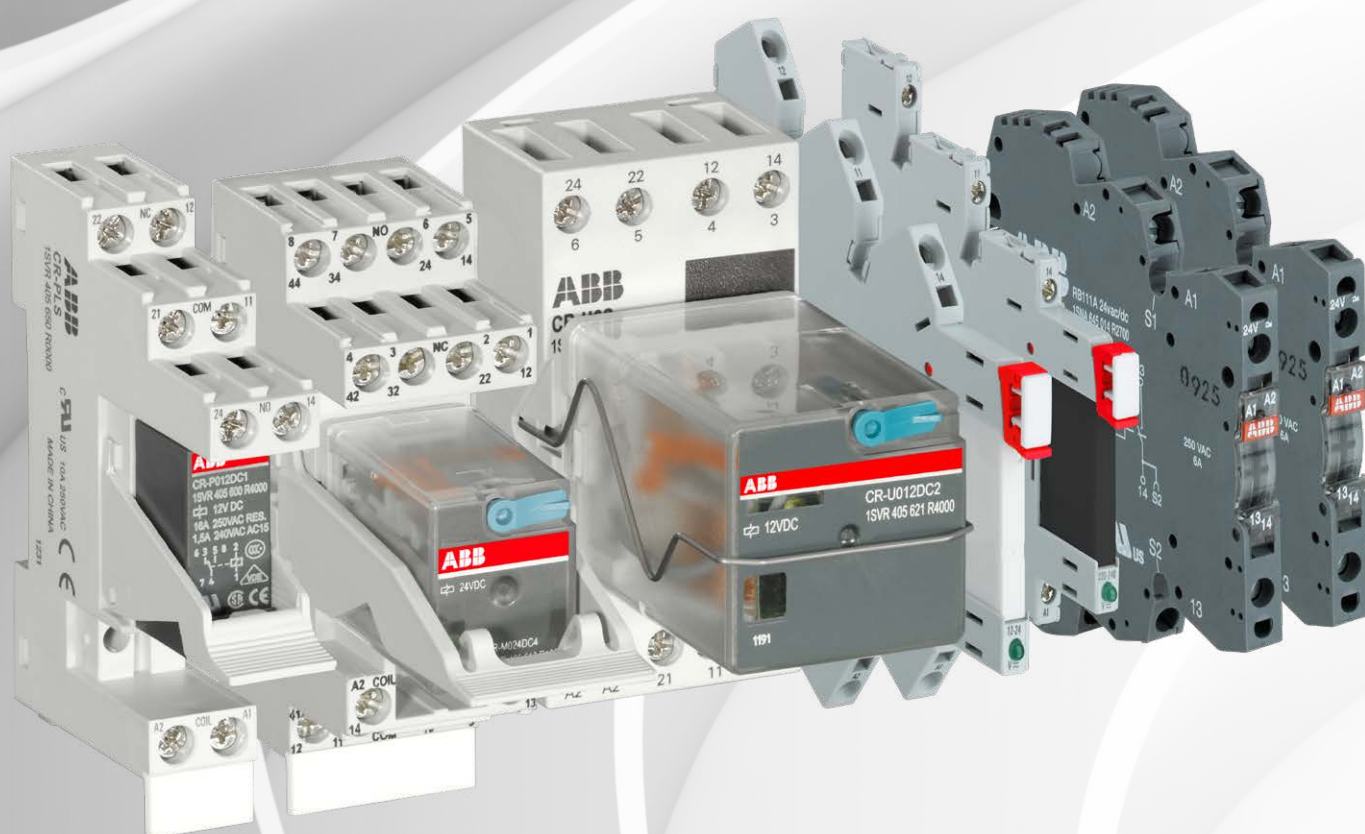


CATALOG

# 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.

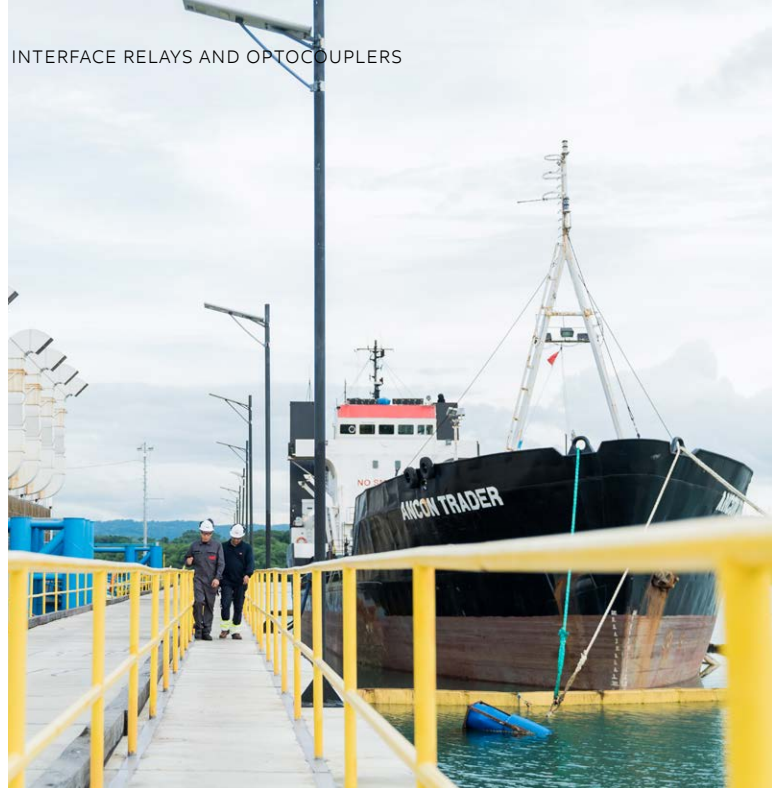


### R600 range

#### 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.

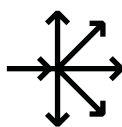




# Applications of interface relays

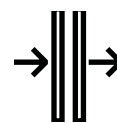
A proven technology used worldwide

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.



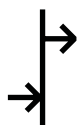
## Circuit multiplication

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

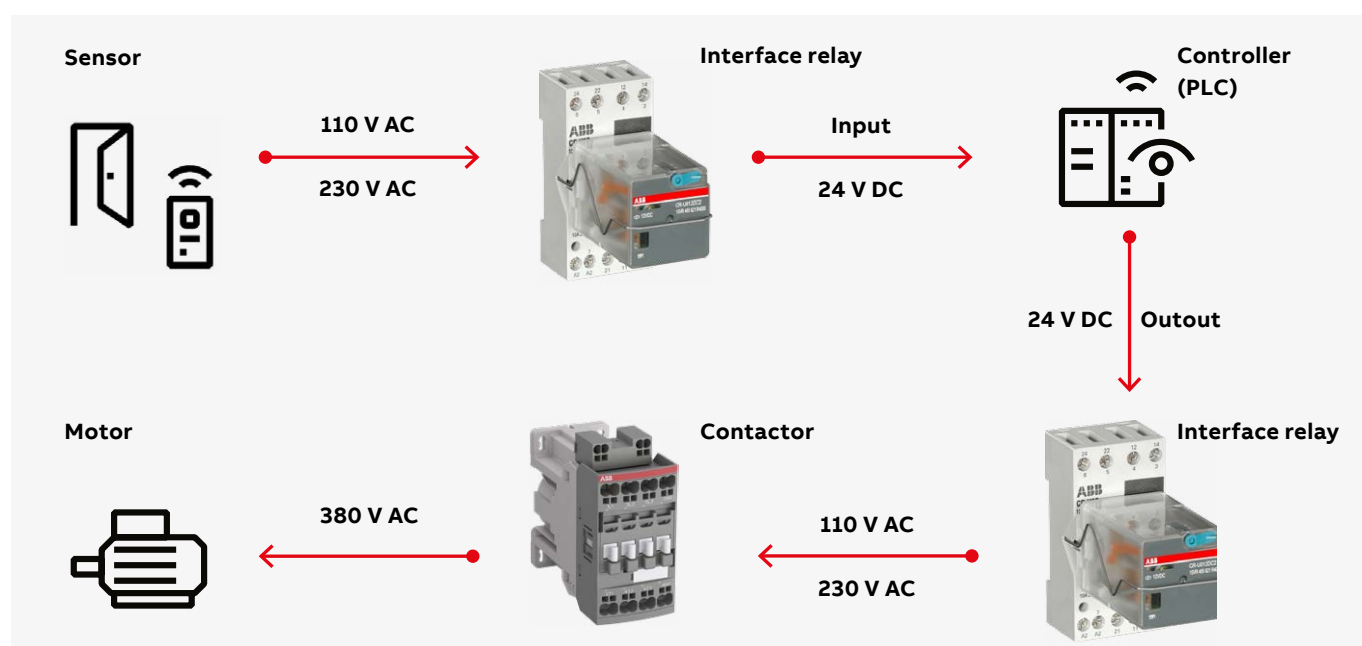
Interface relays are excellently suited to ensure safe galvanic isolation, i.e. separation between control circuit and load circuit.



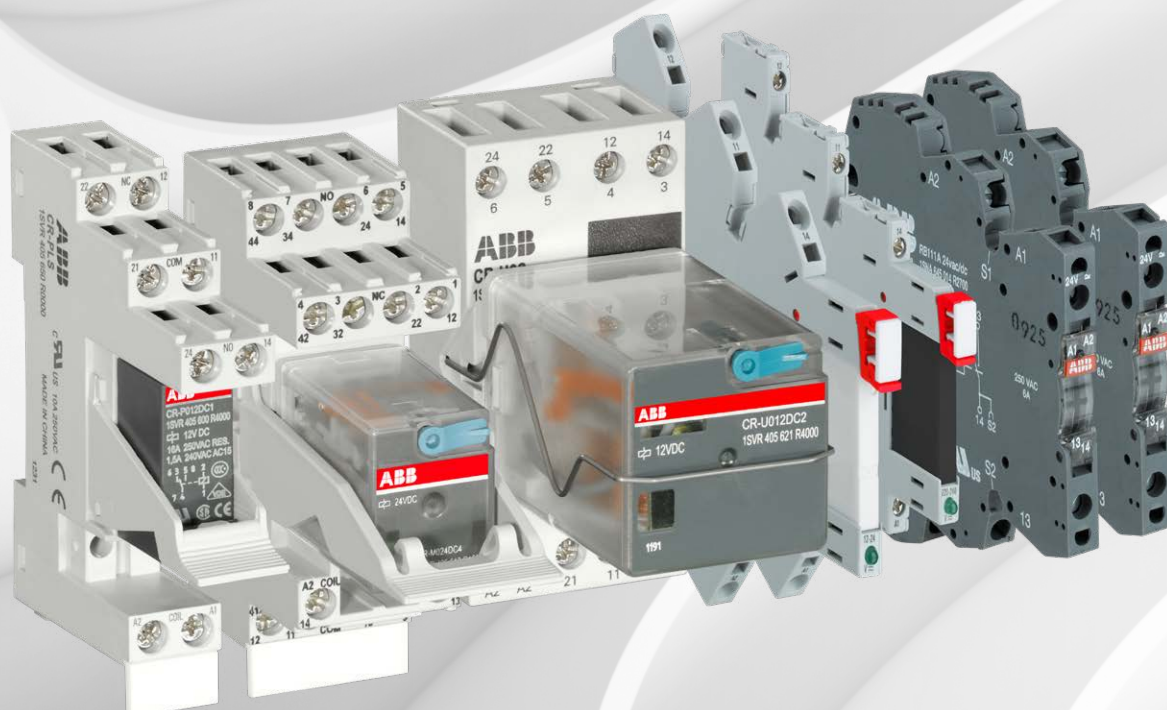
## Voltage conversion

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<br>100 mA - 48 V DC | CR-S012/024VADC1SS | 1SVR405521R3100   | CR-S024VDC1TRA | 1SVR405510R3050 |
|                 | spring              |                                | CR-S012/024VADC1SZ | 1SVR405521R3200   | CR-S024VDC1TRA | 1SVR405510R3050 |
|                 | screw               | MOS-FET<br>2 A - 24 V DC       | CR-S012/024VADC1SS | 1SVR405521R3100   | CR-S024VDC1MOS | 1SVR405510R3060 |
|                 | spring              |                                | CR-S012/024VADC1SZ | 1SVR405521R3200   | CR-S024VDC1MOS | 1SVR405510R3060 |
|                 | screw               | Triac<br>2 A - 240 V AC        | CR-S012/024VADC1SS | 1SVR405521R3100   | CR-S024VDC1TRI | 1SVR405510R3070 |
|                 | spring              |                                | CR-S012/024VADC1SZ | 1SVR405521R3200   | CR-S024VDC1TRI | 1SVR405510R3070 |

# List of components

## Selection table CR-S range complete versions



The complete versions of the CR-S range comprise of a pluggable interface relay, socket and marker.

CR-S complete versions

|                   |                  | Order code |   | Relay |              |              |               |              | Socket        |                   |                    |                   |                    |                   |                    |
|-------------------|------------------|------------|---|-------|--------------|--------------|---------------|--------------|---------------|-------------------|--------------------|-------------------|--------------------|-------------------|--------------------|
|                   |                  |            |   | Type  | CR-S012VDC1R | CR-S024VDC1R | CR-S024VDC1RG | CR-S060VDC1R | CR-S060VDC1RG | CR-S006/024VADC1S | CR-S006/024VADC1SZ | CR-S012/024VADC1S | CR-S012/024VADC1SZ | CR-S110/125VADC1S | CR-S110/125VADC1SZ |
| Complete versions |                  |            |   |       |              |              |               |              |               |                   |                    |                   |                    |                   |                    |
| Order code        | Type             |            |   |       |              |              |               |              |               |                   |                    |                   |                    |                   |                    |
| 1SVR405541R2110   | CR-S012VADC1CRS  | ■          |   |       |              |              |               |              | ■             |                   |                    |                   |                    |                   |                    |
| 1SVR405541R2210   | CR-S012VADC1CRZ  | ■          |   |       |              |              |               | ■            |               |                   |                    |                   |                    |                   |                    |
| 1SVR405541R3110   | CR-S024VADC1CRS  |            | ■ |       |              |              |               |              |               | ■                 |                    |                   |                    |                   |                    |
| 1SVR405541R3120   | CR-S024VADC1CRGS |            |   | ■     |              |              |               |              |               | ■                 |                    |                   |                    |                   |                    |
| 1SVR405541R3210   | CR-S024VADC1CRZ  |            | ■ |       |              |              |               |              |               |                   | ■                  |                   |                    |                   |                    |
| 1SVR405541R3220   | CR-S024VADC1CRGZ |            |   | ■     |              |              |               |              |               |                   | ■                  |                   |                    |                   |                    |
| 1SVR405541R6110   | CR-S110VADC1CRS  |            |   |       | ■            |              |               |              |               |                   |                    | ■                 |                    |                   |                    |
| 1SVR405541R6120   | CR-S110VADC1CRGS |            |   |       |              | ■            |               |              |               |                   |                    | ■                 |                    |                   |                    |
| 1SVR405541R6210   | CR-S110VADC1CRZ  |            |   |       | ■            |              |               |              |               |                   |                    |                   | ■                  |                   |                    |
| 1SVR405541R6220   | CR-S110VADC1CRGZ |            |   |       |              | ■            |               |              |               |                   |                    |                   | ■                  |                   |                    |
| 1SVR405541R7110   | CR-S230VADC1CRS  |            |   |       | ■            |              |               |              |               |                   |                    |                   |                    | ■                 |                    |
| 1SVR405541R7120   | CR-S230VADC1CRGS |            |   |       |              | ■            |               |              |               |                   |                    |                   |                    | ■                 |                    |
| 1SVR405541R7210   | CR-S230VADC1CRZ  |            |   |       | ■            |              |               |              |               |                   |                    |                   |                    |                   | ■                  |
| 1SVR405541R7220   | CR-S230VADC1CRGZ |            |   |       |              | ■            |               |              |               |                   |                    |                   |                    |                   | ■                  |



# Pluggable interface relays and optocouplers

## Selection table CR-P range

### CR-P pluggable relays and optocouplers

|                        | Type        | Order code      |
|------------------------|-------------|-----------------|
|                        | CR-P012DC1  | 1SVR405600R4000 |
|                        | CR-P024DC1  | 1SVR405600R1000 |
|                        | CR-P048DC1  | 1SVR405600R6000 |
|                        | CR-P110DC1  | 1SVR405600R8000 |
|                        | CR-P024AC1  | 1SVR405600R0000 |
|                        | CR-P048AC1  | 1SVR405600R5000 |
|                        | CR-P110AC1  | 1SVR405600R7000 |
|                        | CR-P120AC1  | 1SVR405600R2000 |
|                        | CR-P230AC1  | 1SVR405600R3000 |
|                        | CR-P012DC2  | 1SVR405601R4000 |
|                        | CR-P024DC2  | 1SVR405601R1000 |
|                        | CR-P048DC2  | 1SVR405601R6000 |
|                        | CR-P110DC2  | 1SVR405601R8000 |
|                        | CR-P012AC2  | 1SVR405601R0200 |
|                        | CR-P024AC2  | 1SVR405601R0000 |
|                        | CR-P048AC2  | 1SVR405601R5000 |
|                        | CR-P110AC2  | 1SVR405601R7000 |
|                        | CR-P120AC2  | 1SVR405601R2000 |
|                        | CR-P230AC2  | 1SVR405601R3000 |
|                        | CR-P024DC2G | 1SVR405606R1000 |
|                        | CR-P024AC2G | 1SVR405606R0000 |
|                        | CR-P110AC2G | 1SVR405606R7000 |
|                        | CR-P230AC2G | 1SVR405606R3000 |
|                        | CR-P024MOS1 | 1SVR405610R4060 |
|                        | CR-P024TRI1 | 1SVR405610R4070 |
| <b>Control voltage</b> |             |                 |
| 12 V DC                | ■           |                 |
| 24 V DC                |             | ■               |
| 48 V DC                |             | ■               |
| 110 V DC               |             | ■               |
| 12 V AC                |             | ■               |
| 24 V AC                |             | ■               |
| 48 V AC                |             | ■               |
| 110 V AC               |             | ■               |
| 120 V AC               |             | ■               |
| 230 V AC               |             | ■               |
| <b>Output rating</b>   |             |                 |
| 35 V DC 5 A            |             | ■               |
| 250 V AC 16 A          | ■           | ■               |
| 250 V AC 8 A           | ■           | ■               |
| 275 V AC 3 A           |             | ■               |
| <b>Output contacts</b> |             |                 |
| c/o                    | 1           | 1               |
| Gold plated contacts   | 1           | 1               |
| MOS-FET                | 1           | 1               |
| TRIAC 3 A              | 1           | 1               |

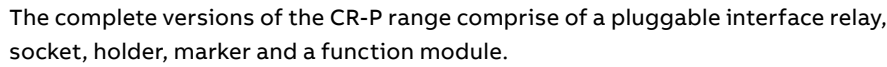
# Pluggable interface relays and optocouplers

