

Pluggable interface relays CR-MX

Miniature relays


Pluggable interface relays are used for electrical isolation, amplification and signal matching between the electronic controlling, e.g. PLC (programmable logic controller), PC or field bus systems and the sensor / actuator level. They do not use additional internal protective circuits and thus are overload-proof against short-time variations like current or voltage peaks.



Characteristics

- Standard miniature relays
- 7 different rated control supply voltages:
 - DC versions: 12 V, 24 V, 48 V, 110 V
 - AC versions: 24 V, 110 V, 230 V
- Output: 2 c/o (SPDT) contacts (7 A) or 4 c/o (SPDT) contacts (5 A)
- Available with or without LED
- Cadmium-free contact material
- Width on socket: 27 mm (1.063 in)
- Pluggable function modules available

Approvals

 ANSI/UL 508; CAN/CSA-C22.2 No.14

 TUV

 CQC

Marks

 CE

Order data

Packing unit = 10 pieces

Interface relays without LED, 2 c/o (SPDT) contacts: 250 V, 7 A

Type	Rated control supply voltage U _s	Order code
CR-MX012DC2	12 V DC	1SVR405631R4000
CR-MX024DC2	24 V DC	1SVR405631R1000
CR-MX048DC2	48 V DC	1SVR405631R6000
CR-MX110DC2	110 V DC	1SVR405631R8000
CR-MX024AC2	24 V AC	1SVR405631R0000
CR-MX110AC2	110 V AC	1SVR405631R7000
CR-MX230AC2	230 V AC	1SVR405631R3000

Interface relays without LED, 4 c/o (SPDT) contacts: 250 V, 5 A

CR-MX012DC4	12 V DC	1SVR405633R4000
CR-MX024DC4	24 V DC	1SVR405633R1000
CR-MX048DC4	48 V DC	1SVR405633R6000
CR-MX110DC4	110 V DC	1SVR405633R8000
CR-MX024AC4	24 V AC	1SVR405633R0000
CR-MX110AC4	110 V AC	1SVR405633R7000
CR-MX230AC4	230 V AC	1SVR405633R3000

Interface relays with LED (DC coils: green LED, AC coils: red LED), 2 c/o (SPDT) contacts: 250 V, 7 A

CR-MX012DC2L	12 V DC	1SVR405631R4100
CR-MX024DC2L	24 V DC	1SVR405631R1100
CR-MX048DC2L	48 V DC	1SVR405631R6100
CR-MX110DC2L	110 V DC	1SVR405631R8100
CR-MX024AC2L	24 V AC	1SVR405631R0100
CR-MX110AC2L	110 V AC	1SVR405631R7100
CR-MX230AC2L	230 V AC	1SVR405631R3100

Interface relays with LED (DC coils: green LED, AC coils: red LED), 4 c/o (SPDT) contacts: 250 V, 5 A

CR-MX012DC4L	12 V DC	1SVR405633R4100
CR-MX024DC4L	24 V DC	1SVR405633R1100
CR-MX048DC4L	48 V DC	1SVR405633R6100
CR-MX110DC4L	110 V DC	1SVR405633R8100
CR-MX024AC4L	24 V AC	1SVR405633R0100
CR-MX110AC4L	110 V AC	1SVR405633R7100
CR-MX230AC4L	230 V AC	1SVR405633R3100

Accessories - Function modules

Type	Rated control supply voltage U _s	Version	Order code
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Diode - Reverse polarity protection

CR-P/M 22	6-220 V DC	A1+, A2-	1SVR405651R0000
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Diode and LED - Reverse polarity protection

CR-P/M 42	6-24 V DC	red, A1+, A2-	1SVR405652R0000
CR-P/M 42V	6-24 V DC	green, A1+, A2-	1SVR405652R1000
CR-P/M 42B	24-60 V DC	red, A1+, A2-	1SVR405652R4000
CR-P/M 42BV	24-60 V DC	green, A1+, A2-	1SVR405652R4100
CR-P/M 42C	110 V DC	red, A1+, A2-	1SVR405652R9000
CR-P/M 42CV	110 V DC	green, A1+, A2-	1SVR405652R9100

RC element - Arc elimination

CR-P/M 52B	6-24 V AC/DC		1SVR405653R0000
CR-P/M 52D	24-60 V AC/DC		1SVR405653R4000
CR-P/M 52C	110-230 V AC/DC		1SVR405653R1000

