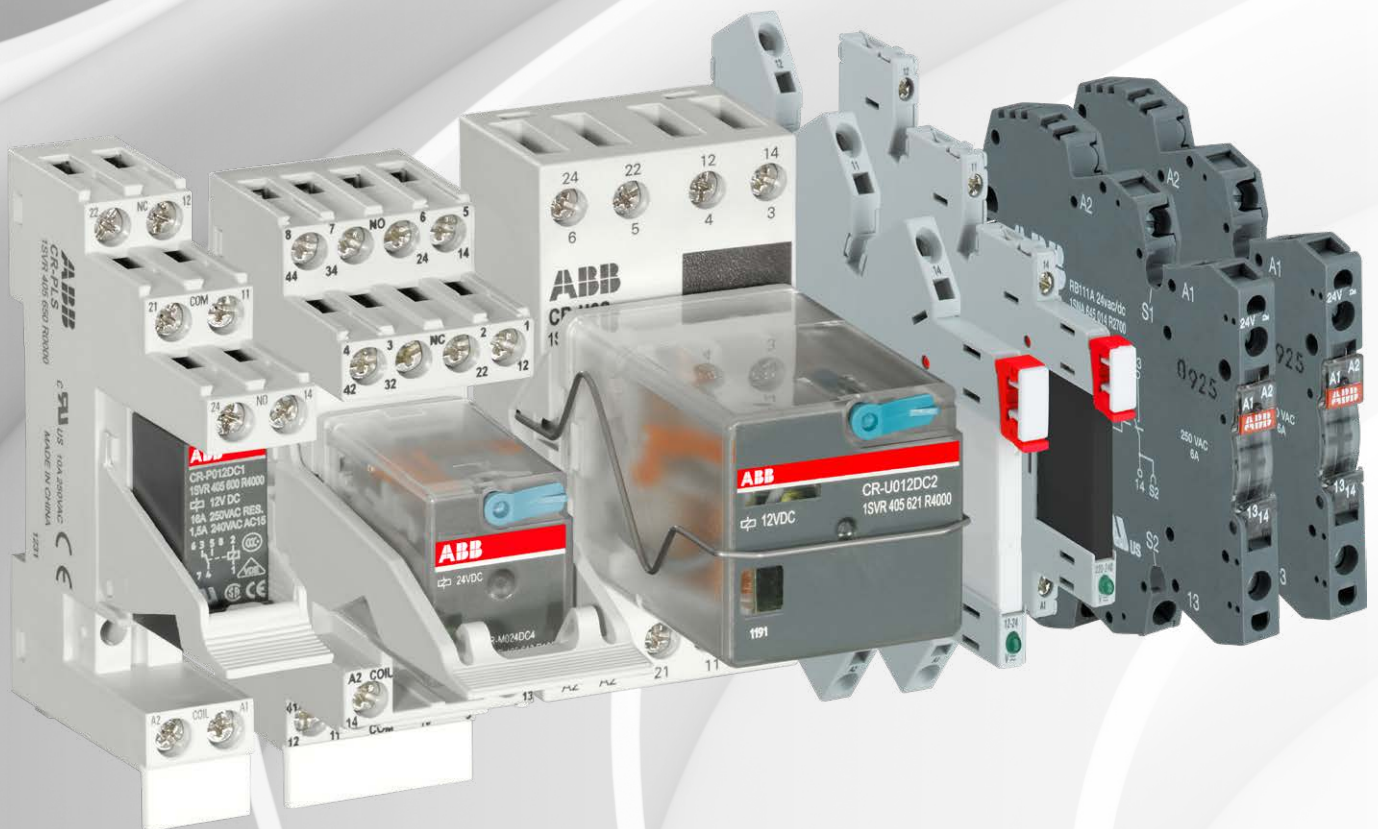


CATALOG

# Interface relays and optocouplers

## CR-S, CR-P, CR-M, CR-U and R600



- Wide variety and flexibility
- High contact ratings
- Globally approved and available

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**ABB offers a complete range of interface relays and optocouplers for increased flexibility and choice. This portfolio includes pluggable relays for easy interchangeability and optocouplers for an extended electrical life.**

**Furthermore, interface relays with gold plated contacts suitable for sensitive applications are available. This wide selection of relays adheres to the highest global standards and satisfies the requirements for a diverse number of applications and needs.**

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# Interface relays and optocouplers

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# Interface relays and optocouplers

## Offer overview

Relays are universally applicable and are utilized in a diverse array of applications. They are a significant element in contemporary industrial processes and are used in applications where galvanic isolation, signal separation, voltage coupling and signal amplification are required.

The ABB portfolio includes electromechanical relays and optocouplers. The electromechanical relays operate using an electromagnetic field whereas optocouplers use light. Optocouplers are predominantly used in applications where a high switching frequency is necessary. Furthermore, optocouplers do not contain any moving parts and are therefore bounce-free, immune to vibrations and possess a long electrical life.



### CR-S range

#### The slim line of interface relays and optocouplers

The pluggable interface relays and optocouplers 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. The CR-S range also includes complete versions consisting of a relay, socket and marker.



### CR-P range

#### The pluggable pcb interface relays and optocouplers

The pluggable interface relays of the CR-P 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-P range offers highest current switching in an IP67 rated relay housing. Furthermore, nine different coil voltages are available to suit world wide applications and even gold contact versions are available which is essential when it comes to switch sensitive signals. The CR-P range also includes complete versions consisting of a relay, socket, holder, marker and function module.

# Interface relays and optocouplers

## Offer overview



### CR-M range

#### The pluggable miniature interface relays

The pluggable interface relays of the CR-M 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-M range offers up to 4 contacts in one relay and a built in test button which makes a circuit check fast and easy. 12 different coil voltages are available to suit world wide applications and even gold contact versions are available which is essential when it comes to switch sensitive signals. The CR-M range also includes complete versions consisting of a relay, socket, holder, marker and where applicable a function module.



### CR-U range

#### The pluggable universal interface relays

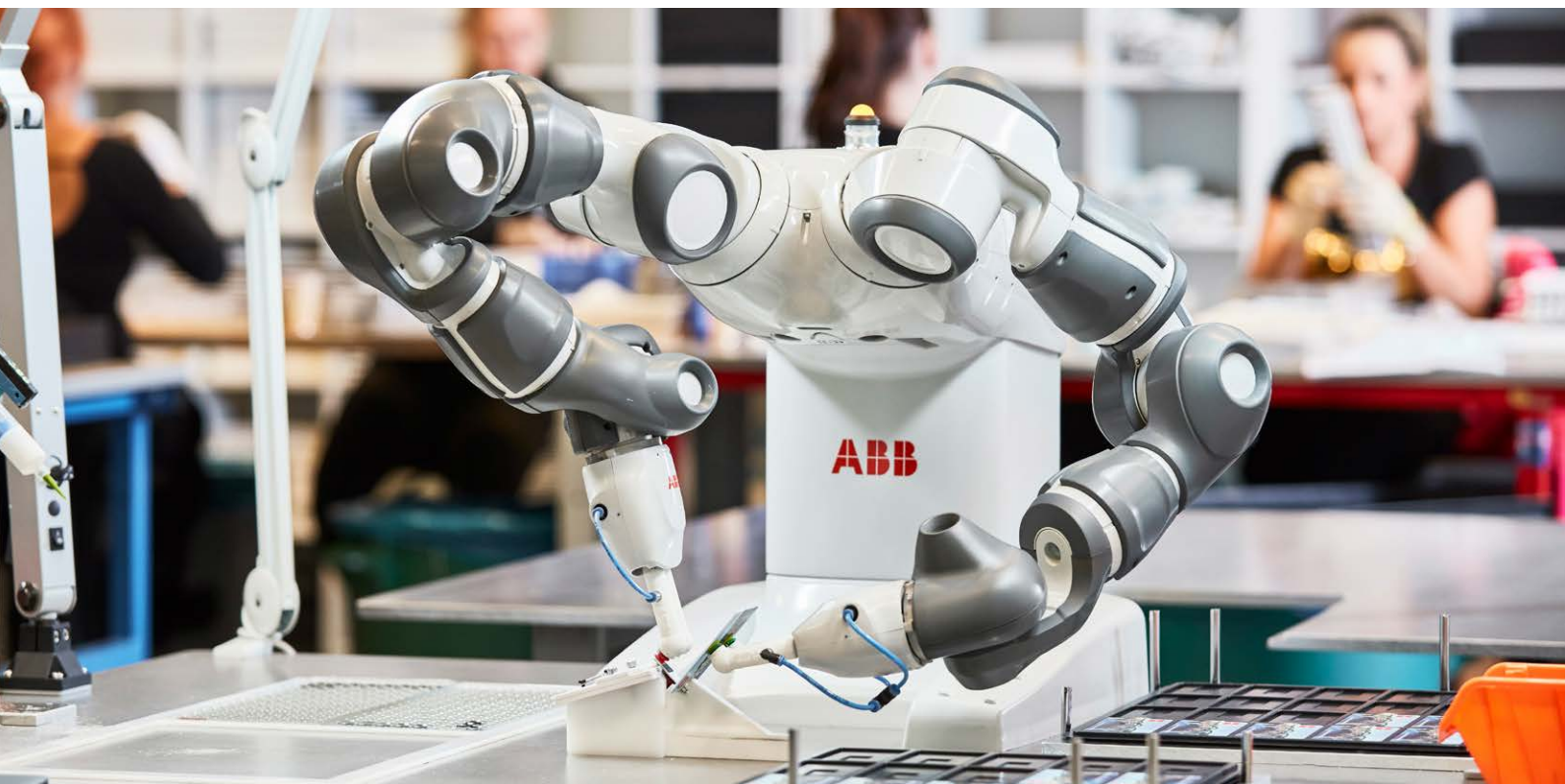
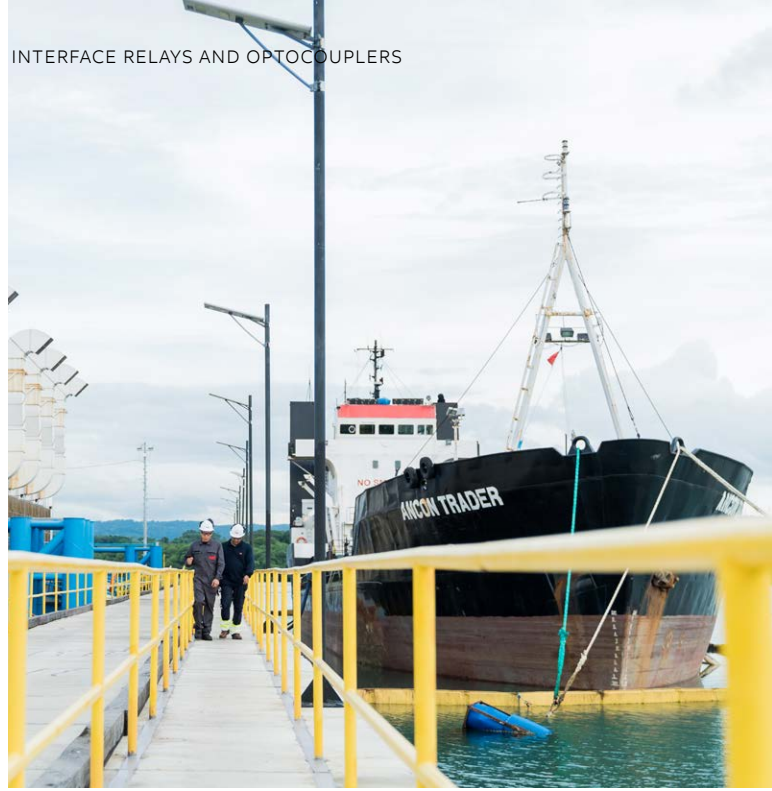
The pluggable interface relays of the CR-U range are used for electrical isolation, amplification and signal matching between the electronic controlling, e.g. PLC, iPC or field bus systems and the sensor / actuator level. The CR-U range offers up to 3 contacts in one relay and a built in test button which makes a circuit check fast and easy. 12 different coil voltages are available to suit world wide applications.



### R600 range

#### Boxed interface relays and optocouplers

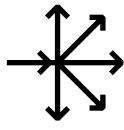
Boxed interface relays of the R600 range are used for electrical isolation, amplification and signal matching between the electronic controlling, e.g. PLC, iPC or field bus systems and the sensor / actuator level. The relay itself is built in thus the perfect solution because this design fulfills highest vibration requirements. The compact design and different connection terminal possibilities further optimize your panel installation.



# Applications of interface relays

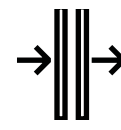
A proven technology used worldwide

Relays are universally applicable and are utilized in a diverse array of applications. They are a significant element in contemporary industrial processes and are used in applications where galvanic isolation, signal separation, voltage coupling and signal amplification are required.



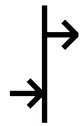
## Circuit multiplication

A single voltage signal may be used to simultaneously perform up to four different switching operations. Each output contact can be used to switch load circuits with different voltage and current levels.



## Galvanic isolation

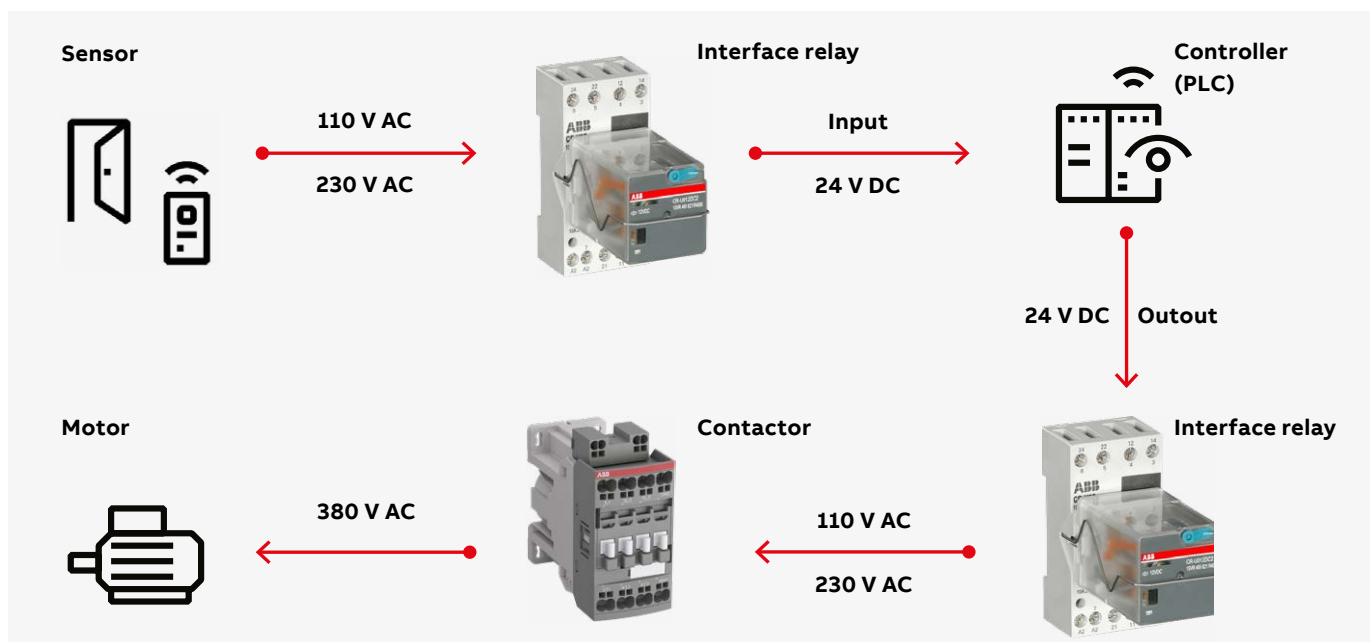
Interface relays are excellently suited to ensure safe galvanic isolation, i.e. separation between control circuit and load circuit.

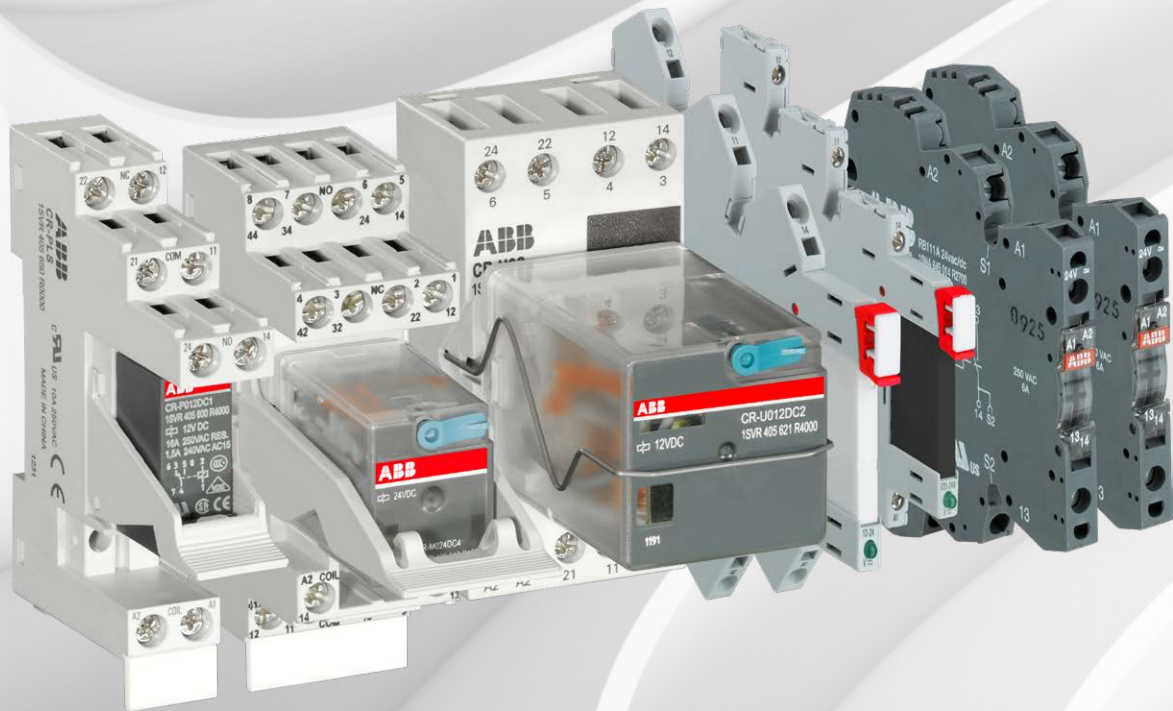


## Voltage conversion

Interface relays allow for small voltage signals to switch much larger loads. For example: a 24 V DC 10 mA signal can be used to switch a 230 V AC 16 A load.

**Billions**  
of relays operate and interface  
between control circuits and electrical  
loads.





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# Pluggable interface relays and optocouplers

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# Pluggable interface relays

## Selection table CR-S range



### How to use the selection table

Choose the desired control supply voltage from the column "Control voltage", e.g. "5 V DC".

Choose the desired kind of connection terminal from the column "Connection terminal", e.g. "spring".

Choose the desired material of contact from the column "Contact Material" e.g. "gold plated".

Control voltage	Connection terminal	Contact material	Socket type	Socket order code	Relay type	Relay order code
5 V DC	screw	standard	CR-S006/024VDC1SS	1SVR405521R1100	CR-S005VDC1R	1SVR405501R1010
		gold plated	CR-S006/024VDC1SS	1SVR405521R1100	CR-S005VDC1RG	1SVR405501R1020
	spring	standard	CR-S006/024VDC1SZ	1SVR405521R1200	CR-S005VDC1R	1SVR405501R1010
		gold plated	<b>CR-S006/024VDC1SZ</b>	<b>1SVR405521R1200</b>	<b>CR-S005VDC1RG</b>	<b>1SVR405501R1020</b>
12 V AC	screw	standard	CR-S012/024VADC1SS	1SVR405521R3100	CR-S012VDC1R	1SVR405501R2010
		gold plated	CR-S012/024VADC1SS	1SVR405521R3100	CR-S012VDC1RG	1SVR405501R2020
	spring	standard	CR-S012/024VADC1SZ	1SVR405521R3200	CR-S012VDC1R	1SVR405501R2010
		gold plated	CR-S012/024VADC1SZ	1SVR405521R3200	CR-S012VDC1RG	1SVR405501R2020



### Example

When you have chosen 5 V DC as control supply voltage, spring connection as connection terminal and gold plated as contact material the following order codes and type designators are valid:

Socket: CR-S006/024VDC1SZ, 1SVR405521R1200

Relay: CR-S005VDC1RG, 1SVR405501R1020

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**CR-S range relay assemblies**

Control voltage	Connection terminal	Contact material	Socket type	Socket order code	Relay type	Relay order code
5 V DC	screw	standard	CR-S006/024VDC1SS	1SVR405521R1100	CR-S005VDC1R	1SVR405501R1010
		gold plated	CR-S006/024VDC1SS	1SVR405521R1100	CR-S005VDC1RG	1SVR405501R1020
	spring	standard	CR-S006/024VDC1SZ	1SVR405521R1200	CR-S005VDC1R	1SVR405501R1010
		gold plated	CR-S006/024VDC1SZ	1SVR405521R1200	CR-S005VDC1RG	1SVR405501R1020
12 V DC	screw	standard	CR-S006/024VDC1SS or CR-S012/024VADC1SS	1SVR405521R1100 or 1SVR405521R3100	CR-S012VDC1R	1SVR405501R2010
		gold plated	CR-S006/024VDC1SS or CR-S012/024VADC1SS	1SVR405521R1100 or 1SVR405521R3100	CR-S012VDC1RG	1SVR405501R2020
	spring	standard	CR-S006/024VDC1SZ or CR-S012/024VADC1SZ	1SVR405521R1200 or 1SVR405521R3200	CR-S012VDC1R	1SVR405501R2010
		gold plated	CR-S006/024VDC1SZ or CR-S012/024VADC1SZ	1SVR405521R1200 or 1SVR405521R3200	CR-S012VDC1RG	1SVR405501R2020
12 V AC	screw	standard	CR-S012/024VADC1SS	1SVR405521R3100	CR-S012VDC1R	1SVR405501R2010
		gold plated	CR-S012/024VADC1SS	1SVR405521R3100	CR-S012VDC1RG	1SVR405501R2020
	spring	standard	CR-S012/024VADC1SZ	1SVR405521R3200	CR-S012VDC1R	1SVR405501R2010
		gold plated	CR-S012/024VADC1SZ	1SVR405521R3200	CR-S012VDC1RG	1SVR405501R2020
24 V DC	screw	standard	CR-S006/024VDC1SS or CR-S012/024VADC1SS	1SVR405521R1100 or 1SVR405521R3100	CR-S024VDC1R	1SVR405501R3010
		gold plated	CR-S006/024VDC1SS or CR-S012/024VADC1SS	1SVR405521R1100 or 1SVR405521R3100	CR-S024VDC1RG	1SVR405501R3020
	spring	standard	CR-S006/024VDC1SZ or CR-S012/024VADC1SZ	1SVR405521R1200 or 1SVR405521R3200	CR-S024VDC1R	1SVR405501R3010
		gold plated	CR-S006/024VDC1SZ or CR-S012/024VADC1SZ	1SVR405521R1200 or 1SVR405521R3200	CR-S024VDC1RG	1SVR405501R3020
24 V AC	screw	standard	CR-S012/024VADC1SS	1SVR405521R3100	CR-S024VDC1R	1SVR405501R3010
		gold plated	CR-S012/024VADC1SS	1SVR405521R3100	CR-S024VDC1RG	1SVR405501R3020
	spring	standard	CR-S012/024VADC1SZ	1SVR405521R3200	CR-S024VDC1R	1SVR405501R3010
		gold plated	CR-S012/024VADC1SZ	1SVR405521R3200	CR-S024VDC1RG	1SVR405501R3020
48 V AC/DC	screw	standard	CR-S048/060VADC1SS	1SVR405521R5100	CR-S048VDC1R	1SVR405501R4010
		gold plated	CR-S048/060VADC1SS	1SVR405521R5100	CR-S048VDC1RG	1SVR405501R4020
	spring	standard	CR-S048/060VADC1SZ	1SVR405521R5200	CR-S048VDC1R	1SVR405501R4010
		gold plated	CR-S048/060VADC1SZ	1SVR405521R5200	CR-S048VDC1RG	1SVR405501R4020
60 V AC/DC	screw	standard	CR-S048/060VADC1SS	1SVR405521R5100	CR-S060VDC1R	1SVR405501R5010
		gold plated	CR-S048/060VADC1SS	1SVR405521R5100	CR-S060VDC1RG	1SVR405501R5020
	spring	standard	CR-S048/060VADC1SZ	1SVR405521R5200	CR-S060VDC1R	1SVR405501R5010
		gold plated	CR-S048/060VADC1SZ	1SVR405521R5200	CR-S060VDC1RG	1SVR405501R5020
110-125 V AC/DC	screw	standard	CR-S110/125VADC1SS	1SVR405521R6100	CR-S060VDC1R	1SVR405501R5010
		gold plated	CR-S110/125VADC1SS	1SVR405521R6100	CR-S060VDC1RG	1SVR405501R5020
	spring	standard	CR-S110/125VADC1SZ	1SVR405521R6200	CR-S060VDC1R	1SVR405501R5010
		gold plated	CR-S110/125VADC1SZ	1SVR405521R6200	CR-S060VDC1RG	1SVR405501R5020
220-240 V AC/DC	screw	standard	CR-S220/240VADC1SS	1SVR405521R7100	CR-S060VDC1R	1SVR405501R5010
		gold plated	CR-S220/240VADC1SS	1SVR405521R7100	CR-S060VDC1RG	1SVR405501R5020
	spring	standard	CR-S220/240VADC1SZ	1SVR405521R7200	CR-S060VDC1R	1SVR405501R5010
		gold plated	CR-S220/240VADC1SZ	1SVR405521R7200	CR-S060VDC1RG	1SVR405501R5020

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**CR-S optocoupler range relay assemblies**

Control voltage	Connection terminal	Output characteristics	Socket type	Socket order code	Opto type	Opto order code
24 V DC	screw	Transistor 100 mA - 48 V DC	CR-S012/024VADC1SS	1SVR405521R3100	CR-S024VDC1TRA	1SVR405510R3050
			CR-S012/024VADC1SZ	1SVR405521R3200	CR-S024VDC1TRA	1SVR405510R3050
	spring	MOS-FET 2 A - 24 V DC	CR-S012/024VADC1SS	1SVR405521R3100	CR-S024VDC1MOS	1SVR405510R3060
			CR-S012/024VADC1SZ	1SVR405521R3200	CR-S024VDC1MOS	1SVR405510R3060
	screw	Triac 2 A - 240 V AC	CR-S012/024VADC1SS	1SVR405521R3100	CR-S024VDC1TRI	1SVR405510R3070
			CR-S012/024VADC1SZ	1SVR405521R3200	CR-S024VDC1TRI	1SVR405510R3070















# Pluggable interface relays and optocouplers

## Selection table CR-M range

CR-M pluggable relays with LED

Type	Order code
CR-M012DC4L	1SVR405613R4100
CR-M012DC4LD	1SVR405613R4400
CR-M024DC4L	1SVR405613R1100
CR-M024DC4LD	1SVR405614R1100
CR-M048DC4L	1SVR405613R6100
CR-M048DC4LD	1SVR405613R6400
CR-M060DC4L	1SVR405613R4300
CR-M110DC4L	1SVR405613R8100
CR-M110DC4LD	1SVR405613R8400
CR-M125DC4L	1SVR405613R8300
CR-M125DC4LD	1SVR405613R8500
CR-M220DC4L	1SVR405613R9100
CR-M220DC4LD	1SVR405613R9400
CR-M012AC4L	1SVR405613R0300
CR-M024AC4L	1SVR405613R0100
CR-M048AC4L	1SVR405613R5100
CR-M110AC4L	1SVR405613R7100
CR-M120AC4L	1SVR405613R2100
CR-M230AC4L	1SVR405613R3100

