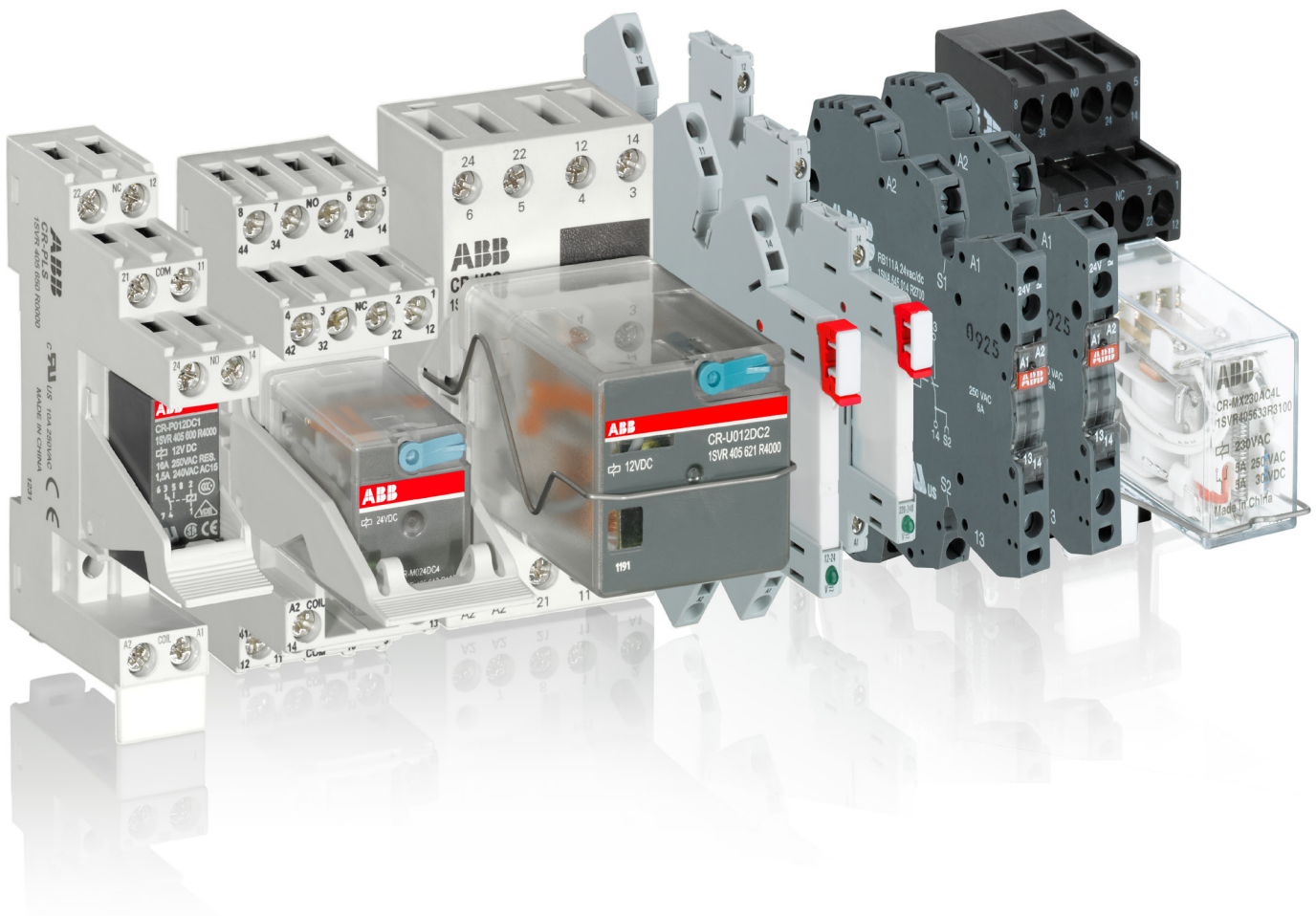


# Interface relays and optocouplers

## Product group picture

5



# Interface relays and optocouplers

## Table of contents

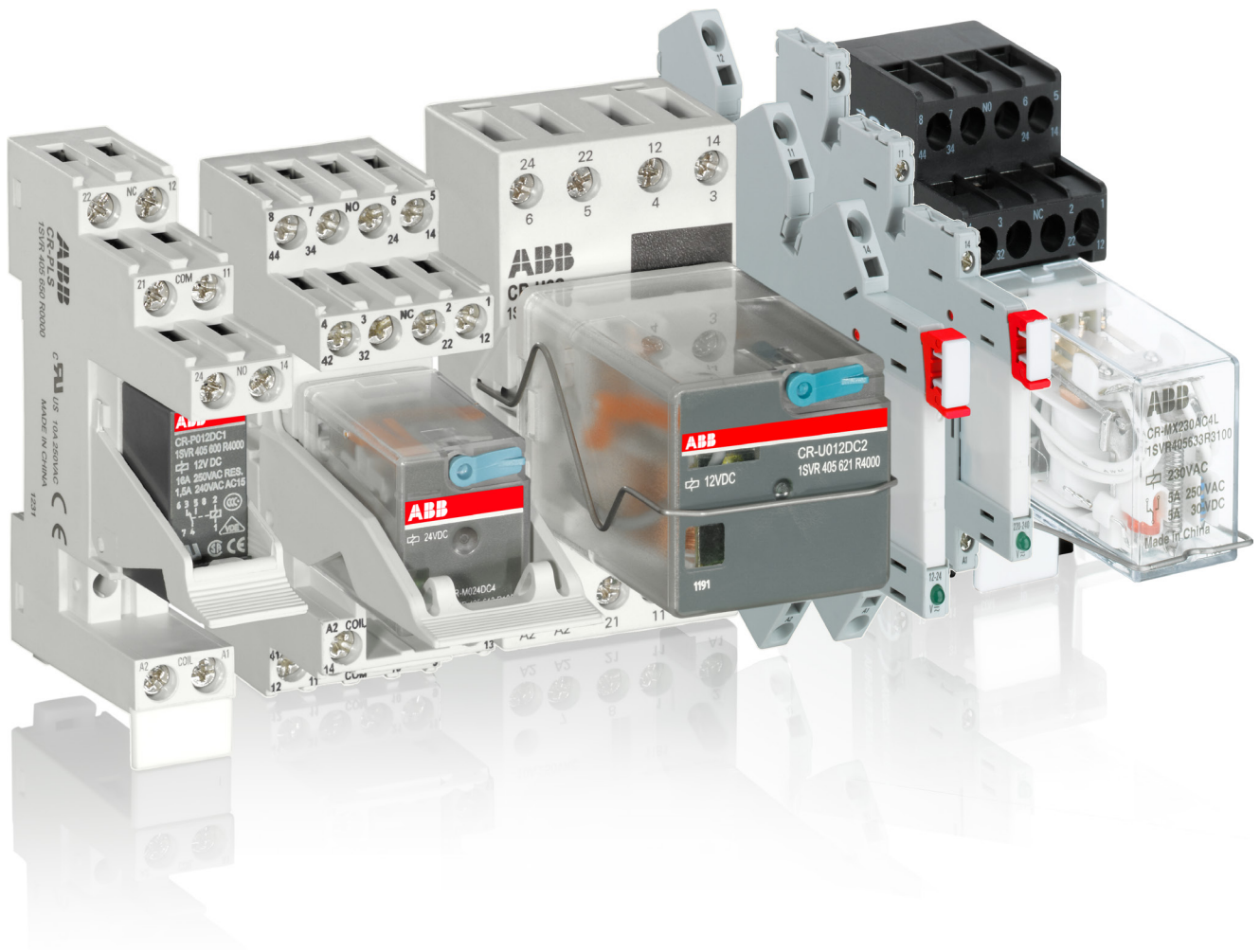
### Interface Relays and Optocouplers

Pluggable interface relays .....	5/3
Table of contents .....	5/4
Benefits and advantages .....	5/5
Approvals and marks .....	5/7
Ordering details - CR-S range .....	5/8
Ordering details - CR-MX range .....	5/9
Ordering details - CR-P range .....	5/10
Ordering details - CR-M range .....	5/11
Ordering details CR-P/M functional modules .....	5/14
Ordering details - CR-U range .....	5/15
Ordering details - CR-U accessories .....	5/16
Technical data - CR-P, CR-M, CR-U .....	5/17
Technical data, load limit curves - CR-P, CR-M, CR-U .....	5/20
Technical data, load limit curves - CR-MX .....	5/21
Technical data - Sockets for CR-P and CR-M .....	5/22
Technical data - Sockets for CR-U and CR-MX .....	5/23
Technical data - CR-S range .....	5/24
Technical data - CR-S range sockets .....	5/25
Load limit curves .....	5/26
Connection diagrams .....	5/27
Dimensional drawings .....	5/29
<b>Interface relays and optocouplers R600 range .....</b>	<b>5/31</b>
Table of contents .....	5/32
Benefits and advantages .....	5/33
Type designators .....	5/34
<b>Interface relays R600 range.....</b>	<b>5/35</b>
Benefits and advantages .....	5/35
Selection .....	5/37
Ordering details .....	5/39
Connection diagrams .....	5/41
Technical data .....	5/42
General technical data .....	5/47
Dimensional drawings, Load limit curves .....	5/48
<b>Optocouplers R600 range .....</b>	<b>5/49</b>
Selection .....	5/49
Ordering details .....	5/51
Connection diagrams .....	5/52
Technical data .....	5/53

# Pluggable interface relays

## Product group picture

5



# Pluggable interface relays

## Table of contents

### Pluggable interface relays

Benefits and advantages	5/5
Approvals and marks	5/7
Ordering details - CR-S range	5/8
Ordering details - CR-MX range	5/9
Ordering details - CR-P range	5/10
Ordering details - CR-M range	5/11
Ordering details CR-P/M functional modules	5/14
Ordering details - CR-U range	5/15
Ordering details - CR-U accessories	5/16
Technical data - CR-P, CR-M, CR-U	5/17
Technical data, load limit curves - CR-P, CR-M, CR-U	5/20
Technical data, load limit curves - CR-MX	5/21
Technical data - Sockets for CR-P and CR-M	5/22
Technical data - Sockets for CR-U and CR-MX	5/23
Technical data - CR-S range	5/24
Technical data - CR-S range sockets	5/25
Load limit curves	5/26
Connection diagrams	5/27
Dimensional drawings	5/29

# Pluggable interface relays

## Benefits and advantages

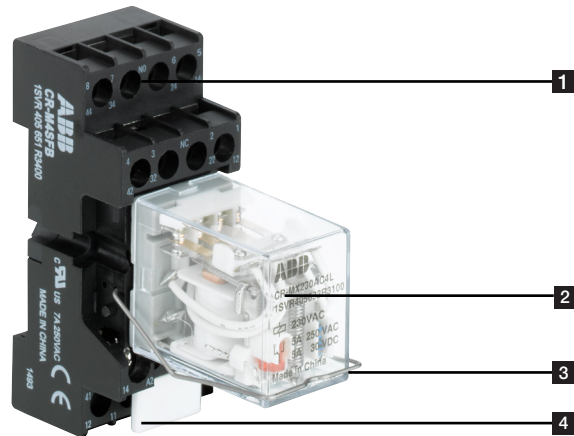
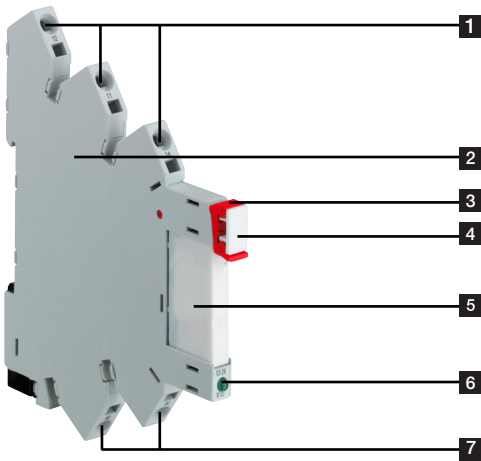
### Slim relays CR-S

- Standard slim relays (5 mm), sockets (6.2 mm) and accessories
- Combination of 9 different rated control supply voltages possible:
  - DC versions: 5 V, 12 V, 24 V
  - AC/DC versions: 12 V, 24 V, 48 V, 60 V, 110 V, 230 V
- Output: 1 c/o (SPDT) contacts (6 A), standard and goldplated contacts
- Cadmium-free contact material
- All sockets with LED
- Screw and spring connection terminals
- Jumper bar (red, black, blue), marker and separator available as accessories

### Pluggable miniature relays CR-MX

- 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: 30 mm (1.181 in)
- Pluggable function modules available

5



- 1** Output contacts
- 2** Socket
- 3** Relay holder
- 4** Marker
- 5** Interface relay
- 6** LED green: Control supply voltage applied
- 7** Control supply voltage

- 1** Socket
- 2** Interface relay
- 3** Holder
- 4** Marker label

# 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

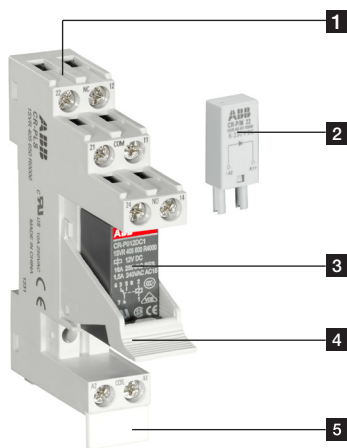
### Pluggable miniature relays CR-M

- 2 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

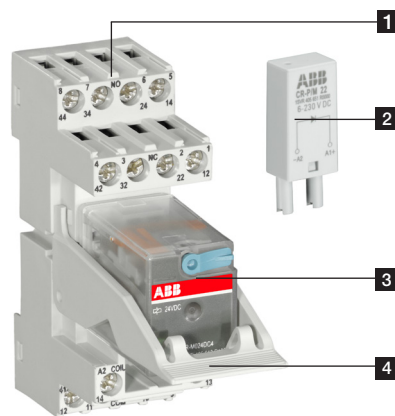
### Pluggable universal relays CR-U

- 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

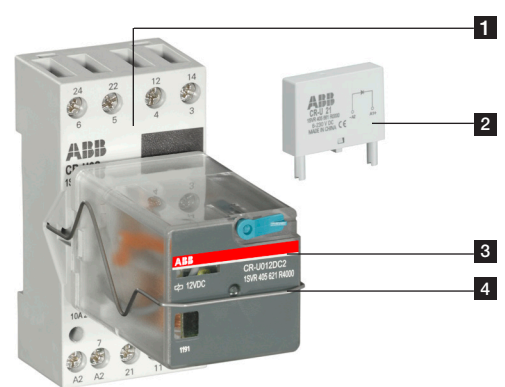
5



- 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

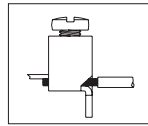
### Kind of connecting terminals

#### Kinds of sockets

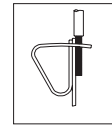
Standard sockets - Position of connecting terminals:  
Coil connection (A1-A2) on lower socket side, contact connections (n/o and n/c contacts) on the lower and upper socket side.

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.

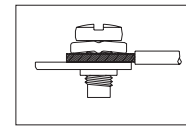
Details see connection diagrams



Screw type



Spring type



Fork type

### Approvals and marks

- existing
- pending

		Relays					Sockets								Modules	
Approvals		CR-S	CR-P	CR-M	CR-U	CR-MX	CR-S sockets	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-MxSFB	CR-P/M	CR-U
	ANSI/UL 508	■	■	■	■		■	■	■	■	■				■	■ <sup>6)</sup>
	CAN/CSA C22.2 No.14	■	■	■		■	■ <sup>1)</sup>	■	■ <sup>2)</sup>	■	■ <sup>3)</sup>	■	■		■	■ <sup>6)</sup>
	CAN/CSA C22.2 No.14	■	■	■	■		■									
	VDE	■ <sup>8)</sup>		■ <sup>4)</sup>	■		■ <sup>8)</sup>									
	EAC	■	■	■	■		■	■	■	■	■	■			■	■
	Lloyds Register			■ <sup>5)</sup>	■											
	CCC		■	■	■											
	TUV					■										
	CQC	■				■										
	RMRS		■	■ <sup>7)</sup>	■ <sup>7)</sup>		■	■	■	■	■	■				
<b>Marks</b>																
	CE	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■

<sup>1)</sup> except CR-PLSx  
<sup>2)</sup> except CR-M...LC  
<sup>3)</sup> except CR-U3E  
<sup>4)</sup> except 125 V DC devices  
<sup>5)</sup> only devices with 4 c/o contacts  
<sup>6)</sup> except CR-U61D, CR-U61DV  
<sup>7)</sup> except 60 V and 125 V devices  
<sup>8)</sup> only relays and sockets with screw terminals

# Pluggable interface relays

## Ordering details - CR-S range



CR-S

2CDC 291 005 F0014

### Description

The pluggable interface relays of the CR-S Range are used for electrical isolation, amplification and signal matching between the electronic controlling, e.g. PLC, iPC or field bus systems and the sensor / actuator level. The CR-S Range combines the flexibility of a modular system and the ability of switching high currents on a small footprint thus can be used in applications where space saving is essential.

### Ordering details - CR-S range pluggable interface relays

Rated control supply voltage	Outputs	Contact ratings	Type	Order code	Price	Pkg qty	Weight (1 pce) kg (lb)
5 V DC	1 c/o (SPDT) standard contacts	250 V, 6 A	CR-S005VDC1R	1SVR405501R1010		10	0.005 (0.011)
12 V DC			CR-S012VDC1R	1SVR405501R2010			
24 V DC			CR-S024VDC1R	1SVR405501R3010			
48 V DC			CR-S048VDC1R	1SVR405501R4010			
60 V DC			CR-S060VDC1R	1SVR405501R5010			
5 V DC	1 c/o (SPDT) gold plated contacts	12 V, 250 mA (3W) <sup>1)</sup>	CR-S005VDC1RG	1SVR405501R1020		10	0.005 (0.011)
12 V DC			CR-S012VDC1RG	1SVR405501R2020			
24 V DC			CR-S024VDC1RG	1SVR405501R3020			
48 V DC			CR-S048VDC1RG	1SVR405501R4020			
60 V DC			CR-S060VDC1RG	1SVR405501R5020			

### Ordering details - CR-S range complete interface relays (relay + socket)

Rated control supply voltage	Outputs	Contact ratings	Type	Order code	Price	Pkg qty	Weight (1 pce) kg (lb)
24 V AC/DC	1 c/o (SPDT) standard contacts	250 V, 6 A	CR-S024VADC1CRS	1SVR405541R3110		10	0.03 (0.066)
110 V AC/DC			CR-S024VADC1CRZ	1SVR405541R3210			
			CR-S110VADC1CRS	1SVR405541R6110			
230 V AC/DC			CR-S110VADC1CRZ	1SVR405541R6210			
			CR-S230VADC1CRS	1SVR405541R7110			
24 V AC/DC	1 c/o (SPDT) gold plated contacts	12 V, 250 mA (3W) <sup>1)</sup>	CR-S024VADC1CRGS	1SVR405541R3120		10	0.03 (0.066)
110 V AC/DC			CR-S024VADC1CRGZ	1SVR405541R3220			
			CR-S110VADC1CRGS	1SVR405541R6120			
230 V AC/DC			CR-S110VADC1CRGZ	1SVR405541R6220			
			CR-S230VADC1CRGS	1SVR405541R7120			
			CR-S230VADC1CRGZ	1SVR405541R7220			

<sup>1)</sup> If specified maximum values exceeded, the gold plating is destroyed. The maximum values of the standard contacts are then valid.

