



Catalog | December 2013

# Catalog 2013/2014

## Electronic Products and Relays

# Interface relays and optocouplers

## Product group picture

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# Interface relays and optocouplers

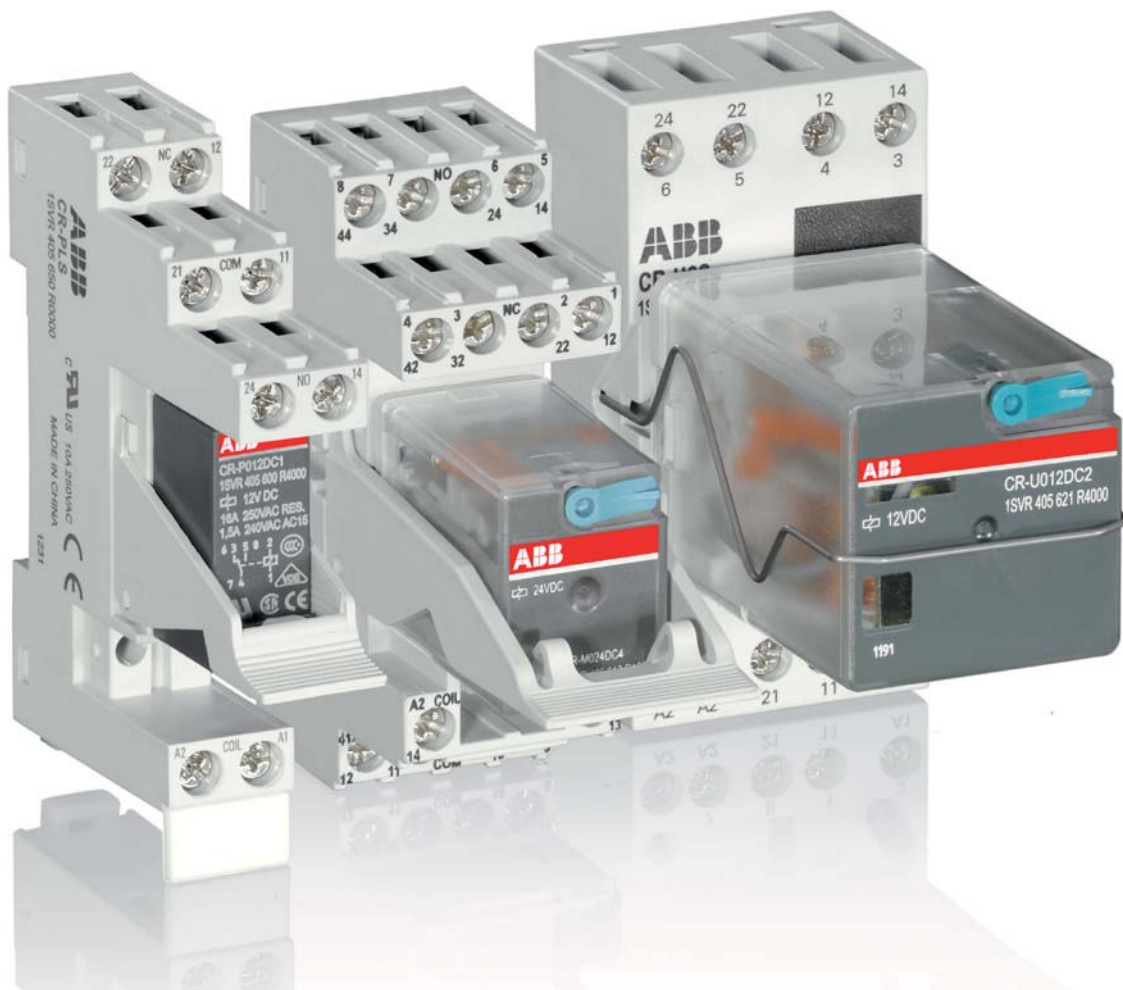
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# Pluggable interface relays

## Product group picture

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# Pluggable interface relays

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# Pluggable interface relays

## Benefits and advantages

### Pluggable pcb relays CR-P

- 9 different coil voltages
  - DC versions: 12 V, 24 V, 48 V, 110 V
  - AC versions: 24 V, 48 V, 110 V, 120 V, 230 V
- Output contacts:
  - 1 c/o contact (16 A) or
  - 2 c/o contacts (8 A) optionally equipped with gold contacts
- Logical or standard sockets
- Cadmium-free contact material
- Width of socket: 15,5 mm
- Pluggable function modules
  - Reverse polarity protection/ Free wheeling diode
  - LED indication
  - RC elements
  - Overvoltage protection

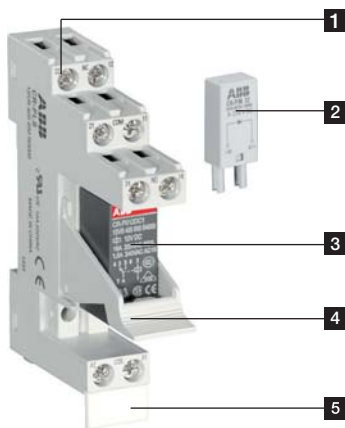
### Pluggable miniature relays CR-M

- 12 different coil 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 contacts (12 A) or
  - 3 c/o contacts (10 A) or
  - 4 c/o contacts (6 A) optionally equipped with gold contacts, LED and free wheeling diode
- Integrated test button for manual actuation and locking of the output contacts (blue = DC, orange = AC) that can be removed if necessary
- With or without integrated LED
- Logical or standard sockets
- Cadmium-free contact material
- Width on socket: 27 mm
- Pluggable function modules
  - Reverse polarity protection/ Free wheeling diode
  - LED indication
  - RC elements
  - Overvoltage protection

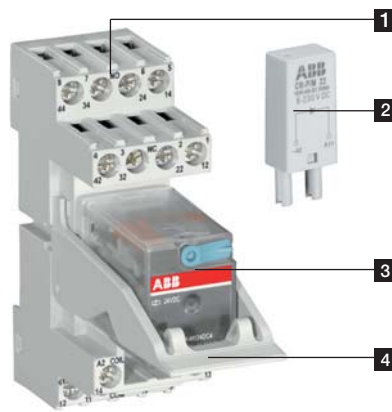
### Pluggable universal relays CR-U

- 12 different coil voltages
  - DC versions: 12 V, 24 V, 48 V, 110 V, 125 V, 220 V
  - AC versions: 24 V, 48 V, 60 V, 110 V, 120 V, 230 V
- Output contacts
  - 2 c/o contacts (10 A) or
  - 3 c/o contacts (10 A)
- Integrated test button for manual actuation and locking of the output contacts (blue = DC, orange = AC) that can be removed if necessary
- With or without integrated LED
- Cadmium-free contact material
- Width on socket: 38 mm
- Pluggable function modules
  - Reverse polarity protection/ Free wheeling diode
  - LED indication
  - RC elements
  - Overvoltage protection
  - Multifunction time module

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



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



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

# Pluggable interface relays

## Approvals and marks

### Kinds of sockets

#### Standard sockets - Position of connecting terminals:

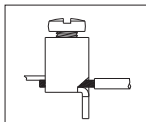
Coil connection (A1-A2) on lower socket side, contact connections (n/o and n/c contacts) on the lower and upper socket side.

#### Logical sockets - Position of connecting terminals:

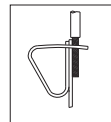
Coil connection (A1-A2) on lower socket side, all contact connections (common contacts, n/o and n/c contacts) on upper socket side.

