts 4 c/o contacts: 250 V, 6 A | | |
| CR-M012DC4LG | 12 V DC | 1SVR 405 618 R4100 |
| CR-M024DC4LG | 24 V DC | 1SVR 405 618 R1100 |
| CR-M048DC4LG | 48 V DC | 1SVR 405 618 R6100 |
| CR-M060DC4LG | 60 V DC | 1SVR 405 618 R4300 |
| CR-M110DC4LG | 110 V DC | 1SVR 405 618 R8100 |
| CR-M125DC4LG | 125 V DC | 1SVR 405 618 R8300 |
| CR-M220DC4LG | 220 V DC | 1SVR 405 618 R9100 |
| CR-M024AC4LG | 24 V AC | 1SVR 405 618 R0100 |
| CR-M048AC4LG | 48 V AC | 1SVR 405 618 R5100 |
| CR-M110AC4LG | 110 V AC | 1SVR 405 618 R7100 |
| CR-M120AC4LG | 120 V AC | 1SVR 405 618 R2100 |
| CR-M230AC4LG | 230 V AC | 1SVR 405 618 R3100 |
| Interface relays with LED and free wheeling diode 4 c/o contacts: 250 V, 6 A | | |
| CR-M024DC4LD | 24 V DC | 1SVR 405 614 R1100 |

Bold printed products = stocked products. Packing unit = 10 pieces.
Sockets and pluggable function modules see separate data sheets.

Pluggable interface relays CR-M

Miniature relays

Data sheet

Ordering data - Accessories

| Type | Version | Connection | Order code |
|------------------------------|-------------------------|-----------------|---------------------------|
| Logical sockets | | | |
| CR-M2LS | for 2 c/o contacts | screw | 1SVR 405 651 R1100 |
| CR-M3LS | for 3 c/o contacts | screw | 1SVR 405 651 R2100 |
| CR-M4LS | for 2 or 4 c/o contacts | screw | 1SVR 405 651 R3100 |
| CR-M2LC | for 2 c/o contacts | spring | 1SVR 405 651 R1200 |
| CR-M4LC | for 2 or 4 c/o contacts | spring | 1SVR 405 651 R3200 |
| Standard sockets | | | |
| CR-M2SS | for 2 c/o contacts | screw | 1SVR 405 651 R1000 |
| CR-M3SS | for 3 c/o contacts | screw | 1SVR 405 651 R2000 |
| CR-M4SS | for 2 or 4 c/o contacts | screw | 1SVR 405 651 R3000 |
| CR-M2SF | for 2 c/o contacts | fork type screw | 1SVR 405 651 R1300 |
| CR-M4SF | for 2 or 4 c/o contacts | fork type screw | 1SVR 405 651 R3300 |
| Accessories for CR-M sockets | | | |
| CR-MH | Plastic holder | | 1SVR 405 659 R1000 |
| CR-MH1 | Metall holder | | 1SVR 405 659 R1100 |

Bold printed products = stocked products. Packing unit = 10 pieces.
Sockets and pluggable function modules see separate data sheets.

Pluggable interface relays CR-M

Miniature relays

Data sheet

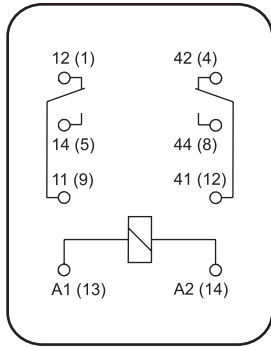
Application

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

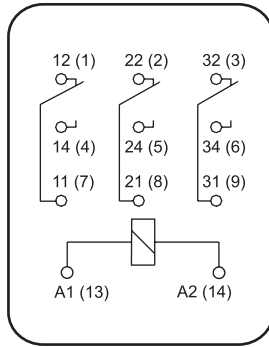
Operating mode

When power supply is applied, the output contacts get closed. When power supply is switched off, the contacts fall back into their starting position. Manual operation and locking of the outputs relays is possible via the integrated test button.