RS, SS = screw connection type  
RZ, SZ = spring connection type

### Ordering details - CR-S range sockets

Rated control supply voltage	Connection type	Type	Order code	Price	Pkg qty	Weight (1 pce) kg (lb)
6-24 V DC	Screw	CR-S006/024VDC1SS	1SVR405521R1100		10	0.025 (0.055)
	Spring	CR-S006/024VDC1SZ	1SVR405521R1200			
12-24 V AC/DC	Screw	CR-S012/024VADC1SS	1SVR405521R3100		10	0.025 (0.055)
	Spring	CR-S012/024VADC1SZ	1SVR405521R3200			
48-60 V AC/DC	Screw	CR-S048/060VADC1SS	1SVR405521R5100		10	0.025 (0.055)
	Spring	CR-S048/060VADC1SZ	1SVR405521R5200			
110-125 V AC/DC	Screw	CR-S110/125VADC1SS	1SVR405521R6100		10	0.025 (0.055)
	Spring	CR-S110/125VADC1SZ	1SVR405521R6200			
220-240 V AC/DC	Screw	CR-S220/240VADC1SS	1SVR405521R7100		10	0.025 (0.055)
	Spring	CR-S220/240VADC1SZ	1SVR405521R7200			

### Ordering details - CR-S range accessories

Version	Type	Order code	Price	Pkg qty	Weight (1 pce) kg (lb)
Jumper bar 20 pole, blue color	CR-SJB20-BLUE	1SVR405598R0700		10	0.008 (0.018)
Jumper bar 20 pole, red color	CR-SJB20-RED	1SVR405598R0800			
Jumper bar 20 pole, black color	CR-SJB20-BLACK	1SVR405598R0900			
Marker block	CR-SM	1SNB041391R0610		10	0.0036 (0.0079)
Separator	CR-SSEP	1SVR405599R0000		10	0.012 (0.026)



# Pluggable interface relays

## Ordering details - CR-MX range



CR-MX

2CDC 291 010 F0014

### Ordering details - CR-MX 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) standard contacts	250 V, 7 A	CR-MX012DC2	1SVR405631R4000		10	0.037 (0.082)
24 V DC			CR-MX024DC2	1SVR405631R1000			
48 V DC			CR-MX048DC2	1SVR405631R6000			
110 V DC			CR-MX110DC2	1SVR405631R8000			
24 V AC			CR-MX024AC2	1SVR405631R0000			
110 V AC			CR-MX110AC2	1SVR405631R7000			
230 V AC	CR-MX230AC2	1SVR405631R3000					
12 V DC	4 c/o (SPDT) standard contacts	250 V, 5 A	CR-MX012DC4	1SVR405633R4000		10	0.037 (0.082)
24 V DC			CR-MX024DC4	1SVR405633R1000			
48 V DC			CR-MX048DC4	1SVR405633R6000			
110 V DC			CR-MX110DC4	1SVR405633R8000			
24 V AC			CR-MX024AC4	1SVR405633R0000			
110 V AC			CR-MX110AC4	1SVR405633R7000			
230 V AC	CR-MX230AC4	1SVR405633R3000					

### Ordering details - CR-MX range with LED (DC coils: green LED, AC coils: red 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) standard contacts	250 V, 7 A	CR-MX012DC2L	1SVR405631R4100		10	0.037 (0.082)
24 V DC			CR-MX024DC2L	1SVR405631R1100			
48 V DC			CR-MX048DC2L	1SVR405631R6100			
110 V DC			CR-MX110DC2L	1SVR405631R8100			
24 V AC			CR-MX024AC2L	1SVR405631R0100			
110 V AC			CR-MX110AC2L	1SVR405631R7100			
230 V AC	CR-MX230AC2L	1SVR405631R3100					
12 V DC	4 c/o (SPDT) standard contacts	250 V, 5 A	CR-MX012DC4L	1SVR405633R4100		10	0.037 (0.082)
24 V DC			CR-MX024DC4L	1SVR405633R1100			
48 V DC			CR-MX048DC4L	1SVR405633R6100			
110 V DC			CR-MX110DC4L	1SVR405633R8100			
24 V AC			CR-MX024AC4L	1SVR405633R0100			
110 V AC			CR-MX110AC4L	1SVR405633R7100			
230 V AC	CR-MX230AC4L	1SVR405633R3100					

### Ordering details - CR-MX range sockets

Version	Connection type	Type	Order code	Price	Pkg qty	Weight (1 pce) kg (lb)
for 2 c/o (SPDT) contacts, black	fork type screw	CR-M2SFB	1SVR405651R1400		10	0.043 (0.095)
for 2 or 4 c/o (SPDT) contacts, black	fork type screw	CR-M4SFB	1SVR405651R3400			0.053 (0.117)

Ordering details for CR-MX function modules see „Ordering details CR-P/M functional modules (can also be used with CR-MX sockets)\*“ on page 14

### Ordering details - CR-MX metal holder for socket

Description	Type	Order code	Price	Pkg qty	Weight (1 pce) kg (lb)
Metal holder	CR-MH1	1SVR405659R1100			0.005 (0.011)



CR-MX

2CDC 291 010 F0014

# Pluggable interface relays

## Ordering details - CR-P range



CR-P

2CDC 281 045 F0004

### Ordering details - CR-P range

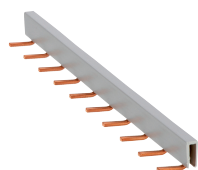
Rated control supply voltage	Outputs	Contact ratings	Type	Order code	Price	Pkg	Weight (1 pce)
						qty	kg (lb)
12 V DC	1 c/o (SPDT)	250 V, 16 A	CR-P012DC1	1SVR405600R4000		10	0.014 (0.031)
24 V DC			CR-P024DC1	1SVR405600R1000			
48 V DC			CR-P048DC1	1SVR405600R6000			
110 V DC			CR-P110DC1	1SVR405600R8000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

Ordering details for CR-MX function modules see "Ordering details CR-P/M functional modules" on page 14



CR-PLS

2CDC 281 006 F0011



CR-PJ

2CDC 281 004 F0007

### 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)
	screw	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					10	0.002 (0.004)
Plastic holder for socket		CR-PH	1SVR405659R0000		10	0.018 (0.040)
Jumper bar for sockets with screw connection		CR-PJ	1SVR405658R5000		10	0.0002 (0.0004)
Marker		CR-PM	1SVR405658R0000		10	0.0002 (0.0004)

# Pluggable interface relays

## Ordering details - CR-M range



CR-M

2CDC 291 002 F0015

### 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			CR-M024DC2	1SVR405611R1000							
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			CR-M024AC2	1SVR405611R0000							
48 V AC			CR-M048AC2	1SVR405611R5000							
110 V AC			CR-M110AC2	1SVR405611R7000							
120 V AC			CR-M120AC2	1SVR405611R2000							
230 V AC			CR-M230AC2	1SVR405611R3000							
12 V DC			3 c/o (SPDT)	250 V, 10 A	CR-M012DC3			1SVR405612R4000		10	0.033 (0.073)
24 V DC					CR-M024DC3			1SVR405612R1000			
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	CR-M024AC3	1SVR405612R0000									
48 V AC	CR-M048AC3	1SVR405612R5000									
60 V AC	CR-M060AC3	1SVR405612R5200									
110 V AC	CR-M110AC3	1SVR405612R7000									
120 V AC	CR-M120AC3	1SVR405612R2000									
230 V AC	CR-M230AC3	1SVR405612R3000									
12 V DC	4 c/o (SPDT)	250 V, 6 A			CR-M012DC4	1SVR405613R4000		10	0.033 (0.073)		
24 V DC					CR-M024DC4	1SVR405613R1000					
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			CR-M024AC4	1SVR405613R0000							
48 V AC			CR-M048AC4	1SVR405613R5000							
110 V AC			CR-M110AC4	1SVR405613R7000							
120 V AC			CR-M120AC4	1SVR405613R2000							
230 V AC			CR-M230AC4	1SVR405613R3000							

Ordering details for CR-MX function modules see "Ordering details CR-P/M functional modules" on page 14

# Pluggable interface relays

## Ordering details - CR-M range



CR-M

2CDC 291 00Z F0015

### Ordering details - CR-M range with 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-M012DC2L	1SVR405611R4100		10	0.033 (0.073)
24 V DC			CR-M024DC2L	1SVR405611R1100			
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			CR-M024AC2L	1SVR405611R0100			
48 V AC			CR-M048AC2L	1SVR405611R5100			
110 V AC			CR-M110AC2L	1SVR405611R7100			
120 V AC			CR-M120AC2L	1SVR405611R2100			
230 V AC			CR-M230AC2L	1SVR405611R3100			
12 V DC	3 c/o (SPDT)	250 V, 10 A	CR-M012DC3L	1SVR405612R4100		10	0.033 (0.073)
24 V DC			CR-M024DC3L	1SVR405612R1100			
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			CR-M110AC3L	1SVR405612R7100			
120 V AC			CR-M120AC3L	1SVR405612R2100			
230 V AC			CR-M230AC3L	1SVR405612R3100			
12 V DC	4 c/o (SPDT)	250 V, 6 A	CR-M012DC4L	1SVR405613R4100		10	0.033 (0.073)
24 V DC			CR-M024DC4L	1SVR405613R1100			
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			CR-M024AC4L	1SVR405613R0100			
48 V AC			CR-M048AC4L	1SVR405613R5100			
110 V AC			CR-M110AC4L	1SVR405613R7100			
120 V AC			CR-M120AC4L	1SVR405613R2100			
230 V AC			CR-M230AC4L	1SVR405613R3100			

### Ordering details - CR-M range with LED and free-wheeling diode

Rated control supply voltage	Outputs	Contact ratings	Type	Order code	Price	Pkg qty	Weight (1 pce) kg (lb)
24 V DC	4 c/o (SPDT)	250 V, 6 A	CR-M024DC4LD	1SVR405614R1100		10	0.033 (0.073)

### Ordering details - CR-M range with gold contacts

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

# Pluggable interface relays

## Ordering details - CR-M range



CR-M

2CDC 281 002 F0015

5

### Ordering details – CR-M range with gold contacts and LED

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			CR-M024DC4LG	1SVR405618R1100			
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			CR-M024AC4LG	1SVR405618R0100			
48 V AC			CR-M048AC4LG	1SVR405618R5100			
110 V AC			CR-M110AC4LG	1SVR405618R7100			
120 V AC	CR-M120AC4LG	1SVR405618R2100					
230 V AC	CR-M230AC4LG	1SVR405618R3100					

### Ordering details – CR-M range with gold contacts, LED and free-wheeling diode

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, LED and free-wheeling diode		CR-M012DC4LDG	1SVR405618R4400		10	0.033 (0.073)
24 V DC			CR-M024DC4LDG	1SVR405618R1400			

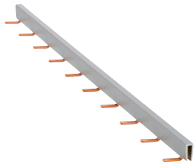
### Ordering details - Accessories

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



CR-M4SS

2CDC 281 009 F0011



CR-MJ

2CDC 281 006 F0007

# Pluggable interface relays

## Ordering details CR-P/M functional modules (can also be used with CR-MX sockets)



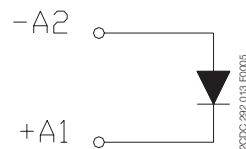
CR-P/M ...

2CDC 291 005 S0011

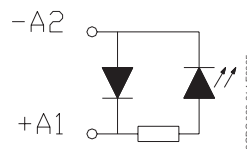
### Ordering details - CR-P/M range (all products stocked)

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						
		red, A1+, A2-	CR-P/M 42B	1SVR405652R4000						
110-230 V DC		green, A1+, A2-	CR-P/M 42BV	1SVR405652R4100						
		red, A1+, A2-	CR-P/M 42C	1SVR405652R9000						
6-24 V AC/DC	Spark quenching	green, A1+, A2-	CR-P/M 42CV	1SVR405652R9100		10	0.003 (0.007)			
24-60 V AC/DC			CR-P/M 52B	1SVR405653R0000						
110-230 V AC/DC			CR-P/M 52D	1SVR405653R4000						
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)			
		green, for DC A1+, A2-	CR-P/M 62V	1SVR405654R1000						
24-60 V AC/DC		red, for DC A1+, A2-	CR-P/M 62E	1SVR405654R4000						
		green, for DC A1+, A2-	CR-P/M 62EV	1SVR405654R4100						
110 V DC 110-230 V AC		red, for DC A1+, A2-	CR-P/M 92	1SVR405654R0100						
		green, for DC A1+, A2-	CR-P/M 92V	1SVR405654R1100						
6-24 V AC/DC		red, for DC A1+, A2-	CR-P/M 62C	1SVR405655R0000					10	0.003 (0.007)
		green, for DC A1+, A2-	CR-P/M 62CV	1SVR405655R1000						
24-60 V AC/DC	Varistor and LED Overvoltage protection	red, for DC A1+, A2-	CR-P/M 62D	1SVR405655R4000		10	0.003 (0.007)			
		green, for DC A1+, A2-	CR-P/M 62DV	1SVR405655R4100						
110 V DC 110-230 V AC		red, for DC A1+, A2-	CR-P/M 92C	1SVR405655R0100						
		green, for DC A1+, A2-	CR-P/M 92CV	1SVR405655R1100						
24 V AC	Overvoltage protection		CR-P/M 72	1SVR405656R0000		10	0.002 (0.004)			
115 V AC			CR-P/M 72A	1SVR405656R1000						
230 V AC			CR-P/M 82	1SVR405656R2000						

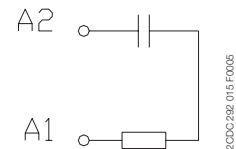
### Connection diagrams



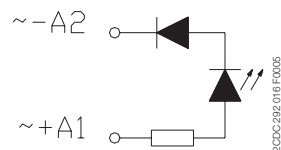
CR-P/M 22



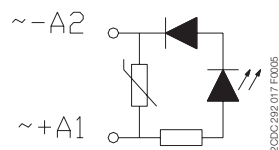
CR-P/M 42, CR-P/M 42B, CR-P/M 42C, CR-P/M 42V, CR-P/M 42BV, CR-P/M 42CV



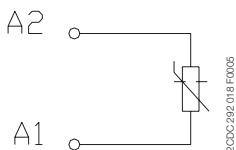
CR-P/M 52B, CR-P/M 52D



CR-P/M 62, CR-P/M 62E, CR-P/M 62EV, CR-P/M 62V, CR-P/M 62DV, CR-P/M 92, CR-P/M 92C, CR-P/M 92CV



CR-P/M 62C, CR-P/M 62D, CR-P/M 62DV, CR-P/M 62CV, CR-P/M 92C, CR-P/M 92CV



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

# Pluggable interface relays

## Ordering details - CR-U range



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



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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			

# Pluggable interface relays

## Ordering details - CR-U accessories



CR-U...

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CR-U T

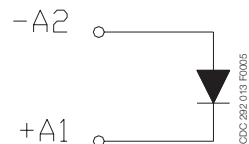
2CDC291 032 F0005

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

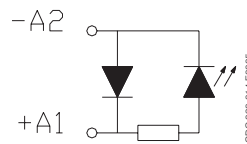
Rated control supply voltage	Description	Version	Type	Order code	Price	Pkg qty	Weight (1 pce)
							kg (lb)
6-220 V DC	Diode - Reverse polarity protection/ free wheeling diode	A1+, A2-	CR-U 21	1SVR405661R0000		10	0.007 (0.015)
6-24 V DC	Diode and LED - Reverse polarity protection/ free wheeling diode	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	Diode and LED	red, for DC A1+, A2-	CR-U 61	1SVR405664R0000		10	0.007 (0.015)
24-60 V AC/DC		green, for DC A1+, A2-	CR-U 61V	1SVR405664R1000			
110 V DC 110-230 V AC		red, for DC A1+, A2-	CR-U 61E	1SVR405664R4000			
24-60 V AC/DC	Varistor and LED Overvoltage protection	green, for DC A1+, A2-	CR-U 61EV	1SVR405664R4100		10	0.007 (0.015)
		red, for DC A1+, A2-	CR-U 91	1SVR405664R0100			
110 V DC 110-230 V AC	Overvoltage protection, varistor	green, for DC A1+, A2-	CR-U 91V	1SVR405664R1100		10	0.007 (0.015)
		red, for DC A1+, A2-	CR-U 71	1SVR405666R0000			
24 V AC	Multifunction time module	pluggable onto CR-U2S and CR-U3S	CR-U 71A	1SVR405666R1000		10	0.014 (0.031)
115 V AC			CR-U 81	1SVR405666R2000			
230 V AC			CR-U T	1SVR405667R0000			

### Connection diagrams

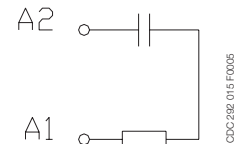
All CR-U modules can be plugged onto sockets CR-U2S and CR-U3S.