Details see connection diagrams

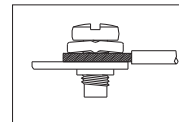
### Kind of connecting terminals



Screw type



Spring type



Fork type

### Approvals and marks

		Relays			Sockets							Modules	
		CR-P	CR-M	CR-U	CR-PLS CR-PSS	CR-PLC	CR-M..L. CR-M..SS	CR-M..SF	CR-U..S CR-U..E	CR-U..SM	CR-P/M	CR-U	
■ existing	□ pending												
<b>Approvals</b>													
	UL 508	■	■ <sup>1)</sup>	■									
	CAN/CSA C22.2 No.14	■	■ <sup>2)</sup>	■	■	■	■	■	■	■	■ <sup>6)</sup>	■ <sup>7)</sup>	
	CAN/CSA C22.2 No.14	■	■ <sup>3)</sup>	■									
	VDE	■	■ <sup>4)</sup>	■									
	GOST	■	■	■	■	■	■	■	■	■	■	■	■
	Lloyds Register		■ <sup>5)</sup>	■									
	CCC	■	■	■									
	RMRS	■	■ <sup>8)</sup>	■ <sup>8)</sup>	■	■	■	■	■	■			
<b>Marks</b>													
	CE	■	■	■	■	■	■	■	■	■	■	■	■

<sup>1)</sup> except 60 V DC and 125 V DC devices with gold contacts

<sup>2)</sup> except devices with gold contacts

<sup>3)</sup> except 60 V DC and 125 V DC devices

<sup>4)</sup> except 125 V DC devices

<sup>5)</sup> only devices with 4 c/o contacts

<sup>6)</sup> except CR-P/M 42B, CR-P/M 42BV, CR-P/M 42C, CR-P/M 42CV, CR-P/M 52D, CR-P/M 62E, CR-P/M 62EV, CR-P/M 62D, CR-P/M 62DV

<sup>7)</sup> except CR-U 41B, CR-U 41BV, CR-U 41C, CR-U 41CV, CR-U 51D, CR-U 61CV, CR-U 61E, CR-U 61EV, CR-U 61D, CR-U 61DV, CR-U 91C, CR-U T

<sup>8)</sup> except 60 V and 125 V devices



# Pluggable interface relays

## Ordering details



2CDC 291 045 F0004

CR-P

### 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-P range

Rated control supply voltage	Outputs	Contact ratings	Type	Order code	Price	Pkg	Weight (1 pce)
						qty	kg (lb)
12 V DC	1 c/o (SPDT)	250 V, 16 A	CR-P012DC1	1SVR405600R4000		10	0.014 (0.031)
24 V DC			<b>CR-P024DC1</b>	<b>1SVR405600R1000</b>			
48 V DC			CR-P048DC1	1SVR405600R6000			
110 V DC			CR-P110DC1	1SVR405600R8000			
24 V AC			<b>CR-P024AC1</b>	<b>1SVR405600R0000</b>			
48 V AC			CR-P048AC1	1SVR405600R5000			
110 V AC			<b>CR-P110AC1</b>	<b>1SVR405600R7000</b>			
120 V AC			CR-P120AC1	1SVR405600R2000			
230 V AC			<b>CR-P230AC1</b>	<b>1SVR405600R3000</b>			
12 V DC	2 c/o (SPDT)	250 V, 8 A	CR-P012DC2	1SVR405601R4000		10	0.014 (0.031)
24 V DC			<b>CR-P024DC2</b>	<b>1SVR405601R1000</b>			
48 V DC			CR-P048DC2	1SVR405601R6000			
110 V DC			CR-P110DC2	1SVR405601R8000			
24 V AC			<b>CR-P024AC2</b>	<b>1SVR405601R0000</b>			
48 V AC			CR-P048AC2	1SVR405601R5000			
110 V AC			<b>CR-P110AC2</b>	<b>1SVR405601R7000</b>			
120 V AC			CR-P120AC2	1SVR405601R2000			
230 V AC			<b>CR-P230AC2</b>	<b>1SVR405601R3000</b>			
24 V DC	2 c/o (SPDT) gold contact	250 V, 8 A	CR-P024DC2G	1SVR405606R1000		10	0.014 (0.031)
24 V AC			CR-P024AC2G	1SVR405606R0000			
110 V AC			CR-P110AC2G	1SVR405606R7000			
230 V AC			CR-P230AC2G	1SVR405606R3000			



2CDC 291 006 F0011

CR-PLS



2CDC 291 004 F0007

CR-PJ

### Ordering details - Accessories

Version	Connection terminal	Type	Order code	Price	Pkg	Weight (1 pce)
					qty	kg (lb)
Logical socket with protective separation	screw	CR-PLS	1SVR405650R0000		10	0.045 (0.099)
		CR-PLSx	1SVR405650R0100			0.043 (0.095)
Logical socket	spring	CR-PLC	1SVR405650R0200		10	0.042 (0.093)
	screw	CR-PSS	1SVR405650R1000			0.038 (0.084)
Standard socket						
Plastic holder for socket		CR-PH	1SVR405659R0000		10	0.002 (0.004)
Jumper bar for sockets with screw connection		CR-PJ	1SVR405658R5000		10	0.018 (0.040)
Marker		CR-PM	1SVR405658R0000		10	0.0002 (0.0004)

Bold printed products = stocked products



# 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 without LED

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)	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)	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									
60 V AC	CR-M060AC3	1SVR405612R5200									
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)	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

# Pluggable interface relays

## Ordering details



CR-M

2CDC 291 046 F0004

### 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) with LED	250 V, 12 A	CR-M012DC2L	1SVR405611R4100		10	0.033 (0.073)				
24 V DC			<b>CR-M024DC2L</b>	<b>1SVR405611R1100</b>							
48 V DC			CR-M048DC2L	1SVR405611R6100							
60 V DC			CR-M060DC2L	1SVR405611R4300							
110 V DC			CR-M110DC2L	1SVR405611R8100							
125 V DC			CR-M125DC2L	1SVR405611R8300							
220 V DC			CR-M220DC2L	1SVR405611R9100							
24 V AC			<b>CR-M024AC2L</b>	<b>1SVR405611R0100</b>							
48 V AC			CR-M048AC2L	1SVR405611R5100							
110 V AC			<b>CR-M110AC2L</b>	<b>1SVR405611R7100</b>							
120 V AC			CR-M120AC2L	1SVR405611R2100							
230 V AC			<b>CR-M230AC2L</b>	<b>1SVR405611R3100</b>							
12 V DC			3 c/o (SPDT) with LED	250 V, 10 A	CR-M012DC3L			1SVR405612R4100		10	0.033 (0.073)
24 V DC					<b>CR-M024DC3L</b>			<b>1SVR405612R1100</b>			
48 V DC	CR-M048DC3L	1SVR405612R6100									
60 V DC	CR-M060DC3L	1SVR405612R4300									
110 V DC	CR-M110DC3L	1SVR405612R8100									
125 V DC	CR-M125DC3L	1SVR405612R8300									
220 V DC	CR-M220DC3L	1SVR405612R9100									
24 V AC	CR-M024AC3L	1SVR405612R0100									
48 V AC	CR-M048AC3L	1SVR405612R5100									
110 V AC	<b>CR-M110AC3L</b>	<b>1SVR405612R7100</b>									
120 V AC	CR-M120AC3L	1SVR405612R2100									
230 V AC	<b>CR-M230AC3L</b>	<b>1SVR405612R3100</b>									
12 V DC	4 c/o (SPDT) with LED	250 V, 6 A			CR-M012DC4L	1SVR405613R4100		10	0.033 (0.073)		
24 V DC					<b>CR-M024DC4L</b>	<b>1SVR405613R1100</b>					
48 V DC			CR-M048DC4L	1SVR405613R6100							
60 V DC			CR-M060DC4L	1SVR405613R4300							
110 V DC			CR-M110DC4L	1SVR405613R8100							
125 V DC			CR-M125DC4L	1SVR405613R8300							
220 V DC			CR-M220DC4L	1SVR405613R9100							
24 V AC			<b>CR-M024AC4L</b>	<b>1SVR405613R0100</b>							
48 V AC			CR-M048AC4L	1SVR405613R5100							
110 V AC			<b>CR-M110AC4L</b>	<b>1SVR405613R7100</b>							
120 V AC			CR-M120AC4L	1SVR405613R2100							
230 V AC2			<b>CR-M230AC4L</b>	<b>1SVR405613R3100</b>							
24 V DC			4 c/o (SPDT), LED and free-wheeling diode	250 V, 6 A	CR-M024DC4LD	1SVR405614R1100				10	0.033 (0.073)
24 V DC			4 c/o (SPDT), gold contacts	250 V, 6 A	CR-M024DC4G	1SVR405618R1000				10	0.033 (0.073)
24 V AC	CR-M024AC4G	1SVR405618R0000									
110 V AC	CR-M110AC4G	1SVR405618R7000									
230 V AC	CR-M230AC4G	1SVR405618R3000									