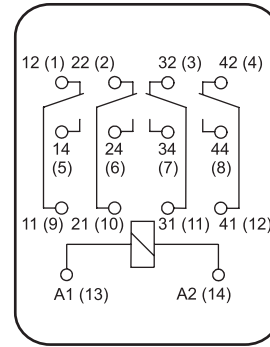
Position of connecting terminals



2CDC 292 011 F0004



2CDC 292 016 F0004



2CDC 292 020 F0004

CR-M with 2 c/o contacts

A1-A2 Supply voltage
11-12/14 Relay outputs
41-42/44

CR-M with 3 c/o contacts

A1-A2 Supply voltage
11-12/14 Relay outputs
21-22/24
31-32/34

CR-M with 4 c/o contacts

A1-A2 Supply voltage
11-12/14 Relay outputs
21-22/24
31-32/34
41-42/44

Technical data

Input circuit - Coil data A1-A2

| | Rated voltage | Rated voltage frequency | Make voltage (at 20 °C) | Maxium voltage (at 55 °C) | Break voltage | Rated power | Coil resistance (at 20 °C) | Tolerance of coil resistance |
|----------|---------------|-------------------------|-------------------------|---------------------------|----------------|-------------|----------------------------|------------------------------|
| DC coils | 12 V DC | - | 9.6 V DC | 13.2 V DC | $\geq 0.1 U_n$ | 0.9 W | 160 Ω | $\pm 10 \%$ |
| | 24 V DC | - | 19.2 DC | 26.4 V DC | $\geq 0.1 U_n$ | 0.9 W | 640 Ω | $\pm 10 \%$ |
| | 48 V DC | - | 38.4 V DC | 52.8 V DC | $\geq 0.1 U_n$ | 0.9 W | 2600 Ω | $\pm 10 \%$ |
| | 60 V DC | - | 48.0 V DC | 66.0 V | $\geq 0.1 U_n$ | 0.9 W | 4000 Ω | $\pm 10 \%$ |
| | 110 V DC | - | 88 V DC | 121 V DC | $\geq 0.1 U_n$ | 0.9 W | 13600 Ω | $\pm 10 \%$ |
| | 125 V DC | - | 100 V DC | 137.5 V DC | $\geq 0.1 U_n$ | 0.9 W | 16000 Ω | $\pm 10 \%$ |
| | 220 V DC | - | 176 V DC | 242 V DC | $\geq 0.1 U_n$ | 0.9 W | 54000 Ω | $\pm 10 \%$ |
| AC coils | 24 V AC | 50 / 60 Hz | 19.2 V AC | 26.4 V AC | $\geq 0.2 U_n$ | 1.6 VA | 158 Ω | $\pm 10 \%$ |
| | 48 V AC | 50 / 60 Hz | 38.4 V AC | 52.8 V AC | $\geq 0.2 U_n$ | 1.6 VA | 640 Ω | $\pm 10 \%$ |
| | 110 V AC | 50 / 60 Hz | 88 V AC | 121 V AC | $\geq 0.2 U_n$ | 1.6 VA | 3450 Ω | $\pm 10 \%$ |
| | 120 V AC | 50 / 60 Hz | 96 V AC | 132 V AC | $\geq 0.2 U_n$ | 1.6 VA | 3770 Ω | $\pm 10 \%$ |
| | 230 V AC | 50 / 60 Hz | 184 V AC | 253 V AC | $\geq 0.2 U_n$ | 1.6 VA | 16100 Ω | $\pm 10 \%$ |

Pluggable interface relays CR-M

Miniature relays

Data sheet

Technical data (continued)