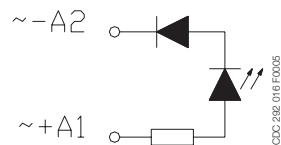
CR-U 21



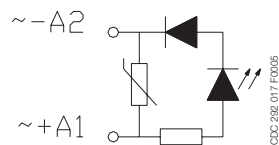
CR-U 41, CR-U 41B, CR-U 41C, CR-U 41V, CR-U 41BV, CR-U 41CV



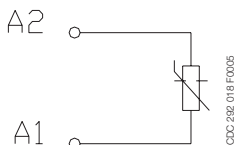
CR-U 51B, CR-U 51C CR-U 51D



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



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



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




# Pluggable interface relays

## Technical data - CR-P, CR-M, CR-U

### Input circuit - coil data


#### 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 V DC	66 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 V AC	66 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 $\Omega$	$\pm 10\%$


5

#### CR-S range



	Rated control supply voltage $U_s$	Make voltage (at 23 °C)	Maximum voltage (at 55 °C)	Break voltage	Rated power	Coil resistance (at 23 °C)	Tolerance of coil resistance
CR-S005VDC1R(G)	5 V DC	3.75 V DC	7.5 V DC	0.25 V DC	170 mW	147 $\Omega$	$\pm 10\%$
CR-S012VDC1R(G)	12 V DC	9 V DC	18 V DC	0.6 V DC	170 mW	848 $\Omega$	$\pm 10\%$
CR-S024VDC1R(G)	24 V DC	18 V DC	36 V DC	1.2 V DC	170 mW	3390 $\Omega$	$\pm 15\%$
CR-S048VDC1R(G)	48 V DC	36 V DC	72 V DC	2.4 V DC	210 mW	10600 $\Omega$	$\pm 15\%$
CR-S060VDC1R(G)	60 V DC	45 V DC	90 V DC	3 V DC	210 mW	16600 $\Omega$	$\pm 15\%$

#### CR-M range




	Rated control supply voltage $U_s$	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	1.2 V DC	0.9 W	160 $\Omega$	$\pm 10\%$
	24 V DC	19.2 V DC	26.4 V DC	2.4 V DC	0.9 W	650 $\Omega$	$\pm 10\%$
	48 V DC	38.4 V DC	52.8 V DC	4.8 V DC	0.9 W	2600 $\Omega$	$\pm 15\%$
	110 V DC	88 V DC	121 V DC	11 V DC	0.9 W	11000 $\Omega$	$\pm 15\%$
AC coils	24 V AC	19.2 V AC	26.4 V AC	7.2 V AC	1.2 VA	158 $\Omega$	$\pm 10\%$
	110 V AC	96 V AC	132 V AC	36 V AC	1.4 VA	4550 $\Omega$	$\pm 15\%$
	230 V AC	176 V AC	264 V AC	72 V AC	1.8 VA	14400 $\Omega$	$\pm 15\%$

# Pluggable interface relays

## Technical data - CR-P, CR-M, CR-U


### 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
<b>DC coils</b>	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 $\Omega$	$\pm 10\%$
<b>AC coils</b>	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-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
<b>DC coils</b>	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	-	100 V DC	137.5 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 $\Omega$	$\pm 10\%$
<b>AC coils</b>	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 - CR-P, CR-M, CR-U

Type		CR-P...1	CR-P...2	CR-M...2	CR-M...3	CR-M...4	CR-U...2	CR-U...3
Output circuit(s)		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 (AgNi)		5 V (AgNi/Au)	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)	AC-12 (resistive) 230 V	16 A	8 A	12 A	10 A	6 A	10 A	
	AC-15 (inductive) 230 V	1.5 A	1.5 A	1.5 A	1.5 A	1 A	1.5 A	
	AC-15 (inductive) 120 V	3 A				1.5 A	3 A	
	DC-12 (resistive) 24 V	16 A	8 A	12 A	10 A	6 A	10 A	
	DC-13 (inductive) 24 V	2.5 A	2 A	2.5 A	2.5 A	2 A	2 A	
	DC-13 (inductive) 120 V	0.22 A						
	DC-13 (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 (resistive + single-phase)	
DC rating * (UL 508; NEMA ICS-5)	Utilization category (pilot duty) (Contact rating code designation)	R300						
	Max. rated operational voltage	300 V DC						
	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	15 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 (12 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 (SPDT) 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	

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

# Pluggable interface relays

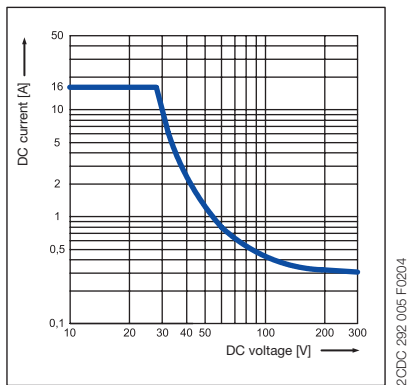
## Technical data, load limit curves - CR-P, CR-M, CR-U

Type	CR-P...1	CR-P...2	CR-M...2	CR-M...3	CR-M...4	CR-U...2	CR-U...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 °C; AC: -40...+70 °C		DC: -40...+70 °C; 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	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	IEC/EN 60255-23, IEC/EN 60664-1, IEC/EN 61810-1			IEC/EN 60255-23, IEC/EN 60810-1, IEC/EN 61810-7		IEC/EN 60255-1	
Low Voltage Directive	2006/95/EC						

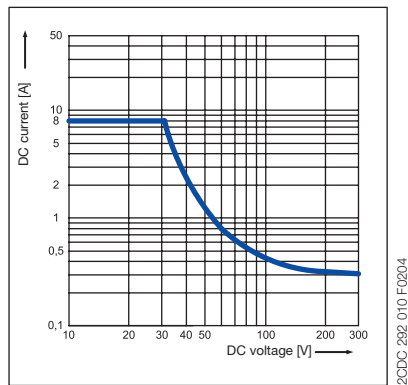
Approvals see page 5/6.

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

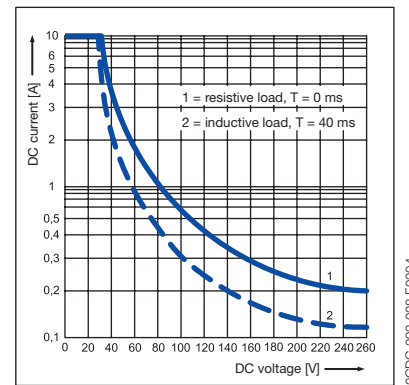
CR-P with 1 c/o contact



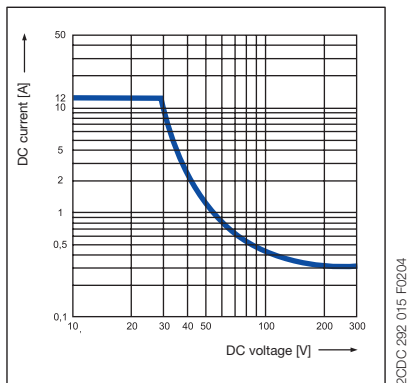
CR-P with 2 c/o contacts



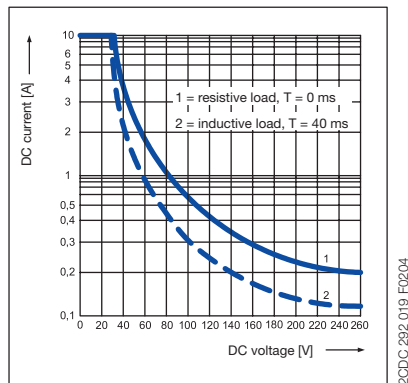
CR-U with 2 and 3 c/o contacts



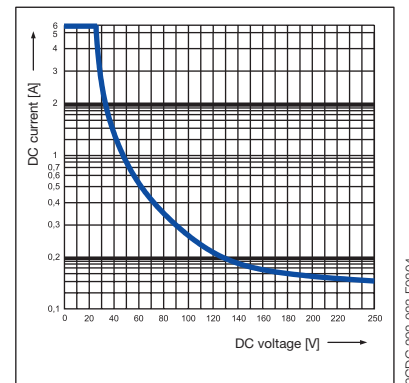
CR-M with 2 c/o contacts



CR-M with 3 c/o contacts



CR-M with 4 c/o contacts



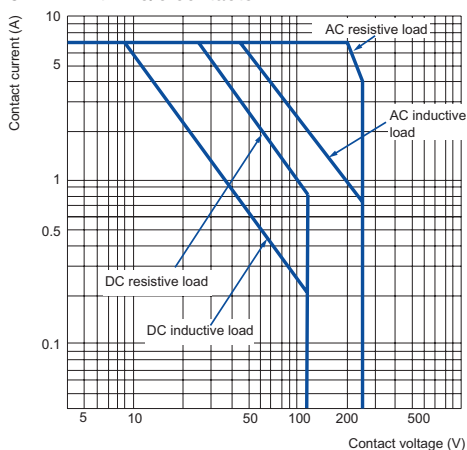
# Pluggable interface relays

## Technical data, load limit curves - CR-MX

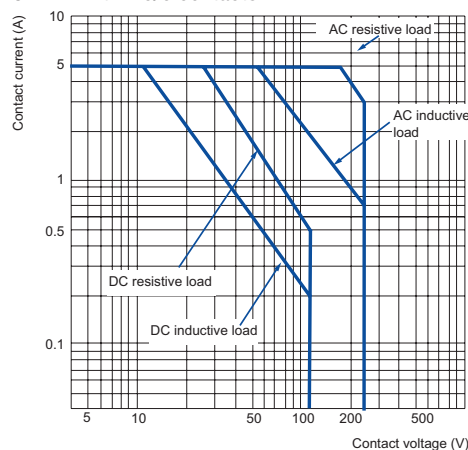
Type	CR-MX...2	CR-MX...4
Output circuit(s)	11-12/14 41-42/44	11-12/14 21-22/24 31-32/34 41-42/44
Kind of output	Relay, 2 c/o (SPDT) contacts	
Contact material	silver alloy	
Rated operational voltage $U_e$	250 V	
Minimum switching voltage / current	5 V / 5 mA	
Maximum switching voltage	DC 250 V DC AC 30 V AC	
Minimum switching current	5 mA	
Rated free air thermal current $I_{th}$	7 A	
Rated operational current	DC resistive 30 V AC resistive 250 V DC inductive (L/R = 7 ms) 30 V AC inductive (cos $\varphi$ = 0.4) 250 V	7 A (10 <sup>5</sup> switching cycles) 7 A (10 <sup>5</sup> switching cycles) 1.5 A (2 x 10 <sup>5</sup> switching cycles) 0.8 A (2 x 10 <sup>5</sup> switching cycles)
Minimum switching power	6 W	
Maximum switching (breaking) power	AC (resistive)	1750 VA / 210 W
Contact resistance	100 m $\Omega$ (at 1 A / 6 V DC)	
Maximum operating frequency	rated load AC without load	1200 switching cycles/h 9000 switching cycles/h
Mechanical lifetime	> 3 x 10 <sup>7</sup> switching cycles	
Response time	25 ms	
Release time	25 ms	
<b>Isolation data</b>		
Rated insulation voltage	300 V AC	
Insulation class	F	
Rated impulse withstand voltage $U_{imp}$	between coil and contacts between open contacts between c/o (SPDT) contacts	1.1x1500 V r.m.s. (50 Hz), 1 s or 1500 V r.m.s. (50 Hz), 1 min 1.1x1000 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	
<b>General data</b>		
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	
<b>Electrical connection</b>		
Connection	by socket	
<b>Environmental data</b>		
Ambient temperature range	operation storage	-40...+70 °C -40...+70 °C
Vibration resistance 10-150 Hz	n/o contact n/c contact	10 to 55 Hz 1 mm DA 10 to 55 Hz 1 mm DA
Shock resistance	n/o contact n/c contact	10 g 10 g
<b>Standards</b>		
Product standard	IEC/EN 61810-1, IEC/EN 61810-7, IEC/EN 61810-11, UL508	
Low Voltage Directive	2006/95/EC	

### Load limit curves - Maximum switching power

CR-MX with 2 c/o contacts



CR-MX with 4 c/o contacts



# Pluggable interface relays

## Technical data - Sockets for CR-P and CR-M

Output circuits	CR-PLS	CR-PLS(x)	CR-PSS	CR-PLC	CR-MxLS	CR-MxSS	CR-MxSF	CR-MxLC
Output circuits	11-12/14, 21-22/24				11-12/14, 21-22/24, ...			
Number of poles	2				2, 3 or 4		2 or 4	
Rated voltage	250 V AC	300 V AC	250 V AC	250 V AC				300 V AC
Rated current	2 x 10 A <sup>1)</sup>	2 x 12 A <sup>1)</sup>	2 x 10 A <sup>1)</sup>	7 A				10 A
<b>General data</b>								
Dimensions without holder and module (L x W x H)	76 x 15.8 x 62 mm (2.992 x 0.622 x 2.441 in)	78.5 x 15.5 x 61 mm (3.011 x 0.610 x 2.402 in)	76 x 15.8 x 42.8 mm (2.992 x 0.622 x 1.685 in)	97.5 x 16.3 x 45.2 mm (3.839 x 0.642 x 1.780 in)	75 x 27.2 x 60.8 mm (2.952 x 1.071 x 2.394 in)	75.2 x 27.2 x 42.6 mm (2.961 x 1.071 x 1.677 in)	66.7 x 30.3 x 29 mm (2.626 x 1.193 x 1.142 in)	95 x 31 x 42.5 mm (3.74 x 1.22 x 1.67 in)
Degree of protection	IP 20 B (EN 60529)							
Temperature range	operation -40...+70 °C	operation -40...+85 °C	operation -40...+70 °C	operation -40...+70 °C	operation -40...+70 °C	operation -40...+70 °C	operation -40...+70 °C	operation -25...+85 °C
Connection type	screw connection			spring connection 2 (one per connection point)	screw connection		fork type screw	spring connection 2 (one per connection point)
Maximum number of wires per connecting terminal	2			2	2		-	2
Wire size	rigid 2 x 2.5 mm <sup>2</sup> (2 x 14 AWG)			0.2-1.5 mm <sup>2</sup> (24-16 AWG)	2 x 2.5 mm <sup>2</sup> (2 x 14 AWG)		2 x 1.5 mm <sup>2</sup> (2 x 16 AWG)	0.2 - 1.5 mm <sup>2</sup> (24 x 16 AWG)
	fine-strand with wire end ferrule 2 x 1.5 mm <sup>2</sup> (2 x 16 AWG)				2 x 1.5 mm <sup>2</sup> (2 x 16 AWG)			
Stripping length	-				7 mm (0.28 in)		-	-
Tightening torque	0.6 Nm	0.8 Nm	0.6 Nm		0.6 Nm (5.31 lb.in)		-	-
Maximum clamping force	with 0.2 mm <sup>2</sup> -	with 1.5 mm <sup>2</sup> -	with 1.5 mm <sup>2</sup> -	10 N 40 N	-		-	10 N 40 N > 40 N
Mounting	DIN rail (IEC/EN 60715)							
Material	socket PA 6+GF - V2				socket PA 6+GF - V2			
	contacts CuZn33				contacts CuZn33			
	contact surface 5 μ Ni	5 μ tinned	5 μ Ni		5 μ Ni		6 μ Ni	5 μ tinned
	terminals 8 μ Ni	8 μ galvanized	8 μ Ni	XCrNi Steel	8 μ Ni			CCSC
	combi screw M3 8.8 Steel, 5μ Ni				8.8 Steel, 5μ Ni			
<b>Isolation data</b>								
Insulation voltage	> 5 kV	> 3 kV	> 5 kV		> 3 kV		> 4 kV	
Isolation between coil and contacts	EN 61984			VDE 0106 / 101	EN 61984			DIN EN 61140, VDE 0140-1
Clearance and creepage distance	EN 61984			DIN EN 60664-1	EN 61984		DIN EN 60664-1	
<b>Standards</b>								
Products standard	EN 61984				EN 61984			
Low Voltage Directive	2006/95/EC				2006/95/EC			
EMC Directive	-				2004/108/EC			

<sup>1)</sup> Loads >10 A (>12 A for CR-PLSx) require jumpering of terminal 11 with 21, 12 with 22, and 14 with 24

# Pluggable interface relays

## Technical data - Sockets for CR-U and CR-MX

Output circuits	CR-U2S	CR-U3S	CR-U3E	CR-UxSM	CR-MxSFB
Output circuits	11-12/14, 21-22/24,...				
Number of poles	2	3		2 or 3	2 or 4
Rated voltage	250 V AC		300 V AC	250 V	250 V AC
Rated current	10 A				7 A
<b>General data</b>					
Dimensions without holder and module (L x W x H)	75.3 x 37.3 x 26 mm (2.965 x 1.469 x 1.024 in)	75.3 x 38.1 x 26 mm (2.965 x 1.500 x 1.024 in)	70 x 38 x 26 mm (2.756 x 1.496 x 1.024 in)	61.8 x 38.1 x 26 mm (2.756 x 1.500 x 1.024 in)	66.7 x 30.3 x 29 mm (2.626 x 1.193 x 1.142 in)
Degree of protection	IP 20 B (EN 60529)				
Temperature range	operation -40...+70 °C		-40...+85 °C	-40...+70 °C	-40...+70 °C
	storage -40...+70 °C		-40...+85 °C	-40...+70 °C	-40...+70 °C
Wire size	rigid 2 x 2.5 mm <sup>2</sup> (2 x 14 AWG)				2 x 1.5 mm <sup>2</sup> (2 x 16 AWG)
	fine-strand 2 x 2.5 mm <sup>2</sup> (2 x 14 AWG)				
	with wire end ferule 2 x 1.5 mm <sup>2</sup> (2 x 16 AWG)				
Tightening torque	0.6 Nm		0.8 Nm	0.6 Nm	0.6 Nm (5.31 lb.in)
Mounting	DIN rail (IEC/EN 60715)				DIN rail (IEC/EN 60715)
Material	socket PA 6+GF - V2				
	contacts CuZn33				
	contact surface 6 μ Ni			3 μ Ni	6 μ Ni
	terminals 8 μ Ni		8 μ galvanized	10 μ Ni	8 μ Ni
	combi screw M3 8.8 Steel, 5μ Ni			Steel, 8 μ Ni	8.8 Steel, 5μ Ni
<b>Isolation data</b>					
Insulation voltage	> 2 kV				> 4 kV
Isolation between coil and contacts	EN 61984				-
Clearance and creepage distance	EN 61984				DIN EN 60664-1
<b>Standards</b>					
Products standard	EN 61984: 2001				
Low Voltage Directive	2006/95/EC				