## Selection table CR-P range

CR-P range complete versions

|                      | Type                                                        | Order code                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        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|                      | CR-P110DC1SS42CV                                            | 1SVR405600R8010                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   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|                      | CR-P230AC1SS92CV                                            | 1SVR405600R3110                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   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|                      | CR-P230AC1LC92CV                                            | 1SVR405600R3010                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   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|                      | CR-P012DC2SS42V                                             | 1SVR405601R4010                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   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|                      | CR-P024DC2SS42V                                             | 1SVR405601R1010                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   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|                      | CR-P024DC2LC42                                              | 1SVR405601R1012                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   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|                      | CR-P024DC2GLC42V                                            | 1SVR405606R1010                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   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## Selection table CR-P range complete versions



| Complete versions |                   | Relay       |                 | Socket |   | Function module |                 | Holder |   |
|-------------------|-------------------|-------------|-----------------|--------|---|-----------------|-----------------|--------|---|
|                   |                   | Type        | Order code      |        |   |                 |                 |        |   |
|                   |                   | CR-P012DC2  | 1SVR405601R4000 |        |   | CR-PSS          | 1SVR405650R1000 |        |   |
|                   |                   | CR-P024DC2  | 1SVR405601R1000 |        |   | CR-PLS          | 1SVR405650R0000 |        |   |
|                   |                   | CR-P024DC2G | 1SVR405606R1000 |        |   | CR-PLC          | 1SVR405650R0200 |        |   |
|                   |                   | CR-P110DC2  | 1SVR405601R8000 |        |   | CR-P/M 42       | 1SVR405652R0000 |        |   |
|                   |                   | CR-P024AC2  | 1SVR405601R0000 |        |   | CR-P/M 42V      | 1SVR405652R1000 |        |   |
|                   |                   | CR-P120AC2  | 1SVR405601R2000 |        |   | CR-P/M 42CV     | 1SVR405652R9100 |        |   |
|                   |                   | CR-P230AC2  | 1SVR405601R3000 |        |   | CR-P/M 62C      | 1SVR405655R0000 |        |   |
|                   |                   | CR-P230AC2G | 1SVR405606R3000 |        |   | CR-P/M 62CV     | 1SVR405655R1000 |        |   |
|                   |                   |             |                 |        |   | CR-P/M 92       | 1SVR405654R0100 |        |   |
|                   |                   |             |                 |        |   | CR-P/M 92C      | 1SVR405655R0100 |        |   |
|                   |                   |             |                 |        |   | CR-P/M 92CV     | 1SVR405655R1100 |        |   |
|                   |                   | CR-PH       |                 |        |   |                 |                 |        |   |
|                   |                   |             |                 |        |   |                 |                 |        |   |
| Order code        | Type              |             |                 |        |   |                 |                 |        |   |
| 1SVR405601R4010   | CR-P012DC2SS42V   | ■           |                 |        |   |                 | ■               |        | ■ |
| 1SVR405601R1010   | CR-P024DC2SS42V   |             | ■               |        |   |                 | ■               |        | ■ |
| 1SVR405601R1013   | CR-P024DC2LS42    |             | ■               |        |   |                 | ■               |        | ■ |
| 1SVR405601R1011   | CR-P024DC2LS42V   |             | ■               |        |   |                 | ■               |        | ■ |
| 1SVR405601R1012   | CR-P024DC2LC42    |             | ■               |        |   |                 | ■               |        | ■ |
| 1SVR405606R1010   | CR-P024DC2GLC42V  |             |                 | ■      |   |                 | ■               |        | ■ |
| 1SVR405606R1013   | CR-P024DC2GLC62C  |             |                 | ■      |   |                 | ■               |        | ■ |
| 1SVR405606R1011   | CR-P024DC2GLC62CV |             |                 | ■      |   |                 | ■               |        | ■ |
| 1SVR405601R8010   | CR-P110DC2SS42CV  |             |                 |        | ■ |                 |                 | ■      | ■ |
| 1SVR405601R0010   | CR-P024AC2SS62CV  |             |                 |        | ■ |                 |                 | ■      | ■ |
| 1SVR405601R2010   | CR-P120AC2SS92CV  |             |                 |        |   | ■               |                 |        | ■ |
| 1SVR405601R3110   | CR-P230AC2SS92CV  |             |                 |        |   | ■               |                 |        | ■ |
| 1SVR405601R3011   | CR-P230AC2LS92CV  |             |                 |        |   |                 | ■               |        | ■ |
| 1SVR405601R3012   | CR-P230AC2LC92    |             |                 |        |   |                 |                 | ■      | ■ |
| 1SVR405606R3013   | CR-P230AC2GLC92   |             |                 |        |   |                 |                 | ■      | ■ |
| 1SVR405606R3012   | CR-P230AC2GLC92C  |             |                 |        |   |                 |                 |        | ■ |
| 1SVR405606R3010   | CR-P230AC2GLC92CV |             |                 |        |   |                 |                 |        | ■ |

Pluggable interface relays and optocouplers

Selection table CR-M range

CR-M pluggable relays without LED

|                      | Type       | Order code      |
|----------------------|------------|-----------------|
|                      | CR-M012DC2 | 1SVR405611R4000 |
|                      | CR-M024DC2 | 1SVR405611R1000 |
|                      | CR-M048DC2 | 1SVR405611R6000 |
|                      | CR-M060DC2 | 1SVR405611R4200 |
|                      | CR-M110DC2 | 1SVR405611R8000 |
|                      | CR-M125DC2 | 1SVR405611R8200 |
|                      | CR-M220DC2 | 1SVR405611R9000 |
|                      | CR-M024AC2 | 1SVR405611R0000 |
|                      | CR-M048AC2 | 1SVR405611R5000 |
|                      | CR-M110AC2 | 1SVR405611R7000 |
|                      | CR-M120AC2 | 1SVR405611R2000 |
|                      | CR-M230AC2 | 1SVR405611R3000 |
|                      | CR-M012DC3 | 1SVR405612R4000 |
|                      | CR-M024DC3 | 1SVR405612R1000 |
|                      | CR-M048DC3 | 1SVR405612R6000 |
|                      | CR-M060DC3 | 1SVR405612R4200 |
|                      | CR-M110DC3 | 1SVR405612R8000 |
|                      | CR-M125DC3 | 1SVR405612R8200 |
|                      | CR-M220DC3 | 1SVR405612R9000 |
|                      | CR-M024AC3 | 1SVR405612R0000 |
|                      | CR-M048AC3 | 1SVR405612R5000 |
|                      | CR-M060AC3 | 1SVR405612R5200 |
|                      | CR-M110AC3 | 1SVR405612R7000 |
|                      | CR-M120AC3 | 1SVR405612R2000 |
|                      | CR-M230AC3 | 1SVR405612R3000 |
|                      | CR-M012DC4 | 1SVR405613R4000 |
|                      | CR-M024DC4 | 1SVR405613R1000 |
|                      | CR-M048DC4 | 1SVR405613R6000 |
|                      | CR-M060DC4 | 1SVR405613R4200 |
|                      | CR-M110DC4 | 1SVR405613R8000 |
|                      | CR-M125DC4 | 1SVR405613R8200 |
|                      | CR-M220DC4 | 1SVR405613R9000 |
|                      | CR-M024AC4 | 1SVR405613R0000 |
|                      | CR-M048AC4 | 1SVR405613R5000 |
|                      | CR-M110AC4 | 1SVR405613R7000 |
|                      | CR-M120AC4 | 1SVR405613R2000 |
|                      | CR-M230AC4 | 1SVR405613R3000 |
| 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                  | 2          | 2               |
| Gold plated contacts |            |                 |
| Additional features  |            |                 |
| LED                  |            |                 |
| Free-wheeling diode  |            |                 |



# Pluggable interface relays and optocouplers

## Selection table CR-M range

CR-M pluggable relays with LED

|                            | Type         | Order code      |
|----------------------------|--------------|-----------------|
|                            | CR-M012DC2L  | 1SVR405611R4100 |
|                            | CR-M012DC2LD | 1SVR405611R4400 |
|                            | CR-M024DC2L  | 1SVR405611R1100 |
|                            | CR-M024DC2LD | 1SVR405611R1400 |
|                            | CR-M048DC2L  | 1SVR405611R6100 |
|                            | CR-M048DC2LD | 1SVR405611R6400 |
|                            | CR-M060DC2L  | 1SVR405611R4300 |
|                            | CR-M110DC2L  | 1SVR405611R8100 |
|                            | CR-M110DC2LD | 1SVR405611R8400 |
|                            | CR-M125DC2L  | 1SVR405611R8300 |
|                            | CR-M125DC2LD | 1SVR405611R8500 |
|                            | CR-M220DC2L  | 1SVR405611R9100 |
|                            | CR-M220DC2LD | 1SVR405611R9400 |
|                            | CR-M012AC2L  | 1SVR405611R0300 |
|                            | CR-M024AC2L  | 1SVR405611R0300 |
|                            | CR-M048AC2L  | 1SVR405611R5100 |
|                            | CR-M110AC2L  | 1SVR405611R7100 |
|                            | CR-M120AC2L  | 1SVR405611R2100 |
|                            | CR-M230AC2L  | 1SVR405611R3100 |
| <b>Control voltage</b>     |              |                 |
| 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                   |              | ■               |
| <b>Output rating</b>       |              |                 |
| 250 V AC 6 A               |              |                 |
| 250 V AC 10 A              |              |                 |
| 250 V AC 12 A              | ■            | ■               |
| <b>Output contacts</b>     |              |                 |
| c/o                        | 2            | 2               |
| Gold plated contacts       |              |                 |
| <b>Additional features</b> |              |                 |
| LED                        | ■            | ■               |
| Free-wheeling diode        | ■            | ■               |

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CR-M pluggable relays with LED

|                            |   | Type         | Order code      |
|----------------------------|---|--------------|-----------------|
|                            |   | CR-M012DC3L  | 1SVR405612R4100 |
|                            |   | CR-M012DC3LD | 1SVR405612R4400 |
|                            |   | CR-M024DC3L  | 1SVR405612R1100 |
|                            |   | CR-M024DC3LD | 1SVR405612R1400 |
|                            |   | CR-M048DC3L  | 1SVR405612R6100 |
|                            |   | CR-M048DC3LD | 1SVR405612R6400 |
|                            |   | CR-M060DC3L  | 1SVR405612R4300 |
|                            |   | CR-M110DC3L  | 1SVR405612R8100 |
|                            |   | CR-M110DC3LD | 1SVR405612R8400 |
|                            |   | CR-M125DC3L  | 1SVR405612R8300 |
|                            |   | CR-M125DC3LD | 1SVR405612R8500 |
|                            |   | CR-M220DC3L  | 1SVR405612R9100 |
|                            |   | CR-M220DC3LD | 1SVR405612R9400 |
|                            |   | CR-M012AC3L  | 1SVR405612R0300 |
|                            |   | CR-M024AC3L  | 1SVR405612R0100 |
|                            |   | CR-M048AC3L  | 1SVR405612R5100 |
|                            |   | CR-M110AC3L  | 1SVR405612R7100 |
|                            |   | CR-M120AC3L  | 1SVR405612R2100 |
|                            |   | CR-M230AC3L  | 1SVR405612R3100 |
| <b>Control voltage</b>     |   |              |                 |
| 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                   |   |              |                 |
| <b>Output rating</b>       |   |              |                 |
| 250 V AC 6 A               | ■ | ■            | ■               |
| 250 V AC 10 A              | ■ | ■            | ■               |
| 250 V AC 12 A              | ■ | ■            | ■               |
| <b>Output contacts</b>     |   |              |                 |
| c/o                        | 3 | 3            | 3               |
| Gold plated contacts       |   |              |                 |
| <b>Additional features</b> |   |              |                 |
| LED                        | ■ | ■            | ■               |
| Free-wheeling diode        |   | ■            | ■               |

# 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 |
| <b>Control voltage</b>     |              |                 |
| 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                   |              | ■               |
| <b>Output rating</b>       |              |                 |
| 250 V AC 6 A               | ■            | ■               |
| 250 V AC 10 A              |              |                 |
| 250 V AC 12 A              |              |                 |
| <b>Output contacts</b>     |              |                 |
| c/o                        | 4            | 4               |
| Gold plated contacts       |              |                 |
| <b>Additional features</b> |              |                 |
| 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               |
| Gold plated contacts |               |                 |
| Additional features  |               |                 |
| LED                  |               |                 |
| Free-wheeling diode  |               |                 |

# Pluggable interface relays and optocouplers

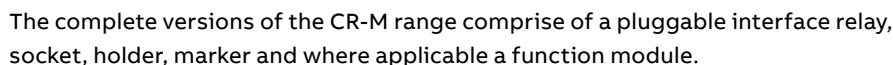
## Selection table CR-M range complete versions

### 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 |
| <b>Control voltage</b>     |                   |                 |
| 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                   |                   | ■               |
| <b>Output rating</b>       |                   |                 |
| 250 V AC 6 A               | ■                 | ■               |
| 250 V AC 10 A              |                   |                 |
| 250 V AC 12 A              |                   |                 |
| <b>Output contacts</b>     |                   |                 |
| c/o                        | 4                 | 4               |
| Gold plated contacts       | ■                 | ■               |
| <b>Socket type</b>         |                   |                 |
| Standard socket            | ■                 | ■               |
| Logical socket             |                   | ■               |
| <b>Additional features</b> |                   |                 |
| LED                        | ■                 | ■               |
| Free-wheeling diode        | ■                 | ■               |



## Selection table CR-M range complete versions



| Complete versions |  | Relay         |                 | Socket |  | Function module |                 | Holder |  |
|-------------------|--|---------------|-----------------|--------|--|-----------------|-----------------|--------|--|
|                   |  | Type          | Order code      |        |  |                 |                 |        |  |
|                   |  | CR-M012DC4LDG | 1SVR405618R4400 |        |  | CR-M4SS         | 1SVR405651R3000 |        |  |
|                   |  | 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           | 1SVR405659R1000 |        |  |

# Pluggable interface relays and optocouplers

## Selection table CR-P/M function modules

### CR-P/M function modules

|                                                                                                      | Type        | Order code      |
|------------------------------------------------------------------------------------------------------|-------------|-----------------|
|                                                                                                      | CR-P/M 22   | 1SVR405651R0000 |
|                                                                                                      | CR-P/M 42   | 1SVR405652R0000 |
|                                                                                                      | CR-P/M 42V  | 1SVR405652R1000 |
|                                                                                                      | CR-P/M 42B  | 1SVR405652R4000 |
|                                                                                                      | CR-P/M 42BV | 1SVR405652R4100 |
|                                                                                                      | CR-P/M 42C  | 1SVR405652R9000 |
|                                                                                                      | CR-P/M 42CV | 1SVR405652R9100 |
|                                                                                                      | CR-P/M 52B  | 1SVR405653R0000 |
|                                                                                                      | CR-P/M 52D  | 1SVR405653R4000 |
|                                                                                                      | CR-P/M 52C  | 1SVR405653R1000 |
|                                                                                                      | CR-P/M 62   | 1SVR405654R0000 |
|                                                                                                      | CR-P/M 62V  | 1SVR405654R1000 |
|                                                                                                      | CR-P/M 62E  | 1SVR405654R4000 |
|                                                                                                      | CR-P/M 62EV | 1SVR405654R4100 |
|                                                                                                      | CR-P/M 92   | 1SVR405654R0100 |
|                                                                                                      | CR-P/M 92V  | 1SVR405654R1100 |
|                                                                                                      | CR-P/M 62C  | 1SVR405655R0000 |
|                                                                                                      | CR-P/M 62CV | 1SVR405655R1000 |
|                                                                                                      | CR-P/M 62D  | 1SVR405655R4000 |
|                                                                                                      | CR-P/M 62DV | 1SVR405655R4100 |
|                                                                                                      | CR-P/M 92C  | 1SVR405655R0100 |
|                                                                                                      | CR-P/M 92CV | 1SVR405655R1100 |
|                                                                                                      | CR-P/M 72   | 1SVR405656R0000 |
|                                                                                                      | CR-P/M 72A  | 1SVR405656R1000 |
|                                                                                                      | CR-P/M 82   | 1SVR405656R2000 |
| <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                                                                    |             | ■               |
| LED red                                                                                              |             | ■               |
| LED green                                                                                            |             | ■               |

Pluggable interface relays and optocouplers

Selection table CR-U range

CR-U pluggable relays without LED

|                      | Type       | Order code      |
|----------------------|------------|-----------------|
|                      | CR-U012DC2 | 1SVR405621R4000 |
|                      | CR-U024DC2 | 1SVR405621R1000 |
|                      | CR-U048DC2 | 1SVR405621R6000 |
|                      | CR-U110DC2 | 1SVR405621R8000 |
|                      | CR-U220DC2 | 1SVR405621R9000 |
|                      | CR-U024AC2 | 1SVR405621R0000 |
|                      | CR-U048AC2 | 1SVR405621R5000 |
|                      | CR-U110AC2 | 1SVR405621R7000 |
|                      | CR-U120AC2 | 1SVR405621R2000 |
|                      | CR-U230AC2 | 1SVR405621R3000 |
|                      | CR-U012DC3 | 1SVR405622R4000 |
|                      | CR-U024DC3 | 1SVR405622R1000 |
|                      | CR-U048DC3 | 1SVR405622R6000 |
|                      | CR-U110DC3 | 1SVR405622R8000 |
|                      | CR-U125DC3 | 1SVR405622R8200 |
|                      | CR-U220DC3 | 1SVR405622R9000 |
|                      | CR-U024AC3 | 1SVR405622R0000 |
|                      | CR-U048AC3 | 1SVR405622R5000 |
|                      | CR-U060AC3 | 1SVR405622R5200 |
|                      | CR-U110AC3 | 1SVR405622R7000 |
|                      | CR-U120AC3 | 1SVR405622R2000 |
|                      | CR-U230AC3 | 1SVR405622R3000 |
| Control voltage      |            |                 |
| 12 V DC              |            | ■               |
| 24 V DC              |            | ■               |
| 48 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        |            |                 |
| 250 V AC 10 A        | ■          | ■               |
| Output contacts      |            |                 |
| c/o                  | 2          | 2               |
| Gold plated contacts |            |                 |

# Pluggable interface relays and optocouplers

## Selection table CR-U range

### CR-U pluggable relays with LED

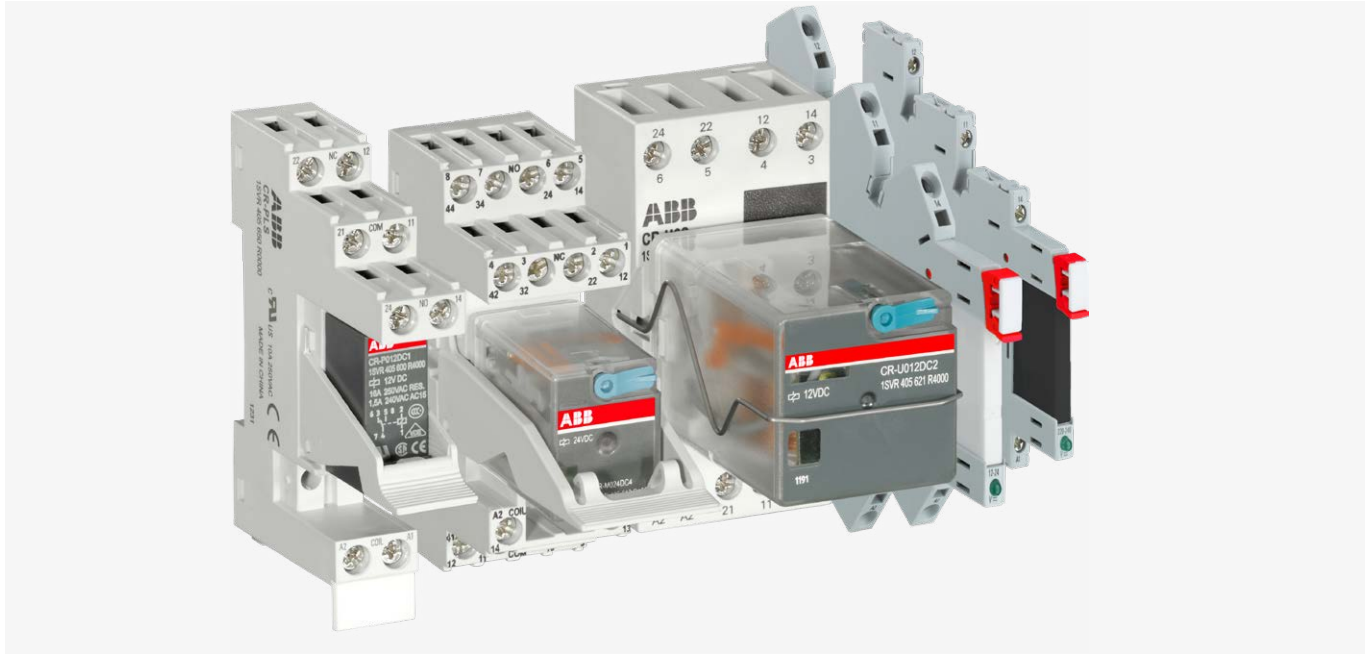
|                            | Type         | Order code      |
|----------------------------|--------------|-----------------|
|                            | CR-U012DC2L  | 1SVR405621R4100 |
|                            | CR-U012DC2LD | 1SVR405621R4400 |
|                            | CR-U024DC2L  | 1SVR405621R1100 |
|                            | CR-U024DC2LD | 1SVR405621R1400 |
|                            | CR-U048DC2L  | 1SVR405621R6100 |
|                            | CR-U048DC2LD | 1SVR405621R6400 |
|                            | CR-U110DC2L  | 1SVR405621R8100 |
|                            | CR-U110DC2LD | 1SVR405621R8400 |
|                            | CR-U220DC2L  | 1SVR405621R9100 |
|                            | CR-U012AC2L  | 1SVR405621R0300 |
|                            | CR-U024AC2L  | 1SVR405621R0100 |
|                            | CR-U048AC2L  | 1SVR405621R5100 |
|                            | CR-U110AC2L  | 1SVR405621R7100 |
|                            | CR-U120AC2L  | 1SVR405621R2100 |
|                            | CR-U230AC2L  | 1SVR405621R3100 |
|                            | CR-U012DC3L  | 1SVR405622R4100 |
|                            | CR-U012DC3LD | 1SVR405622R4400 |
|                            | CR-U024DC3L  | 1SVR405622R1100 |
|                            | CR-U024DC3LD | 1SVR405623R1100 |
|                            | CR-U048DC3L  | 1SVR405622R6100 |
|                            | CR-U048DC3LD | 1SVR405622R6400 |
|                            | CR-U110DC3L  | 1SVR405622R8100 |
|                            | CR-U110DC3LD | 1SVR405622R8400 |
|                            | CR-U220DC3L  | 1SVR405622R9100 |
|                            | CR-U012AC3L  | 1SVR405622R0300 |
|                            | CR-U024AC3L  | 1SVR405622R0100 |
|                            | CR-U048AC3L  | 1SVR405622R5100 |
|                            | CR-U110AC3L  | 1SVR405622R7100 |
|                            | CR-U120AC3L  | 1SVR405622R2100 |
|                            | CR-U230AC3L  | 1SVR405622R3100 |
| <b>Control voltage</b>     |              |                 |
| 12 V DC                    | ■            | ■               |
| 24 V DC                    |              | ■               |
| 48 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                   |              | ■               |
| <b>Output rating</b>       |              |                 |
| 250 V AC 10 A              | ■            | ■               |
| <b>Output contacts</b>     |              |                 |
| c/o                        | 2            | 2               |
| Gold plated contacts       |              |                 |
| <b>Additional features</b> |              |                 |
| LED                        | ■            | ■               |
| Free-wheeling diode        | ■            | ■               |

