Interface relays and optocouplers
Product group picture

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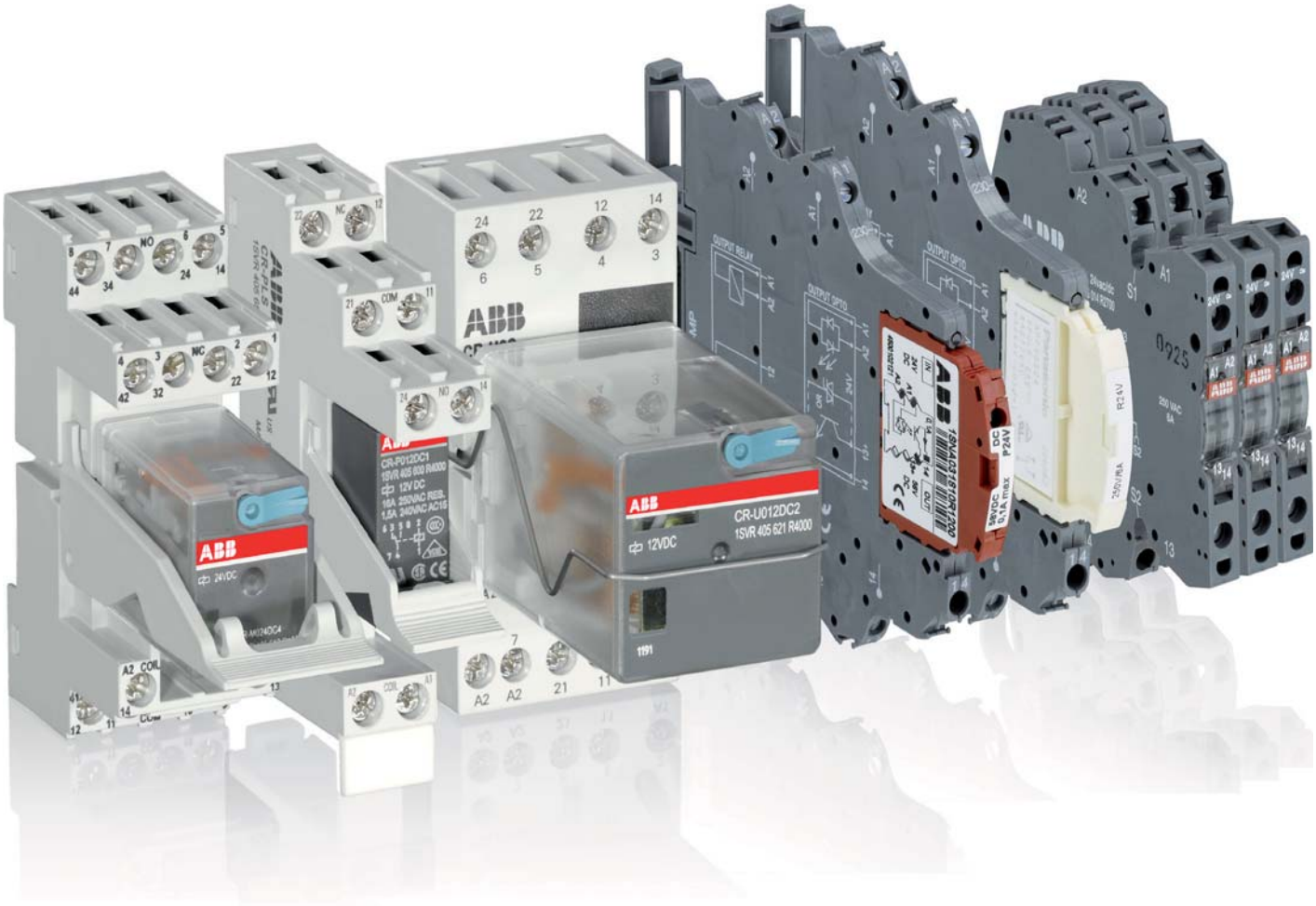

Interface relays and optocouplers
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Pluggable interface relays
Product group picture

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Pluggable interface relays
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Pluggable interface relays
Benefits and advantages

Pluggable pcb relays CR-P

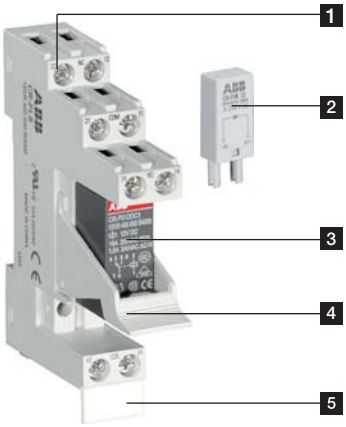
- 9 different coil voltages
  - DC versions:
    12 V, 24 V, 48 V, 110 V
  - AC versions:
    24 V, 48 V, 110 V, 120 V, 230 V
- Output contacts:
  - 1 c/o contact (16 A) or
  - 2 c/o contacts (8 A)
    optionally equipped with
    gold contacts
- Logical or standard sockets
- Cadmium-free contact material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

Pluggable miniature relays CR-M

- 12 different coil voltages
  - DC versions:
    12 V, 24 V, 48 V, 60 V,
    110 V, 125 V, 220 V
  - AC versions:
    24 V, 48 V, 110 V, 120 V, 230 V
- Output contacts
  - 2 c/o contacts (12 A) or
  - 3 c/o contacts (10 A) or
  - 4 c/o contacts (6 A)
    optionally equipped with
    gold contacts, LED and free
    wheeling diode
- Integrated test button for manual actuation and locking of the output contacts (blue = DC, orange = AC) that can be removed if necessary
- With or without integrated LED
- Logical or standard sockets
- Cadmium-free contact material
- Width on socket: 27 mm
- Pluggable function modules
  - Reverse polarity protection/
    Free wheeling diode
  - LED indication
  - RC elements
  - Overvoltage protection

Pluggable universal relays CR-U

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



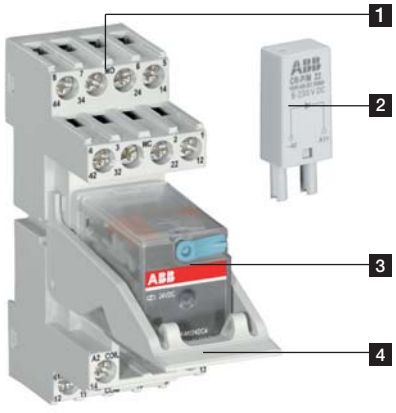
1 Socket

2 Pluggable function module

3 Interface relay

4 Holder

5 Marker label



1 Socket

2 Pluggable function module

3 Interface relay

4 Holder

1 Socket

2 Pluggable function module

3 Interface relay

4 Holder

Pluggable interface relays
Approvals and marks

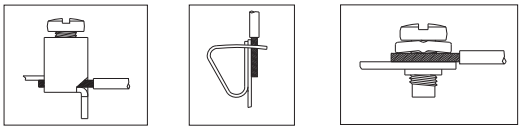
Kinds of sockets

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

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

Details see connection diagrams

Kind of connecting terminals



Screw type Spring type Fork type

Approvals and marks

■ **existing**
□ **pending**

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

[1] except 60 V DC and 125 V DC devices with gold contacts
[2] except devices with gold contacts
[3] except 60 V DC and 125 V DC devices
[4] except 125 V DC devices
[5] only devices with 4 c/o contacts
[6] except CR-P/M 42B, CR-P/M 42BV, CR-P/M 42C, CR-P/M 42CV, CR-P/M 52D, CR-P/M 62E, CR-P/M 62EV, CR-P/M 62D, CR-P/M 62DV
[7] except CR-U 41B, CR-U 41BV, CR-U 41C, CR-U 41CV, CR-U 51D, CR-U 61CV, CR-U 61E, CR-U 61EV, CR-U 61D, CR-U 61DV, CR-U 91C, CR-U T
[8] except 60 V and 125 V devices

Pluggable interface relays
Ordering details


2CDC 291 045 F0004

CR-P

Description

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

5

Ordering details - CR-P range

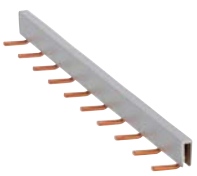
Rated control supply voltage	Outputs	Contact ratings	Type	Order code	Price	Pkg qty	Weight (1 pce) kg (lb)
12 V DC	1 c/o (SPDT)	250 V, 16 A	CR-P012DC1	1SVR405600R4000		10	0.014 (0.031)
24 V DC			**CR-P024DC1**	**1SVR405600R1000**			
48 V DC			CR-P048DC1	1SVR405600R6000			
110 V DC			CR-P110DC1	1SVR405600R8000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


2CDC 291 006 F0011

CR-PLS

Ordering details - Accessories

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


2CDC 291 004 F0007

CR-PJ

Bold printed products = stocked products

Pluggable interface relays
Ordering details

2CDC 291 046 F0004

CR-M

Description

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

Ordering details - CR-M range without LED

Rated control supply voltage	Outputs	Contact ratings	Type	Order code	Price	Pkg qty	Weight (1 pce) kg (lb)
12 V DC	2 c/o (SPDT)	250 V, 12 A	CR-M012DC2	1SVR405611R4000		10	0.033 (0.073)
24 V DC			**CR-M024DC2**	**1SVR405611R1000**			
48 V DC			CR-M048DC2	1SVR405611R6000			
60 V DC			CR-M060DC2	1SVR405611R4200			
110 V DC			CR-M110DC2	1SVR405611R8000			
125 V DC			CR-M125DC2	1SVR405611R8200			
220 V DC			CR-M220DC2	1SVR405611R9000			
24 V AC			**CR-M024AC2**	**1SVR405611R0000**			
48 V AC			CR-M048AC2	1SVR405611R5000			
110 V AC			**CR-M110AC2**	**1SVR405611R7000**			
120 V AC			CR-M120AC2	1SVR405611R2000			
230 V AC			**CR-M230AC2**	**1SVR405611R3000**			
12 V DC	3 c/o (SPDT)	250 V, 10 A	CR-M012DC3	1SVR405612R4000		10	0.033 (0.073)
24 V DC			**CR-M024DC3**	**1SVR405612R1000**			
48 V DC			CR-M048DC3	1SVR405612R6000			
60 V DC			CR-M060DC3	1SVR405612R4200			
110 V DC			CR-M110DC3	1SVR405612R8000			
125 V DC			CR-M125DC3	1SVR405612R8200			
220 V DC			CR-M220DC3	1SVR405612R9000			
24 V AC			**CR-M024AC3**	**1SVR405612R0000**			
48 V AC			CR-M048AC3	1SVR405612R5000			
60 V AC			CR-M060AC3	1SVR405612R5200			
110 V AC			**CR-M110AC3**	**1SVR405612R7000**			
120 V AC			CR-M120AC3	1SVR405612R2000			
230 V AC			**CR-M230AC3**	**1SVR405612R3000**			
12 V DC	4 c/o (SPDT)	250 V, 6 A	CR-M012DC4	1SVR405613R4000		10	0.033 (0.073)
24 V DC			**CR-M024DC4**	**1SVR405613R1000**			
48 V DC			CR-M048DC4	1SVR405613R6000			
60 V DC			CR-M060DC4	1SVR405613R4200			
110 V DC			CR-M110DC4	1SVR405613R8000			
125 V DC			CR-M125DC4	1SVR405613R8200			
220 V DC			CR-M220DC4	1SVR405613R9000			
24 V AC			**CR-M024AC4**	**1SVR405613R0000**			
48 V AC			CR-M048AC4	1SVR405613R5000			
110 V AC			**CR-M110AC4**	**1SVR405613R7000**			
120 V AC			CR-M120AC4	1SVR405613R2000			
230 V AC			**CR-M230AC4**	**1SVR405613R3000**			

Bold printed products = stocked products

Pluggable interface relays
Ordering details

2CDC 291 046 F0004

CR-M

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Ordering details - CR-M range

Rated control supply voltage	Outputs	Contact ratings	Type	Order code	Price	Pkg qty	Weight (1 pce) kg (lb)
12 V DC	2 c/o (SPDT) with LED	250 V, 12 A	CR-M012DC2L	1SVR405611R4100		10	0.033 (0.073)
24 V DC			**CR-M024DC2L**	**1SVR405611R1100**			
48 V DC			CR-M048DC2L	1SVR405611R6100			
60 V DC			CR-M060DC2L	1SVR405611R4300			
110 V DC			CR-M110DC2L	1SVR405611R8100			
125 V DC			CR-M125DC2L	1SVR405611R8300			
220 V DC			CR-M220DC2L	1SVR405611R9100			
24 V AC			**CR-M024AC2L**	**1SVR405611R0100**			
48 V AC			CR-M048AC2L	1SVR405611R5100			
110 V AC			**CR-M110AC2L**	**1SVR405611R7100**			
120 V AC			CR-M120AC2L	1SVR405611R2100			
230 V AC			**CR-M230AC2L**	**1SVR405611R3100**			
12 V DC	3 c/o (SPDT) with LED	250 V, 10 A	CR-M012DC3L	1SVR405612R4100		10	0.033 (0.073)
24 V DC			**CR-M024DC3L**	**1SVR405612R1100**			
48 V DC			CR-M048DC3L	1SVR405612R6100			
60 V DC			CR-M060DC3L	1SVR405612R4300			
110 V DC			CR-M110DC3L	1SVR405612R8100			
125 V DC			CR-M125DC3L	1SVR405612R8300			
220 V DC			CR-M220DC3L	1SVR405612R9100			
24 V AC			CR-M024AC3L	1SVR405612R0100			
48 V AC			CR-M048AC3L	1SVR405612R5100			
110 V AC			**CR-M110AC3L**	**1SVR405612R7100**			
120 V AC			CR-M120AC3L	1SVR405612R2100			
230 V AC			**CR-M230AC3L**	**1SVR405612R3100**			
12 V DC	4 c/o (SPDT) with LED	250 V, 6 A	CR-M012DC4L	1SVR405613R4100		10	0.033 (0.073)
24 V DC			**CR-M024DC4L**	**1SVR405613R1100**			
48 V DC			CR-M048DC4L	1SVR405613R6100			
60 V DC			CR-M060DC4L	1SVR405613R4300			
110 V DC			CR-M110DC4L	1SVR405613R8100			
125 V DC			CR-M125DC4L	1SVR405613R8300			
220 V DC			CR-M220DC4L	1SVR405613R9100			
24 V AC			**CR-M024AC4L**	**1SVR405613R0100**			
48 V AC			CR-M048AC4L	1SVR405613R5100			
110 V AC			**CR-M110AC4L**	**1SVR405613R7100**			
120 V AC			CR-M120AC4L	1SVR405613R2100			
230 V AC2			**CR-M230AC4L**	**1SVR405613R3100**			
24 V DC	4 c/o (SPDT), LED and free-wheeling diode	250 V, 6 A	CR-M024DC4LD	1SVR405614R1100		10	0.033 (0.073)
24 V DC	4 c/o (SPDT), gold contacts	250 V, 6 A	CR-M024DC4G	1SVR405618R1000		10	0.033 (0.073)
24 V AC			CR-M024AC4G	1SVR405618R0000			
110 V AC			CR-M110AC4G	1SVR405618R7000			
230 V AC			CR-M230AC4G	1SVR405618R3000			

Bold printed products = stocked products

Pluggable interface relays
Ordering details

CR-M

Rated control supply voltage	Outputs	Contact ratings	Type	Order code	Price	Pkg qty	Weight (1 pce) kg (lb)
12 V DC	4 c/o (SPDT) with gold contacts and LED	250 V / 6 A	CR-M012DC4LG	1SVR405618R4100		10	0.033 (0.073)
24 V DC			**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**			
12 V DC	4 c/o (SPDT) with gold contacts, LED and free-wheeling diode		CR-M012DC4LDG	1SVR405618R4400		10	0.033 (0.073)
24 V DC			CR-M024DC4LDG	1SVR405618R1400			

CR-M4SS

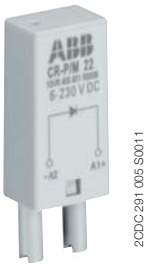
CR-MJ

Ordering details - Accessories

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

Bold printed products = stocked products

Pluggable interface relays
Ordering details



CR-P/M ...

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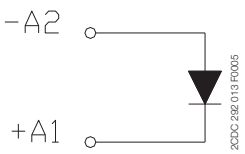
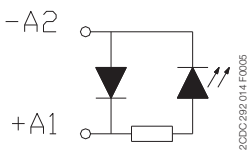
Ordering details - CR-P/M range (all products stocked)

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

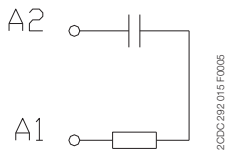
Connection diagrams



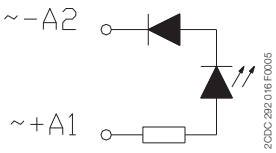
CR-P/M 22



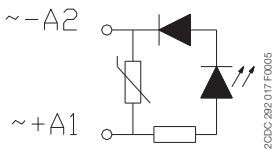
CR-P/M 42, CR-P/M 42B, CR-P/M 42C, CR-P/M 42V, CR-P/M 42BV, CR-P/M 42CV



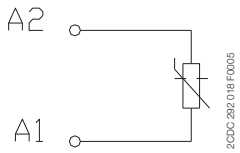
CR-P/M 52B, CR-P/M 52C, CR-P/M 52D,



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



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



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

Pluggable interface relays
Ordering details

CR-U

Description

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

Ordering details - CR-U range

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

CR-U2S

Ordering details - Accessories

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

Bold printed products = stocked products

Pluggable interface relays
Ordering details

2CDC 291 004 S0011

CR-U...

5

2CDC 291 032 F0005

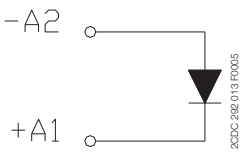
CR-U T

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

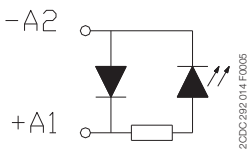
Rated control supply voltage	Description	Version	Type	Order code	Price	Pkg qty	Weight (1 pce) kg (lb)
6-220 V DC	Diode - Reverse polarity protection/ free wheeling diode	A1+, A2-	CR-U 21	1SVR405661R0000		10	0.007 (0.015)
6-24 V DC	Diode and LED - Reverse polarity protection/ free wheeling diode	red, A1+, A2-	CR-U 41	1SVR405662R0000		10	0.007 (0.015)
		green, A1+, A2-	CR-U 41V	1SVR405662R1000			
24-60 V DC		red, A1+, A2-	CR-U 41B	1SVR405662R4000			
		green, A1+, A2-	CR-U 41BV	1SVR405662R4100			
110 V DC		red, A1+, A2-	CR-U 41C	1SVR405662R9000			
		green, A1+, A2-	CR-U 41CV	1SVR405662R9100			
6-24 V AC/DC	Spark quenching		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			
6-24 V AC/DC	Diode and LED	red, for DC A1+, A2-	CR-U 61	1SVR405664R0000		10	0.007 (0.015)
		green, for DC A1+, A2-	CR-U 61V	1SVR405664R1000			
24-60 V AC/DC		red, for DC A1+, A2-	CR-U 61E	1SVR405664R4000			
		green, for DC A1+, A2-	CR-U 61EV	1SVR405664R4100			
110 V DC 110-230 V AC		red, for DC A1+, A2-	CR-U 91	1SVR405664R0100			
		green, for DC A1+, A2-	CR-U 91V	1SVR405664R1100			
6-24 V AC/DC	Varistor and LED Overvoltage protection	red, for DC A1+, A2-	CR-U 61C	1SVR405665R0000		10	0.007 (0.015)
		green, for DC A1+, A2-	CR-U 61CV	1SVR405665R1000			
24-60 V AC/DC		red, for DC A1+, A2-	CR-U 61D	1SVR405665R4000			
		green, for DC A1+, A2-	CR-U 61DV	1SVR405665R4100			
110 V DC 110-230 V AC		red, for DC A1+, A2-	CR-U 91C	1SVR405665R0100			
		green, for DC A1+, A2-	CR-U 91CV	1SVR405665R1100			
24 V AC	Overvoltage protection, varistor		CR-U 71	1SVR405666R0000		10	0.007 (0.015)
115 V AC			CR-U 71A	1SVR405666R1000			
230 V AC			CR-U 81	1SVR405666R2000			
24-240 V AC/DC	Multifunction time module	pluggable onto CR-U2S and CR-U3S	CR-U T	1SVR405667R0000		10	0.014 (0.031)

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

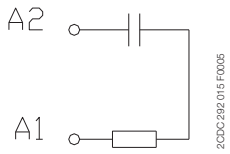
Connection diagrams



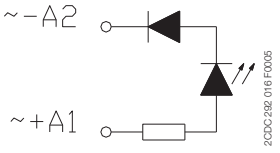
CR-U 21



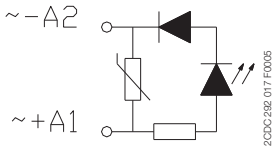
CR-U 41, CR-U 41V, CR-U 41B, CR-U 41BV, CR-U 41C, CR-U 41CV



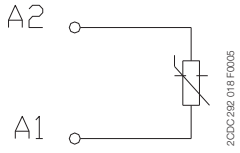
CR-U 51B, CR-U 51C CR-U 51D,



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



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



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

Pluggable interface relays
Technical data

Input circuit - coil data
CR-P range

	Rated control supply voltage U_s	Rated frequency	Make voltage (at 20 °C)	Maximum voltage (at 55 °C)	Break voltage	Rated power	Coil resistance (at 20 °C)	Tolerance of coil resistance
DC coils	12 V DC	-	8.4 V DC	30.6 V DC	≥ 0.1 U_s	0.4-0.48 W	360 Ω	± 10%
	24 V DC	-	16.8 V DC	61.2 V DC	≥ 0.1 U_s	0.4-0.48 W	1440 Ω	± 10%
	48 V DC	-	33.6 V DC	122.4 V DC	≥ 0.1 U_s	0.4-0.48 W	5700 Ω	± 10%
	110 V DC	-	77 V DC	280 V DC	≥ 0.1 U_s	0.4-0.48 W	25200 Ω	± 10%
AC coils	24 V AC	50 / 60 Hz	19.2 V AC	28.8 V AC	≥ 0.15 U_s	0.75 VA	400 Ω	± 10%
	48 V AC	50 / 60 Hz	38.4 V AC	57.6 V AC	≥ 0.15 U_s	0.75 VA	1550 Ω	± 10%
	110 V AC	50 / 60 Hz	88 V AC	132 V AC	≥ 0.15 U_s	0.75 VA	8900 Ω	± 10%
	120 V AC	50 / 60 Hz	96 V AC	144 V AC	≥ 0.15 U_s	0.75 VA	10200 Ω	± 10%
	230 V AC	50 / 60 Hz	184 V AC	276 V AC	≥ 0.15 U_s	0.75 VA	38500 Ω	± 10%

CR-M range

	Rated control supply voltage U_s	Rated frequency	Make voltage (at 20 °C)	Maximum voltage (at 55 °C)	Break voltage	Rated power	Coil resistance (at 20 °C)	Tolerance of coil resistance
DC coils	12 V DC	-	9.6 V DC	13.2 V DC	≥ 0.1 U_s	0.9 W	160 Ω	± 10%
	24 V DC	-	19.2 DC	26.4 V DC	≥ 0.1 U_s	0.9 W	640 Ω	± 10%
	48 V DC	-	38.4 V DC	52.8 V DC	≥ 0.1 U_s	0.9 W	2600 Ω	± 10%
	60 V DC	-	48.0 V DC	66.0 V DC	≥ 0.1 U_s	0.9 W	4000 Ω	± 10%
	110 V DC	-	88 V DC	121 V DC	≥ 0.1 U_s	0.9 W	13600 Ω	± 10%
	125 V DC	-	100 V DC	137,5 V DC	≥ 0.1 U_s	0.9 W	16000 Ω	± 10%
	220 V DC	-	176 V DC	242 V DC	≥ 0.1 U_s	0.9 W	54000 Ω	± 10%
AC coils	24 V AC	50 / 60 Hz	19.2 V AC	26.4 V AC	≥ 0.2 U_s	1.6 VA	158 Ω	± 10%
	48 V AC	50 / 60 Hz	38.4 V AC	52.8 V AC	≥ 0.2 U_s	1.6 VA	640 Ω	± 10%
	60 V AC	50 / 60 Hz	48.0 V AC	66.0 V AC	≥ 0.2 U_s	1.6 VA	930 Ω	± 10%
	110 V AC	50 / 60 Hz	88 V AC	121 V AC	≥ 0.2 U_s	1.6 VA	3450 Ω	± 10%
	120 V AC	50 / 60 Hz	96 V AC	132 V AC	≥ 0.2 U_s	1.6 VA	3770 Ω	± 10%
	230 V AC	50 / 60 Hz	184 V AC	253 V AC	≥ 0.2 U_s	1.6 VA	16100 Ω	± 10%