# Pluggable interface relays

## Technical data - CR-S range

<b>Output circuits</b>																						
Output circuits	11-12/14																					
Kind of output	1 c/o (SPDT)																					
Contact material	AgSnO <sub>2</sub> / AgSnO <sub>2</sub> /Au																					
Rated operational voltage U <sub>e</sub> (IEC/EN 60947-1)	250 V AC																					
Minimum switching voltage	12 V DC																					
Maximum switching voltage	400 V AC / 125 V DC																					
Minimum switching current	100 mA (AgSnO <sub>2</sub> ) / 10 mA (AgSnO <sub>2</sub> /Au)																					
Rated free air thermal current I <sub>th</sub>	5 A																					
Rated operational current (IEC/EN 60947-5-1)	<table border="0"> <tr> <td>AC12 (resistive)</td> <td>230 V</td> <td>6 A</td> </tr> <tr> <td>AC15 (inductive)</td> <td>230 V</td> <td>1.5 A</td> </tr> <tr> <td>AC15 (inductive)</td> <td>120 V</td> <td>3 A</td> </tr> <tr> <td>DC12 (resistive)</td> <td>24 V</td> <td>6 A</td> </tr> <tr> <td>DC13 (inductive)</td> <td>24 V</td> <td>1 A</td> </tr> <tr> <td>DC13 (inductive)</td> <td>120 V</td> <td>0.22 A</td> </tr> <tr> <td>DC13 (inductive)</td> <td>250 V</td> <td>0.11 A</td> </tr> </table>	AC12 (resistive)	230 V	6 A	AC15 (inductive)	230 V	1.5 A	AC15 (inductive)	120 V	3 A	DC12 (resistive)	24 V	6 A	DC13 (inductive)	24 V	1 A	DC13 (inductive)	120 V	0.22 A	DC13 (inductive)	250 V	0.11 A
AC12 (resistive)	230 V	6 A																				
AC15 (inductive)	230 V	1.5 A																				
AC15 (inductive)	120 V	3 A																				
DC12 (resistive)	24 V	6 A																				
DC13 (inductive)	24 V	1 A																				
DC13 (inductive)	120 V	0.22 A																				
DC13 (inductive)	250 V	0.11 A																				
AC rating (UL 508; NEMA ICS-5)	Utilization category (pilot duty) (Contact rating code designation) B300																					
DC rating (UL 508; NEMA ICS-5)	Utilization category (pilot duty) (Contact rating code designation) R300																					
Maximum making (inrush) current	15 A, 240 V AC																					
Minimum switching power	100 mA/12 V (AgSnO <sub>2</sub> ) / 50 mW (AgSnO <sub>2</sub> /Au)																					
Maximum switching (breaking) power	AC1 (resistive) 1500 VA, 250 V AC																					
Contact resistance	100 mΩ (at 1 A/ 6 V DC)																					
Maximum operating frequency	rated load AC1 360 switching cycles/h without load 18000 switching cycles/h																					
Mechanical lifetime	1 x 10 <sup>7</sup> switching cycles																					
Electrical lifetime	AC1 (resistive) (n/c) 3 x 10 <sup>4</sup> switching cycles (at +85 °C) (n/o) 1 x 10 <sup>4</sup> switching cycles (at +85 °C)																					
Response time	8 ms																					
Release time	4 ms																					
<b>Isolation data</b>																						
Rated insulation voltage	250 V AC																					
Rated impulse withstand voltage U <sub>imp</sub>	<table border="0"> <tr> <td>between coil and contacts</td> <td>4000 V AC 1 min</td> </tr> <tr> <td>between open contacts</td> <td>1000 V AC 1 min</td> </tr> <tr> <td>between coil and contacts</td> <td>5.5 mm (0.217 in)</td> </tr> <tr> <td>between coil and contacts</td> <td>8 mm (0.315 in)</td> </tr> </table>	between coil and contacts	4000 V AC 1 min	between open contacts	1000 V AC 1 min	between coil and contacts	5.5 mm (0.217 in)	between coil and contacts	8 mm (0.315 in)													
between coil and contacts	4000 V AC 1 min																					
between open contacts	1000 V AC 1 min																					
between coil and contacts	5.5 mm (0.217 in)																					
between coil and contacts	8 mm (0.315 in)																					
Clearance	between open contacts 1000 V AC 1 min																					
Creepage distance	between coil and contacts 5.5 mm (0.217 in)																					
Overvoltage category	III																					
Pollution degree	2																					
<b>General data</b>																						
Dimensions (W x H x D)	28 x 5 x 15 mm (1.102 x 0.196 x 0.590 in)																					
Weight	5 g (0.011 lb)																					
Mounting	on socket																					
Mounting position	any																					
Degree of protection	RT II and RT III																					
<b>Electrical connection</b>																						
Connection	by socket																					
<b>Environmental data</b>																						
Ambient temperature range	<table border="0"> <tr> <td>operation</td> <td>-40...+85 °C</td> </tr> <tr> <td>storage</td> <td>0...+40 °C</td> </tr> </table>	operation	-40...+85 °C	storage	0...+40 °C																	
operation	-40...+85 °C																					
storage	0...+40 °C																					
Vibration resistance (10-150 Hz)	<table border="0"> <tr> <td>n/o contact</td> <td>10 Hz to 55 Hz 1mm DA</td> </tr> <tr> <td>n/c contact</td> <td>10 Hz to 55 Hz 1mm DA</td> </tr> <tr> <td>n/o contact</td> <td>Functional 49 m/s<sup>2</sup> / Destructive 980 m/s<sup>2</sup></td> </tr> <tr> <td>n/c contact</td> <td>Functional 49 m/s<sup>2</sup> / Destructive 980 m/s<sup>2</sup></td> </tr> </table>	n/o contact	10 Hz to 55 Hz 1mm DA	n/c contact	10 Hz to 55 Hz 1mm DA	n/o contact	Functional 49 m/s <sup>2</sup> / Destructive 980 m/s <sup>2</sup>	n/c contact	Functional 49 m/s <sup>2</sup> / Destructive 980 m/s <sup>2</sup>													
n/o contact	10 Hz to 55 Hz 1mm DA																					
n/c contact	10 Hz to 55 Hz 1mm DA																					
n/o contact	Functional 49 m/s <sup>2</sup> / Destructive 980 m/s <sup>2</sup>																					
n/c contact	Functional 49 m/s <sup>2</sup> / Destructive 980 m/s <sup>2</sup>																					
Shock resistance	<table border="0"> <tr> <td>n/o contact</td> <td>Functional 49 m/s<sup>2</sup> / Destructive 980 m/s<sup>2</sup></td> </tr> <tr> <td>n/c contact</td> <td>Functional 49 m/s<sup>2</sup> / Destructive 980 m/s<sup>2</sup></td> </tr> </table>	n/o contact	Functional 49 m/s <sup>2</sup> / Destructive 980 m/s <sup>2</sup>	n/c contact	Functional 49 m/s <sup>2</sup> / Destructive 980 m/s <sup>2</sup>																	
n/o contact	Functional 49 m/s <sup>2</sup> / Destructive 980 m/s <sup>2</sup>																					
n/c contact	Functional 49 m/s <sup>2</sup> / Destructive 980 m/s <sup>2</sup>																					
<b>Standards</b>																						
Product standard	IEC 61810-1																					
Low Voltage Directive	2006/95/EC																					



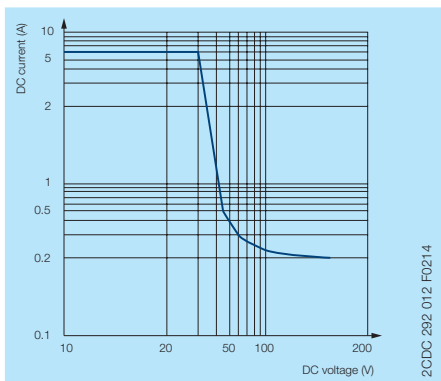
# Pluggable interface relays

## Technical data - CR-S range sockets

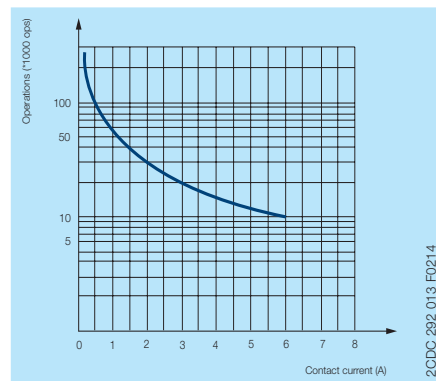
5

Input circuits	CR-S 6-24 V	CR-S 12-24 V	CR-S 48-60 V	CR-S 110-125 V	CR-S 220-240 V
Rated control supply voltage $U_s$	6-24 V DC	2-24 V AC/DC	48-60 V AC/DC	110-125 V AC/DC	220-240 V AC/DC
Rated control supply voltage $U_s$ tolerance	$(0.8-1.2) U_n$	$(0.8-1.1) U_n$			
Typical current	11-29 mA	11-16 mA	3.6-4.5 mA	3.6 mA	3.6 mA
Response time	8 ms				
Release time	4 ms				
Status device	green LED				
Protective circuit	yes				
<b>Output circuits</b>					
Output circuits	11-12/14				
Number of poles	1				
Rated voltage	250 V AC				
Rated current	6 A				
<b>General data for CR-S with screw connection terminal</b>					
Dimensions without holder (L x W x H)	88.3 x 6.3 x 70.9 mm (3.476 x 0.248 x 2.789 in)				
Degree of protection (EN 60529)	Degree of protection (EN 60529) IP20 (terminals)				
Temperature range	operation	-40...+70 °C			-40...+55 °C
	storage	0...+40 °C			
Connection type	Screw				
Maximum number of wires per connection terminal	2				
Wire size	rigid	1 x 2.5 mm <sup>2</sup> (1 x 14 AWG) ; 2 x 1.5 mm <sup>2</sup> (2 x 16 AWG)			
	fine-strand	1 x 2.5 mm <sup>2</sup> (1 x 14 AWG); 2 x 1.5 mm <sup>2</sup> (2 x 16 AWG)			
	with wire end ferule	1 x 2.5 mm <sup>2</sup> (1 x 14 AWG); 2 x 1.0 mm <sup>2</sup> (2 x 18 AWG)			
Tightening torque	0.5 Nm (4.426 lb.in)				
Stripping length	7 mm (0.276 in)				
Mounting (IEC/EN 60715)	DIN rail				
Material	socket	PA6 +GF-V2			
	contacts	CuZn36			
	contact surface	3 μ Ni/Sn			
	terminals	CuZn40, 3 μ Ni			
	combi screw M3	Fe			
<b>General data for CR-S with spring connection terminal</b>					
Dimensions without holder (L x W x H)	88.3 x 6.3 x 70.9 mm (3.476 x 0.248 x 2.789 in)				
Degree of protection (EN 60529)	Degree of protection (EN 60529) IP20 (terminals)				
Temperature range	operation	-40...+70 °C			-40...+55 °C
	storage	0...+40 °C			
Connection type	Spring				
Maximum number of wires per connection terminal	1				
Wire size	2.5 mm <sup>2</sup> (14 AWG) rigid, fine-strand and with wire end ferule				
Stripping length	7 mm (0.276 in)				
Mounting (IEC/EN 60715)	DIN rail				
Material	socket	PA6 +GF-V2			
	contacts	CuZn36			
	contact surface	3 μ Ni/Sn			
	spring terminals	SUS301			
<b>Isolation data</b>					
Isolation between coil and contacts	5000 V AC				
Resistance to shock coil to contact	1000 MΩ				
Clearance and creepage distance	IEC/EN 61984				
<b>Standards</b>					
Product stancard	IEC/EN 61984: 2001				
Low Voltage Directive	2006/95/EC				

Load limit curves - Max. DC load breaking capacity



Endurance curve

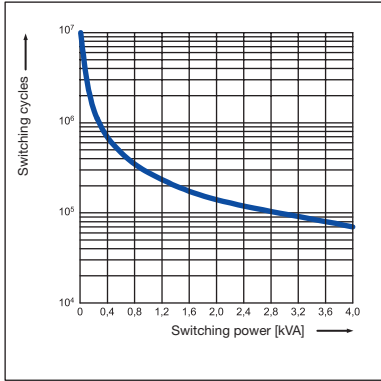


# Pluggable interface relays

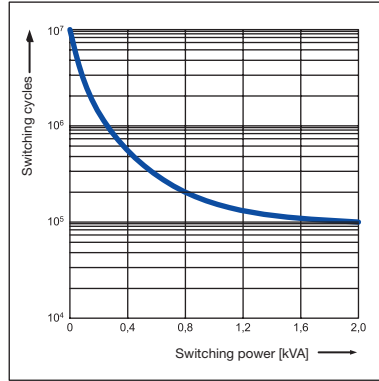
## Load limit curves

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

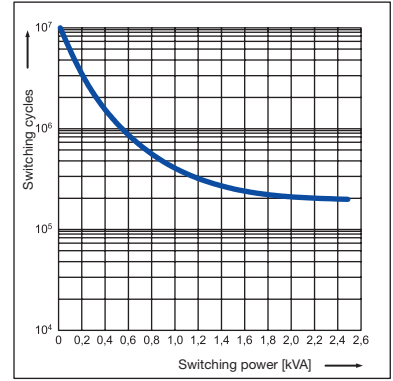
CR-P with 1 c/o contact



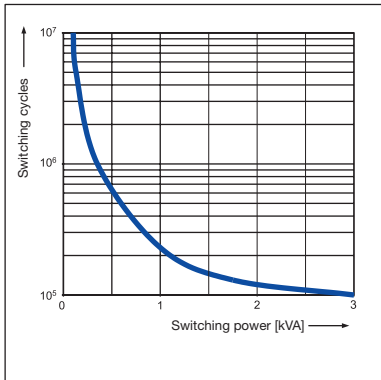
CR-P with 2 c/o contacts



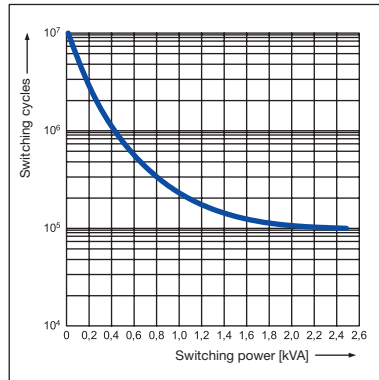
CR-U with 2 and 3 c/o contacts



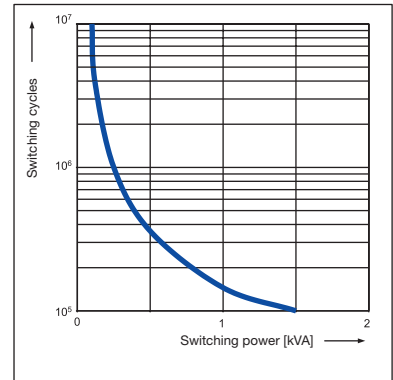
CR-M with 2 c/o contacts



CR-M with 3 c/o contacts

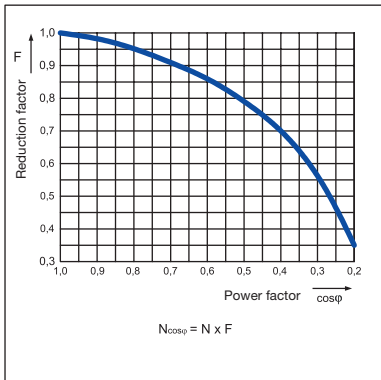


CR-M with 4 c/o contacts

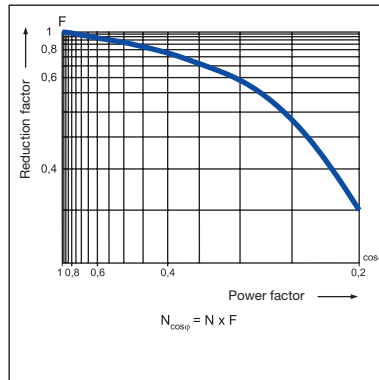


### Reduction factor F at inductive AC load

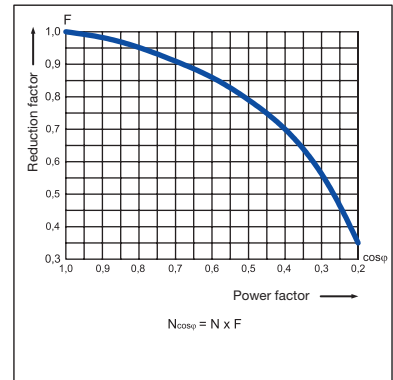
CR-P



CR-M



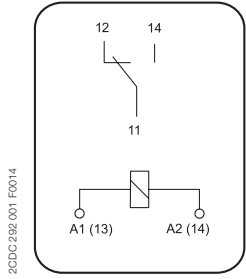
CR-U



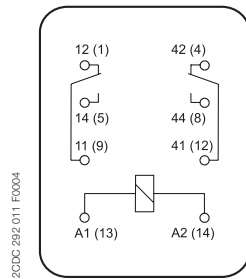
# Pluggable interface relays

## Connection diagrams

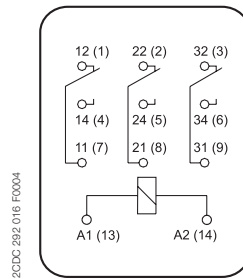
### Connection diagrams



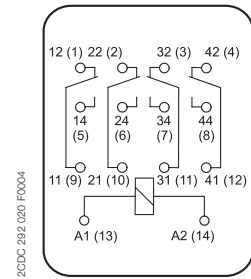
CR-S



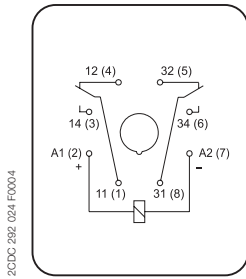
CR-M with 2 c/o contacts



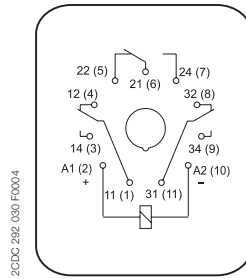
CR-M with 3 c/o contacts



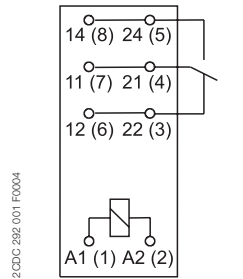
CR-M with 4 c/o contacts



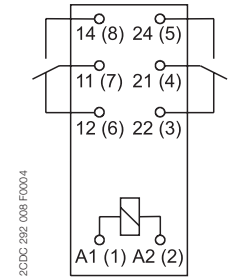
CR-U with 2 c/o contacts



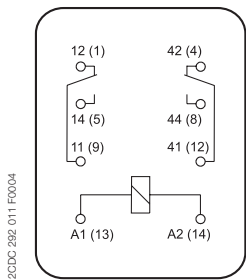
CR-U with 3 c/o contacts



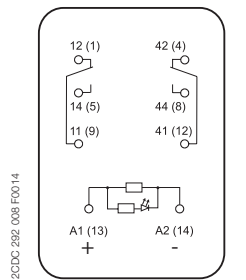
CR-P with 1 c/o contact



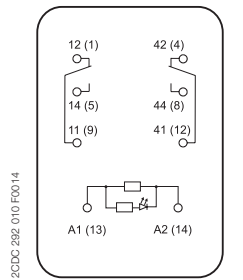
CR-P with 2 c/o contacts



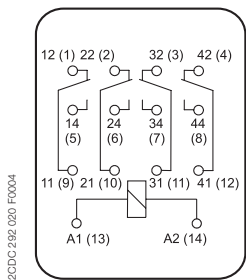
CR-MX with 2 c/o contacts without LED



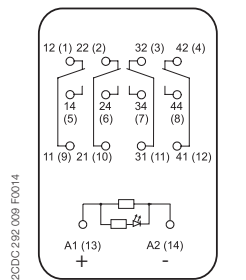
CR-MX with 2 c/o (SPDT) contacts with DC coil and LED



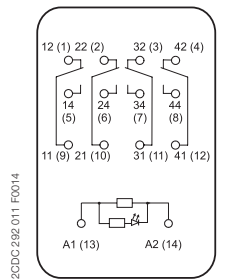
CR-MX with 2 c/o (SPDT) contacts with AC coil and LED



CR-MX with 2 c/o contacts without LED



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

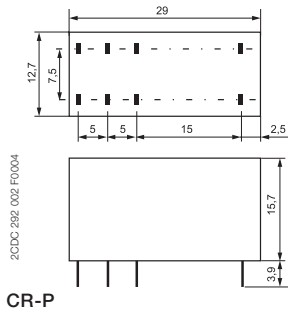


CR-MX with 4 c/o (SPDT) contacts with AC coil and LED

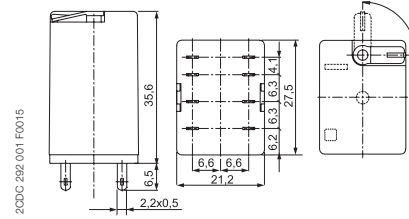
# Pluggable interface relays

## Connection diagrams

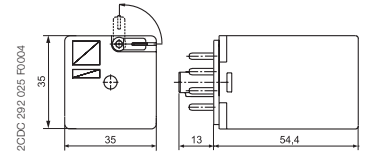
Dimensional drawings    Dimensions in mm and inches