Control voltage	CR-M012DC4L	CR-M012DC4LD	CR-M024DC4L	CR-M024DC4LD	CR-M048DC4L	CR-M048DC4LD	CR-M060DC4L	CR-M110DC4L	CR-M110DC4LD	CR-M125DC4L	CR-M125DC4LD	CR-M220DC4L	CR-M220DC4LD	CR-M012AC4L	CR-M024AC4L	CR-M048AC4L	CR-M110AC4L	CR-M120AC4L	CR-M230AC4L
12 V DC	■	■																	
24 V DC			■	■															
48 V DC					■	■													
60 V DC							■												
110 V DC								■	■										
125 V DC										■	■								
220 V DC												■	■						
12 V AC														■					
24 V AC															■				
48 V AC																■			
60 V AC																	■		
110 V AC																		■	
120 V AC																			■
230 V AC																			■

Output rating	CR-M012DC4L	CR-M012DC4LD	CR-M024DC4L	CR-M024DC4LD	CR-M048DC4L	CR-M048DC4LD	CR-M060DC4L	CR-M110DC4L	CR-M110DC4LD	CR-M125DC4L	CR-M125DC4LD	CR-M220DC4L	CR-M220DC4LD	CR-M012AC4L	CR-M024AC4L	CR-M048AC4L	CR-M110AC4L	CR-M120AC4L	CR-M230AC4L
250 V AC 6 A	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
250 V AC 10 A																			
250 V AC 12 A																			

Output contacts	CR-M012DC4L	CR-M012DC4LD	CR-M024DC4L	CR-M024DC4LD	CR-M048DC4L	CR-M048DC4LD	CR-M060DC4L	CR-M110DC4L	CR-M110DC4LD	CR-M125DC4L	CR-M125DC4LD	CR-M220DC4L	CR-M220DC4LD	CR-M012AC4L	CR-M024AC4L	CR-M048AC4L	CR-M110AC4L	CR-M120AC4L	CR-M230AC4L
c/o	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
Gold plated contacts																			

Additional features	CR-M012DC4L	CR-M012DC4LD	CR-M024DC4L	CR-M024DC4LD	CR-M048DC4L	CR-M048DC4LD	CR-M060DC4L	CR-M110DC4L	CR-M110DC4LD	CR-M125DC4L	CR-M125DC4LD	CR-M220DC4L	CR-M220DC4LD	CR-M012AC4L	CR-M024AC4L	CR-M048AC4L	CR-M110AC4L	CR-M120AC4L	CR-M230AC4L
LED	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Free-wheeling diode		■		■		■			■		■		■						

# Pluggable interface relays and optocouplers

## Selection table CR-M range

CR-M pluggable relays with Gold Plated Contacts

Type	Order code
CR-M024DC4G	1SVR405618R1000
CR-M024AC4G	1SVR405618R0000
CR-M110AC4G	1SVR405618R7000
CR-M230AC4G	1SVR405618R3000
CR-M230AC4G	1SVR405618R3000
CR-M012DC4LG	1SVR405618R4100
CR-M024DC4LG	1SVR405618R1100
CR-M048DC4LG	1SVR405618R6100
CR-M060DC4LG	1SVR405618R4300
CR-M110DC4LG	1SVR405618R8100
CR-M125DC4LG	1SVR405618R8300
CR-M220DC4LG	1SVR405618R9100
CR-M024AC4LG	1SVR405618R0100
CR-M048AC4LG	1SVR405618R5100
CR-M110AC4LG	1SVR405618R7100
CR-M120AC4LG	1SVR405618R2100
CR-M230AC4LG	1SVR405618R3100
CR-M012DC4LDG	1SVR405618R4400
CR-M024DC4LDG	1SVR405618R1400

Control voltage	
12 V DC	■
24 V DC	■
48 V DC	■
60 V DC	■
110 V DC	■
125 V DC	■
220 V DC	■
24 V AC	■
48 V AC	■
60 V AC	■
110 V AC	■
120 V AC	■
230 V AC	■

Output rating	
250 V AC 6 A	■
250 V AC 10 A	■
250 V AC 12 A	■

Output contacts	
c/o	4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4
Gold plated contacts	■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■

Additional features	
LED	■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■
Free-wheeling diode	■ ■

# Pluggable interface relays and optocouplers

## Selection table CR-M range complete versions

### CR-M range complete versions

Type	Order code
CR-M012DC4LDGSS	15VR405618R4410
CR-M024DC4SS42V	15VR405613R1010
CR-M024DC4LS42V	15VR405613R1011
CR-M024DC4LC42	15VR405613R1012
CR-M024DC4GSS42V	15VR405618R1011
CR-M024DC4GLC62CV	15VR405618R1010
CR-M024DC4LGLC22	15VR405618R1110
CR-M024DC4LDGSS	15VR405618R1410
CR-M024AC4LS62CV	15VR405613R0010
CR-M230AC4SS92CV	15VR405613R3110
CR-M230AC4LS92CV	15VR405613R3011
CR-M230AC4LC92	15VR405613R3012
CR-M230AC4GSS92CV	15VR405618R3112
CR-M230AC4LGLC	15VR405618R3110
CR-M230AC4LGSS	15VR405618R3111

Control voltage	
12 V DC	■
24 V DC	■ ■ ■ ■ ■ ■ ■
48 V DC	
60 V DC	
110 V DC	
125 V DC	
220 V DC	
24 V AC	■
48 V AC	
60 V AC	
110 V AC	
120 V AC	
230 V AC	■ ■ ■ ■ ■ ■ ■

Output rating	
250 V AC 6 A	■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■
250 V AC 10 A	
250 V AC 12 A	

Output contacts	
c/o	4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4
Gold plated contacts	■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■

Socket type	
Standard socket	■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■
Logical socket	■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■

Additional features	
LED	■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■
Free-wheeling diode	■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■

# List of components

## Selection table CR-M range complete versions



The complete versions of the CR-M range comprise of a pluggable interface relay, socket, holder, marker and where applicable a function module.

### CR-M complete versions

Complete versions		Type	Order code	Relay	Socket	Function module	Holder
		CR-M012DC4LDG	1SVR405618R4400		CR-M4SS	1SVR405651R3000	1SVR405659R1000
		CR-M024DC4	1SVR405613R1000		CR-M4LS	1SVR405651R3100	
		CR-M024DC4G	1SVR405618R1000		CR-M4LC	1SVR405651R3200	
		CR-M024DC4LG	1SVR405618R1100		CR-P/M 22	1SVR405651R0000	
		CR-M024DC4LDG	1SVR405618R1400		CR-P/M 42	1SVR405652R0000	
		CR-M024AC4	1SVR405613R0000		CR-P/M 42V	1SVR405652R1000	
		CR-M230AC4	1SVR405613R3000		CR-P/M 42CV	1SVR405652R9100	
		CR-M230AC4G	1SVR405618R3000		CR-P/M 62CV	1SVR405655R1000	
		CR-M230AC4LG	1SVR405618R3100		CR-P/M 92	1SVR405654R0100	
						CR-P/M 92CV	1SVR405655R1100
							CR-MH
Order code	Type						
1SVR405618R4410	CR-M012DC4LDGSS	■			■		■
1SVR405613R1010	CR-M024DC4SS42V		■		■		■
1SVR405613R1011	CR-M024DC4LS42V		■		■		■
1SVR405613R1012	CR-M024DC4LC42		■		■		■
1SVR405618R1011	CR-M024DC4GSS42V			■		■	■
1SVR405618R1010	CR-M024DC4GLC62CV			■			■
1SVR405618R1110	CR-M024DC4LGLC22			■	■		■
1SVR405618R1410	CR-M024DC4LDGSS				■		■
1SVR405613R0010	CR-M024AC4LS62CV				■		■
1SVR405613R3110	CR-M230AC4SS92CV				■		■
1SVR405613R3011	CR-M230AC4LS92CV				■		■
1SVR405613R3012	CR-M230AC4LC92				■		■
1SVR405618R3112	CR-M230AC4GSS92CV				■		■
1SVR405618R3110	CR-M230AC4LGLC				■		■
1SVR405618R3111	CR-M230AC4LGSS				■		■







# Pluggable interface relays and optocouplers

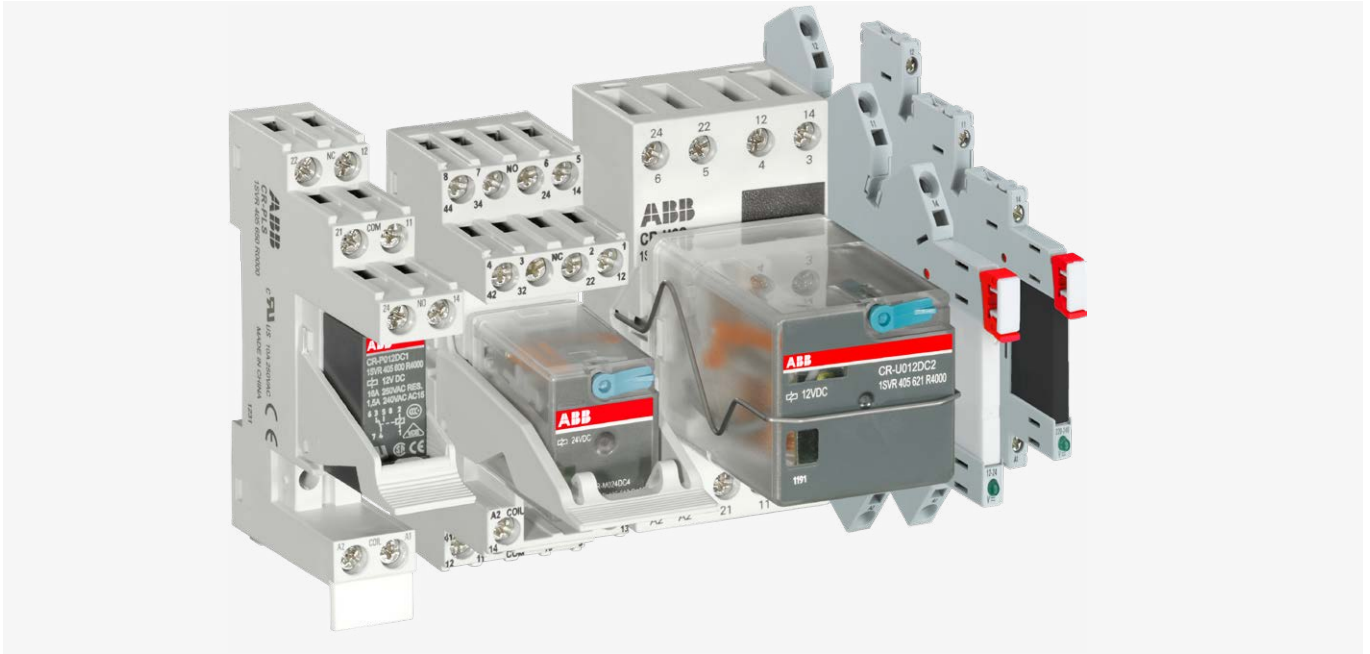
## Selection table CR-U function modules

CR-U function modules

	Type	Order code
	CR-U 21	1SVR405661R0000
	CR-U 41	1SVR405662R0000
	CR-U 41V	1SVR405662R1000
	CR-U 41B	1SVR405662R4000
	CR-U 41BV	1SVR405662R4100
	CR-U 41C	1SVR405662R9000
	CR-U 41CV	1SVR405662R9100
	CR-U 51B	1SVR405663R0000
	CR-U 51D	1SVR405663R4000
	CR-U 51C	1SVR405663R1000
	CR-U 61	1SVR405664R0000
	CR-U 61V	1SVR405664R1000
	CR-U 61E	1SVR405664R4000
	CR-U 61EV	1SVR405664R4100
	CR-U 91	1SVR405664R0100
	CR-U 91V	1SVR405664R1100
	CR-U 61C	1SVR405665R0000
	CR-U 61CV	1SVR405665R1000
	CR-U 61D	1SVR405665R4000
	CR-U 61DV	1SVR405665R4100
	CR-U 91C	1SVR405665R0100
	CR-U 91CV	1SVR405665R1100
	CR-U 71	1SVR405666R0000
	CR-U 71A	1SVR405666R1000
	CR-U 81	1SVR405666R2000
	CR-U T	1SVR405677R0000
<b>Control voltage</b>		
6-220 V DC	■	
6-24 V DC	■ ■	
24-60 V DC		■ ■
110 V DC		■ ■
110-230 V DC		■ ■
6-24 V AC		■ ■
24-60 V AC		■ ■
110-230 V AC		■ ■
24 V AC		■ ■
115 V AC		■ ■
230 V AC		■ ■
24-240 V AC/DC		■ ■
<b>Function</b>		
Diode - Reverse polarity protection / free wheeling diode	■	
Diode and LED - Reverse polarity protection / free-wheeling diode and LED to indicate energized coil	■ ■ ■ ■ ■ ■	
RC element - Spark quenching		■ ■ ■
Diode and LED - LED to indicate energized coil		■ ■ ■ ■ ■ ■
Varistor and LED - Overvoltage protection and LED to indicate energized coil		■ ■ ■ ■ ■ ■
Varistor - Overvoltage protection		■ ■ ■ ■ ■ ■
Multi-function time module		■ ■ ■ ■ ■ ■
LED red	■ ■ ■ ■ ■ ■	
LED green	■ ■ ■ ■ ■ ■	

# Pluggable interface relays and optocouplers

## Benefits and advantages



ABB's interface relays and optocouplers ensure a reliable voltage conversion between process peripherals and higher level control systems. These relays ensure reliable signal switching and provide electrical isolation for sensitive electronics such as PLCs. The wide variety of pluggable interface relays with accompanied by standard or logic sockets may be used for switching AC or DC loads. Suitable for extreme environments, ABB's interface relays are offered across a wide spectrum of coil voltages, with a variety of optional function modules.



### Continuous operation

The interface relay portfolio incorporates a large assortment of relays. It includes both electro-mechanical relays and optocouplers. Optocouplers allow for continuous operation without any mechanical wear-and-tear.



### Easy to install

The interface relay includes both pluggable and non-pluggable relays. The pluggable relays allow for the easy and seamless exchange of relay modules.



### Global availability

The ABB interface relays and optocouplers are approved for a large variety of applications, comply to the highest global approvals and are available world-wide.

# Pluggable interface relays and optocouplers

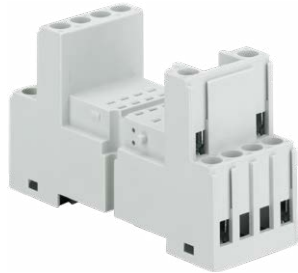
## Socket and terminal connection types

### Standard sockets



01 Standard socket CR-P

2CDC291040F0004



02 Standard socket CR-M

2CDC29100950011

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

### Logical sockets



03 Logical socket CR-P

2CDC29100650011

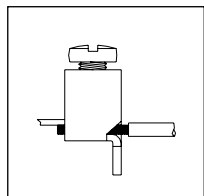


04 Logical socket CR-M

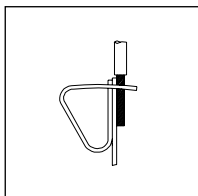
2CDC291042F0004

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

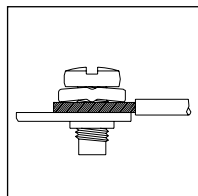
### Terminal connection types



05 Screw type



06 Spring type



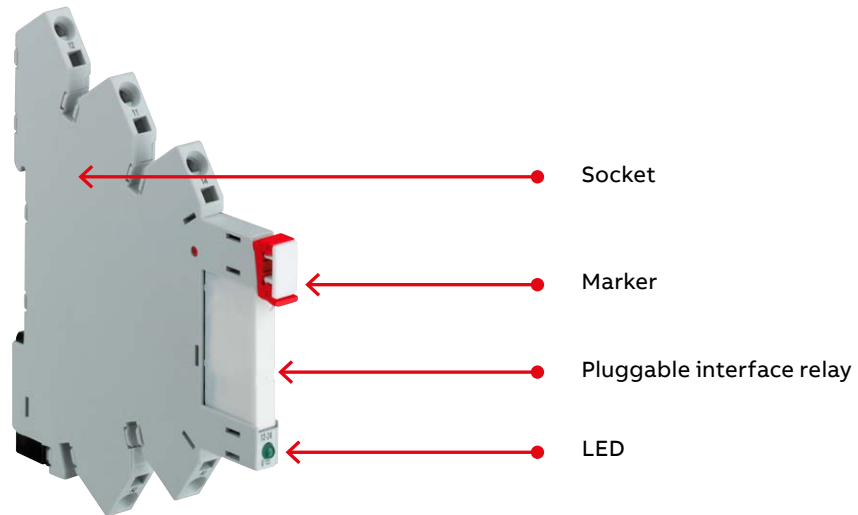
07 Fork type

A variety of sockets are available for interface relays and optocouplers to meet the needs of different applications such as vibration-intensive environments.

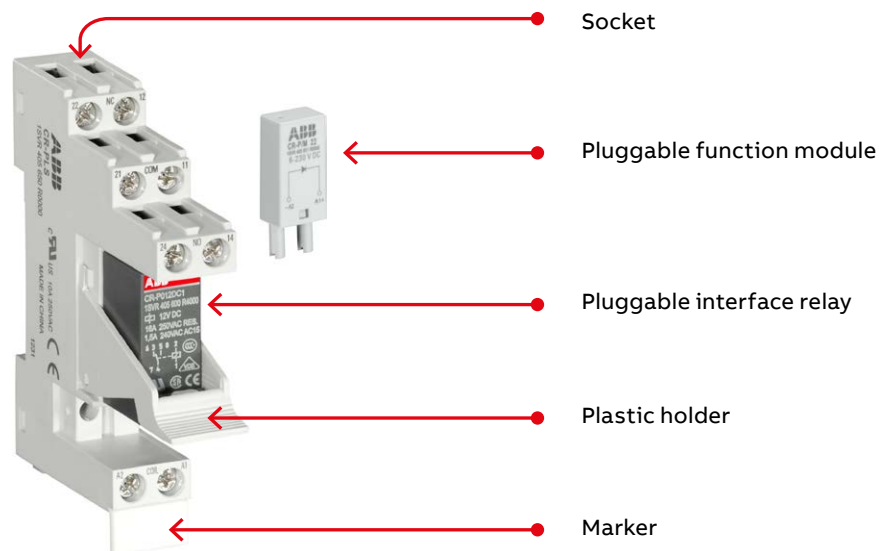
# Pluggable interface relays and optocouplers

## Relay components

### CR-S range



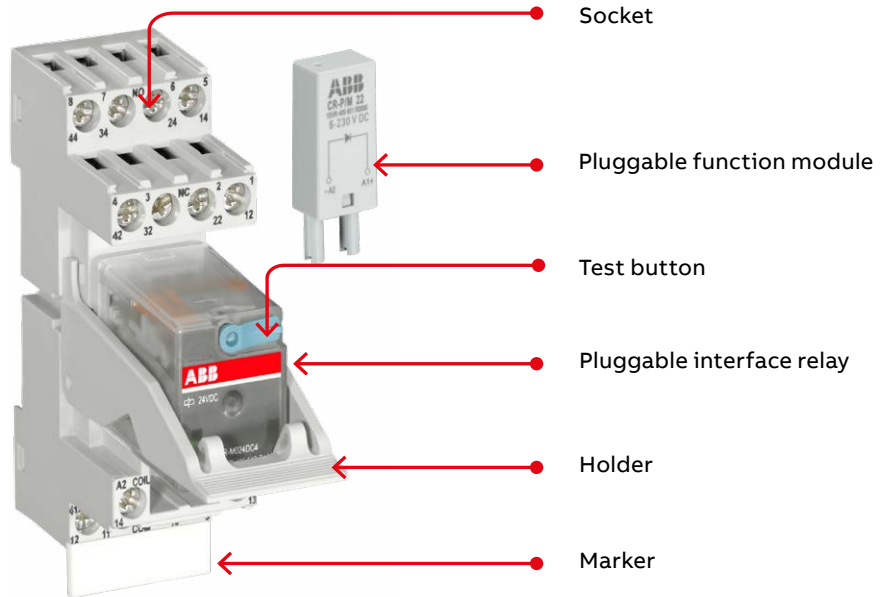
### CR-P range



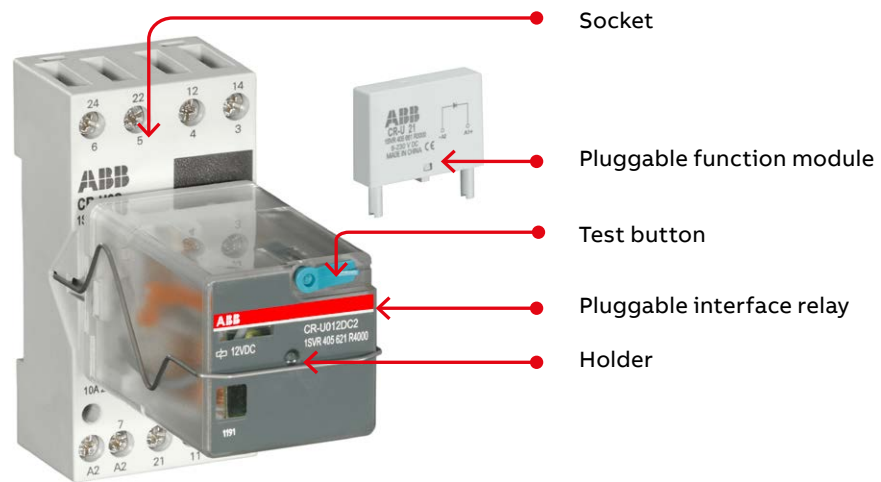
# Pluggable interface relays and optocouplers

## Relay components

### CR-M range



### CR-U range



## Pluggable interface relays and optocouplers

### Ordering details – CR-S range



CR-S relay

The slim pluggable interface relays and optocouplers of the CR-S range may be used for electrical isolation, amplification and signal matching. The CR-S relays are 6.2 mm wide and therefore allow for the switching high currents on a small footprint.

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

Rated control supply voltage	Outputs	Contact ratings	Type	Order code	Pkg qty	Weight (1 pc.) kg (lb)
5 V DC 12 V DC 24 V DC 48 V DC 60 V DC	1 c/o (SPDT) standard contacts	250 V AC, 6 A	CR-S005VDC1R	1SVR405501R1010	10	0.005 (0.011)
			CR-S012VDC1R	1SVR405501R2010		
			CR-S024VDC1R	1SVR405501R3010		
			CR-S048VDC1R	1SVR405501R4010		
			CR-S060VDC1R	1SVR405501R5010		
5 V DC 12 V DC 24 V DC 48 V DC 60 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)
			CR-S012VDC1RG	1SVR405501R2020		
			CR-S024VDC1RG	1SVR405501R3020		
			CR-S048VDC1RG	1SVR405501R4020		
			CR-S060VDC1RG	1SVR405501R5020		

#### Ordering details - CR-S range pluggable optocouplers

Rated control supply voltage	Outputs	Type	Order code	Pkg qty	Weight (1 pc.) kg (lb)
24 V DC	Transistor, 100 mA - 48 V DC	CR-S024VDC1TRA	1SVR405510R3050	10	0.004 (0.009)
	MOS-FET, 2 A - 24 V DC	CR-S024VDC1MOS	1SVR405510R3060		
	Triac, 2 A - 240 V AC	CR-S024VDC1TRI	1SVR405510R3070		



CR-S optocoupler

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

Rated control supply voltage	Outputs	Contact ratings	Type	Order code	Pkg qty	Weight (1 pc.) kg (lb)
24 V AC/DC	1 c/o (SPDT) standard contacts	250 V AC, 6 A	CR-S012VADC1CRS	1SVR405541R2110	10	0.03 (0.066)
			CR-S012VADC1CRZ	1SVR405541R2210		
			CR-S024VADC1CRS	1SVR405541R3110		
			CR-S024VADC1CRZ	1SVR405541R3210		
			CR-S110VADC1CRS	1SVR405541R6110		
110 V AC/DC			CR-S110VADC1CRZ	1SVR405541R6210		
			CR-S230VADC1CRS	1SVR405541R7110		
230 V AC/DC			CR-S230VADC1CRZ	1SVR405541R7210		
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)
			CR-S024VADC1CRGZ	1SVR405541R3220		
			CR-S110VADC1CRGS	1SVR405541R6120		
			CR-S110VADC1CRGZ	1SVR405541R6220		
			CR-S230VADC1CRGS	1SVR405541R7120		
110 V AC/DC			CR-S230VADC1CRZ	1SVR405541R7220		
230 V AC/DC						



CR-S complete interface relay

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

## Pluggable interface relays and optocouplers

### Ordering details – CR-S range



CR-S socket

2CDC292008F0016

#### Ordering details - CR-S range sockets

Rated control supply voltage	Connection type	Type	Order code	Pkg qty	Weight (1 pc.) 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		
	spring	CR-S012/024VADC1SZ	1SVR405521R3200		
48-60 V AC/DC	screw	CR-S048/060VADC1SS	1SVR405521R5100		
	spring	CR-S048/060VADC1SZ	1SVR405521R5200		
110-125 V AC/DC	screw	CR-S110/125VADC1SS	1SVR405521R6100		
	spring	CR-S110/125VADC1SZ	1SVR405521R6200		
220-240 V AC/DC	screw	CR-S220/240VADC1SS	1SVR405521R7100		
	spring	CR-S220/240VADC1SZ	1SVR405521R7200		

#### Ordering details - CR-S range accessories

Version	Type	Order code	Pkg qty	Weight (1 pc.) 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		
Separator	CR-SSEP	1SVR405599R0000	10	0.012 (0.026)