CR-U range

	Rated control supply voltage U_s	Rated frequency	Make voltage (at 20 °C)	Maximum voltage (at 55 °C)	Break voltage	Rated power	Coil resistance (at 20 °C)	Tolerance of coil resistance
DC coils	12 V DC	-	9.6 V DC	13.2 V DC	≥ 0.1 U_s	1.5 W	110 Ω	± 10 %
	24 V DC	-	19.2 V DC	26.4 V DC	≥ 0.1 U_s	1.5 W	430 Ω	± 10 %
	48 V DC	-	38.4 V DC	52.8 V DC	≥ 0.1 U_s	1.5 W	1750 Ω	± 10 %
	110 V DC	-	88.0 V DC	121.0 V DC	≥ 0.1 U_s	1.5 W	9200 Ω	± 10 %
	125 V DC	-	96.0 V DC	132.0 V DC	≥ 0.1 U_s	1.5 W	11000 Ω	± 10 %
	220 V DC	-	176.0 V DC	242.0 V DC	≥ 0.1 U_s	1.5 W	37000 Ω	± 10 %
AC coils	24 V AC	50 / 60 Hz	19.2 V AC	26.4 V AC	≥ 0.15 U_s	2.8 VA (50 Hz) 2.5 VA (60 Hz)	75 Ω	± 10 %
	48 V AC	50 / 60 Hz	38.4 V AC	52.8 V AC	≥ 0.15 U_s	2.8 VA (50 Hz) 2.5 VA (60 Hz)	305 Ω	± 10 %
	60 V AC	50 / 60 Hz	48.0 V AC	66.0 V AC	≥ 0.15 U_s	2.8 VA (50 Hz) 2.5 VA (60 Hz)	475 Ω	± 10 %
	110 V AC	50 / 60 Hz	88.0 V AC	121.0 V AC	≥ 0.15 U_s	2.8 VA (50 Hz) 2.5 VA (60 Hz)	1700 Ω	± 10 %
	120 V AC	50 / 60 Hz	96.0 V AC	132.0 V AC	≥ 0.15 U_s	2.8 VA (50 Hz) 2.5 VA (60 Hz)	1910 Ω	± 10 %
	230 V AC	50 / 60 Hz	184.0 V AC	253.0 V AC	≥ 0.15 U_s	2.8 VA (50 Hz) 2.5 VA (60 Hz)	7080 Ω	± 10 %

Pluggable interface relays
Technical data

Type			CR-P...1	CR-P...2	CR-M...2	CR-M...3	CR-M...4	CR-U...2	CR-U...3
Output circuit(s)			11-12/14	11-12/14 21-22/24	11-12/14 21-22/24	11-12/14 21-22/24 31-32/34	11-12/14 21-22/24 31-32/34 41-42/44	11-12/14 31-32/34	11-12/14 21-22/24 31-32/34
Kind of output			Relay, 1 c/o	Relay, 2 c/o	Relay, 2 c/o	Relay, 3 c/o	Relay, 4 c/o	Relay, 2 c/o	Relay, 3 c/o
Contact material			AgNi	AgNi AgNi/Au 5 µm	AgNi	AgNi	AgNi AgNi/Au 5 µm	AgNi	
Rated operational voltage U_e (VDE 0110, IEC 60947-1)			250 V						
Minimum switching voltage			5 V		10 V	10 V	5 V	10 V	
Maximum switching voltage		DC	300 V DC		250 V DC				
		AC	440 V AC		250 V AC			440 V AC	
Minimum switching current			5 mA (AgNi)	2 mA (AgNi/Au)	5 mA (AgNi)	5 mA (AgNi)	2 mA (AgNi/Au)	5 mA	
Rated free air thermal current I_{th}			16 A	8 A	12 A	10 A	6 A	10 A	
Rated operational current (IEC 60947-5-1)	AC12 (resistive)	230 V	16 A	8 A	12 A	10 A	6 A	10 A	
	AC15 (inductive)	230 V	1.5 A	1.5 A	1.5 A	1.5 A	1 A	1.5 A	
	AC15 (inductive)	120 V	3 A						
	DC12 (resistive)	24 V	16 A	8 A	12 A	10 A	6 A	10 A	
	DC13 (inductive)	24 V	2.5 A	2 A	2.5 A	2.5 A	2 A	2 A	
	DC13 (inductive)	120 V	0.22 A						
	DC13 (inductive)	250 V	0.1 A						
AC rating (UL 508)	Utilization category (pilot duty) (Contact rating code designation)		B300		B300			-	B300
	max. rated operational voltage		300 V AC		300 V AC			-	300 V AC
	Max. continuous thermal current at utilization category		5 A		5 A	5 A	2.5 A	-	5 A
	Max. making / breaking apparent power at utilization category		3600 / 360 VA		3600 / 360 VA		1800 / 180 VA	-	3600/360 VA
	Utilization category (resistive) (CSA22.2 No.14....)		16 A, 250 V AC	8 A, 250 V AC	10 A, 250 V AC 12 A, 150 V AC	6 A, 250 V AC 10 A, 150 V AC	5 A, 250 V AC 10 A, 150 V AC	10 A, 250 V AC	
DC rating * (UL 508; NEMA ICS-5)	Utilization category (pilot duty) (Contact rating code designation)		R300						
	Max. rated operational voltage		300 V DC						
	Max. continuous thermal current at utilization category		1 A						
	Max. making / breaking apparent power at utilization category		28 VA						
	Utilization category (resistive) (CSA22.2 No.14....)		-	10 A, 24 V DC	-			10 A, 28 V DC	
Maximum making (inrush) current			30 A		24 A	20 A	12 A	20 A	
Minimum switching power			0.3 W (AgNi), 0.05 W (AgNi/Au)		0.3 W (AgNi), 0.1 W (AgNi/Au)			0.3 W	
Maximum switching (breaking) power	AC1 (resistive)		4000 VA	2000 VA	3000 VA	2500 VA	1500 VA	2500 VA	
Contact resistance			≤ 100 mΩ						
Maximum operating frequency	rated load AC-1		600 switching cycles/h		1200 switching cycles/h				
	without load		72000 switching cycles/h		18000 switching cycles/h			12000 switching cycles/h	
Mechanical lifetime			> 3 x 10^7 switching cycles		> 2 x 10^7 switching cycles				
Electrical lifetime	electrical AC1 (resistive)		> 0.7 x 10^5 switching cycles (16 A, 250 V)	> 10^5 switching cycles (8 A, 250 V)	> 10^5 switching cycles (12 A, 250 V)	(10 A, 250 V)	(6 A, 250 V)	> 10^5 switching cycles (10 A, 250 V)	
	cos φ		see reduction factor F						
Response time			typ. 7 ms		typ. 13 ms (DC),10 ms (AC)			typ. 18 ms (DC), 12 ms (AC)	
Release time			typ. 3 ms		typ. 3 ms (DC), 8 ms (AC)			typ. 7 ms (DC), 10 ms (AC)	
Isolation data									
Rated insulation voltage			400 V AC		250 V AC				
Insulation class			C250 / B400		C250 / B250			C250	
Rated impulse withstand voltage U_{imp}	between coil and contacts		5 kV AC		2.5 kV AC				
	between open contacts		1 kV AC		1.5 kV AC				
	between c/o (SPDT) contacts		-	2.5 kV AC	2.5 kV AC		≥ 2 kV AC	2 kV AC	

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

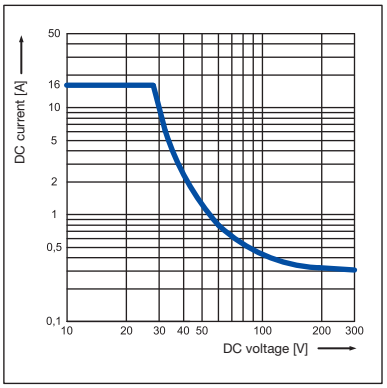
Pluggable interface relays
Technical data, Load limit curves

Type		CR-P...1	CR-P...2	CR-M...2	CR-M...3	CR-M...4	CR-U...2	CR-U...3
Clearance	between coil and contacts	≥ 10 mm		≥ 2.5 mm		≥ 1.6 mm	≥ 3 mm	
Creepage distance	between coil and contacts	≥ 10 mm		≥ 4 mm		≥ 3.2 mm	≥ 4.2 mm	
Overvoltage category		III		III		II	III	
Pollution degree		3		3		2	3	
General data								
Dimensions (W x H x D) when mounted		12.7 x 29 x 15.7 mm		21.2 x 27.5 x 35.6 mm			35 x 35 x 54.4 mm	
Weight		14 g (0.031 lb)		35 g (0.077 lb)			83 g (0.18 lb)	
Mounting		on socket (see accessories)						
Mounting position		any						
Degree of protection		IP 67		IP 40				
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								
Product standard		EN 61810-1, EN 60255-23 IEC 60664-1		EN 60810-1, EN 60255-23, IEC 61810-7			EN 60255-1-00	
Low Voltage Directive		2006/95/EC						

Approvals see page 5/6.

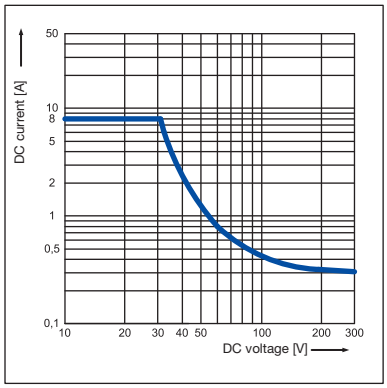
Load limit curves - Maximum switching power at resistive DC load

CR-P with 1 c/o contact



2CDC 292 005 F0204

CR-P with 2 c/o contacts



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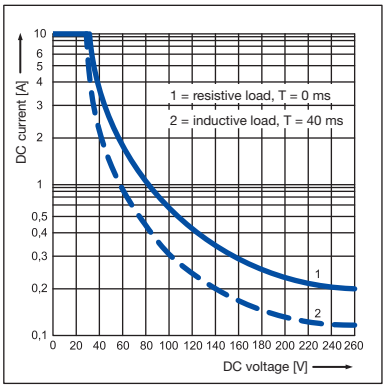
CR-U with 2 and 3 c/o contacts



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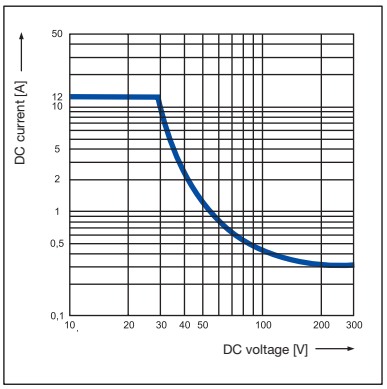
CR-M with 2 c/o contacts



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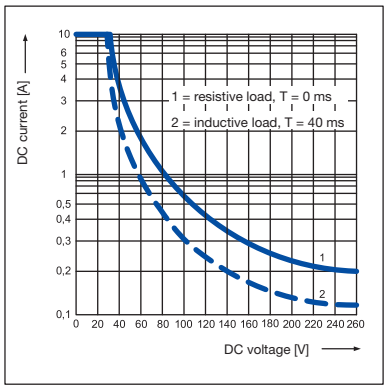
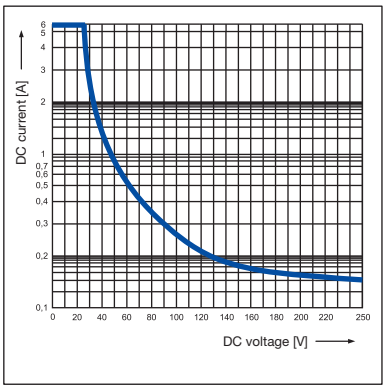
CR-M with 3 c/o contacts



2CDC 292 019 F0204

CR-M with 4 c/o contacts

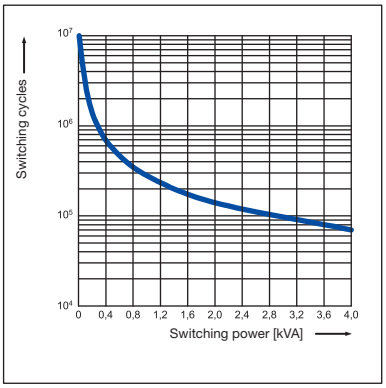


2CDC 292 023 F0204

Pluggable interface relays
Load limit curves

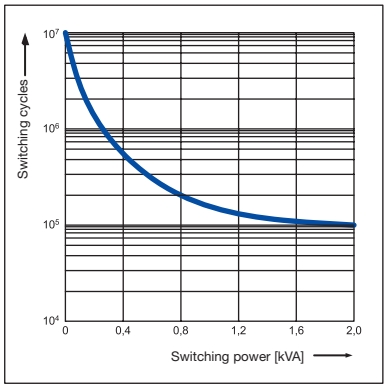
Load limit curves - Electrical lifetime at resistive AC load

CR-P with 1 c/o contact



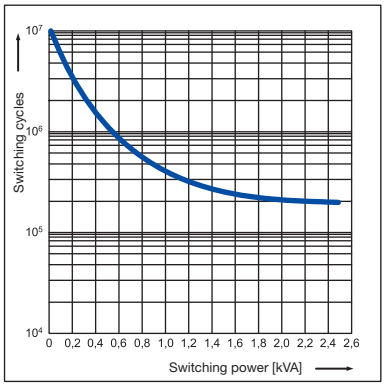
2CDC 292 003 F0204

CR-P with 2 c/o contacts



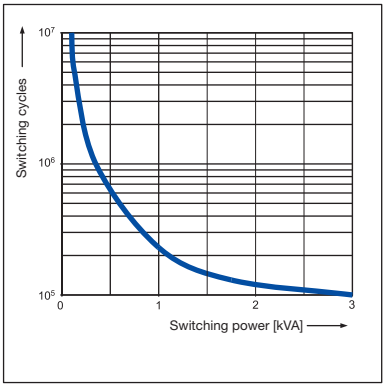
2CDC 292 009 F0204

CR-U with 2 and 3 c/o contacts



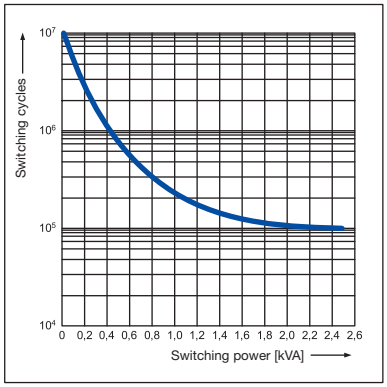
2CDC 292 027 F0204

CR-M with 2 c/o contacts



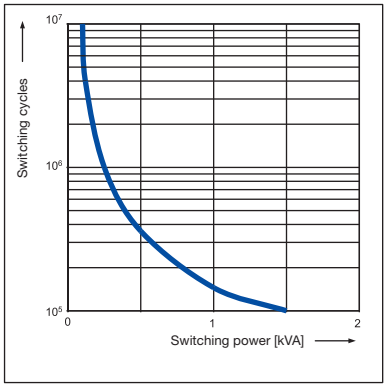
2CDC 292 013 F0204

CR-M with 3 c/o contacts



2CDC 292 018 F0204

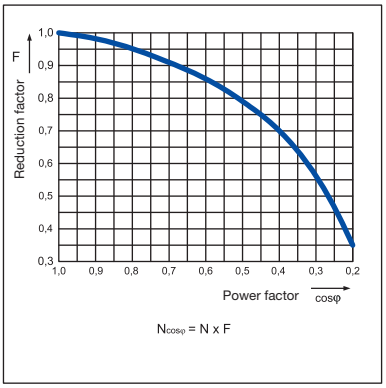
CR-M with 4 c/o contacts



2CDC 292 022 F0204

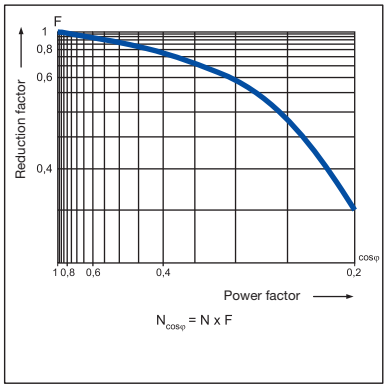
Reduction factor F at inductive AC load

CR-P



2CDC 292 004 F0204

CR-M



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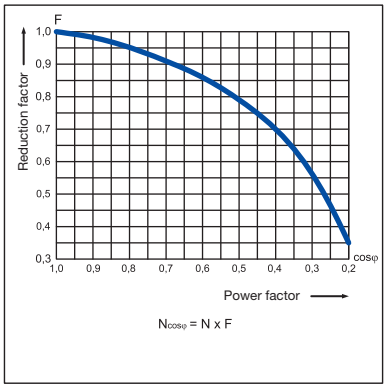
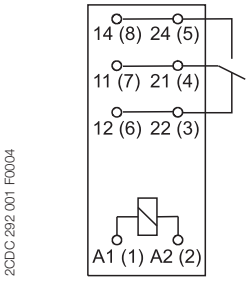
CR-U