Bold printed products = stocked products

# Pluggable interface relays

## Ordering details



CR-M

2CDC 291 046 F0004

Rated control supply voltage	Outputs	Contact ratings	Type	Order code	Price	Pkg	Weight (1 pce)
						qty	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			

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CR-M4SS

2CDC 291 009 F0011



CR-MJ

### Ordering details - Accessories

Version	Connection terminal	Type	Order code	Price	Pkg	Weight (1 pce)
					qty	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>		10	0.0005 (0.001)
Jumper bar for sockets with screw connection		<b>CR-MJ</b>	<b>1SVR405658R6000</b>		10	0.029 (0.064)
Marker		<b>CR-MM</b>	<b>1SVR405658R1000</b>		10	0.0005 (0.001)

Bold printed products = stocked products

# Pluggable interface relays

## Ordering details



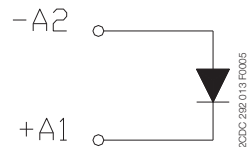
2CDC291 005 S0011

CR-P/M ...

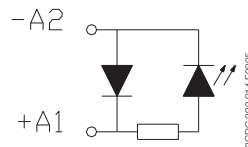
### Ordering details - CR-P/M range (all products stocked)

Rated control supply voltage	Description	Version	Type	Order code	Price	Pkg qty	Weight (1 pce)	
							kg	lb
6-220 V DC	Diode - Reverse polarity protection/ free wheeling diode	A1+, A2-	CR-P/M 22	1SVR405651R0000		10	0.003	(0.007)
6-24 V DC	Diode and LED - Reverse polarity protection/ free wheeling diode	red, A1+, A2-	CR-P/M 42	1SVR405652R0000		10	0.003	(0.007)
24-60 V DC		green, A1+, A2-	CR-P/M 42V	1SVR405652R1000				
110 V DC		red, A1+, A2-	CR-P/M 42B	1SVR405652R4000				
6-24 V AC		green, A1+, A2-	CR-P/M 42BV	1SVR405652R4100				
24-60 V AC	Spark quenching	red, A1+, A2-	CR-P/M 42C	1SVR405652R9000		10	0.003	(0.007)
110-230 V AC/DC		green, A1+, A2-	CR-P/M 42CV	1SVR405652R9100				
6-24 V AC	Spark quenching		CR-P/M 52B	1SVR405653R0000		10	0.003	(0.007)
24-60 V AC			CR-P/M 52D	1SVR405653R4000				
110-230 V AC/DC			CR-P/M 52C	1SVR405653R1000				
6-24 V AC/DC	Diode, LED and reverse polarity protection	red, for DC A1+, A2-	CR-P/M 62	1SVR405654R0000		10	0.003	(0.007)
24-60 V AC/DC		green, for DC A1+, A2-	CR-P/M 62V	1SVR405654R1000				
110 V DC		red, for DC A1+, A2-	CR-P/M 62E	1SVR405654R4000				
110-230 V AC		green, for DC A1+, A2-	CR-P/M 62EV	1SVR405654R4100				
6-24 V AC/DC	Varistor and LED Overvoltage protection	red, for DC A1+, A2-	CR-P/M 92	1SVR405654R0100		10	0.003	(0.007)
24-60 V AC/DC		green, for DC A1+, A2-	CR-P/M 92V	1SVR405654R1100				
110 V DC		red, for DC A1+, A2-	CR-P/M 62C	1SVR405655R0000				
110-230 V AC		green, for DC A1+, A2-	CR-P/M 62CV	1SVR405655R1000				
24 V AC	Overvoltage protection	red, for DC A1+, A2-	CR-P/M 62D	1SVR405655R4000		10	0.003	(0.007)
115 V AC		green, for DC A1+, A2-	CR-P/M 62DV	1SVR405655R4100				
230 V AC		red, for DC A1+, A2-	CR-P/M 92C	1SVR405655R0100				
24 V AC	Overvoltage protection	green, for DC A1+, A2-	CR-P/M 92CV	1SVR405655R1100		10	0.002	(0.004)
115 V AC			CR-P/M 72	1SVR405656R0000				
230 V AC			CR-P/M 72A	1SVR405656R1000				
			CR-P/M 82	1SVR405656R2000				

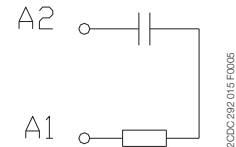
### Connection diagrams



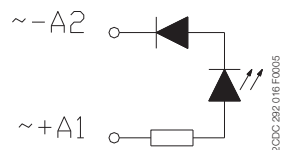
CR-P/M 22



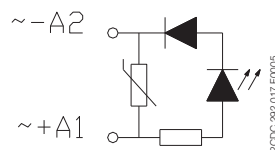
CR-P/M 42, CR-P/M 42C, CR-P/M 42BV, CR-P/M 42V, CR-P/M 42B, CR-P/M 42CV



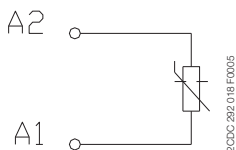
CR-P/M 52B, CR-P/M 52D, CR-P/M 52C



CR-P/M 62, CR-P/M 62E, CR-P/M 62V, CR-P/M 62EV, CR-P/M 62C, CR-P/M 62CV, CR-P/M 62DV, CR-P/M 62D, CR-P/M 62DV, CR-P/M 62CV, CR-P/M 62CV