## Pluggable interface relays and optocouplers

### Ordering details – CR-S range

#### Relay assemblies

Control voltage	Connection terminal	Contact material	Socket type	Socket order code	Relay type	Relay order code
5 V DC	screw	standard	CR-S006/024VDC1SS	1SVR405521R1100	CR-S005VDC1R	1SVR405501R1010
		gold plated	CR-S006/024VDC1SS	1SVR405521R1100	CR-S005VDC1RG	1SVR405501R1020
	spring	standard	CR-S006/024VDC1SZ	1SVR405521R1200	CR-S005VDC1R	1SVR405501R1010
		gold plated	CR-S006/024VDC1SZ	1SVR405521R1200	CR-S005VDC1RG	1SVR405501R1020
12 V DC	screw	standard	CR-S006/024VDC1SS or CR-S012/024VADC1SS	1SVR405521R1100 or 1SVR405521R3100	CR-S012VDC1R	1SVR405501R2010
		gold plated	CR-S006/024VDC1SS or CR-S012/024VADC1SS	1SVR405521R1100 or 1SVR405521R3100	CR-S012VDC1RG	1SVR405501R2020
	spring	standard	CR-S006/024VDC1SZ or CR-S012/024VADC1SZ	1SVR405521R1200 or 1SVR405521R3200	CR-S012VDC1R	1SVR405501R2010
		gold plated	CR-S006/024VDC1SZ or CR-S012/024VADC1SZ	1SVR405521R1200 or 1SVR405521R3200	CR-S012VDC1RG	1SVR405501R2020
12 V AC	screw	standard	CR-S012/024VADC1SS	1SVR405521R3100	CR-S012VDC1R	1SVR405501R2010
		gold plated	CR-S012/024VADC1SS	1SVR405521R3100	CR-S012VDC1RG	1SVR405501R2020
	spring	standard	CR-S012/024VADC1SZ	1SVR405521R3200	CR-S012VDC1R	1SVR405501R2010
		gold plated	CR-S012/024VADC1SZ	1SVR405521R3200	CR-S012VDC1RG	1SVR405501R2020
24 V DC	screw	standard	CR-S006/024VDC1SS or CR-S012/024VADC1SS	1SVR405521R1100 or 1SVR405521R3100	CR-S024VDC1R	1SVR405501R3010
		gold plated	CR-S006/024VDC1SS or CR-S012/024VADC1SS	1SVR405521R1100 or 1SVR405521R3100	CR-S024VDC1RG	1SVR405501R3020
	spring	standard	CR-S006/024VDC1SZ or CR-S012/024VADC1SZ	1SVR405521R1200 or 1SVR405521R3200	CR-S024VDC1R	1SVR405501R3010
		gold plated	CR-S006/024VDC1SZ or CR-S012/024VADC1SZ	1SVR405521R1200 or 1SVR405521R3200	CR-S024VDC1RG	1SVR405501R3020
24 V AC	screw	standard	CR-S012/024VADC1SS	1SVR405521R3100	CR-S024VDC1R	1SVR405501R3010
		gold plated	CR-S012/024VADC1SS	1SVR405521R3100	CR-S024VDC1RG	1SVR405501R3020
	spring	standard	CR-S012/024VADC1SZ	1SVR405521R3200	CR-S024VDC1R	1SVR405501R3010
		gold plated	CR-S012/024VADC1SZ	1SVR405521R3200	CR-S024VDC1RG	1SVR405501R3020
48 V AC/DC	screw	standard	CR-S048/060VADC1SS	1SVR405521R5100	CR-S048VDC1R	1SVR405501R4010
		gold plated	CR-S048/060VADC1SS	1SVR405521R5100	CR-S048VDC1RG	1SVR405501R4020
	spring	standard	CR-S048/060VADC1SZ	1SVR405521R5200	CR-S048VDC1R	1SVR405501R4010
		gold plated	CR-S048/060VADC1SZ	1SVR405521R5200	CR-S048VDC1RG	1SVR405501R4020
60 V AC/DC	screw	standard	CR-S048/060VADC1SS	1SVR405521R5100	CR-S060VDC1R	1SVR405501R5010
		gold plated	CR-S048/060VADC1SS	1SVR405521R5100	CR-S060VDC1RG	1SVR405501R5020
	spring	standard	CR-S048/060VADC1SZ	1SVR405521R5200	CR-S060VDC1R	1SVR405501R5010
		gold plated	CR-S048/060VADC1SZ	1SVR405521R5200	CR-S060VDC1RG	1SVR405501R5020
110-125 V AC/DC	screw	standard	CR-S110/125VADC1SS	1SVR405521R6100	CR-S060VDC1R	1SVR405501R5010
		gold plated	CR-S110/125VADC1SS	1SVR405521R6100	CR-S060VDC1RG	1SVR405501R5020
	spring	standard	CR-S110/125VADC1SZ	1SVR405521R6200	CR-S060VDC1R	1SVR405501R5010
		gold plated	CR-S110/125VADC1SZ	1SVR405521R6200	CR-S060VDC1RG	1SVR405501R5020
220-240 V AC/DC	screw	standard	CR-S220/240VADC1SS	1SVR405521R7100	CR-S060VDC1R	1SVR405501R5010
		gold plated	CR-S220/240VADC1SS	1SVR405521R7100	CR-S060VDC1RG	1SVR405501R5020
	spring	standard	CR-S220/240VADC1SZ	1SVR405521R7200	CR-S060VDC1R	1SVR405501R5010
		gold plated	CR-S220/240VADC1SZ	1SVR405521R7200	CR-S060VDC1RG	1SVR405501R5020

## Pluggable interface relays and optocouplers

Ordering details – CR-S range

### Optocoupler assemblies

Control voltage	Connection terminal	Output characteristics	Socket type	Socket order code	Opto type	Opto order code
24 V DC	screw	Transistor 100 mA - 48 V DC	CR-S012/024VADC1SS	1SVR405521R3100	CR-S024VDC1TRA	1SVR405510R3050
	spring		CR-S012/024VADC1SZ	1SVR405521R3200	CR-S024VDC1TRA	1SVR405510R3050
	screw	MOS-FET 2 A - 24 V DC	CR-S012/024VADC1SS	1SVR405521R3100	CR-S024VDC1MOS	1SVR405510R3060
	spring		CR-S012/024VADC1SZ	1SVR405521R3200	CR-S024VDC1MOS	1SVR405510R3060
	screw	Triac 2 A - 240 V AC	CR-S012/024VADC1SS	1SVR405521R3100	CR-S024VDC1TRI	1SVR405510R3070
	spring		CR-S012/024VADC1SZ	1SVR405521R3200	CR-S024VDC1TRI	1SVR405510R3070

## Pluggable interface relays and optocouplers

### Ordering details – CR-P range

The CR-P range offers the highest current switching in an IP67 rated relay housing. This range comprises of pluggable interface relays and optocouplers offered in 10 different control supply voltages. Additionally, gold plated contacts are available for applications where sensitive signals are to be switched. The CR-P range also includes complete versions consisting of a relay, socket, holder, marker and function module.



2CDC291.045.F0004

CR-P relay

#### Ordering details - CR-P range relays

Rated control supply voltage	Outputs	Contact ratings	Type	Order code	Pkg qty	Weight (1 pc.) kg (lb)
12 V DC	1 c/o (SPDT)	250 V AC, 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 AC, 8 A		
24 V DC	CR-P024DC2	1SVR405601R1000				
48 V DC	CR-P048DC2	1SVR405601R6000				
110 V DC	CR-P110DC2	1SVR405601R8000				
12 V AC	CR-P012AC2	1SVR405601R0200				
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				

#### Ordering details - CR-P range relays with gold contacts

Rated control supply voltage	Outputs	Contact ratings	Type	Order code	Pkg qty	Weight (1 pc.) kg (lb)
24 V DC	2 c/o (SPDT) gold contact	250 V AC, 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 - CR-P range pluggable optocouplers

Rated control supply voltage (Us)	Outputs	Type	Order code	Pkg qty	Weight (1 pc.) kg (lb)
10-32 V DC	MOS-FET, 5 A - 35 V DC	CR-P024MOS1	1SVR405610R4060	10	0.011 (0.618)
	Triac, 3 A - 275 V AC	CR-P024TRI1	1SVR405610R4070		



2CDC291.006.S0016

CR-P optocoupler

# Pluggable interface relays and optocouplers

## Ordering details – CR-P range



CR-PLSX



CR-PSS

Standard and logical sockets for CR-P interface relays are suitable for snap-on mounting onto a DIN rail. Optional function modules for the CR-P range are plugged into both standard and logical sockets.

### Ordering details - Sockets\*

Version	Connection terminal	Type	Order code	Pkg qty	Weight (1 pc.) kg (lb)
Logical socket with protective separation	screw	CR-PLS	1SVR405650R0000	10	0.045 (0.099)
Logical socket	spring	CR-PLC	1SVR405650R0200		0.042 (0.093)
Standard socket	screw	CR-PSS	1SVR405650R1000		0.038 (0.084)

\*All CR-P socket packages include a set of markers.

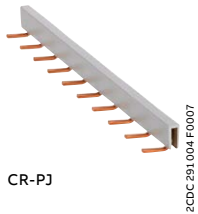
### Standard sockets

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

### Logical sockets

Position of connection terminals: coil connection (A1-A2) on lower side of the socket, all contact connections (common contacts, n/o and n/c contacts) on the upper side of the socket.

### Ordering details - Accessories



CR-PJ

Version	Type	Order code	Pkg qty	Weight (1 pc.) kg (lb)
Plastic holder for socket	CR-PH	1SVR405659R0000	10	0.002 (0.004)
Metal holder for socket	CR-PH1	1SVR405659R0100		0.4g
Jumper bar for sockets with screw connection	CR-PJ	1SVR405658R5000		0.018 (0.040)
Marker	CR-PM	1SVR405658R0000	10	0.0002 (0.0004)

## Pluggable interface relays and optocouplers

### Ordering details – CR-P range



CR-P complete version

2CDC29.001F0019

#### Ordering details - CR-P range complete versions

Rated control supply voltage	Out-puts	Description	Socket type	Connection terminal	Type	Order code	Pkg qty	Weight (1 pc.) kg (lb)
12 V DC	1 c/o	Reverse polarity protection and freewheeling diode, LED green, holder	standard	screw	CR-P012DC1SS42V	1SVR405600R4010	10	0.057 (0.126)
24 V DC	1 c/o	Reverse polarity protection and freewheeling diode, LED green, holder	standard	screw	CR-P024DC1SS42V	1SVR405600R1010	10	0.057 (0.126)
		Reverse polarity protection and freewheeling diode, LED green, holder	logical	spring	CR-P024DC1LC42V	1SVR405600R1011	10	0.057 (0.126)
		Varistor and LED red, holder	logical	spring	CR-P024DC1LC62C	1SVR405600R1013	10	0.057 (0.126)
110 V DC	1 c/o	Reverse polarity protection and freewheeling diode, LED green, holder	standard	screw	CR-P110DC1SS42CV	1SVR405600R8010	10	0.057 (0.126)
24 V AC	1 c/o	Varistor and LED green, holder	standard	screw	CR-P024AC1SS62CV	1SVR405600R0010	10	0.057 (0.126)
120 V AC	1 c/o	Varistor and LED green, holder	standard	screw	CR-P120AC1SS92CV	1SVR405600R2010	10	0.057 (0.126)
230 V AC	1 c/o	Reverse polarity protection and freewheeling diode, LED green, holder	standard	screw	CR-P230AC1SS92CV	1SVR405600R3110	10	0.057 (0.126)
		Holder	logical	screw	CR-P230AC1LS	1SVR405600R3011	10	0.057 (0.126)
		Varistor and LED green, holder	logical	spring	CR-P230AC1LC92CV	1SVR405600R3010	10	0.057 (0.126)

# Pluggable interface relays and optocouplers

## Ordering details – CR-P range



CR-P complete version

2DC291001F0019

### Ordering details - CR-P range complete versions

Rated control supply voltage	Out-puts	Description	Socket type	Conne-ction terminal	Type	Order code	Pkg qty	Weight (1 pc.) kg (lb)
12 V DC	2 c/o	Reverse polarity protection and freewheeling diode, LED green, holder	standard	screw	CR-P012DC2SS42V	1SVR405601R4010	10	0.057 (0.126)
24 V DC	2 c/o	Reverse polarity protection and freewheeling diode, LED green, holder	standard	screw	CR-P024DC2SS42V	1SVR405601R1010	10	0.057 (0.126)
		Reverse polarity protection and freewheeling diode, LED red, holder	logical	screw	CR-P024DC2LS42	1SVR405601R1013	10	0.057 (0.126)
		Reverse polarity protection and freewheeling diode, LED green, holder	logical	screw	CR-P024DC2LS42V	1SVR405601R1011	10	0.057 (0.126)
		Reverse polarity protection and freewheeling diode, LED red, holder	logical	spring	CR-P024DC2LC42	1SVR405601R1012	10	0.057 (0.126)
24 V DC	2 c/o gold plated	Reverse polarity protection and freewheeling diode, LED green, holder	logical	spring	CR-P024DC2GLC42V	1SVR405606R1010	10	0.057 (0.126)
		Varistor and LED red, holder	logical	spring	CR-P024DC2GLC62C	1SVR405606R1013	10	0.057 (0.126)
		Varistor and LED green, holder	logical	spring	CR-P024DC2GLC62CV	1SVR405606R1011	10	0.057 (0.126)
110 V DC	2 c/o	Reverse polarity protection and freewheeling diode, LED green, holder	standard	screw	CR-P110DC2SS42CV	1SVR405601R8010	10	0.057 (0.126)
24 V AC	2 c/o	Varistor and LED green, holder	standard	screw	CR-P024AC2SS62CV	1SVR405601R0010	10	0.057 (0.126)
120 V AC	2 c/o	Varistor and LED green, holder	standard	screw	CR-P120AC2SS92CV	1SVR405601R2010	10	0.057 (0.126)
230 V AC	2 c/o	Reverse polarity protection and freewheeling diode, LED green, holder	standard	screw	CR-P230AC2SS92CV	1SVR405601R3110	10	0.057 (0.126)
		Varistor and LED green, holder	logical	screw	CR-P230AC2LS92CV	1SVR405601R3011	10	0.057 (0.126)
		Diode and LED red, holder	logical	spring	CR-P230AC2LC92	1SVR405601R3012	10	0.057 (0.126)
230 V AC	2 c/o gold plated	Diode and LED red, holder	logical	spring	CR-P230AC2GLC92	1SVR405606R3013	10	0.057 (0.126)
		Varistor and LED red, holder	logical	spring	CR-P230AC2GLC92C	1SVR405606R3012	10	0.057 (0.126)
		Varistor and LED green, holder	logical	spring	CR-P230AC2GLC92CV	1SVR405606R3010	10	0.057 (0.126)

## Pluggable interface relays and optocouplers

### Ordering details – CR-M range



CR-M

The CR-M range offers the possibility of switching up to 4 different circuits with a single relay. The integrated LED and test button\* allow for easy testing and commissioning. This range of relays are available at a wide range of different coil voltages and are accompanied by a wide variety of function modules. The CR-M range also includes complete versions consisting of a relay, socket, holder, marker and where applicable, function module.

#### Ordering details - CR-M range without LED

Rated control supply voltage	Outputs	Contact ratings	Type	Order code	Pkg qty	Weight (1 pc.) kg (lb)
12 V DC	2 c/o (SPDT)	250 V AC, 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 AC, 10 A		
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 AC, 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		

\* Note: During the operation of the relay, the temperature of the test button will increase. In order to manually operate the test button, the supply voltage should first be disconnected. The test button is only safe to operate once it has cooled down or by using protective gloves and insulated tools. During operation, the test button should be pressed smoothly and quickly. When the test button is depressed, the n/o contacts will close and remain closed. Once the button is released, the n/o contacts change status and open. A 90 degree rotation of the test button closes and holds the n/o contacts in a closed position. Reverse rotation of the test button will once again change the status of the n/o contacts to their default open position.

## Pluggable interface relays and optocouplers

Ordering details – CR-M range



CR-M

### Ordering details - CR-M range with LED

Rated control supply voltage	Outputs	Contact ratings	Type	Order code	Pkg qty	Weight (1 pc.) kg (lb)
12 V DC	2 c/o (SPDT)	250 V AC, 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		
12 V AC			CR-M012AC2L	1SVR405611R0300		
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 AC, 10 A		
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				
12 V AC	CR-M012AC3L	1SVR405612R0300				
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 AC, 6 A			CR-M012DC4L	1SVR405613R4100
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		
12 V AC			CR-M012AC4L	1SVR405613R0300		
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		

## Pluggable interface relays and optocouplers

### Ordering details – CR-M range



CR-M

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

Rated control supply voltage	Outputs	Contact ratings	Type	Order code	Pkg qty	Weight (1 pc.) kg (lb)
12 V DC	2 c/o (SPDT)	250 V AC, 6 A	CR-M012DC2LD	1SVR405611R4400	10	0.033 (0.073)
24 V DC			CR-M024DC2LD	1SVR405611R1400	10	0.033 (0.073)
48 V DC			CR-M048DC2LD	1SVR405611R6400	10	0.033 (0.073)
110 V DC			CR-M110DC2LD	1SVR405611R8400	10	0.033 (0.073)
125 V DC			CR-M125DC2LD	1SVR405611R8500	10	0.033 (0.073)
220 V DC			CR-M220DC2LD	1SVR405611R9400	10	0.033 (0.073)
12 V DC	3 c/o (SPDT)	250 V AC, 10 A	CR-M012DC3LD	1SVR405612R4400	10	0.033 (0.073)
24 V DC			CR-M024DC3LD	1SVR405612R1400	10	0.033 (0.073)
48 V DC			CR-M048DC3LD	1SVR405612R6400	10	0.033 (0.073)
110 V DC			CR-M110DC3LD	1SVR405612R8400	10	0.033 (0.073)
125 V DC			CR-M125DC3LD	1SVR405612R8500	10	0.033 (0.073)
220 V DC			CR-M220DC3LD	1SVR405612R9400	10	0.033 (0.073)
12 VDC	4 c/o (SPDT)	250 V AC, 6 A	CR-M012DC4LD	1SVR405613R4400	10	0.033 (0.073)
24 V DC			CR-M024DC4LD	1SVR405614R1100	10	0.033 (0.073)
48 V DC			CR-M048DC4LD	1SVR405613R6400	10	0.033 (0.073)
110 V DC			CR-M110DC4LD	1SVR405613R8400	10	0.033 (0.073)
125 V DC			CR-M125DC4LD	1SVR405613R8500	10	0.033 (0.073)
220 V DC			CR-M220DC4LD	1SVR405613R9400	10	0.033 (0.073)

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

Rated control supply voltage	Outputs	Contact ratings	Type	Order code	Pkg qty	Weight (1 pc.) kg (lb)
24 V DC	4 c/o (SPDT)	250 V AC, 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 and optocouplers

### Ordering details – CR-M range



CR-M

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

Rated control supply voltage	Outputs	Contact ratings	Type	Order code	Pkg qty	Weight (1 pc.) kg (lb)
12 V DC	4 c/o (SPDT)	250 V AC, 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	Pkg qty	Weight (1 pc.) kg (lb)
12 V DC	4 c/o (SPDT)	250 V AC, 6 A	CR-M012DC4LDG	1SVR405618R4400	10	0.033 (0.073)
24 V DC			CR-M024DC4LDG	1SVR405618R1400		

## Pluggable interface relays and optocouplers

### Ordering details – CR-M range



CR-M complete version

#### Ordering details – CR-M range complete version

Rated control supply voltage	Out-puts	Description	Socket type	Connection terminal	Type	Order code	Pkg	Weight
							qty	(1 pc.) kg (lb)
12 V DC	4 c/o gold-plated	LED red, holder	standard	screw	CR-M012DC4LDGSS	1SVR405618R4410	10	0.0109 (0.024)
24 V DC	4 c/o	Reverse polarity protection and free-wheeling diode, LED green, holder	standard	screw	CR-M024DC4SS42V	1SVR405613R1010	10	0.0109 (0.024)
		Reverse polarity protection and free-wheeling diode, LED green, holder	logical	screw	CR-M024DC4LS42V	1SVR405613R1011	10	0.0109 (0.024)
		Reverse polarity protection and free-wheeling diode, LED red, holder	logical	spring	CR-M024DC4LC42	1SVR405613R1012	10	0.0109 (0.024)
24 V DC	4 c/o gold-plated	Reverse polarity protection and free-wheeling diode, LED green, holder	standard	screw	CR-M024DC4GSS42V	1SVR405618R1011	10	0.0109 (0.024)
		Varistor, LED green, holder	logical	spring	CR-M024DC4GLC62CV	1SVR405618R1010	10	0.0109 (0.024)
		LED, free-wheeling diode, holder	logical	spring	CR-M024DC4LGLC22	1SVR405618R1110	10	0.0109 (0.024)
		LED red, free-wheeling diode, holder	standard	screw	CR-M024DC4LDGSS	1SVR405618R1410	10	0.0109 (0.024)
24 V AC	4 c/o	Varistor and LED green, holder	logical	screw	CR-M024AC4LS62CV	1SVR405613R0010	10	0.0109 (0.024)

## Pluggable interface relays and optocouplers

Ordering details – CR-M range



CR-M complete version

2CDCR31002F0019

### Ordering details – CR-M range complete version

Rated control supply voltage	Out-puts	Description	Socket type	Connection terminal	Type	Order code	Pkg	Weight (1 pc.)
							qty	kg (lb)
230 V AC	4 c/o	Varistor, LED green, holder	standard	screw	CR-M230AC4SS92CV	1SVR405613R3110	10	0.0109 (0.024)
		Varistor, LED green, holder	logical	screw	CR-M230AC4LS92CV	1SVR405613R3011	10	0.0109 (0.024)
		Diode and LED red, holder	logical	spring	CR-M230AC4LC92	1SVR405613R3012	10	0.0109 (0.024)
230 V AC	4 c/o gold-plated	Reverse polarity protection and free-wheeling diode, LED green, holder	standard	screw	CR-M230AC4GSS92CV	1SVR405618R3112	10	0.0109 (0.024)
		LED red, holder	logical	screw	CR-M230AC4LGLC	1SVR405618R3110	10	0.0109 (0.024)
		LED red, holder	standard	screw	CR-M230AC4LGSS	1SVR405618R3111	10	0.0109 (0.024)

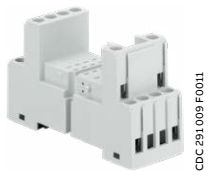
## Pluggable interface relays and optocouplers

### Ordering details – CR-M range



CR-M2LS

2CDC291.04.PF0004



CR-M4SS

2CDC291.009.F0011

Standard and logical sockets for CR-M interface relays are suitable for snap-on mounting onto a DIN rail. Optional function modules for the CR-M range are plugged into both standard and logical sockets.

#### Ordering details - Sockets\*

Version	Connection terminal	Type	Order code	Pkg qty	Weight (1 pc.) 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)
High Performance Logical Socket for 2 c/o		CR-M2LSH	1SVR405651R4100		0.064 (0.141)
High Performance Logical Socket for 3 c/o		CR-M3LSH	1SVR405651R5100		0.071 (0.157)
Logical socket for 2/4 c/o	spring	CR-M4LC	1SVR405651R3200	10	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)

\*All CR-M socket packages include a set of markers.

#### Standard sockets

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

#### Logical sockets

Position of connection terminals: coil connection (A1-A2) on lower side of the socket, all contact connections (common contacts, n/o and n/c contacts) on upper side of the socket.

#### Ordering details - Accessories



CR-MJ

2CDC291.005.F0007

Version	Type	Order code	Pkg qty	Weight (1 pc.) kg (lb)
Plastic holder for socket	CR-MH	1SVR405659R1000	10	0.003 (0.007)
Metal holder for socket	CR-MH1	1SVR405659R1100	10	0.0005 (0.001)
Jumper bar for sockets with screw connection	CR-MJ	1SVR405658R6000	10	0.029 (0.064)
Marker for CR-M standard sockets	CR-MM	1SVR405658R1000	10	0.0005 (0.001)
Plug for test button replacement	CR-MP	1SVR405658R2000	100	0.001 (0.002)

## Pluggable interface relays and optocouplers

### Ordering details – CR-P/M function modules



CR-P/M...

#### Ordering details - Diode - Reverse polarity protection / free-wheeling diode

Rated control supply voltage $U_s$	Version	Type	Order code	Pkg qty	Weight (1 pc.) kg (lb)
6-220 V DC	A1+, A2-	CR-P/M 22	1SVR405651R0000	10	0.003 (0.007)

#### Ordering details - Diode and LED - Reverse polarity protection / free-wheeling diode and LED to indicate energized coil

Rated control supply voltage $U_s$	Version	Type	Order code	Pkg qty	Weight (1 pc.) kg (lb)
6-24 V DC	red, A1+, A2-	CR-P/M 42	1SVR405652R0000	10	0.003 (0.007)
6-24 V DC	green, A1+, A2-	CR-P/M 42 V	1SVR405652R1000		
24-60 V DC	red, A1+, A2-	CR-P/M 42 B	1SVR405652R4000		
24-60 V DC	green, A1+, A2-	CR-P/M 42 BV	1SVR405652R4100		
110 V DC	red, A1+, A2-	CR-P/M 42 C	1SVR405652R9000		
110 V DC	green, A1+, A2-	CR-P/M 42 CV	1SVR405652R9100		

#### Ordering details - RC element - Spark quenching

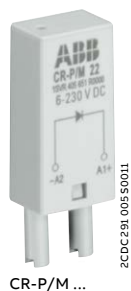
Rated control supply voltage $U_s$	Version	Type	Order code	Pkg qty	Weight (1 pc.) kg (lb)
6-24 V AC/DC		CR-P/M 52B	1SVR405653R0000	10	0.003 (0.007)
24-60 V AC/DC		CR-P/M 52D	1SVR405653R4000		
110-230 V AC/DC		CR-P/M 52C	1SVR405653R1000		

#### Ordering details - Diode and LED - LED to indicate energized coil

Rated control supply voltage $U_s$	Version	Type	Order code	Pkg qty	Weight (1 pc.) kg (lb)
6-24 V AC/DC	red, for DC: A1+, A2-	CR-P/M 62	1SVR405654R0000	10	0.003 (0.007)
6-24 V AC/DC	green, for DC: A1+, A2-	CR-P/M 62 V	1SVR405654R1000		
24-60 V AC/DC	red, for DC: A1+, A2-	CR-P/M 62 E	1SVR405654R4000		
24-60 V AC/DC	green, for DC: A1+, A2-	CR-P/M 62 EV	1SVR405654R4100		
110-230 V AC/DC	red, for DC: A1+, A2-	CR-P/M 92	1SVR405654R0100		
110-230 V AC/DC	green, for DC: A1+, A2-	CR-P/M 92 V	1SVR405654R1100		

## Pluggable interface relays and optocouplers

Ordering details – CR-P/M function modules



CR-P/M ...

### Ordering details - Varistor and LED - Overvoltage protection and LED to indicate energized coil

Rated control supply voltage $U_c$	Version	Type	Order code	Pkg qty	Weight (1 pc.) kg (lb)
6-24 V AC/DC	red, for DC: A1+, A2-	CR-P/M 62 C	1SVR405655R0000	10	0.003 (0.007)
6-24 V AC/DC	green, for DC: A1+, A2-	CR-P/M 62 CV	1SVR405655R1000		
24-60 V AC/DC	red, for DC: A1+, A2-	CR-P/M 62 D	1SVR405655R4000		
24-60 V AC/DC	green, for DC: A1+, A2-	CR-P/M 62 DV	1SVR405655R4100		
110-230 V AC/DC	red, for DC: A1+, A2-	CR-P/M 92 C	1SVR405655R0100		
110-230 V AC/DC	green, for DC: A1+, A2-	CR-P/M 92 CV	1SVR405655R1100		

### Ordering details - Varistor - Overvoltage protection

Rated control supply voltage $U_c$	Version	Type	Order code	Pkg qty	Weight (1 pc.) kg (lb)
24 V AC		CR-P/M 72	1SVR405656R0000	10	0.002 (0.004)
115 V AC		CR-P/M 72 A	1SVR405656R1000		
230 V AC		CR-P/M 82	1SVR405656R2000		

## Pluggable interface relays and optocouplers

### Ordering details – CR-U range



CR-U

2CDC291 04T F0004

The CR-U range offers up to 3 change over contacts in single relay. The integrated LED and test button\* allow for easy testing and commissioning. This robust range of relays are available at a wide range of different coil voltages and are accompanied by a wide variety of function modules.

#### Ordering details - CR-U range without LED

Rated control supply voltage	Outputs	Contact ratings	Type	Order code	Pkg qty	Weight (1 pc.) kg (lb)				
12 V DC	2 c/o (SPDT)	250 V AC, 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 (SPDT)	250 V AC, 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								

\* Note: During the operation of the relay, the temperature of the test button will increase. In order to manually operate the test button, the supply voltage should first be disconnected. The test button is only safe to operate once it has cooled down or by using protective gloves and insulated tools. During operation, the test button should be pressed smoothly and quickly. When the test button is depressed, the n/o contacts will close and remain closed. Once the button is released, the n/o contacts change status and open. A 90 degree rotation of the test button closes and holds the n/o contacts in a closed position. Reverse rotation of the test button will once again change the status of the n/o contacts to their default open position.

