

# Pluggable interface relays

## Ordering details



CR-M

2CDC 291 046 F0004

### Description

Interface relays are widely used in various industrial applications:

As an interface they link the electronic controlling, e.g. PLC (programmable logic controller), PC or field bus systems, to the sensor / actuator level. Here, they take on various functions: Switching of AC or DC loads with different resistive, inductive and capacitive parts, switching voltages from a few mV up to 250 V, switching currents from a few mA up to 16 A, amplification of weak control signals, electrical isolation of control and load circuits, and signal multiplying. In contrast to electronic switching devices, interface relays don't use additional internal protective circuits and thus are overload-proof against short-time variations like current or voltage peaks.

### Ordering details - CR-M range

Rated control supply voltage	Outputs	Contact ratings	Type	Order code	Price	Pkg qty	Weight (1 pce) kg (lb)				
12 V DC	2 c/o (SPDT) without LED	250 V, 12 A	CR-M012DC2	1SVR405611R4000		10	0.033 (0.073)				
24 V DC			<b>CR-M024DC2</b>	<b>1SVR405611R1000</b>							
48 V DC			CR-M048DC2	1SVR405611R6000							
60 V DC			CR-M060DC2	1SVR405611R4200							
110 V DC			CR-M110DC2	1SVR405611R8000							
125 V DC			CR-M125DC2	1SVR405611R8200							
220 V DC			CR-M220DC2	1SVR405611R9000							
24 V AC			<b>CR-M024AC2</b>	<b>1SVR405611R0000</b>							
48 V AC			CR-M048AC2	1SVR405611R5000							
110 V AC			<b>CR-M110AC2</b>	<b>1SVR405611R7000</b>							
120 V AC			CR-M120AC2	1SVR405611R2000							
230 V AC			<b>CR-M230AC2</b>	<b>1SVR405611R3000</b>							
12 V DC			3 c/o (SPDT) without LED	250 V, 10 A	CR-M012DC3			1SVR405612R4000		10	0.033 (0.073)
24 V DC					<b>CR-M024DC3</b>			<b>1SVR405612R1000</b>			
48 V DC	CR-M048DC3	1SVR405612R6000									
60 V DC	CR-M060DC3	1SVR405612R4200									
110 V DC	CR-M110DC3	1SVR405612R8000									
125 V DC	CR-M125DC3	1SVR405612R8200									
220 V DC	CR-M220DC3	1SVR405612R9000									
24 V AC	<b>CR-M024AC3</b>	<b>1SVR405612R0000</b>									
48 V AC	CR-M048AC3	1SVR405612R5000									
110 V AC	<b>CR-M110AC3</b>	<b>1SVR405612R7000</b>									
120 V AC	CR-M120AC3	1SVR405612R2000									
230 V AC	<b>CR-M230AC3</b>	<b>1SVR405612R3000</b>									
12 V DC	4 c/o (SPDT) without LED	250 V, 6 A			CR-M012DC4	1SVR405613R4000		10	0.033 (0.073)		
24 V DC					<b>CR-M024DC4</b>	<b>1SVR405613R1000</b>					
48 V DC			CR-M048DC4	1SVR405613R6000							
60 V DC			CR-M060DC4	1SVR405613R4200							
110 V DC			CR-M110DC4	1SVR405613R8000							
125 V DC			CR-M125DC4	1SVR405613R8200							
220 V DC			CR-M220DC4	1SVR405613R9000							
24 V AC			<b>CR-M024AC4</b>	<b>1SVR405613R0000</b>							
48 V AC			CR-M048AC4	1SVR405613R5000							
110 V AC			<b>CR-M110AC4</b>	<b>1SVR405613R7000</b>							
120 V AC			CR-M120AC4	1SVR405613R2000							
230 V AC			<b>CR-M230AC4</b>	<b>1SVR405613R3000</b>							