CR-P/M 62C, CR-P/M 62D, CR-P/M 62CV, CR-P/M 62CV, CR-P/M 62D, CR-P/M 62DV, CR-P/M 62CV, CR-P/M 62CV



CR-P/M 72, CR-P/M 72A, CR-P/M 82

# Pluggable interface relays

## Ordering details



2CDC 291 047 F0004

CR-U

### 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-U 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 without LED	250 V, 10 A	CR-U012DC2	1SVR405621R4000		10	0.083 (0.183)				
24 V DC			<b>CR-U024DC2</b>	<b>1SVR405621R1000</b>							
48 V DC			CR-U048DC2	1SVR405621R6000							
110 V DC			CR-U110DC2	1SVR405621R8000							
220 V DC			CR-U220DC2	1SVR405621R9000							
24 V AC			<b>CR-U024AC2</b>	<b>1SVR405621R0000</b>							
48 V AC			CR-U048AC2	1SVR405621R5000							
110 V AC			<b>CR-U110AC2</b>	<b>1SVR405621R7000</b>							
120 V AC			CR-U120AC2	1SVR405621R2000							
230 V AC			<b>CR-U230AC2</b>	<b>1SVR405621R3000</b>							
12 V DC			3 c/o without LED	250 V, 10 A	CR-U012DC3			1SVR405622R4000		10	0.083 (0.183)
24 V DC					<b>CR-U024DC3</b>			<b>1SVR405622R1000</b>			
48 V DC					CR-U048DC3			1SVR405622R6000			
110 V DC					CR-U110DC3			1SVR405622R8000			
125 V DC	CR-U125DC3	1SVR405622R8200									
220 V DC	CR-U220DC3	1SVR405622R9000									
24 V AC	<b>CR-U024AC3</b>	<b>1SVR405622R0000</b>									
48 V AC	CR-U048AC3	1SVR405622R5000									
60 V AC	CR-U060AC3	1SVR405622R5200									
110 V AC	<b>CR-U110AC3</b>	<b>1SVR405622R7000</b>									
120 V AC	CR-U120AC3	1SVR405622R2000									
230 V AC	<b>CR-U230AC3</b>	<b>1SVR405622R3000</b>									
12 V DC	2 c/o with LED	250 V, 10 A			CR-U012DC2L	1SVR405621R4100		10	0.083 (0.183)		
24 V DC					<b>CR-U024DC2L</b>	<b>1SVR405621R1100</b>					
48 V DC			CR-U048DC2L	1SVR405621R6100							
110 V DC			CR-U110DC2L	1SVR405621R8100							
220 V DC			CR-U220DC2L	1SVR405621R9100							
24 V AC			<b>CR-U024AC2L</b>	<b>1SVR405621R0100</b>							
48 V AC			CR-U048AC2L	1SVR405621R5100							
110 V AC			<b>CR-U110AC2L</b>	<b>1SVR405621R7100</b>							
120 V AC			CR-U120AC2L	1SVR405621R2100							
230 V AC			<b>CR-U230AC2L</b>	<b>1SVR405621R3100</b>							
12 V DC			3 c/o with LED	250 V, 10 A	CR-U012DC3L	1SVR405622R4100				10	0.083 (0.183)
24 V DC					<b>CR-U024DC3L</b>	<b>1SVR405622R1100</b>					
48 V DC					CR-U048DC3L	1SVR405622R6100					
110 V DC					CR-U110DC3L	1SVR405622R8100					
220 V DC	CR-U220DC3L	1SVR405622R9100									
24 V AC	<b>CR-U024AC3L</b>	<b>1SVR405622R0100</b>									
48 V AC	CR-U048AC3L	1SVR405622R5100									
110 V AC	<b>CR-U110AC3L</b>	<b>1SVR405622R7100</b>									
120 V AC	CR-U120AC3L	1SVR405622R2100									
230 V AC	<b>CR-U230AC3L</b>	<b>1SVR405622R3100</b>									



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CR-U2S

### Ordering details - Accessories

Version	Type	Order code	Price	Pkg qty	Weight (1 pce) kg (lb)
Socket for 2 c/o and module	CR-U2S	1SVR405670R0000		10	
Socket for 3 c/o and module	CR-U3S	1SVR405660R0000			
Socket for 3 c/o	CR-U3E	1SVR405660R0100			
Socket small for 2 c/o	CR-U2SM	1SVR405670R1100			
Socket small for 3 c/o	CR-U3SM	1SVR405660R1100			
Holder for CR-U socket	CR-UH	1SVR405669R0000			

Bold printed products = stocked products



# Pluggable interface relays

## Ordering details



CR-U...

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### Ordering details - CR-U range (all products stocked)

Rated control supply voltage	Description	Version	Type	Order code	Price	Pkg qty	Weight (1 pce)	
							kg	lb
6-220 V DC	Diode - Reverse polarity protection/ free wheeling diode	A1+, A2-	CR-U 21	1SVR405661R0000		10	0.007	(0.015)
6-24 V DC	Diode and LED - Reverse polarity protection/ free wheeling diode	red, A1+, A2-	CR-U 41	1SVR405662R0000		10	0.007	(0.015)
24-60 V DC		green, A1+, A2-	CR-U 41V	1SVR405662R1000				
110 V DC		red, A1+, A2-	CR-U 41B	1SVR405662R4000				
6-24 V AC/DC		green, A1+, A2-	CR-U 41BV	1SVR405662R4100				
24-60 V AC/DC	Spark quenching	red, A1+, A2-	CR-U 41C	1SVR405662R9000		10	0.007	(0.015)
110-230 V AC/DC		green, A1+, A2-	CR-U 41CV	1SVR405662R9100				
6-24 V AC/DC			CR-U 51B	1SVR405663R0000				
24-60 V AC/DC	Diode and LED		CR-U 51D	1SVR405663R4000		10	0.007	(0.015)
110-230 V AC/DC			CR-U 51C	1SVR405663R1000				
6-24 V AC/DC		red, for DC A1+, A2-	CR-U 61	1SVR405664R0000				
24-60 V AC/DC	Diode and LED	green, for DC A1+, A2-	CR-U 61V	1SVR405664R1000		10	0.007	(0.015)
110 V DC		red, for DC A1+, A2-	CR-U 61E	1SVR405664R4000				
110-230 V AC		green, for DC A1+, A2-	CR-U 61EV	1SVR405664R4100				
6-24 V AC/DC		red, for DC A1+, A2-	CR-U 91	1SVR405664R0100				
24-60 V AC/DC	Varistor and LED Overvoltage protection	green, for DC A1+, A2-	CR-U 91V	1SVR405664R1100		10	0.007	(0.015)
110 V DC		red, for DC A1+, A2-	CR-U 61C	1SVR405665R0000				
110-230 V AC		green, for DC A1+, A2-	CR-U 61CV	1SVR405665R1000				
24 V AC		red, for DC A1+, A2-	CR-U 61D	1SVR405665R4000				
115 V AC	Overvoltage protection, varistor	green, for DC A1+, A2-	CR-U 61DV	1SVR405665R4100		10	0.007	(0.015)
230 V AC		red, for DC A1+, A2-	CR-U 91C	1SVR405665R0100				
24 V AC		green, for DC A1+, A2-	CR-U 91CV	1SVR405665R1100				
24-240 V AC/DC	Multifunction time module	pluggable onto CR-U2S and CR-U3S	CR-U T	1SVR405667R0000		10	0.014	(0.031)

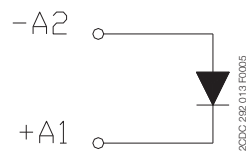


CR-U T

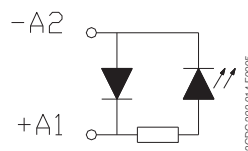
2CDC 291 002 F0005

### Connection diagrams

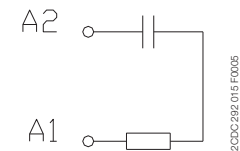
All CR-U modules can be plugged onto sockets CR-U2S and CR-U3S.



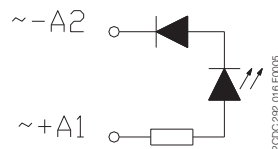
CR-U 21



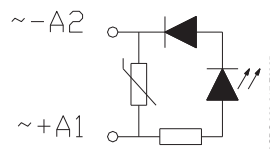
CR-U 41, CR-U 41B, CR-U 41C, CR-U 41V, CR-U 41BV, CR-U 41CV