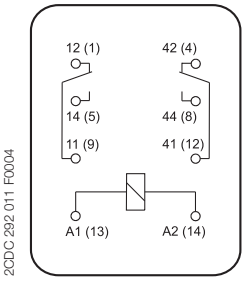
2CDC 292 029 F0204

Pluggable interface relays
Connection diagrams

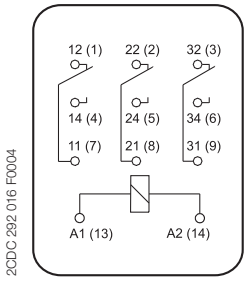
Connection diagrams



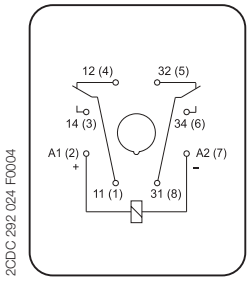
CR-P with 1 c/o contact



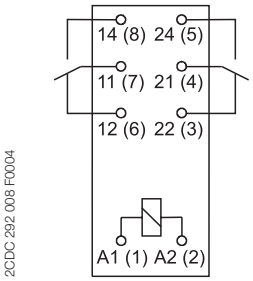
CR-M with 2 c/o contacts



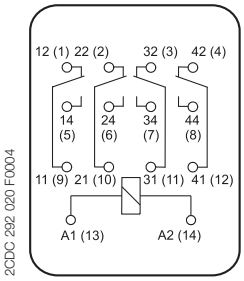
CR-M with 3 c/o contacts



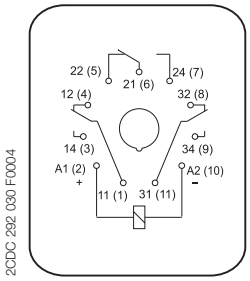
CR-U with 2 c/o contacts



CR-P with 2 c/o contacts



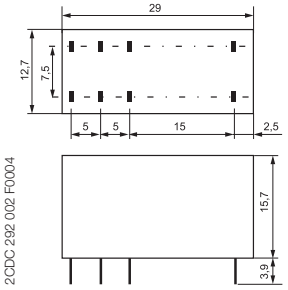
CR-M with 4 c/o contacts



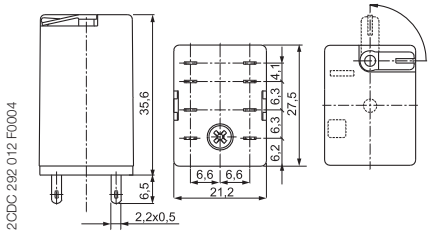
CR-U with 3 c/o contacts

Dimensional drawings

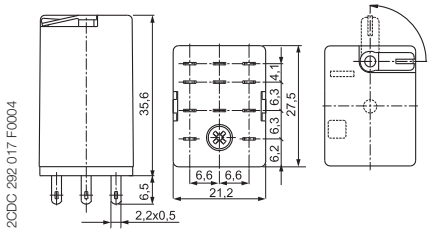
Dimensions in mm and inches



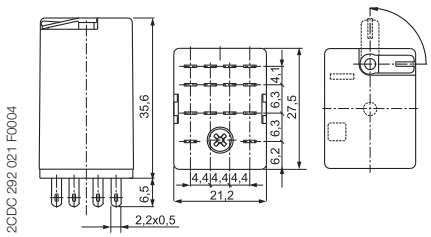
CR-P

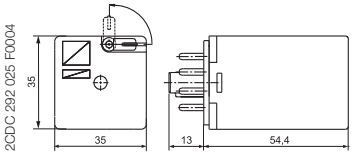


CR-M with 2 c/o contacts

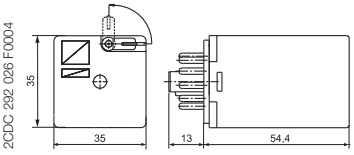


CR-M with 3 c/o contacts





CR-U with 2 c/o contacts



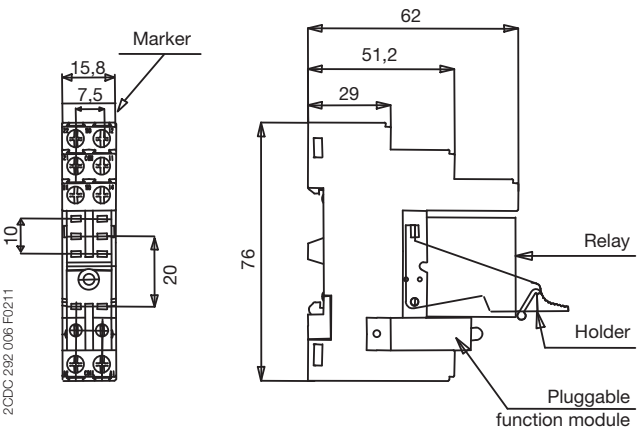
CR-U with 3 c/o contacts

Pluggable interface relays
Connection diagrams

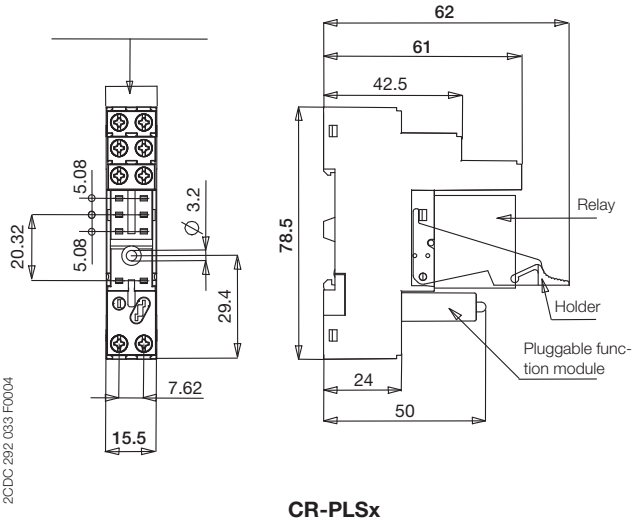
Dimensional drawings

Dimensions in mm and inches

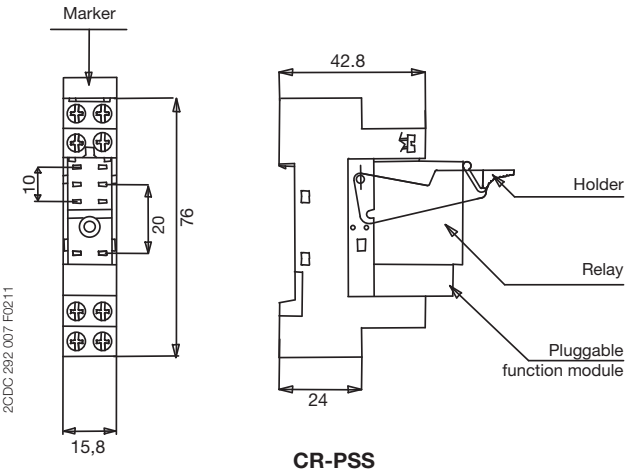
Sockets for screw connection



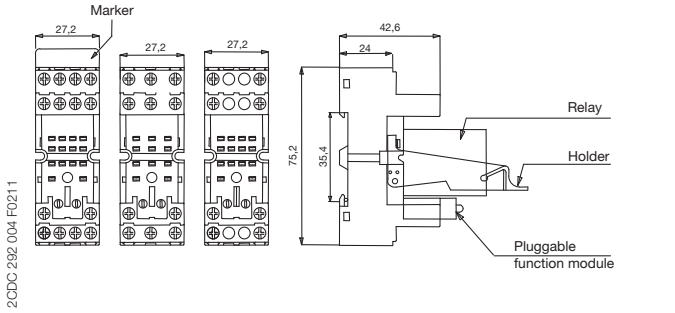
CR-PLS



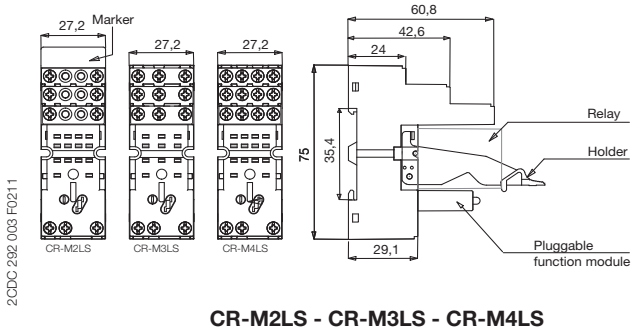
CR-PLSx



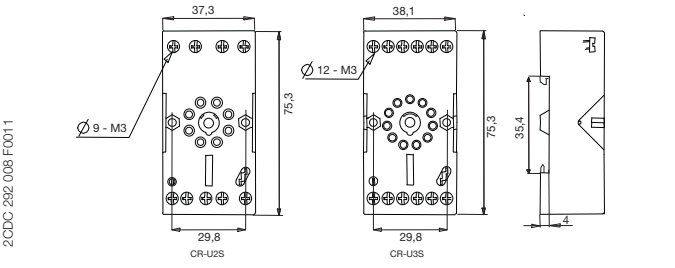
CR-PSS



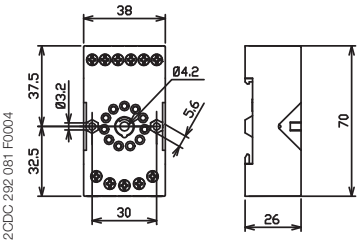
CR-M2SS - CR-M3SS - CR-M4SS



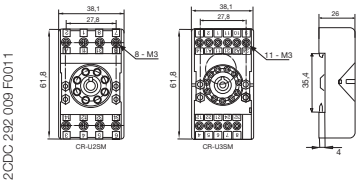
CR-M2LS - CR-M3LS - CR-M4LS



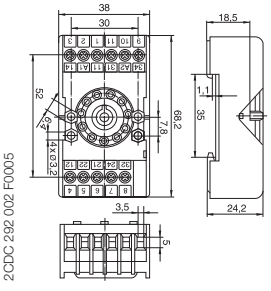
CR-U2S - CR-U3S



CR-U3E



CR-U2SM



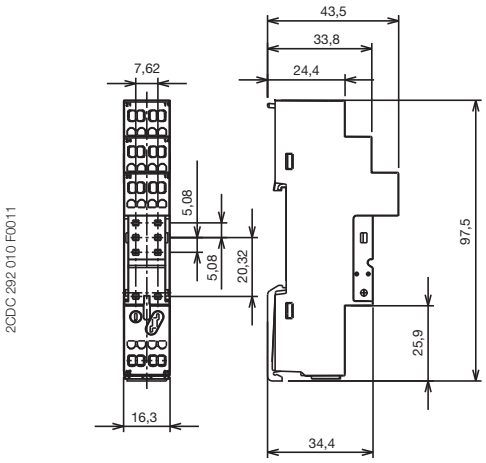
CR-U3SM

Pluggable interface relays
Connection diagrams

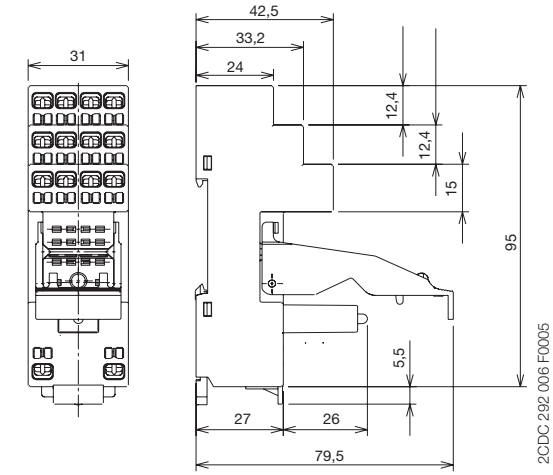
Dimensional drawings

Dimensions in mm and inches

Sockets for spring connection

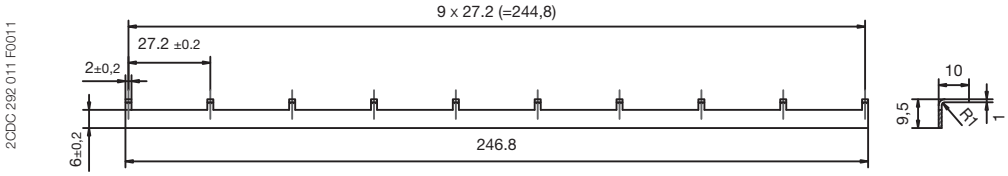


CR-PLC

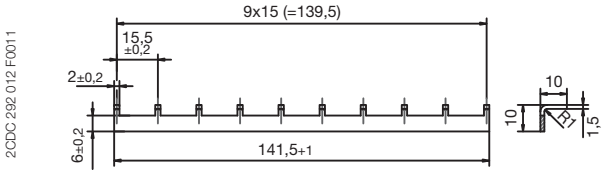


CR-M2LC , CR-M4LC

Jumper

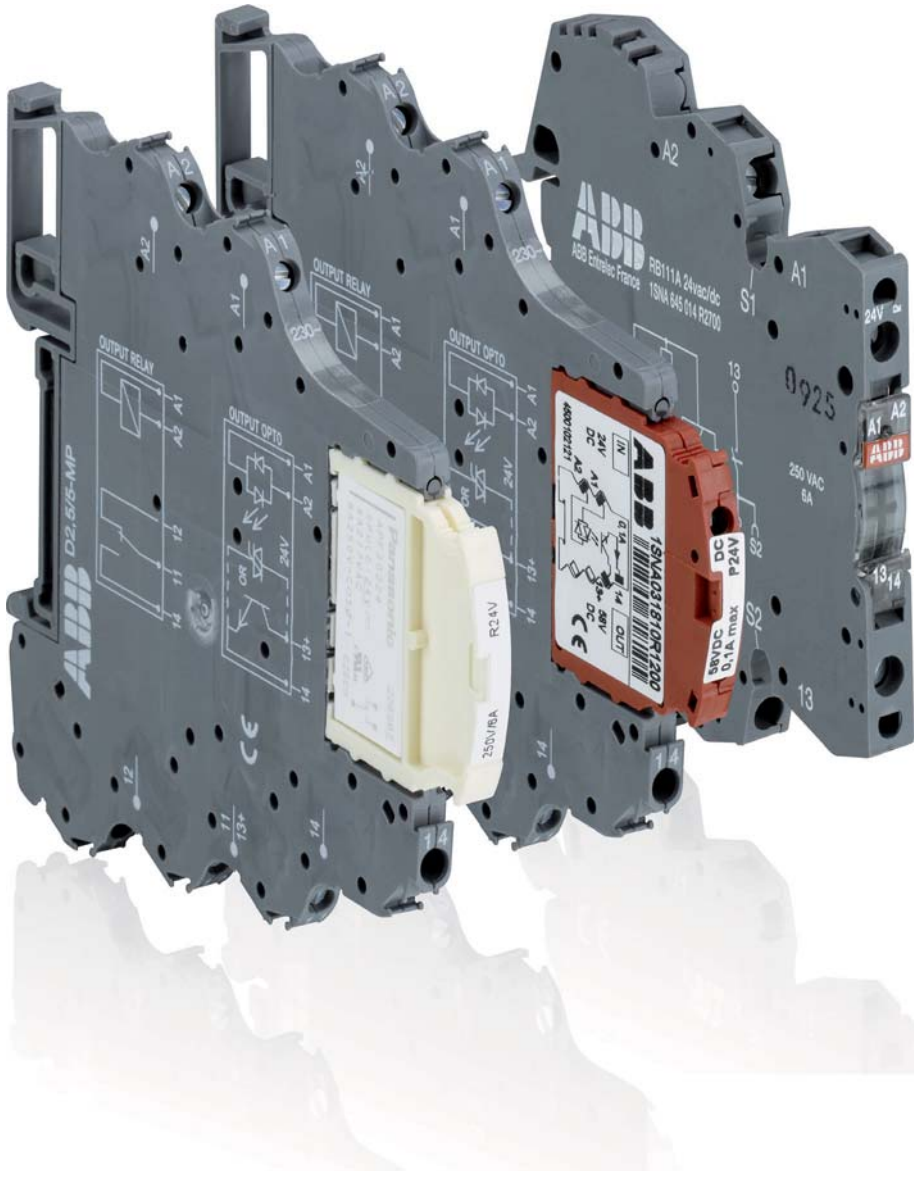


CR-PJ



CR-MJ

Interface relays and optocouplers R500 / R600 range
Product group picture



Interface relays and optocouplers R500 / R600 range
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Interface relays and optocouplers R500 / R600 range
Benefits and advantages

R500 series

It is our range offering pluggable functions

- Spacing : 5.08 mm (the smallest in the market)
- Wire size : 2.5 mm² (4 mm² solid)
- Contact type : 1 SPDT from 10 mA to 6 A / 250 V

R600 series

Standard range in screw clamp or spring clamp versions

- Spacing : 6 mm or 12 mm
- Wire size : 2.5 mm² (4 mm² solid wire)
- Contact type : 1 NO, 1 NC, 1 SPDT, 1 DPDT from 1 mA to 8 A / 250 V

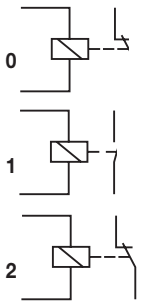
In today's automation systems, PLCs are the core of industry. They link sensors and actuators to the process, which are connected to the PLC via conventional wires.
However these PLCs are not completely isolated from the industrial environment, hence over voltage picks and transient currents can affect their operating functions. And additionally, their application field is often limited to 24 VDC / 100 mA.
So, with the aim to adapt application voltage and/or current and provide as well the right electrical isolation to the PLC, it is recommended to install per I/O the right interface providing both voltage-current level adaptation and isolation protection.
This interfacing is possible thanks to ABB's relays and optocouplers ranges, which offer wide adaptation in both voltage (from 5 to 400 V) and current (from 10-7 to 16 A) as well as high isolation between input and output from 2 to 4 KV.

Interface relays and optocouplers R500 / R600 range
Type designators

SERIES	CODE	NB OF RELAYS	CONTACT TYPE	NB OF CONTACTS PER RELAY	PARTICULARITIES
R 600	R B				
R 600	R B R				
R 500	D 2,5/5 R				
		1	0 1 2	1 2	None A B R I

5

Description of contact types



0 1 Normally Closed 1 NC

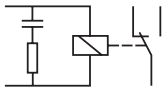
1 1 Normally Open 1 NO

2 1 Change Over or Single Pole Double Through

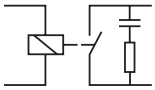
Features

None Input voltage DC
A Input voltage AC/DC

R

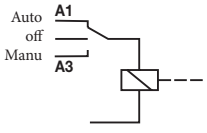


RC circuit protection :
- Input protection against leakage current

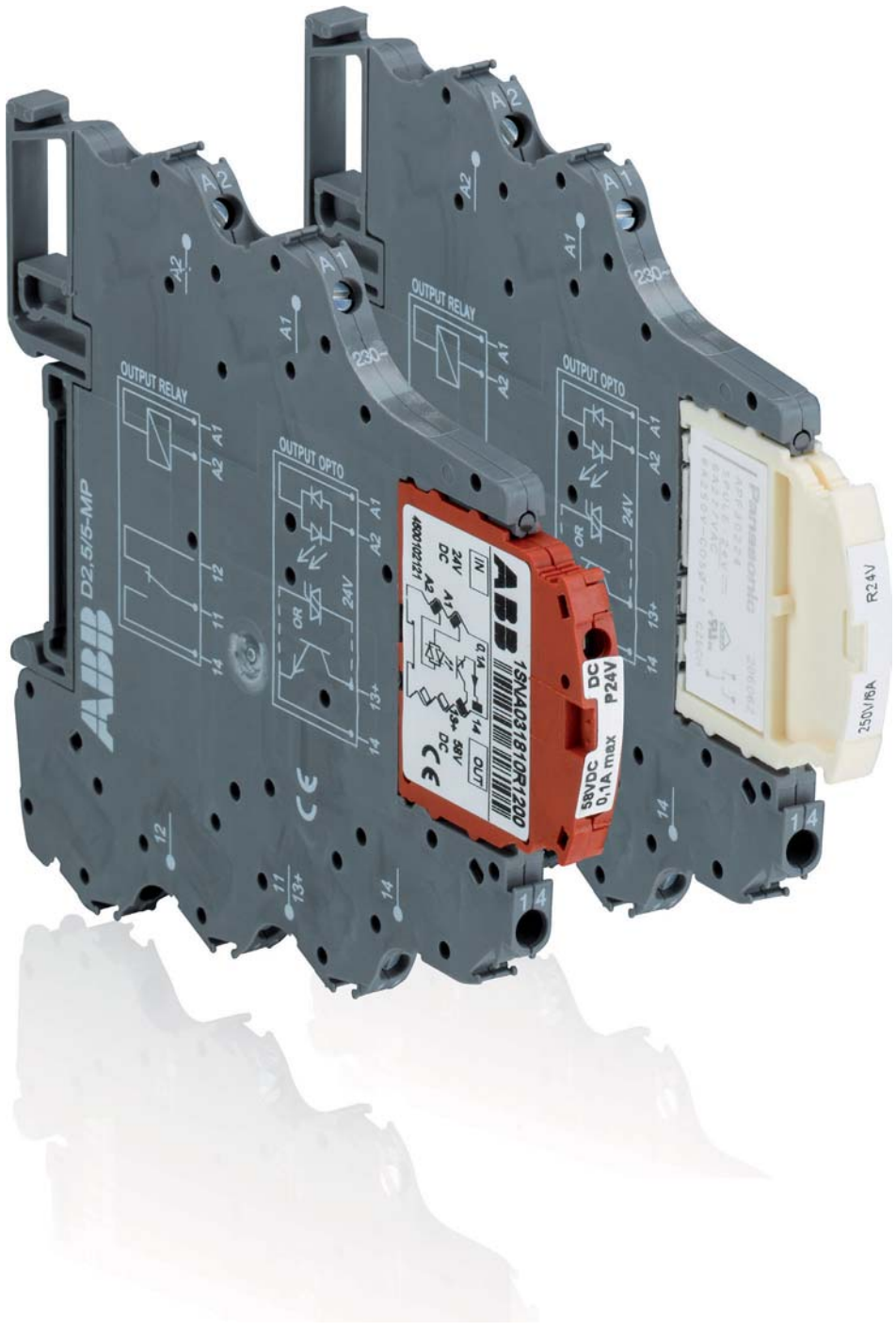


- Increases relay contacts life

I Switch to force the coil for maintenance and/or installation purposes



Interface relays and optocouplers R500 range
Product group picture



Interface relays and optocouplers R500 range
Table of contents

Interface relays R500 range
Product group picture

Interface relays R500 range
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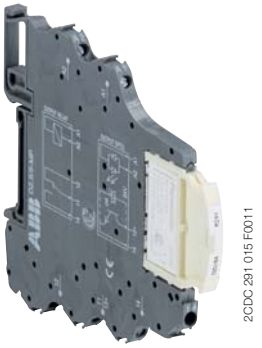
Interface relays R500 range
Selection

	Order number	1SNA 645 047 R0000	1SNA 645 547 R0200	1SNA 645 021 R2600	1SNA 645 521 R2000	1SNA 645 049 R1200	1SNA 645 549 R1400
	Type	D 2,5/5-R121-24VDC	D 2,5/5-R121L-24VDC	D 2,5/5-R121AL-24VAC/DC	D 2,5/5-R121AL-48VAC/DC	D 2,5/5-R121BL-110VAC	D 2,5/5-R121BL-230VAC
Input voltage							
24 V DC		■	■	■			
48 V DC					■		
24 V AC				■			
48 V AC					■		
110 V AC						■	
230 V AC							■
Output rating							
10 mA - 6 A		■	■	■	■	■	■
Output contacts							
c/o		1	1	1	1	1	1
Type							
with LED			■	■	■	■	■
without LED		■					



2CDC 291 015 F0011

R500 series

Characteristics

- Spacing : 5.08 mm (the smallest in the market)
- Wire size : 2.5 mm² (4 mm² solid)
- Contact type : 1 SPDT from 10 mA to 6 A / 250 V

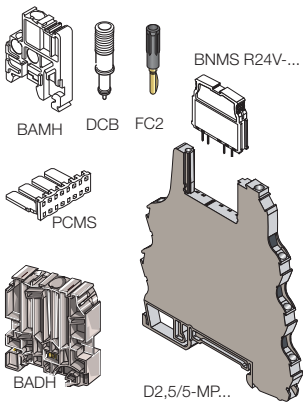
Interface relays R500 range
Ordering details

R500

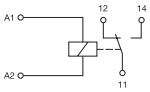
Description of R500 Relay	Type	Order code	Price	Pkg qty	Weight (1 pce) kg (lb)
Relay module 1 SPDT high level	D 2,5/5-R121-24VDC	1SNA607217R0200		10	0.032 (0.071)
Relay module with LED 1 SPDT high level	D 2,5/5-R121L-24VDC	1SNA607201R1300			
	D 2,5/5-R121AL-24VAC/DC	1SNA607231R0000			0.04 (0.088)
	D 2,5/5-R121AL-48VAC/DC	1SNA607232R0100			
	D 2,5/5-R121BL-110VAC	1SNA607264R1100			
	D 2,5/5-R121BL-230VAC	1SNA607265R1200			

R500 Accessories	Type	Order code	Price	Pkg qty	Weight (1 pce) kg (lb)
High end stop	BAMH 9,1 mm	1SNA114836R0000		50	
	BAMH V0 9,1 mm	1SNA194836R0100			
	BADH 12 mm	1SNA116900R2700			
Comb type jumper bar 2 to 22 poles		consult us			
Jumper bar 10 poles grey ■	PCMS V0	1SNA205523R2200		8	
Relay / Opto base	D 2,5/5-MP	1SNA607224R0100		10	0.028 (0.062)
Relay / Opto base with LED 24 VDC	D 2,5/5-MP-24VDC	1SNA607222R0700			
Relay / Opto base with LED 24 VAC/VDC	D 2,5/5-MP-24VAC/DC	1SNA607260R2100			0.036 (0.0794)
Relay / Opto base with LED 48 VAC/VDC	D 2,5/5-MP-48VAC/DC	1SNA607261R1600			
Relay / Opto base with LED 110 VAC	D 2,5/5-MP-110VAC	1SNA607266R1300			
Relay / Opto base with LED 230 VAC	D 2,5/5-MP-230VAC	1SNA607267R1400			
Plug relay 24 V 1 SPDT 10 mA to 6 A	BNMS R24V-1	1SNA031820R1400			
Plug relay 24 V 1 SPDT 1 mA to 6 A	BNMS R24V-2	1SNA031847R1300		4	
Test device blue ■	DCB [1]	1SNA105028R2100			
Test plug DIA. 2 mm	FC2	1SNA007865R2600		10	
Marking method	RC55	see marking			

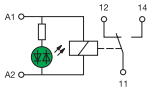
[1] Only on top decks



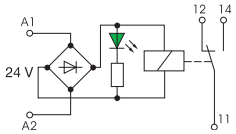
Connection diagrams



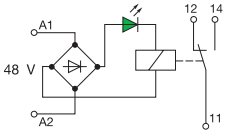
D 2,5/5-R121



D 2,5/5-R121L



D 2,5/5-R121AL-24V



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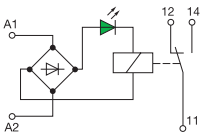


D 2,5/5-R121BL

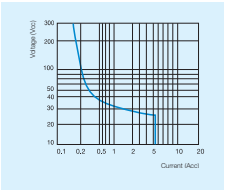
Interface relays R500 range
Technical information

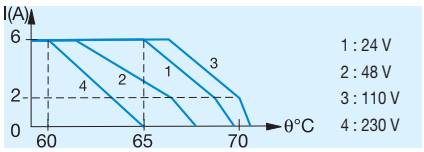
Technical data

Relay : 1 SPDT high level with contact 10 mA to 6 A - 5.08mm 0.200“ spacing

		D 2.5/5-R121	D 2.5/5-R121L	D 2.5/5-R121AL				D 2.5/5-R121BL	
Relay characteristics coil									
Rated voltage: +20%, -15% on DC ; 10%, -10% on AC		24 V DC	24 V DC	24 V AC	24 V DC	48 V AC	48 V DC	110 V AC	230 V AC
Frequency				50/60 Hz		50/60 Hz		50/60 Hz	50/60 Hz
Power		0.17 W	0.3 W	0.35 W	0.35 W	0.44 W	0.47 W	1.08 W	2.13 W
Rated current		7 mA	12 mA	12.4 mA	10 mA	7.6 mA	6.8 mA	8.4 mA	8 mA
Drop-out voltage at 20°C		2.4 V	2.4 V	4.8 V	4.8 V	10 V	10 V	25 V	45 V
Status device		green LED							
Relay characteristics contact									
Type		1 SPDT							
Voltage switching range min./max.		12 V / 250 V AC							
Current switching range min./max.		10 mA / 6 A							
Load switching range	AC1 min./max.	0.6 VA / 1500 VA (ohmic load)							
	DC1 min./max.	0.6 W / 140 W							
Number of on-load operations		10^5 on AC15							
Number of off-load operations		10 x 10^7							
Operation speed	F	5 ms	5 ms	5 ms	5 ms	5 ms	5 ms	6 ms	7 ms
	O	8 ms	8 ms	15 ms	15 ms	15 ms	15 ms	15 ms	15 ms
Insulation coil / contact		4000 V RMS							
Resistance to shock coil / contact		4000 V RMS							
Insulation contact / contact		1000 V RMS							
Ambient temperature	storage	-40 °C to -80 °C							
	operating	See derating curves							
Other characteristics									
Body material	grey	UL 94 V0							
Wire size	Solid wire	0.2 - 4 mm² (24-12 AWG)							
	Stranded wire	0.22 - 2.5 mm² (24-12 AWG)							
Rated wire size		2.5 mm² (12 AWG)							
Wire stripping length		10 mm (0.394 in)							
Recommended screwdriver		3.5 mm (0.137 in)							
Protection		IP20 *NEMA1*							
Recommended torque		0.4-0.6 Nm (3.5-5.3 lb.in)							
Approvals		c UL us (pending) , CE							
Reference standards		CEI 947-7-1 / CEI 947-1 / CEI 1131-2 (in relevant parts) / CEI 60664-1 / CEM : IEC 1000-4-2, 3, 4, 5, 6.							

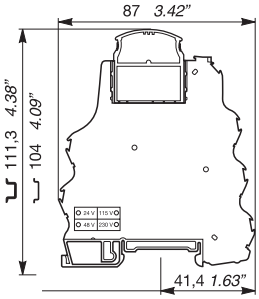
	DC12	AC12	DC13	AC15
24 V	6 A	6 A	1 A	3 A
110/120 V	0,3 A	6 A	0,2 A	3 A
220/230 V	0,2 A	6 A	0,1 A	3 A





D 2,5/5-R121

Dimensional drawings



Interface relays R500 range
Notes

Optocouplers R500 range
Product group picture

Optocouplers R500 range
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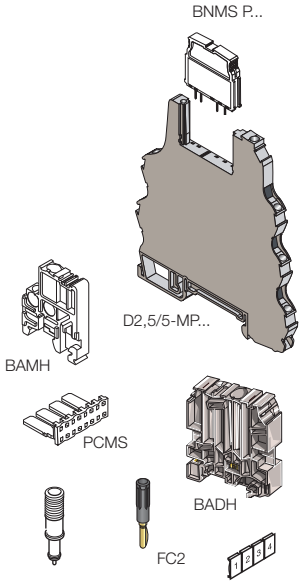
Optocouplers R500 range
Selection

	Order number	1SNA 607 274 R1300	1SNA 607 210 R1700	1SNA 607 211 R0400	1SNA 607 275 R1400	1SNA 607 212 R0500	1SNA 607 213 R0600	1SNA 607 214 R0700	1SNA 607 215 R0000	1SNA 607 203 R1500	1SNA 607 204 R1600	1SNA 607 205 R1700	1SNA 607 206 R1000	1SNA 607 207 R1100	1SNA 607 250 R2700	1SNA 607 251 R1400	1SNA 607 270 R2300	1SNA 607 271 R1000	1SNA 607 208 R2200	1SNA 607 209 R2300	1SNA 607 255 R1000	1SNA 607 256 R1100	1SNA 607 272 R1100	1SNA 607 273 R1200	1SNA 607 238 R1700	1SNA 607 240 R2500	1SNA 607 241 R1200	1SNA 607 268 R2500	1SNA 607 269 R2600
	Type	D 2,5/5-OBIC-0030-5VDC	D 2,5/5-OBIC-0030-24VDC	D 2,5/5-OBIC-0030-48VDC	D 2,5/5-OBIC-0030-125VDC	D 2,5/5-OBIA-0030-24VAC	D 2,5/5-OBIA-0030-48VAC	D 2,5/5-OBIA-0030-115VAC	D 2,5/5-OBIA-0030-230VAC	D 2,5/5-OBOC-0100-5VDC	D 2,5/5-OBOC-0100-24VDC	D 2,5/5-OBOC-0100-48VDC	D 2,5/5-OBOC-1000-5VDC	D 2,5/5-OBOC-1000-24VDC	D 2,5/5-OBOC-1000-24VAC/DC	D 2,5/5-OBOC-1000-48VAC/DC	D 2,5/5-OBOC-1000-110VAC	D 2,5/5-OBOC-1000-230VAC	D 2,5/5-OBOC-2000-5VDC	D 2,5/5-OBOC-2000-24VDC	D 2,5/5-OBOC-2000-24VAC/DC	D 2,5/5-OBOC-2000-48VAC/DC	D 2,5/5-OBOC-2000-110VAC	D 2,5/5-OBOC-2000-230VAC	D 2,5/5-OBOA-1000-24VDC	D 2,5/5-OBOA-1000-24VAC/DC	D 2,5/5-OBOA-1000-48VAC/DC	D 2,5/5-OBOA-1000-110VAC	D 2,5/5-OBOA-1000-230VAC
Input voltage																													
5 V DC		■								■			■						■										
24 V DC			■								■			■	■					■	■					■	■			
48 V DC				■								■				■						■						■		
125 V DC					■																									
24 V AC						■									■						■					■				
48 V AC							■									■						■					■			
110 V AC																	■						■					■		
115 V AC								■																						
230 V AC									■									■						■					■	
Output rating																														
30 mA		■	■	■	■	■	■	■	■																					
100 mA										■	■	■																		
2 A																			■	■	■	■	■	■						
1 A													■	■	■	■	■	■							■	■	■	■	■	
Output voltage																														
30 V DC																			■	■	■	■	■	■						
58 V DC		■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■												
253 V AC																									■	■	■	■	■	
Type																														
input optocoupler		■	■	■	■	■	■	■	■																					
output optocoupler										■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■

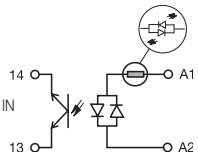
Optocouplers R500 range
Ordering details