Bold printed products = stocked products

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Rated control supply voltage	Outputs	Contact ratings	Type	Order code	Price	Pkg	Weight
						qty	(1 pce) kg (lb)
12 V DC	4 c/o (SPDT) with gold contacts and LED	250 V / 6 A	CR-M012DC4LG	1SVR405618R4100		10	0.033 (0.073)
24 V DC			<b>CR-M024DC4LG</b>	<b>1SVR405618R1100</b>			
48 V DC			CR-M048DC4LG	1SVR405618R6100			
60 V DC			CR-M060DC4LG	1SVR405618R4300			
110 V DC			CR-M110DC4LG	1SVR405618R8100			
125 V DC			CR-M125DC4LG	1SVR405618R8300			
220 V DC			CR-M220DC4LG	1SVR405618R9100			
24 V AC			<b>CR-M024AC4LG</b>	<b>1SVR405618R0100</b>			
48 V AC			CR-M048AC4LG	1SVR405618R5100			
110 V AC			<b>CR-M110AC4LG</b>	<b>1SVR405618R7100</b>			
120 V AC	CR-M120AC4LG	1SVR405618R2100					
230 V AC	<b>CR-M230AC4LG</b>	<b>1SVR405618R3100</b>					
12 V DC	4 c/o (SPDT) with gold contacts, LED and free-wheeling diode		CR-M012DC4LDG	1SVR405618R4400		10	0.033 (0.073)
24 V DC			CR-M024DC4LDG	1SVR405618R1400			



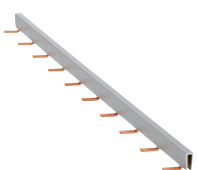
CR-M4SS

2CDC 291 009 F0011

### Ordering details - Accessories

Version	Connection terminal	Type	Order code	Price	Pkg	Weight
					qty	(1 pce) kg (lb)
Logical socket for 2 c/o	screw	<b>CR-M2LS</b>	<b>1SVR405651R1100</b>		10	0.055 (0.121)
Logical socket for 3 c/o		<b>CR-M3LS</b>	<b>1SVR405651R2100</b>			0.062 (0.137)
Logical socket for 2/4 c/o		<b>CR-M4LS</b>	<b>1SVR405651R3100</b>			0.066 (0.146)
Logical socket for 2 c/o	spring	<b>CR-M2LC</b>	<b>1SVR405651R1200</b>		10	0.065 (0.143)
Logical socket for 2/4 c/o		<b>CR-M4LC</b>	<b>1SVR405651R3200</b>			0.066 (0.146)
Standard socket for 2 c/o	screw	<b>CR-M2SS</b>	<b>1SVR405651R1000</b>		10	0.066 (0.146)
Standard socket for 3 c/o		<b>CR-M3SS</b>	<b>1SVR405651R2000</b>			0.068 (0.150)
Standard socket for 2/4 c/o		<b>CR-M4SS</b>	<b>1SVR405651R3000</b>			0.070 (0.154)
Standard socket for 2 c/o	fork type	<b>CR-M2SF</b>	<b>1SVR405651R1300</b>		10	0.040 (0.088)
Standard socket for 2/4 c/o		<b>CR-M4SF</b>	<b>1SVR405651R3300</b>			0.048 (0.106)
Plastic holder		<b>CR-MH</b>	<b>1SVR405659R1000</b>		10	0.003 (0.007)
Metal holder		<b>CR-MH1</b>	<b>1SVR405659R1100</b>		25	0.0005 (0.001)
CR-MJ		<b>CR-MJ</b>	<b>1SVR405658R6000</b>		10	0.029 (0.064)
CR-M		<b>CR-MM</b>	<b>1SVR405658R1000</b>		10	0.0005 (0.001)