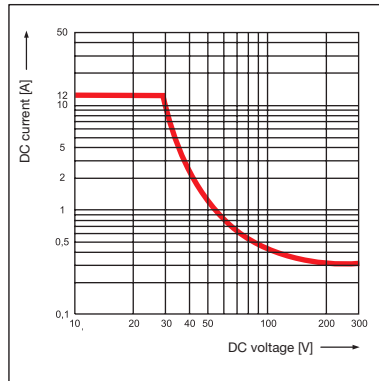
| Type | | CR-M...2 | CR-M...3 | CR-M...4 |
|---|-------------------------------|--|---|--|
| Output circuits - relay contacts | | 11-12/14 21-22/24 | 11-12/14 21-22/24 31-32/34 | 11-12/14 21-22/24 31-32/34 41-42/44 |
| Number of contacts | | 2 c/o | 3 c/o | 4 c/o |
| Contact material | | AgNi | AgNi | AgNi AgNi/Au 5 µm |
| Rated voltage | acc. to VDE 0110, IEC 60947-1 | 250 V | | |
| Min. switching voltage | | 5 V | | |
| Max. switching voltage | DC | 250 V DC | | |
| | AC | 250 V AC | | |
| Min. switching current | | 5 mA | | |
| Rated current | | 12 A | 10 A | 6 A |
| Rated operating current acc. to IEC 60947-5-1 | AC12 (resistive) 230 V | 12 A | 10 A | 6 A |
| | AC15 (inductive) 230 V | 1.5 A | 1.5 A | 1 A |
| | DC12 (resistive) 24 V | 12 A | 10 A | 6 A |
| | DC13 (inductive) 24 V | 8 A | 8 A | 6 A |
| Min. switching power | | 0.3 W (AgNi), 0.1 W (AgNi/Au) | | |
| Max. switching power | AC1 | 3000 VA | 2500 VA | 1500 VA |
| Contact resistance | | ≤ 100 mΩ | | |
| Max. switching capacity | rated load AC1 | 1200 switching cycles/h | | |
| | without load | 18000 switching cycles/h | | |
| Max. lifetime | mechanical | > 2 x 10 ⁷ switching cycles | | |
| | electrical AC1 (resistive) | > 10 ⁵ switching cycles | | |
| | | (12 A, 250 V) | (10 A, 250 V) | (6 A, 250 V) |
| | cos | see load limit curve | | |
| Response time | | typ. 13/10 ms | | |
| Release time | | typ. 3/8 ms | | |
| Isolation data | | | | |
| Rated insulation voltage | | 250 V AC | | |
| Insulation class | | C250 / B250 | | |
| Rated impulse withstand voltage U _{imp} between | coil and contacts | 2.5 kV AC | | |
| | contacts | 1.5 kV AC | | |
| | c/o contacts | 2.5 kV AC / 2 kV AC | | |
| Clearance/creepage distance | betw. coil and contacts | ≥ 4 mm / ≥ 3.2 mm | | |
| General data | | | | |
| Dimensions (L x W x H) | | 27.5 x 21.2 x 35.6 mm | | |
| Weight | | 35 g (0.077 lb) | | |
| Mounting position | | any | | |
| Degree of protection | | IP 40 | | |
| Temperature range | operation | DC | -40...+70 °C | |
| | | AC | -40...+55 °C | |
| | storage | -40...+85 °C | | |
| Connection | | by socket | | |
| Mounting | | on socket (see accessories) | | |
| Vibration resistance (10-150 Hz) | n/o, n/c | 10 g / 5 g | | |
| Shock resistance | | 5 g | | |
| Standards | | | | |
| Product standard | | EN 60810-1, EN 60255-23, IEC 61810-7 | | |
| Low Voltage Directive | | 73/23/EEC | | |

Pluggable interface relays CR-M

Miniature relays

Data sheet

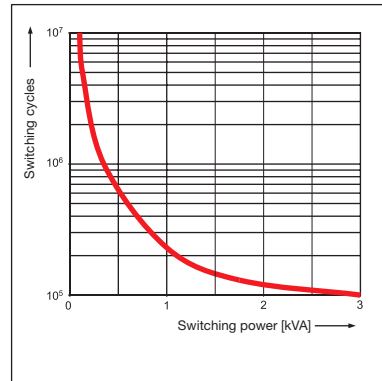
Maximum switching power
at resistive DC load



2CDC 292 015 F2004

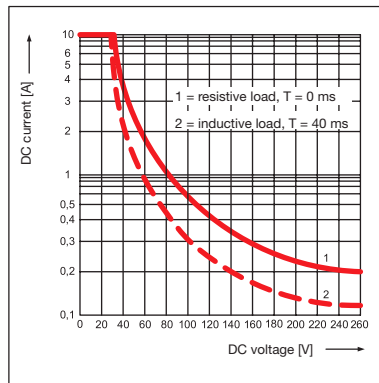
Versions with 2 c/o contacts (CR-M ... 2)