Diode and LED

CR-P/M 62	6-24 V AC/DC	red, for DC: A1+, A2-	1SVR405654R0000
CR-P/M 62V	6-24 V AC/DC	green, for DC: A1+, A2-	1SVR405654R1000
CR-P/M 62E	24-60 V AC/DC	red, for DC: A1+, A2-	1SVR405654R4000
CR-P/M 62EV	24-60 V AC/DC	green, for DC: A1+, A2-	1SVR405654R4100
CR-P/M 92	110-230 V AC / 110 V DC	red, for DC: A1+, A2-	1SVR405654R0100
CR-P/M 92V	110-230 V AC / 110 V DC	green, for DC: A1+, A2-	1SVR405654R1100

Varistor and LED - Overvoltage protection

CR-P/M 62C	6-24 V AC/DC	red, for DC: A1+, A2-	1SVR405655R0000
CR-P/M 62CV	6-24 V AC/DC	green, for DC: A1+, A2-	1SVR405655R1000
CR-P/M 62D	24-60 V AC/DC	red, for DC: A1+, A2-	1SVR405655R4000
CR-P/M 62DV	24-60 V AC/DC	green, for DC: A1+, A2-	1SVR405655R4100
CR-P/M 92C	110-230 V AC / 110 V DC	red, for DC: A1+, A2-	1SVR405655R0100
CR-P/M 92CV	110-230 V AC / 110 V DC	green, for DC: A1+, A2-	1SVR405655R1100

Varistor - Overvoltage protection

CR-P/M 72	24 V AC		1SVR405656R0000
CR-P/M 72A	115 V AC		1SVR405656R1000
CR-P/M 82	230 V AC		1SVR405656R2000

Accessories - Sockets

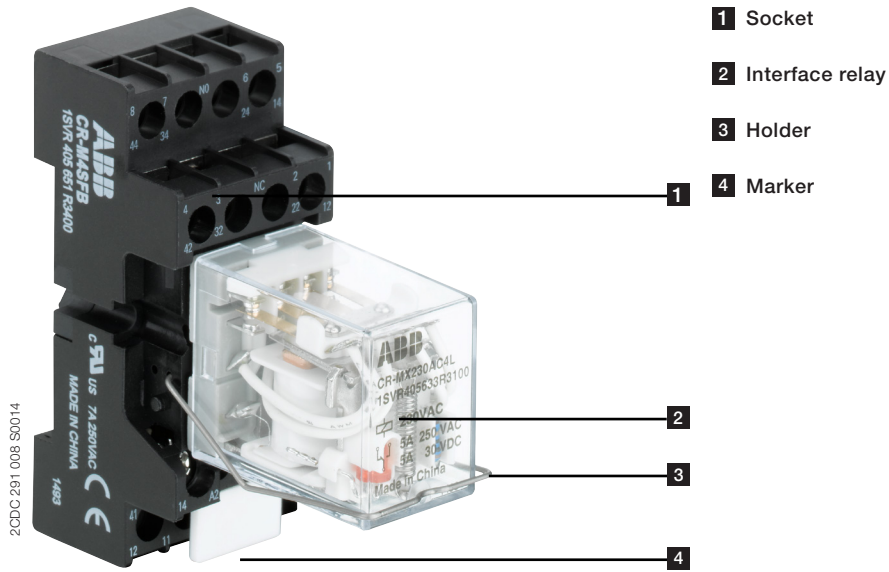
Type	Version	Connection	Order code
CR-M2SFB	for 2 c/o (SPDT) contacts, black	fork type screw	1SVR405651R1400
CR-M4SFB	for 2 or 4 c/o (SPDT) contacts, black	fork type screw	1SVR405651R3400