## Selection table 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

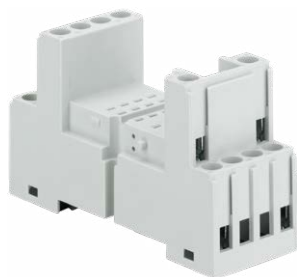
## Socket and terminal connection types

### 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



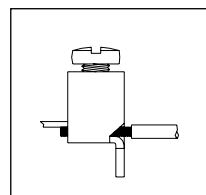
04 Logical socket CR-M

2CDC291042F0004

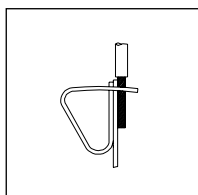
Position of connection terminals:

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.

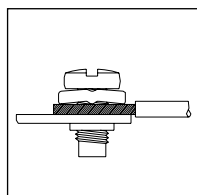
### Terminal connection types



05 Screw type



06 Spring type



07 Fork type

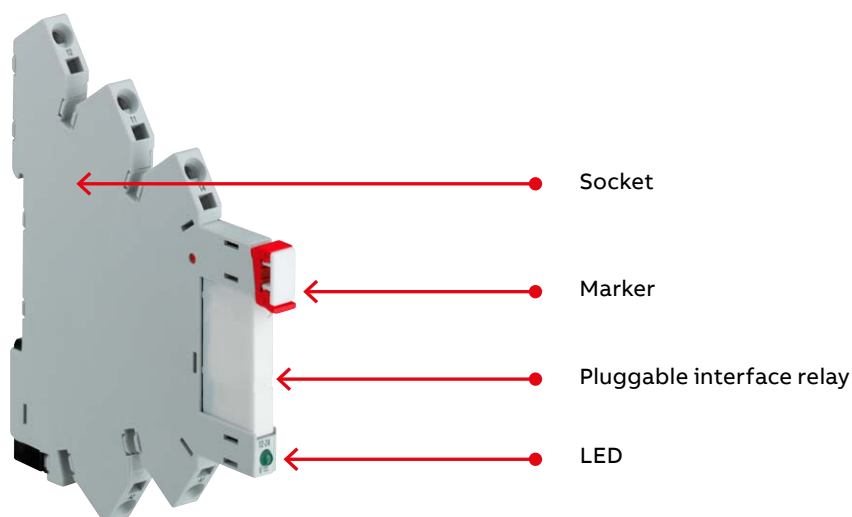
A variety of sockets are available for interface relays and optocouplers to meet the needs of different applications such as vibration-intensive environments.



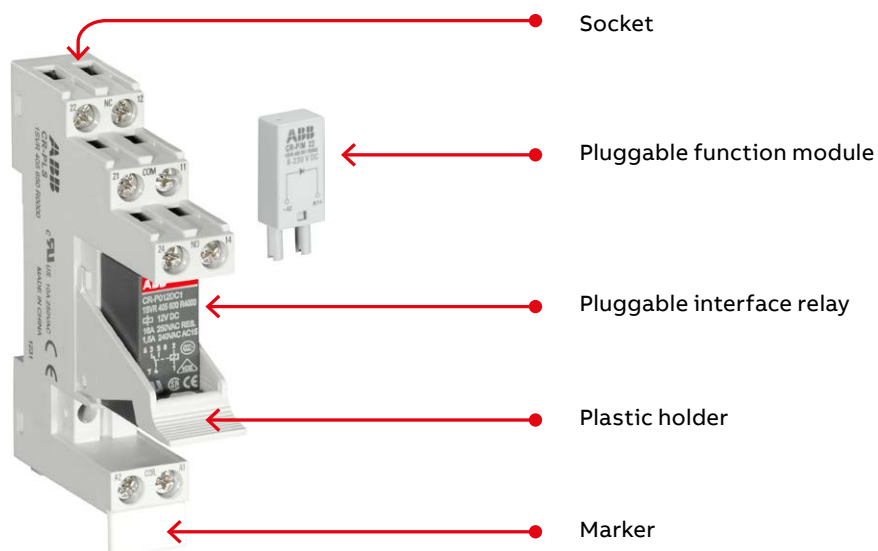
# Pluggable interface relays and optocouplers

## Relay components

### CR-S range



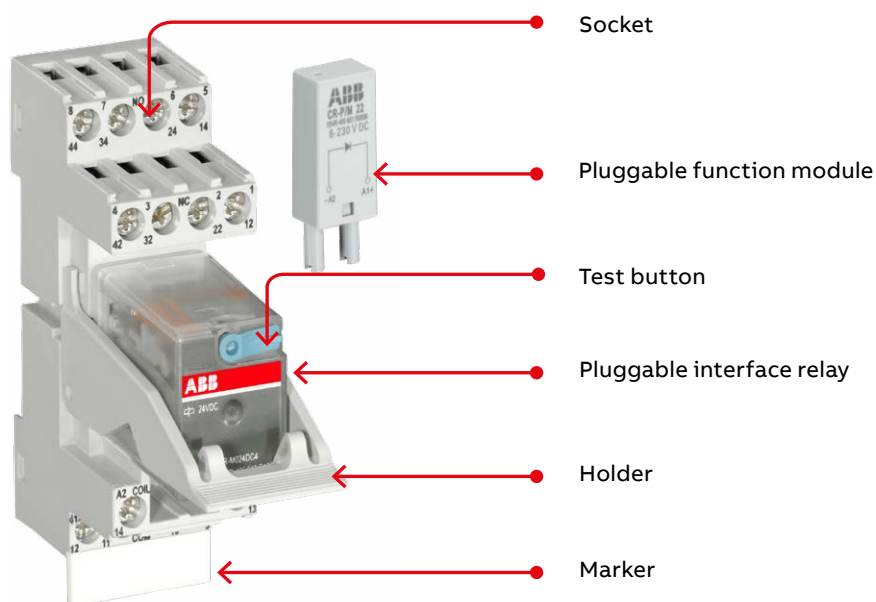
### CR-P range



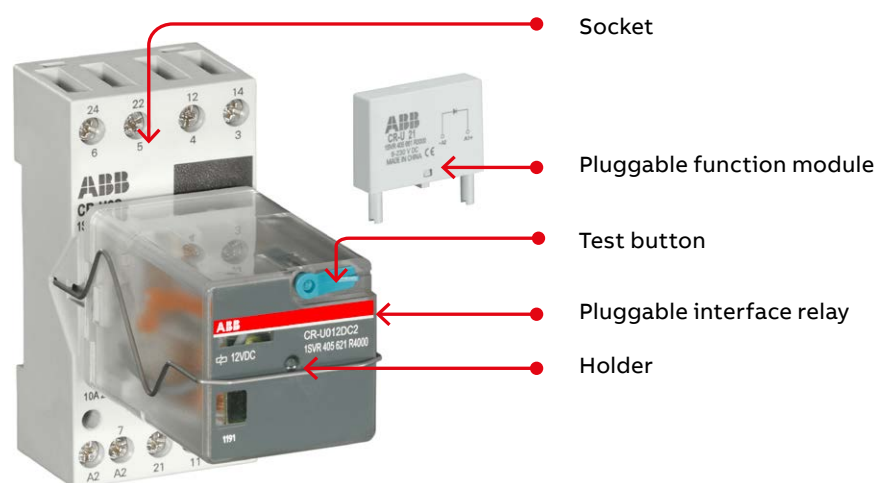
# Pluggable interface relays and optocouplers

## 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                       | 1 c/o (SPDT) standard contacts    | 250 V AC, 6 A                   | CR-S005VDC1R  | 1SVR405501R1010 | 10      | 0.005 (0.011)          |
| 12 V DC                      |                                   |                                 | CR-S012VDC1R  | 1SVR405501R2010 |         |                        |
| 24 V DC                      |                                   |                                 | CR-S024VDC1R  | 1SVR405501R3010 |         |                        |
| 48 V DC                      |                                   |                                 | CR-S048VDC1R  | 1SVR405501R4010 |         |                        |
| 60 V DC                      |                                   |                                 | CR-S060VDC1R  | 1SVR405501R5010 |         |                        |
| 5 V DC                       | 1 c/o (SPDT) gold plated contacts | 12 V, 250 mA (3W) <sup>1)</sup> | CR-S005VDC1RG | 1SVR405501R1020 | 10      | 0.005 (0.011)          |
| 12 V DC                      |                                   |                                 | CR-S012VDC1RG | 1SVR405501R2020 |         |                        |
| 24 V DC                      |                                   |                                 | CR-S024VDC1RG | 1SVR405501R3020 |         |                        |
| 48 V DC                      |                                   |                                 | CR-S048VDC1RG | 1SVR405501R4020 |         |                        |
| 60 V DC                      |                                   |                                 | CR-S060VDC1RG | 1SVR405501R5020 |         |                        |

#### Ordering details - CR-S range 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 |         |                        |

#### 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 |         |                        |
| 110 V AC/DC                  |                                   |                                 | CR-S110VADC1CRS  | 1SVR405541R6110 |         |                        |
|                              |                                   |                                 | CR-S110VADC1CRZ  | 1SVR405541R6210 |         |                        |
| 230 V AC/DC                  |                                   |                                 | CR-S230VADC1CRS  | 1SVR405541R7110 |         |                        |
|                              |                                   |                                 | 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 |         |                        |
| 110 V AC/DC                  |                                   |                                 | CR-S110VADC1CRGS | 1SVR405541R6120 |         |                        |
|                              |                                   |                                 | CR-S110VADC1CRGZ | 1SVR405541R6220 |         |                        |
| 230 V AC/DC                  |                                   |                                 | CR-S230VADC1CRGS | 1SVR405541R7120 |         |                        |
|                              |                                   |                                 | CR-S230VADC1CRGZ | 1SVR405541R7220 |         |                        |

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



CR-S complete interface relay

## Pluggable interface relays and optocouplers

### Ordering details – CR-S range



CR-S socket

#### 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<br>100 mA - 48 V DC | CR-S012/024VADC1SS | 1SVR405521R3100   | CR-S024VDC1TRA | 1SVR405510R3050 |
|                 | spring              |                                | CR-S012/024VADC1SZ | 1SVR405521R3200   | CR-S024VDC1TRA | 1SVR405510R3050 |
|                 | screw               | MOS-FET<br>2 A - 24 V DC       | CR-S012/024VADC1SS | 1SVR405521R3100   | CR-S024VDC1MOS | 1SVR405510R3060 |
|                 | spring              |                                | CR-S012/024VADC1SZ | 1SVR405521R3200   | CR-S024VDC1MOS | 1SVR405510R3060 |
|                 | screw               | Triac<br>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.



CR-P relay

2CDC291.045.F0004

#### 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   | CR-P012DC2 | 1SVR405601R4000 | 10      | 0.014 (0.031)          |
| 24 V DC                      |              |                 | CR-P024DC2 | 1SVR405601R1000 |         |                        |
| 48 V DC                      |              |                 | CR-P048DC2 | 1SVR405601R6000 |         |                        |
| 110 V DC                     |              |                 | CR-P110DC2 | 1SVR405601R8000 |         |                        |
| 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 |         |                        |



CR-P optocoupler

2CDC291.006.S0016



## 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.)<br>kg (lb) |
|-------------------------------------------|---------------------|--------|-----------------|---------|---------------------------|
| Logical socket with protective separation | screw               | CR-PLS | 1SVR405650R0000 | 10      | 0.045<br>(0.099)          |
| Logical socket                            | spring              | CR-PLC | 1SVR405650R0200 |         | 0.042<br>(0.093)          |
| Standard socket                           | screw               | CR-PSS | 1SVR405650R1000 |         | 0.038<br>(0.084)          |

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

#### Standard sockets

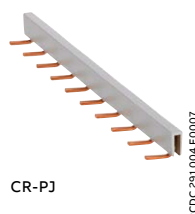
Position of connection terminals: coil connection (A1-A2) on lower side of the socket, contact connections (n/o and n/c contacts) on the lower and upper side of the socket.

#### 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

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



CR-PJ

## Pluggable interface relays and optocouplers

### Ordering details – CR-P range



CR-P complete version

#### 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

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

| Rated control supply voltage | Out-puts             | Description                                                           | Socket type | Conne-<br>ction terminal | Type              | Order code      | Pkg<br>qty | Weight<br>(1 pc.)<br>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<br>(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<br>(0.126)             |
|                              |                      | Reverse polarity protection and freewheeling diode, LED red, holder   | logical     | screw                    | CR-P024DC2LS42    | 1SVR405601R1013 | 10         | 0.057<br>(0.126)             |
|                              |                      | Reverse polarity protection and freewheeling diode, LED green, holder | logical     | screw                    | CR-P024DC2LS42V   | 1SVR405601R1011 | 10         | 0.057<br>(0.126)             |
|                              |                      | Reverse polarity protection and freewheeling diode, LED red, holder   | logical     | spring                   | CR-P024DC2LC42    | 1SVR405601R1012 | 10         | 0.057<br>(0.126)             |
| 24 V DC                      | 2 c/o<br>gold plated | Reverse polarity protection and freewheeling diode, LED green, holder | logical     | spring                   | CR-P024DC2GLC42V  | 1SVR405606R1010 | 10         | 0.057<br>(0.126)             |
|                              |                      | Varistor and LED red, holder                                          | logical     | spring                   | CR-P024DC2GLC62C  | 1SVR405606R1013 | 10         | 0.057<br>(0.126)             |
|                              |                      | Varistor and LED green, holder                                        | logical     | spring                   | CR-P024DC2GLC62CV | 1SVR405606R1011 | 10         | 0.057<br>(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<br>(0.126)             |
| 24 V AC                      | 2 c/o                | Varistor and LED green, holder                                        | standard    | screw                    | CR-P024AC2SS62CV  | 1SVR405601R0010 | 10         | 0.057<br>(0.126)             |
| 120 V AC                     | 2 c/o                | Varistor and LED green, holder                                        | standard    | screw                    | CR-P120AC2SS92CV  | 1SVR405601R2010 | 10         | 0.057<br>(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<br>(0.126)             |
|                              |                      | Varistor and LED green, holder                                        | logical     | screw                    | CR-P230AC2LS92CV  | 1SVR405601R3011 | 10         | 0.057<br>(0.126)             |
|                              |                      | Diode and LED red, holder                                             | logical     | spring                   | CR-P230AC2LC92    | 1SVR405601R3012 | 10         | 0.057<br>(0.126)             |
| 230 V AC                     | 2 c/o<br>gold plated | Diode and LED red, holder                                             | logical     | spring                   | CR-P230AC2GLC92   | 1SVR405606R3013 | 10         | 0.057<br>(0.126)             |
|                              |                      | Varistor and LED red, holder                                          | logical     | spring                   | CR-P230AC2GLC92C  | 1SVR405606R3012 | 10         | 0.057<br>(0.126)             |
|                              |                      | Varistor and LED green, holder                                        | logical     | spring                   | CR-P230AC2GLC92CV | 1SVR405606R3010 | 10         | 0.057<br>(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  | CR-M012DC3 | 1SVR405612R4000 | 10      | 0.033 (0.073)          |
| 24 V DC                      |              |                 | CR-M024DC3 | 1SVR405612R1000 |         |                        |
| 48 V DC                      |              |                 | CR-M048DC3 | 1SVR405612R6000 |         |                        |
| 60 V DC                      |              |                 | CR-M060DC3 | 1SVR405612R4200 |         |                        |
| 110 V DC                     |              |                 | CR-M110DC3 | 1SVR405612R8000 |         |                        |
| 125 V DC                     |              |                 | CR-M125DC3 | 1SVR405612R8200 |         |                        |
| 220 V DC                     |              |                 | CR-M220DC3 | 1SVR405612R9000 |         |                        |
| 24 V AC                      |              |                 | CR-M024AC3 | 1SVR405612R0000 |         |                        |
| 48 V AC                      |              |                 | CR-M048AC3 | 1SVR405612R5000 |         |                        |
| 60 V AC                      |              |                 | CR-M060AC3 | 1SVR405612R5200 |         |                        |
| 110 V AC                     |              |                 | CR-M110AC3 | 1SVR405612R7000 |         |                        |
| 120 V AC                     |              |                 | CR-M120AC3 | 1SVR405612R2000 |         |                        |
| 230 V AC                     |              |                 | CR-M230AC3 | 1SVR405612R3000 |         |                        |
| 12 V DC                      | 4 c/o (SPDT) | 250 V 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  | CR-M012DC3L | 1SVR405612R4100 | 10      | 0.033 (0.073)          |
| 24 V DC                      |              |                 | CR-M024DC3L | 1SVR405612R1100 |         |                        |
| 48 V DC                      |              |                 | CR-M048DC3L | 1SVR405612R6100 |         |                        |
| 60 V DC                      |              |                 | CR-M060DC3L | 1SVR405612R4300 |         |                        |
| 110 V DC                     |              |                 | CR-M110DC3L | 1SVR405612R8100 |         |                        |
| 125 V DC                     |              |                 | CR-M125DC3L | 1SVR405612R8300 |         |                        |
| 220 V DC                     |              |                 | CR-M220DC3L | 1SVR405612R9100 |         |                        |
| 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 | 10      | 0.033 (0.073)          |
| 24 V DC                      |              |                 | CR-M024DC4L | 1SVR405613R1100 |         |                        |
| 48 V DC                      |              |                 | CR-M048DC4L | 1SVR405613R6100 |         |                        |
| 60 V DC                      |              |                 | CR-M060DC4L | 1SVR405613R4300 |         |                        |
| 110 V DC                     |              |                 | CR-M110DC4L | 1SVR405613R8100 |         |                        |
| 125 V DC                     |              |                 | CR-M125DC4L | 1SVR405613R8300 |         |                        |
| 220 V DC                     |              |                 | CR-M220DC4L | 1SVR405613R9100 |         |                        |
| 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 | 10      | 0.033 (0.073)          |
| 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.)<br>kg (lb) |
| 12 V DC                      | 4 c/o gold-plated | LED red, holder                                                        | standard    | screw               | CR-M012DC4LDGSS   | 1SVR405618R4410 | 10  | 0.0109<br>(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<br>(0.024)  |
|                              |                   | Reverse polarity protection and free-wheeling diode, LED green, holder | logical     | screw               | CR-M024DC4LS42V   | 1SVR405613R1011 | 10  | 0.0109<br>(0.024)  |
|                              |                   | Reverse polarity protection and free-wheeling diode, LED red, holder   | logical     | spring              | CR-M024DC4LC42    | 1SVR405613R1012 | 10  | 0.0109<br>(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<br>(0.024)  |
|                              |                   | Varistor, LED green, holder                                            | logical     | spring              | CR-M024DC4GLC62CV | 1SVR405618R1010 | 10  | 0.0109<br>(0.024)  |
|                              |                   | LED, free-wheeling diode, holder                                       | logical     | spring              | CR-M024DC4LGLC22  | 1SVR405618R1110 | 10  | 0.0109<br>(0.024)  |
|                              |                   | LED red, free-wheeling diode, holder                                   | standard    | screw               | CR-M024DC4LDGSS   | 1SVR405618R1410 | 10  | 0.0109<br>(0.024)  |
| 24 V AC                      | 4 c/o             | Varistor and LED green, holder                                         | logical     | screw               | CR-M024AC4LS62CV  | 1SVR405613R0010 | 10  | 0.0109<br>(0.024)  |



## 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 (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

2CDC291042F0004



CR-M4SS

2CDC291009F0011

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

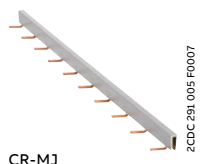
Position of connection terminals: coil connection (A1-A2) on lower side of the socket, contact connections (n/o and n/c contacts) on the lower and upper side of the socket.