Description of R600 Optocoupler	Type	Order code	Price	Pkg qty	Weight (1 pce) kg (lb)
Optocoupler module 30 mA/DC Transistor	D 2,5/5-OBIC-0030-5VDC	1SNA607274R1300		1	0.032 (0.071)
	D 2,5/5-OBIC-0030-24VDC	1SNA607210R1700			
	D 2,5/5-OBIC-0030-48VDC	1SNA607211R0400			
	D 2,5/5-OBIC-0030-125VDC	1SNA607275R1400			
Optocoupler module 30 mA/DC Transistor	D 2,5/5-OBIA-0030-24VAC	1SNA607212R0500		1	0.032 (0.071)
	D 2,5/5-OBIA-0030-48VAC	1SNA607213R0600			
	D 2,5/5-OBIA-0030-115VAC	1SNA607214R0700			
	D 2,5/5-OBIA-0030-230VAC	1SNA607215R0000			
Optocoupler module 100 mA/DC Transistor	D 2,5/5-OBOC-0100-5VAC	1SNA607203R1500		1	0.032 (0.071)
	D 2,5/5-OBOC-0100-24VDC	1SNA607204R1600			
	D 2,5/5-OBOC-0100-48VAC	1SNA607205R1700			
Optocoupler module 1 A/DC MOS-FET	D 2,5/5-OBOC-1000-5VDC	1SNA607206R1000		1	0.04 (0.088)
	D 2,5/5-OBOC-1000-24VDC	1SNA607207R1100			
	D 2,5/5-OBOC-1000-24VAC/DC	1SNA607250R2700			
	D 2,5/5-OBOC-1000-48VAC/DC	1SNA607251R1400			
	D 2,5/5-OBOC-1000-110VAC	1SNA607270R2300			
	D 2,5/5-OBOC-1000-230VAC	1SNA607271R1000			
Optocoupler module 2 A/DC MOS-FET	D 2,5/5-OBOC-2000-5VDC	1SNA607208R2200		1	0.04 (0.088)
	D 2,5/5-OBOC-2000-24VDC	1SNA607209R2300			
	D 2,5/5-OBOC-2000-24VAC/DC	1SNA607255R1000			
	D 2,5/5-OBOC-2000-48VAC/DC	1SNA607256R1100			
	D 2,5/5-OBOC-2000-110VAC	1SNA607272R1100			
	D 2,5/5-OBOC-2000-230VAC	1SNA607273R1200			
Optocoupler module 1 A/AC Thyristor	D 2,5/5-OBOA-1000-24VDC	1SNA607238R1700		1	0.032 (0.071)
	D 2,5/5-OBOA-1000-24VAC/DC	1SNA607240R2500			0.04 (0.088)
	D 2,5/5-OBOA-1000-48VAC/DC	1SNA607241R1200			
	D 2,5/5-OBOA-1000-110VAC	1SNA607268R2500			
	D 2,5/5-OBOA-1000-230VAC	1SNA607269R2600			

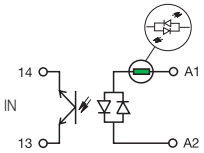


Description of Accessories	Type	Order code	Price	Pkg qty	Weight (1 pce) kg (lb)
High end stop	BAMH 9.1 mm	1SNA114836R0000		50	
	BAMH V0 9.1 mm	1SNA194836R0100			
	BADH 12 mm	1SNA116900R2700			
Comb type jumper bar 2 to 22 poles		consult us			
Jumper bar 10 poles grey	PCMS V0	1SNA205523R2200		8	
Input opto base	D 2.5-5-MP1	1SNA607223R0000		10	0.028 (0.062)
Plug OBIC 5 V white	BNMS T5V-1	1SNA031831R0300		4	
Plug OBIC 24 V white	BNMS T24V-1	1SNA031800R2100			
Plug OBIC 48 V white	BNMS T48V-1	1SNA031801R1600			
Plug OBIC 125 V white	BNMS T125V-1	1SNA031845R1100			
Test device blue	DCB (1)	1SNA105028R2100		10	
Test plug DIA 2 mm	FC2	1SNA105028R2100			
Marking method	RC55	see marking			

Optocouplers R500 range
Connection diagrams



D 2,5/5-OBIC-0030



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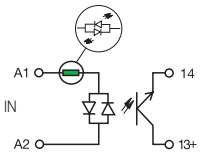
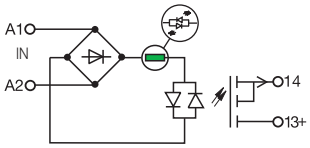
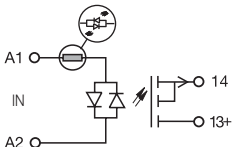


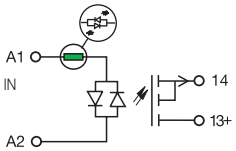
D 2,5/5-OBOC-0100



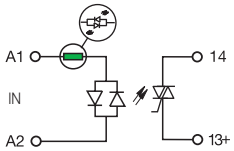
D 2,5/5-OBOC-1000
24/48 VAC/DC
110/230 VAC



D 2,5/5-OBOC-1000 5/24 VDC



D 2,5/5-OBOC-2000



D 2,5/5-OBOA-1000

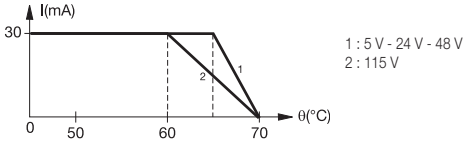
Optocouplers R500 range
Technical data

Technical data

Pluggable optocoupler : 5 to 58 V DC output / 30 mA - 5.08 mm 0.200“ spacing

		D 2,5/5-OBIC-0030			
Input					
Input voltage		4.5 V to 5.5 VDC	19.2 V to 27.6 VDC	38.4 V to 55.2 VDC	93.5 V to 140 VDC
Input current		6 mA	5 mA	4.1 mA	3 mA
Pull-in voltage at Is=100%		3.5 V	12 V	21 V	50 V
Switching time C / O		20 µs / 1.3 ms			
Operating frequency		400 Hz			
Permissible leakage current			1 mA	0.8 mA	
Output					
Output voltage		4.5 to 58 V DC			
Output current min.		0.5 mA			
Output current max.		30 mA			
Output leakage current at U_{max}		< 50 µA			
Redidual voltage at I max and U rated	typical	2.3 V DC			
	max	2.7 V DC			
Frequency on inductive load					
Isolation Input / Output	input / Output	2500 V RMS			
Ambient temperature	storage	-40...+80 °C			
	operating	See derating curve			
Other characteristics					
Body material	grey	UL 94 V0			
Wire size	Solid wire	0.2 - 4 mm² (24-12 AWG)			
	Stranded wire	0.22 - 2.5 mm² (24-12 AWG)			
Rated wire size		2.5 mm² (12 AWG)			
Wire stripping length		9 mm (0.354 in)			
Recommended screwdriver		3.5 mm (0.137 in)			
Protection		IP20 *NEMA1*			
Recommended torque		0.4-0.6 Nm (3.5-5.3 lb.in)			
Approvals		c UL us (pending), CE			
Reference standards		CEI 947-7-1 / CEI 947-1 / CEI 1131-2 (in relevant parts) / CEI 60664-1 / CEM : IEC 1000-4-2, 3, 4, 5, 6.			

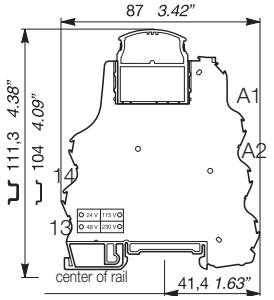
Derating curve



1 : 5 V - 24 V - 48 V
2 : 115 V

D 2,5/5-OBIC-0030

Dimensional drawings



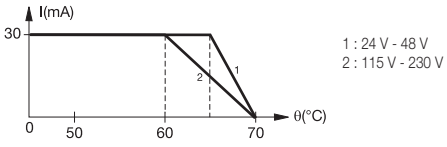
Optocouplers R500 range
Technical data

Technical data

Pluggable optocoupler : 5 to 58 V DC output / 30 mA - 5.08 mm 0.200“ spacing

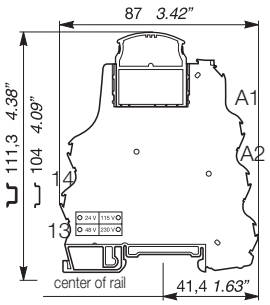
		D 2,5/5-OBIA-0030			
Input					
Input voltage		20.4 to 26.4 V AC	40.8 V to 52.8 V AC	98 V to 126.5 V AC	195.5 V to 253 V AC
				50 / 60 Hz	50 Hz
Input current		8.5 mA	4.5 mA	8 mA	7 mA
Pull-in voltage at Is=100%		13 V	22 V	50 V	95 V
Switching time C / O		6 ms / 10 ms			
Operating frequency		30 Hz			
Permissible leakage current		1 mA		2 mA	
Output					
Output voltage		4.5 V to 58 V DC			
Output current min.		0.5 mA			
Output current max.		30 mA			
Output leakage current at $U_{max.}$		< 50 µA			
Redidual voltage at I max and U rated	typical	2.3 V DC			
	max	2.7 V DC			
Frequency on inductive load		2500 V RMS			
Isolation Input / Output	input / Output				
Temperature					
Ambient temperature	storage	-40...+80 °C			
	operating	See derating curve			
Other characteristics					
Body material	grey	UL 94 V0			
Wire size	Solid wire	0.2 - 4 mm² (24-12 AWG)			
	Stranded wire	0.22 - 2.5 mm² (24-12 AWG)			
Rated wire size		2.5 mm² (12 AWG)			
Wire stripping length		9 mm (0.354 in)			
Recommended screwdriver		3.5 mm (0.137 in)			
Protection		IP20 *NEMA1*			
Recommended torque		0.4-0.6 Nm (3.5-5.3 lb.in)			
Approvals		cULus (pending), CE			
Reference standards		CEI 947-7-1 / CEI 947-1 / CEI 1131-2 (in relevant parts) / CEI 60664-1 / CEM : IEC 1000-4-2, 3, 4, 5, 6.			

Derating curve



D 2,5/5-OBIA-0030

Dimensional drawings



Optocouplers R500 range
Technical data

Technical data

Pluggable optocoupler : 5 to 58 V DC output / 100 mA - 5.08 mm 0.200“ spacing

		D 2,5/5-OBOC-0100 5 V DC / 24 V DC		D 2,5/5-OBOC-0100 48 V DC
Input				
Input voltage		4.5 V to 5.5 V DC	20.4 V to 28.8 V DC	40.8 V to 57.6 V DC
Frequency				
Input current		8.5 mA	4.8 mA	3.9 mA
Pull-in voltage at Is=100%		2.9 V DC	16 V DC	26 V DC
Switching time C / O		20 µs / 1.3 ms		
Operating frequency		400 Hz		
Permissible leakage current		1 mA		
Output				
Output voltage		4.5 V to 58 V DC		
Output current min.		1 mA		
Output current max.		100 mA		
Output leakage current at $U_{max.}$		< 50 µA		
Redidual voltage at I max and U rated	typical	1 V DC		
	max	1.3 V DC		
Frequency on inductive load		See Note 1		
Isolation Input / Output	input / Output	2500 V RMS		
Temperature				
Ambient temperature	storage	-40...+80 °C		
	operating	See derating curve		
Other characteristics				
Body material	grey	UL 94 V0		
Wire size	Solid wire	0.2 - 4 mm² (24-12 AWG)		
	Stranded wire	0.22 - 2.5 mm² (24-12 AWG)		
Rated wire size		2.5 mm² (12 AWG)		
Wire stripping length		9 mm (0.354 in)		
Recommended screwdriver		3.5 mm (0.137 in)		
Protection		IP20 *NEMA1*		
Recommended torque		0.4-0.6 Nm (3.5-5.3 lb.in)		
Approvals		c UL us (pending), CE		
Reference standards		CEI 947-7-1 / CEI 947-1 / CEI 1131-2 (in relevant parts) / CEI 60664-1 / CEM : IEC 1000-4-2, 3, 4, 5, 6.		

Note 1 :

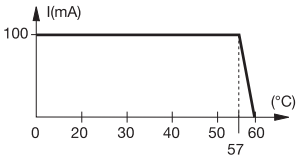
$F_{max} = (1\text{-}0{,}007 \times U_S) / (L \times I_S^2)$

or

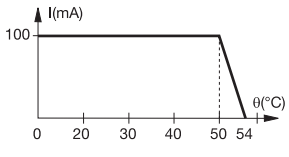
$F_{max} = (1\text{-}0{,}007 \times U_S) / (P \times \frac{L}{R})$

U_S = Output voltage
I_S = Output current
L = Inductance of load
P = Power of load
R = Resistance of load

Derating curve

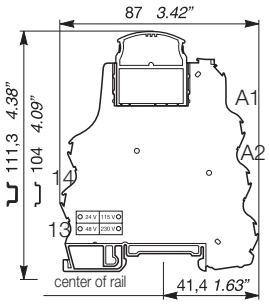


D 2,5/5-OBOC-0100 5 V DC / 24 V DC



D 2,5/5-OBOC-0100 48 V DC

Dimensional drawings



Optocouplers R500 range
Technical data

Technical data

Pluggable optocoupler : 5 to 58 V DC output / 1 A - 5.08 mm 0.200“ spacing

		D 2,5/5-OBOC-1000 5/24 V DC		D 2,5/5-OBOC-1000 24/48 V AC/DC				D 2,5/5-OBOC-1000 110/230 V AC	
Input		5 V DC	24 V DC	24 V AC	24 V DC	48 V AC	48 V DC	110 V AC	230 V AC
Input voltage		4.5 - 5.5 V DC	20.4 - 28.8 V DC	24 ± 10 %	20.4 - 28.8 V DC	48 ± 10 %	40.8 to 57.6 V DC	110 ± 10 %	230 ± 10 %
Frequency				50 / 60 Hz		50 / 60 Hz		50 / 60 Hz	50 / 60 Hz
Input current		12.3 mA	6.7 mA	10.5 mA	8 mA	6.8 mA	5.8 mA	8.5 mA	7.5 mA
Pull-in voltage at Is=100%		3.5 V DC	10 V DC						
Switching time C / O		20 / 250 µs	50 / 350 µs	15 / 13 ms	5 / 13 ms	15 / 15 ms	6 / 25 ms	15 / 15 ms	15 / 15 ms
Operating frequency		2000 Hz	1500 Hz	20 Hz					
Permissible leakage current									
Output									
Output voltage		4.5 V to 58 V DC							
Output current min.		1 mA							
Output current max.		1 A							
Output leakage current at $U_{max.}$		< 50 µA							
Redidual voltage at I max and U rated	typical	0.1 V DC							
	max	0.5 V DC							
Frequency on inductive load		See Note 1							
Isolation Input / Output	input / Output	2500 V RMS							
Temperature									
Ambient temperature	storage	-40...+80 °C							
	operating	See derating curve							
Other characteristics									
Body material	grey	UL 94 V0							
Wire size	Solid wire	0.2 - 4 mm² (24-12 AWG)							
	Stranded wire	0.22 - 2.5 mm² (24-12 AWG)							
Rated wire size		2.5 mm² (12 AWG)							
Wire stripping length		10 mm (0.394 in)							
Recommended screwdriver		3.5 mm (0.137 in)							
Protection		IP20 *NEMA1*							
Recommended torque		0.4-0.6 Nm (3.5-5.3 lb.in)							
Approvals		cULus (pending), CE							
Reference standards		CEI 947-7-1 / CEI 947-1 / CEI 1131-2 (in relevant parts) / CEI 60664-1 / CEM : IEC 1000-4-2, 3, 4, 5, 6.							

Note 1 :

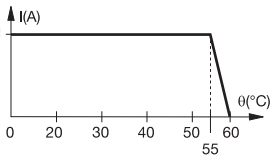
Fmax = (1-0,007 x Us) / (L x Is²)

or

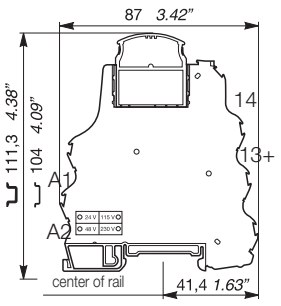
Fmax = (1-0,007 x Us) / (P x $\frac{L}{R}$)

Us = Output voltage
Is = Output current
L = Inductance of load
P = Power of load
R = Resistance of load

Derating curve



Dimensional drawings



Optocouplers R500 range
Technical data

Technical data

Pluggable optocoupler : 5 to 30 V DC output / 2 A - 5.08 mm 0.200“ spacing

		D 2,5/5-OBOC-2000 5/24 V DC		D 2,5/5-OBOC-2000 24/48 V AC/DC				D 2,5/5-OBOC-2000 110/230 V AC	
Input		5 V DC	24 V DC	24 V AC	24 V DC	48 V AC	48 V DC	110 V AC	230 V AC
Input voltage		4.5 - 5.5 V DC	20.4 - 28.8 V DC	24 ± 10 %	20.4 - 28.8 V DC	48 ± 10 %	40.8 to 57.6 V DC	110 ± 10 %	230 ± 10 %
Frequency				50 / 60 Hz		50 / 60 Hz		50 / 60 Hz	50 / 60 Hz
Input current		12.3 mA	6.7 mA	10.5 mA	8 mA	6.8 mA	5.8 mA	8.5 mA	7.5 mA
Pull-in voltage at Is=100%		3.5 V DC	10 V DC						
Switching time C / O		20 / 250 µs	50 / 350 µs	15 / 13 ms	5 / 13 ms	15 / 15 ms	6 / 25 ms	15 / 15 ms	15 / 15 ms
Operating frequency		2000 Hz	1500 Hz	20 Hz					
Permissible leakage current									
Output									
Output voltage		4.5 V to 30 V DC							
Output current min.		1 mA							
Output current max.		2 A							
Output leakage current at $U_{max.}$		< 50 µA							
Redidual voltage at I max and U rated	typical	0.1 V DC							
	max	0.5 V DC							
Frequency on inductive load		See Note 1							
Isolation Input / Output	input / Output	2500 V RMS							
Temperature									
Ambient temperature	storage	-40...+80 °C							
	operating	See derating curve							
Other characteristics									
Body material	grey	UL 94 V0							
Wire size	Solid wire	0.2 - 4 mm² (24-12 AWG)							
	Stranded wire	0.22 - 2.5 mm² (24-12 AWG)							
Rated wire size		2.5 mm² (12 AWG)							
Wire stripping length		10 mm (0.394 in)							
Recommended screwdriver		3.5 mm (0.137 in)							
Protection		IP20 *NEMA1*							
Recommended torque		0.4-0.6 Nm (3.5-5.3 lb.in)							
Approvals		c UL us (pending), CE							
Reference standards		CEI 947-7-1 / CEI 947-1 / CEI 1131-2 (in relevant parts) / CEI 60664-1 / CEM : IEC 1000-4-2, 3, 4, 5, 6.							

Note 1 :

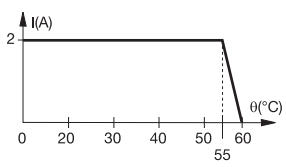
Fmax = (1-0,012 x Us) / (L x Is²)

or

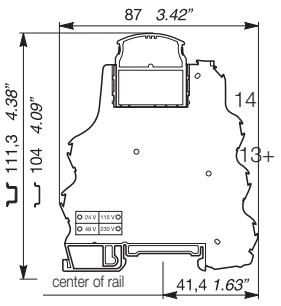
Fmax = (1-0,012 x Us) / (P x $\frac{L}{R}$)

Us = Output voltage
Is = Output current
L = Inductance of load
P = Power of load
R = Resistance of load

Derating curve



Dimensional drawings



Optocouplers R500 range
Technical data

Technical data

Pluggable optocoupler : 24 to 253 V AC output / 1 A - 5.08 mm 0.200“ spacing

		D 2,5/5-... 24 V DC	D 2,5/5-OBOA-1000 24 V AC/DC - 48 V AC/DC				D 2,5/5-OBOA-1000 110 V AC - 230 V AC	
Input		24 V DC	24 V AC	24 V DC	48 V AC	48 V DC	110 V AC	230 V AC
Input voltage		20.4 - 28.8 V DC	24 ± 10 %	20.6 - 28.8 V DC	48 ± 10 %	40.8 -57.6 V DC	110 ± 10 %	230 ± 10 %
Frequency			50 / 60 Hz		50 / 60 Hz		50 / 60 Hz	50 / 60 Hz
Input current		4 mA	10 mA	7 mA	6 mA	5 mA	8 mA	7.5 mA
Pull-in voltage at Is=100%								
Switching time C / O		10/20 ms	20/20 ms	10/20 ms	20/20 ms	10/20 ms	20/20 ms	20/20 ms
Operating frequency		15 Hz						
Permissible leakage current								
Output								
Output voltage		24-253 V AC - 50/60 Hz						
Output current min.		25 mA						
Output current max.		1 A						
Output leakage current at $U_{max.}$		< 0.50 mA						
Redidual voltage at I max and U rated	typical	1 V						
	max	1.6 V						
Frequency on inductive load		See Note 1						
Isolation Input / Output	input / Output	2500 V RMS						
Temperature								
Ambient temperature	storage	-40...+80 °C						
	operating	See derating curve						
Other characteristics								
Body material	grey	UL 94 V0						
Wire size	Solid wire	0.2 - 4 mm² (24-12 AWG)						
	Stranded wire	0.22 - 2.5 mm² (24-12 AWG)						
Rated wire size		2.5 mm² (12 AWG)						
Wire stripping length		10 mm (0.394 in)						
Recommended screwdriver		3.5 mm (0.137 in)						
Protection		IP20 *NEMA1*						
Recommended torque		0.4-0.6 Nm (3.5-5.3 lb.in)						
Approvals		cULus (pending), CE						
Reference standards		CEI 947-7-1 / CEI 947-1 / CEI 1131-2 (in relevant parts) / CEI 60664-1 / CEM : IEC 1000-4-2, 3, 4, 5, 6.						