Bold printed products = stocked products



CR-MJ

# Pluggable interface relays

## Technical data

Type	CR-P...1	CR-P...2	CR-M...2	CR-M...3	CR-M...4	CR-U...2	CR-U...3	
<b>Output circuit(s)</b>	11-12/14	11-12/14 21-22/24	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	11-12/14 31-32/34	11-12/14 21-22/24 31-32/34	
Kind of output	Relay, 1 c/o	Relay, 2 c/o	Relay, 2 c/o	Relay, 3 c/o	Relay, 4 c/o	Relay, 2 c/o	Relay, 3 c/o	
Contact material	AgNi	AgNi AgNi/Au 5 µm	AgNi	AgNi	AgNi AgNi/Au 5 µm	AgNi		
Rated operational voltage U <sub>e</sub> (VDE 0110, IEC 60947-1)				250 V				
Minimum switching voltage				5 V				
Maximum switching voltage	DC	300 V DC		250 V DC				
	AC	400 V AC		250 V AC				
Minimum switching current	5 mA (AgNi), 2 mA (AgNi/Au)							
Rated free air thermal current I <sub>th</sub>	16 A	8 A	12 A	10 A	6 A	10 A		
Rated operational current (IEC 60947-5-1)	AC12 (resistive) 230 V	16 A	8 A	12 A	10 A	6 A	10 A	
	AC15 (inductive) 230 V	1.5 A	1 A	1.5 A	1.5 A	1 A	1.5 A	
	DC12 (resistive) 24 V	16 A	8 A	12 A	10 A	6 A	10 A	
	DC13 (inductive) 24 V	2 A	2 A	8 A	8 A	6 A	2 A	
AC rating (UL 508)	Utilization category (Control Circuit Rating Code)					-	B 300	
	max. rated operational voltage					-	300 V AC	
	max. continuous thermal current at B 300					-	5 A	
	max. making / breaking apparent power at B 300					-	3600/360 VA	
	Utilization category General Purpose (single phase)					-	10 A, 250 V AC 10 A, 250 V AC	
	Utilization category (Resistive)	16 A, 250 V AC	8 A, 250 V AC	10 A, 250 V AC 12 A, 150 V AC	6 A, 250 V AC 10 A, 150 V AC	6 A, 250 V AC 10 A, 150 V AC	10 A, 250 V AC	-
	Minimum switching power	0.3 W (AgNi), 0.1 W (AgNi/Au)					0.3 W	
Maximum switching power AC-1	4000 VA	2000 VA	3000 VA	2500 VA	1500 VA	2500 VA		
Contact resistance	≤ 100 mΩ			≤ 100 mΩ				
Maximum switching capacity rated load AC-1	600 switching cycles/h		1200 switching cycles/h					
	without load		72000 switching cycles/h		18000 switching cycles/h		12000 switching cycles/h	
Mechanical lifetime	> 3 x 10 <sup>7</sup> switching cycles			> 2 x 10 <sup>7</sup> switching cycles				
Electrical lifetime AC1 (resistive)	> 10 <sup>9</sup> switching cycles		> 10 <sup>9</sup> switching cycles		> 10 <sup>9</sup> switching cycles		> 10 <sup>9</sup> switching cycles	
	(16 A, 250 V) : (8 A, 250 V)		(12 A, 250 V) : (10 A, 250 V)		(6 A, 250 V)		(10 A, 250 V)	
	cos φ see reduction factor F							
Response time	typ. 7 ms		typ. 13 ms (DC), 10 ms (AC)			typ. 18 ms (DC), 12 ms (AC)		
Release time	typ. 3 ms		typ. 3 ms (DC), 8 ms (AC)			typ. 7 ms (DC), 10 ms (AC)		
<b>Isolation data</b>								
Rated insulation voltage	400 V AC			250 V AC				
Insulation class	C250 / B400			C250 / B250		C250		
Rated impulse withstand voltage U <sub>imp</sub>	between coil and contacts	5 kV AC			2.5 kV AC			
	between open contacts	1 kV AC			1.5 kV AC			
	between c/o contacts	2.5 kV AC			2.5 kV AC	2 kV AC	2 kV AC	
Clearance	between coil and contacts	≥ 10 mm		≥ 2.5 mm	≥ 1.6 mm	≥ 3 mm		
Creepage distance	between coil and contacts	≥ 10 mm		≥ 4 mm	≥ 3.2 mm	≥ 4.2 mm		
Overvoltage category	III			III	II	III		
Pollution degree	3			3	2	3		
<b>General data</b>								
Dimensions (W x H x D) when mounted	12.7 x 29 x 15.7 mm		21.2 x 27.5 x 35.6 mm			35 x 35 x 54.4 mm		
Weight	14 g (0.031 lb)		35 g (0.077 lb)			83 g (0.18 lb)		
Mounting	on socket (see accessories)							
Mounting position	any							
Degree of protection	IP 67			IP 40				
<b>Electrical connection</b>								
Connection	by socket							