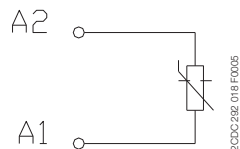
CR-U 51B, CR-U 51C CR-U 51D,



CR-U 61, CR-U 61V, CR-U 61E, CR-U 61EV, CR-U 91, CR-U 91V



CR-U 61C, CR-U 61D, CR-U 61CV, CR-U 61DV, CR-U 91C, CR-U 91CV




CR-U 71, CR-U 81 CR-U 71A,

# Pluggable interface relays

## Technical data


### Input circuit - coil data

#### CR-P range




	Rated control supply voltage $U_s$	Rated frequency	Make voltage (at 20 °C)	Maximum voltage (at 55 °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 $\Omega$	$\pm 10\%$
	24 V DC	-	16.8 V DC	61.2 V DC	$\geq 0.1 U_s$	0.4-0.48 W	1440 $\Omega$	$\pm 10\%$
	48 V DC	-	33.6 V DC	122.4 V DC	$\geq 0.1 U_s$	0.4-0.48 W	5700 $\Omega$	$\pm 10\%$
	110 V DC	-	77 V DC	280 V DC	$\geq 0.1 U_s$	0.4-0.48 W	25200 $\Omega$	$\pm 10\%$
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 $\Omega$	$\pm 10\%$
	48 V AC	50 / 60 Hz	38.4 V AC	57.6 V AC	$\geq 0.15 U_s$	0.75 VA	1550 $\Omega$	$\pm 10\%$
	110 V AC	50 / 60 Hz	88 V AC	132 V AC	$\geq 0.15 U_s$	0.75 VA	8900 $\Omega$	$\pm 10\%$
	120 V AC	50 / 60 Hz	96 V AC	144 V AC	$\geq 0.15 U_s$	0.75 VA	10200 $\Omega$	$\pm 10\%$
	230 V AC	50 / 60 Hz	184 V AC	276 V AC	$\geq 0.15 U_s$	0.75 VA	38500 $\Omega$	$\pm 10\%$

#### CR-M range



	Rated control supply voltage $U_s$	Rated frequency	Make voltage (at 20 °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	$\geq 0.1 U_s$	0.9 W	160 $\Omega$	$\pm 10\%$
	24 V DC	-	19.2 V DC	26.4 V DC	$\geq 0.1 U_s$	0.9 W	640 $\Omega$	$\pm 10\%$
	48 V DC	-	38.4 V DC	52.8 V DC	$\geq 0.1 U_s$	0.9 W	2600 $\Omega$	$\pm 10\%$
	60 V DC	-	48.0 V DC	66.0 V DC	$\geq 0.1 U_s$	0.9 W	4000 $\Omega$	$\pm 10\%$
	110 V DC	-	88 V DC	121 V DC	$\geq 0.1 U_s$	0.9 W	13600 $\Omega$	$\pm 10\%$
	125 V DC	-	100 V DC	137.5 V DC	$\geq 0.1 U_s$	0.9 W	16000 $\Omega$	$\pm 10\%$
	220 V DC	-	176 V DC	242 V DC	$\geq 0.1 U_s$	0.9 W	54000 $\Omega$	$\pm 10\%$
AC coils	24 V AC	50 / 60 Hz	19.2 V AC	26.4 V AC	$\geq 0.2 U_s$	1.6 VA	158 $\Omega$	$\pm 10\%$
	48 V AC	50 / 60 Hz	38.4 V AC	52.8 V AC	$\geq 0.2 U_s$	1.6 VA	640 $\Omega$	$\pm 10\%$
	60 V AC	50 / 60 Hz	48.0 V AC	66.0 V AC	$\geq 0.2 U_s$	1.6 VA	930 $\Omega$	$\pm 10\%$
	110 V AC	50 / 60 Hz	88 V AC	121 V AC	$\geq 0.2 U_s$	1.6 VA	3450 $\Omega$	$\pm 10\%$
	120 V AC	50 / 60 Hz	96 V AC	132 V AC	$\geq 0.2 U_s$	1.6 VA	3770 $\Omega$	$\pm 10\%$
	230 V AC	50 / 60 Hz	184 V AC	253 V AC	$\geq 0.2 U_s$	1.6 VA	16100 $\Omega$	$\pm 10\%$

#### CR-U range



	Rated control supply voltage $U_s$	Rated frequency	Make voltage (at 20 °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	$\geq 0.1 U_s$	1.5 W	110 $\Omega$	$\pm 10\%$
	24 V DC	-	19.2 V DC	26.4 V DC	$\geq 0.1 U_s$	1.5 W	430 $\Omega$	$\pm 10\%$
	48 V DC	-	38.4 V DC	52.8 V DC	$\geq 0.1 U_s$	1.5 W	1750 $\Omega$	$\pm 10\%$
	110 V DC	-	88.0 V DC	121.0 V DC	$\geq 0.1 U_s$	1.5 W	9200 $\Omega$	$\pm 10\%$
	125 V DC	-	96.0 V DC	132.0 V DC	$\geq 0.1 U_s$	1.5 W	11000 $\Omega$	$\pm 10\%$
	220 V DC	-	176.0 V DC	242.0 V DC	$\geq 0.1 U_s$	1.5 W	37000 $\Omega$	$\pm 10\%$
AC coils	24 V AC	50 / 60 Hz	19.2 V AC	26.4 V AC	$\geq 0.15 U_s$	2.8 VA (50 Hz) 2.5 VA (60 Hz)	75 $\Omega$	$\pm 10\%$
	48 V AC	50 / 60 Hz	38.4 V AC	52.8 V AC	$\geq 0.15 U_s$	2.8 VA (50 Hz) 2.5 VA (60 Hz)	305 $\Omega$	$\pm 10\%$
	60 V AC	50 / 60 Hz	48.0 V AC	66.0 V AC	$\geq 0.15 U_s$	2.8 VA (50 Hz) 2.5 VA (60 Hz)	475 $\Omega$	$\pm 10\%$
	110 V AC	50 / 60 Hz	88.0 V AC	121.0 V AC	$\geq 0.15 U_s$	2.8 VA (50 Hz) 2.5 VA (60 Hz)	1700 $\Omega$	$\pm 10\%$
	120 V AC	50 / 60 Hz	96.0 V AC	132.0 V AC	$\geq 0.15 U_s$	2.8 VA (50 Hz) 2.5 VA (60 Hz)	1910 $\Omega$	$\pm 10\%$
	230 V AC	50 / 60 Hz	184.0 V AC	253.0 V AC	$\geq 0.15 U_s$	2.8 VA (50 Hz) 2.5 VA (60 Hz)	7080 $\Omega$	$\pm 10\%$



# 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		10 V	10 V	5 V	10 V	
Maximum switching voltage	DC	300 V DC		250 V DC				
	AC	440 V AC		250 V AC			440 V AC	
Minimum switching current		5 mA (AgNi)	2 mA (AgNi/Au)	5 mA (AgNi)	5 mA (AgNi)	2 mA (AgNi/Au)	5 mA	
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	1.5 A	1.5 A	1.5 A	1 A	1.5 A	
	AC15 (inductive) 120 V	3 A						
	DC12 (resistive) 24 V	16 A	8 A	12 A	10 A	6 A	10 A	
	DC13 (inductive) 24 V	2.5 A	2 A	2.5 A	2.5 A	2 A	2 A	
	DC13 (inductive) 120 V	0.22 A						
	DC13 (inductive) 250 V	0.1 A						
AC rating (UL 508)	Utilization category (pilot duty) (Contact rating code designation)	B300		B300			-	B300
	max. rated operational voltage	300 V AC		300 V AC			-	300 V AC
	Max. continuous thermal current at utilization category	5 A		5 A	5 A	2.5 A	-	5 A
	Max. making / breaking apparent power at utilization category	3600 / 360 VA		3600 / 360 VA		1800 / 180 VA	-	3600/360 VA
	Utilization category (resistive) (CSA22.2 No.14...)	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	5 A, 250 V AC 10 A, 150 V AC	10 A, 250 V AC	
	Utilization category (pilot duty) (Contact rating code designation)	R300						
	Max. rated operational voltage	300 V DC						
DC rating * (UL 508; NEMA ICS-5)	Max. continuous thermal current at utilization category	1 A						
	Max. making / breaking apparent power at utilization category	28 VA						
	Utilization category (resistive) (CSA22.2 No.14...)	-	10 A, 24 V DC	-			10 A, 28 V DC	
Maximum making (inrush) current	30 A		24 A	20 A	12 A	20 A		
Minimum switching power	0.3 W (AgNi), 0.05 W (AgNi/Au)		0.3 W (AgNi), 0.1 W (AgNi/Au)				0.3 W	
Maximum switching (breaking) power	AC1 (resistive)	4000 VA	2000 VA	3000 VA	2500 VA	1500 VA	2500 VA	
Contact resistance		≤ 100 mΩ						
Maximum operating frequency	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	electrical AC1 (resistive)	> 0.7 x 10 <sup>5</sup> switching cycles (16 A, 250 V)	> 10 <sup>5</sup> switching cycles (8 A, 250 V)	(12 A, 250 V)	(10 A, 250 V)	(6 A, 250 V)	> 10 <sup>5</sup> switching cycles (10 A, 250 V)	
		cos φ see reduction factor F						
		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 (SPDT) contacts	-	2.5 kV AC	2.5 kV AC		≥ 2 kV AC	2 kV AC	

\* Those ratings are based on different type tests but they are not covered by the cULus or CSA approvals.