#### 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

| 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)          |

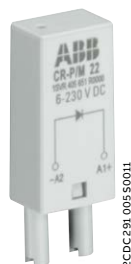


CR-MJ

2CDC291005F0007

## 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

2CDC 291 047 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 |         |                        |



CR-U

2CDC 291 047 F0004

#### 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-U2S

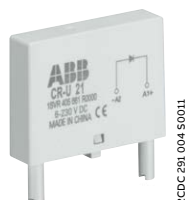
2CDC 291 007 S0011

#### 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.

## 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...

2CDC 291 004 50011



CR-U T

2CDC 291 032 F0005

#### 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](#).



## 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 Ω                      | ± 10 %                       |
| CR-S012VDC1R(G)                                  | 12 V DC                            | 9 V DC                                                                 | 18 V DC                    | 0.6 V DC                                                                    | 170 mW                                                                                                           | 848 Ω                      | ± 10 %                       |
| CR-S024VDC1R(G)                                  | 24 V DC                            | 18 V DC                                                                | 36 V DC                    | 1.2 V DC                                                                    | 170 mW                                                                                                           | 3390 Ω                     | ± 15 %                       |
| CR-S048VDC1R(G)                                  | 48 V DC                            | 36 V DC                                                                | 72 V DC                    | 2.4 V DC                                                                    | 210 mW                                                                                                           | 10600 Ω                    | ± 15 %                       |
| CR-S060VDC1R(G)                                  | 60 V DC                            | 45 V DC                                                                | 90 V DC                    | 3 V DC                                                                      | 210 mW                                                                                                           | 16600 Ω                    | ± 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)<br>(contact rating code designation) |                            | B300                                                                        |                                                                                                                  |                            |                              |
| DC rating (UL 508; NEMA ICS-5)                   |                                    | utilization category (pilot duty)<br>(contact rating code designation) |                            | R300                                                                        |                                                                                                                  |                            |                              |
| Maximum making (inrush) current                  |                                    |                                                                        |                            | 15 A, 240 V AC                                                              |                                                                                                                  |                            |                              |
| Minimum switching power                          |                                    |                                                                        |                            | 100 mA/12 V (AgSnO <sub>2</sub> ) / 50 mW (AgSnO <sub>2</sub> /Au)          |                                                                                                                  |                            |                              |
| Maximum switching (breaking) power               |                                    |                                                                        |                            | AC1 (resistive)                                                             | 1500 VA, 250 V AC                                                                                                |                            |                              |
| Contact resistance                               |                                    |                                                                        |                            | ≤ 100 mΩ (at 1 A 6 V DC) / gold-plated: ≤ 30 mΩ (at 1 A 6 V DC)             |                                                                                                                  |                            |                              |
| Maximum operating frequency                      |                                    |                                                                        |                            | rated load AC1<br>without load                                              | 360 switching cycles/h<br>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)<br>(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 μs) 1 min                                                                                           |                            |                              |
|                                                  |                                    |                                                                        |                            | between open contacts                                                       | 1 kV (1.2/50 μs) 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                      |                |                |
| Overvoltage 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 <sub>s</sub>           | 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 <sub>s</sub>                                                  | (0.8-1.2) U <sub>s</sub>            |               |                 |                 |
| 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                                                                       |                                     |               |                 |                 |
| Output circuits                                       |                                                                           |                                     |               |                 |                 |
| Output circuit(s)                                     | 11-12/14                                                                  |                                     |               |                 |                 |
| Number of poles                                       | 1                                                                         |                                     |               |                 |                 |
| Rated voltage                                         | 250 V AC                                                                  |                                     |               |                 |                 |
| Rated current                                         | 6 A                                                                       |                                     |               |                 |                 |
| General data for CR-S with screw connection terminal  |                                                                           |                                     |               |                 |                 |
| 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 mm² (2 x 20 - 16 AWG) |               |                 |                 |
|                                                       | fine-strand                                                               |                                     |               |                 |                 |
|                                                       | with wire end ferule                                                      | 2 x 0.5 - 1 mm² (2 x 20 - 18 AWG)   |               |                 |                 |
| Tightening torque                                     | 0.5 Nm (4.426 lb.in)                                                      |                                     |               |                 |                 |
| Stripping length                                      | 7 mm (0.28 in)                                                            |                                     |               |                 |                 |
| Minimum clamping force                                | with 0.2 mm²                                                              | 10 N                                |               |                 |                 |
| for fine-strand wire                                  | with 1.5 mm²                                                              | 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                                  |               |                 |                 |
| General data for CR-S with spring connection terminal |                                                                           |                                     |               |                 |                 |
| 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 mm² (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                              |               |                 |                 |
| Isolation data                                        |                                                                           |                                     |               |                 |                 |
| Isolation between coil and contacts                   | 5000 V AC                                                                 |                                     |               |                 |                 |
| Resistance to shock coil to contact                   | 1000 MΩ                                                                   |                                     |               |                 |                 |
| Clearance and creepage distance                       | IEC/EN 61984                                                              |                                     |               |                 |                 |
| Standards / Directives                                |                                                                           |                                     |               |                 |                 |
| 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                |                |                |
| Electrical connection                                                               |  |                     |                |                |
| Jumper bar cross section                                                            |  | 123.2 mm (4.850 in) |                |                |
| Step distance                                                                       |  | 6.3 mm (0.248 in)   |                |                |
| Rail length                                                                         |  | 16.7 mm (0.657 in)  |                |                |
| with isolation                                                                      |  | 6.7 mm (0.264 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)     |                |                |
| Environmental data                                                                  |  |                     |                |                |
| Ambient temperature range                                                           |  | operation           | -40 ... +70 °C |                |
| General data                                                                        |  |                     |                |                |
| 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-P024MOS1   | 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 $\Omega$             | $\pm 10\%$                   |
| AC coils                                                                            | 220 V DC                           | -               | 176 V DC                | 242 V DC         | $\geq 0.1 U_s$ | 0.9 W       | 54000 $\Omega$             | $\pm 10\%$                   |
|                                                                                     | 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)<br>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)<br>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)<br>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)<br>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)<br>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)<br>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<br>21-22/24     | 11-12/14<br>21-22/24          | 11-12/14<br>21-22/24<br>31-32/34    | 11-12/14<br>21-22/24<br>31-32/34<br>41-42/44 | 11-12/14<br>31-32/34               | 11-12/14<br>21-22/24<br>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<br>AgNi/Au<br>5 µm  | AgNi                          | AgNi                                | AgNi<br>AgNi/Au<br>5 µm                      | AgNi                               |                                              |
| Rated operational voltage $U_e$<br>(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                            |                                              |                                    |                                              |
|                                                            |                                                                              | 440 V AC                 |                               | 250 V AC                            |                                              |                                    | 440 V AC                                     |
| Minimum switching current                                  | 5 mA (AgNi),<br>2 mA (AgNi/Au)                                               |                          | 5 mA (AgNi)                   | 5 mA (AgNi)                         | 2 mA<br>(AgNi/Au)                            | 5 mA                               |                                              |
| Rated free air thermal current $I_{th}$                    | 16 A                                                                         | 8 A                      | 12 A                          | 10 A                                | 6 A                                          | 10 A                               |                                              |
| Rated<br>operational<br>current<br>(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<br>(UL 508)                                      | utilization category (pilot<br>duty) (contact rating code<br>designation)    | B300                     |                               | B300                                |                                              |                                    | B300                                         |
|                                                            | max. rated operational<br>voltage                                            | 300 V AC                 |                               | 300 V AC                            |                                              |                                    | 300 V AC                                     |
|                                                            | max. continuous<br>thermal current<br>at utilization category                | 5 A                      |                               | 5 A                                 | 5 A                                          | 2.5 A                              | 5 A                                          |
|                                                            | max. making / breaking<br>apparent<br>power at utilization<br>category       | 3600 / 360 VA            |                               | 3600 / 360 VA                       |                                              |                                    | 1800 /<br>180 VA                             |
|                                                            | utilization category<br>(resistive)<br>(CSA22.2 No.14....)                   | 16 A,<br>250 V AC        | 8 A, 250 V AC                 | 10 A,<br>250 V AC<br>12 A, 150 V AC | 6 A, 250 V AC<br>10 A,<br>150 V AC           | 5 A, 250 V AC<br>10 A,<br>150 V AC | 10 A, 250 V AC<br>(resistive + single-phase) |
|                                                            |                                                                              |                          |                               |                                     |                                              |                                    |                                              |
| DC rating *<br>(UL 508;<br>NEMA ICS-5)                     | utilization category<br>(pilot duty)<br>(contact rating code<br>designation) | R300                     |                               |                                     |                                              |                                    |                                              |
|                                                            | max. rated operational<br>voltage                                            | 300 V DC                 |                               |                                     |                                              |                                    |                                              |
|                                                            | max. continuous<br>thermal current<br>at utilization category                | 1 A                      |                               |                                     |                                              |                                    |                                              |
|                                                            | max. making / breaking<br>apparent<br>power at utilization<br>category       | 28 VA                    |                               |                                     |                                              |                                    |                                              |
|                                                            | utilization category<br>(resistive)<br>(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),<br>0.05 W (AgNi/Au)                                            |                          | 0.3 W (AgNi), 0.1 W (AgNi/Au) |                                     |                                              | 0.3 W                              |                                              |
| Maximum switching (breaking)<br>power                      | AC1<br>(resistive)                                                           | 4000 VA                  | 2000 VA                       | 3000 VA                             | 2500 VA                                      | 1500 VA                            | 2500 VA                                      |
| Contact resistance                                         | ≤ 100 mΩ                                                                     |                          |                               |                                     |                                              |                                    |                                              |
| Maximum operating frequency                                | rated load<br>AC-1                                                           | 600 switching cycles/h   |                               | 1200 switching cycles/h             |                                              |                                    |                                              |
|                                                            | without<br>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)                       |          |
| Isolation data                                   |                             |                                                        |                                                 |                                                                             |          |                    |                                                  |          |
| 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                                                |          |
| General data                                     |                             |                                                        |                                                 |                                                                             |          |                    |                                                  |          |
| Dimensions                                       |                             | see 'Dimensional drawings'                             |                                                 |                                                                             |          |                    |                                                  |          |
| Mounting                                         |                             | on socket (see accessories)                            |                                                 |                                                                             |          |                    |                                                  |          |
| Mounting position                                |                             | any                                                    |                                                 |                                                                             |          |                    |                                                  |          |
| Degree of protection                             |                             | IP 67                                                  |                                                 | IP 40                                                                       |          |                    |                                                  |          |
| Electrical connection                            |                             |                                                        |                                                 |                                                                             |          |                    |                                                  |          |
| Connection                                       |                             | by socket                                              |                                                 |                                                                             |          |                    |                                                  |          |
| Environmental data                               |                             |                                                        |                                                 |                                                                             |          |                    |                                                  |          |
| 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                                             |          |
| Standards / Directives                           |                             |                                                        |                                                 |                                                                             |          |                    |                                                  |          |
| 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

| Output circuits                              |              | CR-P024MOS1                | CR-P024TRI1      |
|----------------------------------------------|--------------|----------------------------|------------------|
| 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            |
| Isolation data                               |              |                            |                  |
| 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                |
| General data                                 |              |                            |                  |
| Dimensions                                   |              | see 'Dimensional drawings' |                  |
| Weight                                       |              | 11 g (0.618 lbs)           | 11 g (0.618 lbs) |
| Mounting                                     |              | on socket                  | on socket        |
| Environmental data                           |              |                            |                  |
| Ambient temperature                          | operational  | -20...+80 °C               | -20...+80 °C     |
|                                              | storage      | -40...+100 °C              | -40...+100 °C    |
| Standards / Directives                       |              |                            |                  |
| 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                                             |  |          |  |           |  |
| General data                                     |  |                                              |  |                                                 |  |                                                  |  |                                                 |  |                                                  |  |                                                |  |                                                 |  |                                                  |  |          |  |           |  |
| 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 0.2 - 1.5 mm <sup>2</sup> (2 x 24 - 16 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)  |  |          |  |           |  |
|                                                  |  | with wire end ferrule                        |  | 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   |  |           |  |
| Isolation data                                   |  |                                              |  |                                                 |  |                                                  |  |                                                 |  |                                                  |  |                                                |  |                                                 |  |                                                  |  |          |  |           |  |
| 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                                 |  |                                                 |  |                                                  |  |                                                 |  |                                                  |  |                                                |  |                                                 |  |                                                  |  |          |  |           |  |
| Standards / Directives                           |  |                                              |  |                                                 |  |                                                  |  |                                                 |  |                                                  |  |                                                |  |                                                 |  |                                                  |  |          |  |           |  |
| 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<br>(VDE 0660 / part 500)                                  |                   | 400 V               |                    |
| Rated current<br>(VDE 0660 / part 500)                                              |                   | 25 A                |                    |
| Electrical connection                                                               |                   |                     |                    |
| Bus bar diameter                                                                    |                   | 6 mm² (0.0093 in²)  |                    |
| Step distance                                                                       |                   | 15.5 mm (0.610 in)  | 27.2 mm (1.071 in) |
| Rail length                                                                         | with isolation    | 150 mm (5.906 in)   | 255 mm (10.039 in) |
|                                                                                     | without isolation | 141.5 mm (5.571 in) | 245 mm (9.646 in)  |
| Stripping length of a connection wire that is used in combination with a jumper bar |                   | 6 mm (0.236 in)     |                    |
| Environmental data                                                                  |                   |                     |                    |
| Ambient temperature range                                                           |                   | operation           | -40... +55 °C      |
| Isolation data                                                                      |                   |                     |                    |
| Rated impulse withstand voltage U <sub>imp</sub><br>(VDE 0660 / part 500)           |                   | 4 kV (1.2/50 µs)    |                    |
| Overvoltage category (IEC/EN 60664)                                                 |                   | III                 |                    |
| Pollution degree (IEC/EN 60664)                                                     |                   | 2                   |                    |
| General data                                                                        |                   |                     |                    |
| 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                | 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 |               |                  |                 |                    |       |
| 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 |               |                  |                 |                    |       |

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

|                        |                                |                    |            |               |             |                                                           |             |               |             |
|------------------------|--------------------------------|--------------------|------------|---------------|-------------|-----------------------------------------------------------|-------------|---------------|-------------|
| CR-P/M 62              |                                |                    |            |               |             |                                                           |             |               |             |
| 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 kΩ, 0.25 W       |            | 15 kΩ, 0.25 W |             | 3 kΩ, 0.25 W                                              |             | 15 kΩ, 0.25 W |             |
| Polarized              | AC: no, DC: yes (A1+, A2-)     |                    |            |               |             |                                                           |             |               |             |
| Material               | enclosure / base               | PA6 + GF - UL94 V0 |            |               |             |                                                           |             |               |             |
| CR-P/M 72, 82          |                                |                    |            |               |             |                                                           |             |               |             |
| 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 |            |               |             |                                                           |             |               |             |
| CR-P/M 92              |                                |                    |            |               |             |                                                           |             |               |             |
| 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 kΩ, 0.25 W     |            |               |             |                                                           |             |               |             |
| Polarized              | AC: no, DC: yes (A1+, A2-)     |                    |            |               |             |                                                           |             |               |             |
| Material               | enclosure / base               | PA6 + GF - UL94 V0 |            |               |             |                                                           |             |               |             |
| Standards / Directives |                                |                    |            |               |             |                                                           |             |               |             |
| 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                                    |        |                                        |
| General data                        |                       |                                         |        |                                        |
| 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 mm² (2 x 20 - 14 AWG) |        |                                        |
|                                     | fine-strand           |                                         |        |                                        |
|                                     | with wire end ferrule | 2 x 0.5 - 1.5 mm² (2 x 20 - 16 AWG)     |        | 2 x 0.5 - 1.5 mm²<br>(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                          |
| Isolation data                      |                       |                                         |        |                                        |
| Insulation voltage                  |                       | > 2 kV                                  |        |                                        |
| Isolation between coil and contacts |                       | IEC/EN 61984                            |        |                                        |
| Clearance and creepage distance     |                       | IEC/EN 61984                            |        |                                        |
| Standards/Directives                |                       |                                         |        |                                        |
| 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 |           |               |          |                |       |

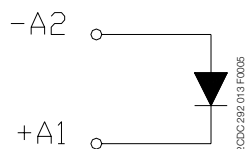
## Technical data - CR-U function modules

|                        |                                                                                      |                    |               |                  |                                                           |                    |               |               |       |
|------------------------|--------------------------------------------------------------------------------------|--------------------|---------------|------------------|-----------------------------------------------------------|--------------------|---------------|---------------|-------|
| CR-U 51                |                                                                                      |                    |               |                  |                                                           |                    |               |               |       |
| 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 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 |               |                  |                                                           |                    |               |               |       |
| CR-U 61                |                                                                                      |                    |               |                  |                                                           |                    |               |               |       |
| 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 kΩ, 0.25 W       |               | 15 kΩ, 0.25 W    |                                                           | 3 kΩ, 0.25 W       |               | 15 kΩ, 0.25 W |       |
| Polarized              | AC: no, DC: yes (A1+, A2-)                                                           |                    |               |                  |                                                           |                    |               |               |       |
| Material               | Enclosure / Base                                                                     | PA6 + GF - UL94 V0 |               |                  |                                                           |                    |               |               |       |
| CR-U 71, 81            |                                                                                      |                    |               |                  |                                                           |                    |               |               |       |
| 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 |               |                  |                                                           |                    |               |               |       |
| CR-U 91                |                                                                                      |                    |               |                  |                                                           |                    |               |               |       |
| 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 kΩ, 0.25 W     |               |                  |                                                           |                    |               |               |       |
| Polarized              | AC: no, DC: yes (A1+, A2-)                                                           |                    |               |                  |                                                           |                    |               |               |       |
| Material               | Enclosure / Base                                                                     | PA6 + GF - UL94 V0 |               |                  |                                                           |                    |               |               |       |
| Standards / Directives |                                                                                      |                    |               |                  |                                                           |                    |               |               |       |
| Standards              | IEC/EN 61984                                                                         |                    |               |                  |                                                           |                    |               |               |       |
| Low Voltage Directive  | 2014/35/EU                                                                           |                    |               |                  |                                                           |                    |               |               |       |
| RoHS Directive         | 2011/65/EU                                                                           |                    |               |                  |                                                           |                    |               |               |       |