Holder

Type	Version	Order Code
CR-MH1	Metal holder	1SVR405659R1100

Functions

Operating controls



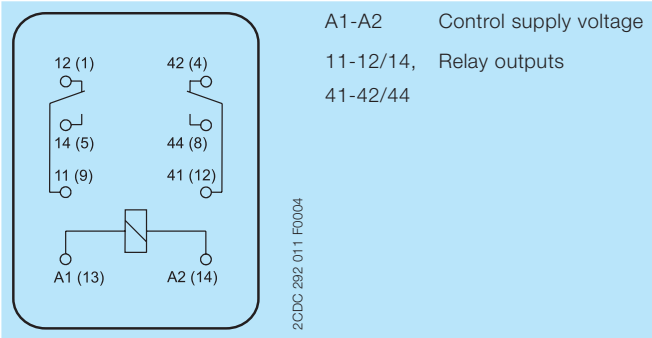
Application

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

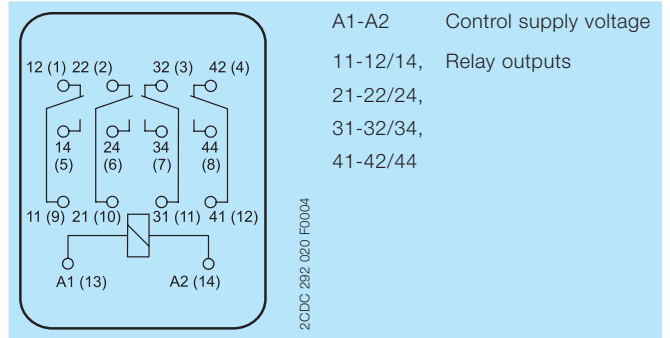
Operating mode

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

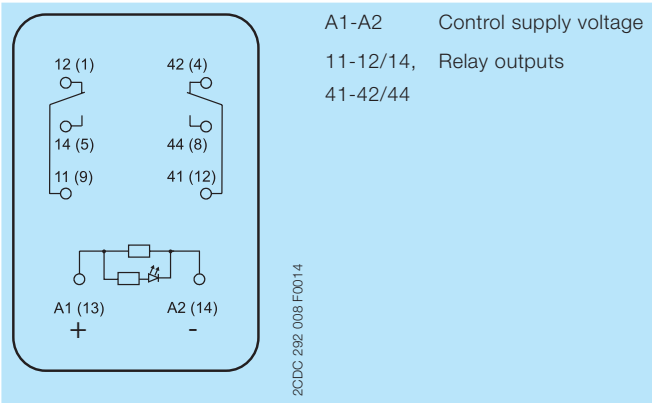
Electrical connection



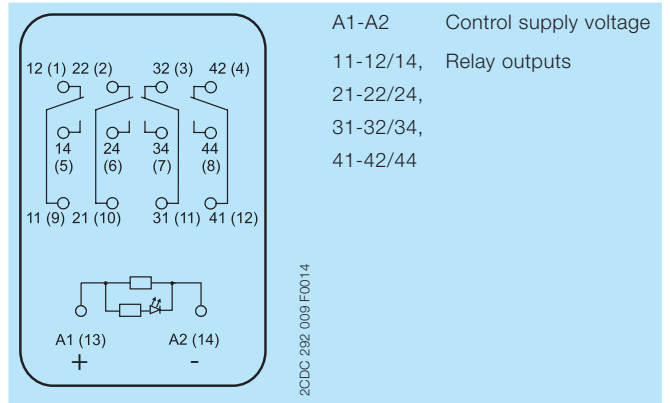
CR-MX with 2 c/o (SPDT) contacts without LED



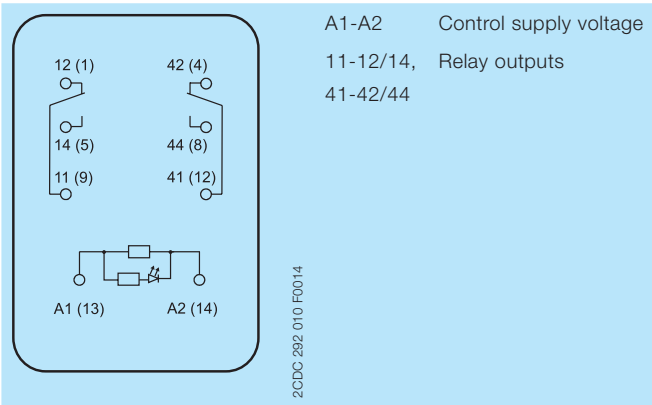
CR-MX with 4 c/o (SPDT) contacts without LED



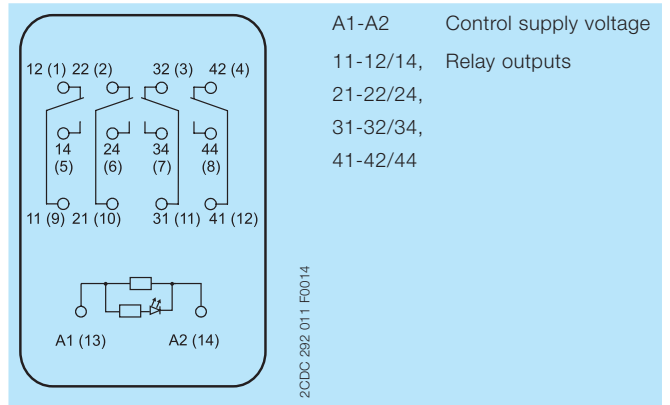
CR-MX with 2 c/o (SPDT) contacts with DC coil and LED