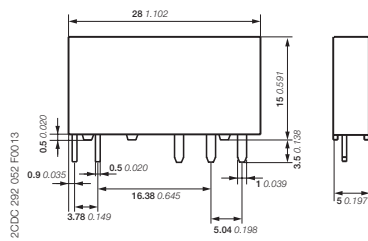
CR-P



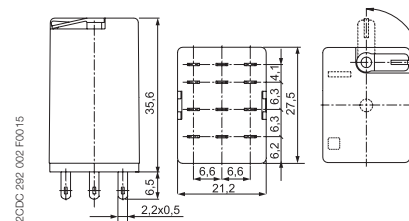
CR-M with 2 c/o contacts



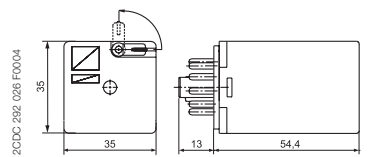
CR-U with 2 c/o contacts



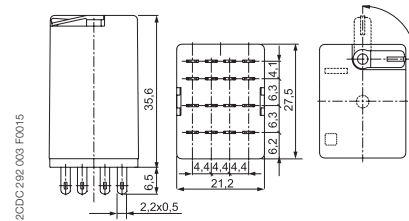
CR-S



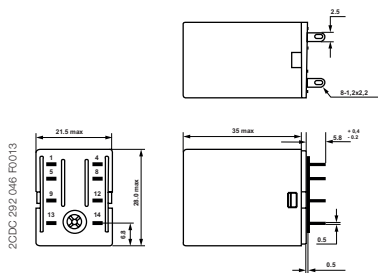
CR-M with 3 c/o contacts



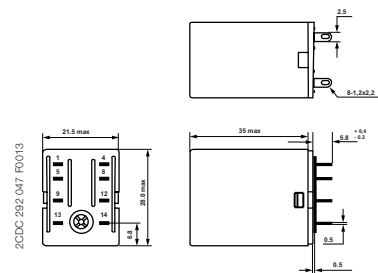
CR-U with 3 c/o contacts



CR-M with 4 c/o contacts



CR-MX with 2 c/o contacts

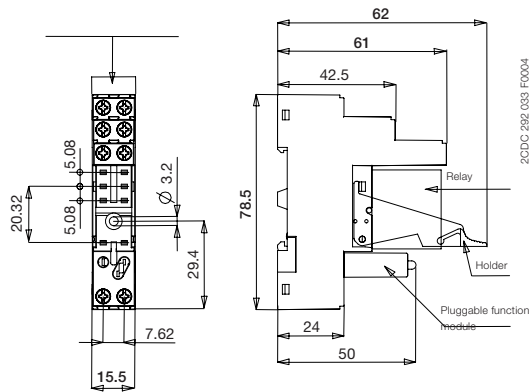
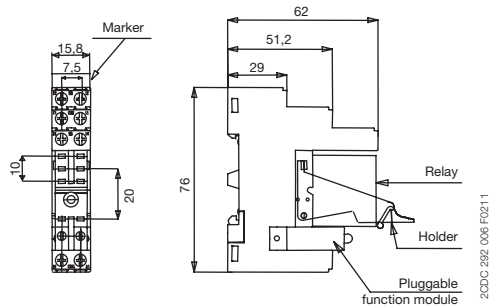


CR-MX with 4 c/o contacts

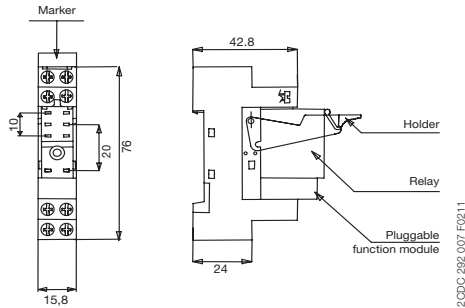
# Pluggable interface relays

## Dimensional drawings

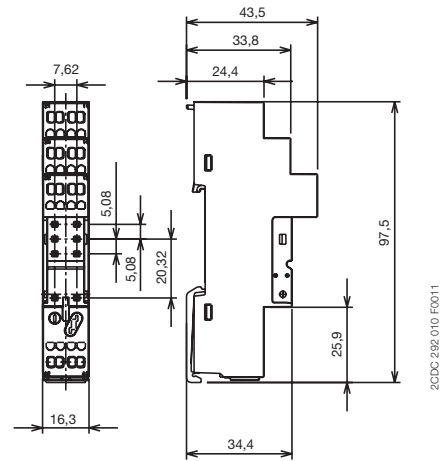
Dimensions in mm and inches



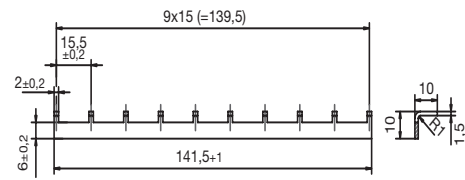
### 5 CR-PLS - screw connection



### CR-PLSx - screw connection

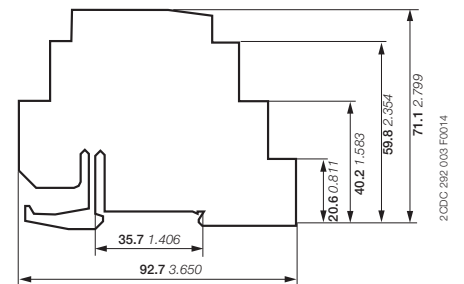
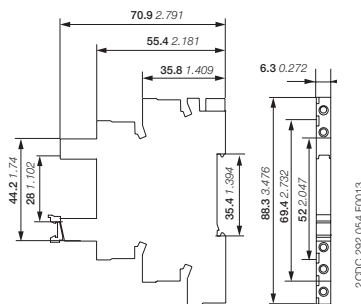
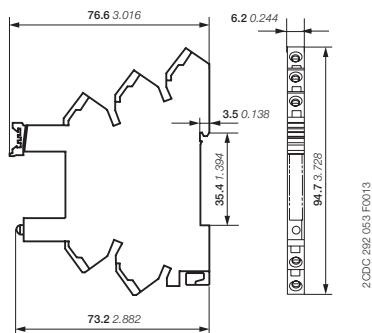


### CR-PSS - screw connection



### CR-PLC - spring connection

### CR-PJ

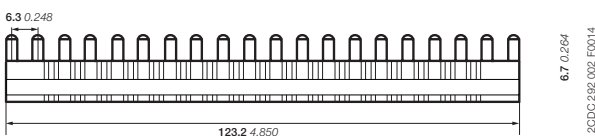


Spring socket for CR-S range interface relays

Screw socket for CR-S range interface relays

Separator for CR-S

### Jumper

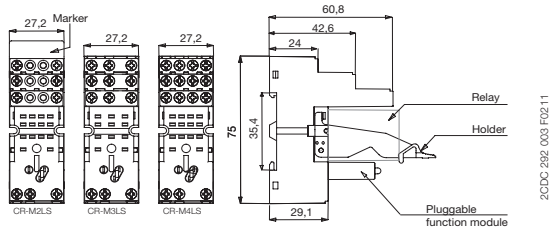


Jumper bar CR-S

# Pluggable interface relays

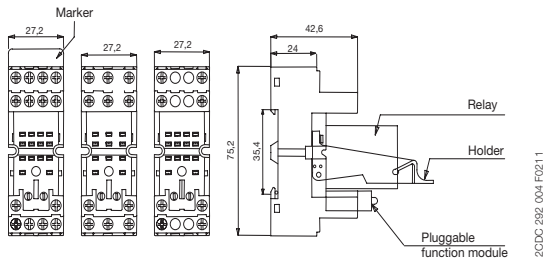
## Dimensional drawings

Dimensions in mm and inches



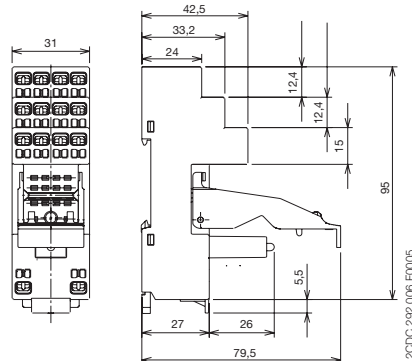
2CDC 292 003 F0211

CR-M2LS - CR-M3LS - CR-M4LS - screw connection



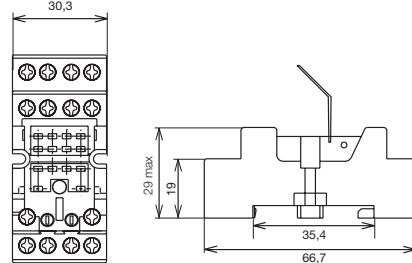
2CDC 292 004 F0211

CR-M2SS - CR-M3SS - CR-M4SS - screw connection

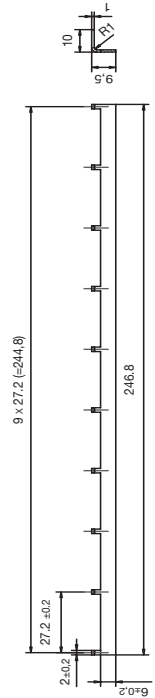


2CDC 292 006 F0005

CR-M2LC, CR-M4LC - spring connection

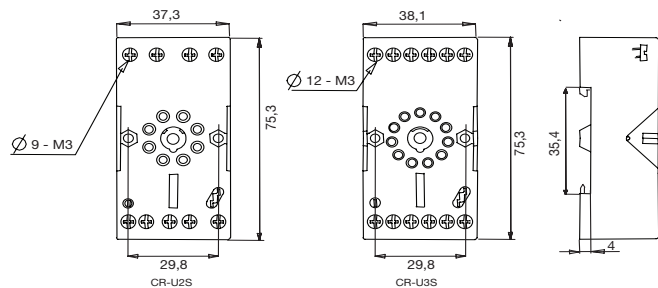


CR-MxSF(B) - screw connection



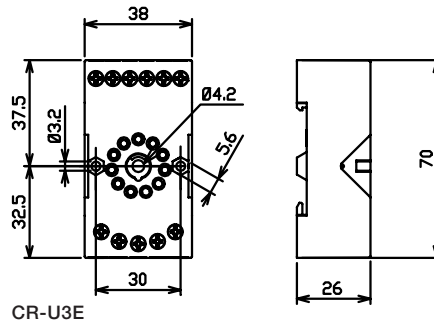
CR-MJ

2CDC 292 011 F0011



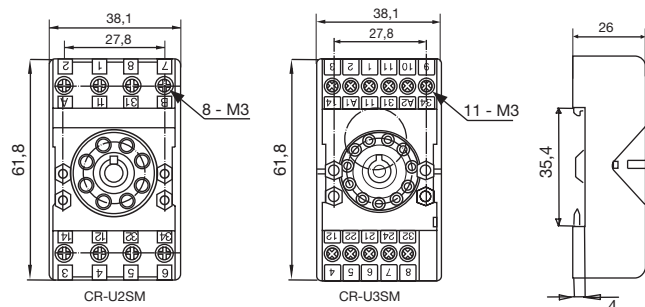
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CR-U2S - CR-U3S



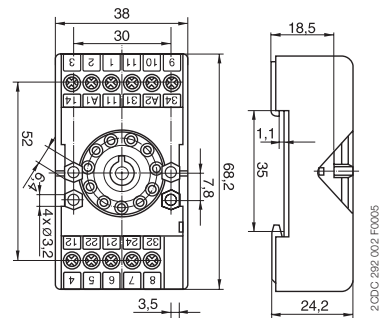
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CR-U3E



2CDC 292 009 F0011

CR-U2SM



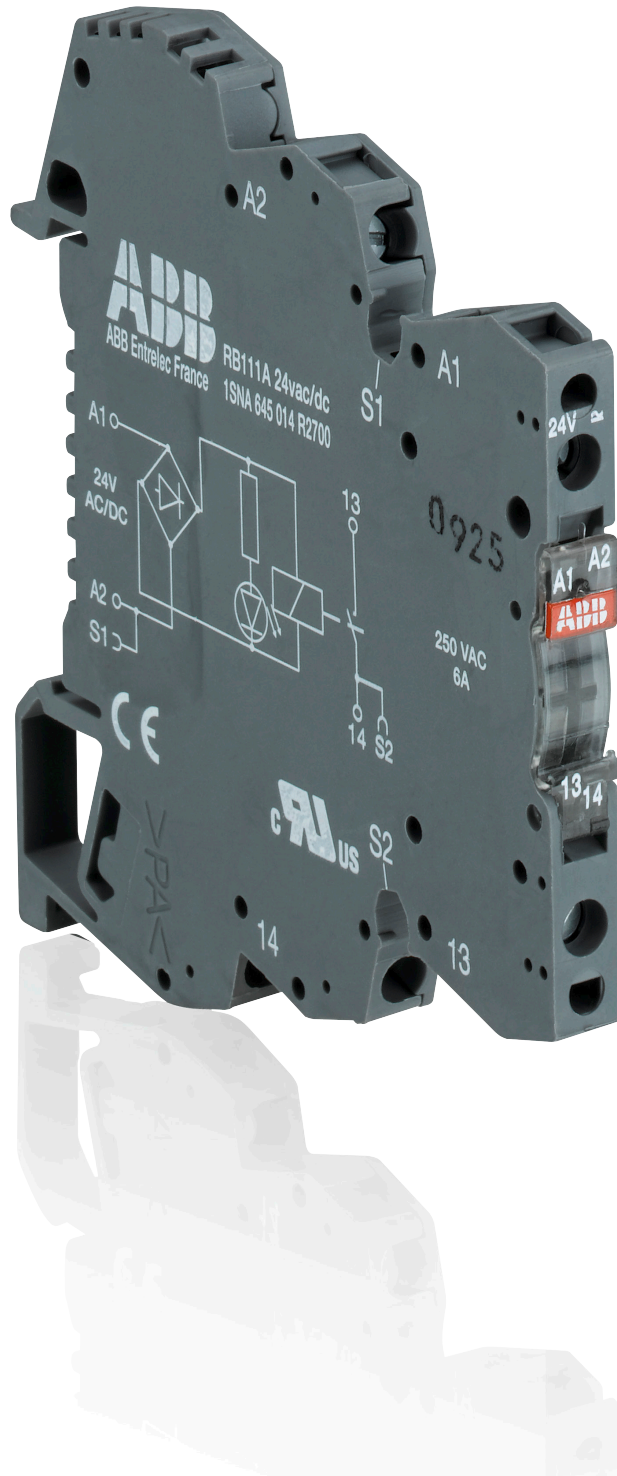
2CDC 292 002 F0005

CR-U3SM

# Interface relays and optocouplers R600 range

## Product group picture

5



# Interface relays and optocouplers R600 range

## Table of contents

### Interface relays and optocouplers R600 range

Benefits and advantages	5/29
Type designators	5/30
<b>Interface relays R600 range</b>	<b>5/31</b>
Benefits and advantages	5/31
Selection	5/33
Ordering details	5/35
Connection diagrams	5/37
Technical data	5/38
General technical data	5/43
Dimensional drawings, Load limit curves	5/44
<b>Optocouplers R600 range</b>	<b>5/45</b>
Selection	5/45
Ordering details	5/47
Connection diagrams	5/48
Technical data	5/49



# Interface relays and optocouplers R600 range

## Benefits and advantages



### R600 series

#### 5 Standard range in screw clamp or spring clamp versions

- Spacing : 6 mm or 12 mm
- Wire size : 2.5 mm<sup>2</sup> (4 mm<sup>2</sup> solid wire)
- Contact type : 1 NO, 1 NC, 1 SPDT, 1 DPDT from 1 mA to 8 A / 250 V

In today's automation systems, PLCs are the core of industry. They link sensors and actuators to the process, which are connected to the PLC via conventional wires.



However these PLCs are not completely isolated from the industrial environment, hence over voltage picks and transient currents can affect their operating functions. And additionally, their application field is often limited to 24 VDC / 100 mA.

So, with the aim to adapt application voltage and/or current and provide as well the right electrical isolation to the PLC, it is recommended to install per I/O the right interface providing both voltage-current level adaptation and isolation protection.

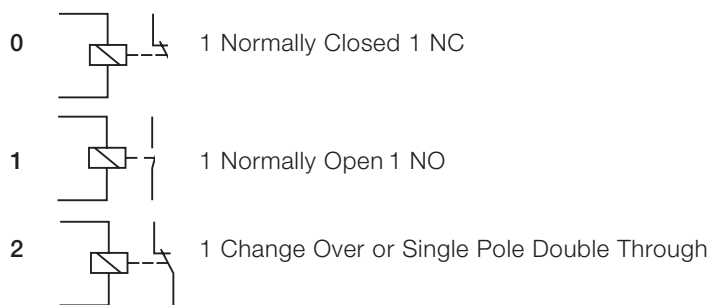
This interfacing is possible thanks to ABB's relays and optocouplers ranges, which offer wide adaptation in both voltage (from 5 to 400 V) and current (from 10-7 to 16 A) as well as high isolation between input and output from 2 to 4 KV.

# Interface relays and optocouplers R600 range

## Type designators

SERIES	CODE	NB OF RELAYS	CONTACT TYPE	NB OF CONTACTS PER RELAY	PARTICULARITIES
R600 screw type 	R / B	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
R600 spring type 	R / B / R	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		1	0 1 2	1 2	None / A / R

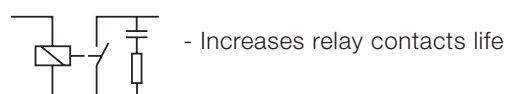
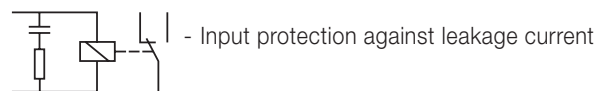
### Description of contact types



### Features

**None** Input voltage DC  
**A** Input voltage AC/DC

### R RC circuit protection :



# Interface relays R600 range

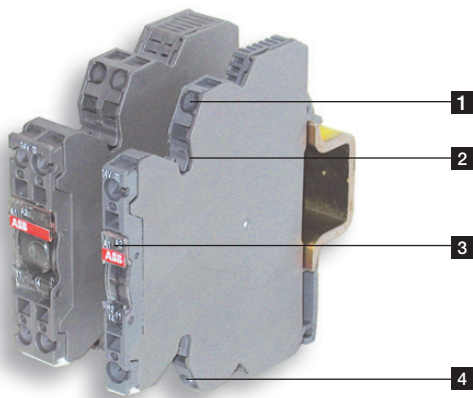
## Benefits and advantages

### Characteristics

- Standard range available with screw or spring-type terminals
- 8 different rated control supply voltages:  
DC versions: 5 V, 12 V, 24 V  
AC/DC versions: 24 V, 48-60 V, 115 V, 230 V, 60-230 V
- Output: 1 n/c contact, 1 n/o contact, 1 c/o (SPDT) contact, 2 c/o (SPDT) contacts
- Devices with output contacts protected by built in RC circuit, which result in increased contact life
- Devices with leakage current protection on the input side
- Available with visible or covered switch on the front of the unit, for the configuration of manual or automatic actuation
- With connection for jumper bar, except 2 c/o devices and some discontinued devices
- Width: 6 mm (0.236 in) or 12 mm (0.472 in)
- LED for the indication of the operational state
- Accessories: Jumper bars, separator end section
- Approvals / Marks

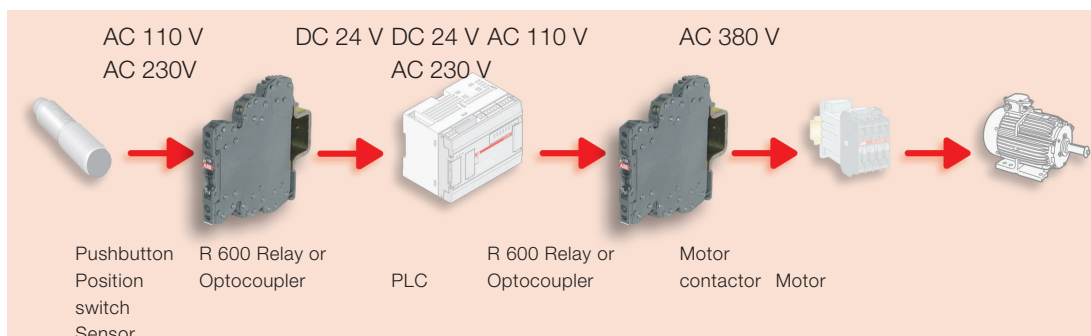

 (pending) / CE

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- 1** Input - Control supply voltage
- 2** Jumper bar connection
- 3** Indication of operational states (green LED)
- 4** Output

### Excellent adaption and conversion of digital signals



# Interface relays R600 range

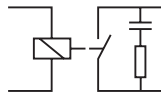
## Benefits and advantages

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

Boxed 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. The compact design and different connection terminal possibilities optimize your panel installation.