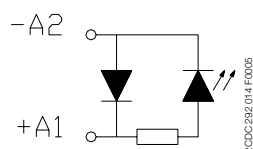
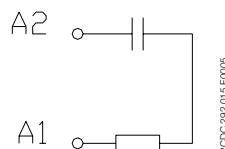
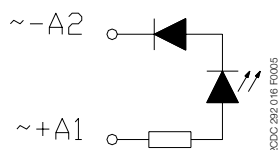
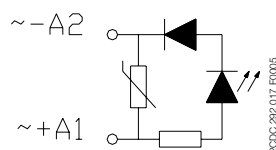
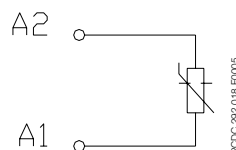
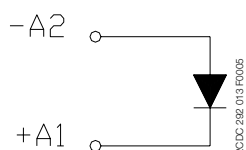
## Pluggable interface relays and optocouplers

### Technical diagrams

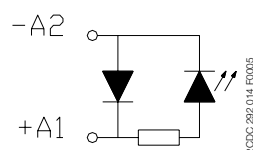
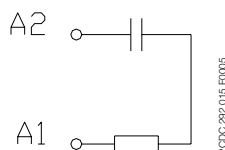
#### Connection diagrams



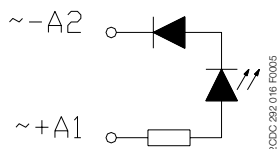
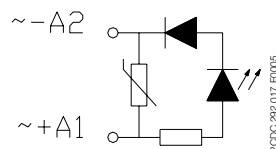
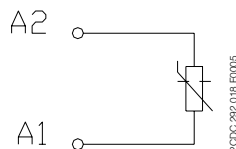
CR-P/M 22

CR-P/M 42, CR-P/M 42B,  
CR-P/M 42C, CR-P/M 42V,  
CR-P/M 42BV, CR-P/M 42CVCR-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 92VCR-P/M 62C, CR-P/M 62D,  
CR-P/M 92C, CR-P/M 62CV,  
CR-P/M 62DV, CR-P/M 92CVCR-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

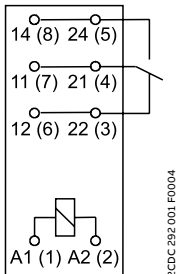
CR-U 61, CR-U 61E, CR-U 91,  
CR-U 61V, CR-U 61EV, CR-U 91VCR-U 61C, CR-U 61CV, CR-U 61D,  
CR-U 61DV, CR-U 91C, CR-U 91CV

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

## Pluggable interface relays and optocouplers

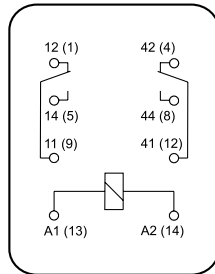
### Technical diagrams

#### Connection diagrams



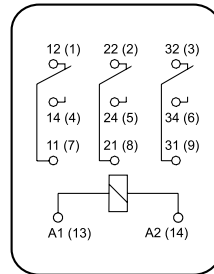
2CDC 292 001 F0004

CR-P with 1 c/o contact



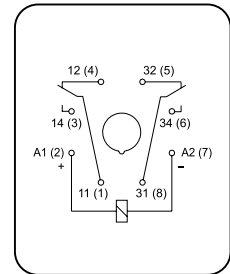
2CDC 292 011 F0004

CR-M with 2 c/o contacts



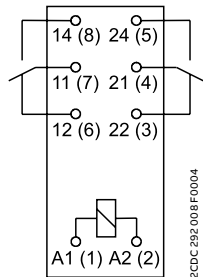
2CDC 292 016 F0004

CR-M with 3 c/o contacts



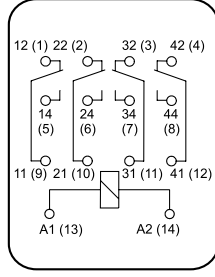
2CDC 292 024 F0004

CR-U with 2 c/o contacts



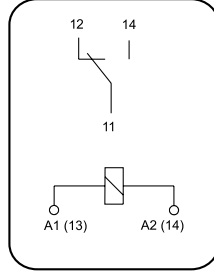
2CDC 292 008 F0004

CR-P with 2 c/o contacts



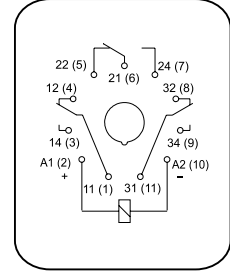
2CDC 292 020 F0004

CR-M with 4 c/o contacts



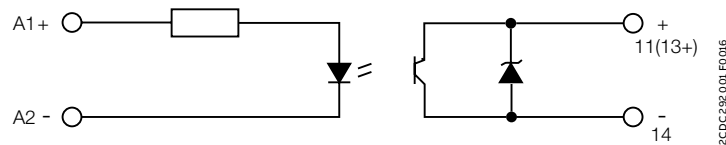
2CDC 292 001 F0014

CR-S



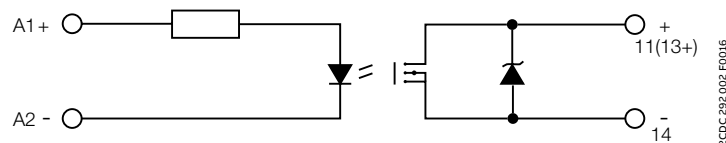
2CDC 292 030 F0004

CR-U with 3 c/o contacts



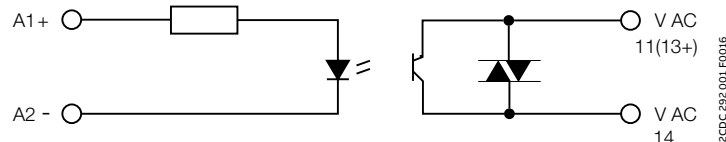
2CDC 292 001 F0016

CR-S optocoupler with Transistor



2CDC 292 002 F0016

CR-S optocoupler with MOSFET



2CDC 292 001 F0016

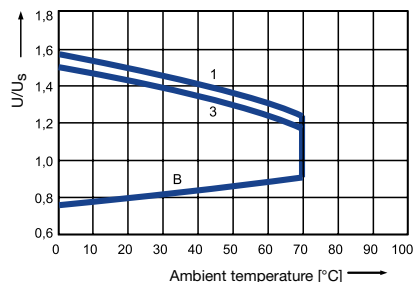
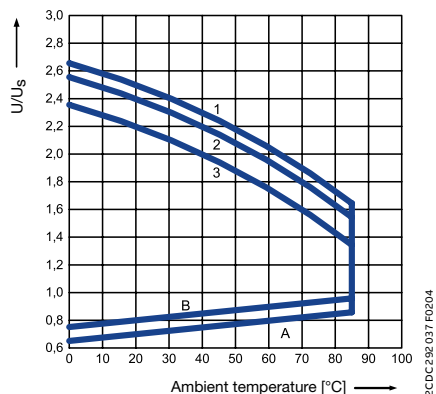
CR-S optocoupler with Triac



## Pluggable interface relays and optocouplers

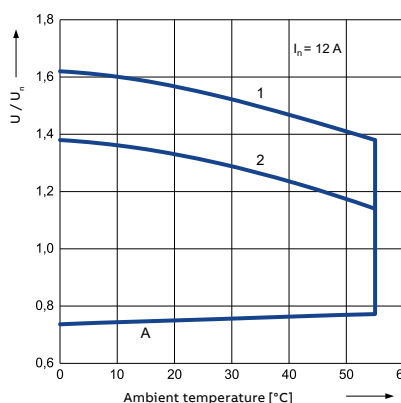
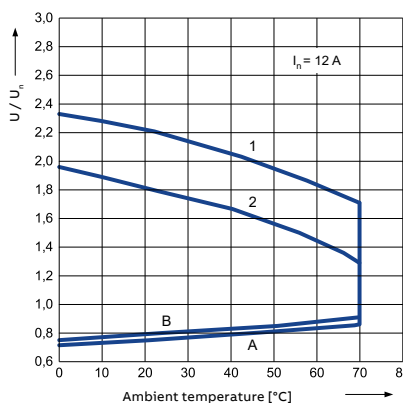
### Technical diagrams

#### CR-P: Operating range of coils

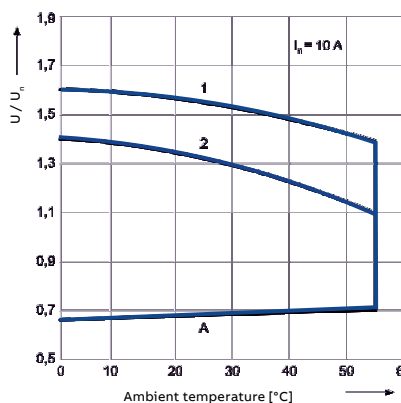
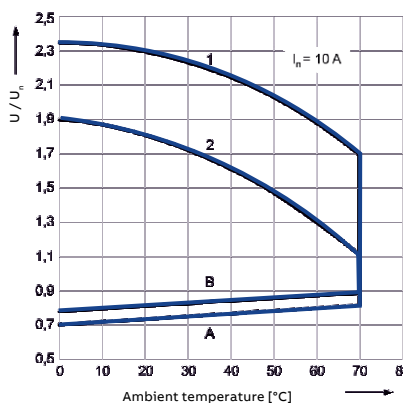


- A unloaded contacts, coil temperature = ambient temperature  
 B continued with  $I_{th}$  (16 A at CR-P ... 1 and 8 A at CR-P ... 2) loaded contacts coil heated with  $1,1 \times U_s$   
 1 at unloaded contacts  
 2 at 50 % rated load  
 3 at rated load

#### CR-M: Operating range of coils



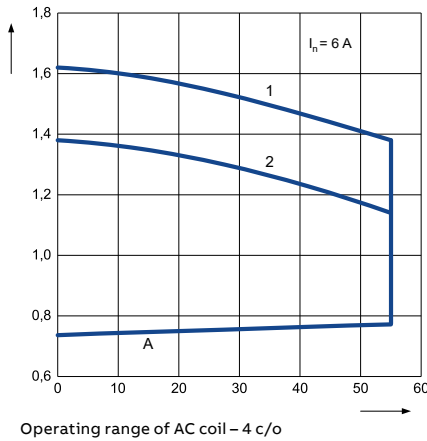
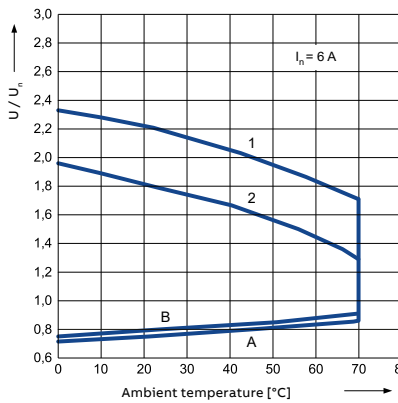
- A relations between make voltage and ambient temperature at no load on contacts. Coil temperature and ambient temperature are equal before coil energizing. Make voltage is not higher than the value read on Y axis (multiplication of rated voltage)  
 B relations between make voltage and ambient temperature 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



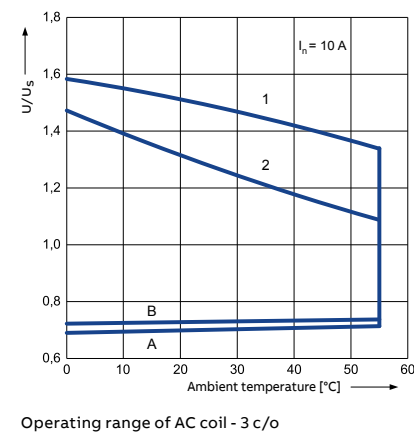
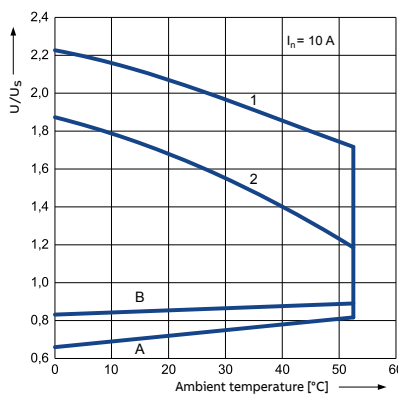
## Pluggable interface relays and optocouplers

### Technical diagrams

#### CR-M: Operating range of coils

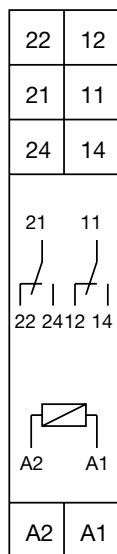


#### CR-U: Operating range of coils

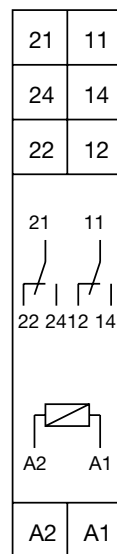


- A relations between make voltage and ambient temperature at no load on contacts. Coil temperature and ambient temperature are equal before coil energizing. Make voltage is not higher than the value read on Y axis (multiplication of rated voltage)
- B relations between make voltage and ambient temperature 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

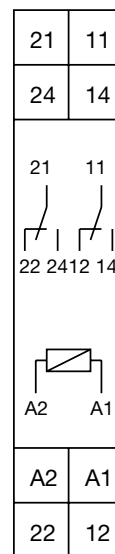
#### Electrical connection



CR-PLS



CR-PLSx, CR-PLC



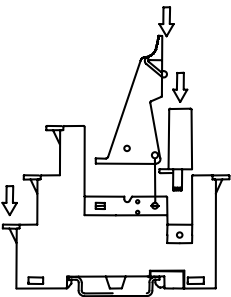
CR-PSS

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

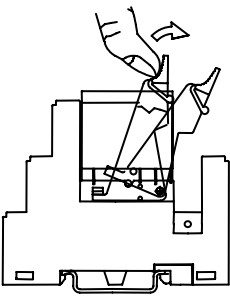
Pluggable interface relays and optocouplers

Technical diagrams

Mounting and removal of sockets

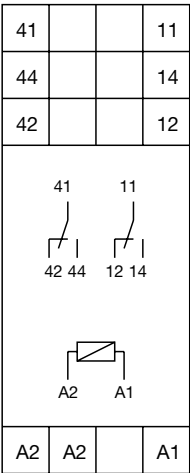


Mounting

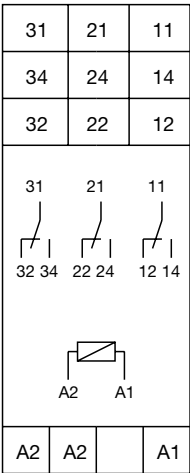


Removal

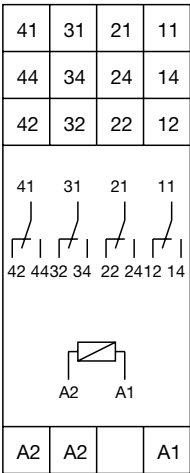
Electrical connection



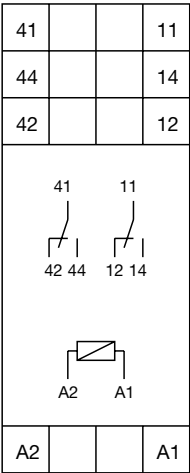
CR-M2LS(H)



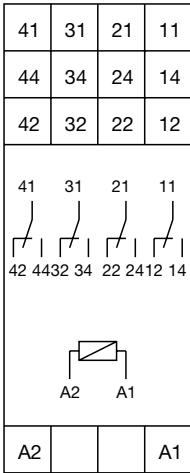
CR-M3LS(H)



CR-M4LS



CR-M2LC

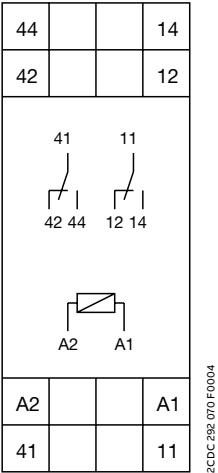


CR-M4LC

Pluggable interface relays and optocouplers

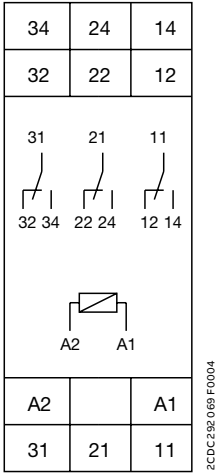
Technical diagrams

Electrical connection



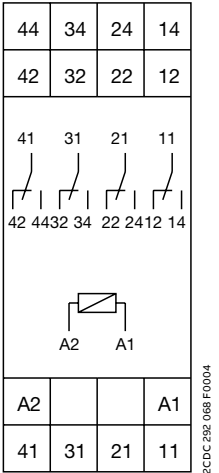
CR-M2SS,  
CR-M2SF

|           |                |
|-----------|----------------|
| 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  |



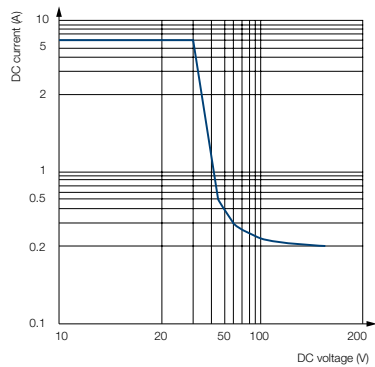
CR-M4SS,  
CR-M4SF

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

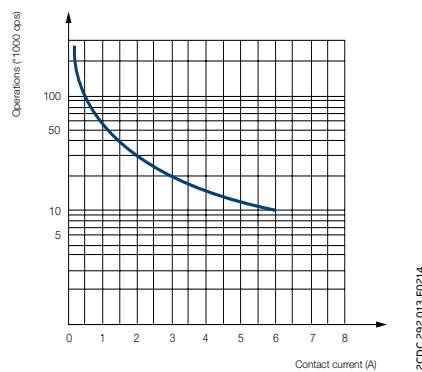
## Pluggable interface relays and optocouplers

### Technical diagrams

#### Technical diagrams CR-S interface relays

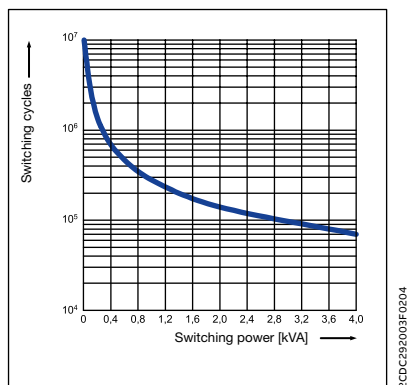


Max. DC load breaking capacity

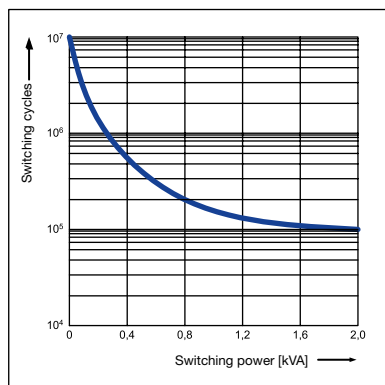


Endurance curve

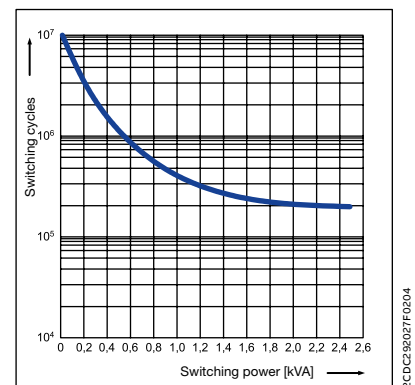
#### Load limit curves CR-P, CR-M and CR-U - Electrical lifetime at resistive AC load