#### Ordering details - CR-U range with LED

Rated control supply voltage	Outputs	Contact ratings	Type	Order code	Pkg qty	Weight (1 pc.) kg (lb)
12 V DC	2 c/o (SPDT)	250 V AC, 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		
12 V AC			CR-U012AC2L	1SVR405621R0300		
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		

## Pluggable interface relays and optocouplers

### Ordering details – CR-U range

#### Ordering details - CR-U range with LED

Rated control supply voltage	Outputs	Contact ratings	Type	Order code	Pkg qty	Weight (1 pc.) kg (lb)
12 V DC	3 c/o (SPDT)	250 V AC, 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		
12 V AC			CR-U012AC3L	1SVR405622R0300		
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		

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

Rated control supply voltage	Outputs	Contact ratings	Type	Order code	Pkg qty	Weight (1 pc.) kg (lb)
12 V DC	2 c/o (SPDT)	250 V AC, 10 A	CR-U012DC2LD	1SVR405621R4400	10	0.033 (0.073)
24 V DC			CR-U024DC2LD	1SVR405621R1400	10	0.033 (0.073)
48 V DC			CR-U048DC2LD	1SVR405621R6400	10	0.033 (0.073)
110 V DC			CR-U110DC2LD	1SVR405621R8400	10	0.033 (0.073)
12 V DC	3 c/o (SPDT)		CR-U012DC3LD	1SVR405622R4400	10	0.033 (0.073)
24 V DC			CR-U024DC3LD	1SVR405623R1100	10	0.033 (0.073)
48 V DC			CR-U048DC3LD	1SVR405622R6400	10	0.033 (0.073)
110 V DC			CR-U110DC3LD	1SVR405622R8400	10	0.033 (0.073)

The sockets for CR-U interface relays have screw connection terminals and are suitable for snap-on mounting onto a DIN rail. Optional function modules for the CR-U range may only be plugged into compatible standard sockets.

#### Ordering details - Sockets and Accessories

Version	Type	Order code	Pkg qty	Weight (1 pc.) kg
Socket for 2 c/o and function module	CR-U2S	1SVR405670R0000	10	0.065
Socket for 3 c/o and function module	CR-U3S	1SVR405660R0000		0.065
Small socket for 2 c/o	CR-U2SM	1SVR405670R1100		0.054
Small socket for 3 c/o	CR-U3SM	1SVR405660R1100		0.058
Metal holder for socket	CR-UH	1SVR405669R0000		0.001

#### CR-U sockets

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



CR-U

2CDC 291 047 F0004



CR-U2S

2CDC 291 007 S0011

## Pluggable interface relays and optocouplers

### Ordering details – CR-U function modules



CR-U...

CR-U function modules are compatible with the CR-U2S and CR-U3S sockets only.

#### Diode - Reverse polarity protection / free-wheeling diode

Rated control supply voltage	Version	Type	Order code	Pkg qty	Weight (1 pc.) kg (lb)
6-220 V DC	A1+, A2-	CR-U 21	1SVR405661R0000	10	0.007 (0.015)

#### Diode and LED - Reverse polarity protection / free-wheeling diode and LED to indicate energized coil

Rated control supply voltage	Version	Type	Order code	Pkg qty	Weight (1 pc.) kg (lb)
6-24 V DC	red, A1+, A2-	CR-U 41	1SVR405662R0000	10	0.007 (0.015)
6-24 V DC	green, A1+, A2-	CR-U 41V	1SVR405662R1000		
24-60 V DC	red, A1+, A2-	CR-U 41B	1SVR405662R4000		
24-60 V DC	green, A1+, A2-	CR-U 41BV	1SVR405662R4100		
110 V DC	red, A1+, A2-	CR-U 41C	1SVR405662R9000		
110 V DC	green, A1+, A2-	CR-U 41CV	1SVR405662R9100		

#### RC element - Spark quenching

Rated control supply voltage	Version	Type	Order code	Pkg qty	Weight (1 pc.) kg (lb)
6-24 V AC/DC		CR-U 51B	1SVR405663R0000	10	0.007 (0.015)
24-60 V AC/DC		CR-U 51D	1SVR405663R4000		
110 -230 V AC/DC		CR-U 51C	1SVR405663R1000		

#### Diode and LED - LED to indicate energized coil

Rated control supply voltage	Version	Type	Order code	Pkg qty	Weight (1 pc.) kg (lb)
6-24 V AC/DC	red, for DC A1+, A2-	CR-U 61	1SVR405664R0000	10	0.007 (0.015)
6-24 V AC/DC	green, for DC A1+, A2-	CR-U 61V	1SVR405664R1000		
24-60 V AC/DC	red, for DC A1+, A2-	CR-U 61E	1SVR405664R4000		
24-60 V AC/DC	green, for DC A1+, A2-	CR-U 61EV	1SVR405664R4100		
110-230 V AC/DC	red, for DC A1+, A2-	CR-U 91	1SVR405664R0100		
110-230 V AC/DC	green, for DC: A1+, A2-	CR-U 91V	1SVR405664R1100		

## Pluggable interface relays and optocouplers

### Ordering details – CR-U function modules



CR-U...

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#### Varistor and LED - Overvoltage protection and LED to indicate energized coil

Rated control supply voltage	Version	Type	Order code	Pkg qty	Weight (1 pc.) kg (lb)
6-24 V AC/DC	red, for DC A1+, A2-	CR-U 61C	1SVR405665R0000	10	0.007 (0.015)
6-24 V AC/DC	green, for DC A1+, A2-	CR-U 61CV	1SVR405665R1000		
24-60 V AC/DC	red, for DC A1+, A2-	CR-U 61D	1SVR405665R4000		
24-60 V AC/DC	green, for DC A1+, A2-	CR-U 61DV	1SVR405665R4100		
110-230 V AC/DC	red, for DC A1+, A2-	CR-U 91C	1SVR405665R0100		
110-230 V AC/DC	green, for DC A1+, A2-	CR-U 91CV	1SVR405665R1100		

#### Varistor - Overvoltage protection

Rated control supply voltage	Version	Type	Order code	Pkg qty	Weight (1 pc.) kg (lb)
24 V AC		CR-U 71	1SVR405666R0000	10	0.007 (0.015)
115 V AC		CR-U 71A	1SVR405666R1000		
230 V AC		CR-U 81	1SVR405666R2000		

#### Multi-function time module\*

Rated control supply voltage	Version	Type	Order code	Pkg qty	Weight (1 pc.) kg (lb)
24-240 V AC/DC	green LED	CR-U T	1SVR405667R0000	10	0.014 (0.031)

\* For more details, refer to the [CR-U T datasheet](#).



CR-U T

2CDC291 032 F0005

## Pluggable interface relays and optocouplers

### Technical data - CR-S interface relays

Input circuit							
	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 $\Omega$	$\pm 15\%$
Output circuits							
Output circuit(s)	11-12/14						
Kind of output	1 c/o (SPDT)						
Contact material	AgSnO <sub>2</sub> or AgSnO <sub>2</sub> /Au						
Rated operational voltage $U_e$ (IEC/EN 60947-1)	250 V AC						
Minimum switching voltage	5 V at 100 mA (AgSnO <sub>2</sub> ) / 5 V at 12 mA (AgSnO <sub>2</sub> /Au)						
Maximum switching voltage	400 V AC / 250 V DC						
Minimum switching current	10 mA at 10 V (AgSnO <sub>2</sub> ) / 3 mA at 20 V (AgSnO <sub>2</sub> /Au)						
Rated free air thermal current $I_{th}$	5 A						
Rated operational current (IEC/EN 60947-5-1)	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	$\leq 100\text{ m}\Omega$ (at 1 A 6 V DC) / gold-plated: $\leq 30\text{ m}\Omega$ (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						
Isolation data							
Rated insulation voltage	250 V AC						
Rated impulse withstand voltage $U_{imp}$	between coil and contacts		4 kV (1.2/50 $\mu$ s) 1 min				
	between open contacts		1 kV (1.2/50 $\mu$ s) 1 min				
Clearance	between coil and contacts		5.5 mm (0.217 in)				
Creepage distance	between coil and contacts		8 mm (0.315 in)				
Overvoltage category	III						
Pollution degree	2						
General data							
Dimensions	see 'Dimensional drawings'						
Mounting	on socket						
Mounting position	any						
Degree of protection	RT II and RT III						

## Pluggable interface relays and optocouplers

### Technical data - CR-S interface relays and CR-S optocouplers

Electrical connection		
Connection	by socket	
Environmental data		
Ambient temperature range	operation	-40...+85 °C
	storage	-40...+85 °C
Vibration resistance (10-150 Hz)	n/o contact	10 Hz to 55 Hz 1 mm DA
	n/c contact	10 Hz to 55 Hz 1 mm DA
Shock resistance	n/o contact	function 49 m/s <sup>2</sup> / destructive 980 m/s <sup>2</sup>
	n/c contact	function 49 m/s <sup>2</sup> / destructive 980 m/s <sup>2</sup>
Standards/directives		
Standards	IEC/EN 61810-1	
RoHS Directive	2011/65/EU	

### Technical data - CR-S optocouplers

Input circuit	CR-S024VDC1TRA	CR-S024VDC1MOS	CR-S024VDC1TRI
Input resistance	3400 Ohm		
Rated control voltage	24 V DC*		
Pull-in voltage	15 V DC		
Maximum control voltage	30 V DC		
Nominal input current	7 mA		
Input power	168 mW		
Typical switching-on time	< 40 ms	< 60 ms	< 1/2 cycle
Typical switch-off time	< 600 ms	< 600 ms	< 1/2 cycle
Output circuits			
Output circuit(s)	11 (13+) - 14	11 (13+) - 14	11 (13+) - 14
Kind of output	Transistor	MOS-FET	Triac
Rated operational voltage	48 V DC	24 V DC	240 V AC
Maximum switching voltage	48 V DC	24 V DC	275 V AC
Minimum switching current	50 mA	50 mA	22 mA
Maximum switching current continuously	100 mA	2 A	2 A
Leakage current at maximum switching voltage	<1 mA	<1 mA	< 1.5 mA
Voltage drop at rated current	< 120 mV DC	< 120 mV DC	< 1.6 V AC
Isolation data			
Rated insulation voltage	input/output	2.5 kV	
Insulation class		2	
Clearance	input/output	14 mm	
Creepage distance	input/output	14 mm	
Overtoltage category		III	
Pollution degree		2	
General data			
Dimensions	see 'Dimensional drawings'		
Weight	3.5 g (0.007 lb)		
Mounting	on socket		
Environmental data			
Ambient temperature	operation	-30...+80 °C	
	storage	-40...+100 °C	
Standards / Directives			
Standards	IEC/EN 62314		
EMC Directive	2014/30/EN		
RoHS Directive	2011/65/EN		

\* The output circuit should not exceed 30 m.

## Pluggable interface relays and optocouplers

### Technical data - CR-S sockets

Input circuit	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	12-24 V AC/DC*	48-60 V AC/DC	110-125 V AC/DC	220-240 V AC/DC
Rated control supply voltage tolerance	(0.8-1.2) $U_s$	(0.8-1.2) $U_s$			
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 circuit(s)	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	see 'Dimensional drawings'				
Degree of protection (EN 60529)	IP20 (terminals)				
Temperature range	operation	-40...+70 °C			-40...+55 °C
	storage	-40...+85 °C			
Connection type	Screw				
Maximum number of wires per connection terminal	2				
Connecting capacity	rigid	2 x 0.5 - 1.5 mm <sup>2</sup> (2 x 20 - 16 AWG)			
	fine-strand				
	with wire end ferule	2 x 0.5 - 1 mm <sup>2</sup> (2 x 20 - 18 AWG)			
Tightening torque	0.5 Nm (4.426 lb.in)				
Stripping length	7 mm (0.28 in)				
Minimum clamping force for fine-strand wire	with 0.2 mm <sup>2</sup>	10 N			
	with 1.5 mm <sup>2</sup>	40 N			
Mounting (IEC/EN 60715)	DIN rail				
Material	socket	PA6 + GF - UL94 V0			
	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)	see 'Dimensional drawings'				
Degree of protection (EN 60529)	Degree of protection (EN 60529) IP20 (terminals)				
Temperature range	operation	-40...+70 °C			-40...+55 °C
	storage	-40...+85 °C			
Connection type	Spring				
Maximum number of wires per connection terminal	1				
Connecting capacity	0.75 - 2.5 mm <sup>2</sup> (20 - 14 AWG) rigid, fine-strand and with wire end ferrule				
Stripping length	7 mm (0.28 in)				
Mounting (IEC/EN 60715)	DIN rail				
Material	socket	PA6 + GF - UL94 V0			
	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 / Directives</b>					
Standard	IEC/EN 61984				
Low Voltage Directive	2014/35/EU				
RoHS Directive	2011/65/EU				

\* In combination with optocouplers, only DC supply is allowed

## Pluggable interface relays and optocouplers

### Technical data - CR-S jumper bars


Rated operational voltage / current		CR-SJB20-BLUE	CR-SJB20-RED	CR-SJB20-BLACK
Rated operational voltage		250 V AC		
Rated operational current		36 A		
<b>Electrical connection</b>				
Jumper bar cross section		123.2 mm (4.850 in)		
Step distance		6.3 mm (0.248 in)		
Rail length		with isolation 16.7 mm (0.657 in)		
		without isolation 6.7 mm (0.264 in)		
Stripping length of a connection wire that is used in combination with a jumper bar		7 mm (0.276 in)		
<b>Environmental data</b>				
Ambient temperature range		operation -40 ... +70 °C		
<b>General data</b>				
Material of rail		Cu		
Number of pins		20		
Flammability		V0		

## Pluggable interface relays and optocouplers

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*	Break voltage	Rated power	Coil resistance (at 20 °C)	Tolerance of coil resistance
DC coils	12 V DC	-	8.4 V DC	30.6 V DC	$\geq 0.1 U_s$	0.4-0.48 W	360 $\Omega$	$\pm 10\%$
	24 V DC	-	16.8 V DC	61.2 V DC	$\geq 0.1 U_s$	0.4-0.48 W	1440 $\Omega$	$\pm 10\%$
	48 V DC	-	33.6 V DC	122.4 V DC	$\geq 0.1 U_s$	0.4-0.48 W	5700 $\Omega$	$\pm 10\%$
	110 V DC	-	77 V DC	280 V DC	$\geq 0.1 U_s$	0.4-0.48 W	25200 $\Omega$	$\pm 10\%$
AC coils	24 V AC	50 / 60 Hz	19.2 V AC	28.8 V AC	$\geq 0.15 U_s$	0.75 VA	400 $\Omega$	$\pm 10\%$
	48 V AC	50 / 60 Hz	38.4 V AC	57.6 V AC	$\geq 0.15 U_s$	0.75 VA	1550 $\Omega$	$\pm 10\%$
	110 V AC	50 / 60 Hz	88 V AC	132 V AC	$\geq 0.15 U_s$	0.75 VA	8900 $\Omega$	$\pm 10\%$
	120 V AC	50 / 60 Hz	96 V AC	144 V AC	$\geq 0.15 U_s$	0.75 VA	10200 $\Omega$	$\pm 10\%$
	230 V AC	50 / 60 Hz	184 V AC	276 V AC	$\geq 0.15 U_s$	0.75 VA	38500 $\Omega$	$\pm 10\%$

#### CR-P optocouplers range

Input circuit	CR-P024M0S1	CR-P024TRI1
Input resistance	2200 $\Omega$	1950 $\Omega$
Rated control voltage	24 V DC	24 V DC
Pull-in voltage	10 V DC	10 V DC
Maximum control voltage	32 V DC	32 V DC
Nominal input current	10 mA	12 mA
Input power	260 mW	295 mW
Typical switching-on time	50 ms	< 1/2 cycle
Typical switch-off time	250 ms	< 1/2 cycle

#### CR-M range


	Rated control supply voltage $U_s$	Rated frequency	Make voltage (at 20 °C)	Maximum voltage*	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 $\Omega$	$\pm 10\%$

\* Refer to CR-U: Operating range of coils

## Pluggable interface relays and optocouplers

Technical data – CR-P, CR-M, CR-U

### CR-U range



	Rated control supply voltage $U_s$	Rated frequency	Make voltage (at 20 °C)	Maximum voltage*	Break voltage	Rated power	Coil resistance (at 20 °C)	Tolerance of coil resistance
DC coils	12 V DC	-	9.6 V DC	13.2 V DC	$\geq 0.1 U_s$	1.5 W	110 $\Omega$	$\pm 10 \%$
	24 V DC	-	19.2 V DC	26.4 V DC	$\geq 0.1 U_s$	1.5 W	430 $\Omega$	$\pm 10 \%$
	48 V DC	-	38.4 V DC	52.8 V DC	$\geq 0.1 U_s$	1.5 W	1750 $\Omega$	$\pm 10 \%$
	110 V DC	-	88.0 V DC	121.0 V DC	$\geq 0.1 U_s$	1.5 W	9200 $\Omega$	$\pm 10 \%$
	125 V DC	-	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 $\Omega$	$\pm 10 \%$
AC coils	24 V AC	50 / 60 Hz	19.2 V AC	26.4 V AC	$\geq 0.15 U_s$	2.8 VA (50 Hz) 2.5 VA (60 Hz)	75 $\Omega$	$\pm 10 \%$
	48 V AC	50 / 60 Hz	38.4 V AC	52.8 V AC	$\geq 0.15 U_s$	2.8 VA (50 Hz) 2.5 VA (60 Hz)	305 $\Omega$	$\pm 10 \%$
	60 V AC	50 / 60 Hz	48.0 V AC	66.0 V AC	$\geq 0.15 U_s$	2.8 VA (50 Hz) 2.5 VA (60 Hz)	475 $\Omega$	$\pm 10 \%$
	110 V AC	50 / 60 Hz	88.0 V AC	121.0 V AC	$\geq 0.15 U_s$	2.8 VA (50 Hz) 2.5 VA (60 Hz)	1700 $\Omega$	$\pm 10 \%$
	120 V AC	50 / 60 Hz	96.0 V AC	132.0 V AC	$\geq 0.15 U_s$	2.8 VA (50 Hz) 2.5 VA (60 Hz)	1910 $\Omega$	$\pm 10 \%$
	230 V AC	50 / 60 Hz	184.0 V AC	253.0 V AC	$\geq 0.15 U_s$	2.8 VA (50 Hz) 2.5 VA (60 Hz)	7080 $\Omega$	$\pm 10 \%$

\* Refer to CR-U: Operating range of coils

## Pluggable interface relays and optocouplers

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 $U_e$ (VDE 0110, IEC 60947-1)	250 V AC							
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 $I_{th}$	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						
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	

## Pluggable interface relays and optocouplers

### 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
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)	> 10 <sup>5</sup> switching cycles (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 (In accordance to VDE 0110b)		C250 / B400		C250 / B250			C250	
Rated impulse withstand voltage U <sub>imp</sub>	between coil and contacts	5 kV (1.2/50 μs)		2.5 kV (1.2/50 μs)				
	between open contacts	1 kV (1.2/50 μs)		1.5 kV (1.2/50 μs)				
	between c/o (SPDT) contacts	-	2.5 kV (1.2/50 μs)	2.5 kV (1.2/50 μs)		≥ 2 kV (1.2/50 μs)	2 kV (1.2/50 μs)	
Clearance between coil and contacts		≥ 10 mm		≥ 2.5 mm		≥ 1.6 mm	≥ 3 mm	
Creepage distance between coil and contacts		≥ 10 mm		≥ 4 mm		≥ 3.2 mm	≥ 4.2 mm	
Overvoltage category		III		III		II	III	
Pollution degree		3		3		2	3	
<b>General data</b>								
Dimensions		see 'Dimensional drawings'						
Mounting		on socket (see accessories)						
Mounting position		any						
Degree of protection		IP 67		IP 40				
<b>Electrical connection</b>								
Connection		by socket						
<b>Environmental data</b>								
Ambient temperature range	operation	DC: -40...+85 °; AC: -40...+70 °C		DC: -40...+70 °; AC: -40...+55 °C				
	storage	-40 ... +85 °C						
Vibration resistance 10-150 Hz	n/o contact	10 g		5 g			5 g	
	n/c contact	10 g	5 g	5 g			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 / Directives</b>								
Standards		IEC/EN 61810-1						
Low Voltage Directive		-		2014/35/EU				
RoHS Directive		2011/65/EU						

\* These ratings are based on different type tests which are not covered by the cULus or CSA approvals.

## Pluggable interface relays and optocouplers

### Technical data – CR-P optocouplers

<b>Output circuits</b>		<b>CR-P024MOS1</b>	<b>CR-P024TRI1</b>
Output circuit(s)		11 (13+) - 14	11 (13+) - 14
Kind of output		MOS-FET	Triac
Rated operational voltage		24 V DC	240 V AC
Maximum switching voltage		35 V DC	275 V AC
Minimum switching current		1 mA	50 mA
Maximum switching current continuously		5 A	3,5 A
Leakage current at maximum switching voltage		10 uA	1 mA
Voltage drop at rated current		300 mV	1.1 V
<b>Isolation data</b>			
Rated insulation voltage	input/output	2.5 kV	2.5 kV
Insulation class		2	2
Clearance	input/output	19 mm	19 mm
Creepage distance	input/output	19 mm	19 mm
Overvoltage category		III	III
Pollution degree		2	2
<b>General data</b>			
Dimensions		see 'Dimensional drawings'	
Weight		11 g (0.618 lbs)	11 g (0.618 lbs)
Mounting		on socket	on socket
<b>Environmental data</b>			
Ambient temperature	operational	-20...+80 °C	-20...+80 °C
	storage	-40...+100 °C	-40...+100 °C
<b>Standards / Directives</b>			
Standards		IEC/EN 62314	IEC/EN 62314
EMC Directive		2014/30/EU	2014/30/EU
RoHS Directive		2011/65/EU	2011/65/EU

## Pluggable interface relays and optocouplers

### Technical data - CR-P and CR-M sockets

Output circuits	CR-PLS	CR-PSS	CR-PLC	CR-MxLS	CR-MxSS	CR-MxSF	CR-M4LC	CR-M2LSH	CR-M3LSH	
Output circuit(s)	11-12/14, 21-22/24			11-12/14, 21-22/24, ...				11-12/14, 21-22/24	11-12/14, 21-22/24, 41-42/44	
Number of poles	2			2, 3 or 4		2 or 4	4	2	3	
Rated voltage	250 V AC/DC			250 V AC/DC			300 V AC/DC	250 V AC		
Rated current	2 x 10 A <sup>1)</sup>		2 x 10 A <sup>1)</sup>	7 A			10 A	12 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)	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)	75.5 x 27.2 x 61.1 mm (2.972 x 1.071 x 2.406 in)		
Degree of protection	terminals	IP 20 B (EN 60529)								
Temperature range	operation	-40...+70 °C					-25...+85 °C	-40...+70 °C		
	storage	-40...+70 °C								
Connection type	screw connection		spring connection	screw connection		fork type screw	spring connection	screw connection		
Maximum number of wires per connecting terminal	2		2 (one per connection point)	2		-	2 (one per connection point)	2		
Connecting capacity	rigid	2 x 0.5 - 2.5 mm <sup>2</sup> (2 x 20 - 14 AWG)		2 x 0.5 - 2.5 mm <sup>2</sup> (2 x 20 - 14 AWG)			2 x 0.5 - 1.5 mm <sup>2</sup> (2 x 20 - 16 AWG)	2 x 0.5 - 2.5 mm <sup>2</sup> (2 x 20 - 14 AWG)		
	fine-strand	2 x 0.5 - 1.5 mm <sup>2</sup> (2 x 20 - 16 AWG)		2 x 1.5 mm <sup>2</sup> (2 x 16 AWG)		2 x 0.5 - 1.5 mm <sup>2</sup> (2 x 20 - 16 AWG)		2 x 1.5 mm <sup>2</sup> (2 x 16 AWG)	2 x 0.5 - 1.5 mm <sup>2</sup> (2 x 20 - 16 AWG)	
Stripping length	7 mm (0.28 in)		11 mm (0.43 in)	7 mm (0.28 in)			10 mm (0.39 in)	7 mm (0.28 in)		
Tightening torque	0.6 Nm (5.31 lb.in)									
Maximum clamping force	with 0,2 mm <sup>2</sup>	-	-	10 N	-	-	-	10 N		
	with 1,5 mm <sup>2</sup>	-	-	40 N	-	-	-	40 N		
	with wire end ferrule	-			-	-	-	> 40 N	40 N	
Mounting	DIN rail (IEC/EN 60715)									
Material	socket	PA 6 + GF - UL94 V0			PA 6+GF - UL94 V0			PA 6+GF - UL94 V0		
	contacts	CuZn33			CuZn33			Copper alloy		
	contact surface	5 μ Ni	5 μ Ni		5 μ Ni	6 μ Ni	5 μ tinned	5 μ Ni		
	terminals	8 μ Ni	8 μ Ni	XCrNi Steel	8 μ Ni		CCSC	5 μ Ni		
	combi screw M3	8.8 Steel, 5μ Ni		-	8.8 Steel, 5μ Ni			-	2 μ Ni	
<b>Isolation data</b>										
Insulation voltage	> 5 kV			> 3 kV		> 4 kV		> 2 kV		
Isolation between coil and contacts	IEC/EN 61984							> 1000 MΩ		
Clearance and creepage distance	IEC/EN 61984									
<b>Standards / Directives</b>										
Standards	IEC/EN 61984							IEC 61984		
Low Voltage Directive	2014/35/EU									
RoHS Directive	2011/65/EU									

<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 and optocouplers

Technical data - CR-P and CR-M jumper bars, CR-P and CR-M function modules

Rated operational voltage / Rated current		CR-PJ	CR-MJ
Rated operational voltage (VDE 0660 / part 500)		400 V	
Rated current (VDE 0660 / part 500)		25 A	
<b>Electrical connection</b>			
Bus bar diameter		6 mm <sup>2</sup> (0.0093 in <sup>2</sup> )	
Step distance		15.5 mm (0.610 in)	27.2 mm (1.071 in)
Rail length		with isolation	150 mm (5.906 in)
		without isolation	141.5 mm (5.571 in)
Stripping length of a connection wire that is used in combination with a jumper bar		6 mm (0.236 in)	
<b>Environmental data</b>			
Ambient temperature range		operation	-40... +55 °C
<b>Isolation data</b>			
Rated impulse withstand voltage U <sub>imp</sub> (VDE 0660 / part 500)		4 kV (1.2/50 μs)	
Overvoltage category (IEC/EN 60664)		III	
Pollution degree (IEC/EN 60664)		2	
<b>General data</b>			
Material of rail		E-Cu-F25	
Type of rail		pin type	
Number of pins		10	
Number of phases		1	
Color of insulating material		RAL 7035	
Flammability (UL 94)		V0	

### Technical data - CR-P and CR-M function modules

CR-P/M 22						
Type	CR-P/M 22					
Version	Diode					
Function	Reverse polarity protection					
Control supply voltage	6-220 V DC					
Component data	diode	1 A, 1000 V				
Polarized	yes (A1+, A2-)					
Material	enclosure / base	PA6 + GF - UL94 V0				
CR-P/M 42						
Type	CR-P/M 42	CR-P/M 42V	CR-P/M 42B	CR-P/M 42BV	CR-P/M 42C	CR-P/M 42CV
Version	Diode and LED					
Function	Reverse polarity protection / free-wheeling diode and LED to indicate energized coil					
Control supply voltage	6-24 V DC			24-60 V DC		110 V DC
Component data	diode	1 A, 1000 V				
	LED	red	green	red	green	red
	resistance	3 kΩ, 0.25 W		15 kΩ, 0.25 W		200 kΩ, 0.25 W
Polarized	yes (A1+, A2-)					
Material	enclosure / base	PA6 + GF - UL94 V0				
CR-P/M 52						
Type	CR-P/M 52B		CR-P/M 52D		CR-P/M 52C	
Version	RC element					
Function	Spark quenching					
Control supply voltage	6-24 V AC/DC		24-60 V AC/DC		110-230 V AC/DC	
Component data	capacitor	0.1 μF, 63 V DC		0.1 μF, 100 V DC		0.082 μF, 400 V DC
	resistance	10 Ω, 0.25 W		47 Ω, 0.25 W		100 Ω, 0.25 W
Polarized	no					
Material	enclosure / base	PA6 + GF - UL94 V0				