# Pluggable interface relays

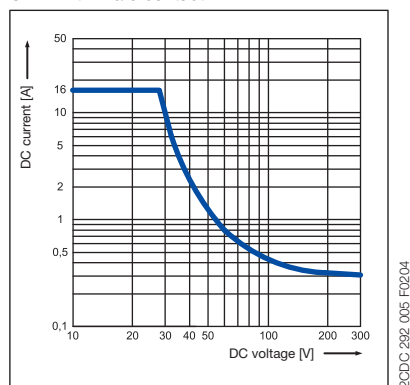
## Technical data, Load limit curves

Type		CR-P...1	CR-P...2	CR-M...2	CR-M...3	CR-M...4	CR-U...2	CR-U...3
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						
<b>Environmental data</b>								
Ambient temperature range	operation	DC: -40...+85 °; AC: -40...+70 °C		DC: -40...+70 °; AC: -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		
Shock resistance	n/o contact	30 g		20 g		10 g		
	n/c contact	30 g		20 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		2006/95/EC						

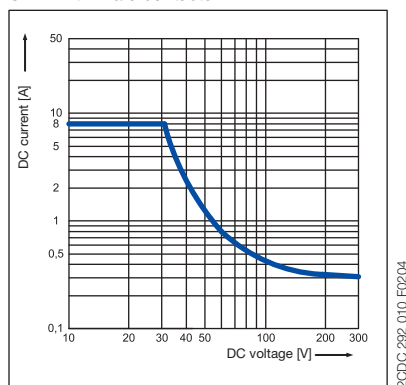
Approvals see page 5/6.

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

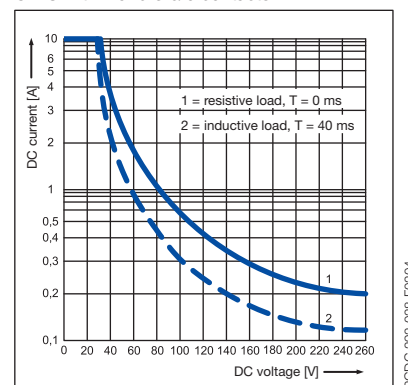
CR-P with 1 c/o contact



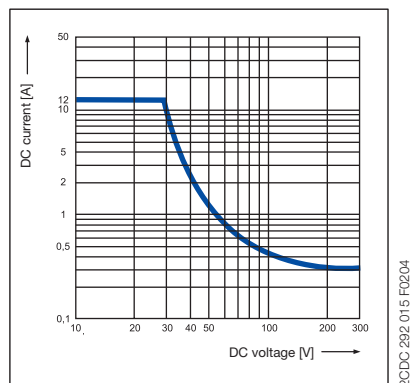
CR-P with 2 c/o contacts



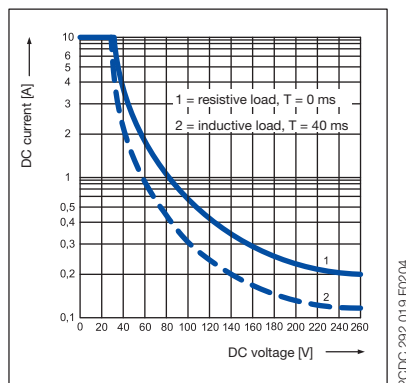
CR-U with 2 and 3 c/o contacts



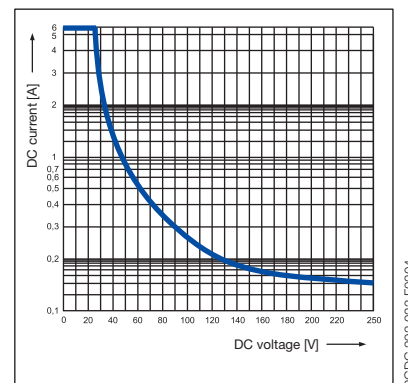
CR-M with 2 c/o contacts



CR-M with 3 c/o contacts



CR-M with 4 c/o contacts



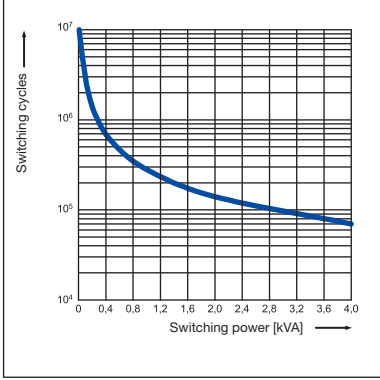
# Pluggable interface relays

## Load limit curves

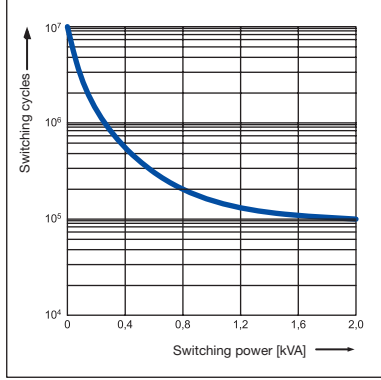
### Load limit curves - Electrical lifetime at resistive AC load