Note 1 :

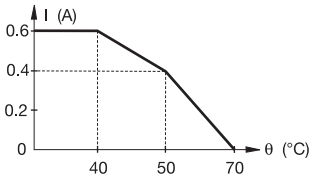
Fmax = (1-0,012 x Us) / (L x Is²)

or

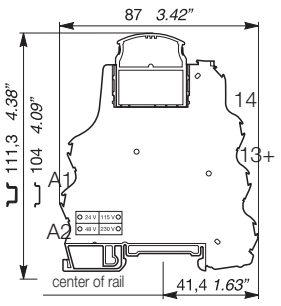
Fmax = (1-0,012 x Us) / (P x $\frac{L}{R}$)

Us = Output voltage
Is = Output current
L = Inductance of load
P = Power of load
R = Resistance of load

Derating curve

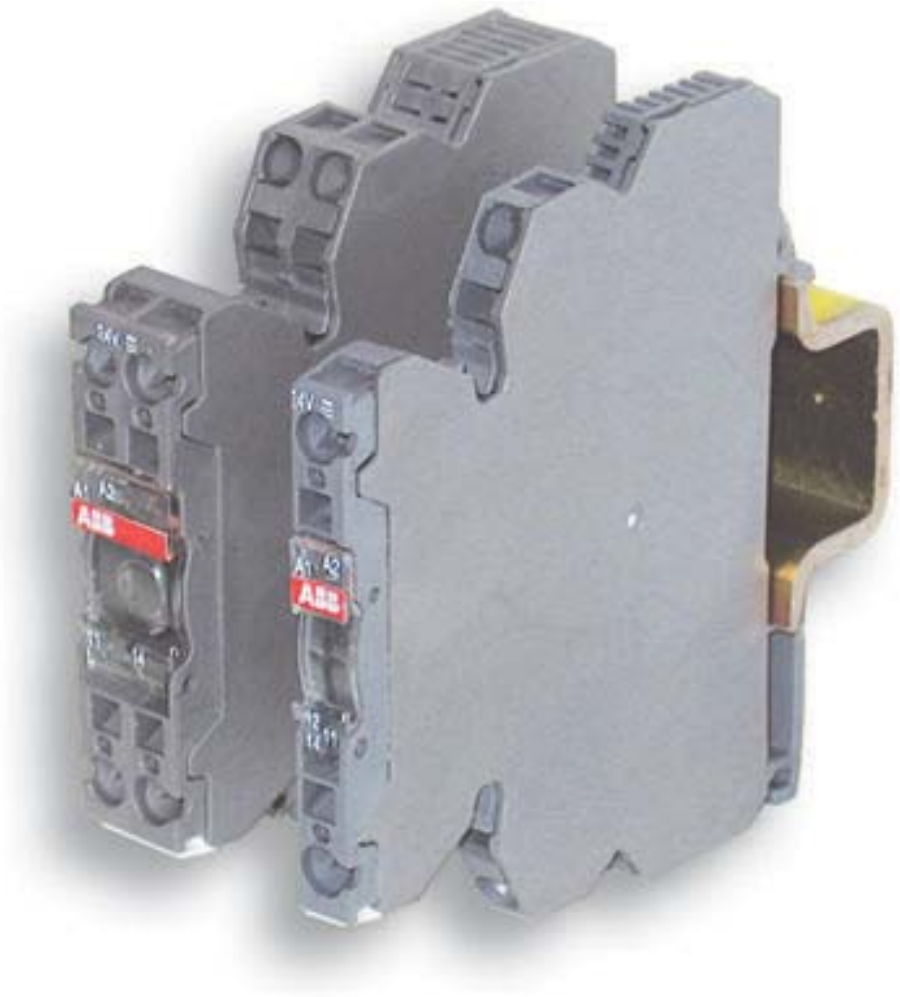


Dimensional drawings



Optocouplers R500 range
Notes

Interface relays and optocouplers R600 range
Product group picture



Interface relays and optocouplers R600 range
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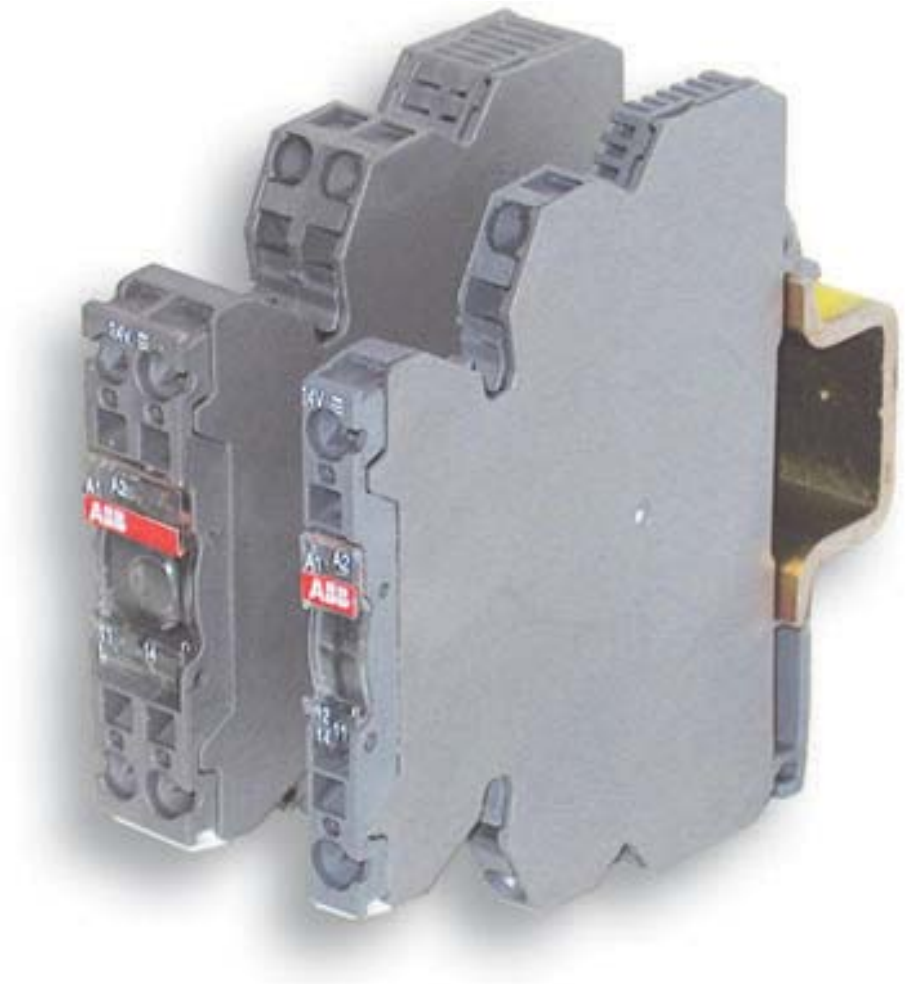
Interface relays R600 range
Product group picture

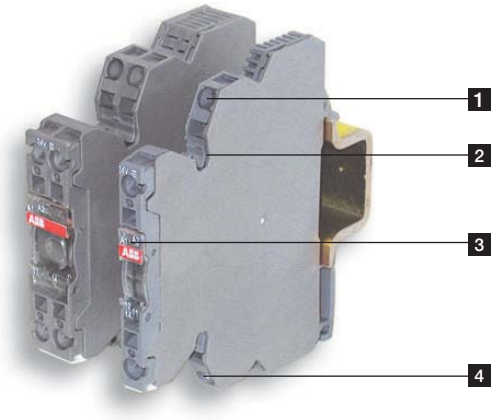


Interface relays R600 range
Table of contents

Interface relays R600 range
Benefits and advantages

Characteristics

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



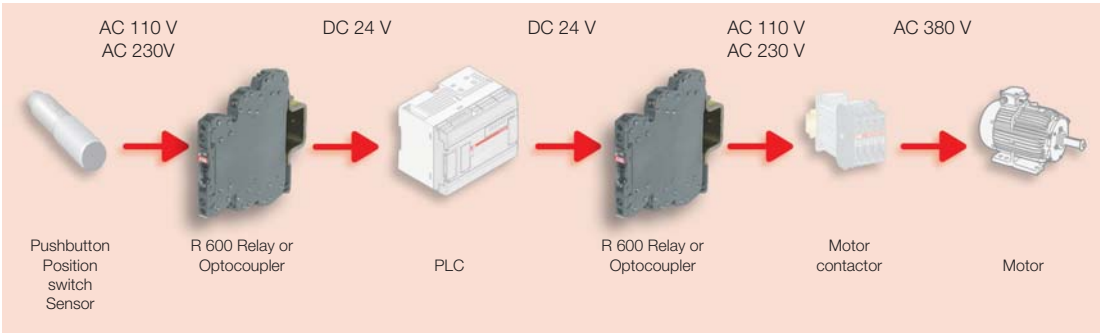
1 Input - Control supply voltage

2 Jumper bar connection

3 Indication of operational states (green LED)

4 Output

Excellent adaption and conversion of digital signals

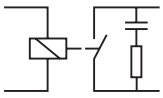


Interface relays R600 range
Benefits and advantages

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

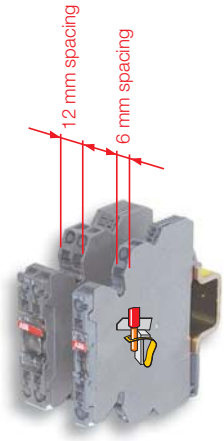
Boxed interface relays are used for electrical isolation, amplification and signal matching between the electronic controlling, e.g. PLC (programmable logic controller), PC or field bus systems and the sensor / actuator level. The compact design and different connection terminal possibilities optimize your panel installation.

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



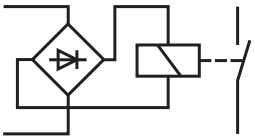
Variety of connections
R600 relays and optocouplers are available with both screw terminals or spring terminals.

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



Functionning status
Functionning display through a green LED.

Only one part number AC/DC



Measurement & Test
Holes for holding DIA. 2 mm test plugs to simplify any measury or test.

Approvals

UL 508
CAN/CSA C22.2 No.14

Lloyds Register — pending

Marks

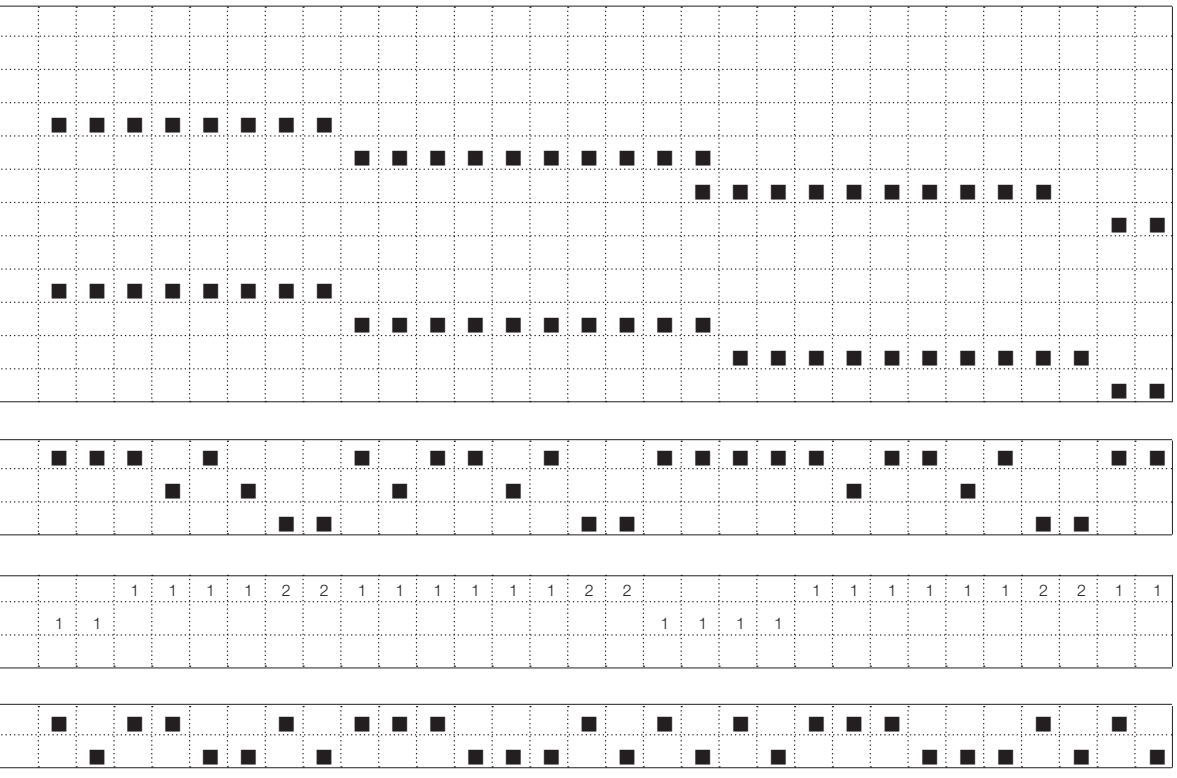
CE

Interface relays R600 range
Selection

Type	RB 121-5VDC	RB 121-5VDC	RBR 121-5VDC	RBR 121-5VDC	RB 121-12VDC	RB 121-12VDC	RBR 121-12VDC	RB 101AR-24VAC/DC	RBR 101AR-24VAC/DC	RB 111A-24VAC/DC	RB 111AI-24VAC/DC	RB 111AR-24VAC/DC	RBR 111A-24VAC/DC	RBR 111AI-24VAC/DC	RBR 111AR-24VAC/DC	RB 121-24VDC	RB 121-24VDC	RB 121A-24VAC/DC	RB 121A-24VAC/DC	RB 121AI-24VAC/DC	RB 121AI-24VAC/DC	RB 121AI-24VAC/DC	RB 121AI-24VAC/DC	RBR 121-24VDC	RBR 121-24VDC	RBR 121A-24VAC/DC	RBR 121A-24VAC/DC	RBR 121AI-24VAC/DC	RBR 121AI-24VAC/DC	RBR 121AI-24VAC/DC	RB 122A-24VAC/DC	RBR 122A-24VAC/DC		
Order number	1SNA 645 034 R2300	1SNA 645 036 R2500	1SNA 645 534 R2500	1SNA 645 536 R2700	1SNA 645 069 R0000	1SNA 645 037 R2600	1SNA 645 537 R2000	1SNA 645 019 R0400	1SNA 645 519 R0600	1SNA 645 014 R2700	1SNA 645 063 R0000	1SNA 645 018 R0300	1SNA 645 514 R2100	1SNA 645 563 R0200	1SNA 645 518 R0500	1SNA 645 064 R0100	1SNA 645 065 R0200	1SNA 645 001 R0300	1SNA 645 005 R0700	1SNA 645 032 R2100	1SNA 645 009 R1300	1SNA 645 033 R2200	1SNA 645 010 R0700	1SNA 645 564 R0300	1SNA 645 565 R0400	1SNA 645 501 R0500	1SNA 645 505 R0100	1SNA 645 532 R2300	1SNA 645 509 R1500	1SNA 645 533 R2400	1SNA 645 510 R0100	1SNA 645 012 R2500	1SNA 645 512 R2700		
Input voltage																																	
5 V DC	■	■	■	■																													
12 V DC					■	■	■																										
24 V DC								■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
48 - 60 V DC																																	
115 V DC																																	
230 V DC																																	
60 - 230 V DC																																	
24 V AC								■	■	■	■	■	■	■	■			■	■	■	■	■	■			■	■	■	■	■	■	■	■
48 - 60 V AC																																	
115 V AC																																	
230 V AC																																	
60 - 230 V AC																																	
Output rating																																	
10 mA - 6 A	■		■		■			■	■	■	■	■	■	■	■	■		■		■	■			■		■		■	■				
1 mA - 6 A		■		■		■	■										■		■			■	■		■		■			■	■		
1 mA - 8 A																																■	■
Output contacts																																	
c/o	1	1	1	1	1	1	1									1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2
n/o										1	1	1	1	1	1																		
n/c								1	1																								
Terminal type																																	
Screw	■	■			■	■		■		■	■	■				■	■	■	■	■	■	■	■								■		
Spring			■	■			■		■				■	■	■									■	■	■	■	■	■	■	■		■	

Interface relays R600 range
Selection

RB 111A-48-60VAC/DC	1SNA 645 015 R2000	
RBR 111A-48-60VAC/DC	1SNA 645 515 R2200	
RB 121A-48-60VAC/DC	1SNA 645 002 R0400	
RB 121A-48-60VAC/DC	1SNA 645 006 R0000	
RBR 121A-48-60VAC/DC	1SNA 645 502 R0600	
RBR 121A-48-60VAC/DC	1SNA 645 506 R0200	
RB 122A-48-60VAC/DC	1SNA 645 040 R1500	
RBR 122A-48-60VAC/DC	1SNA 645 540 R1700	
RB 121A-115VAC/DC	1SNA 645 003 R0500	
RB 121A-115VAC/DC	1SNA 645 007 R0100	
RB 121AR-115VAC/DC	1SNA 645 046 R0700	
RBR 121A-115VAC/DC	1SNA 645 503 R0700	
RBR 121A-115VAC/DC	1SNA 645 507 R0300	
RBR 121AR-115VAC/DC	1SNA 645 546 R0100	
RB 122A-115VAC/DC	1SNA 645 041 R0200	
RBR 122A-115VAC/DC	1SNA 645 541 R0400	
RB 111A-115VAC/DC	1SNA 645 016 R2100	
RBR 111A-115VAC/DC	1SNA 645 516 R2300	
RB 111A-230VAC/DC	1SNA 645 017 R2200	
RBR 111A-230VAC/DC	1SNA 645 517 R2400	
RB 121A-230VAC/DC	1SNA 645 004 R0400	
RB 121A-230VAC/DC	1SNA 645 008 R1200	
RB 121AR-230VAC/DC	1SNA 645 011 R2400	
RBR 121A-230VAC/DC	1SNA 645 504 R0000	
RBR 121A-230VAC/DC	1SNA 645 508 R1400	
RBR 121AR-230VAC/DC	1SNA 645 511 R2600	
RB 122A-230VAC/DC	1SNA 645 013 R2600	
RBR 122A-230VAC/DC	1SNA 645 513 R2000	
RB 121A 60-230VUC	1SNA 645 020 R0100	
RBR 121A 60-230VUC	1SNA 645 520 R0300	



Interface relays R600 range
Ordering details

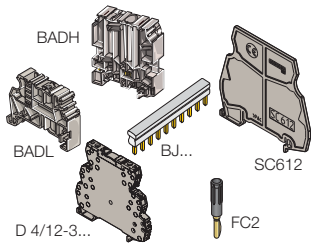
R600

R600 Relay		Type	Order code	Price	Pkg qty	Weight (1 pce) kg (lb)
Relay module 1 NO high level 6 mm spacing		RB 111 A-24VAC/DC	1SNA645014R2700		10	0.02 (0.44)
		RB 111 A-48-60VAC/DC	1SNA645015R2000			
		RB 111 A-115VAC/DC	1SNA645016R2100			
		RB 111 A-230VAC/DC	1SNA645017R2200			
Relay mod. 1 NO high level w/safety switch 6 mm spacing		RB 111 AI-24VAC/DC	1SNA645063R0000			
Relay mod. 1 NO high level w/ contact protection 12 mm spacing		RB 111 AR-24VAC/DC	1SNA645018R0300		5	0.03 (0.44)
Relay mod. 1 NC high level w/contact protection 12 mm spacing		RB 101 AR-24VAC/DC	1SNA645019R0400			
Relay module 1 NO high level 6 mm spacing		RBR 111 A-24VAC/DC	1SNA645514R2100		10	0.02 (0.44)
		RBR 111 A-48-60VAC/DC	1SNA645515R2200			
		RBR 111 A-115VAC/DC	1SNA645516R2300			
		RBR 111 A-230VAC/DC	1SNA645517R2400			
Relay mod. 1 NO high level w/ safety switch 6 mm spacing		RBR 111 AI-24VAC/DC	1SNA645563R0200			
Relay mod. 1 NO high level w/ contact protection 12 mm spacing		RBR 111 AR-24VAC/DC	1SNA645518R0500		5	0.03 (0.44)
Relay mod. 1 NC high level w/contact protection 12 mm spacing		RBR 101 AR-24VAC/DC	1SNA645519R0600			
Relay module 1 SPDT high level		RB 121-5VDC	1SNA645034R2300		10	0.02 (0.44)
		RB 121-12VDC	1SNA645069R0100			
		RB 121-24VDC	1SNA645064R0100			
		RB 121 A-24VAC/DC	1SNA645001R0300			
		RB 121 A-48-60VAC/DC	1SNA645002R0400			
		RB 121 A-115VAC/DC	1SNA645003R0500			
		RB 121 A-230VAC/DC	1SNA645004R0400			
Relay module 1 SPDT high level		RB 121-5VDC	1SNA645534R2500			
		RB 121-12VDC	1SNA645569R0000			
		RB 121-24VDC	1SNA645564R0300			
		RB 121 A-24VAC/DC	1SNA645501R0500			
		RB 121 A-48-60VAC/DC	1SNA645502R0600			
		RB 121 A-115VAC/DC	1SNA645503R0700			
		RB 121 A-230VAC/DC	1SNA645504R0000			
Relay module 1 SPDT low level		RB 121-5VDC	1SNA645036R2500		10	0.02 (0.44)
		RB 121-12VDC	1SNA645037R2600			
		RB 121-24VDC	1SNA645065R0200			
		RB 121 A-24VAC/DC	1SNA645005R0700			
		RB 121 A-48-60VAC/DC	1SNA645006R0000			
		RB 121 A-115VAC/DC	1SNA645007R0100			
		RB 121 A-230VAC/DC	1SNA645008R1200			
Relay module 1 SPDT low level		RB 121-5VDC	1SNA645536R2700			
		RB 121-12VDC	1SNA645537R2000			
		RB 121-24VDC	1SNA645565R0400			
		RB 121 A-24VAC/DC	1SNA645505R0100			
		RB 121 A-48-60VAC/DC	1SNA645506R0200			
		RB 121 A-115VAC/DC	1SNA645507R0300			
		RB 121 A-230VAC/DC	1SNA645508R1400			

Interface relays R600 range
Ordering details

R600

R600 Relay		Type	Order code	Price	Pkg qty	Weight (1 pce) kg (lb)
Relay mod. 1SPDT high level w/ leakage current protec.		RB 121 AR-115VAC/DC	1SNA645046R0700		5	0.03 (0.066)
		RB 121 AR-230VAC/DC	1SNA645011R2400			
Relay mod. 1SPDT high level w/ large coil voltage range		RB 121 A 60-230VAC/DC	1SNA645020R0100			
Relay mod. 1SPDT high level with switch		RB 121 AI-24VAC/DC	1SNA645032R2100			
Relay mod. 1SPDT high level with safety switch		RB 121 AI-24VAC/DC	1SNA645009R1300			
Relay module 1SPDT low level with switch		RB 121 AI-24VAC/DC	1SNA645033R2200			
Relay module 1SPDT low level with safety switch		RB 121 AI-24VAC/DC	1SNA645010R0700			
Relay mod. 1SPDT high level w/ leakage current protec.		RB 121 AR-115VAC/DC	1SNA645546R0100			
		RB 121 AR-230VAC/DC	1SNA645511R2600			
Relay mod. 1SPDT high level w/ large coil voltage range		RB 121 A 60-230VAC/DC	1SNA645520R0300			
Relay mod. 1SPDT high level with switch		RB 121 AI-24VAC/DC	1SNA645532R2300			
Relay mod. 1SPDT high level with safety switch		RB 121 AI-24VAC/DC	1SNA645509R1500			
Relay module 1SPDT low level with switch		RB 121 AI-24VAC/DC	1SNA645533R2400			
Relay module 1SPDT low level with safety switch		RB 121 AI-24VAC/DC	1SNA645510R0100			
Relay module 1 DPDT low level		RB 122 A-24VAC/DC	1SNA645012R2500		5	0.03 (0.066)
		RB 122 A-48-60VAC/DC	1SNA645040R1500			
		RB 122 A-115VAC/DC	1SNA645041R0200			
		RB 122 A-230VAC/DC	1SNA645013R2600			
Relay module 1 DPDT low level		RBR 122 A-24VAC/DC	1SNA645512R2700			
		RBR 122 A-48-60VAC/DC	1SNA645540R1700			
		RBR 122 A-115VAC/DC	1SNA645541R0400			
		RBR 122 A-230VAC/DC	1SNA645513R2000			

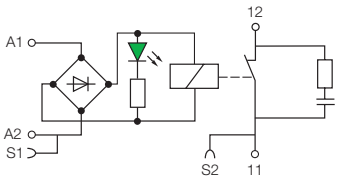


Accessories R600	Type	Order code	Price	Pkg qty	Weight (1 pce) kg (lb)
End section	BADH V0	1SNA116900R2700		50	
	BADL V0	1SNA399903R0200		50	
	BAM2 V0	1SNA399967R0100		50	
Seperator end section	SC 612	1SNA290474R0200		10	
Divisible shunt 10 poles	BJ 612-10	1SNA290488R0100		10	
Divisible shunt 20 poles	BJ 612-20	1SNA206754R0000		10	
Screw clamp distribution block sp. 12 mm	D4/12-3-3	1SNA645031R2000		5	
Spring clamp distribution block sp. 12 mm	D4/12-3R-3R	1SNA645531R2200		5	
Test plug DIA. 2 mm	FC2	1SNA645531R2200		10	
Marking method	RC65 / RC610	see marking			

Interface relays R600 range
Connection diagrams

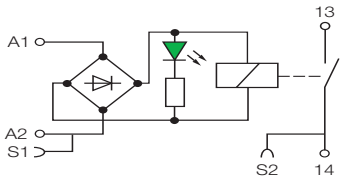
11-12 n/c contact
13-14 n/c contact
11-12/14 1st c/o contact
21-22/24 2nd c/o contact

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



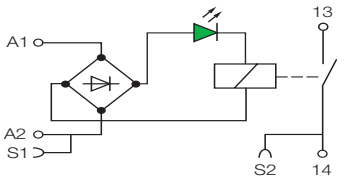
2CDC 292 030 F0013

RB/RBR 101 AR



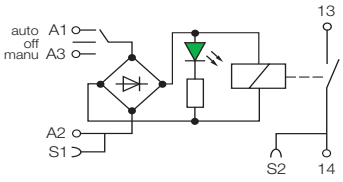
2CDC 292 031 F0013

RB/RBR 111 A - 24 V AC/DC



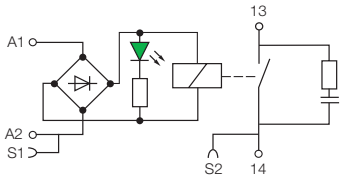
2CDC 292 033 F0013

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



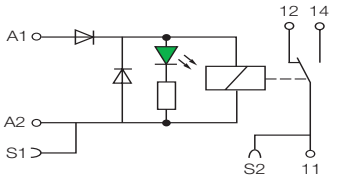
2CDC 292 034 F0013

RB/RBR 111 AI



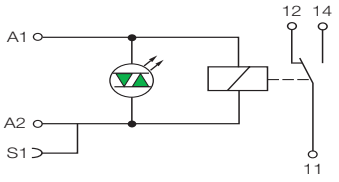
2CDC 292 035 F0013

RB/RBR 111 AR



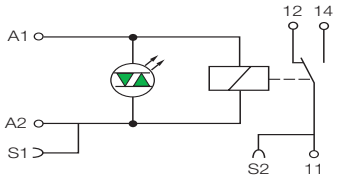
2CDC 292 036 F0013

RB/RBR 121
- 5 V DC, A1-A2 polarized
- 12 V DC, A1-A2 polarized, i.e. only:
1SNA645035R2400, 1SNA645535R2600
1SNA645037R2600, 1SNA645537R2000



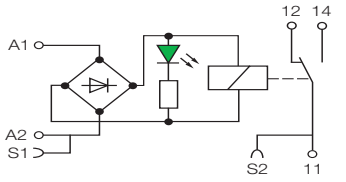
2CDC 292 037 F0013

RB/RBR 121
- 12/24 V DC, only discontinued versions:
1SNA645069R0000
1SNA645064R0100, 1SNA645564R0300
1SNA645065R0200, 1SNA645565R0400



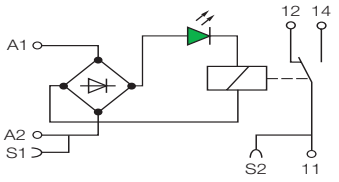
2CDC 292 038 F0013

RB/RBR 121 (AU)
- 12/24 V DC, except:
1SNA645035R2400, 1SNA645535R2600
1SNA645037R2600, 1SNA645537R2000
see connection diagram RB...121-5VDC