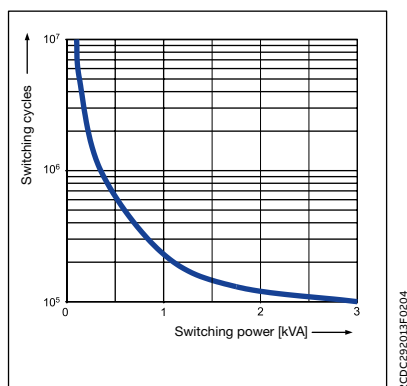
CR-P with 1 c/o contact



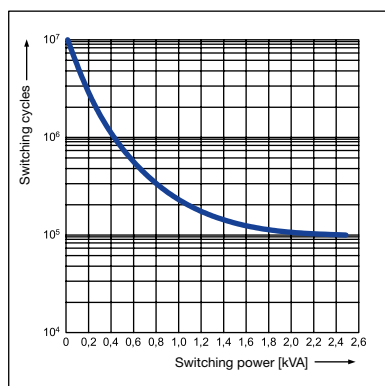
CR-P with 2 c/o contacts



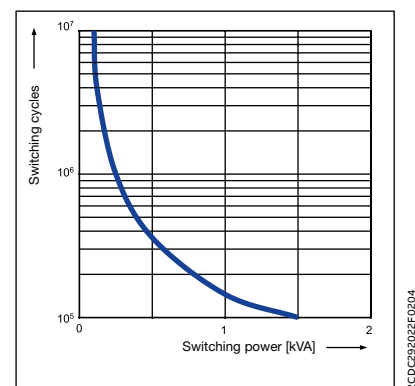
CR-U with 2 and 3 c/o contacts



CR-M with 2 c/o contacts



CR-M with 3 c/o contacts

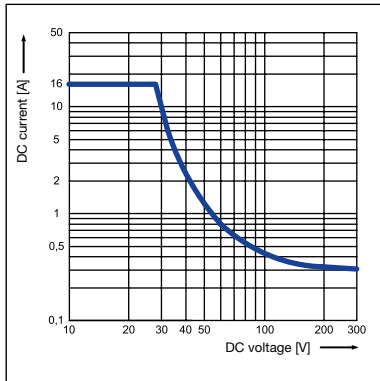


CR-M with 4 c/o contacts

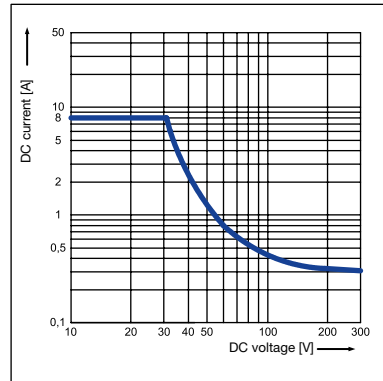
## Pluggable interface relays and optocouplers

### Technical diagrams

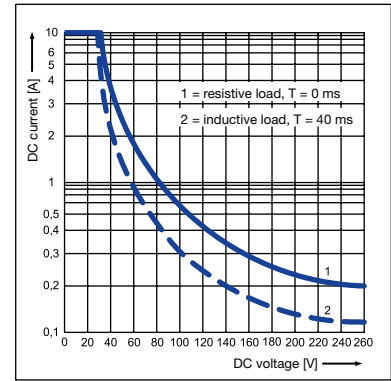
#### Load limit curves CR-P, CR-M and CR-U - Maximum switching power at resistive DC load



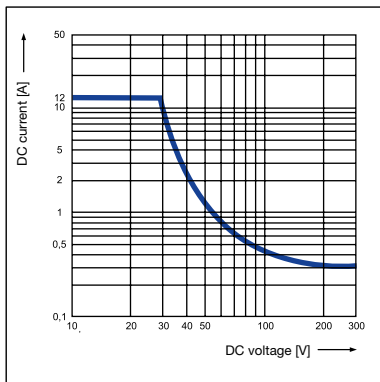
CR-P with 1 c/o contact



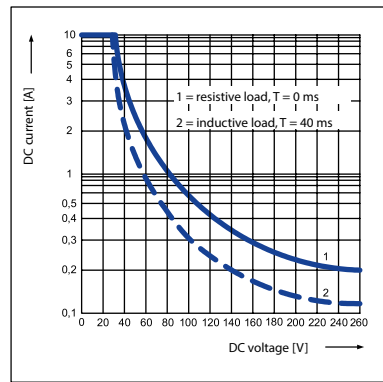
CR-P with 2 c/o contacts



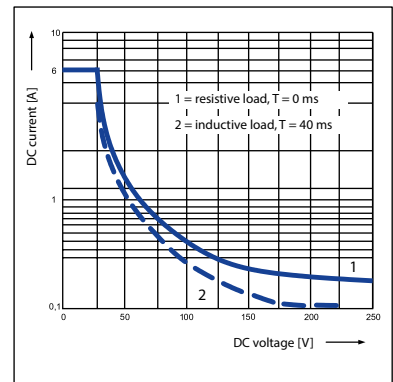
CR-U with 2 and 3 c/o contacts



CR-M with 2 c/o contacts

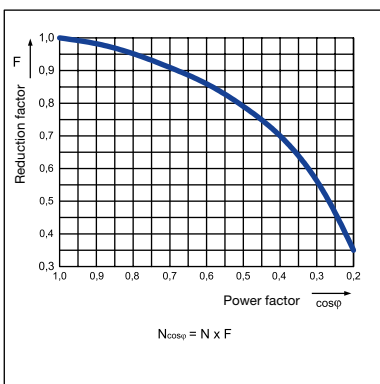


CR-M with 3 c/o contacts

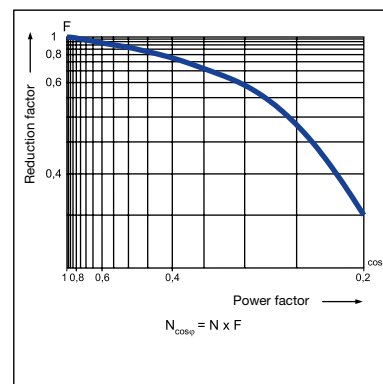


CR-M with 4 c/o contacts

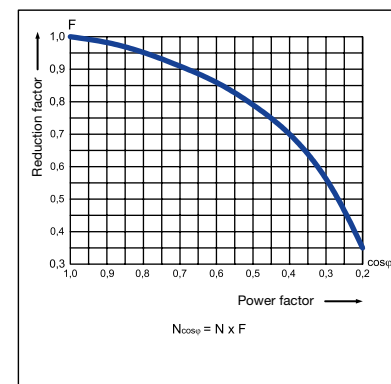
#### Reduction factor CR-P, CR-M and CR-U – F at inductive AC load



CR-P



CR-M

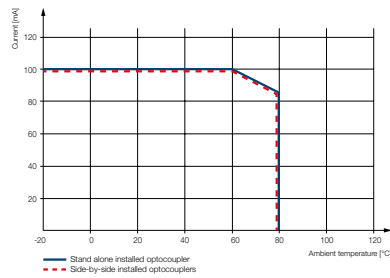


CR-U

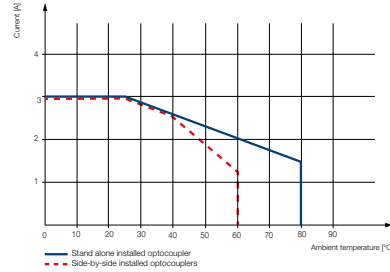
## Pluggable interface relays and optocouplers

### Technical diagrams

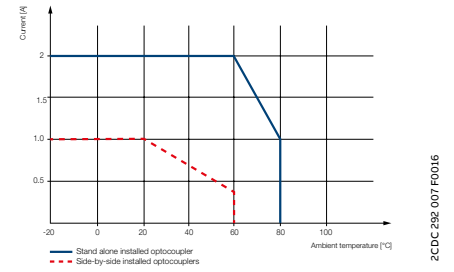
#### Derating curves



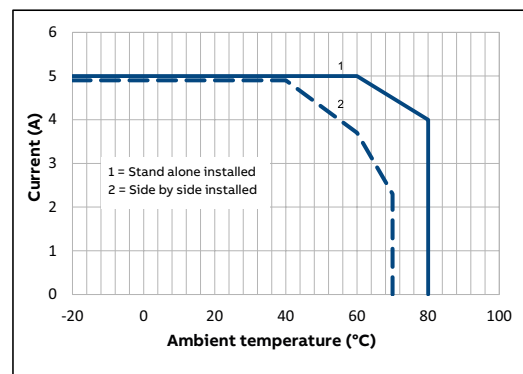
Derating curve Transistor output CR-S



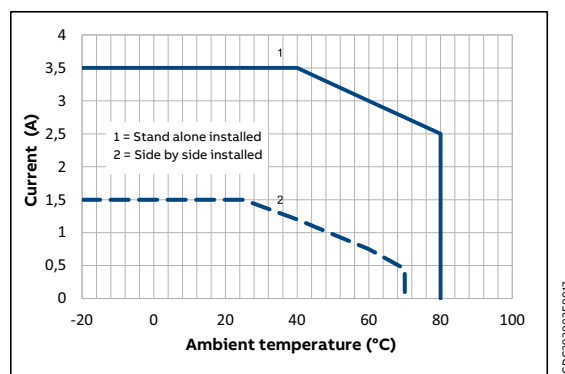
Derating curve MOS-FET output CR-S



Derating curve Triac output CR-S



MOS-FET output CR-P



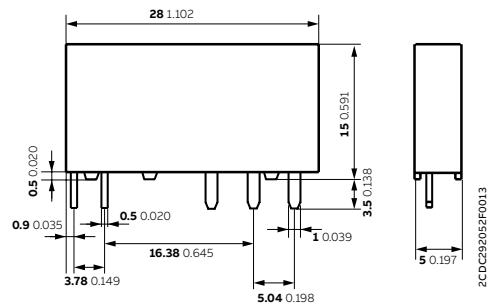
Triac output CR-P

## Pluggable interface relays and optocouplers

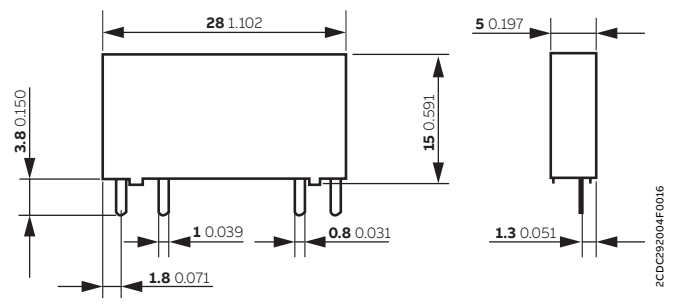
### Technical diagrams

#### Dimensional drawings

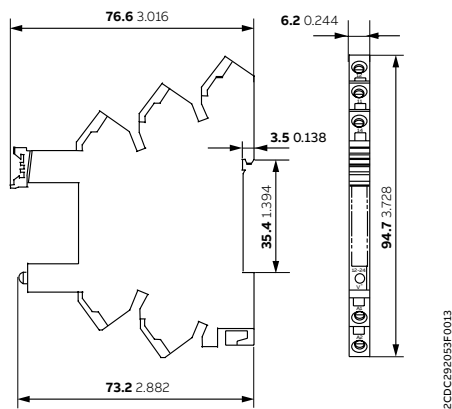
in mm and inches



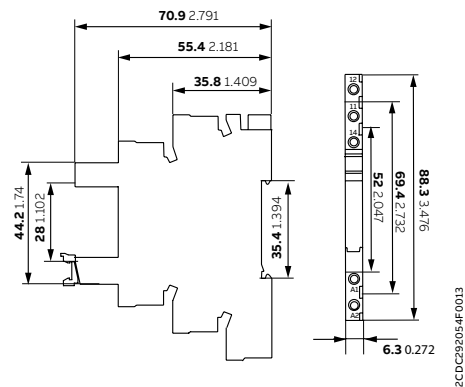
CR-S relay



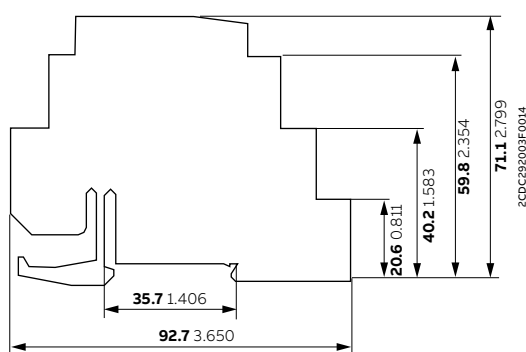
CR-S optocoupler



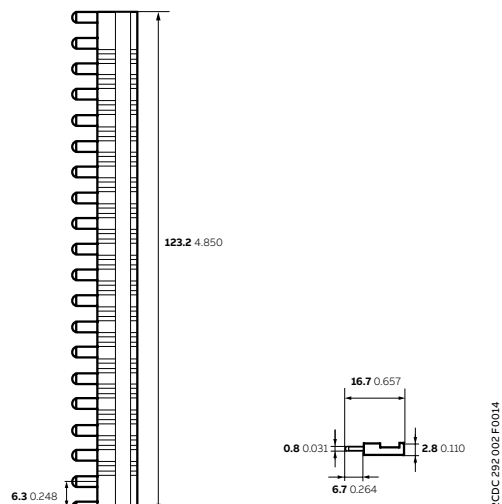
CR-S socket - spring connection



CR-S socket - screw connection



CR-S separator



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

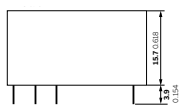


## Pluggable interface relays and optocouplers

### Technical diagrams

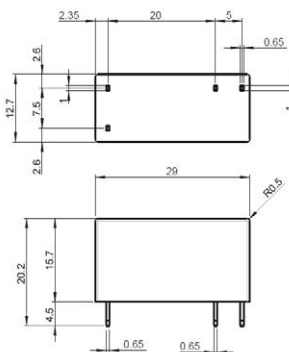
#### Dimensional drawings

in mm and inches



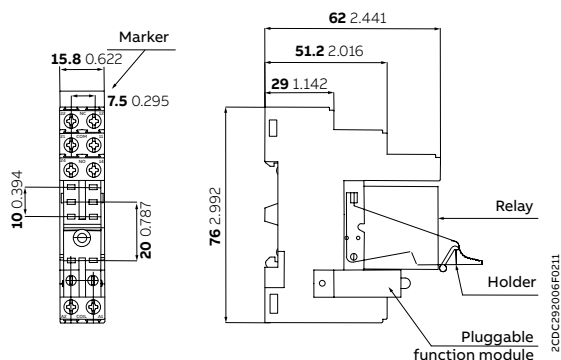
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CR-P relay



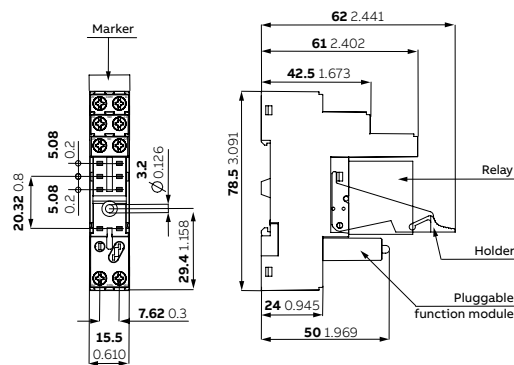
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CR-P optocoupler

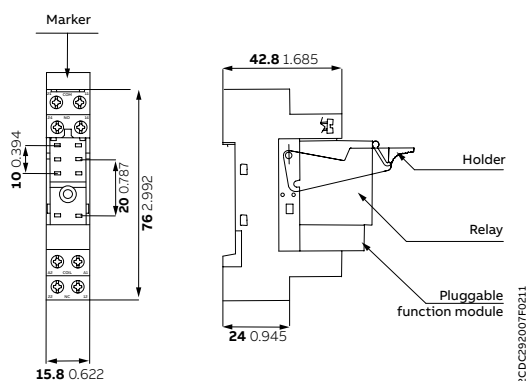


2CDC292006F0211

CR-PLS - screw connection

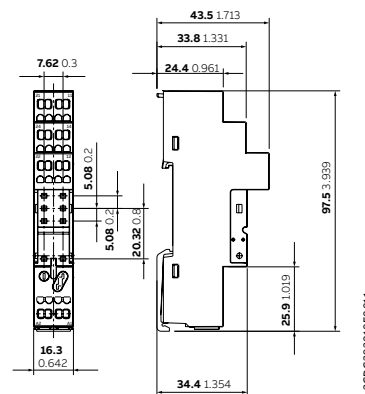


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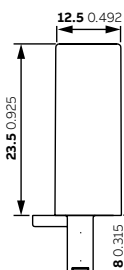
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CR-PSS - screw connection

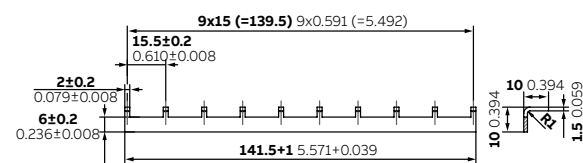


2CDC292010F0011

CR-PLC - spring connection



CR- P/Mxx function module



2CDC292012F0011

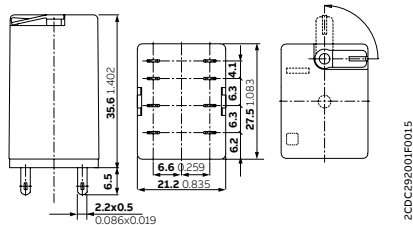
CR-PJ jumper bar

## Pluggable interface relays and optocouplers

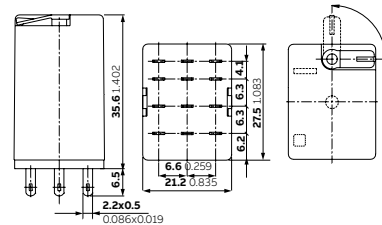
### Technical diagrams

#### Dimensional drawings

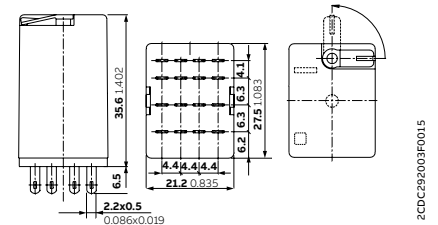
in mm and inches



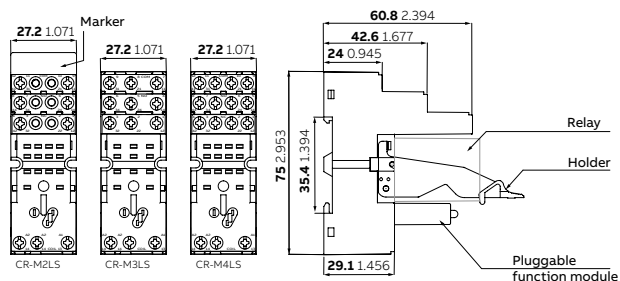
CR-M relay with 2 c/o contacts



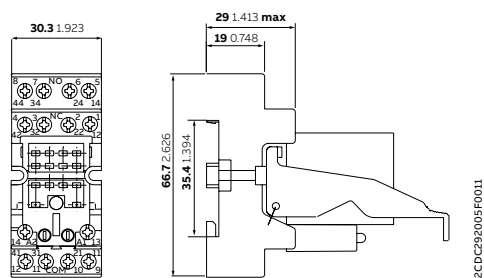
CR-M relay with 3 c/o contacts



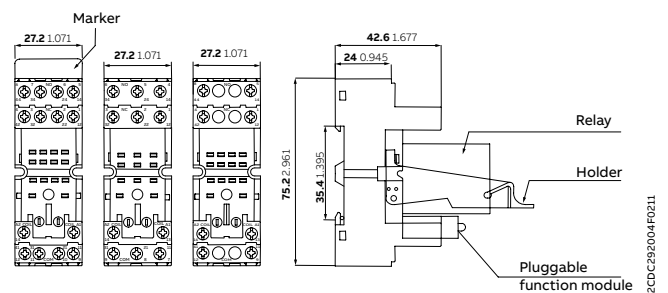
CR-M relay with 4 c/o contacts



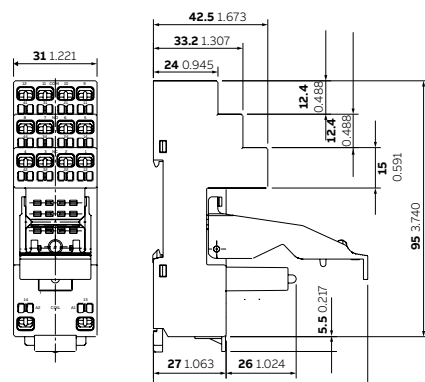
CR-M2LS(H) - CR-M3LS(H) - CR-M4LS - screw connection