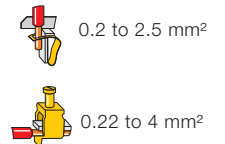
### Increased contact life

The contacts of some devices are protected by built in RC-circuits which result in increased contact life.



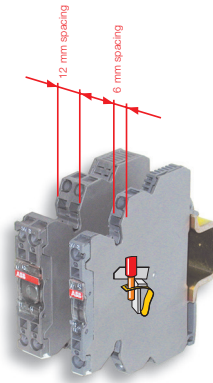
### Variety of connections

R600 relays and optocouplers are available with both screw terminals or spring terminals.



### Space saving

With a width of only 6 mm or 12 mm the compact design saves space in each cabinet.

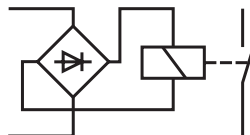


### Functioning status

Functioning display through a green LED.



### Only one part number AC/DC



### Measurement & Test

Holes for holding DIA. 2 mm test plugs to simplify any measurement or test.



# Interface relays R600 range Selection

Type	Order number																				
RB 121-5VDC	1SNA645034R2300																				
RB 121-5VDC	1SNA645036R2500																				
RBR 121-5VDC	1SNA645534R2500																				
RBR 121-5VDC	1SNA645536R2700																				
RB121-12VDC	1SNA645073R0000																				
RB121-12VDC	1SNA645035R2400																				
RB121-AU-12VDC	1SNA645075R0000																				
RBR121-AU-12VDC	1SNA645575R0000																				
RBR121-12VDC	1SNA645535R2600																				
RBR121-12VDC	1SNA645573R0000																				
RB 101AR-24VAC/DC	1SNA645019R0400																				
RBR 101AR-24VAC/DC	1SNA645519R0600																				
RB 111A-24VAC/DC	1SNA645014R2700																				
RB 111AR-24VAC/DC	1SNA645018R0300																				
RBR 111A-24VAC/DC	1SNA645514R2100																				
RB 121A-24VAC/DC	1SNA645001R0300																				
RB 121A-24VAC/DC	1SNA645005R0700																				
RBR 121A-24VAC/DC	1SNA645501R0500																				
RBR 121A-24VAC/DC	1SNA645505R0100																				
RB 122A-24VAC/DC	1SNA645012R2500																				
RBR 122A-24VAC/DC	1SNA645512R2700																				
RB121-24VDC	1SNA645071R0000																				
RBR121-24VDC	1SNA645571R0000																				
RB121-AU-24VDC	1SNA645072R0000																				
1SNA645572R0000																					
RB 121A-48-60VAC/DC	1SNA645002R0400																				
RB 121A-48-60VAC/DC	1SNA645006R0000																				
RBR 121A-48-60VAC/DC	1SNA645502R0600																				
RBR 121A-48-60VAC/DC	1SNA645506R0200																				
RB 122A-48-60VAC/DC	1SNA645040R1500																				
RBR 122A-48-60VAC/DC	1SNA645540R1700																				

Input voltage																					
5 V DC	■	■	■	■																	
12 V DC					■	■	■	■	■	■											
24 V DC											■	■	■	■	■	■	■	■			
48-60 V DC																			■	■	■
115 V DC																					
230 V DC																					
60-230 V DC																					
24 V AC																					
48-60 V AC											■	■	■	■	■	■					
115 V AC																					
230 V AC																					
60-230 V AC																					

Output rating																					
10 mA - 6 A	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
1 mA - 6 A		■		■		■	■		■					■		■			■		
1 mA - 8 A																				■	■

Output contacts																					
c/o	1	1	1	1	1	1	1	1	1					1	1	1	1	2	2	1	1
n/o												1	1	1							
n/c										1	1										

Terminal type																					
Screw	■	■			■	■	■							■	■				■	■	■
Spring			■	■									■							■	■



# Interface relays R600 range

## Ordering details




2CDC 291 024 S0013



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R600 - 6 mm





 screw terminals

 spring terminals



### Ordering details - 1 n/c contact: 250 V, 10 mA - 6 A (high level), width 12 mm

Rated control supply voltage	Particularities and connection type	Type	Order code	Price	Pkg qty	Weight (1 pce) kg (lb)
24 V AC/DC	RC circuit parallel to contact on output side	 RB101AR-24VAC/DC	1SNA645019R0400		5	0.04 (0.088)
		 RBR101AR-24VAC/DC	1SNA645519R0600			















### Ordering details - 1 n/o contact: 250 V, 10 mA - 6 A (high level) width 6 mm

Rated control supply voltage	Particularities and connection type	Type	Order code	Price	Pkg qty	Weight (1 pce) kg (lb)
24 V AC/DC		 RB111A-24VAC/DC	1SNA645014R2700		10	0.02 (0.044)
115 V AC/DC		 RB111A-115VAC/DC	1SNA645016R2100			
230 V AC/DC		 RB111A-230VAC/DC	1SNA645017R2200			
24 V AC/DC		 RBR111A-24VAC/DC	1SNA645514R2100			

### Ordering details - 1 n/o contact: 250 V, 10 mA - 6 A (high level), width 12 mm

Rated control supply voltage	Particularities and connection type	Type	Order code	Price	Pkg qty	Weight (1 pce) kg (lb)
24 V AC/DC	RC circuit parallel to contact on output side	 RB111AR-24VAC/DC	1SNA645018R0300		5	0.04 (0.088)
		 RBR111AR-24VAC/DC	1SNA645518R0500			

### Ordering details - 1 c/o (SPDT) contact: 250 V, 1 mA - 6 A (low level), width 6 mm

Rated control supply voltage	Particularities and connection type	Type	Order code	Price	Pkg qty	Weight (1 pce) kg (lb)
5 V DC	A1-A2 polarized	 RB121-5VDC	1SNA645036R2500		10	0.02 (0.044)
12 V DC		 RB121-AU-12VDC	1SNA645075R0000			
24 V DC		 RB121-AU-24VDC	1SNA645072R0000			
24 V AC/DC		 RB121A-24VAC/DC	1SNA645005R0700			
48-60 V AC/DC		 RB121A-48-60VAC/DC	1SNA645006R0000			
115 V AC/DC		 RB121A-115VAC/DC	1SNA645007R0100			
230 V AC/DC		 RB121A-230VAC/DC	1SNA645008R1200			
5 V DC	A1-A2 polarized	 RBR121-5VDC	1SNA645536R2700			
12 V DC		 RBR121-AU-12VDC	1SNA645575R0000			
24 V DC		 RBR121-AU-24VDC	1SNA645572R0000			
24 V AC/DC		 RBR121A-24VAC/DC	1SNA645505R0100			
48-60 V AC/DC		 RBR121A-48-60VUC	1SNA645506R0200			
115 V AC/DC		 RBR121A-115VAC/DC	1SNA645507R0300			
230 V AC/DC		 RBR121A-230VAC/DC	1SNA645508R1400			

# Interface relays R600 range


## Ordering details



















R600 - 12 mm

25DC2 291 013 S0013







 screw terminals

 spring terminals









### Ordering details - 1 c/o (SPDT) contact: 250 V, 10 mA - 6 A (high level), width 6 mm

Rated control supply voltage	Particularities and connection type	Type	Order code	Price	Pkg qty	Weight (1 pce) kg (lb)
5 V DC	A1-A2 polarized	 RB121-5VDC	1SNA645034R2300		10	0.02 (0.044)
12 V DC	A1-A2 polarized	 RB121-12VDC	1SNA645035R2400			
12 V DC		 RB121-12VDC	1SNA645073R0000			
24 V DC		 RB121-24VDC	1SNA645071R0000			
24 V AC/DC		 RB121A-24VAC/DC	1SNA645001R0300			
48-60 V AC/DC		 RB121A-48-60VAC/DC	1SNA645002R0400			
115 V AC/DC		 RB121A-115VAC/DC	1SNA645003R0500			
230 V AC/DC		 RB121A-230VAC/DC	1SNA645004R0400			
5 V DC	A1-A2 polarized	 RBR121-5VDC	1SNA645534R2500			
12 V DC	A1-A2 polarized	 RBR121-12VDC	1SNA645535R2600			
12 V DC		 RBR121-12VDC	1SNA645573R0000			
24 V DC		 RBR121-24VDC	1SNA645571R0000			
24 V AC/DC		 RBR121A-24VAC/DC	1SNA645501R0500			
48-60 V AC/DC		 RBR121A-48-60VUC	1SNA645502R0600			
115 V AC/DC		 RBR121A-115VAC/DC	1SNA645503R0700			
230 V AC/DC		 RBR121A-230VAC/DC	1SNA645504R0000			

### Ordering details - 1 c/o (SPDT) contact: 250 V, 10 mA - 6 A (high level), width 12 mm

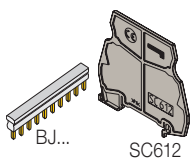
Rated control supply voltage	Particularities and connection type	Type	Order code	Price	Pkg qty	Weight (1 pce) kg (lb)
60-230 V AC/DC		 RB121A-60-230VUC	1SNA645020R0100		5	0.04 (0.088)
115 V AC/DC	Leakage current protection, input side	 RB121AR-115VAC/DC	1SNA645046R0700			
230 V AC/DC		 RB121AR-230VAC/DC	1SNA645011R2400			
60-230 V AC/DC		 RBR121A-60-230VUC	1SNA645520R0300			
115 V AC/DC	Leakage current protection, input side	 RBR121AR-115VAC/DC	1SNA645546R0100			
230 V AC/DC		 RBR121AR-230VAC/DC	1SNA645511R2600			

### Ordering details - 2 c/o (SPDT) contacts: 250 V, 1 mA - 8 A (low level), width 12 mm

Rated control supply voltage	Connection type	Type	Order code	Price	Pkg qty	Weight (1 pce) kg (lb)
24 V AC/DC		RB122A-24VAC/DC	1SNA645012R2500		5	0.04 (0.088)
48-60 V AC/DC		RB122A-48-60VAC/DC	1SNA645040R1500			
115 V AC/DC		RB122A-115VAC/DC	1SNA645041R0200			
230 V AC/DC		RB122A-230VAC/DC	1SNA645013R2600			
24 V AC/DC		RBR122A-24VAC/DC	1SNA645512R2700			
48-60 V AC/DC		RBR122A-48-60VUC	1SNA645540R1700			
115 V AC/DC		RBR122A-115VAC/DC	1SNA645541R0400			
230 V AC/DC		RBR122A-230VAC/DC	1SNA645513R2000			

### Ordering details - Accessories

Description	Type	Order code	Price	Pkg qty	Weight (1 pce) kg (lb)
24 V AC/DC	BJ 612-10	1SNA290488R0100		10	0.05 (0.11)
48-60 V AC/DC	BJ 612-20	1SNA206754R0000			0.01 (0.022)
230 V AC/DC	SC 612	1SNA290474R0200			0.05 (0.11)



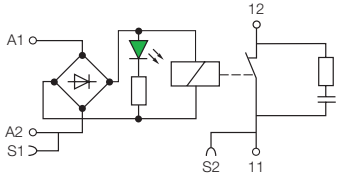


# Interface relays R600 range

## Connection diagrams

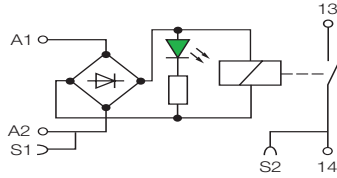
11-12 n/c contact  
 13-14 n/o contact  
 11-12/14 1st c/o contact  
 21-22/24 2nd c/o contact

A1-A2 Control supply voltage  
 S1 Connection for jumper bar (input side)  
 S2 Connection for jumper bar (output side)



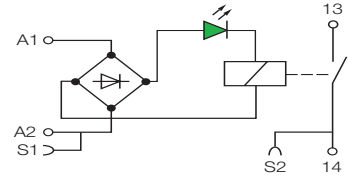
2CDC 292 030 F0013

RB/RBR 101 AR



2CDC 292 031 F0013

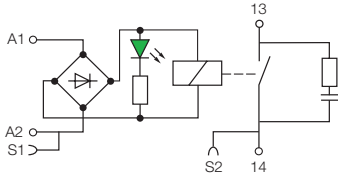
RB/RBR 111 A - 24 V AC/DC



2CDC 292 038 F0013

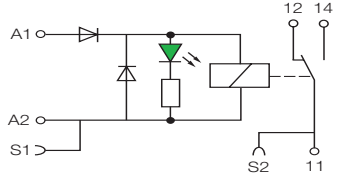
RB/RBR 111 A - 48/60/115/230 V AC/DC

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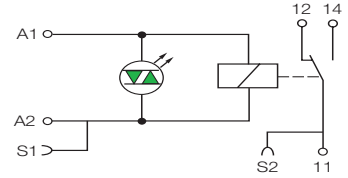
2CDC 292 035 F0013

RB/RBR 111 AR



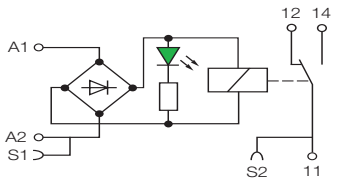
2CDC 292 036 F0013

RB/RBR 121  
 - 5 V DC, A1-A2 polarized  
 - 12 V DC, A1-A2 polarized, i.e. only:  
 1SNA645035R2400, 1SNA645535R2600



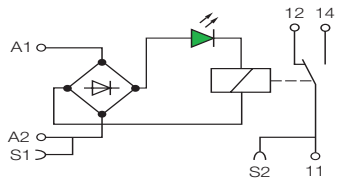
2CDC 292 038 F0013

RB/RBR 121 (AU)  
 - 12/24 V DC, except:  
 1SNA645035R2400, 1SNA645535R2600  
 see connection diagram RB...121-5VDC



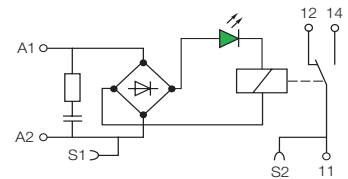
2CDC 292 039 F0013

RB/RBR 121 A - 24 V AC/DC



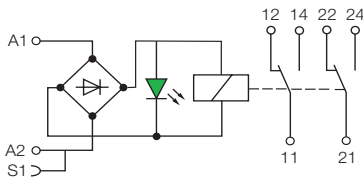
2CDC 292 040 F0013

RB/RBR 121 A - 48/60/115/230 V AC/DC



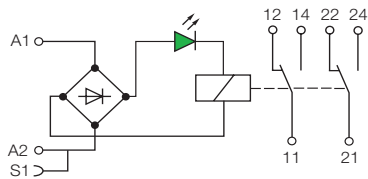
2CDC 292 042 F0013

RB/RBR 121 AR



2CDC 292 043 F0013

RB/RB 122 A - 24/48/60 V AC/DC



2CDC 292 044 F0013

RB/RBR 122 A - 115/230 V AC/DC

# Interface relays R600 range

## Technical data


### Technical data

		RB... 111A high level				
<b>Input circuit</b>						
Rated control supply voltage $U_s$		24 V AC/DC	48 V AC/DC	60 V AC/DC	115 V AC/DC	230 V AC/DC
Rated control supply voltage $U_s$ tolerance	DC	-15 %, +20 %				-15 %, +10 %
	AC	-/+ 10 %				
Rated frequency		50/60 Hz				
Typical power consumption		0.24 W	0.34 W	0.54 W	0.46 W	0.8 W
Typical current		10 mA	7 mA	9 mA	4 mA	3.5 mA
Drop-out voltage		4.5 V	8 V	8 V	17 V	27 V
Indication of operational states	green LED	┌: control supply voltage applied				
<b>Output circuit</b>						
Kind of output	13-14	relay, 1 n/o contact				
Rated operational voltage $U_e$ (IEC/EN 60947-1)		250 V AC				
Minimum switching voltage		12 V				
Maximum switching voltage		250 V AC				
Minimum switching current		10 mA				
Rated free air thermal current $I_{th}$		6 A				
Rated operational current (IEC/EN 60947-5-1)		AC-12 (resistive) 230 V	6 A			
		AC-15 (inductive) 230 V	1.5 A			
		AC-15 (inductive) 120 V	3 A			
		DC-12 (resistive) 24 V	6 A			
		DC-13 (inductive) 24 V	1 A			
		DC-13 (inductive) 120 V	0.2 A			
		DC-13 (inductive) 230 V	0.1 A			
AC rating (UL 508; NEMA ICS-5)	Utilization category (pilot duty)	B300				
DC rating (UL 508; NEMA ICS-5)	Utilization category (pilot duty)	R300				
Minimum switching power		0.6 W / 0.6 VA				
Mechanical lifetime		1 x 10 <sup>7</sup> switching cycles				
Electrical lifetime	at AC-15	1 x 10 <sup>5</sup> switching cycles				
Response time		5 ms	5 ms	5 ms	6 ms	7 ms
Release time		8 ms	8 ms	8 ms	15 ms	15 ms
<b>Dimensions and weight</b>		RB 111 A			RBR 111 A	
Weight	net weight	0.02 kg (0.044 lb)				
Dimension	product dimension	6 x 70 x 75 mm (0.236 x 2.76 x 2.95 in)			6 x 75 x 75 mm (0.236 x 2.95 x 2.95 in)	