5

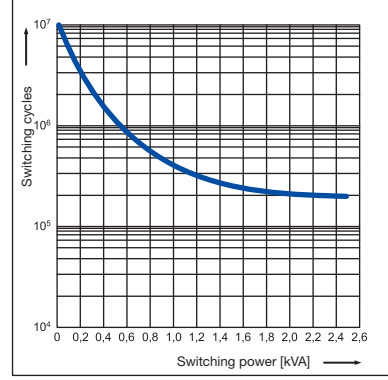
CR-P with 1 c/o contact



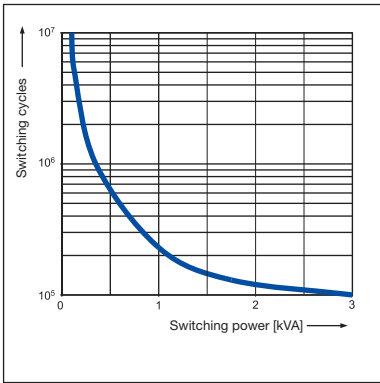
CR-P with 2 c/o contacts



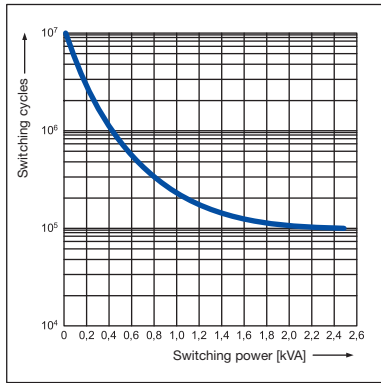
CR-U with 2 and 3 c/o contacts



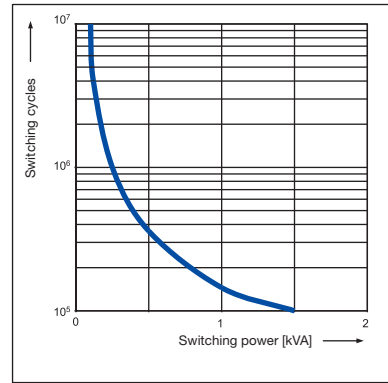
CR-M with 2 c/o contacts



CR-M with 3 c/o contacts

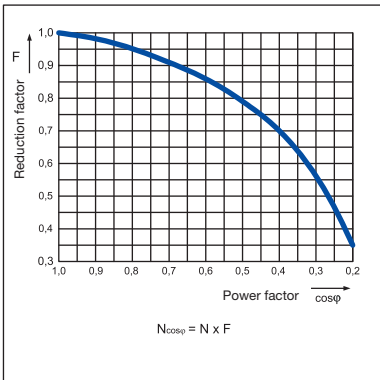


CR-M with 4 c/o contacts

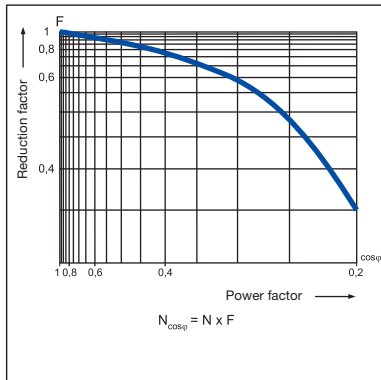


### Reduction factor F at inductive AC load

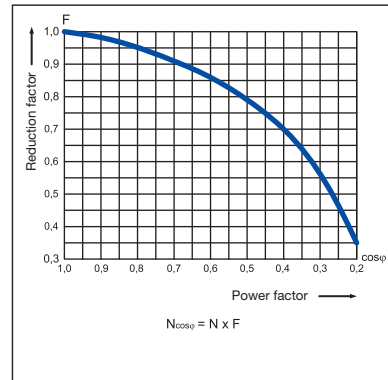
CR-P



CR-M



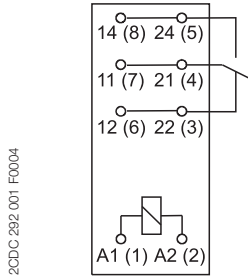
CR-U



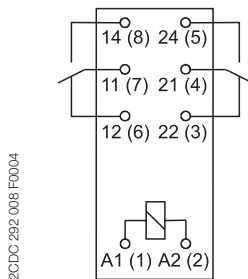
# Pluggable interface relays

## Connection diagrams

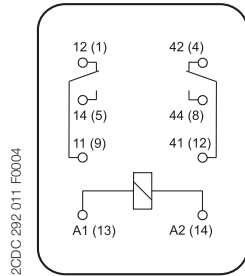
### Connection diagrams



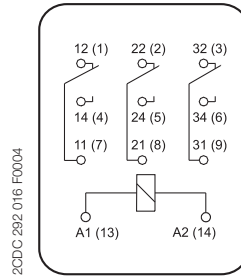
CR-P with 1 c/o contact



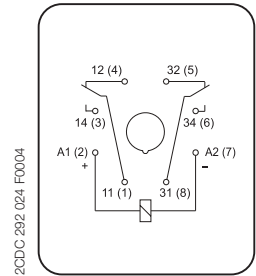
CR-P with 2 c/o contacts



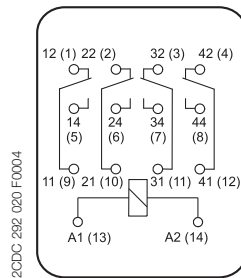
CR-M with 2 c/o contacts



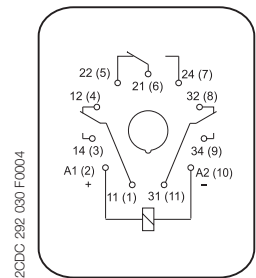
CR-M with 3 c/o contacts



CR-U with 2 c/o contacts

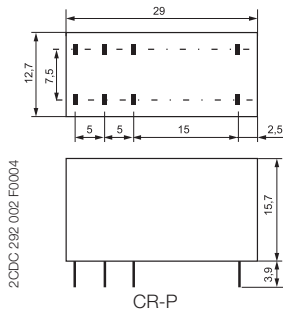


CR-M with 4 c/o contacts

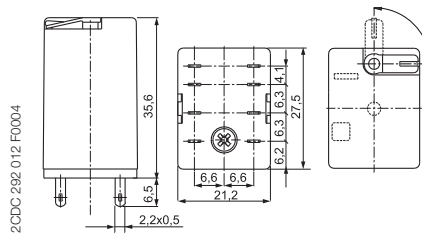


CR-U with 3 c/o contacts

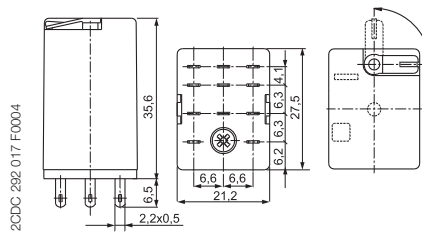
### Dimensional drawings



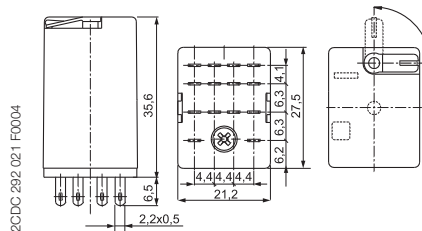