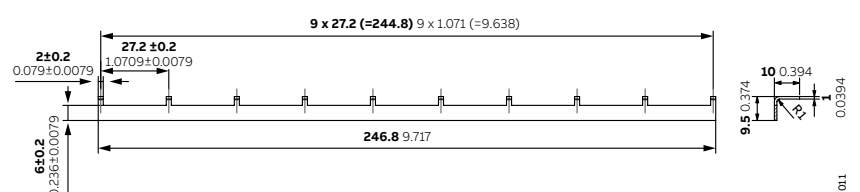
CR-MxSF - screw connection



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



CR-M4LC - spring connection



CR-MJ jumper bar

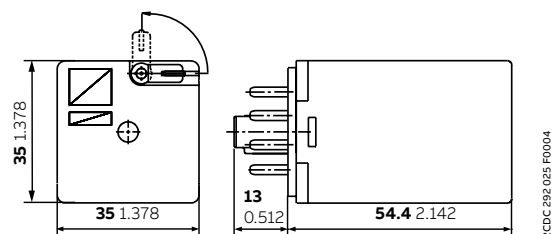
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## Pluggable interface relays and optocouplers

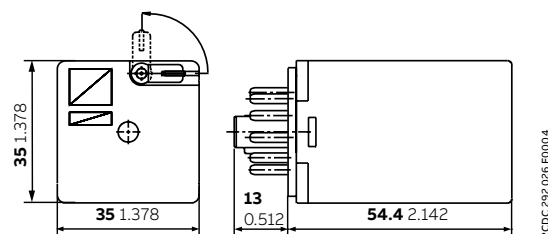
### Technical diagrams

#### Dimensional drawings

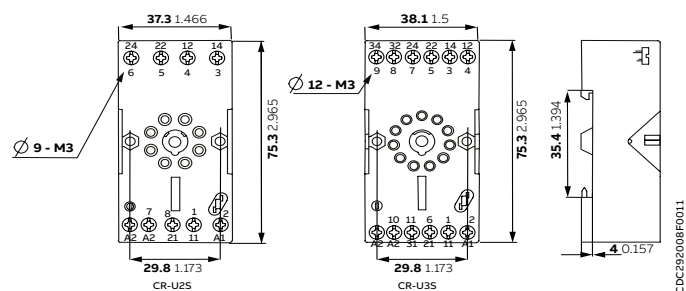
in mm and inches



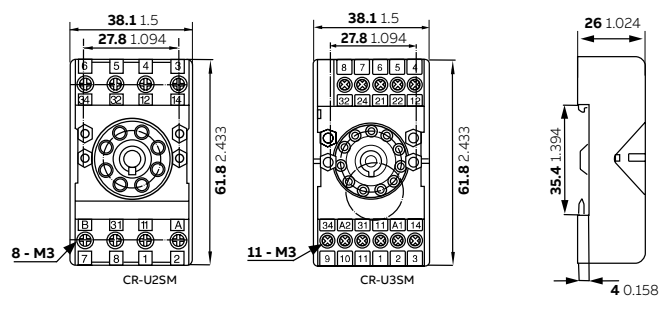
CR-U relay with 2 c/o contacts



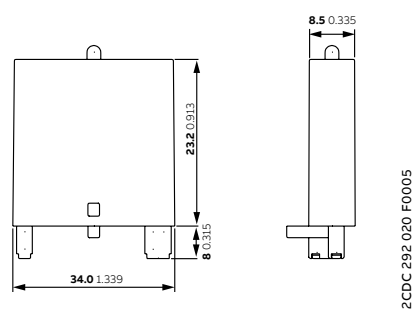
CR-U relay with 3 c/o contacts



CR-U2S - CR-U3S - screw connection



CR-U2SM - CR-U3SM - screw connection



CR-Uxx function module





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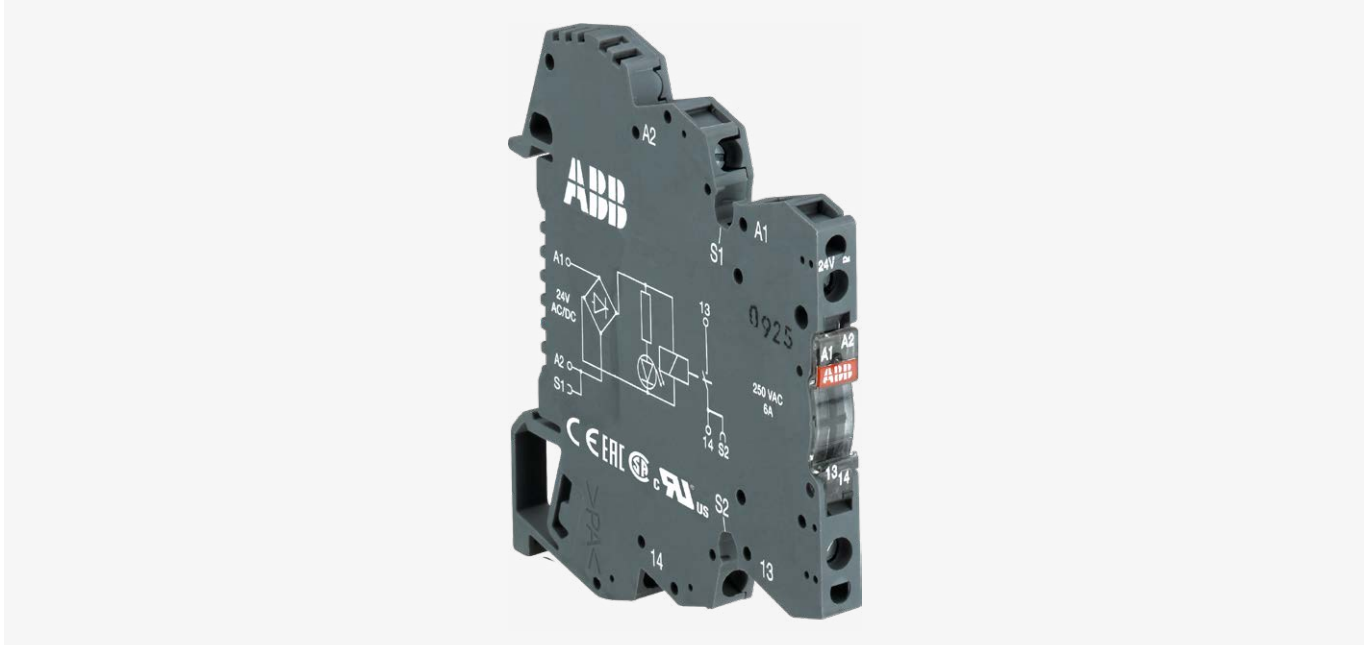
## **Boxed interface relays and optocouplers R600 range**

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# Boxed interface relays and optocouplers R600 range

## Overview

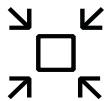


ABB's R600 range may be used in applications where electrical isolation, amplification and signal matching are required. The slim, compact design, incorporated with the variety of terminal connections available allow for the optimization of space within a control panel. This broad portfolio allows for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

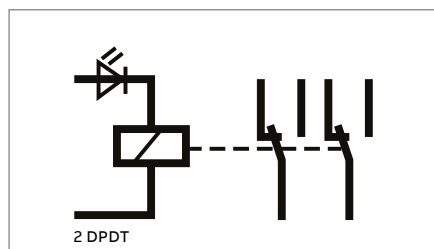


**Global availability**

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



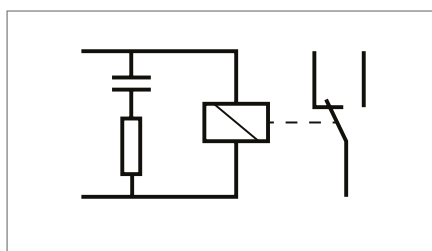
### Complete product line

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.



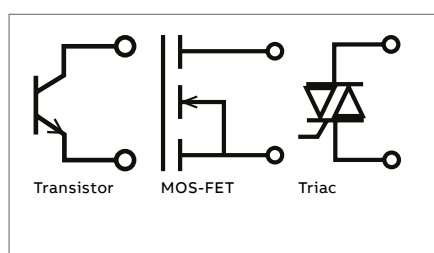
### Marine certification

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.



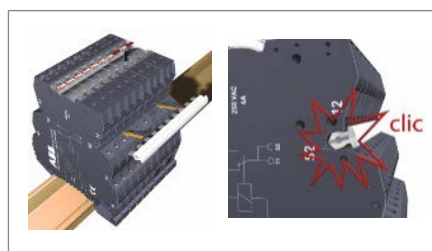
### Safe operation

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

## Selection table

|                      | Type            | Order number    |
|----------------------|-----------------|-----------------|
|                      | RB121P-5VDC     | 1SNA645034R2300 |
|                      | RB121PG-5VDC    | 1SNA645036R2500 |
|                      | RBR121P-5VDC    | 1SNA645534R2500 |
|                      | RB121-12VDC     | 1SNA645073R0000 |
|                      | RB121P-12VDC    | 1SNA645035R2400 |
|                      | RB121G-12VDC    | 1SNA645075R0000 |
|                      | RBR121P-12VDC   | 1SNA645535R2600 |
|                      | RB101R-24VUC    | 1SNA645019R0400 |
|                      | RBR101R-24VUC   | 1SNA645519R0600 |
|                      | RB111-24VUC     | 1SNA645014R2700 |
|                      | RB111R-24VUC    | 1SNA645018R0300 |
|                      | RBR111R-24VUC   | 1SNA645518R0500 |
|                      | RBR111-24VUC    | 1SNA645514R2100 |
|                      | RB121-24VUC     | 1SNA645001R0300 |
|                      | RB121G-24VUC    | 1SNA645005R0700 |
|                      | RBR121-24VUC    | 1SNA645501R0500 |
|                      | RBR121G-24VUC   | 1SNA645505R0100 |
|                      | RB122G-24VUC    | 1SNA645012R2500 |
|                      | RBR122G-24VUC   | 1SNA645512R2700 |
|                      | RB121-24VDC     | 1SNA645071R0000 |
|                      | RBR121-24VDC    | 1SNA645571R0000 |
|                      | RB121G-24VDC    | 1SNA645072R0000 |
|                      | RBR121G-24VDC   | 1SNA645572R0000 |
|                      | RB121-48-60VUC  | 1SNA645002R0400 |
|                      | RB121G-48-60VUC | 1SNA645006R0000 |
| Control voltage      |                 |                 |
| 5 V DC               | ■               | ■               |
| 12 V DC              |                 | ■               |
| 24 V DC              |                 | ■               |
| 48-60 V DC           |                 | ■               |
| 115 V DC             |                 | ■               |
| 230 V DC             |                 | ■               |
| 60-230 V DC          |                 | ■               |
| 24 V AC              |                 | ■               |
| 48-60 V AC           |                 | ■               |
| 115 V AC             |                 | ■               |
| 230 V AC             |                 | ■               |
| 60-230 V AC          |                 | ■               |
| Output rating        |                 |                 |
| 10 mA - 6 A          | ■               | ■               |
| 3 mA - 6 A           |                 | ■               |
| 1 mA - 8 A           |                 | ■               |
| Output contacts      |                 |                 |
| c/o                  | 1               | 1               |
| n/o                  |                 | 1               |
| n/c                  |                 | 1               |
| Gold plated contacts | ■               | ■               |
| Terminal type        |                 |                 |
| Screw                | ■               | ■               |
| Spring               |                 | ■               |

# Boxed interface relays R600 range

## Selection table

|                        | Type             | Order number    |
|------------------------|------------------|-----------------|
|                        | RBR121-48-60VUC  | 1SNA645502R0600 |
|                        | RBR121G-48-60VUC | 1SNA645506R0200 |
|                        | RB122G-48-60VUC  | 1SNA645040R1500 |
|                        | RBR122G-48-60VUC | 1SNA645540R1700 |
|                        | RB121-115VUC     | 1SNA645003R0500 |
|                        | RB121G-115VUC    | 1SNA645007R0100 |
|                        | RB121R-115VUC    | 1SNA645046R0700 |
|                        | RBR121-115VUC    | 1SNA645503R0700 |
|                        | RBR121G-115VUC   | 1SNA645507R0300 |
|                        | RB122G-115VUC    | 1SNA645041R0200 |
|                        | RBR122G-115VUC   | 1SNA645541R0400 |
|                        | RB111-115VUC     | 1SNA645016R2100 |
|                        | RB111-230VUC     | 1SNA645017R2200 |
|                        | RB121-230VUC     | 1SNA645004R0400 |
|                        | RB121G-230VUC    | 1SNA645008R1200 |
|                        | RB121R-230VUC    | 1SNA645011R2400 |
|                        | RBR121-230VUC    | 1SNA645504R0000 |
|                        | RBR121G-230VUC   | 1SNA645508R1400 |
|                        | RBR121R-230VUC   | 1SNA645511R2600 |
|                        | RB122G-230VUC    | 1SNA645013R2600 |
|                        | RBR122G-230VUC   | 1SNA645513R2000 |
|                        | RB121-60-230VUC  | 1SNA645020R0100 |
|                        | RBR121-60-230VUC | 1SNA645520R0300 |
| <b>Control voltage</b> |                  |                 |
| 5 V DC                 |                  |                 |
| 12 V DC                |                  |                 |
| 24 V DC                |                  |                 |
| 48-60 V DC             | ■                | ■               |
| 115 V DC               |                  | ■               |
| 230 V DC               |                  | ■               |
| 60-230 V DC            |                  | ■               |
| 24 V AC                |                  |                 |
| 48-60 V AC             | ■                | ■               |
| 115 V AC               |                  | ■               |
| 230 V AC               |                  | ■               |
| 60-230 V AC            |                  | ■               |
| <b>Output rating</b>   |                  |                 |
| 10 mA - 6 A            | ■                | ■               |
| 3 mA - 6 A             |                  | ■               |
| 1 mA - 8 A             |                  | ■               |
| <b>Output contacts</b> |                  |                 |
| c/o                    | 1                | 1               |
| n/o                    | 2                | 2               |
| n/c                    | 1                | 1               |
| Gold plated contacts   | ■                | ■               |
| <b>Terminal type</b>   |                  |                 |
| Screw                  |                  | ■               |
| Spring                 | ■                | ■               |

## 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 |         |                        |
| 230 V AC/DC                  | spring          | Leakage current protection, RC circuit parallel to input | RBR121R-230VUC   | 1SNA645511R2600 |         |                        |



R600 - 12 mm

#### 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 *<br>(replacement of BJ612-10 - 1SNA290488R0100) | RB-JB10 | 1SVR406570R0000 | 10      | 0.05 (0.11)            |
| Jumper bar, 20 poles *<br>(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    |                      |
| Input circuit                                        |  |                                      |                                                                                                                    |            |                      |
| Rated control supply voltage U <sub>s</sub>          |  | 24 V AC/DC                           |                                                                                                                    |            |                      |
| Rated control supply voltage                         |  | DC                                   | -15 %, +20 %                                                                                                       |            |                      |
| U <sub>s</sub> tolerance                             |  | 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 |            |                      |
| Output circuit                                       |  |                                      |                                                                                                                    |            |                      |
| Kind of output                                       |  | 11-12                                | relay, 1 n/c contact                                                                                               |            | -                    |
|                                                      |  | 13-14                                | -                                                                                                                  |            | relay, 1 n/o contact |
| Rated operational voltage U <sub>e</sub>             |  | 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 <sub>th</sub>       |  | 6 A                                  |                                                                                                                    |            |                      |
| Rated operational current I <sub>e</sub>             |  | 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                                 |                                                                                                                    |            |                      |

|                                                |  | RB(R)111-  |                                                                                                                      |             |
|------------------------------------------------|--|------------|----------------------------------------------------------------------------------------------------------------------|-------------|
|                                                |  | 24 V UC    | 115 V UC                                                                                                             | 230 V UC    |
| Input circuit                                  |  |            |                                                                                                                      |             |
| Rated control supply voltage U <sub>s</sub>    |  | 24 V AC/DC | 115 V AC/DC                                                                                                          | 230 V AC/DC |
| Rated control supply voltage                   |  | DC         | -15 %, +20 %                                                                                                         |             |
| U <sub>s</sub> tolerance                       |  | 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        |
| Indication of operational states               |  | green LED  |  : control supply voltage applied |             |
| Output circuit                                 |  |            |                                                                                                                      |             |
| Kind of output                                 |  | 13-14      | relay, 1 n/o contact                                                                                                 |             |
| Rated operational voltage U <sub>e</sub>       |  | 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 <sub>th</sub> |  | 6 A        |                                                                                                                      |             |

## Technical data

|                                                      |                                   | RB(R)111-                                        |          |          |
|------------------------------------------------------|-----------------------------------|--------------------------------------------------|----------|----------|
|                                                      |                                   | 24 V UC                                          | 115 V UC | 230 V UC |
| Rated operational current I <sub>e</sub>             | 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<br>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     |
| Input circuit                                         |  |                                      |                             |         |            |            |            |             |              |
| Rated control supply voltage U <sub>s</sub>           |  | 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 U <sub>s</sub> tolerance |  | DC                                   | -15 %, +20 %                |         |            |            |            |             | -15 %, +10 % |
|                                                       |  | AC                                   | -                           |         |            | -/ + 10 %  |            |             |              |
| Rated frequency                                       |  | -                                    |                             |         | 50/60 Hz   |            |            |             |              |
| Typical power consumption                             |  | 0.2 W                                | 0.2 W                       | 0.24 W  |            | 0.33 W     | 0.54 W     | 0.46 W      | 0.8 W        |
| Typical current                                       |  | 40 mA                                | 16 mA                       | 10 mA   |            | 7 mA       | 9 mA       | 4 mA        | 3.5 mA       |
| Drop-out voltage 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       |                             |         |            |            |            |             |              |
| Output circuit                                        |  |                                      |                             |         |            |            |            |             |              |
| Kind of output                                        |  | 11-12/14                             | relay, 1 c/o (SPDT) contact |         |            |            |            |             |              |
| Rated operational voltage U <sub>e</sub>              |  | 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 <sub>th</sub>        |  | 6 A                                  |                             |         |            |            |            |             |              |
| Rated operational current I <sub>e</sub>              |  | 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         |
| Release time                                          |  | 8 ms                                 | 8 ms                        | 8 ms    |            | 8 ms       | 8 ms       | 15 ms       | 16 ms        |

## Boxed interface relays R600 range

### Technical data

|                                                       |                                   | RB(R)121R-                                                                                                         |             |
|-------------------------------------------------------|-----------------------------------|--------------------------------------------------------------------------------------------------------------------|-------------|
|                                                       |                                   | 115 V UC                                                                                                           | 230 V UC    |
| Input circuit                                         |                                   |                                                                                                                    |             |
| Rated control supply voltage U <sub>s</sub>           |                                   | 115 V AC/DC                                                                                                        | 230 V AC/DC |
| Rated control supply voltage U <sub>s</sub> 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 |             |
| Output circuit                                        |                                   |                                                                                                                    |             |
| Kind of output 11-12/14                               |                                   | relay, 1 c/o (SPDT) contact                                                                                        |             |
| Rated operational voltage U <sub>e</sub>              |                                   | 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 <sub>th</sub>        |                                   | 6 A                                                                                                                |             |
| Rated operational current I <sub>e</sub>              | 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     |
| Input circuit                                         |                         |                                                                                                                    |            |            |             |              |
| Rated control supply voltage U <sub>s</sub>           |                         | 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 <sub>s</sub> 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 |            |            |             |              |
| Output circuit                                        |                         |                                                                                                                    |            |            |             |              |
| 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 <sub>e</sub>              |                         | 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 <sub>th</sub>        |                         | 8 A                                                                                                                |            |            |             |              |
| Rated operational current I <sub>e</sub>              | 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                     |
|--------------------------------------------------|---------------------|-------------------------------------------|-------------------------|
| General data                                     |                     |                                           |                         |
| Material of housing                              |                     | UL 94 V0                                  |                         |
| Mounting                                         |                     | DIN rail                                  |                         |
| Degree of protection                             | housing / terminals | IP20 NEMA1                                |                         |
| Electrical connection                            |                     | Screw terminal                            | Spring-type terminal    |
| Connecting capacity                              | fine-strand         | 0.22-2.5 mm² (24-14 AWG)                  |                         |
|                                                  | rigid               | 0.2-4 mm² (24-12 AWG)                     | 0.2-2.5 mm² (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                     |
| Environmental data                               |                     |                                           |                         |
| Ambient temperature ranges                       | storage             | -40...+80 °C (-40...+176 °F)              |                         |
|                                                  | operation           | -20...+70 °C (-4...+158 °F) <sup>1)</sup> |                         |
| Isolation data                                   |                     |                                           |                         |
| Rated insulation voltage U <sub>i</sub>          |                     | 250 V                                     |                         |
| Rated impulse withstand voltage U <sub>imp</sub> | 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                                         |                         |
| Standards/Directives                             |                     |                                           |                         |
| Standards                                        |                     | IEC/EN 60947-5-1                          |                         |
| Low Voltage Directive                            |                     | 2014/35/EC                                |                         |
| RoHS Directive                                   |                     | 2011/65/EC                                |                         |

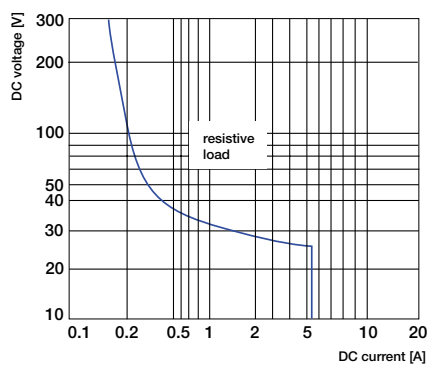
<sup>1)</sup> Over 55 °C, blocks have to be mounted on horizontal rail with 10 mm spacing between each block. For vertical rail mounting max. operation temperature is 15 °C lower.



