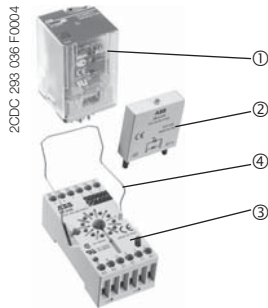


Pluggable interface relays CR-U

Universal relays

Data sheet



CR-U

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

Features

- Standard universal relays with mechanical status indication
- 10 different supply 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: 2 c/o (SPDT) contacts (10 A) or 3 c/o (SPDT) contacts (10 A)
- Available with or without LED
- Integrated test button for manual operation and locking of output contacts (blue = DC, orange = AC), that can be removed if necessary
- 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

Approvals

- UL508
- CAN/CSA C22.2 No.14
- CAN/CSA C22.2 No.14
- VDE
- GOST
- Lloyds Register
- CCC
- RMRS

Marks

CE

Order data

Type	Rated control supply voltage U_s	Order code
Interface relays without LED, 2 c/o (SPDT) contacts: 250 V, 10 A		
CR-U012DC2	12 V DC	1SVR 405 621 R4000
CR-U024DC2	24 V DC	1SVR 405 621 R1000
CR-U048DC2	48 V DC	1SVR 405 621 R6000
CR-U110DC2	110 V DC	1SVR 405 621 R8000
CR-U220DC2	220 V DC	1SVR 405 621 R9000
CR-U024AC2	24 V AC	1SVR 405 621 R0000
CR-U048AC2	48 V AC	1SVR 405 621 R5000
CR-U110AC2	110 V AC	1SVR 405 621 R7000
CR-U120AC2	120 V AC	1SVR 405 621 R2000
CR-U230AC2	230 V AC	1SVR 405 621 R3000
Interface relays without LED, 3 c/o (SPDT) contacts: 250 V, 10 A		
CR-U012DC3	12 V DC	1SVR 405 622 R4000
CR-U024DC3	24 V DC	1SVR 405 622 R1000
CR-U048DC3	48 V DC	1SVR 405 622 R6000
CR-U110DC3	110 V DC	1SVR 405 622 R8000
CR-U125DC3	125 V DC	1SVR 405 622 R8200
CR-U220DC3	220 V DC	1SVR 405 622 R9000
CR-U024AC3	24 V AC	1SVR 405 622 R0000
CR-U048AC3	48 V AC	1SVR 405 622 R5000
CR-U060AC3	60 V AC	1SVR 405 622 R5200
CR-U110AC3	110 V AC	1SVR 405 622 R7000
CR-U120AC3	120 V AC	1SVR 405 622 R2000
CR-U230AC3	230 V AC	1SVR 405 622 R3000

Bold printed products = stocked products. Packing unit = 10 pieces.

Pluggable interface relays CR-U

Universal relays

Data sheet

Type	Rated control supply voltage U_s	Order code
Interface relays with LED 2 c/o (SPDT) contacts: 250 V, 10 A		
CR-U012DC2L	12 V DC	1SVR 405 621 R4100
CR-U024DC2L	24 V DC	1SVR 405 621 R1100
CR-U048DC2L	48 V DC	1SVR 405 621 R6100
CR-U110DC2L	110 V DC	1SVR 405 621 R8100
CR-U220DC2L	220 V DC	1SVR 405 621 R9100
CR-U024AC2L	24 V AC	1SVR 405 621 R0100
CR-U048AC2L	48 V AC	1SVR 405 621 R5100
CR-U110AC2L	110 V AC	1SVR 405 621 R7100
CR-U120AC2L	120 V AC	1SVR 405 621 R2100
CR-U230AC2L	230 V AC	1SVR 405 621 R3100
Interface relays with LED 3 c/o (SPDT) contacts: 250 V, 10 A		
CR-U012DC3L	12 V DC	1SVR 405 622 R4100
CR-U024DC3L	24 V DC	1SVR 405 622 R1100
CR-U048DC3L	48 V DC	1SVR 405 622 R6100
CR-U110DC3L	110 V DC	1SVR 405 622 R8100
CR-U220DC3L	220 V DC	1SVR 405 622 R9100
CR-U024AC3L	24 V AC	1SVR 405 622 R0100
CR-U048AC3L	48 V AC	1SVR 405 622 R5100
CR-U110AC3L	110 V AC	1SVR 405 622 R7100
CR-U120AC3L	120 V AC	1SVR 405 622 R2100
CR-U230AC3L	230 V AC	1SVR 405 622 R3100
Interface relays with LED and freewheeling diode 3 c/o (SPDT) contacts: 250 V, 10 A		
CR-U024DC3LD	24 V DC	1SVR 405 623 R1100

Order data - Accessories

Sockets

Type	Version	Order code
Sockets		
CR-U2S	for 2 c/o (SPDT) contacts + module	1SVR 405 670 R0000
CR-U3S	for 3 c/o (SPDT) contacts + module	1SVR 405 660 R0000
CR-U3E	for 3 c/o (SPDT) contacts	1SVR 405 660 R0100
Small sockets		
CR-U2SM	for 2 c/o (SPDT) contacts	1SVR 405 670 R1100
CR-U3SM	for 3 c/o (SPDT) contacts	1SVR 405 660 R1100
Accessories for CR-U sockets		
CR-UH	Metall holder	1SVR 405 669 R0000

Bold printed products = stocked products. Packing unit = 10 pieces.