## Pluggable interface relays and optocouplers

### Technical data - CR-P and CR-M function modules

<b>CR-P/M 62</b>									
Type	CR-P/M 62	CR-P/M 62V	CR-P/M 62E	CR-P/M 62EV	CR-P/M 62C	CR-P/M 62CV	CR-P/M 62D	CR-P/M 62DV	
Version	Diode and LED				Varistor and LED				
Function	LED to indicate energized coil				Overvoltage protection and LED to indicate energized coil				
Control supply voltage	6-24 V AC/DC		24-60 V AC/DC		6-24 V AC/DC		24-60 V AC/DC		
Component data	diode	1 A, 1000 V							
	LED	red	green	red	green	red	green	red	green
	varistor	25 V AC		75 V AC		25 V AC		75 V AC	
	resistance	3 k $\Omega$ , 0.25 W		15 k $\Omega$ , 0.25 W		3 k $\Omega$ , 0.25 W		15 k $\Omega$ , 0.25 W	
Polarized	AC: no, DC: yes (A1+, A2-)								
Material	enclosure / base	PA6 + GF - UL94 V0							
<b>CR-P/M 72, 82</b>									
Type	CR-P/M 72			CR-P/M 72A		CR-P/M 82			
Version	Varistor								
Function	Overvoltage protection								
Control supply voltage	24 V AC			115 V AC		230 V AC			
Component data	varistor	25 V AC			115 V AC		275 V AC		
Polarized	no								
Material	enclosure / base	PA6 + GF - UL94 V0							
<b>CR-P/M 92</b>									
Type	CR-P/M 92		CR-P/M 92V		CR-P/M 92C		CR-P/M 92CV		
Version	Diode and LED				Varistor and LED				
Control supply voltage	110-230 V AC/DC								
Function	LED to indicate energized coil				Overvoltage protection and LED to indicate energized coil				
Component data	diode	1 A, 1000 V							
	LED	red	green		red	green			
	varistor	275 V AC							
	resistance	120 k $\Omega$ , 0.25 W							
Polarized	AC: no, DC: yes (A1+, A2-)								
Material	enclosure / base	PA6 + GF - UL94 V0							
<b>Standards / Directives</b>									
Standards	IEC/EN 61984								
Low Voltage Directive	2014/35/EU								
RoHS Directive	2011/65/EU								

## Pluggable interface relays and optocouplers

### Technical data - CR-U sockets and function modules

Output circuits		CR-U2S	CR-U3S	CR-UxSM
Output circuit(s)		11-12/14, 21-22/24,...		
Number of poles		2	3	2 or 3
Rated voltage		250 V AC		250 V AC
Rated current		10 A		
<b>General data</b>				
Dimensions		see 'Dimensional drawings'		
Degree of protection	terminals	IP 20 B (EN 60529)		
Temperature range	operation	-40...+70 °C		-40...+70 °C
	storage	-40...+70 °C		-40...+70 °C
Connecting capacity	rigid	2 x 2 x 0,5 - 2,5 mm <sup>2</sup> (2 x 20 - 14 AWG)		
	fine-strand			
	with wire end ferrule	2 x 0.5 - 1.5 mm <sup>2</sup> (2 x 20 - 16 AWG)		2 x 0.5 - 1.5 mm <sup>2</sup> (2 x 20 - 16 AWG)
Stripping length		7 mm (0.28 in)		
Tightening torque		0.6 Nm		0.6 Nm
Mounting		DIN rail (IEC/EN 60715)		
Material	socket	PA 6+GF - UL94 V0		
	contacts	CuZn33		
	contact surface	6 μ Ni		3 μ Ni
	terminals	8 μ Ni		10 μ Ni
	combi screw M3	8.8 steel, 5μ Ni		Steel, 8 μ Ni
<b>Isolation data</b>				
Insulation voltage		> 2 kV		
Isolation between coil and contacts		IEC/EN 61984		
Clearance and creepage distance		IEC/EN 61984		
<b>Standards/Directives</b>				
Standards		IEC/EN 61984		
Low Voltage Directive		2014/35/EU		
RoHS Directive		2011/65/EU		

### Technical data - CR-U function modules

CR-U 21						
Type	CR-U 21					
Version	Diode					
Function	Reverse polarity / free-wheeling diode					
Control supply voltage	6-220 V DC					
Component data	Diode	1 A, 1000 V				
Polarized	yes (A1+, A2-)					
Material	Enclosure / Base	PA6 + GF - UL94 V0				
CR-U 41						
Type	CR-U 41	CR-U 41V	CR-U 41B	CR-U 41BV	CR-U 41C	CR-U 41CV
Version	Diode and LED					
Function	Reverse polarity / free-wheeling diode and LED to indicate energized coil					
Control supply voltage	6-24 V DC		24-60 VDC		110 V DC	
Component data	Diode	1 A, 1000 V				
	LED	red	green	red	green	red green
	Resistance	3 kΩ, 0.25 W		15 kΩ, 0.25 W		200 kΩ, 0.25 W
Polarized	yes (A1+, A2-)					
Material	Enclosure / Base	PA6 + GF - UL94 V0				

## Pluggable interface relays and optocouplers

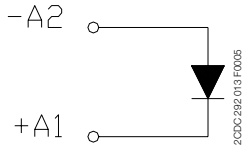
### Technical data - CR-U function modules

<b>CR-U 51</b>										
Type	CR-U 51B			CR-U 51D			CR-U 51C			
Version	RC element									
Function	Spark quenching									
Control supply voltage	6-24 V AC/DC			24-60 V AC/DC			110-230 V AC/DC			
Component data	Capacitor	0.1 $\mu$ F, 63 V DC			0.1 $\mu$ F, 100 V DC			0.082 $\mu$ F, 400 V DC		
	Resistance	10 $\Omega$ , 0.25 W			47 $\Omega$ , 0.25 W			100 $\Omega$ , 0.25 W		
Polarized	no									
Material	Enclosure / Base	PA6 + GF - UL94 V0								
<b>CR-U 61</b>										
Type	CR-U 61	CR-U 61V	CR-U 61E	CR-U 61EV	CR-U 61C	CR-U 61CV	CR-U 61D	CR-U61DV		
Version	Diode and LED					Varistor and LED				
Function	Reverse polarity protection / free-wheeling diode and LED to indicate energized coil					Overvoltage protection and LED to indicate energized coil				
Control supply voltage	6-24 V AC/DC			24-60 V AC/DC		6-24 V AC/DC		24-60 V AC/DC		
Component data	Diode	1 A, 1000 V								
	LED	red	green	red	green	red	green	red	green	
	Resistance	3 k $\Omega$ , 0.25 W			15 k $\Omega$ , 0.25 W		3 k $\Omega$ , 0.25 W		15 k $\Omega$ , 0.25 W	
Polarized	AC: no, DC: yes (A1+, A2-)									
Material	Enclosure / Base	PA6 + GF - UL94 V0								
<b>CR-U 71, 81</b>										
Type	CR-U 71			CR-U 71A			CR-U 81			
Version	Varistor									
Function	Overvoltage protection									
Control supply voltage	24 V AC			115 V AC			230 V AC			
Component data	Varistor	25 V AC			115 V AC			275 V AC		
Polarized	no									
Material	Enclosure / Base	PA6 + GF - UL94 V0								
<b>CR-U 91</b>										
Type	CR-U 91			CR-U 91V			CR-U 91C		CR-U 91CV	
Version	Diode and LED					Varistor and LED				
Function	LED to indicate energized coil					Overvoltage protection and LED to indicate energized coil				
Control supply voltage	110-230 V AC/DC									
Component data	Diode	1 A, 1000 V								
	LED	red			green			red		green
	Resistance	120 k $\Omega$ , 0.25 W								
Polarized	AC: no, DC: yes (A1+, A2-)									
Material	Enclosure / Base	PA6 + GF - UL94 V0								
<b>Standards / Directives</b>										
Standards	IEC/EN 61984									
Low Voltage Directive	2014/35/EU									
RoHS Directive	2011/65/EU									

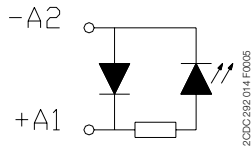
# Pluggable interface relays and optocouplers

## Technical diagrams

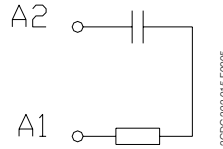
### Connection diagrams



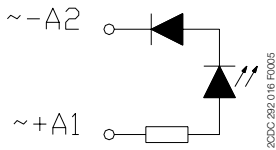
CR-P/M 22



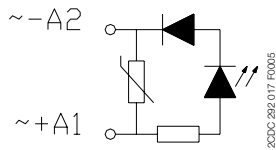
CR-P/M 42, CR-P/M 42B,  
CR-P/M 42C, CR-P/M 42V,  
CR-P/M 42BV, CR-P/M 42CV



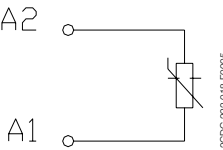
CR-P/M 52B, CR-P/M 52C  
CR-P/M 52D,



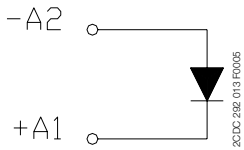
CR-P/M 62, CR-P/M 62E,  
CR-P/M 92, CR-P/M 62V,  
CR-P/M 62EV, CR-P/M 92V



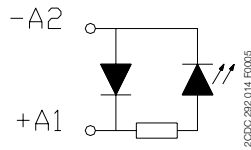
CR-P/M 62C, CR-P/M 62D,  
CR-P/M 92C, CR-P/M 62CV,  
CR-P/M 62DV, CR-P/M 92CV



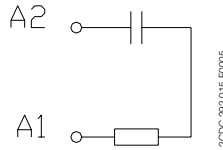
CR-P/M 72, CR-P/M 82  
CR-P/M 72A,



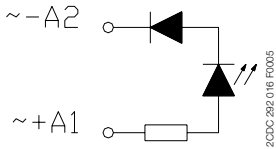
CR-U 21



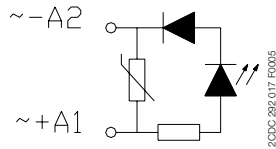
CR-U 41, CR-U 41B, CR-U 41C,  
CR-U 41V, CR-U 41BV, CR-U 41CV



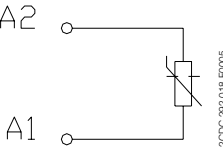
CR-U 51B, CR-U 51C CR-U 51D



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

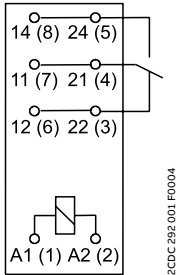


CR-U 71, CR-U 71A, CR-U 81

# Pluggable interface relays and optocouplers

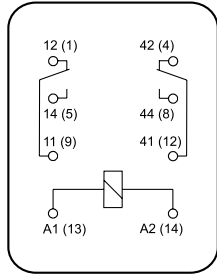
## Technical diagrams

### Connection diagrams



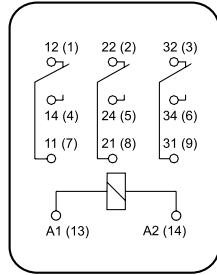
2CDC 292 001 F0004

CR-P with 1 c/o contact



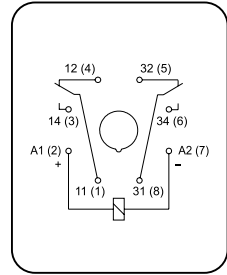
2CDC 292 011 F0004

CR-M with 2 c/o contacts



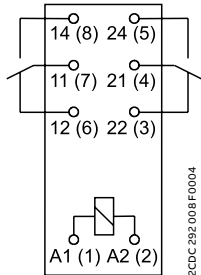
2CDC 292 016 F0004

CR-M with 3 c/o contacts



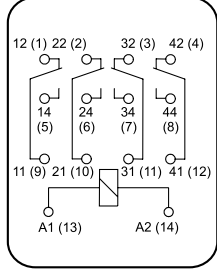
2CDC 292 024 F0004

CR-U with 2 c/o contacts



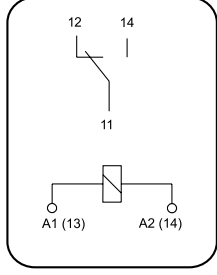
2CDC 292 008 F0004

CR-P with 2 c/o contacts



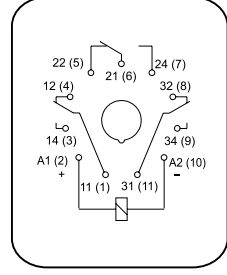
2CDC 292 020 F0004

CR-M with 4 c/o contacts



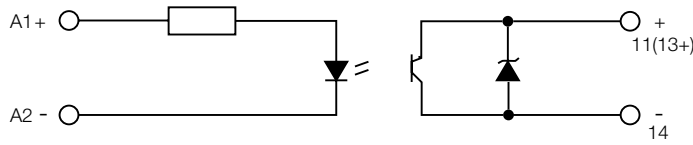
2CDC 292 001 F0014

CR-S



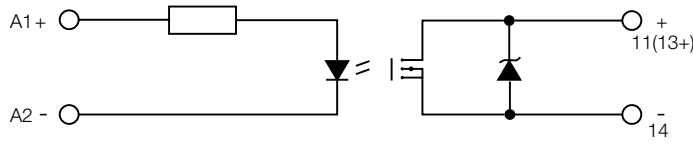
2CDC 292 030 F0004

CR-U with 3 c/o contacts



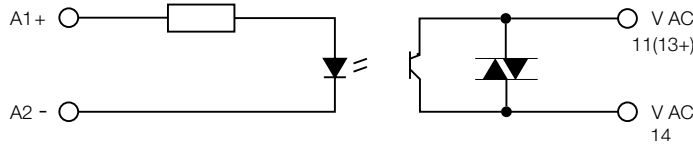
2CDC 292 001 F0016

CR-S optocoupler with Transistor



2CDC 292 002 F0016

CR-S optocoupler with MOSFET



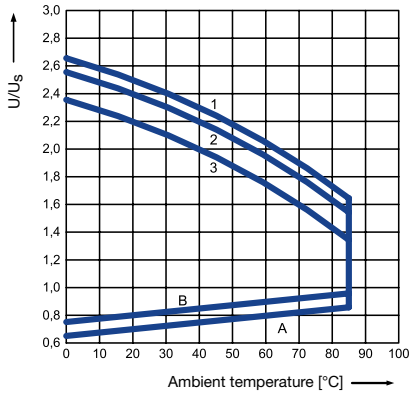
2CDC 292 001 F0016

CR-S optocoupler with Triac

# Pluggable interface relays and optocouplers

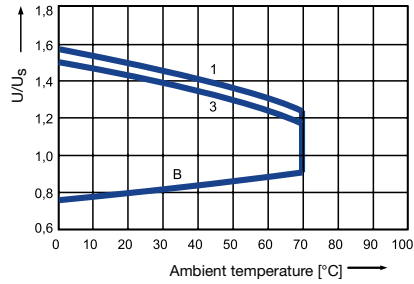
## Technical diagrams

### CR-P: Operating range of coils



Operating range of DC coil

2CDC292.037.F0204

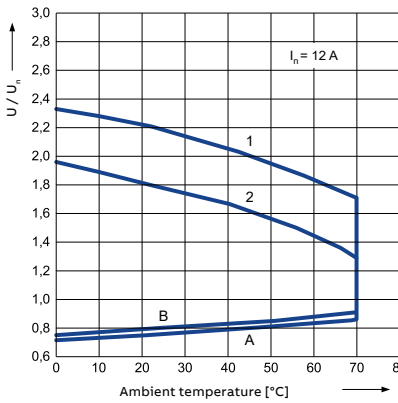


Operating range of AC coil

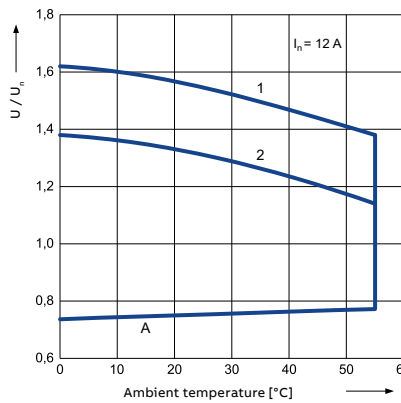
2CDC292.038.F0204

- A unloaded contacts, coil temperature = ambient temperature
- B continued with  $I_{th}$  (16 A at CR-P ... 1 and 8 A at CR-P ... 2) loaded contacts coil heated with  $1,1 \times U_s$
- 1 at unloaded contacts
- 2 at 50 % rated load
- 3 at rated load

### CR-M: Operating range of coils

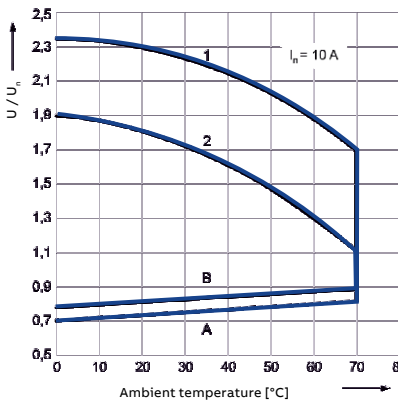


Operating range of DC coil – 2 c/o

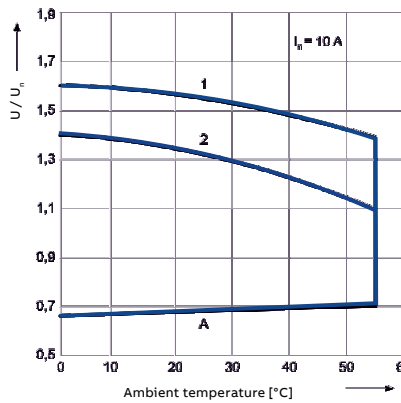


Operating range of AC coil – 2 c/o

- A relations between make voltage and ambient temperature at no load on contacts. Coil temperature and ambient temperature are equal before coil energizing. Make voltage is not higher than the value read on Y axis (multiplication of rated voltage)
- B relations between make voltage and ambient temperature after initial coil heating up with  $1,1 U_n$ , at continues load of  $I_n$  on contacts. Make voltage is not higher than the value read on Y axis (multiplication of rated voltage)
- 1, 2 values on Y axis represent allowed overvoltage on coil at certain ambient temperature and contact load:
- 1 no load
- 2 rated load



Operating range of DC coil – 3 c/o

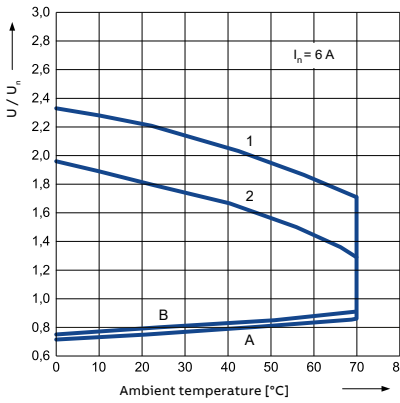


Operating range of AC coil – 3 c/o

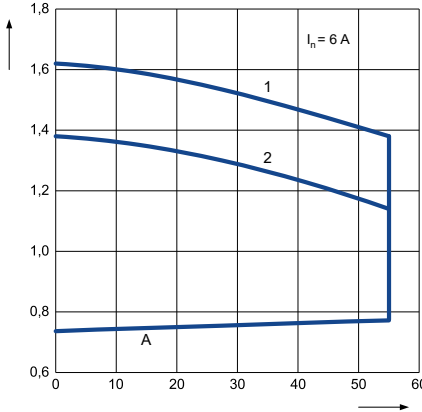
# Pluggable interface relays and optocouplers

## Technical diagrams

### CR-M: Operating range of coils

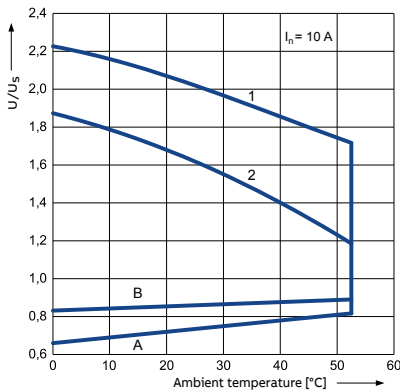


Operating range of DC coil – 4 c/o

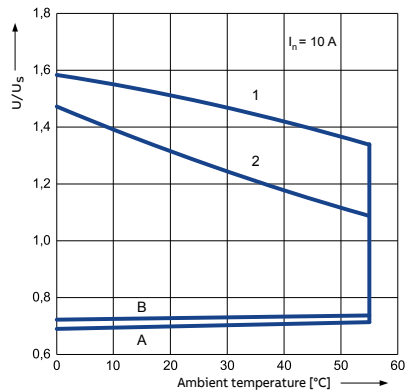


Operating range of AC coil – 4 c/o

### CR-U: Operating range of coils



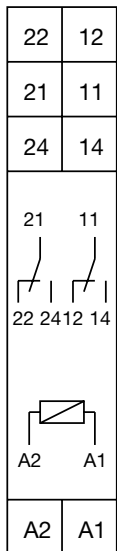
Operating range of DC coil – 3 c/o



Operating range of AC coil – 3 c/o

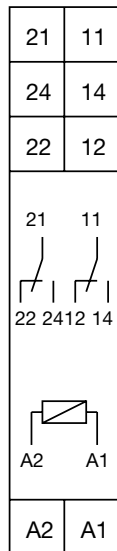
- A relations between make voltage and ambient temperature at no load on contacts. Coil temperature and ambient temperature are equal before coil energizing. Make voltage is not higher than the value read on Y axis (multiplication of rated voltage)
- B relations between make voltage and ambient temperature after initial coil heating up with  $1,1 U_n$ , at continues load of  $I_n$  on contacts. Make voltage is not higher than the value read on Y axis (multiplication of rated voltage)
- 1,2 values on Y axis represent allowed overvoltage on coil at certain ambient temperature and contact load:
  - 1 no load
  - 2 rated load

### Electrical connection



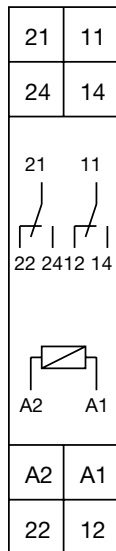
CR-PLS

2CDC 292 063 F0 004



CR-PLSx, CR-PLC

2CDC 292 063 F0 004



CR-PSS

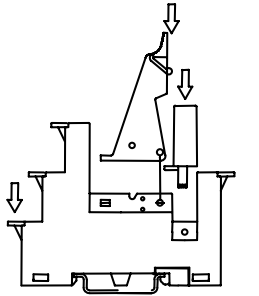
2CDC 292 009 F0 007

A1-A2	Supply voltage
11-12/14,	Relay outputs
21-22/24	Relay outputs

# Pluggable interface relays and optocouplers

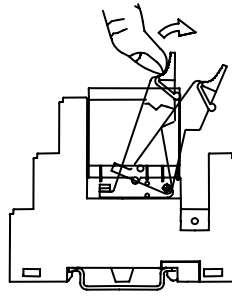
## Technical diagrams

### Mounting and removal of sockets



2CDC 292 061 F0004

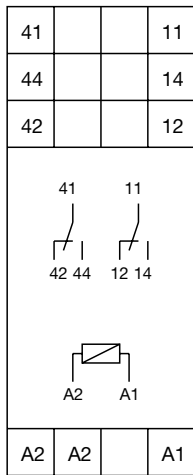
Mounting



2CDC 292 062 F0004

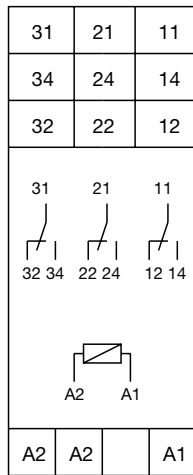
Removal

### Electrical connection



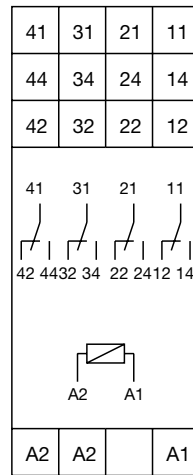
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CR-M2LS(H)



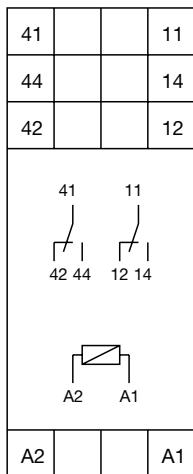
2CDC 292 074 F0004

CR-M3LS(H)



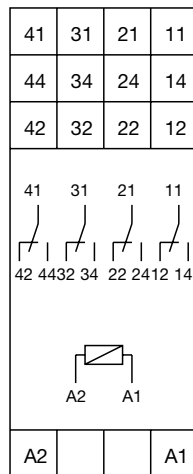
2CDC 292 073 F0004

CR-M4LS



2CDC 292 008 F0004

CR-M2LC



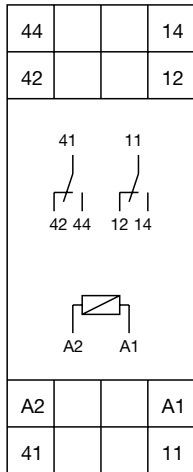
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CR-M4LC

## Pluggable interface relays and optocouplers

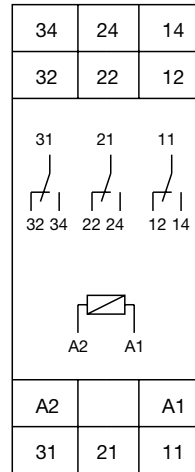
### Technical diagrams

#### Electrical connection



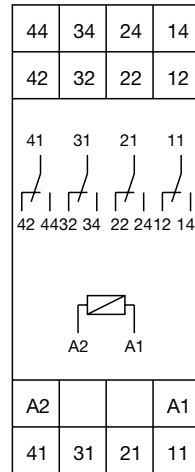
CR-M2SS,  
CR-M2SF

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



CR-M3SS

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



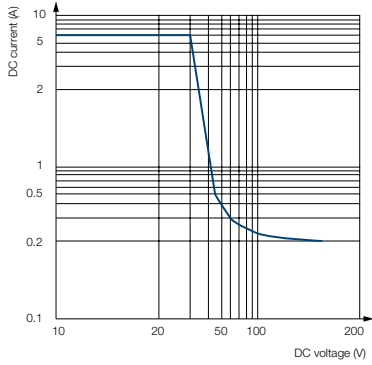
CR-M4SS,  
CR-M4SF

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

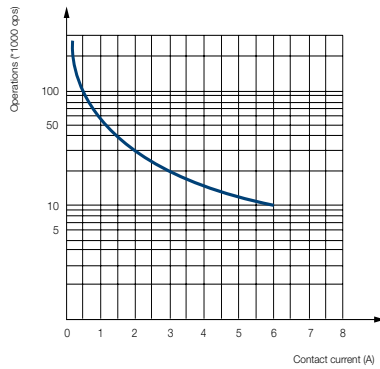
# Pluggable interface relays and optocouplers