CR-MX with 4 c/o (SPDT) contacts with DC coil and LED



CR-MX with 2 c/o (SPDT) contacts with AC coil and LED



CR-MX with 4 c/o (SPDT) contacts with AC coil and LED

Technical data

Input circuit - Coil data A1-A2

	Rated control supply voltage U_s	Make voltage (at 23 °C)	Maximum 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	1.2 V DC	0.9 W	160 Ω	$\pm 10 \%$
	24 V DC	19.2 V DC	26.4 V DC	2.4 V DC	0.9 W	650 Ω	$\pm 10 \%$
	48 V DC	38.4 V DC	52.8 V DC	4.8 V DC	0.9 W	2600 Ω	$\pm 15 \%$
	110 V DC	88 V DC	121 V DC	11 V DC	0.9 W	11000 Ω	$\pm 15 \%$
AC coils	24 V AC	19.2 V AC	26.4 V AC	7.2 V AC	1.2 VA	184 Ω	$\pm 10 \%$
	110 V AC	96 V AC	132 V AC	36 V AC	1.4 VA	4550 Ω	$\pm 15 \%$
	230 V AC	176 V AC	264 V AC	72 V AC	1.8 VA	14400 Ω	$\pm 15 \%$

Output circuits

Type	CR-MX...2	CR-MX...4
Output circuits	11-12/14 41-42/44	11-12/14 21-22/24 31-32/34 41-42/44
Kind of output	Relay, 2 c/o (SPDT) contacts	Relay, 4 c/o (SPDT) contacts
Contact material	silver alloy	
Rated operational voltage U_o	250 V	
Minimum switching voltage / current	5 V / 5 mA	
Maximum switching voltage	250 V AC / 30 V DC	
Rated free air thermal current I_{th}	7 A	5 A
Rated operational current	DC resistive 30 V	7 A (10^5 switching cycles)
	AC resistive 250 V	7 A (10^5 switching cycles)
	DC inductive (L/R = 7 ms) 30 V	1.5 A (2×10^5 switching cycles)
	AC inductive ($\cos \phi = 0.4$) 250 V	0.8 A (2×10^5 switching cycles)
Minimum switching power	6 W	
Maximum switching (breaking) power	AC (resistive)	1750 VA / 210 W
Contact resistance	100 m Ω (at 1 A / 6 V DC)	
Maximum operating frequency	rated AC load	1200 switching cycles/h
	without load	9000 switching cycles/h
Mechanical lifetime	> 10^7 switching cycles	
Response time	25 ms	
Release time	25 ms	

Isolation data

Type	CR-MX...2	CR-MX...4
Rated insulation voltage	300 V AC	
Insulation class	F	
Rated impulse withstand voltage U_{imp}	between coil and contacts	1.1×1500 V r.m.s. (50 Hz), 1 s or 1500 V r.m.s. (50 Hz), 1 min
	between open contacts	(50 Hz), 1 min
	between c/o (SPDT) contacts	1.1×1000 V r.m.s. (50 Hz), 1 s or 1000 V r.m.s. (50 Hz), 1 min
Clearance	between coil and contacts	5.8 mm
Creepage distance	between coil and contacts	5.8 mm
Overvoltage category	III	
Pollution degree	2	

General data

Type	CR-MX...2	CR-MX...4
Dimensions (W x H x D) when mounted	21.5 mm x 28 mm x 35 mm (0.84 x 1.10 x 1.37 in)	
Weight	35 g (0.077 lb)	
Mounting	on socket (plug-in)	
Mounting position	any	
Degree of protection	RT I	