Pluggable interface relays CR-U

Universal relays

Data sheet

Function modules

Type	Rated control supply voltage U_s	Version	Order code
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Diode - Reverse polarity protection

CR-U 21	6-230 V DC	A1+, A2-	1SVR 405 661 R0000
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Diode and LED - Reverse polarity protection

CR-U 41	6-24 V DC	red, A1+, A2-	1SVR 405 662 R0000
CR-U 41V	6-24 V DC	green, A1+, A2-	1SVR 405 662 R1000
CR-U 41B	24-60 V DC	red, A1+, A2-	1SVR 405 662 R4000
CR-U 41BV	24-60 V DC	green, A1+, A2-	1SVR 405 662 R4100
CR-U 41C	110-230 V DC	red, A1+, A2-	1SVR 405 662 R9000
CR-U 41CV	110-230 V DC	green, A1+, A2-	1SVR 405 662 R9100

RC element - Arc elemimation

CR-U 51B	6-24 V AC		1SVR 405 663 R0000
CR-U 51D	24-60 V AC		1SVR 405 663 R4000
CR-U 51C	110-230 V AC		1SVR 405 663 R1000

Diode and LED

CR-U 61	6-24 V AC/DC	red, for DC: A1+, A2-	1SVR 405 664 R0000
CR-U 61V	6-24 V AC/DC	green, for DC: A1+, A2-	1SVR 405 664 R1000
CR-U 61E	24-60 V AC/DC	red, for DC: A1+, A2-	1SVR 405 664 R4000
CR-U 61EV	24-60 V AC/DC	green, for DC: A1+, A2-	1SVR 405 664 R4100
CR-U 91	110-230 V AC/DC	red, for DC: A1+, A2-	1SVR 405 664 R0100
CR-U 91V	110-230 V AC/DC	green, for DC: A1+, A2-	1SVR 405 664 R1100

Varistor and LED - Overvoltage protection

CR-U 61C	6-24 V AC/DC	red, for DC: A1+, A2-	1SVR 405 665 R0000
CR-U 61CV	6-24 V AC/DC	green, for DC: A1+, A2-	1SVR 405 665 R1000
CR-U 61D	24-60 V AC/DC	red, for DC: A1+, A2-	1SVR 405 665 R4000
CR-U 61DV	24-60 V AC/DC	green, for DC: A1+, A2-	1SVR 405 665 R4100
CR-U 91C	110-230 V AC/DC	red, for DC: A1+, A2-	1SVR 405 665 R0100
CR-U 91CV	110-230 V AC/DC	green, for DC: A1+, A2-	1SVR 405 665 R1100

Varistor - Overvoltage protection

CR-U 71	24 V AC		1SVR 405 666 R0000
CR-U 71A	115 V AC		1SVR 405 666 R1000
CR-U 81	230 V AC		1SVR 405 666 R2000

Multifunction time module

Type	Rated control supply voltage U_s	Order code
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Multifunction timer module

CR-U T	24-240 V AC/DC	pluggable onto CR-U2S and CR-U3S	1SVR 405 667 R0000
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All CR-U modules can be plugged onto sockets CR-U2S and CR-U3S.

Bold printed products = stocked products. Packing unit = 10 pieces.

Pluggable interface relays CR-U

Universal relays

Data sheet

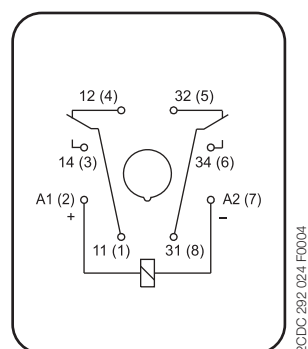
Application

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

Operating mode

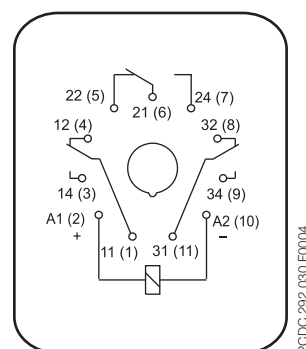
When power supply is applied, the output contacts get closed. When control supply voltage is switched off, the contacts fall back into their starting position. Manual operation and locking of the output relays is possible via the integrated test button.