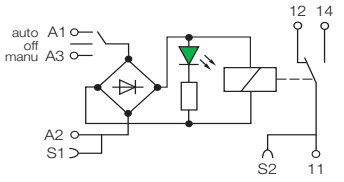
2CDC 292 039 F0013

RB/RBR 121 A
- 24 V AC/DC



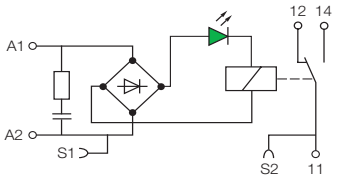
2CDC 292 040 F0013

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



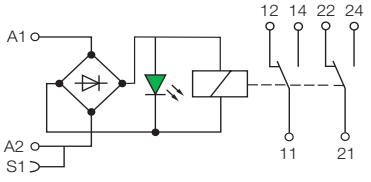
2CDC 292 041 F0013

RB/RBR 121 AI



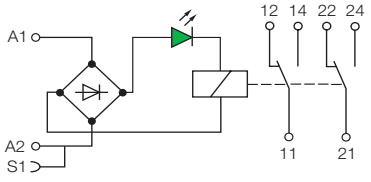
2CDC 292 042 F0013

RB/RBR 121 AR



2CDC 292 043 F0013

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



2CDC 292 044 F0013

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

Interface relays R600 range
Technical data

Technical data

			RB 111 A					RB 111 AI
Input circuit								
Rated control supply voltage U_s			24 V AC/DC	48 V AC/DC	60 V AC/DC	115 V AC/DC	230 V AC/DC	24 V AC/DC
Rated control supply voltage U_s tolerance		DC	-15 %, +20 %				-15 %, +10 %	-15 %, +20 %
		AC	-/+ 10 %					
Rated frequency			50/60 Hz					
Typical power consumption			0.24 W	0.34 W	0.54 W	0.46 W	0.8 W	0.24 W
Typical current			10 mA	7 mA	9 mA	4 mA	3.5 mA	10 mA
Drop-out			4.5 V	8 V	8 V	17 V	27 V	4.5 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_e (IEC/EN 60947-1)			250 V AC					
Minimum switching voltage			12 V					
Maximum switching voltage			250 V AC					
Minimum switching current			10 mA					
Rated 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	0.2 A					
		DC13 (inductive) 230 V	0.1 A					
AC rating (UL 508; NEMA ICS-5)	Utilization category (pilot duty)		B300					
DC rating (UL 508; NEMA ICS-5)	Utilization category (pilot duty)		R300					
Minimum switching power			0.6 W / 0.6 VA					
Mechanical lifetime			1 x 10^7 switching cycles					
Electrical lifetime		at AC15	1 x 10^5 switching cycles					
Response time			5 ms	5 ms	5 ms	6 ms	7 ms	5 ms
Release time			8 ms	8 ms	8 ms	15 ms	15 ms	8 ms
Dimensions and weight			RB 111 A / RB 111 AI high level			RBR 111 A / RBR 111 AI high level		
Weight		net weight	0.02 kg (0.044 lb)					
Dimension		product dimension	6 x 75 x 75 mm (0.236 x 2.95 x 2.95 in)					
		packaging dimension						

Interface relays R600 range
Technical data

Technical data

			RB... 111AR high level	RB... 101AR high level
Input circuit				
Rated control supply voltage U_s			24 V AC/DC	
Rated control supply voltage U_s tolerance		DC	-15 %, +20 %	
		AC	-/+ 10 %	
Rated frequency			50/60 Hz	
Typical power consumption			0.24 W	
Typical current			10 mA	
Drop-out			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_e (IEC/EN 60947-1)			250 V AC	
Minimum switching voltage			12 V	
Maximum switching voltage			250 V AC	
Minimum switching current			10 mA	
Rated 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	0.2 A	
		DC13 (inductive) 230 V	0.1 A	
AC rating (UL 508; NEMA ICS-5)	Utilization category (pilot duty)		B300	
DC rating (UL 508; NEMA ICS-5)	Utilization category (pilot duty)		R300	
Minimum switching power			0.6 W / 0.6 VA	
Mechanical lifetime			1 x 10^7 switching cycles	
Electrical lifetime		at AC15	1 x 10^5 switching cycles	
Response time			5 ms	
Release time			8 ms	
Dimensions and weight			**RB 111AR / RB 101AR high level**	**RBR 111A / RBR 111AR high level**
Weight		net weight	0.03 kg (0.066 lb)	
Dimension		product dimension	12 x 70 x 75 mm (0.472 x 2.76 x 2.95 in)	12 x 75 x 75 mm (0.472 x 2.95 x 2.95 in)
		packaging dimension		

Interface relays R600 range
Technical data

Technical data

		RB... 121 / RB... 121A high level						
Input circuit								
Rated control supply voltage U_s		5 V DC	12 V DC	24 V AC/DC	48 V AC/DC	60 V AC/DC	115 V AC/DC	230 V AC/DC
Rated control supply voltage U_s tolerance	DC	-15 %, +20 %						-15 %, +10 %
	AC	-		-/+ 10 %				
Rated frequency		-		50/60 Hz				
Typical power consumption		0.2 W	0.2 W	0.24 W	0.33 W	0.54 W	0.46 W	0.8 W
Typical current		40 mA	16 mA	10 mA	7 mA	9 mA	4 mA	3.5 mA
Drop-out		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_e (IEC/EN 60947-1)		250 V AC						
Minimum switching voltage		12 V						
Maximum switching voltage		250 V AC						
Minimum switching current		10 mA						
Rated 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	0.2 A						
	DC13 (inductive) 230 V	0.1 A						
AC rating (UL 508; NEMA ICS-5)	Utilization category (pilot duty)	B300						
DC rating (UL 508; NEMA ICS-5)	Utilization category (pilot duty)	R300						
Minimum switching power		0.6 W / 0.6 VA						
Mechanical lifetime		1 x 10^7 switching cycles						
Electrical lifetime	at AC15	1 x 10^5 switching cycles						
Response time		5 ms	5 ms	5 ms	5 ms	5 ms	6 ms	7 ms
Release time		8 ms					15 ms	16 ms
Dimensions and weight		**RB 121 / RB 121A high level**			**RBR 122 / RBR 122A high level**			
Weight	net weight	0.02 kg (0.044 lb)						
Dimension	product dimension	6 x 70 x 75 mm (0.236 x 2.76 x 2.95 in)			6 x 75 x 75 mm (0.236 x 2.95 x 2.95 in)			
	packaging dimension							

Interface relays R600 range
Technical data

Technical data

		RB... 121 / RB... 121A low level						
Input circuit								
Rated control supply voltage U_s		5 V DC	12 V DC	24 V AC/DC	48 V AC/DC	60 V AC/DC	115 V AC/DC	230 V AC/DC
Rated control supply voltage U_s tolerance	DC	-15 %, +20 %						-15 %, +10 %
	AC	-		-/+ 10 %				
Rated frequency		-		50/60 Hz				
Typical power consumption		0.2 W	0.2 W	0.24 W	0.33 W	0.54 W	0.46 W	0.8 W
Typical current		40 mA	16 mA	10 mA	7 mA	9 mA	4 mA	3.5 mA
Drop-out		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_e (IEC/EN 60947-1)		250 V AC						
Minimum switching voltage		5 V						
Maximum switching voltage		250 V AC						
Minimum switching current		1 mA						
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	0.2 A						
	DC13 (inductive) 230 V	0.1 A						
AC rating (UL 508; NEMA ICS-5)	Utilization category (pilot duty)	B300						
DC rating (UL 508; NEMA ICS-5)	Utilization category (pilot duty)	R300						
Minimum switching power		0.05 W / 0.05 VA						
Mechanical lifetime		1 x 10^7 switching cycles						
Electrical lifetime	at AC15	1 x 10^5 switching cycles						
Response time		5 ms	5 ms	5 ms	5 ms	5 ms	6 ms	7 ms
Release time		8 ms					15 ms	16 ms
Dimensions and weight		**RB 121 / RB 121A low level**			**RBR 122 / RBR 122A low level**			
Weight	net weight	0.02 kg (0.044 lb)						
Dimension	product dimension	6 x 70 x 75 mm (0.236 x 2.76 x 2.95 in)			6 x 75 x 75 mm (0.236 x 2.95 x 2.95 in)			
	packaging dimension							

Interface relays R600 range
Technical data

Technical data

		RB... 121AR / RB... 121AI low level			RB... 121AI low level
Input circuit					
Rated control supply voltage U_s		115 V AC/DC	230 V AC/DC	24 V AC/DC	24 V AC/DC
Rated control supply voltage U_s tolerance	DC	-20%, +15%	-10%, +15%	-20%, +15%	
	AC	-/+ 10 %			
Rated frequency		50/60 Hz			
Typical power consumption		2 W	2.8 W	0.24 W	0.24 W
Typical current		18 mA	12 mA	10 mA	10 mA
Drop-out		17 V	27 V	4.5 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_e (IEC/EN 60947-1)		250 V AC			
Minimum switching voltage		12 V			5 V
Maximum switching voltage		250 V AC			
Minimum switching current		10 mA			1 mA
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	0.2 A			
	DC13 (inductive) 230 V	0.1 A			
AC rating (UL 508; NEMA ICS-5)	Utilization category (pilot duty)	B300			
DC rating (UL 508; NEMA ICS-5)	Utilization category (pilot duty)	R300			
Minimum switching power		0.6 W / 0.6 VA			0.05 W / 0.05 VA
Mechanical lifetime		1 x 10^7 switching cycles			
Electrical lifetime	at AC15	1 x 10^5 switching cycles			
Response time		6 ms	7 ms	5 ms	5 ms
Release time		15 ms	16 ms	8 ms	8 ms
Dimensions and weight		RB 121AR/RB 121AI low/high level		RB 121AR/RBR 121AI low/high level	
Weight	net weight	0.03 kg (0.066 lb)			
Dimension	product dimension	12 x 70 x 75 mm (0.472 x 2.76 x 2.95 in)		12 x 75 x 75 mm (0.472 x 2.95 x 2.95 in)	
	packaging dimension				

Technical data

		RB... 122A low level				
Input circuit						
Rated control supply voltage U_s		24 V AC/DC	48 V AC/DC	60 V AC/DC	115 V AC/DC	230 V AC/DC
Rated control supply voltage U_s tolerance	DC	-15 %, +20 %				-15 %, +10 %
	AC	-/+ 10 %				
Rated frequency		50/60 Hz				
Typical power consumption		0.48 W	0.62 W	0.96 W	0.58 W	1.15 W
Typical current		20 mA	13 mA	16 mA	5 mA	5 mA
Drop-out		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_e (IEC/EN 60947-1)		250 V AC				
Minimum switching voltage		5 V				
Maximum switching voltage		250 V DC - 250 V AC				
Minimum switching current		1 mA				
Rated operational current (IEC/EN 60947-5-1)	AC12 (resistive) 230 V	8 A		5 A		
Minimum switching power		5 mW / 5 mVA				
Mechanical lifetime		2 x 10^7 switching cycles				
Electrical lifetime	at AC15	1 x 10^5 switching cycles				
Response time		6 ms	10 ms	10 ms	6 ms	6 ms
Release time		10 ms	14 ms	14 ms	15 ms	15 ms
Dimensions and weight		RB 122A low level			RBR 122A low level	
Weight	net weight	0.03 kg (0.066 lb)				
Dimension	product dimension	12 x 70 x 75 mm (0.472 x 2.76 x 2.95 in)			12 x 75 x 75 mm (0.472 x 2.95 x 2.95 in)	
	packaging dimension					

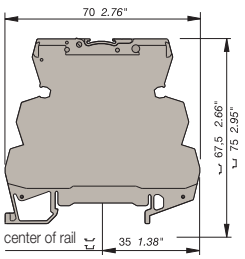
Interface relays R600 range
General technical data

Technical data

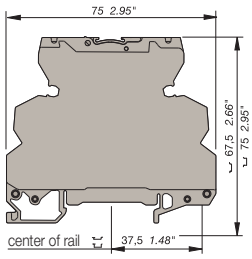
		RB	RBR
General data			
Material of housing		UL 94 V0	
Degree of protection	housing / terminals	IP20 NEMA1	
Electrical connection		**Screw terminal**	**Spring-type terminal**
Wire size	fine-stranded	0.22-2.5 mm² (24-14 AWG)	
	rigid	0.2-4 mm² (24-12 AWG)	0.2-2.5 mm² (24-14 AWG)
Stripping length		9 mm / 0.354 in	
Tightening torque		0.4-0.6 Nm (3.5-5.3 lb.in)	
Environmental data			
Ambient temperature ranges	storage	-40...+80 °C	
	operation	-20...+70 °C	
Isolation data			
Rated insulation voltage Ui (IEC/EN 60950-1, EN 50178)		4000 V RMS	
Rated impulse withstand voltage U_{imp} (EN 50178)	input / output	4000 V RMS (RB122A: 3800 V RMS, RB111AR: 3500 V RMS)	
	shock coil / output	4000 V RMS	
	output / output	1000 V RMS	

Interface relays R600 range
Dimensional drawings, Load limit curves

All interface relays of R600 range

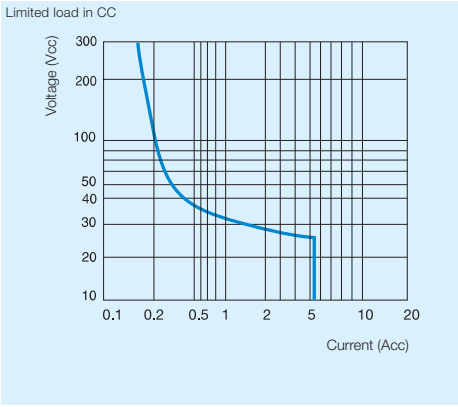


Screw clamp module



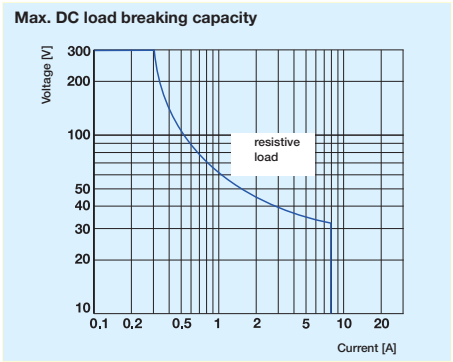
Spring clamp module

Load limit curves
RB 111 A, RB 111 AI, RB 111 AR, RB 101 AR, RB 121 AR, RB 121 AI, RB 121 AI (gold plated), RB 121 AI RB 121 (gold plated), RB 121 A (gold plated), RB 121, RB 121 A



	DC12	AC12	DC13	AC15
24 V	6 A	6 A	1	3 A
110/120 V	0,3 A	6 A	0.2 A	3 A
220/230 V	0.2 A	6 A	0.1 A	3 A

Load limit curve RB ... 122A (gold plated)



Optocouplers R600 range
Product group picture

Optocouplers R600 range
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Optocouplers R600 range
Selection

Order number	1SNA 645 047 R0000	1SNA 645 547 R0200	1SNA 645 021 R2600	1SNA 645 521 R2000	1SNA 645 049 R1200	1SNA 645 549 R1400	1SNA 645 022 R2700	1SNA 645 522 R2100	1SNA 645 050 R1700	1SNA 645 550 R1100	1SNA 645 051 R0400	1SNA 645 025 R2200	1SNA 645 024 R2100	1SNA 645 551 R0600	1SNA 645 525 R2400	1SNA 645 524 R2300	1SNA 645 053 R0600	1SNA 645 553 R0000	1SNA 645 054 R0700	1SNA 645 058 R1300	1SNA 645 554 R0100	1SNA 645 558 R1500	1SNA 645 026 R2300	1SNA 645 059 R1400	1SNA 645 526 R2500	1SNA 645 559 R1600	1SNA 645 027 R2400	1SNA 645 029 R0600	1SNA 645 527 R2600	1SNA 645 529 R0000
Type	OBIC 0100 5-12VDC	OBRIC 0100 5-12VDC	OBIC 0100 24VDC	OBRIC 0100 24VDC	OBIC 0100 48-60VAC/DC	OBRIC 0100 48-60VAC/DC	OBIC 0100 115-230VAC/DC	OBRIC 0100 115-230VAC/DC	OBOC 1000-5-12VDC	OBROC 1000-5-12VDC	OBOC 1000-24VDC	OBOC 1500-24VAC/DC	OBOC 5000-24VDC	OBROC 1000-24VDC	OBROC 1500-24VAC/DC	OBROC 5000-24VDC	OBOC 1000-48-60VAC/DC	OBROC 1000-48-60VAC/DC	OBOC 1000-115VAC/DC	OBOC 5000-115VAC/DC	OBROC 1000-115VAC/DC	OBROC 5000-115VAC/DC	OBOC 1000-230VAC/DC	OBOC 5000-230VAC/DC	OBROC 1000-230VAC/DC	OBROC 5000-230VAC/DC	OBOA 1000-24VDC	OBOA 2000-24VDC	OBROA 1000-24VDC	OBROA 2000-24VDC
Input 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	■	■	■	■	■	■	■	■																							
2 A									■	■	■	■		■	■		■	■	■		■		■		■				■		■
5 A													■			■				■		■		■			■				
1 A																												■		■	
Output voltage																															
58 V DC	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■				
400 V AC																												■	■	■	■
Terminal type																															
Screw	■		■		■		■		■		■	■	■				■		■	■			■	■				■	■		
Spring		■		■		■		■		■				■	■	■		■			■	■			■	■				■	■

Optocouplers R600 range
Selection

	OBOA 1000-48-60VAC/DC	OBROA 1000-48-60VAC/DC	OBOA 1000-115VAC/DC	OBROA 1000-115VAC/DC	OBOA 1000-230VAC/DC	OBROA 1000-230VAC/DC
	1SNA 645 061 R0600	1SNA 645 561 R0000	1SNA 645 062 R0700	1SNA 645 562 R0100	1SNA 645 028 R0500	1SNA 645 528 R0700
	■	■				
			■	■		
					■	■
	■	■				
			■	■		
					■	■
	■	■	■	■	■	■
	■	■	■	■	■	■
	■		■		■	
		■		■		■

Optocouplers R600 range
Ordering details

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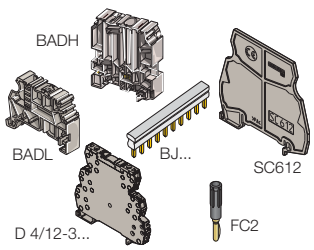
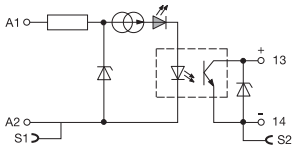
R600 Optocoupler		Type	Order code	Price	Pkg qty	Weight (1 pce) kg (lb)
Optocoupler module 100 mA/DC		OBIC 0100-5-12VDC	1SNA645047R0000		10	0.02 (0.44)
		OBIC 0100-24VDC	1SNA645021R2600			
		OBIC 0100-48-60VAC/DC	1SNA645049R1200			
		OBIC 0100-115-230VAC/DC	1SNA645022R2700			
Optocoupler module 100 mA/DC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

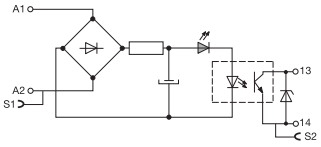


Accessories	Type	Order code	Price	Pkg qty	Weight (1 pce) kg (lb)
End section	BADH V0	1SNA116900R2700		50	
	BADL V0	1SNA399903R0200		50	
	BAM2 V0	1SNA399967R0100		50	
Seperator end section	SC 612	1SNA290474R0200		10	
Divisible shunt 10 poles	BJ 612-10	1SNA290488R0100		10	
Divisible shunt 20 poles	BJ 612-20	1SNA206754R0000		10	
Screw clamp distribution block sp. 12 mm	D4/12-3-3	1SNA645031R2000		5	
Spring clamp distribution block sp. 12 mm	D4/12-3R-3R	1SNA645531R2200		5	
Test plug DIA. 2 mm	FC2	1SNA645531R2200		10	
Marking method	RC65 / RC610	see marking			

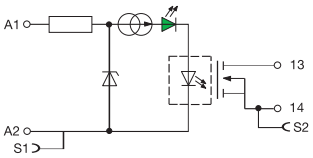
Optocouplers R600 range
Connection diagrams



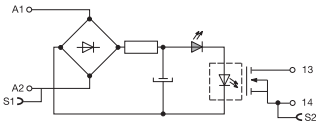
OB...IC 0100 - 5-12 V DC
115-230 V AC/DC



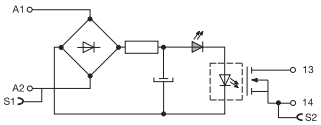
OB...IC 0100
24 V DC
24-48-60 V AC/DC



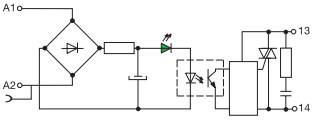
OB...OC 1000 - 5-12 V DC



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



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



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

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Optocouplers R600 range
Technical data

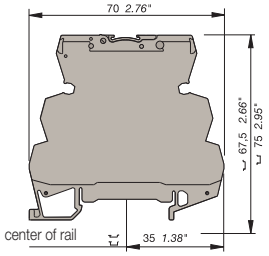
Technical data

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

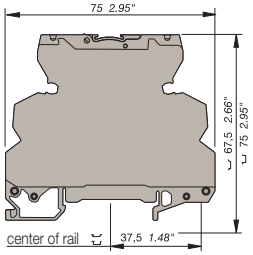
		OB...IC 0100						
Relay characteristics coil								
Input voltage: +20%, -15% on DC ; 10%, -10% on AC		5 V DC - 12 V DC		24 V DC	48 V AC/DC	60 V AC/DC	115 V AC/DC	230 V AC/DC
Frequency					50 / 60 Hz			
Input current AC/DC		5 mA	9 mA	4 mA	4 mA	5 mA	7 mA / 16 mA	11.5 mA / 25 mA
Pull-in voltage at Is=100%		4 V		15 V	25 V		60 V AC / 70 V DC	
Switching time C / O		10 µs / 500 µs						
Operating frequency		1000 Hz			5 ms / 20 ms		5 ms / 15 ms	
Permissible leakage current					20 Hz			
Output		0.9 mA		1 mA	0.9 mA		1.6 mA	
Output voltage		4.5 to 58 V DC						
Output current min.		1 mA						
Output current max.		100 mA						
Output leakage current at U_{max}		< 50 µA						
Redidual voltage at I max and U rated	typical	1 V						
	max	1.3 V						
Frequency on inductive load								
Isolation Input / Output	input / Output	2500 V RMS						
Temperature	storage	-40...+80 °C						
	operating	-20...+70 °C [1]						
Other characteristics		**Screw clamp**			**Spring clamp**			
Body material	grey	UL 94 V0						
Wire size	Solid wire	0.2 - 4 mm² (24-12 AWG)			0.2-2.5 mm² (24-12 AWG)			
	Stranded wire	0.22 - 2.5 mm² (24-12 AWG)						
Rated wire size		2.5 mm² (12 AWG)						
Wire stripping length		9 mm (0.354 in)						
Recommended screwdriver		3.5 mm (0.137 in)						
Protection		IP20 *NEMA1*						
Recommended torque		0.4-0.6 Nm (3.5-5.3 lb.in)						
Approvals		c UL us (pending for 12 V DC) , (pending), , LRS , CE						
Reference standards		CEI 947-7-1 / CEI 947-1 / CEI 1131-2 (in relevant parts) / CEI 60664-1 / CEM : IEC 1000-4-2, 3, 4, 5, 6.						

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

Dimensional drawings



Screw clamp module



Spring clamp module

Optocouplers R600 range
Technical data

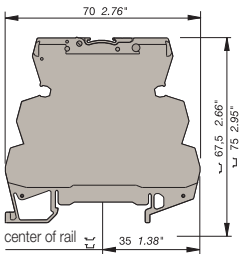
Technical data

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

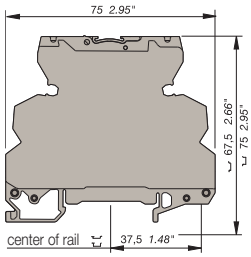
		OB...OC 0100			OB..OC 1500	OB...OC 1000			
Relay characteristics coil									
Input voltage: +20%, -15% on DC ; 10%, -10% on AC		5 V DC - 12 V DC		24 V DC	24 V AC/DC	48 V AC/DC	60 V AC/DC	115 V AC/ DC	230 V AC/ DC
Frequency					50 / 60 Hz				
Input current		5 mA	9 mA	4 mA	6.3 mA	4 mA	5.1 mA	4.2 mA	4 mA
Pull-in voltage at Is=100%		4 V		15 V	15 V	27 V		50 V	80 V
Switching time C / O		15 µs / 250 µs		30 µs / 400 µs	1 ms / 7 ms	5 ms / 20 ms		500 µs / 10 ms	1 ms / 15 ms
Operating frequency		2000 Hz		1000 Hz	60 Hz	20 Hz			
Permissible leakage current		1 mA		0.8 mA	0.9 mA	1 mA		0.3 mA	
Output									
Output voltage		4.5 to 58 V DC							
Output current min.		1 mA							
Output current max.		2 A							
Output leakage current at U_{max}		< 50 µA							
Redidual voltage at I max and U rated	typical	0.1 V							
	max	0.5 V							
Frequency on inductive load									
Isolation Input / Output	input / Output	2500 V RMS							
Temperature	storage	-40...+80 °C							
	operating	-20...+70 °C [1]							
Other characteristics		**Screw clamp**				**Spring clamp**			
Body material	grey	UL 94 V0							
Wire size	Solid wire	0.2 - 4 mm² (24-12 AWG)				0.2-2.5 mm² (24-12 AWG)			
	Stranded wire	0.22 - 2.5 mm² (24-12 AWG)							
Rated wire size		2.5 mm² (12 AWG)							
Wire stripping length		9 mm (0.354 in)							
Recommended screwdriver		3.5 mm (0.137 in)							
Protection		IP20 *NEMA1*							
Recommended torque		0.4-0.6 Nm (3.5-5.3 lb.in)							
Approvals		c UL us (pending for 12 V DC) , (pending), , LRS , CE							
Reference standards		CEI 947-7-1 / CEI 947-1 / CEI 1131-2 (in relevant parts) / CEI 60664-1 / CEM : IEC 1000-4-2, 3, 4, 5, 6.							