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# Pluggable interface relays

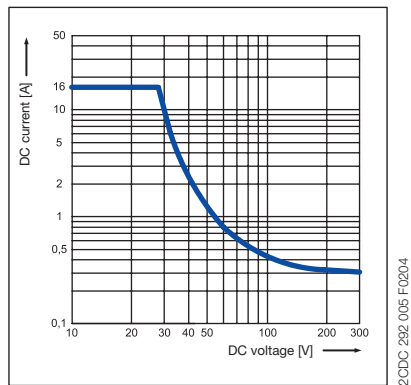
## Technical data, Load limit curves

Type		CR-P...1	CR-P...2	CR-M...2	CR-M...3	CR-M...4	CR-U...2	CR-U...3
<b>Environmental data</b>								
Ambient temperature range	operation DC	-40 ... +85 °C			-40 ... +70 °C			
	operation AC	-40 ... +70 °C			-40 ... +55 °C			
	storage				-40 ... +85 °C			
Vibration resistance 10-150 Hz	n/o contact	10 g			5 g		5 g	
	n/c contact	10 g	5 g	5 g		5 g		
Shock resistance	n/o contact	30 g	20 g	10 g		10 g		
	n/c contact	30 g	20 g	5 g		10 g		
<b>Standards</b>								
Product standard		EN 61810-1, EN 60255-23 IEC 60664-1			EN 60810-1, EN 60255-23 IEC 61810-7		EN 60255-1-00	
Low Voltage Directive					73/23/EEC			

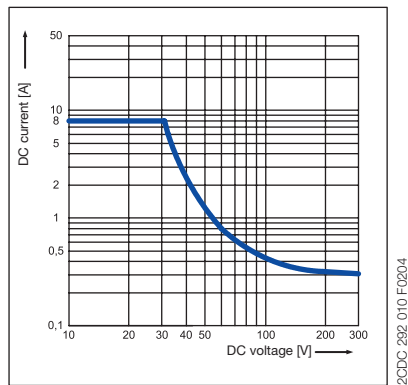
Approvals see page 5/6.

### Load limit curves - Maximum switching power at resistive DC load

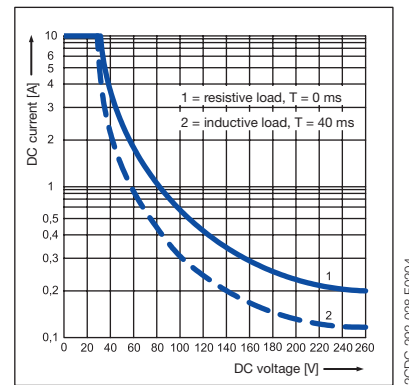
CR-P with 1 c/o contact



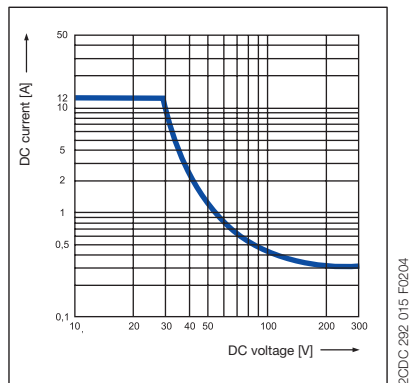
CR-P with 2 c/o contacts



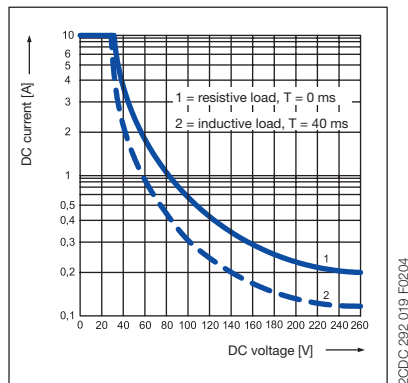
CR-U with 2 and 3 c/o contacts



CR-M with 2 c/o contacts



CR-M with 3 c/o contacts



CR-M with 4 c/o contacts