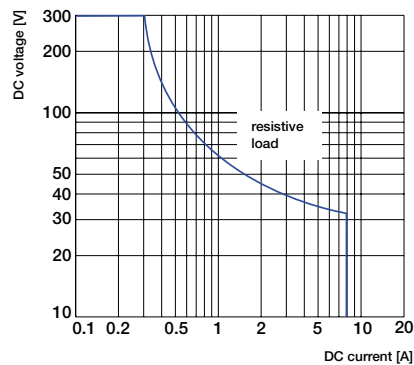
## Boxed interface relays R600 range

### Technical diagrams

#### Load limit curves



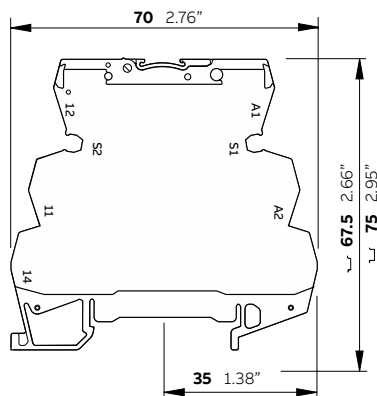
Versions with 1 n/o, 1 n/c or 1 c/o contact



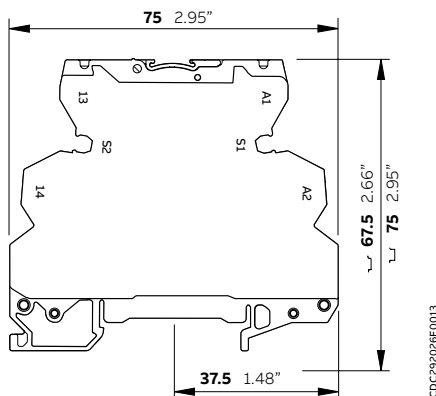
Versions with 2 c/o contacts

#### Dimensional drawings

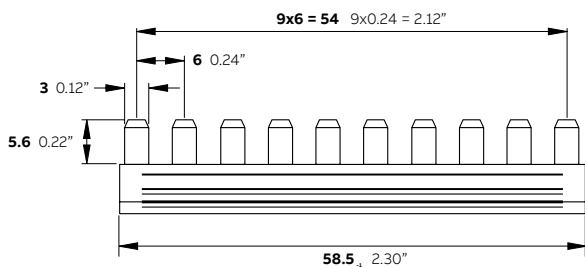
in mm and inches



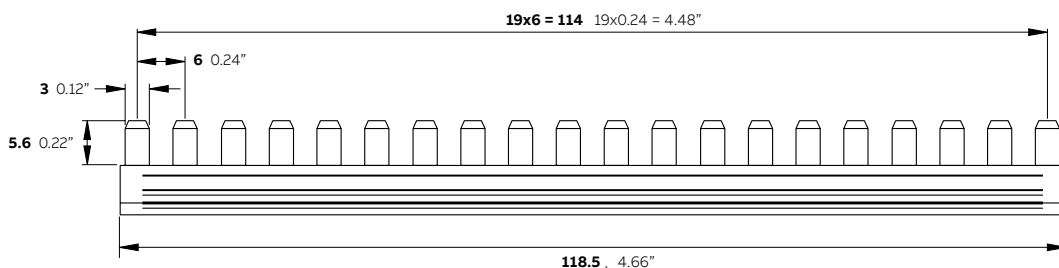
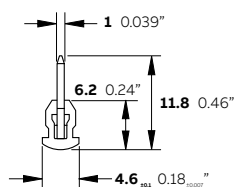
R600 - screw connection



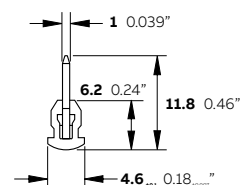
R600 - spring connection



RB-JB10



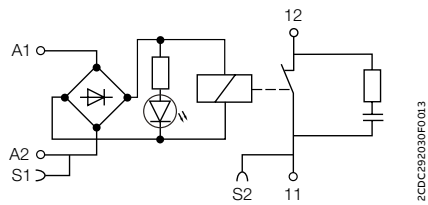
RB-JB20



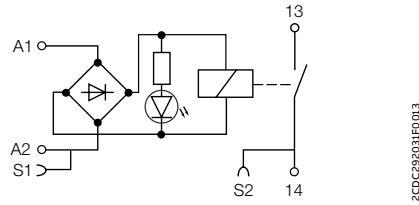
## Boxed interface relays R600 range

### Technical diagrams

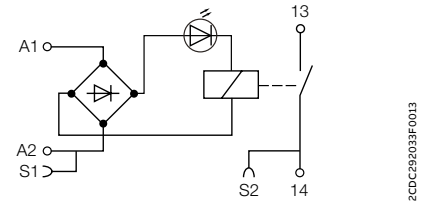
#### Connection diagrams



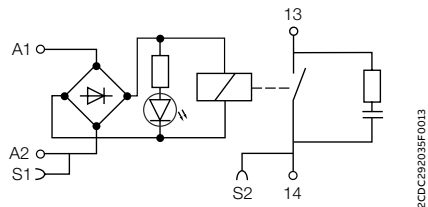
RB(R)101R - 24VUC



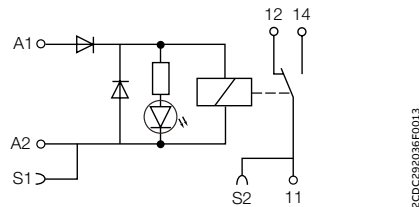
RB(R)111-24VUC



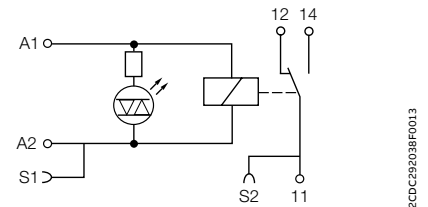
RB111-115VUC/230VUC



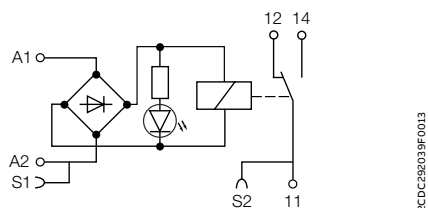
RB(R)111R-24VUC



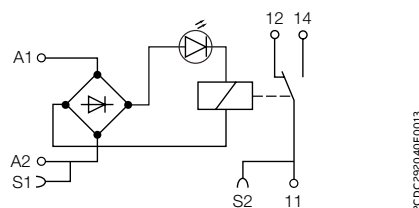
RB(R)121P(G)-5VDC/12VDC



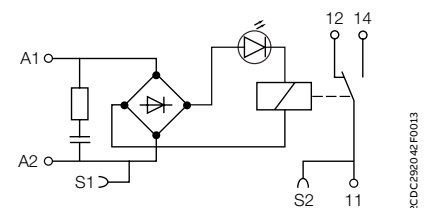
RB(R)121-12VDC/24VDC



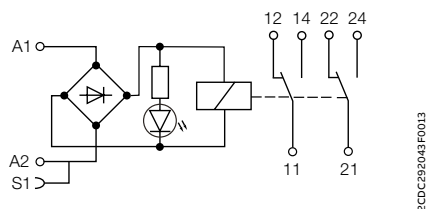
RB(R)121(G)-24VUC



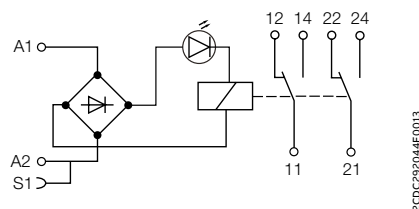
RB(R)121(G)-48-60VUC/  
115VUC/230VUC/60-230VUC



RB(R)121R-115VUC/230VUC



RB(R)122G-24VUC/48-60VUC



RB(R)122G-115VUC/230VUC

Boxed optocouplers R600 range

Selection table

|                 |  | Type               | Order number    |   |
|-----------------|--|--------------------|-----------------|---|
|                 |  | OBIC0100-5-12VDC   | 1SNA645047R0000 |   |
|                 |  | OBRIC0100-5-12VDC  | 1SNA645547R0200 |   |
|                 |  | OBIC0100-24VDC     | 1SNA645021R2600 |   |
|                 |  | OBRIC0100-24VDC    | 1SNA645521R2000 |   |
|                 |  | OBIC0100-48-60VUC  | 1SNA645049R1200 |   |
|                 |  | OBRIC0100-48-60VUC | 1SNA645549R1400 |   |
|                 |  | OBIC0100-115-230   | 1SNA645022R2700 |   |
|                 |  | OBRIC0100-115-230  | 1SNA645522R2100 |   |
|                 |  | OBOC2000-5-12VDC   | 1SNA645050R1700 |   |
|                 |  | OBROC2000-5-12VDC  | 1SNA645550R1100 |   |
|                 |  | OBOC2000-24VDC     | 1SNA645051R0400 |   |
|                 |  | OBOC2000-24VUC     | 1SNA645025R2200 |   |
|                 |  | OBOC5000-24VDC     | 1SNA645024R2100 |   |
|                 |  | OBROC2000-24VDC    | 1SNA645551R0600 |   |
|                 |  | OBROC2000-24VUC    | 1SNA645525R2400 |   |
|                 |  | OBROC5000-24VDC    | 1SNA645524R2300 |   |
|                 |  | OBOC2000-48-60VUC  | 1SNA645053R0600 |   |
|                 |  | OBROC2000-48-60VUC | 1SNA645553R0000 |   |
|                 |  | OBOC2000-115VUC    | 1SNA645054R0700 |   |
|                 |  | OBOC5000-115VUC    | 1SNA645058R1300 |   |
|                 |  | OBOC2000-230VUC    | 1SNA645026R2300 |   |
|                 |  | OBROC2000-230VUC   | 1SNA645526R2500 |   |
|                 |  | OBROC5000-230VUC   | 1SNA645559R1600 |   |
|                 |  | OBOA1000-24VDC     | 1SNA645027R2400 |   |
|                 |  | OBOA2000-24VDC     | 1SNA645029R0600 |   |
|                 |  | OBROA1000-24VDC    | 1SNA645527R2600 |   |
|                 |  | OBROA2000-24VDC    | 1SNA645529R0000 |   |
|                 |  | OBOA1000-115VUC    | 1SNA645062R0700 |   |
|                 |  | OBOA1000-230VUC    | 1SNA645028R0500 |   |
| Control voltage |  |                    |                 |   |
| 5-12 V DC       |  |                    | ■               | ■ |
| 24 V DC         |  |                    |                 | ■ |
| 48-60 V DC      |  |                    |                 | ■ |
| 115-230 V DC    |  |                    |                 | ■ |
| 115 V DC        |  |                    |                 | ■ |
| 230 V DC        |  |                    |                 | ■ |
| 24 V AC         |  |                    |                 | ■ |
| 48-60 V AC      |  |                    |                 | ■ |
| 115-230 V AC    |  |                    |                 | ■ |
| 115 V AC        |  |                    |                 | ■ |
| 230 V AC        |  |                    |                 | ■ |
| Output rating   |  |                    |                 |   |
| 100 mA          |  |                    | ■               | ■ |
| 1 A             |  |                    |                 | ■ |
| 2 A             |  |                    |                 | ■ |
| 5 A             |  |                    |                 | ■ |
| Output voltage  |  |                    |                 |   |
| 58 V DC         |  |                    | ■               | ■ |
| 230 V AC        |  |                    |                 | ■ |
| 400 V AC        |  |                    |                 | ■ |
| Terminal type   |  |                    |                 |   |
| Screw           |  |                    | ■               | ■ |
| Spring          |  |                    | ■               | ■ |
| Kind of output  |  |                    |                 |   |
| Transistor      |  |                    | ■               | ■ |
| MOS-FET         |  |                    |                 | ■ |
| Triac           |  |                    |                 | ■ |

## 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

2CDC 291 013 S0013

#### 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 *<br>(replacement of BJ612-10 - 1SNA290488R0100) | RB-JB10 | 1SVR406570R0000 | 10      | 0.05<br>(0.11)         |
| Jumper bar, 20 poles *<br>(replacement of BJ612-20 - 1SNA206754R0000) | RB-JB20 | 1SVR406580R0000 |         | 0.10<br>(0.22)         |
| Separator end section                                                 | SC612   | 1SNA290474R0200 |         | 0.05<br>(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                 |                            |
| Input circuit                                                  |  |                              |         |         |            |            |                         |                            |
| 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)<br>16 mA (DC) | 11.5 mA (AC)<br>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                  |                            |
| Output circuit                                                 |  | 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 <sub>a</sub><br>(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                  |         |         |            |            |                         |                            |
| Isolation data                                                 |  |                              |         |         |            |            |                         |                            |
| Rated insulation voltage U <sub>i</sub>                        |  | 250 V                        |         |         |            |            |                         |                            |
| Rated impulse withstand voltage U <sub>imp</sub>               |  | 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    |
| Input circuit                                        |                        |                    |         |            |            |            |             |             |
| 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      |             |
| Output circuit                                       |                        | 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 <sub>e</sub>             | 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     |         |            |            |            |             |             |
| Isolation data                                       |                        |                    |         |            |            |            |             |             |
| Rated insulation voltage U <sub>i</sub>              |                        | 250 V              |         |            |            |            |             |             |
| Rated impulse withstand voltage U <sub>imp</sub>     |                        | 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    |
| Input circuit                                        |  |                        |             |             |
| 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 μs                  | 500 μs      | 1 ms        |
| Typ. switch-off time                                 |  | 400 μs                 | 10 ms       | 15 ms       |
| Operating frequency                                  |  | 1000 Hz                | 50 Hz       | 35 Hz       |
| Permissible leakage current                          |  | 0.8 mA                 | 0.3 mA      | 0.3 mA      |
| Output circuit                                       |  | 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 μA                |             |             |
| Rated operational current I <sub>e</sub>             |  | 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         |             |             |
| Isolation data                                       |  |                        |             |             |
| Rated insulation voltage U <sub>i</sub>              |  | 250 V                  |             |             |
| Rated impulse withstand voltage U <sub>imp</sub>     |  | 2.5 kV (1.2/50 μs)     |             |             |
| Overvoltage category                                 |  | II                     |             |             |
| Pollution degree                                     |  | 2                      |             |             |

|                                                      | OB(R)OA1000-...         |             |             | OB(R)OA2000-...  |
|------------------------------------------------------|-------------------------|-------------|-------------|------------------|
|                                                      | 24 V DC                 | 115 V UC    | 230 V UC    | 24 V DC          |
| Input circuit                                        |                         |             |             |                  |
| 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 μs                  | 2.2 ms      | 2.5 ms      | 150 μs           |
| 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             |
| Output circuit                                       |                         |             |             |                  |
|                                                      | 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 μA                |             |             | < 500 μA         |
| Rated operational current I <sub>e</sub>             | 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   |
| Isolation data                                       |                         |             |             |                  |
| Rated insulation voltage U <sub>i</sub>              | 400 V                   |             |             | 230 V            |
| Rated impulse withstand voltage U <sub>imp</sub>     | 4 kV (1.2/50 μs)        |             |             | 4 kV (1.2/50 μs) |
| Overvoltage category                                 | II                      |             |             | II               |
| Pollution degree                                     | 2                       |             |             | 2                |

## Boxed optocouplers R600 range

### Technical data

#### General technical data - Optocouplers

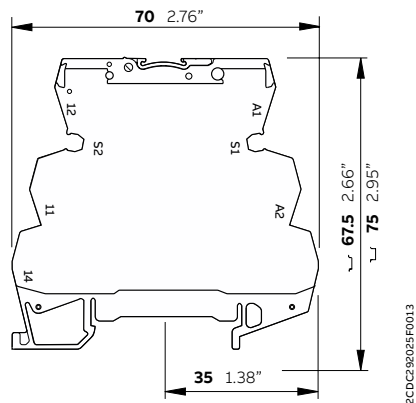
|                            |                     | OB                           | OBR                     |
|----------------------------|---------------------|------------------------------|-------------------------|
| General data               |                     |                              |                         |
| Material of housing        |                     | UL 94 V0                     |                         |
| Mounting                   |                     | DIN Rail                     |                         |
| Degree of protection       | housing / terminals | IP20 NEMA1                   |                         |
| Electrical connection      |                     | Screw terminal               | Spring-type terminal    |
| Connecting capacity        | fine-strand         | 0.22-2.5 mm² (24-14 AWG)     |                         |
|                            | rigid               | 0.2-4 mm² (24-12 AWG)        | 0.2-2.5 mm² (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                     |
| Environmental data         |                     |                              |                         |
| Ambient temperature ranges | storage             | -40...+80 °C (-40...+176 °F) |                         |
|                            | operation           | -20...+70 °C (-4...+158 °F)  |                         |
| Standards/Directives       |                     |                              |                         |
| Standards                  |                     | IEC/EN 60947-5-1             |                         |
| Low Voltage Directive      |                     | 2014/35/EU                   |                         |
| RoHS Directive             |                     | 2011/65/EU                   |                         |



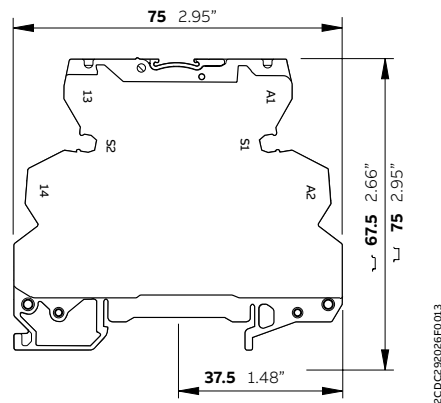
## Boxed optocouplers R600 range

### Technical diagrams

#### Dimensional drawings in mm and inches

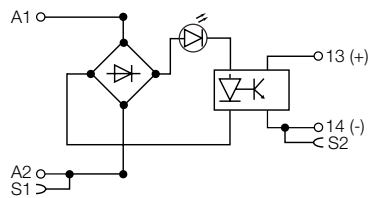
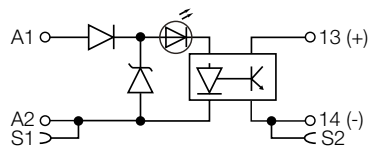
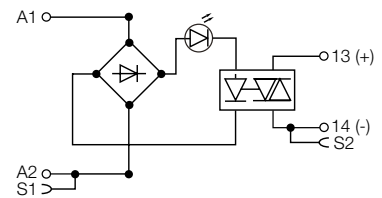


R600 - screw connection



R600 - spring connection

#### Connection diagrams

OB(R)OC, OB(R)IC  
except 5-12 V DC versionsOB(R)IC0100-5-12 V DC  
OB(R)OC2000-5-12 V DC

OB(R)OA



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