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

Dimensional drawings



Screw clamp module



Spring clamp module

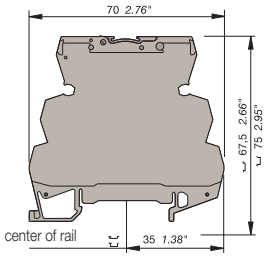
Optocouplers R600 range
Technical data

Technical data

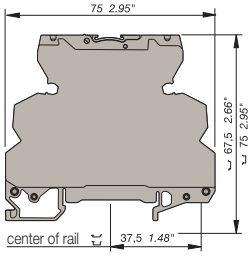
Optocoupler : 5 to 58 V DC output / 5 A - 6 mm 0.236“ spacing

		OB... OC 5000		
Input				
Input voltage		24 V DC	115 V AC/DC	230 V AC/DC
Frequency			50 / 60 Hz	50 / 60 Hz
Input current		5.4 mA	4.2 mA	4 mA
Pull-in voltage at Is=100%		12 V	50 V	80 V
Switching time C / O		30 µs / 400 µs	500 µs / 10 ms	1ms / 15 ms
Operating frequency		1000 Hz	50 Hz	35 Hz
Permissible leakage current		0.8 mA	0.3 mA	0.3 mA
Output				
Output voltage		4.5- 58 V DC		
Output current min.		25 mA		
Output current max.		5 A		
Output leakage current at $U_{max.}$		< 0.50 mA		
Redidual voltage at I max and U rated	typical	1 V		
	max	1.6 V		
Frequency on inductive load		See Note 1		
Isolation Input / Output	input / Output	2500 V RMS		
Temperature				
Ambient temperature	storage	-40...+80 °C		
	operating	See derating curve		
Other characteristics				
Body material	grey	UL 94 V0		
Wire size	Solid wire	0.2 - 4 mm² (24-12 AWG)		
	Stranded wire	0.22 - 2.5 mm² (24-12 AWG)		
Rated wire size		2.5 mm² (12 AWG)		
Wire stripping length		10 mm (0.394 in)		
Recommended screwdriver		3.5 mm (0.137 in)		
Protection		IP20 *NEMA1*		
Recommended torque		0.4-0.6 Nm (3.5-5.3 lb.in)		
Approvals		c UL us (pending), CE		
Reference standards		CEI 947-7-1 / CEI 947-1 / CEI 1131-2 (in relevant parts) / CEI 60664-1 / CEM : IEC 1000-4-2, 3, 4, 5, 6.		

Dimensional drawings



Screw clamp module



Spring clamp module

Optocouplers R600 range
Technical data

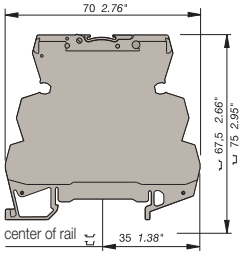
Technical data

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

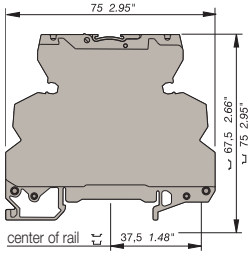
		OB...OA 1000					OB...OA 2000
Relay characteristics coil							
Input voltage: +20%, -15% on DC ; 10%, -10% on AC		24 V DC	48 V AC/DC	60 V AC/DC	115 V AC/DC	230 V AC/DC	24 V DC
Frequency			50/60 Hz				
Input current		3.6 mA	4.3 mA	5.5 mA	4.15 mA	4.6 mA	3.6 mA
Pull-in voltage at Is=100%		14 V	15 V	18 V	60 V	135 V	14 V
Switching time C / O		150 µs / 1 ms	3 ms / 30 ms		2.2 ms / 18 ms	2.5 ms / 25 ms	150 µs / 1 ms
Operating frequency		500 Hz	20 Hz		25 Hz	20 Hz	500 Hz
Permissible leakage current		1 mA					
Output							
Output voltage		24-400 V AC					
Frequency		50/60 Hz					
Output current min.		25 mA					
Output current max.		1 A					2 A
Output leakage current at U_{max}		< 0.50 mA					
Redidual voltage at I max and U rated	typical	1 V					
	max	1.6 V					
Frequency on inductive load							
Isolation Input / Output	input / Output	2500 V RMS					
Temperature	storage	-40...+80 °C					
	operating	-20...+70 °C [1]					
Other characteristics		Screw clamp			Spring clamp		
Body material	grey	UL 94 V0					
Wire size	Solid wire	0.2 - 4 mm² (24-12 AWG)			0.2-2.5 mm² (24-12 AWG)		
	Stranded wire	0.22 - 2.5 mm² (24-12 AWG)					
Rated wire size		2.5 mm² (12 AWG)					
Wire stripping length		9 mm (0.354 in)					
Recommended screwdriver		3.5 mm (0.137 in)					
Protection		IP20 *NEMA1*					
Recommended torque		0.4-0.6 Nm (3.5-5.3 lb.in)					
Approvals		c UL us (pending for 12 V DC) , SP (pending), GL , LRS , CE					
Reference standards		CEI 947-7-1 / CEI 947-1 / CEI 1131-2 (in relevant parts) / CEI 60664-1 / CEM : IEC 1000-4-2, 3, 4, 5, 6.					

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

Dimensional drawings



Screw clamp module



Spring clamp module

Terminal blocks component holder

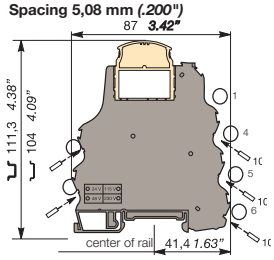
Base for pluggable plug R500 Series

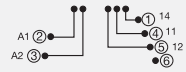
DIN 3

End stop	th. 9 mm	**BADL**	V0	1SNA **399 903** R02 00
End stop	th. 9,1 mm	**BAM**	V2	1SNA **103 002** R26 00
End stop	th. 9,1 mm	**BAM V0**	V0	1SNA **199 306** R03 00
Rail	35 x 7,5 x 1	**PR3.Z2**		1SNA **174 300** R17 00
Rail	35 x 15 x 2,3	**PR4**		1SNA **168 500** R12 00
Rail	35 x 15 x 1,5	**PR5**		1SNA **168 700** R22 00

D 2,5/5-MP

Spacing 5,08 mm *(.200")*

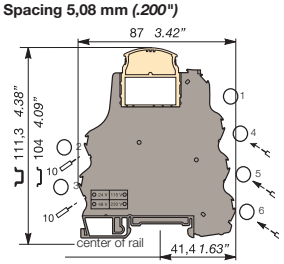


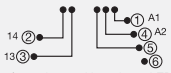


Relay/opto. base without output LED

D 2,5/5-MP1

Spacing 5,08 mm *(.200")*

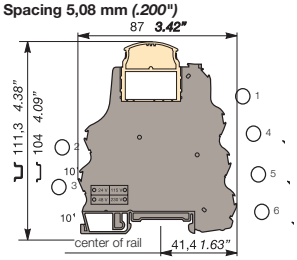


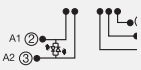


Relay/opto. base without input LED

D 2,5/5-MP...

Spacing 5,08 mm *(.200")*





Relay/opto. base with output LED

Observations

Terminal blocks are delivered without plugs.

Max. working temperature
version without LED : 100°C
version with LED : 85°C
Contact resistance : < 5 mΩ

Type	Part numbers
Grey V0 **Order plugs separately**	
D 2,5/5-MP	1SNA**607224**R**0100**

Type	Part numbers
Grey V0 **Order plugs separately**	
D 2,5/5-MP1	1SNA**607223**R**0000**

Type	Part numbers
Grey V0 **Order plugs separately**	
D 2,5/5-MP-24VDC	1SNA**607222**R**0700**
D 2,5/5-MP-24VAC/DC	1SNA**607260**R**2100**
D 2,5/5-MP-48VAC/DC	1SNA**607261**R**1600**
D 2,5/5-MP-110VAC	1SNA**607266**R**1300**
D 2,5/5-MP-230VAC	1SNA**607267**R**1400**

Characteristics

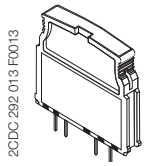
			IEC	UL/CSA pending	IEC	UL/CSA pending	IEC	UL/CSA pending
Wire size	Compression clamp	Solid wire	0,2-4 mm²	24-12 AWG	0,2-4 mm²	24-12 AWG	0,2-4 mm²	24-12 AWG
		Stranded wire	0,22-2,5 mm²	24-12 AWG	0,22-2,5 mm²	24-12 AWG	0,22-2,5 mm²	24-12 AWG
Voltage	Rated		320 V	300 V	320 V	300 V	320 V	300 V
	Pulse		4 kV		4 kV		4 kV	
	Pollution degree		3		3		3	
Current	Rated		6 A	6 A	6 A	6 A	6 A	6 A
Wire size	Rated / Gauge		2,5 mm²	12 AWG	2,5 mm²	12 AWG	2,5 mm²	12 AWG
Wire stripping length			10 mm / .394"		10 mm / .394"		10 mm / .394"	
Recommended screwdriver			3,5 mm / .137"		3,5 mm / .137"		3,5 mm / .137"	
Recommended torque			0,4-0,6 Nm / 3,5-5,3 lb.in		0,4-0,6 Nm / 3,5-5,3 lb.in		0,4-0,6 Nm / 3,5-5,3 lb.in	
Protection			IP 20 / NEMA1		IP 20 / NEMA1		IP 20 / NEMA1	

Accessories

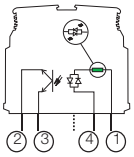
		Type		Part numbers	Type		Part numbers	Type		Part numbers
1	**1** Test device	DCB (1)	blue	1SNA**105028**R**2100**	DCB (1)	blue		DCB (1)	blue	1SNA**105028**R**2100**
2	**2** Test plug	FC2	DIA. 2	1SNA**007865**R**2600**	FC2	DIA. 2	1SNA**105028**R**2100**	FC2	DIA. 2	1SNA**007865**R**2600**
							1SNA**007865**R**2600**			
1	**3** Relay plug 1 SPDT 10 mA/6 A	BNMS R24V-1	beige	1SNA**031820**R**1400**				BNMS R24V-1	beige	1SNA**031820**R**1400**
	1 SPDT 1 mA/6 A	BNMS R24V-2	beige	1SNA**031847**R**1300**				BNMS R24V-2	beige	1SNA**031847**R**1300**
2	**4** Input optocoupler plug 5 V DC				BNMS T5V-1	white	1SNA**031831**R**0300**			
	24 V DC				BNMS T24V-1	white	1SNA**031848**R**2400**			
	24 V DC				BNMS T24V-2	white	1SNA**031800**R**2100**			
	48 V DC				BNMS T48V-1	white	1SNA**031801**R**1600**			
	125 V DC				BNMS T125V-1	white	1SNA**031845**R**1100**			
	24 V AC				BNMS T24V-1	yellow	1SNA**031802**R**1700**			
	48 V AC				BNMS T48V-1	yellow	1SNA**031803**R**1000**			
	115 V AC				BNMS T115V-1	yellow	1SNA**031804**R**1100**			
	230 V AC				BNMS T230V-1	yellow	1SNA**031805**R**1200**			
3, 4, 5, 6, 7, 8, 9	**5** Output optocoupler plug 24 V DC/100 mA	BNMS N24V-3	red	1SNA**031807**R**1400**				BNMS N24V-3	red	1SNA**031807**R**1400**
	24 V DC/100 mA	BNMS P24V-3	red	1SNA**031810**R**1200**				BNMS P24V-3	red	1SNA**031810**R**1200**
	24 V DC/2 A	BNMS N24V-1	red	1SNA**031813**R**0100**				BNMS N24V-1	red	1SNA**031813**R**0100**
	24 V DC/2 A	BNMS P24V-1	red	1SNA**031815**R**0300**				BNMS P24V-1	red	1SNA**031815**R**0300**
	24 V DC/1 A	BNMS N24V-2	red	1SNA**031817**R**0500**				BNMS N24V-2	red	1SNA**031817**R**0500**
	24 V DC/1 A	BNMS P24V-2	red	1SNA**031819**R**1700**				BNMS P24V-2	red	1SNA**031819**R**1700**
	24 V DC/1 A	BNMS A24V-4	black	1SNA**031839**R**1300**				BNMS A24V-4	black	1SNA**031839**R**1300**
10	**5** Output optocoupler plug 5 V DC/100 mA	BNMS N5V-3	red	1SNA**031806**R**1300**						
	5 V DC/100 mA	BNMS P5V-3	red	1SNA**031809**R**2600**						
	48 V DC/100 mA	BNMS N48V-3	red	1SNA**031808**R**2500**						
	48 V DC/100 mA	BNMS P48V-3	red	1SNA**031811**R**0700**						
	5 V DC/2 A	BNMS N5V-1	red	1SNA**031812**R**0000**						
	5 V DC/2 A	BNMS P5V-1	red	1SNA**031814**R**0200**						
	5 V DC/1 A	BNMS N5V-2	red	1SNA**031816**R**0400**						
	5 V DC/1 A	BNMS P5V-2	red	1SNA**031818**R**1600**						
	7 Fuse plug 125 V/125 mA	BNMS F125mA-1	grey	1SNA**031821**R**0100**	BNMS F125mA-1	grey	1SNA**031821**R**0100**	BNMS F125mA-1	grey	1SNA**031821**R**0100**
	125 V/500 mA	BNMS F500mA-1	grey	1SNA**031838**R**1200**	BNMS F500mA-1	grey	1SNA**031838**R**1200**	BNMS F500mA-1	grey	1SNA**031838**R**1200**
	125 V/2 A	BNMS F2A-1	grey	1SNA**031822**R**0200**	BNMS F2A-1	grey	1SNA**031822**R**0200**	BNMS F2A-1	grey	1SNA**031822**R**0200**
	125 V/5 A	BNMS F5A-1	grey	1SNA**031823**R**0300**	BNMS F5A-1	grey	1SNA**031823**R**0300**	BNMS F5A-1	grey	1SNA**031823**R**0300**
	250 V/125 mA	BNMS F125mA-2	grey	1SNA**031824**R**0400**	BNMS F125mA-2	grey	1SNA**031824**R**0400**	BNMS F125mA-2	grey	1SNA**031824**R**0400**
	250 V/2 A	BNMS F2A-2	grey	1SNA**031825**R**0500**	BNMS F2A-2	grey	1SNA**031825**R**0500**	BNMS F2A-2	grey	1SNA**031825**R**0500**
	250 V/5 A	BNMS F5A-2	grey	1SNA**031826**R**0600**	BNMS F5A-2	grey	1SNA**031826**R**0600**	BNMS F5A-2	grey	1SNA**031826**R**0600**
	125 V/125 mA	BNMS F125mA-3	grey	1SNA**031827**R**0700**				BNMS F125mA-3	grey	1SNA**031827**R**0700**
	250 V/125 mA	BNMS F125mA-4	grey	1SNA**031828**R**1000**				BNMS F125mA-4	grey	1SNA**031828**R**1000**
	125 V/2 A	BNMS F2A-7	grey	1SNA**031849**R**2500**	BNMS F2A-7	grey	1SNA**031849**R**2500**			
	8 Strap plug	BNMS ST1	grey	1SNA**031829**R**1100**	BNMS ST1	grey	1SNA**031829**R**1100**	BNMS ST1	grey	1SNA**031829**R**1100**
		BNMS ST2	grey	1SNA**031830**R**1600**	BNMS ST2	grey	1SNA**031830**R**1600**			
	9 Converter plug 0-20 mA/0-10 V	BNMS CAI/U-500	grey	1SNA**031832**R**0400**						
	4-20 mA/2-10 V	BNMS CAI/U-500	grey	1SNA**031832**R**0400**						
	0-20 mA/0-5 V	BNMS CAI/U-250	grey	1SNA**031833**R**0500**						
	4-20 mA/1-5 V	BNMS CAI/U-250		1SNA**031833**R**0500**						
R	**10** Comb type jumper bar 10 poles	PCMS V0 (2)		1SNA**205523**R**2200**	PCMS V0 (2)		1SNA**205523**R**2200**	PCMS V0 (2)		1SNA **205523**R**2200**
	R See section on marking	RC 55			RC 55			RC 55		

(1) Solely on the top stage. (2) Comb type jumper bar from 2 to 22 poles, see accessories.

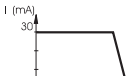
Input optocoupler plugs



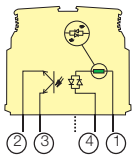
DC plugs



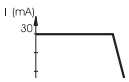
Derating curve



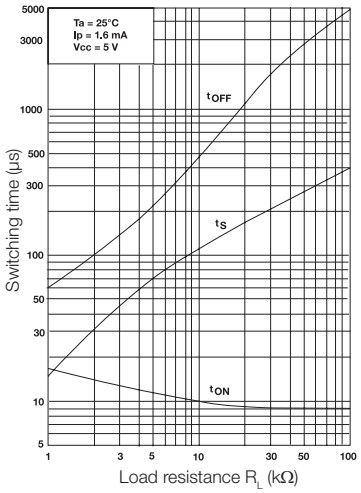
AC plugs



Derating curve



Switching time R_L curve 1 for 24 V DC plugs only

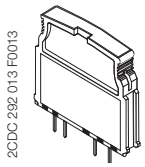


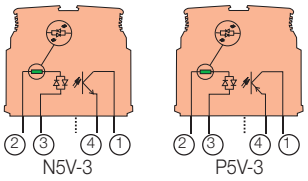
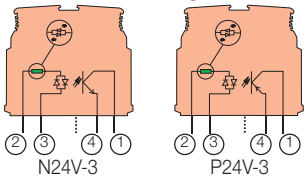
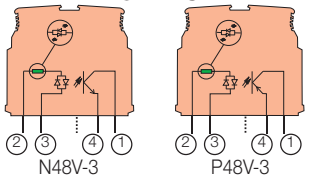
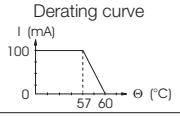
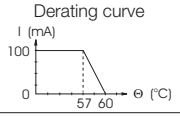
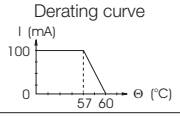
5

	5 V DC	24 V DC	48 V DC	125 V DC
Part number	**Type** **P/N**	**Type** **P/N**	**Type** **P/N**	**Type** **P/N**
	BNMS T5V-1 1SNA**031831**R**0300**0	**BNMS T24V-1** 1SNA**031800**R**2100**0 **BNMS T24V-2** 1SNA**031848**R**2400**0	**BNMS T48V-1** 1SNA**031801**R**1600**0	**BNMS T125V-1** 1SNA**031845**R**1100**0
Characteristics				
INPUT		**BNMS T24V-1** / **BNMS T24V-2**		
Voltage	4,5 V to 5,5 V DC	19,2 V to 27,6 V DC	38,4 V to 55,2 V DC	93,5 V to 140 V DC
Max. current	6 mA	5 mA	4,1 mA	3 mA
Typical triggering threshol at Is = 100%	3,5 V	12 V DC	21 V DC	50 V DC
Switching time C/O	20 µs / 1,3 ms	20 µs / 1,3 ms / 10 µs / see curve 1	20 µs / 1,3 ms	20 µs / 1,3 ms
Leakage current		1 mA	0,8 mA	
OUTPUT				
Max. voltage. / Max. current	58 V / 30 mA	58 V / 30 mA / 58 V / 5 mA	58 V / 30 mA	58 V / 30 mA
Residual voltage max. I and rated U standard	2,3 V DC	2,3 V DC / 0,3 V DC	2,3 V DC	2,3 V DC
max.	2,7 V DC	2,7 V DC / 0,5 V DC	2,7 V DC	2,7 V DC
Compatibility		TTL		
Input / Ouput isolation	2,5 kV	2,5 kV	2,5 kV	2,5 kV
TEMPERATURE				
Storage	- 30°C to + 80°C	- 30°C to + 80°C	- 30°C to + 80°C	- 30°C to + 80°C
Operating	- 20°C to + 55°C	-20°C to + 55°C	- 20°C to + 55°C	- 20°C to + 55°C

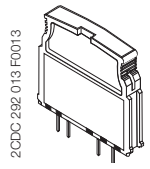
	24 V AC	48 V AC	115 V AC	230 V AC
Part number	**Type** **P/N**	**Type** **P/N**	**Type** **P/N**	**Type** **P/N**
	BNMS T24V-1 1SNA**031802**R**1700**0	**BNMS T48V-1** 1SNA**031803**R**1000**0	**BNMS T115V-1** 1SNA**031804**R**1100**0	**BNMS T230V-1** 1SNA**031805**R**1200**0
Charateristics				
INPUT				
Voltage	20,4 V to 26,4 V AC	40,8 V to 52,8 V AC	98 V to 126,5 V AC	195,5 V to 253 V AC
Max. current	8,5 mA	4,5 mA	8 mA	7 mA
Typical triggering threshold at Is = 100%	13 V AC	22 V AC	50 V AC	95 V AC
Switching time C/O	6 ms / 10 ms	6 ms / 10 ms	6 ms / 10 ms	6 ms / 10 ms
Leakage current	1 mA	1 mA	2 mA	2 mA
OUPUT				
Max. voltage / Max. current	58 V / 30 mA	58 V / 30 mA	58 V / 30 mA	58 V / 30 mA
Residual voltage max. I and rated U standard	2,3 V DC	2,3 V	2,3 V	2,3 V
max.	2,7 V DC	2,7 V	2,7 V	2,7 V
Input / Ouput isolation	2,5 kV	2,5 kV	2,5 kV	2,5 kV
TEMPERATURE				
Storage	- 30°C to + 80°C	- 30°C to + 80°C	- 30°C to + 80°C	- 30°C to + 80°C
Operating	- 20°C to + 55°C	- 20°C to + 55°C	- 20°C to + 55°C	- 20°C to + 55°C

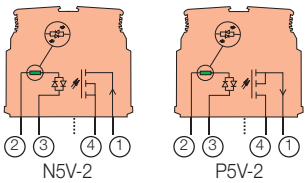
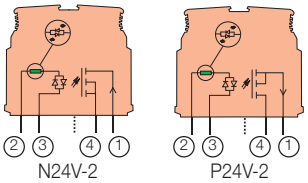
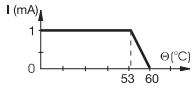
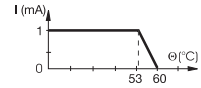
Transistor output optocoupler plugs



	100 mA output optocoupler 5 V DC	100 mA output optocoupler 24 V DC	100 mA output optocoupler 48 V DC
			
	Derating curve 	Derating curve 	Derating curve 
Part numbers	**Type** **P/N**	**Type** **P/N**	**Type** **P/N**
	BNMS N5V-3 1SNA**031806**R**1**300 **BNMS P5V-3** 1SNA**031809**R**26**00	**BNMS N24V-3** 1SNA**031807**R**14**00 **BNMS P24V-3** 1SNA**031810**R**12**00	**BNMS N48V-3** 1SNA**031808**R**25**00 **BNMS P48V-3** 1SNA**031811**R**07**00
Characteristics			
INPUT			
Voltage	4,5 V to 5,5 V DC	20,4 V to 28,8 V DC	40,8 V to 57,6 V DC
Max. current	8,5 mA	4,8 mA	3,9 mA
Typical triggering threshold at Is = 100 %	2,9 V DC	16 V DC	26 V DC
Switching time C/O	20 µs / 1,3 ms	20 µs / 1,3 ms	20 µs / 1,3 ms
Leakage current	1 mA	1 mA	1 mA
OUTPUT			
Max. voltage / Max. current	58 V / 100 mA	58 V / 100 mA	58 V / 100 mA
Residual voltage max. I and rated U			
standard U	1 V DC	1 V DC	1 V DC
max.	1,3 V DC	1,3 V DC	1,3 V DC
Frequency on inductive load	See Note 1	See Note 1	See Note 1
Input / Output isolation	2,5 kV	2,5 kV	2,5 kV
TEMPERATURE			
Storage	- 30°C to + 80°C	- 30°C to + 80°C	- 30°C to + 80°C
Operating	- 20°C to + 60°C	- 20°C to + 60°C	- 20°C to + 60°C

MOS output optocoupler plugs



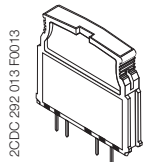
	1 A output optocoupler 5 V DC	1 A output optocoupler 24 V DC
		
	Derating curve 	Derating curve 
Part numbers	**Type** **P/N**	**Type** **P/N**
	BNMS N5V-2 1SNA**031816**R**04**00 **BNMS P5V-2** 1SNA**031818**R**16**00	**BNMS N24V-2** 1SNA**031817**R**05**00 **BNMS P24V-2** 1SNA**031819**R**17**00
Characteristics		
INPUT		
Voltage	4,5 V to 5,5 V DC	20,4 V to 28,8 V DC
Max. current	12,5 mA	6,7 mA
Typical triggering threshold at Is=100%	3,5 V DC	10 V DC
Switching time C/O	20 µs / 250 µs	50 µs / 350 µs
Leakage current	1 mA	1 mA
OUTPUT		
Max. voltage / Max. current	58 V / See graphs	58 V / See graphs
Residual voltage max. I and rated U		
standard U	1 V DC	1 V DC
max.	1,3 V DC	1,3 V DC
Frequency on inductive load	See Note 1	See Note 1
Input / Output isolation	2,5 kV	2,5 kV
TEMPERATURE		
Storage	- 30°C to + 80°C	- 30°C to + 80°C
Operating	- 20°C to + 60°C	- 20°C to + 60°C