Electrical data

Type	CR-MX...2	CR-MX...4
Connection	by socket	

Environmental data

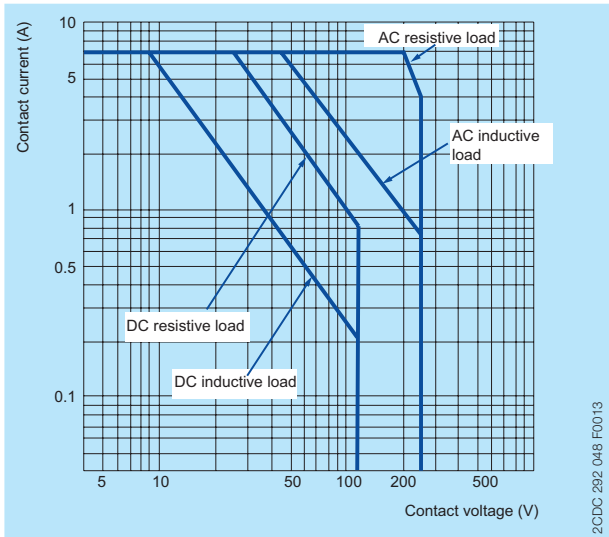
Type		CR-MX...2	CR-MX...4
Ambient temperature range	operation	-40...+70 °	
	storage	0...+40 °C	
Vibration resistance (10-150 Hz)	n/o contact	10 to 55 Hz 1 mm DA	
	n/c contact	10 to 55 Hz 1 mm DA	
Shock resistance	n/o contact	10 g	
	n/c contact	10 g	

Standards / Directives

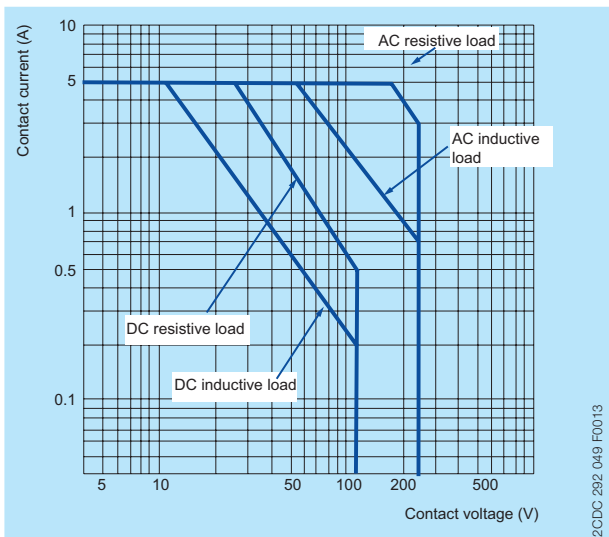
Type	CR-MX...2	CR-MX...4
Standards	IEC/EN 61810-1	
Low Voltage Directive	2014/35/EU	
RoHS Directive	2011/65/EU	

Technical diagrams

Load limit curves - Maximum switching power



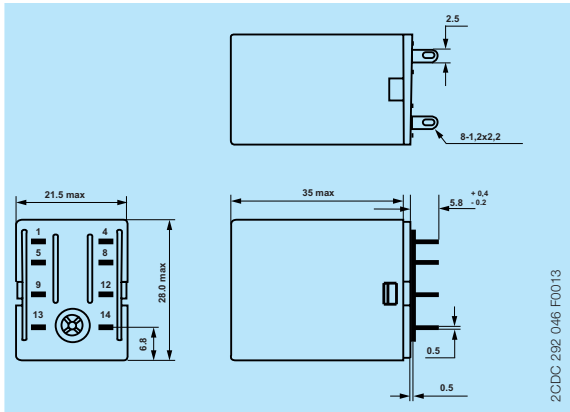
Versions with 2 c/o (SPDT) contacts



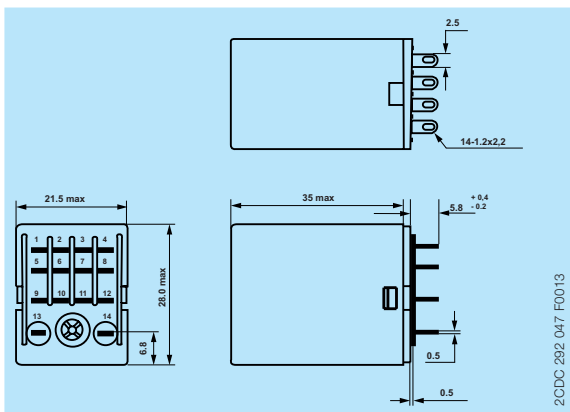
Versions with 4 c/o (SPDT) contacts

Dimensions

in mm



Versions with 2 c/o (SPDT) contacts



Versions with 4 c/o (SPDT) contacts

Further documentation

Document title	Document type	Document number
Electronic Products and Relays	Technical catalogue	2CDC 110 004 C02xx
Sockets CR-MX	Data sheet	2CDC 117 021 D020x

You can find the documentation on the internet at www.abb.com/lowvoltage

-> Automation, control and protection -> Electronic relays and controls

-> Interface relays and optocouplers

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