CR-P



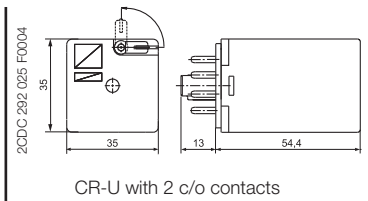
CR-M with 2 c/o contacts



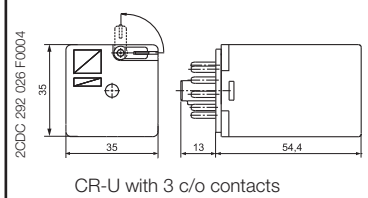
CR-M with 3 c/o contacts



### Dimensions in mm and inches



CR-U with 2 c/o contacts



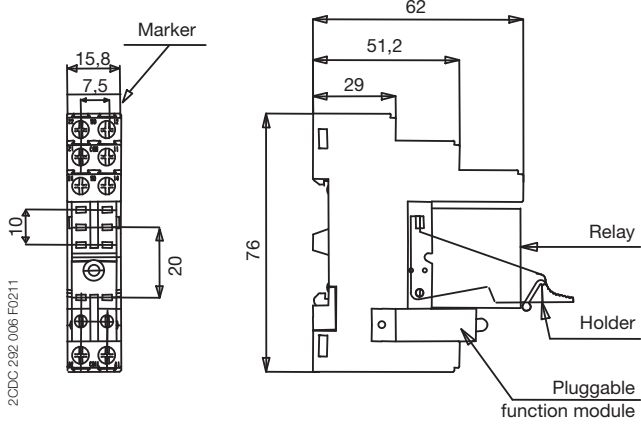
CR-U with 3 c/o contacts

# Pluggable interface relays

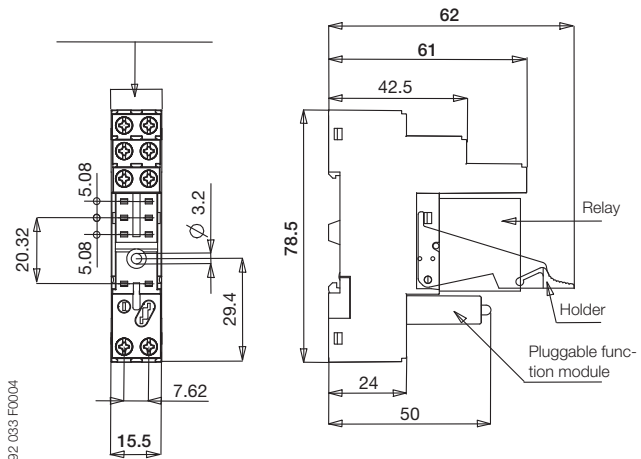
## Connection diagrams

### Dimensional drawings

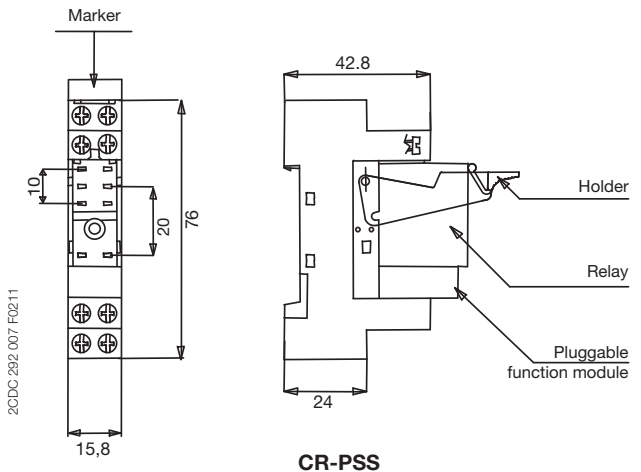
#### Sockets for screw connection



**CR-PLS**

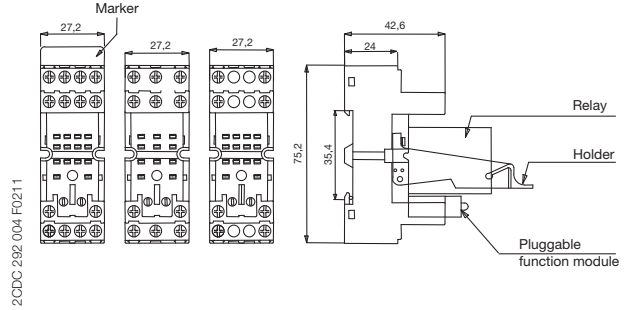


**CR-PLSx**

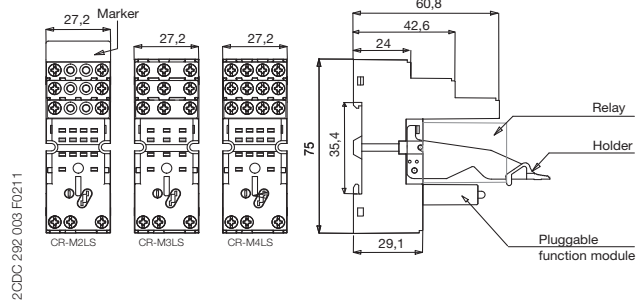


**CR-PSS**

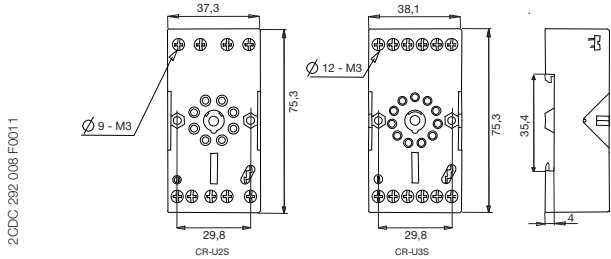
### Dimensions in mm and inches



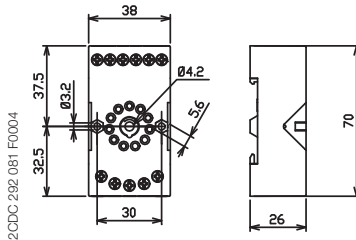
**CR-M2SS - CR-M3SS - CR-M4SS**



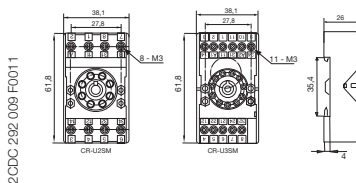
**CR-M2LS - CR-M3LS - CR-M4LS**



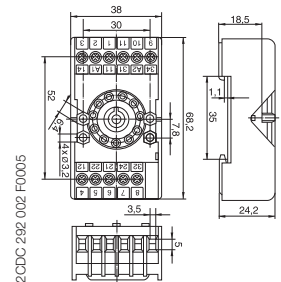
**CR-U2S - CR-U3S**



**CR-U3E**



**CR-U2SM**



**CR-U3SM**

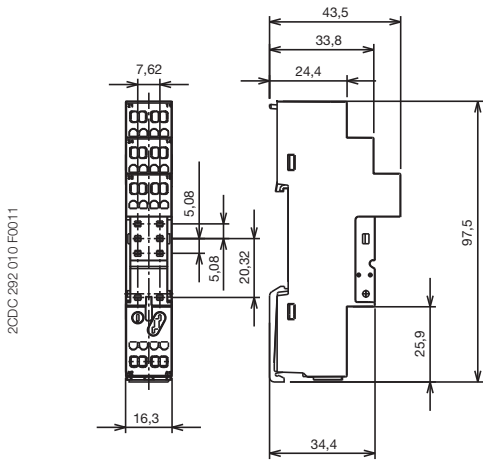
# Pluggable interface relays

## Connection diagrams

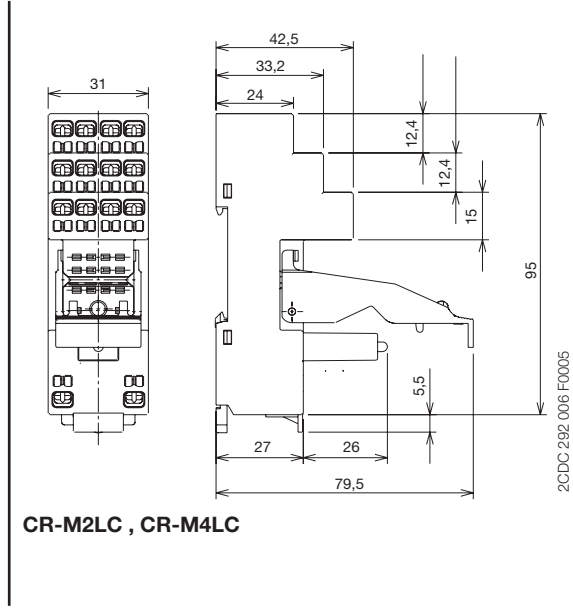
Dimensional drawings

Dimensions in mm and inches

Sockets for spring connection

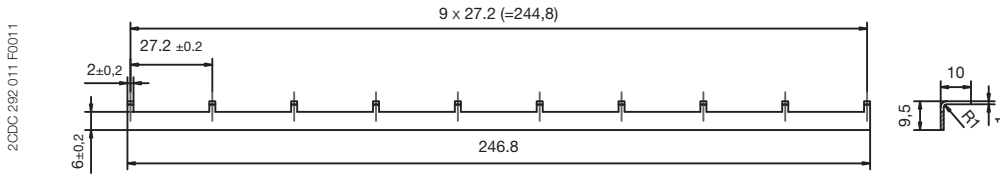


CR-PLC

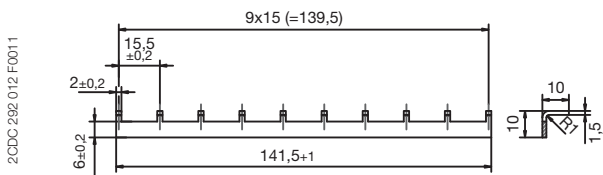


CR-M2LC , CR-M4LC

Jumper



CR-PJ



CR-MJ