# Interface relays R600 range

## Technical data

### Technical data

		RB... 111AR high level	RB... 101AR high level
<b>Input circuit</b>			
Rated control supply voltage $U_s$		24 V AC/DC	
Rated control supply voltage $U_s$ tolerance	DC	-15 %, +20 %	
	AC	-/+ 10 %	
Rated frequency		50/60 Hz	
Typical power consumption		0.24 W	
Typical current		10 mA	
Drop-out voltage		4.5 V	
Indication of operational states	green LED	 : control supply voltage applied	
<b>Output circuit</b>			
Kind of output	11-12	-	relay, 1 n/c contact
	13-14	relay, 1 n/o contact	-
Rated operational voltage $U_o$ (IEC/EN 60947-1)		250 V AC	
Minimum switching voltage		12 V	
Maximum switching voltage		250 V AC	
Minimum switching current		10 mA	
Rated free air thermal current $I_{th}$		6 A	
Rated operational current (IEC/EN 60947-5-1)	AC-12 (resistive) 230 V	6 A	
	AC-15 (inductive) 230 V	1.5 A	
	AC-15 (inductive) 120 V	3 A	
	DC-12 (resistive) 24 V	6 A	
	DC-13 (inductive) 24 V	1 A	
	DC-13 (inductive) 120 V	0.2 A	
	DC-13 (inductive) 230 V	0.1 A	
AC rating (UL 508; NEMA ICS-5)	Utilization category (pilot duty)	B300	
DC rating (UL 508; NEMA ICS-5)	Utilization category (pilot duty)	R300	
Minimum switching power		0.6 W / 0.6 VA	
Mechanical lifetime		1 x 10 <sup>7</sup> switching cycles	
Electrical lifetime	at AC-15	1 x 10 <sup>5</sup> switching cycles	
Response time		5 ms	
Release time		8 ms	
<b>Dimensions and weight</b>		<b>RB 111AR / RB 101AR high level</b>	<b>RBR 111A / RBR 111AR high level</b>
Weight	net weight	0.03 kg (0.066 lb)	
Dimension	product dimension	12 x 70 x 75 mm (0.472 x 2.76 x 2.95 in)	12 x 75 x 75 mm (0.472 x 2.95 x 2.95 in)

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# Interface relays R600 range

## Technical data

### Technical data

		RB... 121 / RB... 121A high level						
<b>Input circuit</b>								
Rated control supply voltage $U_s$		5 V DC	12 V DC	24 V AC/DC	48 V AC/DC	60 V AC/DC	115 V AC/DC	230 V AC/DC
Rated control supply voltage $U_s$ tolerance	DC	-15 %, +20 %						-15 %, +10 %
	AC	-						-/+ 10 %
Rated frequency		-						50/60 Hz
Typical power consumption		0.2 W	0.2 W	0.24 W	0.33 W	0.54 W	0.46 W	0.8 W
Typical current		40 mA	16 mA	10 mA	7 mA	9 mA	4 mA	3.5 mA
Drop-out voltage		1.2 V	2.2 V	4.5 V	8 V	8 V	17 V	27 V
Indication of operational states	green LED	┌: control supply voltage applied						
<b>Output circuit</b>								
Kind of output	11-12/14	relay, 1 c/o (SPDT) contact						
Rated operational voltage $U_e$ (IEC/EN 60947-1)		250 V AC						
Minimum switching voltage		12 V						
Maximum switching voltage		250 V AC						
Minimum switching current		10 mA						
Rated free air thermal current $I_{th}$		6 A						
Rated operational current	AC-12 (resistive) 230 V	6 A						
	AC-15 (inductive) 230 V	1.5 A						
(IEC/EN 60947-5-1)	AC-15 (inductive) 120 V	3 A						
	DC-12 (resistive) 24 V	6 A						
	DC-13 (inductive) 24 V	1 A						
	DC-13 (inductive) 120 V	0.2 A						
	DC-13 (inductive) 230 V	0.1 A						
AC rating (UL 508; NEMA ICS-5)	Utilization category (pilot duty)	B300						
DC rating (UL 508; NEMA ICS-5)	Utilization category (pilot duty)	R300						
Minimum switching power		0.6 W / 0.6 VA						
Mechanical lifetime		1 x 10 <sup>7</sup> switching cycles						
Electrical lifetime	at AC-15	1 x 10 <sup>6</sup> switching cycles						
Response time		5 ms	5 ms	5 ms	5 ms	5 ms	6 ms	7 ms
Release time		8 ms	8 ms	8 ms	8 ms	8 ms	15 ms	16 ms
<b>Dimensions and weight</b>		RB 121 / RB 121A high level			RBR 121 / RBR 121 A high level			
Weight	net weight	0.02 kg (0.044 lb)						
Dimension	product dimension	6 x 70 x 75 mm (0.236 x 2.76 x 2.95 in)			6 x 75 x 75 mm (0.236 x 2.95 x 2.95 in)			

# Interface relays R600 range

## Technical data

### Technical data

		RB... 121 / RB... 121A low level						
<b>Input circuit</b>								
Rated control supply voltage $U_s$		5 V DC	12 V DC	24 V AC/DC	48 V AC/DC	60 V AC/DC	115 V AC/DC	230 V AC/DC
Rated control supply voltage $U_s$ tolerance	DC	-15 %, +20 %						-15 %, +10 %
	AC	-						-/+ 10 %
Rated frequency		-						50/60 Hz
Typical power consumption		0.2 W	0.2 W	0.24 W	0.33 W	0.54 W	0.46 W	0.8 W
Typical current		40 mA	16 mA	10 mA	7 mA	9 mA	4 mA	3.5 mA
Drop-out voltage		1.2 V	2.2 V	4.5 V	8 V	8 V	17 V	27 V
Indication of operational states	green LED	┌: control supply voltage applied						
<b>Output circuit</b>								
Kind of output	11-12/14	relay, 1 c/o (SPDT) contact						
Rated operational voltage $U_o$ (IEC/EN 60947-1)		250 V AC						
Minimum switching voltage		5 V						
Maximum switching voltage		250 V AC						
Minimum switching current		1 mA						
Rated free air thermal current $I_{th}$		6 A						
Rated operational current (IEC/EN 60947-5-1)	AC-12 (resistive) 230 V	6 A						
	AC-15 (inductive) 230 V	1.5 A						
	AC-15 (inductive) 120 V	3 A						
	DC-12 (resistive) 24 V	6 A						
	DC-13 (inductive) 24 V	1 A						
	DC-13 (inductive) 120 V	0.2 A						
	DC-13 (inductive) 230 V	0.1 A						
AC rating (UL 508; NEMA ICS-5)	Utilization category (pilot duty)	B300						
DC rating (UL 508; NEMA ICS-5)	Utilization category (pilot duty)	R300						
Minimum switching power		0.05 W / 0.05 VA						
Mechanical lifetime		1 x 10 <sup>7</sup> switching cycles						
Electrical lifetime	at AC-15	1 x 10 <sup>5</sup> switching cycles						
Response time		5 ms	5 ms	5 ms	5 ms	5 ms	6 ms	7 ms
Release time		8 ms	8 ms	8 ms	8 ms	8 ms	15 ms	16 ms
<b>Dimensions and weight</b>		RB 121 / RB 121A low level			RBR 121 / RBR 121 A low level			
Weight	net weight	0.02 kg (0.044 lb)						
Dimension	product dimension	6 x 70 x 75 mm (0.236 x 2.76 x 2.95 in)			6 x 75 x 75 mm (0.236 x 2.95 x 2.95 in)			

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# Interface relays R600 range

## Technical data

### Technical data

		RB... 121AR			
<b>Input circuit</b>					
Rated control supply voltage $U_s$		115 V AC/DC	230 V AC/DC	24 V AC/DC	
Rated control supply voltage $U_s$ tolerance	DC	-20%, +15%	-10%, +15%	-20%, +15%	
	AC	-/+ 10 %			
Rated frequency		50/60 Hz			
Typical power consumption		2 W	2.8 W	0.24 W	
Typical current		18 mA	12 mA	10 mA	
Drop-out voltage		17 V	27 V	4.5 V	
Indication of operational states	green LED	┌───┐: control supply voltage applied			
<b>Output circuit</b>					
Kind of output	11-12/14	relay, 1 c/o (SPDT) contact			
Rated operational voltage $U_o$ (IEC/EN 60947-1)		250 V AC			
Minimum switching voltage		12 V			
Maximum switching voltage		250 V AC			
Minimum switching current		10 mA			
Rated free air thermal current $I_{th}$		6 A			
Rated operational current (IEC/EN 60947-5-1)	AC-12 (resistive) 230 V	6 A			
	AC-15 (inductive) 230 V	1.5 A			
	AC-15 (inductive) 120 V	3 A			
	DC-12 (resistive) 24 V	6 A			
	DC-13 (inductive) 24 V	1 A			
	DC-13 (inductive) 120 V	0.2 A			
	DC-13 (inductive) 230 V	0.1 A			
AC rating (UL 508; NEMA ICS-5)	Utilization category (pilot duty)	B300			
DC rating (UL 508; NEMA ICS-5)	Utilization category (pilot duty)	R300			
Minimum switching power		0.6 W / 0.6 VA			
Mechanical lifetime		1 x 10 <sup>7</sup> switching cycles			
Electrical lifetime	at AC-15	1 x 10 <sup>5</sup> switching cycles			
Response time		6 ms	7 ms	5 ms	
Release time		15 ms	16 ms	8 ms	
<b>Dimensions and weight</b>		RB 121AR		RB 121AR	
Weight	net weight	0.03 kg (0.066 lb)			
Dimension	product dimension	12 x 70 x 75 mm (0.472 x 2.76 x 2.95 in)		12 x 75 x 75 mm (0.472 x 2.95 x 2.95 in)	

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### Technical data

		RB... 122A low level					
<b>Input circuit</b>							
Rated control supply voltage $U_s$		24 V AC/DC	48 V AC/DC	60 V AC/DC	115 V AC/DC	230 V AC/DC	
Rated control supply voltage $U_s$ tolerance	DC	-15 %, +20 %				-15 %, +10 %	
	AC	-/+ 10 %					
Rated frequency		50/60 Hz					
Typical power consumption		0.48 W	0.62 W	0.96 W	0.58 W	1.15 W	
Typical current		20 mA	13 mA	16 mA	5 mA	5 mA	
Drop-out voltage		5.4 V	8.8 V	8.8 V	20 V	10 V	
Indication of operational states	green LED	┌───┐: control supply voltage applied					
<b>Output circuit</b>							
Kind of output	11-12/14	relay, 1st c/o (SPDT) contact					
	21-22/24	relay, 2nd c/o (SPDT) contact					
Rated operational voltage $U_o$ (IEC/EN 60947-1)		250 V AC					
Minimum switching voltage		5 V					
Maximum switching voltage		250 V DC - 250 V AC					
Minimum switching current		1 mA					
Rated free air thermal current $I_{th}$		8 A			5 A		
Rated operational current (IEC/EN 60947-5-1)	AC-12 (resistive) 230 V	8 A			5 A		
	DC-12 (resistive) 24 V	8 A			5 A		
Minimum switching power		5 mW / 5 mVA					
Mechanical lifetime		2 x 10 <sup>7</sup> switching cycles					
Electrical lifetime	at AC-15	1 x 10 <sup>5</sup> switching cycles					
Response time		6 ms	10 ms	10 ms	6 ms	6 ms	
Release time		10 ms	14 ms	14 ms	15 ms	15 ms	
<b>Dimensions and weight</b>		RB 122A low level			RBR 122A low level		
Weight	net weight	0.03 kg (0.066 lb)					
Dimension	product dimension	12 x 70 x 75 mm (0.472 x 2.76 x 2.95 in)			12 x 75 x 75 mm (0.472 x 2.95 x 2.95 in)		

# Interface relays R600 range

## General technical data

### Technical data

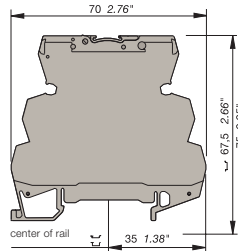
		RB	RBR
<b>General data</b>			
Material of housing		UL 94 V0	
Mounting		DIN Rail	
Degree of protection	housing / terminals	IP20 NEMA1	
<b>Electrical connection</b>		<b>Screw terminal</b>	<b>Spring-type terminal</b>
Wire size	fine-stranded	0.22-2.5 mm <sup>2</sup> (24-14 AWG)	
	rigid	0.2-4 mm <sup>2</sup> (24-12 AWG)	0.2-2.5 mm <sup>2</sup> (24-14 AWG)
Stripping length		9 mm / 0.354 in	
Tightening torque		0.4-0.6 Nm (3.5-5.3 lb.in)	
<b>Environmental data</b>			
Ambient temperature ranges	storage	-40...+80 °C	
	operation	-20...+70 °C	
<b>Isolation data</b>			
Rated insulation voltage U <sub>i</sub> (IEC/EN 60950-1, EN 50178)		4000 V RMS	
Rated impulse withstand voltage U <sub>imp</sub> (EN 50178)	input / output	4000 V RMS (RB122A: 3800 V RMS, RB111AR: 3500 V RMS)	
	shock coil / output	4000 V RMS	
	output / output	1000 V RMS	

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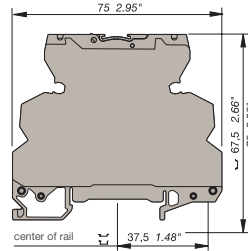
# Interface relays R600 range

## Dimensional drawings, Load limit curves

### All interface relays of R600 range

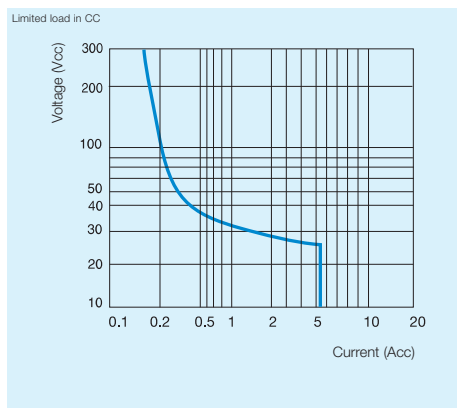


Screw clamp module

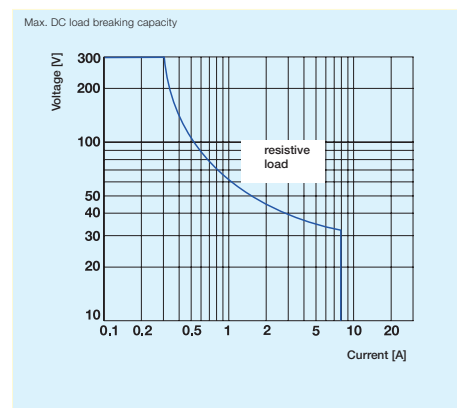


Spring clamp module

### Load limit curves



Versions with 1 n/o, 1 n/c or 1 c/o contact



Versions with 2 c/o contacts

	DC-12	AC-12	DC-13	AC-15
24 V	6 A	6 A	1	3 A
110/120 V	0.3 A	6 A	0.2 A	3 A
220/230 V	0.2 A	6 A	0.1 A	3 A



# Optocouplers R600 range Selection

Type	Order number
OBIC 0100 5-12VDC	1SNA645047R0000
OBIC 0100 5-12VDC	1SNA645547R0200
OBIC 0100 24VDC	1SNA645021R2600
OBIC 0100 24VDC	1SNA645521R2000
OBIC 0100 48-60VAC/DC	1SNA645049R1200
OBIC 0100 48-60VAC/DC	1SNA645549R1400
OBIC 0100 115-230VAC/DC	1SNA645022R2700
OBIC 0100 115-230VAC/DC	1SNA645522R2100
OBIC 1000-5-12VDC	1SNA645060R1700
OBIC 1000-5-12VDC	1SNA645560R1100
OBIC 1000-24VDC	1SNA645051R0400
OBIC 1500-24VAC/DC	1SNA645025R2200
OBIC 5000-24VDC	1SNA645024R2100
OBIC 1000-24VDC	1SNA645551R0600
OBIC 1500-24VAC/DC	1SNA645525R2400
OBIC 5000-24VDC	1SNA645524R2300
OBIC 1000-48-60VAC/DC	1SNA645053R0600
OBIC 1000-48-60VAC/DC	1SNA645553R0000
OBIC 1000-115VAC/DC	1SNA645054R0700
OBIC 5000-115VAC/DC	1SNA645058R1300
OBIC 1000-115VAC/DC	1SNA645554R0100
OBIC 5000-115VAC/DC	1SNA645558R1500
OBIC 1000-230VAC/DC	1SNA645026R2300
OBIC 5000-230VAC/DC	1SNA645059R1400
OBIC 1000-230VAC/DC	1SNA645526R2500
OBIC 5000-230VAC/DC	1SNA645559R1600
OBOA 1000-24VDC	1SNA645027R2400
OBOA 2000-24VDC	1SNA645029R0600
OBOA 1000-24VDC	1SNA645527R2600
OBOA 2000-24VDC	1SNA645529R0000

Input voltage	1SNA645047R0000	1SNA645547R0200	1SNA645021R2600	1SNA645521R2000	1SNA645049R1200	1SNA645549R1400	1SNA645022R2700	1SNA645522R2100	1SNA645060R1700	1SNA645560R1100	1SNA645051R0400	1SNA645025R2200	1SNA645024R2100	1SNA645551R0600	1SNA645525R2400	1SNA645524R2300	1SNA645053R0600	1SNA645553R0000	1SNA645054R0700	1SNA645058R1300	1SNA645554R0100	1SNA645558R1500	1SNA645026R2300	1SNA645059R1400	1SNA645526R2500	1SNA645559R1600	1SNA645027R2400	1SNA645029R0600	1SNA645527R2600	1SNA645529R0000	
5-12 V DC	■	■							■	■																					
24 V DC			■	■							■	■	■	■	■	■												■	■	■	■
48-60 V DC					■	■											■	■													
115-230 V DC							■	■																							
115 V DC																			■	■	■	■									
230 V DC							■	■																■	■	■	■	■	■	■	■
24 V AC												■			■																
48-60 V AC					■	■											■	■													
115-230 V AC							■	■																							
115 V AC																			■	■	■	■									
230 V AC																								■	■	■	■	■	■	■	■

Output rating	1SNA645047R0000	1SNA645547R0200	1SNA645021R2600	1SNA645521R2000	1SNA645049R1200	1SNA645549R1400	1SNA645022R2700	1SNA645522R2100	1SNA645060R1700	1SNA645560R1100	1SNA645051R0400	1SNA645025R2200	1SNA645024R2100	1SNA645551R0600	1SNA645525R2400	1SNA645524R2300	1SNA645053R0600	1SNA645553R0000	1SNA645054R0700	1SNA645058R1300	1SNA645554R0100	1SNA645558R1500	1SNA645026R2300	1SNA645059R1400	1SNA645526R2500	1SNA645559R1600	1SNA645027R2400	1SNA645029R0600	1SNA645527R2600	1SNA645529R0000		
100 mA	■	■	■	■	■	■	■	■																								
2 A									■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	
5 A														■									■	■	■	■	■	■	■	■	■	
1 A																												■		■	■	■

Output voltage	1SNA645047R0000	1SNA645547R0200	1SNA645021R2600	1SNA645521R2000	1SNA645049R1200	1SNA645549R1400	1SNA645022R2700	1SNA645522R2100	1SNA645060R1700	1SNA645560R1100	1SNA645051R0400	1SNA645025R2200	1SNA645024R2100	1SNA645551R0600	1SNA645525R2400	1SNA645524R2300	1SNA645053R0600	1SNA645553R0000	1SNA645054R0700	1SNA645058R1300	1SNA645554R0100	1SNA645558R1500	1SNA645026R2300	1SNA645059R1400	1SNA645526R2500	1SNA645559R1600	1SNA645027R2400	1SNA645029R0600	1SNA645527R2600	1SNA645529R0000			
58 V DC	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■		
230 V AC																															■	■	
400 V AC																																■	■