## Technical diagrams

### Technical diagrams CR-S interface relays

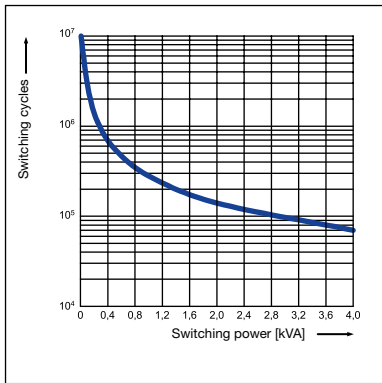


Max. DC load breaking capacity

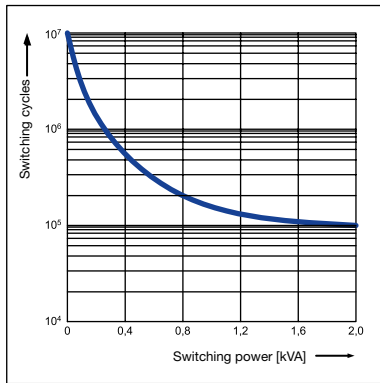


Endurance curve

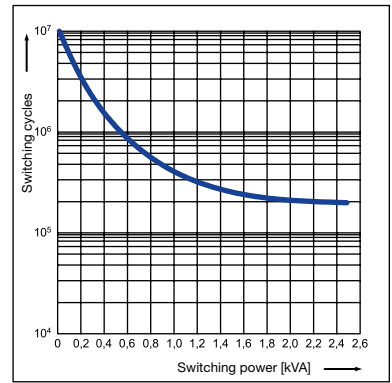
### Load limit curves CR-P, CR-M and CR-U - Electrical lifetime at resistive AC load



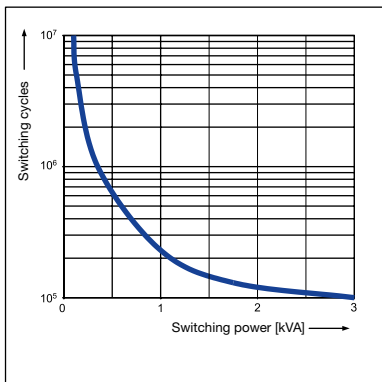
CR-P with 1 c/o contact



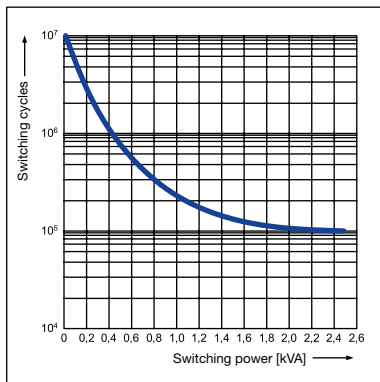
CR-P with 2 c/o contacts



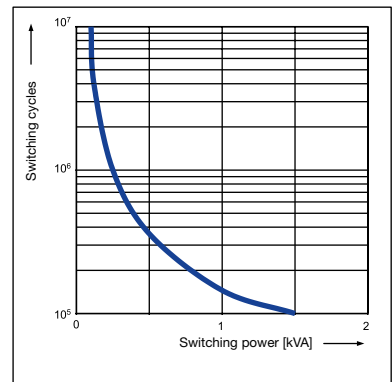
CR-U with 2 and 3 c/o contacts



CR-M with 2 c/o contacts



CR-M with 3 c/o contacts

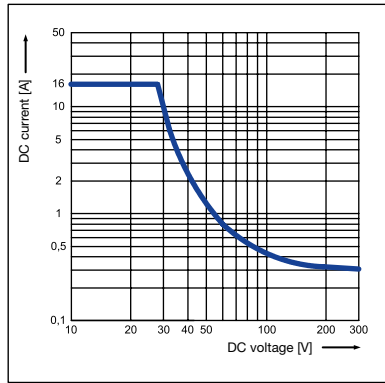


CR-M with 4 c/o contacts

# Pluggable interface relays and optocouplers

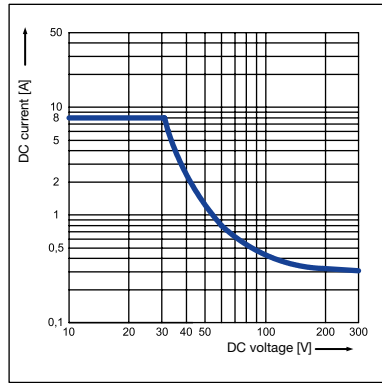
## Technical diagrams

### Load limit curves CR-P, CR-M and CR-U - Maximum switching power at resistive DC load



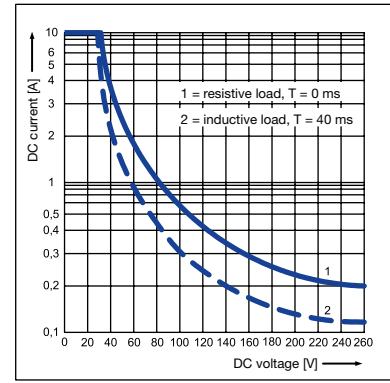
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CR-P with 1 c/o contact



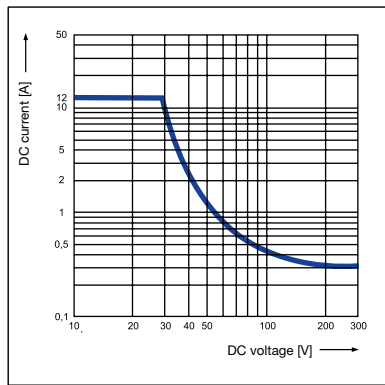
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CR-P with 2 c/o contacts



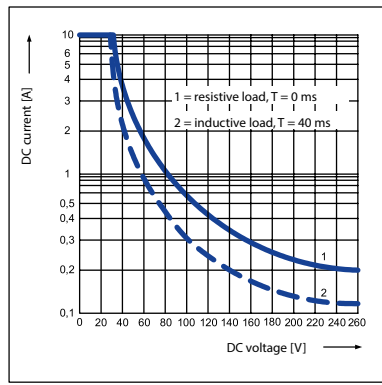
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CR-U with 2 and 3 c/o contacts



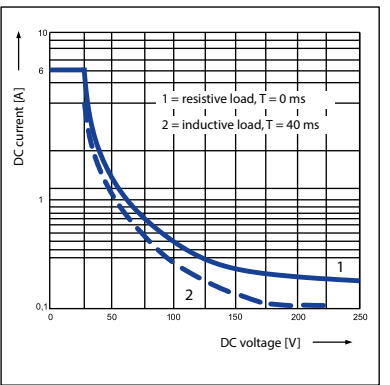
2CDC292015F0204

CR-M with 2 c/o contacts



2CDC292019F0204

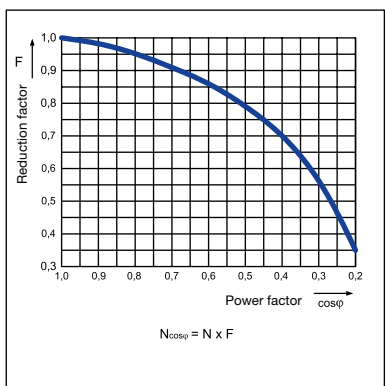
CR-M with 3 c/o contacts



2CDC292023F0204

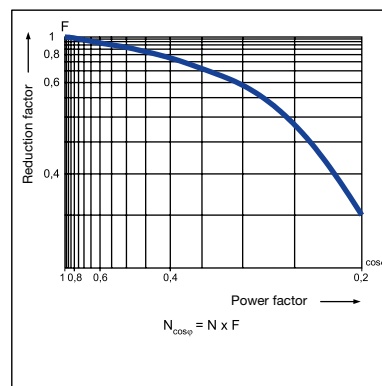
CR-M with 4 c/o contacts

### Reduction factor CR-P, CR-M and CR-U – F at inductive AC load



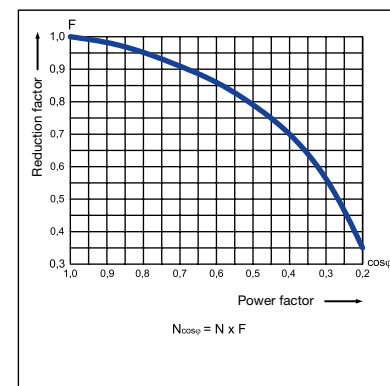
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CR-P



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CR-M



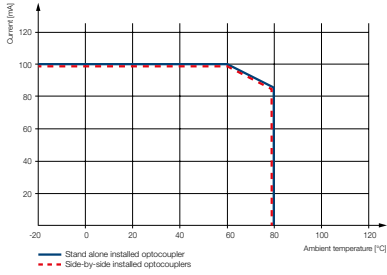
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CR-U

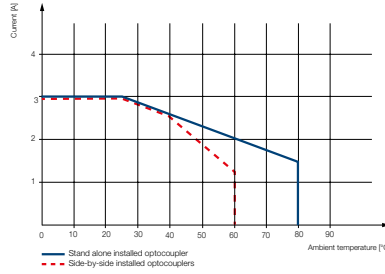
# Pluggable interface relays and optocouplers

## Technical diagrams

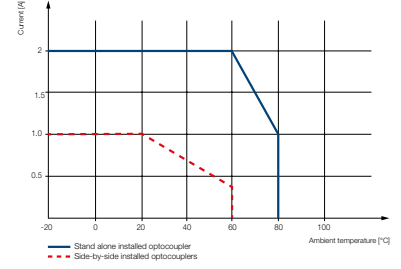
### Derating curves



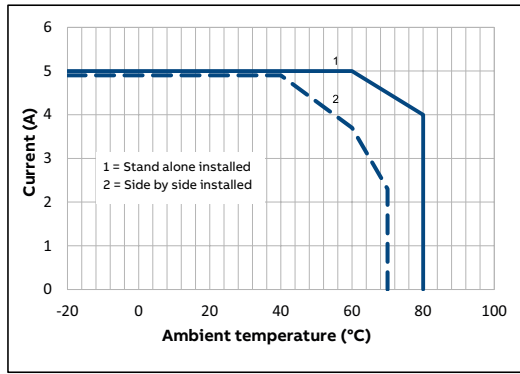
Derating curve Transistor output CR-S



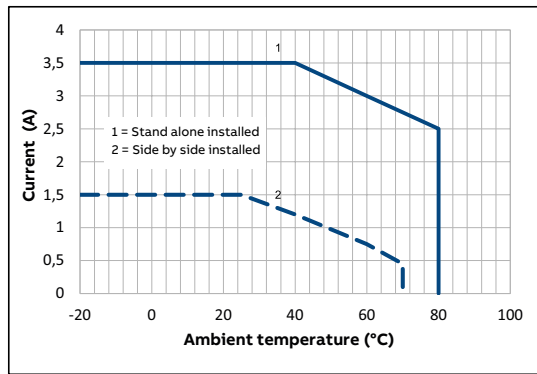
Derating curve MOS-FET output CR-S



Derating curve Triac output CR-S



MOS-FET output CR-P

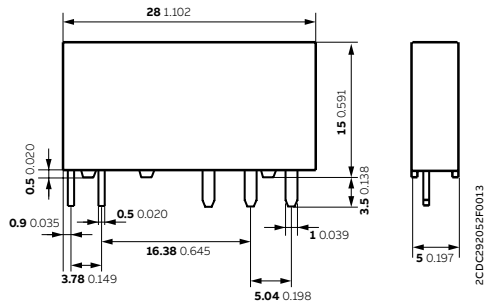


Triac output CR-P

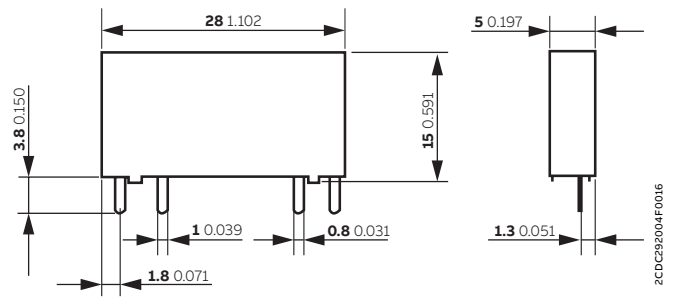
# Pluggable interface relays and optocouplers

## Technical diagrams

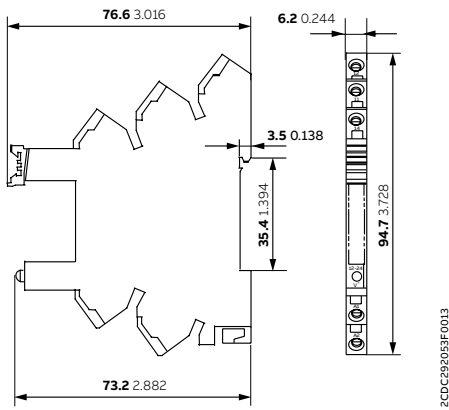
### Dimensional drawings in mm and inches



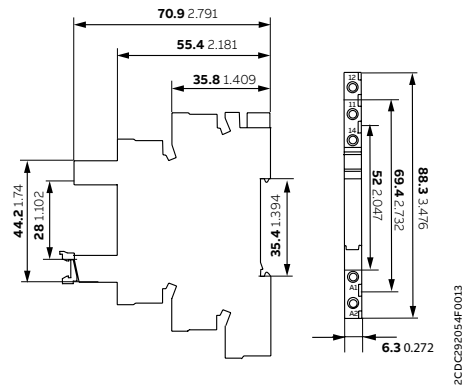
CR-S relay



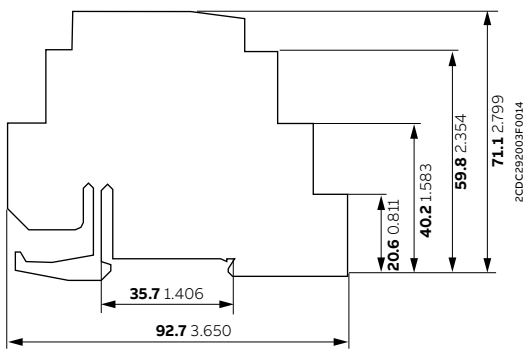
CR-S optocoupler



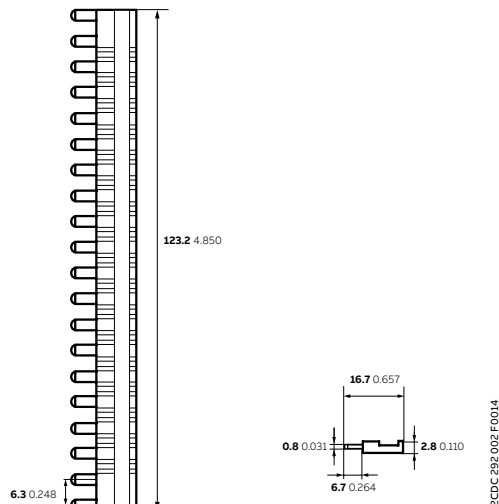
CR-S socket - spring connection



CR-S socket - screw connection



CR-S separator

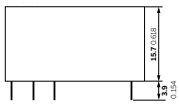
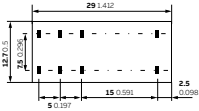


CR-SJB20 - blue, CR-SJB20 - red, CR-SJB20 - black jumper bar

# Pluggable interface relays and optocouplers

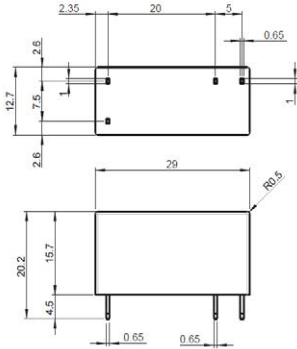
## Technical diagrams

### Dimensional drawings in mm and inches



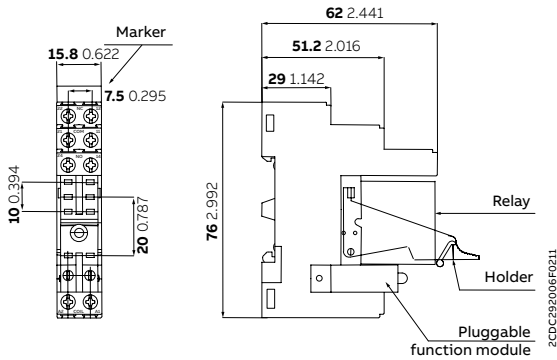
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CR-P relay

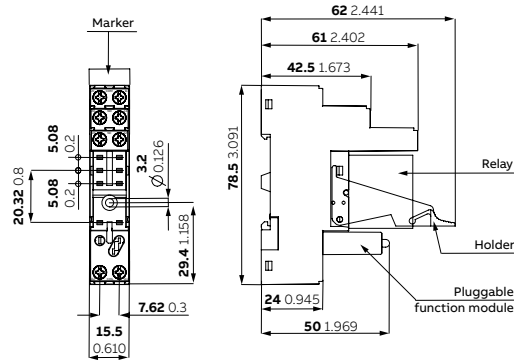


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CR-P optocoupler

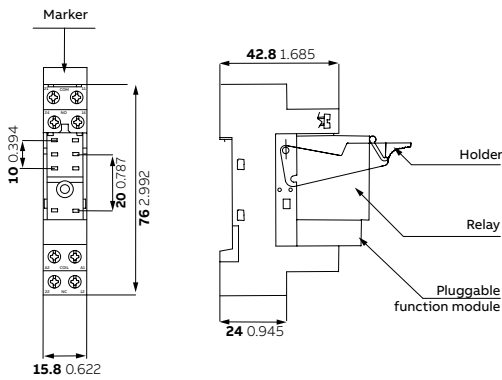


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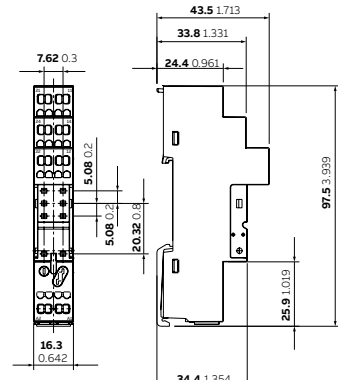
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CR-PLS - screw connection



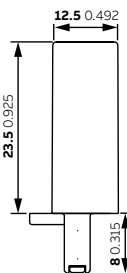
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CR-PSS - screw connection

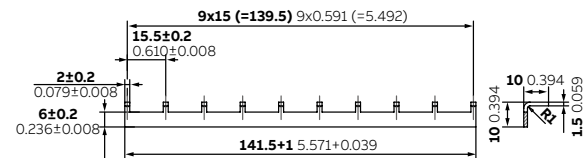


2CDC292010F0011

CR-PLC - spring connection



CR- P/Mxx function module



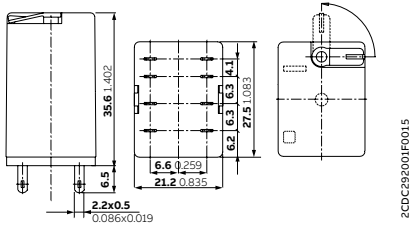
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CR-PJ jumper bar

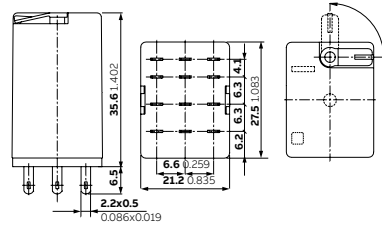
# Pluggable interface relays and optocouplers

## Technical diagrams

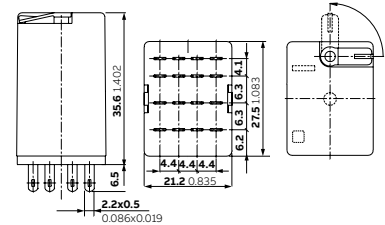
### Dimensional drawings in mm and inches



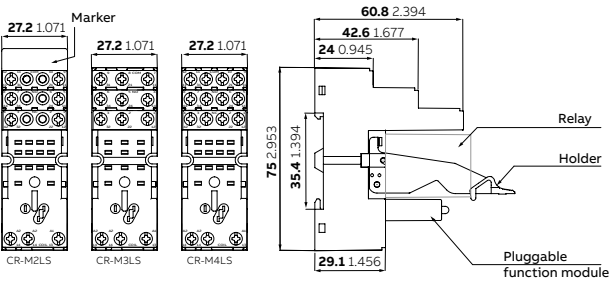
CR-M relay with 2 c/o contacts



CR-M relay with 3 c/o contacts

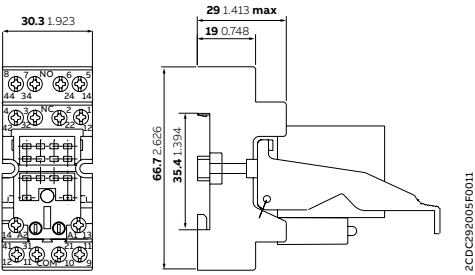


CR-M relay with 4 c/o contacts



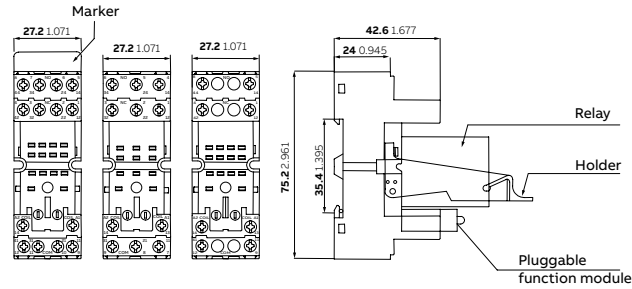
CR-M2LS(H) - CR-M3LS(H) - CR-M4LS - screw connection

2CDC292003F0011



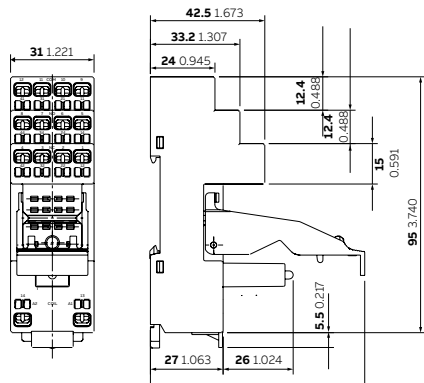
CR-MxSF - screw connection

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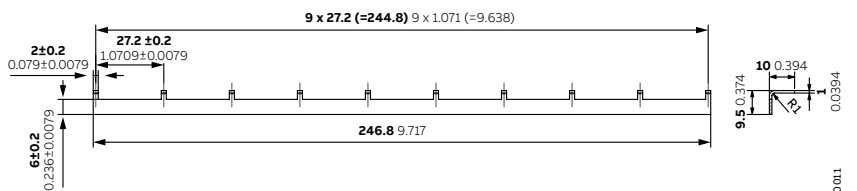


CR-M2SS - CR-M3SS - CR-M4SS - screw connection

2CDC292004F0011



CR-M4LC - spring connection



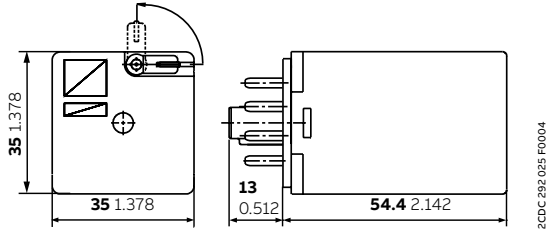
CR-MJ jumper bar

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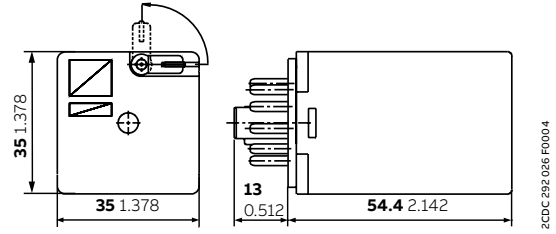
# Pluggable interface relays and optocouplers

## Technical diagrams

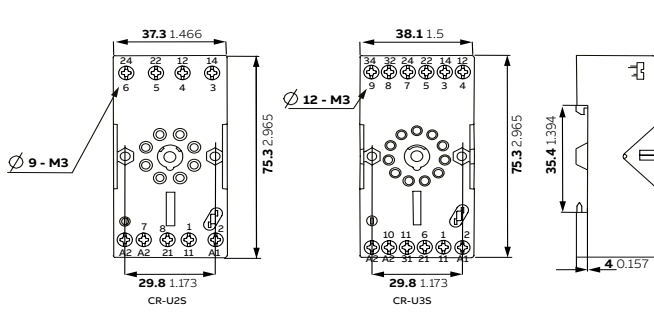
### Dimensional drawings in mm and inches



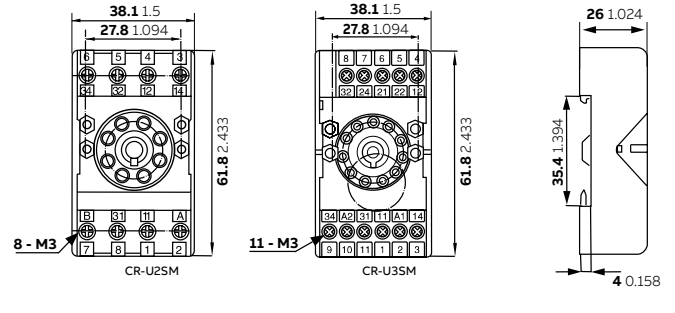
CR-U relay with 2 c/o contacts



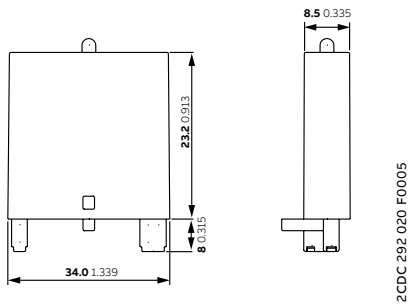
CR-U relay with 3 c/o contacts



CR-U25 - CR-U35 - screw connection



CR-U25M - CR-U35M - screw connection



CR-Uxx function module





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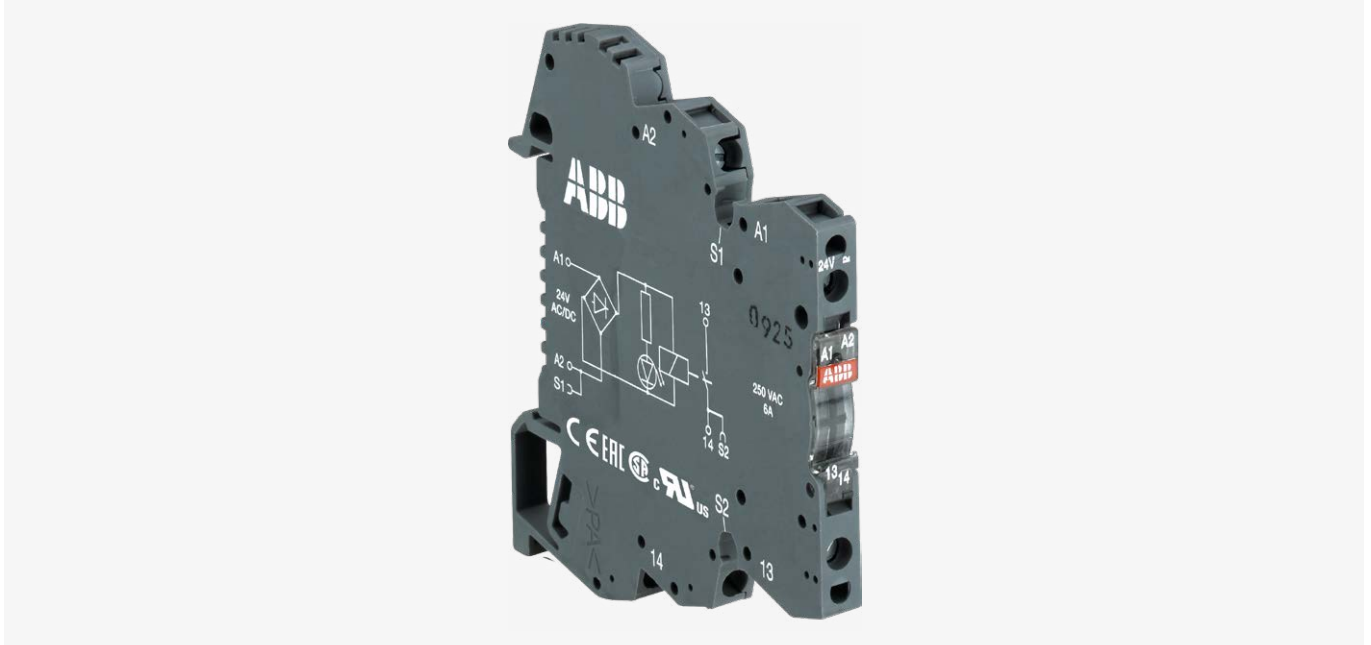
# Boxed interface relays and optocouplers R600 range

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94	Selection table
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# Boxed interface relays and optocouplers R600 range

## Overview

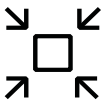


ABB's R600 range may be used in applications where electrical isolation, amplification and signal matching are required. The slim, compact design, incorporated with the variety of terminal connections available allow for the optimization of space within a control panel. This broad portfolio allows for the flexibility of choice and includes both electromagnetic relays and optocouplers.