Note 1 :

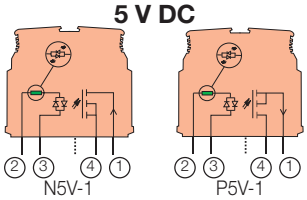
$F_{max} = (1\text{-}0{,}007 \times U_s) / (L \times I_s^2)$
or
$F_{max} = (1\text{-}0{,}007 \times U_s) / (P \times \frac{L}{R})$

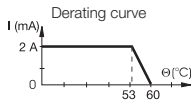
U_s = Output voltage supply
I_s = Output current
L = Inductive load
P = Load power
R = Load resistance

MOS output optocoupler plug

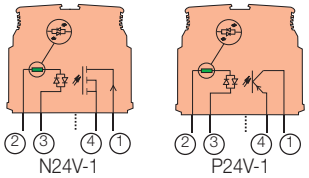


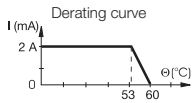
2 A output optocoupler
5 V DC





2 A output optocoupler
24 V DC





Note 2 :

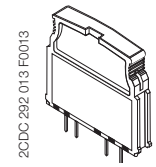
Fmax = (1 - 0,012 x Us) / (L x Is²)
or
Fmax = (1 - 0,012 x Us) / (P x $\frac{L}{R}$)

Us = Output voltage supply
Is = Output current
L = Inductive load
P = Load power
R = Load resistance

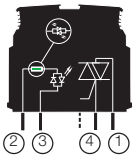
Part numbers	Type	P/N	Type	P/N
	BNMS N5V-1	1SNA**031812**R**00**00	**BNMS N24V-1**	1SNA**031813**R**01**00
	BNMS P5V-1	1SNA**031814**R**02**00	**BNMS P24V-1**	1SNA**031815**R**03**00

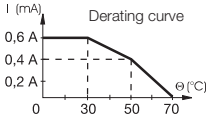
Characteristics			
INPUT			
Voltage		4,5 V to 5,5 V DC	20,4 V to 28,8 V DC
Max. current		12,5 mA	6,7 mA
Typical triggering threshold		3,5 V DC	10 V DC
Switching time	C/O	20 µs / 250 µs	50 µs / 350 µs
Leakage current		1 mA	1 mA
OUTPUT			
Max. voltage / Max. current		30 V DC / See graphs	30 V / See graphs
Residual voltage max. I and rated U			
	standard U	1 V DC	1 V DC
	max.	1,3 V DC	1,3 V DC
Frequency on inductive load		See Note 2	See Note 2
Input / Output isolation		2,5 kV	2,5 kV
TEMPERATURE			
Storage		- 30°C to + 80°C	- 30°C to + 80°C
Operating		- 20°C to + 60°C	- 20°C to + 60°C

Triac output optocoupler plug



1 A output optocoupler
24 V DC

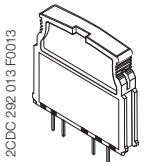




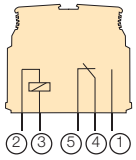
Part numbers	Type	P/N
	BNMS A24V-4	1SNA**031839**R**13**00

Characteristics		
INPUT		
Voltage		20,4 V to 28,8 V DC
Max. current		3,8 mA
Typical triggering threshold		10 V DC
Switching time	C/O	9,5 ms / 12 ms
Leakage current		
OUTPUT		
Max. voltage / Max. current		24 V to 253 V AC / See derating curve
Residual voltage max. I and rated U		
	standard U	1 V AC
	max.	1,3 V AC
Input / Output isolation		2,5 kV
TEMPERATURE		
Storage		- 30°C to + 80°C
Operating		- 20°C to + 70°C

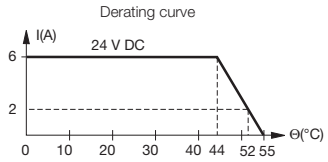
Relay plugs

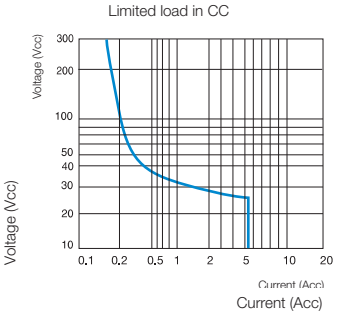


1 SPDT relay



R24V-1



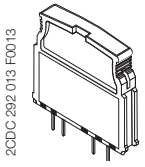


Part numbers	Type	P/N
	BNMS R24V-1	1SNA**031820**R**1**400
	BNMS R24V-2	1SNA**031847**R**1**300

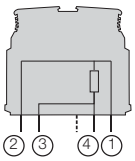
Characteristics		BNMS R24V-1	BNMS R24V-2
COIL			
Voltage		20,4 V to 28,8 V DC	
Current max.		7 mA	
Trip voltage		1,2 V	
CONTACT			
Type		1 SPDT	
Voltage mini. / max.		12 V / 250 V	5 V / 250 V
Switching current mini. / max.		10 mA / 6 A	1 mA / 6 A
Switching current	AC1 mini. / max.	0,6 VA/1500 VA (resistance)	0,05 VA/1500 VA (resistance)
	DC1 mini. / max.	0,6 W / 140 W	0,05 W / 140 W
Number of operations	on load	10^5 operations for AC15	
Number of operations	off load	$10x10^6$ operations	
Operating speed	C/O	6 ms / 8 ms	
Bounce		1,5 ms	
Isolation	Coil / Contact	4 kV	
Resistance to shock waves	Coil / Contact	4 kV	
Isolation	Contact / Contact	1 kV	
TEMPERATURE			
Storage		- 40°C to + 80°C	
Operating		- 20°C to + 55°C	

	DC12	AC12	DC13	AC15
24 V	6 A	6 A	1 A	3 A
110/120 V	0,3 A	6 A	0,2 A	3 A
220/230 V	0,2 A	6 A	0,1 A	3 A

Analogical plugs

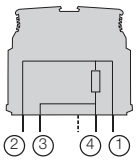


Current / Voltage Converter



Plug with 250 Ω accuracy resistance for analogical signals.

Current / Voltage Converter

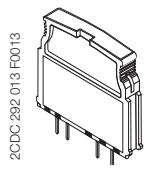


Plug with 500 Ω accuracy resistance for analogical signals.

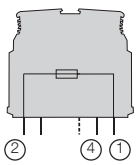
Part numbers	Type	P/N	Type	P/N
	BNMS CA I/U-250	1SNA**031832**R**04**00	**BNMS CA I/U-500**	1SNA**031833**R**05**00

Characteristics		
Resistance	250 Ω	500 Ω
Power	0,35 W	0,35 W
Accuracy	0,1 %	0,1 %
Stability	25 ppm	25 ppm

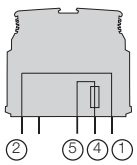
Fuse and strap plugs



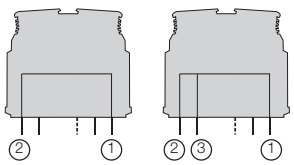
Output fuse plug



Input fuse plug



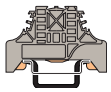
Strap plug

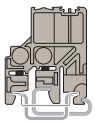


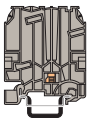
BNMS ST1 BNMS ST2

Part numbers	Type		P/N	Type		P/N	Type	P/N
	BNMS F125mA-1	125 V / 125 mA	1SNA**031821**R**01**00	**BNMS F125mA-3**	125 V / 125 mA	1SNA**031827**R**07**00	**BNMS ST1**	1SNA**031829**R**11**00
	BNMS F500mA-1	125 V / 500 mA	1SNA**031838**R**12**00	**BNMS F125mA-4**	250 V / 125 mA	1SNA**031828**R**10**00	**BNMS ST2**	1SNA**031830**R**16**00
	BNMS F2A-1	125 V / 2 A	1SNA**031822**R**02**00					
	BNMS F5A-1	125 V / 5 A	1SNA**031823**R**03**00					
	BNMS F125mA-2	250 V / 125 mA	1SNA**031824**R**04**00					
	BNMS F2A-2	250 V / 2 A	1SNA**031825**R**05**00					
	BNMS F5A-2	250 V / 5 A	1SNA**031826**R**06**00					


BADL


BAM2


BAMH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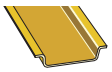
PR30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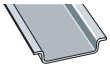
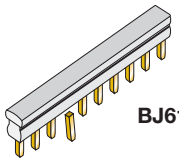

PR3.G2


PR5


PR4


FC2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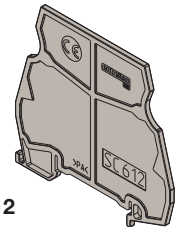
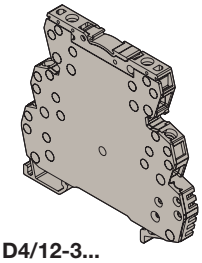

SC612


D4/12-3...

End stops

The end stops are mounted at the extremity of the terminal board assembly, giving additional support to the terminal blocks as markers. For various types of marking, refer to the marker section.

Description	Type		Order P/N	Packaging	Weight kg
End stop DIN 3					
grey V0	BADL	9 mm	1SNA**399903**R**02**00	50	
End stop with screws DIN 3					
grey V0	BAM2 V0	10 mm	1SNA**399967**R**01**00	50	
grey V2	BAM2	10 mm	1SNA**206351**R**16**00	50	
beige V0	BAM2 V0	10 mm	1SNA**296351**R**00**00	50	
High end stop with screws DIN 1 and DIN 3 grey	BAMH	9,1 mm	1SNA**114836**R**00**00	50	
beige V0	BAMH V0	9,1 mm	1SNA**194836**R**01**00	50	
High end stop with screws DIN 3 grey	BADH	12 mm	1SNA**116900**R**27**00	50	

Mounting rails

Symmetrical zinc bichromate plated steel prepunched rail	PR30	2 m	1SNA**173220**R**05**00	1	
Symmetrical zinc bichromate plated steel rail	PR3.Z2	2 m	1SNA**174300**R**17**00	1	
White, symmetrical passivated galvanized steel rail	PR3.G2	2 m	1SNA**164800**R**03**00	1	
Symmetrical zinc bichromate plated steel rail	PR5	2 m	1SNA**168700**R**22**00	1	
Symmetrical zinc bichromate plated steel rail	PR4	2 m	1SNA**168500**R**12**00	1	

Test devices

Test plug DIA. 2 mm	FC2	1SNA**007865**R**26**00	10	

Assembled jumper bar

This accessory permits electrical connection between 2 to 70 blocks with 6 mm spacing placed side by side. It can be used with screw clamp or spring clamp blocks with 6 mm or 12 mm spacing.
Interconnection of blocks not placed side by side is possible if teeth of the jumper bar have been cut in front of the blocks not to be connected. These teeth can be removed using pliers.
Use of separator end sections before and after the jumper bar is required to preserve IP20 protection of the assembly.

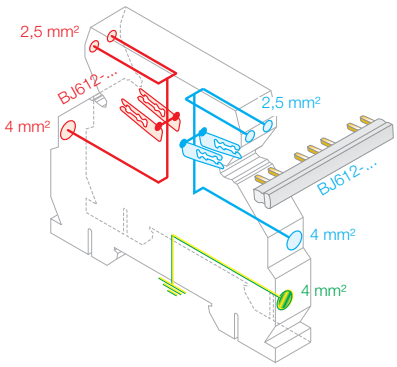
Assembled jumper bar 10 poles - 24 A	BJ612-10	1SNA**290488**R**01**00	10	
Assembled jumper bar 20 poles - 24 A	BJ612-20	1SNA**206754**R**00**00	10	

Separator end section

Directly mounted on the rail beside the block, it permits to identify and make electrical insulation of product groups using jumper bars. Dimensions are the same as screw clamp blocks : width 70 mm and height on rail 67,5 mm with 2 mm spacing.

Separator end section	SC612	1SNA**290474**R**02**00	10	

Distribution module



This terminal block with BJ612-... jumper bars permits 2 polarities distribution (PCL side and process side) thanks to two separate circuits, each of them including :

- one 4 mm² input,
- two 2,5 mm² outputs
- one double output for jumper bar BJ612-...

It permits also the connection of ground to the rail though a 4 mm² input.

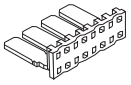
Rated voltage : 250 VAC-DC
Rated current : 32 A (4 mm²) - 16 A (2,5 mm²)
Recommended torque : 0,4 - 0,6 Nm

Screw clamp distribution block sp. 12 mm	D4/12-3-3	1SNA**645031**R**20**00	5	
Spring clamp distribution block sp. 12 mm	D4/12-3R-3R	1SNA**645531**R**22**00	5	

Accessories

PCMS

Comb-type jumper



This accessory permits the electrical connection of 2 to 22 blocks.

No. of poles	Grey UL94V0	Red UL94V0	Blue UL94V0	Green/Yellow UL94V0
2	1SNA**205491**R**23**00	1SNA**205492**R**24**00	1SNA**205493**R**25**00	1SNA**205494**R**26**00
3	1SNA**205495**R**27**00	1SNA**205496**R**20**00	1SNA**205497**R**21**00	1SNA**205498**R**02**00
4	1SNA**205499**R**03**00	1SNA**205500**R**10**00	1SNA**205501**R**05**00	1SNA**205502**R**06**00
5	1SNA**205503**R**07**00	1SNA**205504**R**00**00	1SNA**205505**R**01**00	1SNA**205506**R**02**00
6	1SNA**205507**R**03**00	1SNA**205508**R**14**00	1SNA**205509**R**15**00	1SNA**205510**R**01**00
7	1SNA**205511**R**26**00	1SNA**205512**R**27**00	1SNA**205513**R**20**00	1SNA**205514**R**21**00
8	1SNA**205515**R**22**00	1SNA**205516**R**23**00	1SNA**205517**R**24**00	1SNA**205518**R**05**00
9	1SNA**205519**R**06**00	1SNA**205520**R**03**00	1SNA**205521**R**20**00	1SNA**205522**R**21**00
10	1SNA**205523**R**22**00	1SNA**205524**R**23**00	1SNA**205525**R**24**00	1SNA**205526**R**25**00
11	1SNA**205527**R**26**00	1SNA**205528**R**07**00	1SNA**205529**R**00**00	1SNA**205530**R**05**00
12	1SNA**205531**R**22**00	1SNA**205532**R**23**00	1SNA**205533**R**24**00	1SNA**205534**R**25**00
13	1SNA**205535**R**26**00	1SNA**205536**R**27**00	1SNA**205537**R**20**00	1SNA**205538**R**01**00
14	1SNA**205539**R**02**00	1SNA**205540**R**17**00	1SNA**205541**R**04**00	1SNA**205542**R**05**00
15	1SNA**205543**R**06**00	1SNA**205544**R**07**00	1SNA**205545**R**00**00	1SNA**205546**R**01**00
16	1SNA**205547**R**02**00	1SNA**205548**R**13**00	1SNA**205549**R**14**00	1SNA**205550**R**11**00
17	1SNA**205551**R**06**00	1SNA**205552**R**07**00	1SNA**205553**R**00**00	1SNA**205554**R**01**00
18	1SNA**205555**R**02**00	1SNA**205556**R**03**00	1SNA**205557**R**04**00	1SNA**205558**R**15**00
19	1SNA**205559**R**16**00	1SNA**205560**R**13**00	1SNA**205561**R**00**00	1SNA**205562**R**01**00
20	1SNA**205563**R**02**00	1SNA**205564**R**03**00	1SNA**205565**R**04**00	1SNA**205566**R**05**00
21	1SNA**205567**R**06**00	1SNA**205568**R**17**00	1SNA**205569**R**10**00	1SNA**205570**R**15**00
22	1SNA**205571**R**02**00	1SNA**205572**R**03**00	1SNA**205573**R**04**00	1SNA**205574**R**05**00

PEF

Identification label holders

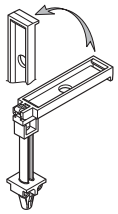
Designed to hold **RPEV** label (see opposite).

PEF * 1SNA**020568**R**04**00

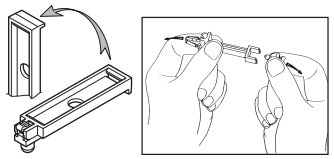
* Delivered with labels.

The label holders are removable and the labels can be changed easily.

- For mounting on PCB in a 3,7 mm diameter hole.



- For mounting on a PCB block in a 2 mm diameter hole (no support leg).



RPEV

Label for PEF 29 x 6 mm

Sheets of 99 pre-cut labels

✓ **Blank** **RPEV** 1SNA**173178**R**07**00

DC

Test device on screw head

This patented device is mounted on the round screwdriver opening. It is used for trouble shooting, measuring and control for monitoring and repairing an installation, on blocks without a test socket. For this, the device receives an **FC2** test plug.

The DC's are differentiated by their colour :

blue for **MA 2,5/5** blocks

DCB 1SNA**105028**R**21**00

BJ Jumper bar

BJS **Jumper bar not assembled**

Subassembly screw + washer + post

Perforated jumper bar to be cut to length

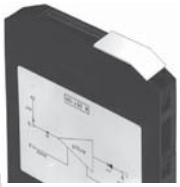
To connect terminal blocks, place the metal tube into the top center hole on each terminal block to be connected.
The metal tube contacts the terminal block's internal connector bar.
The perforated bar is cut to length and placed flat along the center opening of the series of terminal blocks.
The screw is inserted into the perforated bar's hole which is located directly above the blocks being connected. The screw goes through the threaded metal tube and is screwed into the terminal block's internal connector bar.
This completes the electrical connection to the perforated bar and connects the block.

To be mounted on blocks series R910 :

Screw + washer + post	**EV6D**			1SNA**168400**R**16**00
Perforated jumper bar	**BJS9**	32 A	8 poles	1SNA**177583**R**12**00
	BJS9	32 A	16 poles	1SNA**177584**R**13**00

RL Lengthwise marker

RLV **Lengthwise marker Width 9 mm *.354*"**



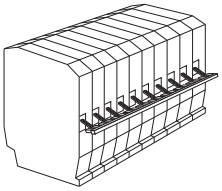
Large area for writing.
To be snapped onto the top of blocks.

Blank marker for writing : **RLV** 1SNA**103849**R**03**00

PC

Comb-type jumper bar

PC **EIP**

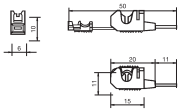


This accessory can be used only on the terminal blocks with at least one compression clamp connection. It permits the electrical connection of 2 to 10 blocks.
Interconnection of non-consecutive blocks is possible by removing the teeth opposite the blocks which must not be connected. The comb-type jumper bars can be cut using pliers (or a saw) : in this case, the use of an insulating tip **EIP** is recommended. The comb is placed in the compression clamp before tightening the screws, above the eventual conductor.

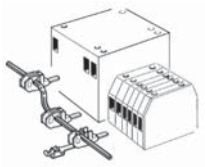
To be mounted on blocks series R900 and R910 :

Insulating tip for comb	**EIP**			1SNA**113550**R2000
Comb-type jumper bar	**PC9**	15 A	10 poles	1SNA**210160**R1200

IDC jumper (insulation displacement jumper)



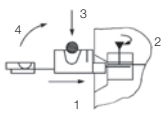
Characteristics		IEC NFC VDE	CSA
Wire size mm² / AWG	Rigid	2,5 mm²	14 AWG
	Flexible	2,5 mm²	
Voltage	V	600	600
Current	A	26	15
Rated wire size	mm² / AWG	2,5 mm²	14 AWG
Working temperature	°C	-55°C -> +110°C	
Protection		IP20 / NEMA1	



Quick-jump lets you interconnect screw clamp terminals of different sizes, levels and all manufacturers quickly and safely. Its insulation displacement technology makes it easy to use, fast, economical and does not require a special tool. Use as a jumper between relays, switches and other electronic components. ABB Quick-jump will fit any screw clamp type terminal block, from 6 mm .238" spacing and larger.

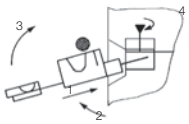
How to use : connecting Quick-jump to your terminal

1 - Insert ABB Quick-jump into your terminal screw clamp.
2 - Tighten the terminal screw.
3 - Guide jumper wire through the V-shaped opening in the Quick-jump.
4 - Secure the wire by closing the Quick-jump lever with any flat nose pliers.

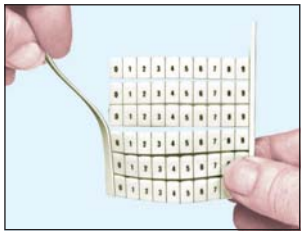


Adding a shunt in an installation :

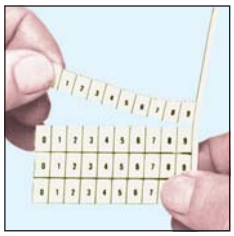
1 - Insert ABB Quick-jump into your terminal screw clamp.
2 - Guide the terminal screw clamp into contact with the wire.
3 - Secure the wire by closing the Quick-jump lever with any flat nose pliers.
4 - Tighten the terminal screw.



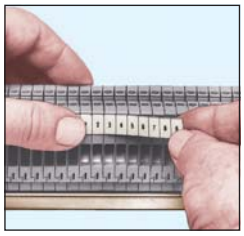
Insulation displacement jumper AD 2,5 1SNA**114205**R**20**00



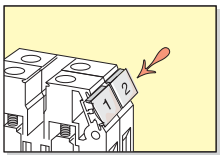
1
Remove one of the side bands of the card.



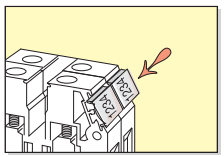
2
Separate the chosen strip from the rest of the card.



3
Press the first marker in place, hold it and slide your thomb on the rest of the strip.



Horizontal marking



Vertical marking

Refilable box of 100 cards of 18 RC markers

Marking for Interface Modules

Selection table

Markers for modules :	RC610	RC55	RC65
R500	⛔	●	⛔
R600	●	POSSIBLE	●
R900	⛔	●	⛔
R910	●	POSSIBLE	●
R1800	⛔	●	⛔

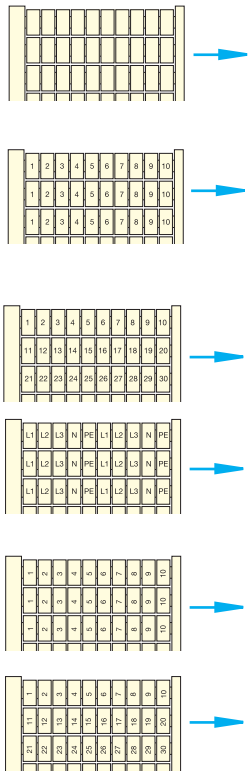
Possible mounting : POSSIBLE

Recommended mounting : ●

Impossible mounting : ⛔

Marking for terminal blocks

Standard RC marker cards



Marker sizes	RC55 (x) = Nb of cards in 5 mm spacing kit	RC65 (x) = Nb of cards in 6 mm spacing kit	RC610 (x) = Nb of cards in 6 mm spacing kit
Blank cards	1SNA**230000**R**12**00	1SNA**232000**R**00**00	1SNA**233000**R**01**00
Horizontal marking			
10 strips from 1 to 10	1SNA**230002R00**00 (5)	1SNA**232002R26**00 (5)	1SNA**233002R27**00 (25)
10 strips from 11 to 20	1SNA**230003R01**00 (2)	1SNA**232003R27**00 (2)	1SNA**233003R20**00 (10)
10 strips from 21 to 30	1SNA**230004R02**00	1SNA**232004R20**00	1SNA**233004R21**00 (6)
10 strips from 31 to 40	1SNA**230005R03**00	1SNA**232005R21**00	1SNA**233005R22**00 (4)
10 strips from 41 to 50	1SNA**230006R04**00	1SNA**232006R22**00	1SNA**233006R23**00 (3)
10 strips from 51 to 60	1SNA**230007R05**00	1SNA**232007R23**00	1SNA**233007R24**00 (2)
10 strips from 61 to 70	1SNA**230008R16**00	1SNA**232008R04**00	1SNA**233008R05**00 (2)
From 1 to 100	1SNA**230030R07**00 (2)	1SNA**232030R25**00 (2)	1SNA**233030R26**00 (15)
From 101 to 200	1SNA**230031R24**00	1SNA**232031R12**00	1SNA**233031R13**00 (2)
20 times L1-L2-L3-N-PE	1SNA**230131R25**00	1SNA**232131R13**00	1SNA**233131R14**00 (2)
Vertical marking			
10 strips from 1 to 10	1SNA**230041R06**00	1SNA**232041R24**00	1SNA**233041R25**00 **(5)**
10 strips from 11 to 20	1SNA**230042R07**00	1SNA**232042R25**00	1SNA**233042R26**00 **(3)**
10 strips from 21 to 30	1SNA**230043R00**00	1SNA**232043R26**00	1SNA**233043R27**00 **(2)**
10 strips from 31 to 40	1SNA**230044R01**00	1SNA**232044R27**00	1SNA**233044R20**00 **(2)**
From 1 to 100	1SNA**230060R15**00	1SNA**232060R03**00	1SNA**233060R04**00 **(8)**

Marking kit RC 5 mm spacing or 6 mm spacing

Box with 100 cards with 18 various part numbers (see table next page)

Description	Type	Order P/N	Packaging	Weight kg
Box with 100 cards RC 5 mm spacing		1SNA**400085**R**27**00	1	
Refill for box RC 5 mm		1SNA**400145**R**07**00	1	
Box with 100 cards RC 6 mm spacing		1SNA**400084**R**26**00	1	
Refill for box RC 6 mm		1SNA**400144**R**06**00	1	