Terminal type	1SNA645047R0000	1SNA645547R0200	1SNA645021R2600	1SNA645521R2000	1SNA645049R1200	1SNA645549R1400	1SNA645022R2700	1SNA645522R2100	1SNA645060R1700	1SNA645560R1100	1SNA645051R0400	1SNA645025R2200	1SNA645024R2100	1SNA645551R0600	1SNA645525R2400	1SNA645524R2300	1SNA645053R0600	1SNA645553R0000	1SNA645054R0700	1SNA645058R1300	1SNA645554R0100	1SNA645558R1500	1SNA645026R2300	1SNA645059R1400	1SNA645526R2500	1SNA645559R1600	1SNA645027R2400	1SNA645029R0600	1SNA645527R2600	1SNA645529R0000		
Screw	■		■		■		■		■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Spring		■		■		■		■		■				■	■	■															■	■

# Optocouplers R600 range Selection

1SNA645061R0600	OBOA 1000-48-60VAC/DC																			
1SNA645561R0000	OBROA 1000-48-60VAC/DC																			
1SNA645062R0700	OBOA 1000-115VAC/DC																			
1SNA645562R0100	OBROA 1000-115VAC/DC																			
1SNA645028R0500	OBOA 1000-230VAC/DC																			
1SNA645528R0700	OBROA 1000-230VAC/DC																			

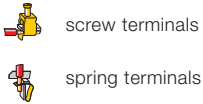
# Optocouplers R600 range

## Ordering details



2CDC 281 001 F0013

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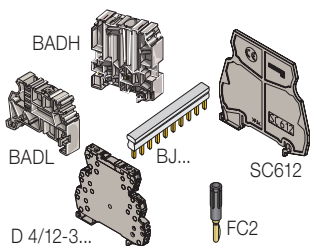


screw terminals  
spring terminals

### Ordering details - R600 range

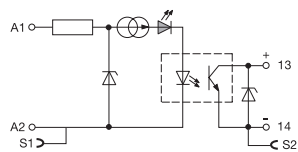
R600 Optocoupler	Type	Order code	Price	Pkg qty	Weight (1 pce) kg (lb)
Optocoupler module 100 mA/DC	OBIC 0100-5-12VDC	1SNA645047R0000		10	0.02 (0.44)
	OBIC 0100-24VDC	1SNA645021R2600			
	OBIC 0100-48-60VAC/DC	1SNA645049R1200			
Optocoupler module 100 mA/DC	OBIC 0100-115-230VAC/DC	1SNA645022R2700		10	0.02 (0.44)
	OBRIC 0100-5-12VDC	1SNA645547R0200			
	OBRIC 0100-24VDC	1SNA645521R2000			
Optocoupler module 2 A/DC	OBRIC 0100-48-60VAC/DC	1SNA645549R1400		10	0.02 (0.44)
	OBRIC 0100-115-230VAC/DC	1SNA645522R2100			
	OBOC 1000-5-12VDC	1SNA645050R1700			
	OBOC 1000-24VDC	1SNA645051R0400			
	OBOC 1500-24VAC/DC	1SNA645025R2200			
Optocoupler module 2 A/DC	OBOC 1000-48-60VAC/DC	1SNA645053R0600		10	0.02 (0.44)
	OBOC 1000-115VAC/DC	1SNA645054R0700			
	OBOC 1000-230VAC/DC	1SNA645026R2300			
	OBROC 1000-5-12VDC	1SNA645550R1100			
	OBROC 1000-24VDC	1SNA645551R0600			
Optocoupler module 2 A/DC	OBROC 1500-24VAC/DC	1SNA645525R2400		10	0.02 (0.44)
	OBROC 1000-48-60VAC/DC	1SNA645553R0000			
	OBROC 1000-115VAC/DC	1SNA645554R0100			
	OBROC 1000-230VAC/DC	1SNA645526R2500			
	OBOC 5000-24VDC	1SNA645024R2100			
Optocoupler module 5 A/DC	OBOC 5000-115VAC/DC	1SNA645058R1300		10	0.02 (0.44)
	OBOC 5000-230VAC/DC	1SNA645059R1400			
Optocoupler module 5 A/DC	OBROC 5000-24VDC	1SNA645524R2300		10	0.02 (0.44)
	OBROC 5000-115VAC/DC	1SNA645558R1500			
	OBROC 5000-230VAC/DC	1SNA645559R1600			
Optocoupler module 1 A/AC 6 mm spacing	OBOA 1000-24VDC	1SNA645027R2400		10	0.03 (0.066)
	OBOA 1000-48-60VAC/DC	1SNA645061R0600			
	OBOA 1000-115VAC/DC	1SNA645062R0700			
Optocoupler module 2 A/AC 12 mm spacing	OBOA 1000-230VAC/DC	1SNA645028R0500		5	0.03 (0.066)
	OBOA 2000-24VDC	1SNA645029R0600			
Optocoupler module 1 A/AC 6 mm spacing	OBROA 1000-24VDC	1SNA645527R2600		10	0.03 (0.066)
	OBROA 1000-48-60VAC/DC	1SNA645561R0000			
	OBROA 1000-115VAC/DC	1SNA645562R0100			
Optocoupler module 2 A/AC 12 mm spacing	OBROA 1000-230VAC/DC	1SNA645528R0700		5	0.03 (0.066)
	OBROA 2000-24VDC	1SNA645529R0000			

Accessories	Type	Order code	Price	Pkg qty	Weight (1 pce) kg (lb)
End section	BADH V0	1SNA116900R2700		50	
	BADL V0	1SNA399903R0200		50	
	BAM2 V0	1SNA399967R0100		50	
Separator end section	SC 612	1SNA290474R0200		10	
Divisible shunt 10 poles	BJ 612-10	1SNA290488R0100		10	
Divisible shunt 20 poles	BJ 612-20	1SNA206754R0000		10	
Test plug DIA. 2 mm	FC2	1SNA645531R2200		10	
Marking method	RC65 / RC610	see marking			

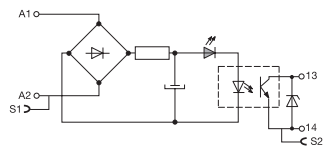


# Optocouplers R600 range

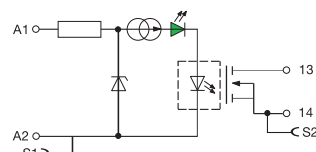
## Connection diagrams



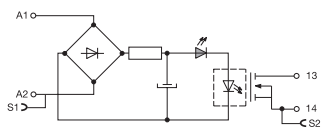
**OB...IC 0100** - 5-12 V DC  
115-230 V AC/DC



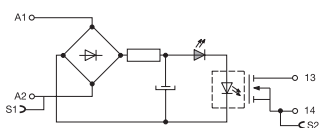
**OB...IC 0100**  
24 V DC  
24-48-60 V AC/DC



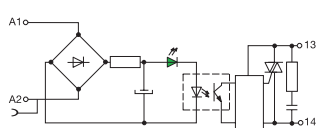
**OB...OC 1000** - 5-12 V DC



**OB...OC 1500** - 24 V AC/DC  
**OB...OC 1000**  
24 V DC  
48-60-115-230 V AC/DC



**OB...OC 5000**  
24 V DC  
24-48-60-115-230 V AC/DC



**OB...OA 1000**  
24 V DC  
48-60-115-230 V AC/DC  
**OB...OA 2000** - 24 V DC

# Optocouplers R600 range

## Technical data

Optocoupler : 5 to 58 V DC output / 100 mA - 6 mm 0.236" spacing

OB...IC 0100

### Relay characteristics coil

Input voltage: +20%, -15% on DC ; 10%, -10% on AC	5 V DC - 12 V DC	24 V DC	48 V AC/DC	60 V AC/DC	115 V AC/DC	230 V AC/DC	
Frequency			50 / 60 Hz				
Input current AC/DC	5 mA	9 mA	4 mA	4 mA	5 mA	7 mA / 16 mA	11.5 mA / 25 mA
Pull-in voltage at Is=100%	4 V		15 V		25 V		60 V AC / 70 V DC
Switching time C / O	10 μs / 500 μs						
Operating frequency	1000 Hz						
Permissible leakage current			5 ms / 20 ms		5 ms / 15 ms		

### Output

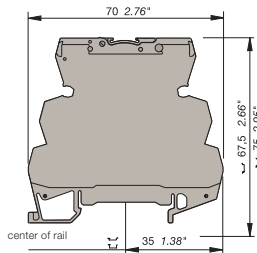
Output voltage	0.9 mA		1 mA		0.9 mA		1.6 mA	
Output current min.	4.5 to 58 V DC							
Output current max.	1 mA							
Output leakage current at U <sub>max</sub>	100 mA							
Residual voltage at I max and U rated	typical	1 V					max	1.3 V
Frequency on inductive load								
Isolation Input / Output	input / Output	2500 V RMS						
Temperature	storage	-40...+80 °C					operating	-20...+70 °C <sup>1)</sup>

### Other characteristics

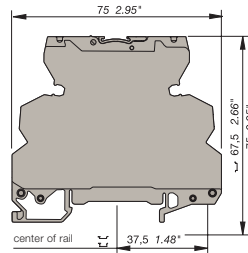
		Screw clamp	Spring clamp
Body material	grey	UL 94 V0	
Wire size	Solid wire	0.2 - 4 mm <sup>2</sup> (24-12 AWG)	0.2-2.5 mm <sup>2</sup> (24-12 AWG)
	Stranded wire	0.22 - 2.5 mm <sup>2</sup> (24-12 AWG)	
Rated wire size		2.5 mm <sup>2</sup> (12 AWG)	
Wire stripping length		9 mm (0.354 in)	
Recommended screwdriver		3.5 mm (0.137 in)	
Protection		IP20 NEMA1	
Recommended torque		0.4-0.6 Nm (3.5-5.3 lb.in)	
Approvals		cULus (pending for 12 V DC) , CE (pending), UL , LRS , CE	
Reference standards		CEI 947-7-1 / CEI 947-1 / CEI 1131-2 (in relevant parts) / CEI 60664-1 / CEM : IEC 1000-4-2, 3, 4, 5, 6.	

<sup>1)</sup> Over 55°C, blocks have to be mounted on horizontal rail with 10 mm spacing between each block. For vertical rail mounting use temperature is 15°C less decreased.

### Dimensional drawings



Screw clamp module







Spring clamp module

# Optocouplers R600 range

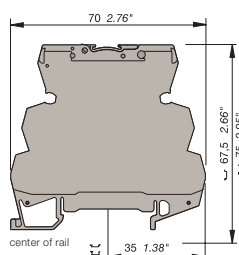
## Technical data

Optocoupler : 5 to 58 V DC output / 2 A - 6 mm 0.236" spacing

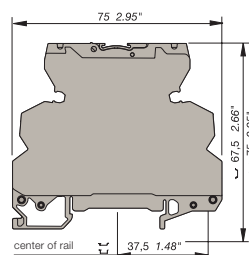
	OB...OC 0100		OB..OC 1500	OB...OC 1000					
<b>Relay characteristics coil</b>									
Input voltage: +20%, -15% on DC ; 10%, -10% on AC	5 V DC - 12 V DC		24 V DC	24 V AC/DC	48 V AC/DC	60 V AC/DC	115 V AC/DC	230 V AC/DC	
Frequency	50 / 60 Hz								
Input current	5 mA	9 mA	4 mA	6.3 mA	4 mA	5.1 mA	4.2 mA	4 mA	
Pull-in voltage at Is=100%	4 V		15 V	15 V	27 V		50 V	80 V	
Switching time C / O	15 µs / 250 µs		30 µs / 400 µs	1 ms / 7 ms	5 ms / 20 ms		500 µs / 10 ms	1 ms / 15 ms	
Operating frequency	2000 Hz		1000 Hz	60 Hz	20 Hz				
Permissible leakage current	1 mA		0.8 mA	0.9 mA	1 mA		0.3 mA		
<b>Output</b>									
Output voltage	4.5 to 58 V DC								
Output current min.	1 mA								
Output current max.	2 A								
Output leakage current at U <sub>max</sub>	< 50 µA								
Residual voltage at I max and U rated	typical	0.1 V							
	max	0.5 V							
Frequency on inductive load									
Isolation Input / Output	input / Output	2500 V RMS							
Temperature	storage	-40...+80 °C							
	operating	-20...+70 °C <sup>1)</sup>							
<b>Other characteristics</b>									
		Screw clamp				Spring clamp			
Body material	grey	UL 94 V0							
Wire size	Solid wire	0.2 - 4 mm <sup>2</sup> (24-12 AWG)				0.2-2.5 mm <sup>2</sup> (24-12 AWG)			
	Stranded wire	0.22 - 2.5 mm <sup>2</sup> (24-12 AWG)							
Rated wire size	2.5 mm <sup>2</sup> (12 AWG)								
Wire stripping length	9 mm (0.354 in)								
Recommended screwdriver	3.5 mm (0.137 in)								
Protection	IP20 NEMA1								
Recommended torque	0.4-0.6 Nm (3.5-5.3 lb.in)								
Approvals	c  us (pending for 12 V DC) ,  (pending) ,  , LRS , 								
Reference standards	CEI 947-7-1 / CEI 947-1 / CEI 1131-2 (in relevant parts) / CEI 60664-1 / CEM : IEC 1000-4-2, 3, 4, 5, 6.								

<sup>1)</sup> Over 55°C, blocks have to be mounted on horizontal rail with 10 mm spacing between each block. For vertical rail mounting use temperature is 15°C less decreased.

### Dimensional drawings



Screw clamp module



Spring clamp module

# Optocouplers R600 range

## Technical data

Optocoupler : 5 to 58 V DC output / 5 A - 6 mm 0.236" spacing

OB... OC 5000

### Input

Input voltage	24 V DC	115 V AC/DC	230 V AC/DC
Frequency		50 / 60 Hz	50 / 60 Hz
Input current	5.4 mA	4.2 mA	4 mA
Pull-in voltage at Is=100%	12 V	50 V	80 V
Switching time C / O	30 $\mu$ s / 400 $\mu$ s	500 $\mu$ s / 10 ms	1ms / 15 ms
Operating frequency	1000 Hz	50 Hz	35 Hz
Permissible leakage current	0.8 mA	0.3 mA	0.3 mA



### Output

Output voltage	4.5- 58 V DC		
Output current min.	1 mA		
Output current max.	5 A		
Output leakage current at U <sub>max</sub>	< 50 $\mu$ A		
Residual voltage at I max and U rated	typical	0.1 V	
	max	0.5 V	
Frequency on inductive load	See Note 1		
Isolation Input / Output	input / Output	2500 V RMS	

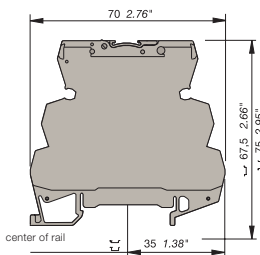
### Temperature

Ambient temperature	storage	-40...+80 °C
	operating	See derating curve

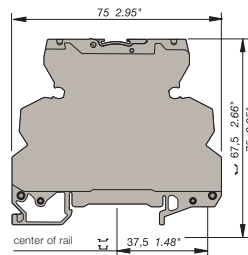
### Other characteristics

Body material	grey	UL 94 V0
Wire size	Solid wire	0.2 - 4 mm <sup>2</sup> (24-12 AWG)
	Stranded wire	0.22 - 2.5 mm <sup>2</sup> (24-12 AWG)
Rated wire size		2.5 mm <sup>2</sup> (12 AWG)
Wire stripping length		10 mm (0.394 in)
Recommended screwdriver		3.5 mm (0.137 in)
Protection		IP20 NEMA1
Recommended torque		0.4-0.6 Nm (3.5-5.3 lb.in)
Approvals		 (pending), 
Reference standards		CEI 947-7-1 / CEI 947-1 / CEI 1131-2 (in relevant parts) / CEI 60664-1 / CEM : IEC 1000-4-2, 3, 4, 5, 6.

## Dimensional drawings



Screw clamp module






Spring clamp module

# Optocouplers R600 range

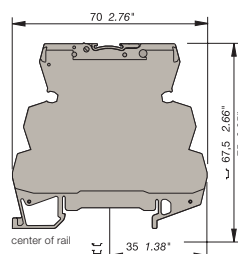
## Technical data

Optocoupler : 24 to 400 V AC output / 1 A or 2 A max. - 6 mm or 12 mm spacing

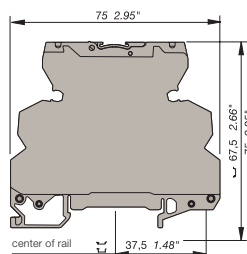
	OB...OA 1000						OB...OA 2000	
<b>Relay characteristics coil</b>								
Input voltage: +20%, -15% on DC ; 10%, -10% on AC	24 V DC	48 V AC/DC	60 V AC/DC	115 V AC/DC	230 V AC/DC	24 V DC		
Frequency	50/60 Hz							
Input current	3.6 mA	4.3 mA	5.5 mA	4.15 mA	4.6 mA	3.6 mA		
Pull-in voltage at Is=100%	14 V	15 V	18 V	60 V	135 V	14 V		
Switching time C / O	150 µs / 1 ms			3 ms / 30 ms		2.2 ms / 18 ms	2.5 ms / 25 ms	150 µs / 1 ms
Operating frequency	500 Hz	20 Hz		25 Hz	20 Hz	500 Hz		
Permissible leakage current	1 mA							
<b>Output</b>								
Output voltage	24-400 V AC						10-230 V AC	
Frequency	50/60 Hz							
Output current min.	25 mA							
Output current max.	1 A						2 A	
Output leakage current at U <sub>rated</sub>	< 0.50 mA							
Residual voltage at I max and U rated	typical	1 V						
	max	1.6 V						
Frequency on inductive load								
Isolation Input / Output	input / Output	2500 V RMS						
	storage	-40...+80 °C						
Temperature	operating	-20...+70 °C <sup>1)</sup>						
		Screw clamp			Spring clamp			
<b>Other characteristics</b>								
Body material	grey	UL 94 V0						
Wire size	Solid wire	0.2 - 4 mm <sup>2</sup> (24-12 AWG)			0.2-2.5 mm <sup>2</sup> (24-12 AWG)			
	Stranded wire	0.22 - 2.5 mm <sup>2</sup> (24-12 AWG)						
Rated wire size	2.5 mm <sup>2</sup> (12 AWG)							
Wire stripping length	9 mm (0.354 in)							
Recommended screwdriver	3.5 mm (0.137 in)							
Protection	IP20 NEMA1							
Recommended torque	0.4-0.6 Nm (3.5-5.3 lb.in)							
Approvals	cULus (pending for 12 V DC) ,  (pending),  , LRS , 							
Reference standards	CEI 947-7-1 / CEI 947-1 / CEI 1131-2 (in relevant parts) / CEI 60664-1 / CEM : IEC 1000-4-2, 3, 4, 5, 6.							

<sup>1)</sup> Over 55°C, blocks have to be mounted on horizontal rail with 10 mm spacing between each block. For vertical rail mounting use temperature is 15°C less decreased.

### Dimensional drawings



Screw clamp module



Spring clamp module