**Continuous operation**

The ABB boxed interface relays portfolio incorporates a large assortment of non-pluggable relays. It includes both electro-mechanical relays and optocouplers. The R600 Optocouplers allow for continuous operation without any mechanical wear-and-tear.



**Space saving**

The 6 mm slim housing of the R600 boxed interface relays provides the possibility of space saving within control cabinets. The 75 mm depth of these relays allows for the use in compact cabinets.

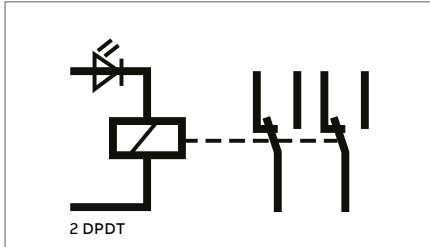


**Global availability**

The ABB boxed interface relays are approved for a large variety of applications and adhere to highest levels of global approvals (UL, CSA, VDE, CCC).

# Boxed interface relays and optocouplers R600 range

## Overview



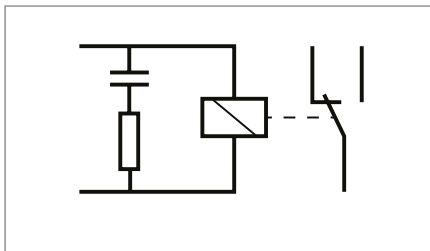
### Complete product line

1 n/o, 1 n/c, 1 c/o, 2 c/o output configuration. Standard contact material for switching high current signals as well as gold-plated contacts for reliable switching of low current signals.



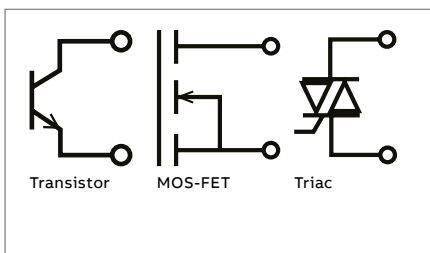
### Marine certification

The R600 range offers the LR approval, which allows usage of the boxed interface relays and optocouplers in many applications around the marine segment. The performance of the R600 range has been proven by successfully passing tests required for operating under harsh conditions.



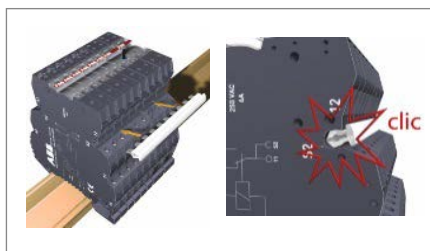
### Safe operation

High resistance to vibration and shock thanks to the relay soldered inside of the housing. Wrong relay replacement or relay lose not possible. Devices with immunity to leakage currents.



### Longevity

Optocoupler with transistor, MOS-FET and Triac output ensure a longer lifetime, higher reliability and quiet operation.



### Easy to mount

The R600 interface relays and optocouplers are easy to mount by snapping onto a DIN-rail according to IEC/EN 60715. Time saving wiring thanks to a jumper bar.





## Boxed interface relays R600 range

### Ordering details



R600 - 6 mm

The R600 range comprises of boxed interface relays and optocouplers. In this range, the relay is soldered into device housing, fulfilling the highest vibration requirements. This compact range of relays are 6 mm wide and provide the possibility of switching AC and DC circuits with the same relay. All the sockets in this range are equipped with an indicator LED and available with screw or spring terminals.

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

Rated control supply voltage	Connection type	Particularities	Type	Order code	Pkg qty	Weight (1 pc.) kg (lb)
24 V AC/DC	screw	RC circuit parallel to output contact	RB101R-24VUC	1SNA645019R0400	5	0.04 (0.088)
	spring		RBR101R-24VUC	1SNA645519R0600		

#### Ordering details - 1 n/o contact: 250 V AC, 10 mA - 6 A, width 6 mm

Rated control supply voltage	Connection type	Particularities	Type	Order code	Pkg qty	Weight (1 pc.) kg (lb)
24 V AC/DC	screw		RB111-24VUC	1SNA645014R2700	10	0.02 (0.044)
115 V AC/DC	screw		RB111-115VUC	1SNA645016R2100		
230 V AC/DC	screw		RB111-230VUC	1SNA645017R2200		
24 V AC/DC	spring		RBR111-24VUC	1SNA645514R2100		

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

Rated control supply voltage	Connection type	Particularities	Type	Order code	Pkg qty	Weight (1 pc.) kg (lb)
24 V AC/DC	screw	RC circuit parallel to output contact	RB111R-24VUC	1SNA645018R0300	5	0.04 (0.088)
	spring		RBR111R-24VUC	1SNA645518R0500		

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

Rated control supply voltage	Connection type	Particularities	Type	Order code	Pkg qty	Weight (1 pc.) kg (lb)
5 V DC	screw	A1-A2 polarized	RB121P-5VDC	1SNA645034R2300	10	0.02 (0.044)
12 V DC	screw	A1-A2 polarized	RB121P-12VDC	1SNA645035R2400		
12 V DC	screw		RB121-12VDC	1SNA645073R0000		
24 V DC	screw		RB121-24VDC	1SNA645071R0000		
24 V AC/DC	screw		RB121-24VUC	1SNA645001R0300		
48-60 V AC/DC	screw		RB121-48-60VUC	1SNA645002R0400		
115 V AC/DC	screw		RB121-115VUC	1SNA645003R0500		
230 V AC/DC	screw		RB121-230VUC	1SNA645004R0400		
5 V DC	spring	A1-A2 polarized	RBR121P-5VDC	1SNA645534R2500		
12 V DC	spring	A1-A2 polarized	RBR121P-12VDC	1SNA645535R2600		
24 V DC	spring		RBR121-24VDC	1SNA645571R0000		
24 V AC/DC	spring		RBR121-24VUC	1SNA645501R0500		
48-60 V AC/DC	spring		RBR121-48-60VUC	1SNA645502R0600		
115 V AC/DC	spring		RBR121-115VUC	1SNA645503R0700		
230 V AC/DC	spring		RBR121-230VUC	1SNA645504R0000		

## Boxed interface relays R600 range

### Ordering details

#### Ordering details - 1 c/o (SPDT) contact: 250 V AC, 3 mA - 6 A, gold-plated contacts, width 6 mm

Rated control supply voltage	Connection type	Particularities	Type	Order code	Pkg qty	Weight (1 pc.) kg (lb)
5 V DC	screw	A1-A2 polarized	RB121PG-5VDC	1SNA645036R2500	10	0.02 (0.044)
12 V DC	screw		RB121G-12VDC	1SNA645075R0000		
24 V DC	screw		RB121G-24VDC	1SNA645072R0000		
24 V AC/DC	screw		RB121G-24VUC	1SNA645005R0700		
48-60 V AC/DC	screw		RB121G-48-60VUC	1SNA645006R0000		
115 V AC/DC	screw		RB121G-115VUC	1SNA645007R0100		
230 V AC/DC	screw		RB121G-230VUC	1SNA645008R1200		
24 V DC	spring		RBR121G-24VDC	1SNA645572R0000		
24 V AC/DC	spring		RBR121G-24VUC	1SNA645505R0100		
48-60 V AC/DC	spring		RBR121G-48-60VUC	1SNA645506R0200		
115 V AC/DC	spring		RBR121G-115VUC	1SNA645507R0300		
230 V AC/DC	spring		RBR121G-230VUC	1SNA645508R1400		

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

Rated control supply voltage	Connection type	Particularities	Type	Order code	Pkg qty	Weight (1 pc.) kg (lb)
60-230 V AC/DC	screw		RB121-60-230VUC	1SNA645020R0100	5	0.04 (0.088)
115 V AC/DC	screw	Leakage current protection, RC circuit parallel to input	RB121R-115VUC	1SNA645046R0700		
230 V AC/DC	screw		RB121R-230VUC	1SNA645011R2400		
60-230 V AC/DC	spring		RBR121-60-230VUC	1SNA645520R0300	5	0.04 (0.088)
230 V AC/DC	spring	Leakage current protection, RC circuit parallel to input	RBR121R-230VUC	1SNA645511R2600		



R600 - 12 mm

2CDC29H 013 50013

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

Rated control supply voltage	Connection type	Type	Order code	Pkg qty	Weight (1 pc.) kg (lb)
24 V AC/DC	screw	RB122G-24VUC	1SNA645012R2500	5	0.04 (0.088)
48-60 V AC/DC	screw	RB122G-48-60VUC	1SNA645040R1500		
115 V AC/DC	screw	RB122G-115VUC	1SNA645041R0200		
230 V AC/DC	screw	RB122G-230VUC	1SNA645013R2600		
24 V AC/DC	spring	RBR122G-24VUC	1SNA645512R2700		
48-60 V AC/DC	spring	RBR122G-48-60VUC	1SNA645540R1700		
115 V AC/DC	spring	RBR122G-115VUC	1SNA645541R0400		
230 V AC/DC	spring	RBR122G-230VUC	1SNA645513R2000		

#### Ordering details - Accessories



Description	Type	Order code	Pkg qty	Weight (1 pc.) kg (lb)
Jumper bar, 10 poles * (replacement of BJ612-10 - 1SNA290488R0100)	RB-JB10	1SVR406570R0000	10	0.05 (0.11)
Jumper bar, 20 poles * (replacement of BJ612-20 - 1SNA206754R0000)	RB-JB20	1SVR406580R0000		0.10 (0.22)
Separator end section	SC612	1SNA290474R0200		0.05 (0.11)

\* - Before the first and after the last jumpered R600 relay, a separator end section shall be used.

- The sum of the current for jumpered devices shall not exceed 6 A on 6 mm devices and 8 A on 12 mm devices.

## Boxed interface relays R600 range

### Technical data

		RB(R)101R-		RB(R)111R-	
		24 V UC		24 V UC	
<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	at 20 °C	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 $U_e$		250 V AC			
Minimum switching voltage		5 V			
Maximum switching voltage		250 V AC			
Minimum switching current		60 mA			
Rated free air thermal current $I_{th}$		6 A			
Rated operational current $I_e$	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) 110 V	0.2 A			
	DC-13 (inductive) 220 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		300 mW			
Mechanical lifetime		1 x 10 <sup>7</sup> switching cycles			
Electrical lifetime	at AC-15	1 x 10 <sup>5</sup> switching cycles			
Max. fuse rating to achieve short-circuit protection		6 A fast			
Response time		5 ms			
Release time		8 ms			
<b>RB(R)111-</b>					
		24 V UC		115 V UC	
				230 V UC	
<b>Input circuit</b>					
Rated control supply voltage $U_s$		24 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	0.46 W	0.8 W	
Typical current		10 mA	4 mA	3.5 mA	
Drop-out voltage	at 20 °C	4.5 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 $U_e$		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			

## Boxed interface relays R600 range

### Technical data

		RB(R)111-		
		24 V UC	115 V UC	230 V UC
Rated operational current $I_e$	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) 110 V	0.2 A		
	DC-13 (inductive) 220 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		300 mW		
Mechanical lifetime		1 x 10 <sup>7</sup> switching cycles		
Electrical lifetime		at AC-15 1 x 10 <sup>5</sup> switching cycles		
Max. fuse rating to achieve short-circuit protection		6 A fast		
Response time		5 ms	6 ms	7 ms
Release time		8 ms	15 ms	15 ms

		RB(R)121(P)(G)-								
		5 V DC	12 V DC	24 V DC	24 V UC	48-60 V UC		115 V UC	230 V UC	
<b>Input circuit</b>										
Rated control supply voltage $U_s$		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	
Rated control supply voltage		DC -15 %, +20 %							-15 %, +10 %	
$U_s$ tolerance		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		at 20 °C 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 $U_e$		250 V AC								
Minimum switching voltage		5 V / gold-plated contacts: 5 V								
Maximum switching voltage		250 V AC								
Minimum switching current		60 mA / gold-plated contacts: 10 mA								
Rated free air thermal current $I_{th}$		6 A								
Rated operational current $I_e$	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) 110 V	0.2 A								
	DC-13 (inductive) 220 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		300 mW / gold-plated contacts: 50 mW								
Mechanical lifetime		1 x 10 <sup>7</sup> switching cycles								
Electrical lifetime		at AC-15 1 x 10 <sup>5</sup> switching cycles								
Max. fuse rating to achieve short-circuit protection		6 A fast								
Response time		5 ms	5 ms	5 ms	5 ms	5 ms	6 ms	7 ms	7 ms	
Release time		8 ms	8 ms	8 ms	8 ms	8 ms	15 ms	16 ms	16 ms	

## Boxed interface relays R600 range

### Technical data

		RB(R)121R-	
		115 V UC	230 V UC
<b>Input circuit</b>			
Rated control supply voltage $U_s$		115 V AC/DC	230 V AC/DC
Rated control supply voltage $U_s$ tolerance	DC	-20%, +15%	-10%, +15%
	AC	-/+ 10 %	
Rated frequency		50/60 Hz	
Typical power consumption		2 W	2.8 W
Typical current		18 mA	12 mA
Drop-out voltage	at 20 °C	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 $U_e$		250 V AC	
Minimum switching voltage		5 V	
Maximum switching voltage		250 V AC	
Minimum switching current		60 mA	
Rated free air thermal current $I_{th}$		6 A	
Rated operational current $I_e$	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) 110 V	0.2 A	
	DC-13 (inductive) 220 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		300 mW	
Mechanical lifetime		1 x 10 <sup>7</sup> switching cycles	
Electrical lifetime	at AC-15	1 x 10 <sup>5</sup> switching cycles	
Max. fuse rating to achieve short-circuit protection		6 A fast	
Response time		6 ms	7 ms
Release time		15 ms	16 ms

## Boxed interface relays R600 range

### Technical data

		RB(R)122G				
		24 V UC	48-60 V UC		115 V UC	230 V UC
<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	at 20 °C	5.4 V	8.8 V	8.8 V 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 $U_e$		250 V				
Minimum switching voltage		5 V / gold-plated contacts: 5 V				
Maximum switching voltage		250 V				
Minimum switching current		60 mA / gold-plated contacts: 10 mA				
Rated free air thermal current $I_{th}$		8 A				
Rated operational current $I_e$	AC-12 (resistive) 230 V	8 A				
	AC-15 (inductive) 230 V	1.5 A				
	DC-12 (resistive) 24 V	8 A				
	DC-13 (inductive) 24 V	1 A				
	DC-13 (inductive) 110 V	0.2 A				
	DC-13 (inductive) 220 V	0.1 A				
Minimum switching power		300 mW / gold-plated contacts: 50 mW				
Mechanical lifetime		2 x 10 <sup>7</sup> switching cycles				
Electrical lifetime	at AC-15	1 x 10 <sup>5</sup> switching cycles				
Max. fuse rating to achieve short-circuit protection		10 A fast				
Response time		6 ms	10 ms	10 ms	6 ms	6 ms
Release time		10 ms	14 ms	14 ms	15 ms	15 ms

### General technical data - Interface relays

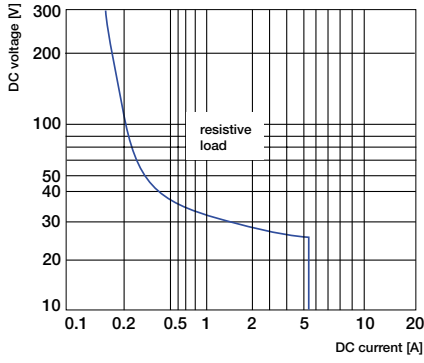
		RB	RBR
<b>General data</b>			
Material of housing		UL 94 V0	
Mounting		DIN rail	
Degree of protection	housing / terminals	IP20 NEMA1	
<b>Electrical connection</b>			
Connecting capacity	fine-strand	0.22-2.5 mm <sup>2</sup> (24-14 AWG)	
	rigid	0.2-4 mm <sup>2</sup> (24-12 AWG)	0.2-2.5 mm <sup>2</sup> (24-14 AWG)
Stripping length		9 mm (0.354 in)	
Tightening torque		0.4-0.6 Nm (3.5-5.3 lb.in)	n/a
<b>Environmental data</b>			
Ambient temperature ranges	storage	-40...+80 °C (-40...+176 °F)	
	operation	-20...+70 °C (-4...+158 °F) <sup>1)</sup>	
<b>Isolation data</b>			
Rated insulation voltage $U_i$		250 V	
Rated impulse withstand voltage $U_{imp}$	input / output	4 kV (1.2/50 μs)	
	shock coil / output	4 kV (1.2/50 μs)	
	output / output	1 kV (1.2/50 μs)	
Overvoltage category		III	
Pollution degree		2	
<b>Standards/Directives</b>			
Standards		IEC/EN 60947-5-1	
Low Voltage Directive		2014/35/EC	
RoHS Directive		2011/65/EC	

<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 max. operation temperature is 15 °C lower.

# Boxed interface relays R600 range

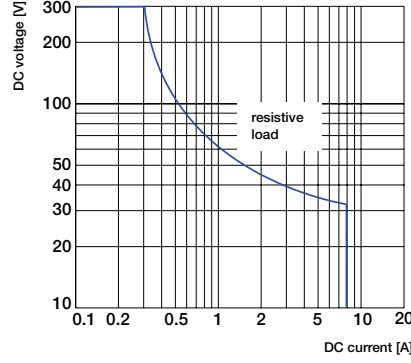
## Technical diagrams

### Load limit curves



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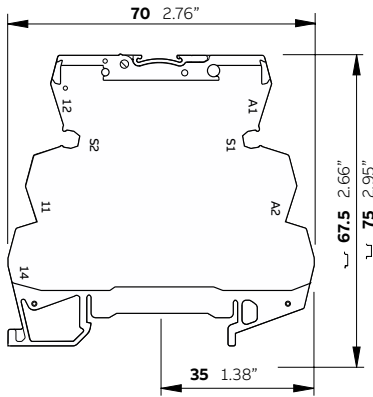
Versions with 1 n/o, 1 n/c or 1 c/o contact



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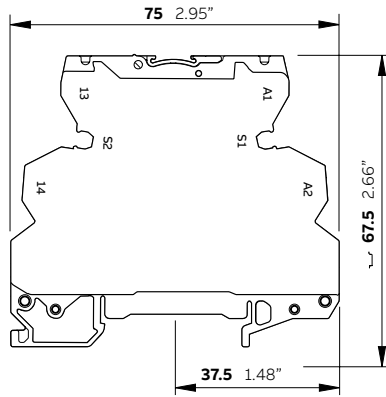
Versions with 2 c/o contacts

### Dimensional drawings in mm and inches



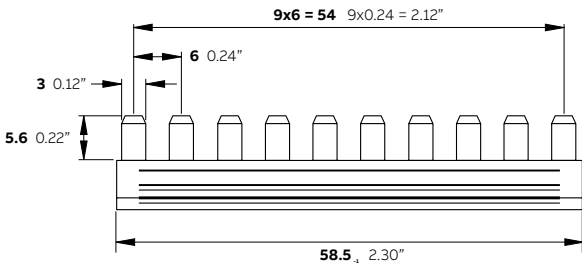
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R600 - screw connection

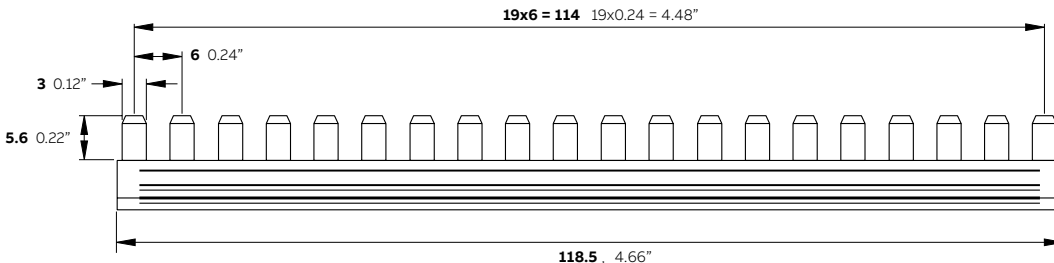
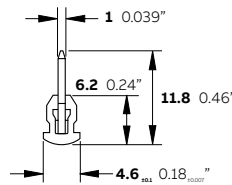


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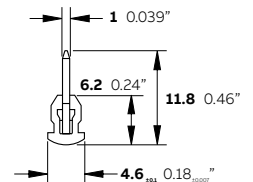
R600 - spring connection



RB-JB10



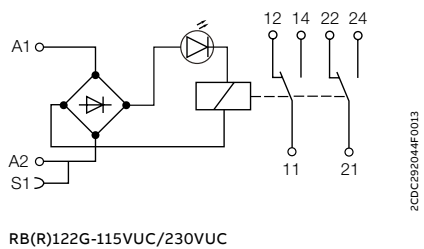
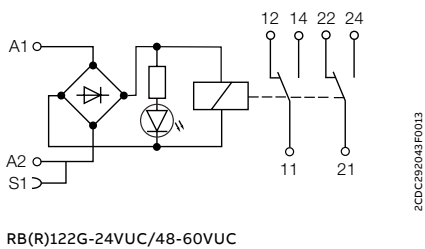
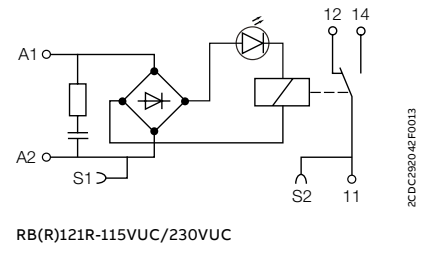
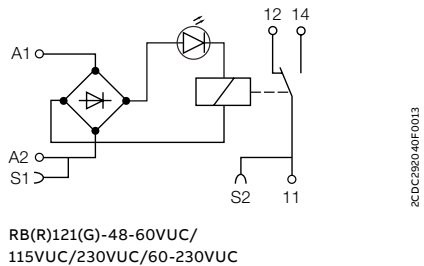
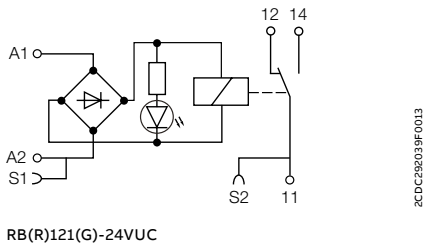
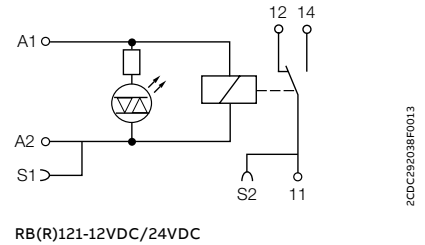
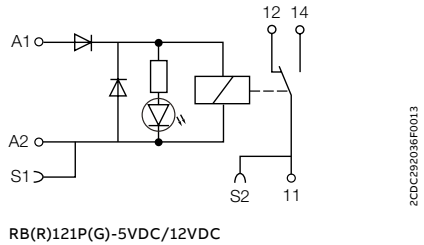
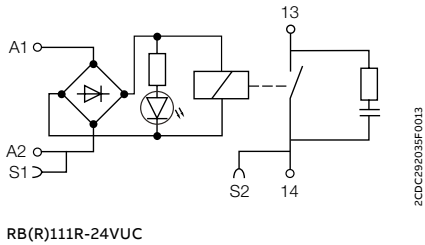
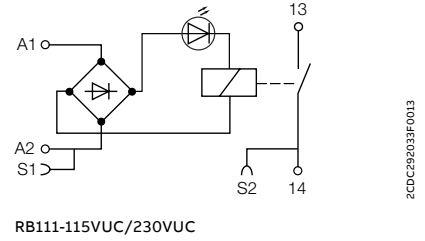
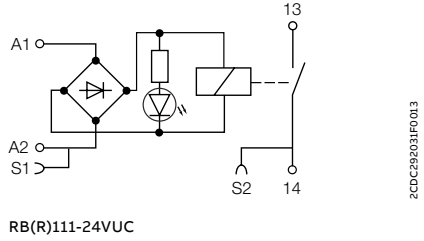
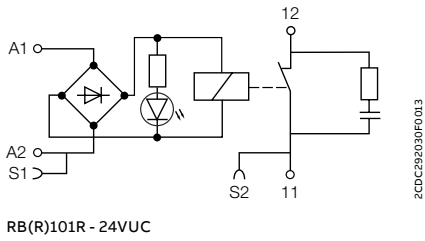
RB-JB20



# Boxed interface relays R600 range

## Technical diagrams

### Connection diagrams





## Boxed optocouplers R600 range

### Ordering details



R600 - 6 mm

#### Ordering details - Transistor output, 58 V DC, 100 mA, width 6 mm

Rated control supply voltage	Connection type	Type	Order code	Pkg qty	Weight (1 pc.) kg (lb)
5 - 12 V DC	screw	OBIC0100-5-12VDC	1SNA645047R0000	10	0.02 (0.044)
24 V DC	screw	OBIC0100-24VDC	1SNA645021R2600		
48 - 60 V AC/DC	screw	OBIC0100-48-60VUC	1SNA645049R1200		
115 - 230 V AC/DC	screw	OBIC0100-115-230	1SNA645022R2700		
5 - 12 V DC	spring	OBRIC0100-5-12VDC	1SNA645547R0200	10	0.02 (0.044)
24 V DC	spring	OBRIC0100-24VDC	1SNA645521R2000		
48 - 60 V AC/DC	spring	OBRIC0100-48-60VUC	1SNA645549R1400		
115 - 230 V AC/DC	spring	OBRIC0100-115-230	1SNA645522R2100		

#### Ordering details - MOS-FET output, 58 V DC, 2 A, width 6 mm

Rated control supply voltage	Connection type	Type	Order code	Pkg qty	Weight (1 pc.) kg (lb)
5 - 12 V DC	screw	OBOC2000-5-12VDC	1SNA645050R1700	10	0.02 (0.044)
24 V DC	screw	OBOC2000-24VDC	1SNA645051R0400		
24 V AC/DC	screw	OBOC2000-24VUC	1SNA645025R2200		
48 - 60 V AC/DC	screw	OBOC2000-48-60VUC	1SNA645053R0600		
115 V AC/DC	screw	OBOC2000-115VUC	1SNA645054R0700		
230 V AC/DC	screw	OBOC2000-230VUC	1SNA645026R2300	10	0.02 (0.044)
5 - 12 V DC	spring	OBROC2000-5-12VDC	1SNA645550R1100		
24 V DC	spring	OBROC2000-24VDC	1SNA645551R0600		
24 V AC/DC	spring	OBROC2000-24VUC	1SNA645525R2400		
48 - 60 V AC/DC	spring	OBROC2000-48-60VUC	1SNA645553R0000		
230 V AC/DC	spring	OBROC2000-230VUC	1SNA645526R2500		

#### Ordering details - MOS-FET output, 58 V DC, 5 A, width 6 mm

Rated control supply voltage	Connection type	Type	Order code	Pkg qty	Weight (1 pc.) kg (lb)
24 V DC	screw	OBOC5000-24VDC	1SNA645024R2100	10	0.02 (0.044)
115 V AC/DC	screw	OBOC5000-115VUC	1SNA645058R1300		
24 V DC	spring	OBROC5000-24VDC	1SNA645524R2300	10	0.02 (0.044)
230 V AC/DC	spring	OBROC5000-230VUC	1SNA645559R1600		

#### Ordering details - Triac output, 400 V AC, 1 A, width 6 mm

Rated control supply voltage	Connection type	Type	Order code	Pkg qty	Weight (1 pc.) kg (lb)
24 V DC	screw	OBOA1000-24VDC	1SNA645027R2400	10	0.03 (0.066)
115 V AC/DC	screw	OBOA1000-115VUC	1SNA645062R0700		
230 V AC/DC	screw	OBOA1000-230VUC	1SNA645028R0500		
24 V DC	spring	OBROA1000-24VDC	1SNA645527R2600	10	

## Boxed optocouplers R600 range

### Ordering details



R600 - 12 mm

#### Ordering details - Triac output, 230 V AC, 2 A, width 12 mm

Rated control supply voltage	Connection type	Type	Order code	Pkg qty	Weight (1 pc.) kg (lb)
24 V DC	screw	OBOA2000-24VDC	1SNA645029R0600	5	0.03
24 V DC	spring	OBROA2000-24VDC	1SNA645529R0000	5	(0.066)

#### Ordering details - Accessories

Description	Type	Order code	Pkg qty	Weight (1 pc.) kg (lb)
Jumper bar, 10 poles * (replacement of BJ612-10 - 1SNA290488R0100)	RB-JB10	1SVR406570R0000	10	0.05 (0.11)
Jumper bar, 20 poles * (replacement of BJ612-20 - 1SNA206754R0000)	RB-JB20	1SVR406580R0000		0.10 (0.22)
Separator end section	SC612	1SNA290474R0200		0.05 (0.11)

- \* - Before the first and after the last jumpered R600 optocoupler, a separator end section shall be used.  
 - The sum of the current for jumpered devices shall not exceed 6 A on 6 mm devices and 8 A on 12 mm devices.