Connection diagrams



CR-U with 2 c/o (SPDT) contacts

A1-A2 Control supply voltage
11-12/14 Relay outputs
31-32/34



CR-U with 3 c/o (SPDT) contacts

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

Technical data

Input circuit - Coil data A1-A2

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

Pluggable interface relays CR-U

Universal relays

Data sheet

Type			CR-U...2		CR-U...3	
Output circuits			11-12/14, 31-32/34		11-12/14, 21-22/24, 31-32/34	
Kind of output			Relay, 2 c/o contacts		Relay, 3 c/o contacts	
Contact material			AgNi			
Rated operational voltage U _a (VDE 0110, IEC 60947-1)			250 V			
Min. switching voltage			5 V			
Max. switching voltage			DC		250 V DC	
			AC		250 V AC	
Min. switching current			5 mA			
Conventional free-air thermal current I _{th}			10 A			
Rated operational current (IEC 60947-5-1)			AC12 (resistive) 230 V		10 A	
			AC15 (inductive) 230 V		1.5 A	
			DC12 (resistive) 24 V		10 A	
			DC13 (inductive) 24 V		2 A	
Max. making current			20 A			
Min. switching power			0.3 W			
Max. switching power AC1			2500 VA			
Contact resistance			≤ 100 mΩ			
Max. switching capacity			rated load AC1		1200 switching cycles / h	
			without load		12000 switching cycles / h	
Lifetime			mechanical		≥ 2 x 10 ⁷ switching cycles	
			electrical AC1 (resistive)		≥ 10 ⁵ switching cycles (10 A, 250 V)	
			cos φ		see reduction factor F	
Response time			typ. 18 ms (DC) / typ. 12 ms (AC)			
Release time			typ. 7 ms (DC) / typ. 10 ms (AC)			
Isolation data						
Rated insulation voltage			250 V AC			
Insulation class			C250			
Rated impulse withstand voltage U _{imp} between			coil and contacts		2.5 kV AC	
			open contacts		1.5 kV AC	
			c/o (SPDT) contacts		2 kV AC	
Clearance between coil and contacts			≥ 3 mm			
Creepage distance between coil and contacts			≥ 4.2 mm			
Overvoltage category			III			
Pollution degree			3			
General data						
Dimensions (W x H x D) when mounted			35 x 35 x 54.4 mm			
Weight			83 g (0.18 lb)			
Mounting			on socket (see accessories)			
Mounting position			any			
Degree of protection			IP 40			
Electrical connection						
Connection			by socket			
Environmental data						
Ambient temperature range			operation DC		-40...+70 °C	
			AC		-40...+55 °C	
			storage		-40...+85 °C	
Vibration resistance (10-150 Hz)			n/o contacts		5 g	
			n/c contacts		5 g	
Shock resistance			n/o contacts		10 g	
			n/c contacts		10 g	
Standards						
Product standards			EN 60255-1-00			
Low Voltage Directive			73/23/EEC			

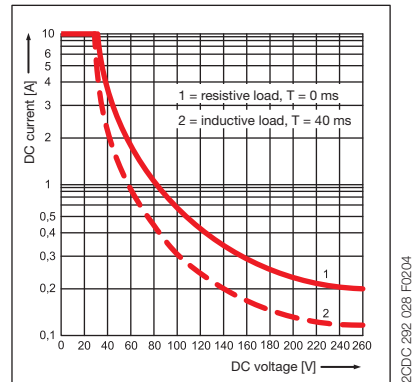
Pluggable interface relays CR-U

Universal relays

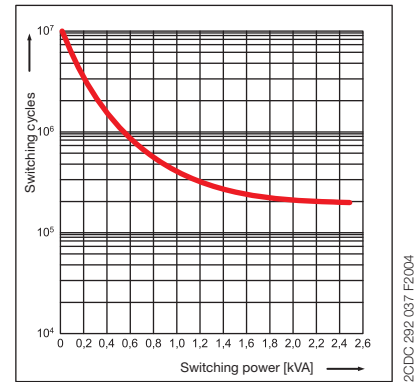
Data sheet

Technical diagrams

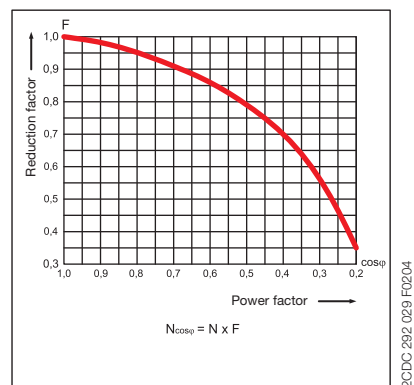
Load limit curve -
Maximum switching power
at resistive DC load



Load limit curve -
Electrical lifetime
at resistive AC load

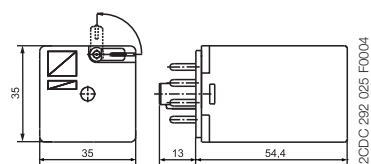


Reduction factor F at inductive AC load

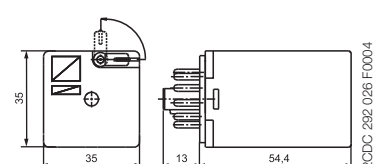


Dimensions

in mm



Versions with 2 c/o contacts (CR-U ... 2)



Versions with 3 c/o contacts (CR-U ... 3)

Further documentation

Document title	Document type	Document number
Sockets CR-U	Data sheet	2CDC 117 006 D010x
Pluggable function modules CR-U	Data sheet	2CDC 117 008 D010x
Pluggable multifunction time module CR-U T	Data sheet	2CDC 117 010 D010x



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