Electrical lifetime
at resistive AC load



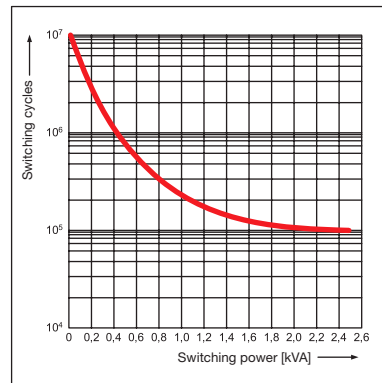
2CDC 292 013 F2004

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



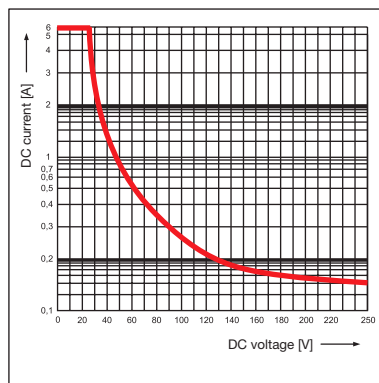
2CDC 292 019 F0204

Versions with 3 c/o contacts (CR-M ... 3)



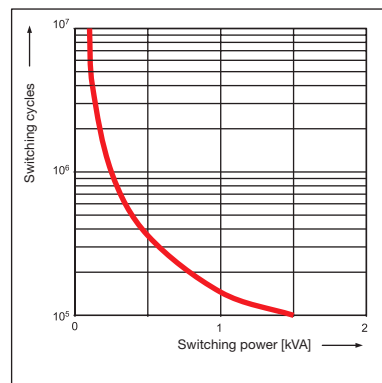
2CDC 292 018 F0204

Versions with 3 c/o contacts (CR-M ... 3)



2CDC 292 023 F0204

Versions with 4 c/o contacts (CR-M ... 4)



2CDC 292 022 F0204

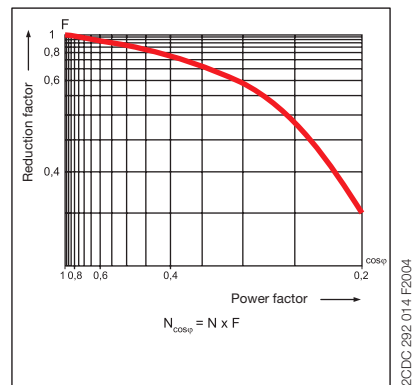
Versions with 4 c/o contacts (CR-M ... 4)

Pluggable interface relays CR-M

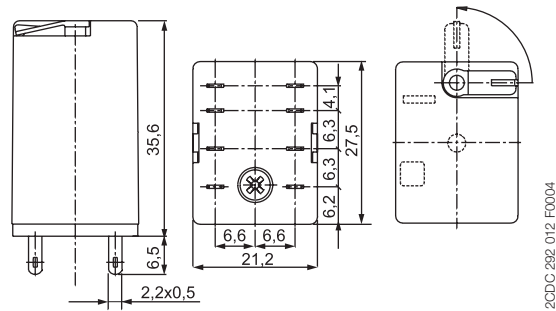
Miniature relays

Data sheet

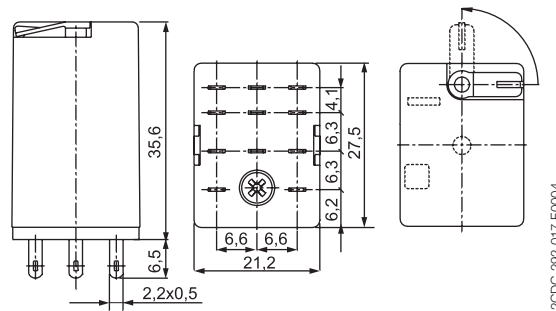
Reduktion factor F at inductive AC load



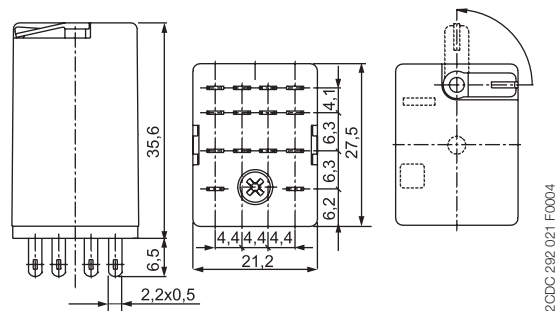
Dimensions
in mm



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



Versions with 3 c/o contacts (CR-M ... 3)



Versions with 4 c/o contacts (CR-M ... 4)

Accessories

Sockets: see data sheet 2CDC 117 005 D02xx
 Pluggable function modules: see data sheet 2CDC 117 007 D02xx

Pluggable interface relays CR-M

Miniature relays

Data sheet



Subject to change without prior notice. All statements serve exclusively to describe the product and have not to be understood as assured characteristics with legal force.

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