## Boxed optocouplers R600 range

### Technical data

	OB(R)IC0100-...						
	5-12 V DC		24 V DC	48-60 V UC		115-230	
<b>Input circuit</b>							
Control voltage	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	5 mA	9 mA	4 mA	4 mA	5 mA	7 mA (AC) 16 mA (DC)	11.5 mA (AC) 25 mA (DC)
Pull-in voltage	4 V		15 V	25 V		60 V AC / 70 V DC	
Typ. switch-on time	10 µs			5 ms			
Typ. switch-off time	500 µs			20 ms			
Operating frequency	1000 Hz				20 Hz		
Permissible leakage current	0.9 mA		1.0 mA	0.9 mA		1.6 mA	
<b>Output circuit</b>							
	11(13+)- 14						
Kind of output	Transistor						
Rated operational voltage	4.5-58 V DC						
Minimum switching current	1 mA						
Maximum switching current	100 mA						
Leakage current at max. switching voltage	< 50 µA						
Rated operational current $I_e$ (IEC/EN 60947-5-1)	DC-12 (resistive) 58 V		0.1 A				
Residual voltage	typical		1 V				
	maximum		1.3 V				
Max. fuse rating to achieve short-circuit protection	100 mA fast						
<b>Isolation data</b>							
Rated insulation voltage $U_i$	250 V						
Rated impulse withstand voltage $U_{imp}$	2.5 kV (1.2/50 µs)						
Overvoltage category	II						
Pollution degree	2						

	OB(R)OC2000-...							
	5-12 V DC		24 V DC	24 V UC	48-60 V UC		115 V UC	230 V UC
<b>Input circuit</b>								
Control voltage	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	5.4 mA	6.3 mA	4 mA	5.1 mA	4.2 mA	4 mA
Pull-in voltage	4 V		12 V	15 V	27 V		50 V	80 V
Typ. switch-on time	15 µs		30 µs	1 ms	5 ms		500 µs	1 ms
Typ. switch-off time	250 µs		400 µs	7 ms	20 ms		10 ms	15 ms
Operating frequency	2000 Hz		1000 Hz	60 Hz	20 Hz		50 Hz	35 Hz
Permissible leakage current	1 mA		0.8 mA	0.9 mA	1 mA		0.3 mA	
<b>Output circuit</b>								
	11(13+)- 14							
Kind of output	MOS-FET							
Rated operational voltage	4.5-58 V DC							
Minimum switching current	1 mA							
Maximum switching current	2 A							
Leakage current at max. switching voltage	< 50 µA							
Rated operational current $I_e$	DC-12 (resistive) 58 V		2 A					
Residual voltage	typical		0.1 V					
	maximum		0.5 V					
Max. fuse rating to achieve short-circuit protection	2 A ultra-fast							
<b>Isolation data</b>								
Rated insulation voltage $U_i$	250 V							
Rated impulse withstand voltage $U_{imp}$	2.5 kV (1.2/50 µs)							
Overvoltage category	II							
Pollution degree	2							

## Boxed optocouplers R600 range

### Technical data

		OB(R)OC5000-...		
		24 V DC	115 V UC	230 V UC
<b>Input circuit</b>				
Control voltage		24 V DC	115 V AC/DC	230 V AC/DC
Frequency		-	50/60 Hz	
Input current		5.4 mA	4.2 mA	4 mA
Pull-in voltage		12 V	50 V	80 V
Typ. switch-on time		30 $\mu$ s	500 $\mu$ s	1 ms
Typ. switch-off time		400 $\mu$ s	10 ms	15 ms
Operating frequency		1000 Hz	50 Hz	35 Hz
Permissible leakage current		0.8 mA	0.3 mA	0.3 mA
<b>Output circuit</b>		11(13+)- 14		
Kind of output		MOS-FET		
Rated operational voltage		4.5-58 V DC		
Minimum switching current		1 mA		
Maximum switching current		5 A		
Leakage current at max. switching voltage		< 50 $\mu$ A		
Rated operational current $I_e$	DC-12 (resistive) 58 V	5 A		
Residual voltage	typical	0.1 V		
	maximum	0.5 V		
Max. fuse rating to achieve short-circuit protection		6 A ultra-fast		
<b>Isolation data</b>				
Rated insulation voltage $U_i$		250 V		
Rated impulse withstand voltage $U_{imp}$		2.5 kV (1.2/50 $\mu$ s)		
Overvoltage category		II		
Pollution degree		2		

		OB(R)OA1000-...			OB(R)OA2000-...
		24 V DC	115 V UC	230 V UC	24 V DC
<b>Input circuit</b>					
Control voltage		24 V DC	115 V AC/DC	230 V AC/DC	24 V DC
Frequency		-	50/60 Hz		-
Input current		3.6 mA	4.15 mA	4.6 mA	3.6 mA
Pull-in voltage		14 V	60 V	135 V	14 V
Typ. switch-on time		150 $\mu$ s	2.2 ms	2.5 ms	150 $\mu$ s
Typ. switch-off time		1 ms	18 ms	25 ms	1 ms
Operating frequency		500 Hz	25 Hz	20 Hz	500 Hz
Permissible leakage current		1 mA			1 mA
<b>Output circuit</b>		11(13+)- 14			
Kind of output		Triac			Triac
Rated operational voltage		24-400 V AC			10-230 V AC
Minimum switching current		25 mA			25 mA
Maximum switching current		1 A			2 A
Leakage current at max. switching voltage		< 500 $\mu$ A			< 500 $\mu$ A
Rated operational current $I_e$	AC-12 (resistive) 400 V	1 A			-
	AC-12 (resistive) 230 V	-			2A
Residual voltage	typical	1 V			1 V
	maximum	1.6 V			1.6 V
Max. fuse rating to achieve short-circuit protection		4 A ultra-fast			4 A ultra-fast
<b>Isolation data</b>					
Rated insulation voltage $U_i$		400 V			230 V
Rated impulse withstand voltage $U_{imp}$		4 kV (1.2/50 $\mu$ s)			4 kV (1.2/50 $\mu$ s)
Overvoltage category		II			II
Pollution degree		2			2

## Boxed optocouplers R600 range

### Technical data

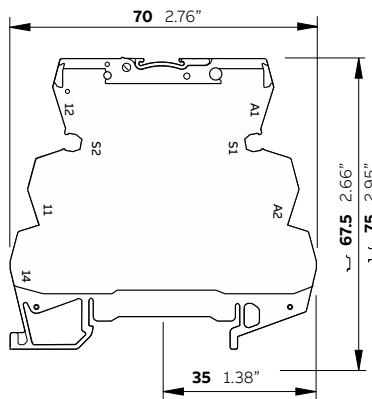
#### General technical data - Optocouplers

		OB	OBR
<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>
Connecting capacity	fine-strand	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)	n/a
<b>Environmental data</b>			
Ambient temperature ranges	storage	-40...+80 °C (-40...+176 °F)	
	operation	-20...+70 °C (-4...+158 °F)	
<b>Standards/Directives</b>			
Standards		IEC/EN 60947-5-1	
Low Voltage Directive		2014/35/EU	
RoHS Directive		2011/65/EU	

# Boxed optocouplers R600 range

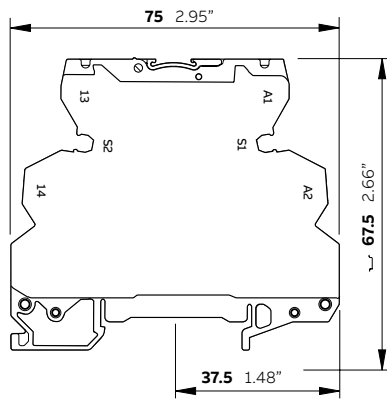
## Technical diagrams

### Dimensional drawings in mm and inches



R600 - screw connection

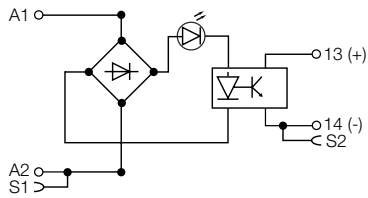
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R600 - spring connection

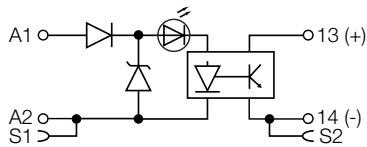
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### Connection diagrams



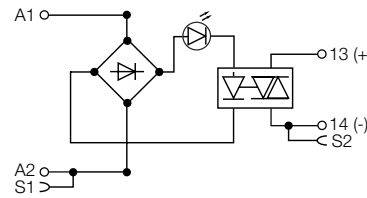
OB(R)OC, OB(R)IC  
except 5-12 V DC versions

2CDC292019F0016



OB(R)IC0100-5-12 V DC  
OB(R)OC2000-5-12 V DC

2CDC292017F0016



OB(R)OA

2CDC292018F0016



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CR-M012AC2L	1SVR405611R0300	40	CR-M048DC2L	1SVR405611R6100	40
CR-M012AC3L	1SVR405612R0300	40	CR-M048DC2LD	1SVR405611R6400	41
CR-M012AC4L	1SVR405613R0300	40	CR-M048DC3	1SVR405612R6000	39
CR-M012DC2	1SVR405611R4000	39	CR-M048DC3L	1SVR405612R6100	40
CR-M012DC2L	1SVR405611R4100	40	CR-M048DC3LD	1SVR405612R6400	41
CR-M012DC2LD	1SVR405611R4400	41	CR-M048DC4	1SVR405613R6000	39
CR-M012DC3	1SVR405612R4000	39	CR-M048DC4L	1SVR405613R6100	40
CR-M012DC3L	1SVR405612R4100	40	CR-M048DC4LD	1SVR405613R6400	41
CR-M012DC3LD	1SVR405612R4400	41	CR-M048DC4LG	1SVR405618R6100	42
CR-M012DC4	1SVR405613R4000	39	CR-M060AC3	1SVR405612R5200	39
CR-M012DC4L	1SVR405613R4100	40	CR-M060DC2	1SVR405611R4200	39
CR-M012DC4LD	1SVR405613R4400	41	CR-M060DC2L	1SVR405611R4300	40
CR-M012DC4LDG	1SVR405618R4400	42	CR-M060DC3	1SVR405612R4200	39
CR-M012DC4LDGSS	1SVR405618R4410	43	CR-M060DC3L	1SVR405612R4300	40
CR-M012DC4LG	1SVR405618R4100	42	CR-M060DC4	1SVR405613R4200	39
CR-M024AC2	1SVR405611R0000	39	CR-M060DC4L	1SVR405613R4300	40
CR-M024AC2L	1SVR405611R0100	40	CR-M060DC4LG	1SVR405618R4300	42
CR-M024AC3	1SVR405612R0000	39	CR-M110AC2	1SVR405611R7000	39
CR-M024AC3L	1SVR405612R0100	40	CR-M110AC2L	1SVR405611R7100	40
CR-M024AC4	1SVR405613R0000	39	CR-M110AC3	1SVR405612R7000	39
CR-M024AC4G	1SVR405618R0000	41	CR-M110AC3L	1SVR405612R7100	40
CR-M024AC4L	1SVR405613R0100	40	CR-M110AC4	1SVR405613R7000	39
CR-M024AC4LG	1SVR405618R0100	42	CR-M110AC4G	1SVR405618R7000	41
CR-M024AC4LS62CV	1SVR405613R0010	43	CR-M110AC4L	1SVR405613R7100	40
CR-M024DC2	1SVR405611R1000	39	CR-M110AC4LG	1SVR405618R7100	42
CR-M024DC2L	1SVR405611R1100	40	CR-M110DC2	1SVR405611R8000	39
CR-M024DC2LD	1SVR405611R1400	41	CR-M110DC2L	1SVR405611R8100	40
CR-M024DC3	1SVR405612R1000	39	CR-M110DC2LD	1SVR405611R8400	41
CR-M024DC3L	1SVR405612R1100	40	CR-M110DC3	1SVR405612R8000	39
CR-M024DC3LD	1SVR405612R1400	41	CR-M110DC3L	1SVR405612R8100	40
CR-M024DC4	1SVR405613R1000	39	CR-M110DC3LD	1SVR405612R8400	41
CR-M024DC4G	1SVR405618R1000	41	CR-M110DC4	1SVR405613R8000	39
CR-M024DC4GLC62CV	1SVR405618R1010	43	CR-M110DC4L	1SVR405613R8100	40
CR-M024DC4GSS42V	1SVR405618R1011	43	CR-M110DC4LD	1SVR405613R8400	41
CR-M024DC4L	1SVR405613R1100	40	CR-M110DC4LG	1SVR405618R8100	42
CR-M024DC4LC42	1SVR405613R1012	43	CR-M120AC2	1SVR405611R2000	39
CR-M024DC4LD	1SVR405614R1100	41	CR-M120AC2L	1SVR405611R2100	40
CR-M024DC4LDG	1SVR405618R1400	42	CR-M120AC3	1SVR405612R2000	39
CR-M024DC4LDGSS	1SVR405618R1410	43	CR-M120AC3L	1SVR405612R2100	40
CR-M024DC4LG	1SVR405618R1100	42	CR-M120AC4	1SVR405613R2000	39
CR-M024DC4LGLC22	1SVR405618R1110	43	CR-M120AC4L	1SVR405613R2100	40
CR-M024DC4LS42V	1SVR405613R1011	43	CR-M120AC4LG	1SVR405618R2100	42
CR-M024DC4SS42V	1SVR405613R1010	43	CR-M125DC2	1SVR405611R8200	39
CR-M048AC2	1SVR405611R5000	39	CR-M125DC2L	1SVR405611R8300	40
CR-M048AC2L	1SVR405611R5100	40	CR-M125DC2LD	1SVR405611R8500	41
CR-M048AC3	1SVR405612R5000	39	CR-M125DC3	1SVR405612R8200	39
CR-M048AC3L	1SVR405612R5100	40	CR-M125DC3L	1SVR405612R8300	40
CR-M048AC4	1SVR405613R5000	39	CR-M125DC3LD	1SVR405612R8500	41
CR-M048AC4L	1SVR405613R5100	40	CR-M125DC4	1SVR405613R8200	39
CR-M048AC4LG	1SVR405618R5100	42	CR-M125DC4L	1SVR405613R8300	40
CR-M048DC2	1SVR405611R6000	39	CR-M125DC4LD	1SVR405613R8500	41

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CR-M220DC2L	1SVR405611R9100	40	CR-P/M 62 C	1SVR405655R0000	47
CR-M220DC2LD	1SVR405611R9400	41	CR-P/M 62 CV	1SVR405655R1000	47
CR-M220DC3	1SVR405612R9000	39	CR-P/M 62 D	1SVR405655R4000	47
CR-M220DC3L	1SVR405612R9100	40	CR-P/M 62 DV	1SVR405655R4100	47
CR-M220DC3LD	1SVR405612R9400	41	CR-P/M 62 E	1SVR405654R4000	46
CR-M220DC4	1SVR405613R9000	39	CR-P/M 62 EV	1SVR405654R4100	46
CR-M220DC4L	1SVR405613R9100	40	CR-P/M 62 V	1SVR405654R1000	46
CR-M220DC4LD	1SVR405613R9400	41	CR-P/M 72	1SVR405656R0000	47
CR-M220DC4LG	1SVR405618R9100	42	CR-P/M 72 A	1SVR405656R1000	47
CR-M230AC2	1SVR405611R3000	39	CR-P/M 82	1SVR405656R2000	47
CR-M230AC2L	1SVR405611R3100	40	CR-P/M 92	1SVR405654R0100	46
CR-M230AC3	1SVR405612R3000	39	CR-P/M 92 C	1SVR405655R0100	47
CR-M230AC3L	1SVR405612R3100	40	CR-P/M 92 CV	1SVR405655R1100	47
CR-M230AC4	1SVR405613R3000	39	CR-P/M 92 V	1SVR405654R1100	46
CR-M230AC4G	1SVR405618R3000	41	CR-P012AC2	1SVR405601R0200	35
CR-M230AC4GSS92CV	1SVR405618R3112	44	CR-P012DC1	1SVR405600R4000	35
CR-M230AC4L	1SVR405613R3100	40	CR-P012DC1SS42V	1SVR405600R4010	37
CR-M230AC4LC92	1SVR405613R3012	44	CR-P012DC2	1SVR405601R4000	35
CR-M230AC4LG	1SVR405618R3100	42	CR-P012DC2SS42V	1SVR405601R4010	38
CR-M230AC4LGLC	1SVR405618R3110	44	CR-P024AC1	1SVR405600R0000	35
CR-M230AC4LGSS	1SVR405618R3111	44	CR-P024AC1SS62CV	1SVR405600R0010	37
CR-M230AC4LS92CV	1SVR405613R3011	44	CR-P024AC2	1SVR405601R0000	35
CR-M230AC4SS92CV	1SVR405613R3110	44	CR-P024AC2G	1SVR405606R0000	35
CR-M2LC	1SVR405651R1200	45	CR-P024AC2SS62CV	1SVR405601R0010	38
CR-M2LS	1SVR405651R1100	45	CR-P024DC1	1SVR405600R1000	35
CR-M2LSH	1SVR405651R4100	45	CR-P024DC1LC42V	1SVR405600R1011	37
CR-M2SF	1SVR405651R1300	45	CR-P024DC1LC62C	1SVR405600R1013	37
CR-M2SS	1SVR405651R1000	45	CR-P024DC1SS42V	1SVR405600R1010	37
CR-M3LS	1SVR405651R2100	45	CR-P024DC2	1SVR405601R1000	35
CR-M3LSH	1SVR405651R5100	45	CR-P024DC2G	1SVR405606R1000	35
CR-M3SS	1SVR405651R2000	45	CR-P024DC2GLC42V	1SVR405606R1010	38
CR-M4LC	1SVR405651R3200	45	CR-P024DC2GLC62C	1SVR405606R1013	38
CR-M4LS	1SVR405651R3100	45	CR-P024DC2GLC62CV	1SVR405606R1011	38
CR-M4SF	1SVR405651R3300	45	CR-P024DC2LC42	1SVR405601R1012	38
CR-M4SS	1SVR405651R3000	45	CR-P024DC2LS42	1SVR405601R1013	38
CR-MH	1SVR405659R1000	45	CR-P024DC2LS42V	1SVR405601R1011	38
CR-MH1	1SVR405659R1100	45	CR-P024DC2SS42V	1SVR405601R1010	38
CR-MJ	1SVR405658R6000	45	CR-P024MOS1	1SVR405610R4060	35
CR-MM	1SVR405658R1000	45	CR-P024TRI1	1SVR405610R4070	35
CR-MP	1SVR405658R2000	45	CR-P048AC1	1SVR405600R5000	35
CR-P/M 22	1SVR405651R0000	46	CR-P048AC2	1SVR405601R5000	35
CR-P/M 42	1SVR405652R0000	46	CR-P048DC1	1SVR405600R6000	35
CR-P/M 42 B	1SVR405652R4000	46	CR-P048DC2	1SVR405601R6000	35
CR-P/M 42 BV	1SVR405652R4100	46	CR-P110AC1	1SVR405600R7000	35
CR-P/M 42 C	1SVR405652R9000	46	CR-P110AC2	1SVR405601R7000	35
CR-P/M 42 CV	1SVR405652R9100	46	CR-P110AC2G	1SVR405606R7000	35
CR-P/M 42 V	1SVR405652R1000	46	CR-P110DC1	1SVR405600R8000	35
CR-P/M 52B	1SVR405653R0000	46	CR-P110DC1SS42CV	1SVR405600R8010	37
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CR-P120AC1SS92CV	1SVR405600R2010	37	CR-S110VADC1CRZ	1SVR405541R6210	31
CR-P120AC2	1SVR405601R2000	35	CR-S220/240VADC1SS	1SVR405521R7100	32
CR-P120AC2SS92CV	1SVR405601R2010	38	CR-S220/240VADC1SZ	1SVR405521R7200	32
CR-P230AC1	1SVR405600R3000	35	CR-S230VADC1CRGS	1SVR405541R7120	31
CR-P230AC1L92CV	1SVR405600R3010	37	CR-S230VADC1CRGZ	1SVR405541R7220	31
CR-P230AC1LS	1SVR405600R3011	37	CR-S230VADC1CRS	1SVR405541R7110	31
CR-P230AC1SS92CV	1SVR405600R3110	37	CR-S230VADC1CRZ	1SVR405541R7210	31
CR-P230AC2	1SVR405601R3000	35	CR-SJB20-BLACK	1SVR405598R0900	32
CR-P230AC2G	1SVR405606R3000	35	CR-SJB20-BLUE	1SVR405598R0700	32
CR-P230AC2GLC92	1SVR405606R3013	38	CR-SJB20-RED	1SVR405598R0800	32
CR-P230AC2GLC92C	1SVR405606R3012	38	CR-SSEP	1SVR405599R0000	32
CR-P230AC2GLC92CV	1SVR405606R3010	38	CR-U 21	1SVR405661R0000	50
CR-P230AC2LC92	1SVR405601R3012	38	CR-U 41	1SVR405662R0000	50
CR-P230AC2LS92CV	1SVR405601R3011	38	CR-U 41B	1SVR405662R4000	50
CR-P230AC2SS92CV	1SVR405601R3110	38	CR-U 41BV	1SVR405662R4100	50
CR-PH	1SVR405659R0000	36	CR-U 41C	1SVR405662R9000	50
CR-PH1	1SVR405659R0100	36	CR-U 41CV	1SVR405662R9100	50
CR-PJ	1SVR405658R5000	36	CR-U 41V	1SVR405662R1000	50
CR-PLC	1SVR405650R0200	36	CR-U 51B	1SVR405663R0000	50
CR-PLS	1SVR405650R0000	36	CR-U 51C	1SVR405663R1000	50
CR-PLSX	1SVR405650R0100	36	CR-U 51D	1SVR405663R4000	50
CR-PM	1SVR405658R0000	36	CR-U 61	1SVR405664R0000	50
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CR-S005VDC1RG	1SVR405501R1020	31	CR-U 61D	1SVR405665R4000	51
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CR-S006/024VDC1SZ	1SVR405521R1200	32	CR-U 61E	1SVR405664R4000	50
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CR-S012/024VADC1SZ	1SVR405521R3200	32	CR-U 61V	1SVR405664R1000	50
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CR-S012VDC1RG	1SVR405501R2020	31	CR-U 71A	1SVR405666R1000	51
CR-S024VADC1CRGS	1SVR405541R3120	31	CR-U 81	1SVR405666R2000	51
CR-S024VADC1CRGZ	1SVR405541R3220	31	CR-U 91	1SVR405664R0100	50
CR-S024VADC1CRS	1SVR405541R3110	31	CR-U 91C	1SVR405665R0100	51
CR-S024VADC1CRZ	1SVR405541R3210	31	CR-U 91CV	1SVR405665R1100	51
CR-S024VDC1MOS	1SVR405510R3060	31	CR-U 91V	1SVR405664R1100	50
CR-S024VDC1R	1SVR405501R3010	31	CR-U T	1SVR405667R0000	51
CR-S024VDC1RG	1SVR405501R3020	31	CR-U012AC2L	1SVR405621R0300	48
CR-S024VDC1TRA	1SVR405510R3050	31	CR-U012AC3L	1SVR405622R0300	49
CR-S024VDC1TRI	1SVR405510R3070	31	CR-U012DC2	1SVR405621R4000	48
CR-S048/060VADC1SS	1SVR405521R5100	32	CR-U012DC2L	1SVR405621R4100	48
CR-S048/060VADC1SZ	1SVR405521R5200	32	CR-U012DC2LD	1SVR405621R4400	49
CR-S048VDC1R	1SVR405501R4010	31	CR-U012DC3	1SVR405622R4000	48
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CR-S060VDC1R	1SVR405501R5010	31	CR-U012DC3LD	1SVR405622R4400	49
CR-S060VDC1RG	1SVR405501R5020	31	CR-U024AC2	1SVR405621R0000	48
CR-S110/125VADC1SS	1SVR405521R6100	32	CR-U024AC2L	1SVR405621R0100	48
CR-S110/125VADC1SZ	1SVR405521R6200	32	CR-U024AC3	1SVR405622R0000	48
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CR-U024DC3	1SVR405622R1000	48	OBOC2000-115VUC	1SNA645054R0700	93
CR-U024DC3L	1SVR405622R1100	49	OBOC2000-230VUC	1SNA645026R2300	93
CR-U024DC3LD	1SVR405623R1100	49	OBOC2000-24VDC	1SNA645051R0400	93
CR-U048AC2	1SVR405621R5000	48	OBOC2000-24VUC	1SNA645025R2200	93
CR-U048AC2L	1SVR405621R5100	48	OBOC2000-48-60VUC	1SNA645053R0600	93
CR-U048AC3	1SVR405622R5000	48	OBOC2000-5-12VDC	1SNA645050R1700	93
CR-U048AC3L	1SVR405622R5100	49	OBOC5000-115VUC	1SNA645058R1300	93
CR-U048DC2	1SVR405621R6000	48	OBOC5000-24VDC	1SNA645024R2100	93
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CR-U048DC2LD	1SVR405621R6400	49	OBRIC0100-24VDC	1SNA645521R2000	93
CR-U048DC3	1SVR405622R6000	48	OBRIC0100-48-60VUC	1SNA645549R1400	93
CR-U048DC3L	1SVR405622R6100	49	OBRIC0100-5-12VDC	1SNA645547R0200	93
CR-U048DC3LD	1SVR405622R6400	49	OBROA1000-24VDC	1SNA645527R2600	93
CR-U060AC3	1SVR405622R5200	48	OBROA2000-24VDC	1SNA645529R0000	94
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CR-U110AC2L	1SVR405621R7100	48	OBROC2000-24VDC	1SNA645551R0600	93
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