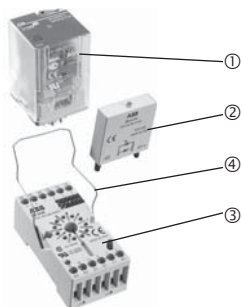


Pluggable interface relays CR-U

Universal relays

Data sheet

2CDC 233 036 F0004



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

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Pluggable interface relays CR-U

Universal relays

Data sheet

Function modules

Type	Rated control supply voltage U_s	Version	Order code
Diode - Reverse polarity protection			
CR-U 21	6-230 V DC	A1+, A2-	1SVR 405 661 R0000
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 elimination			
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
Multifunction timer module		
CR-U T	24-240 V AC/DC	pluggable onto CR-U2S and CR-U3S
		1SVR 405 667 R0000

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

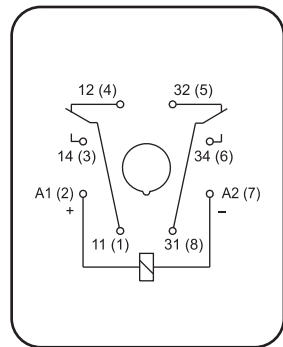
Application

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.

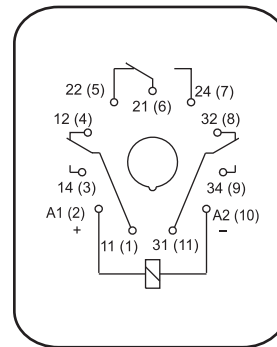
Connection diagrams



2CDC 282 024 F0004

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

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



2CDC 282 030 F0004

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_b (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	$\leq 100 \text{ m}\Omega$		
Max. switching capacity	rated load AC1		1200 switching cycles / h
	without load		12000 switching cycles / h
Lifetime	mechanical		$\geq 2 \times 10^7$ switching cycles
	electrical AC1 (resistive)		$\geq 10^5$ 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		$\geq 3 \text{ mm}$
Creepage distance	between coil and contacts		$\geq 4.2 \text{ mm}$
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		

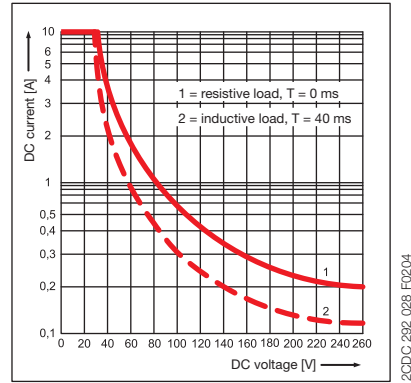
Pluggable interface relays CR-U

Universal relays

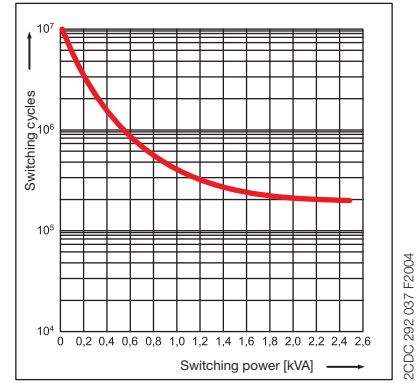
Data sheet

Technical diagrams

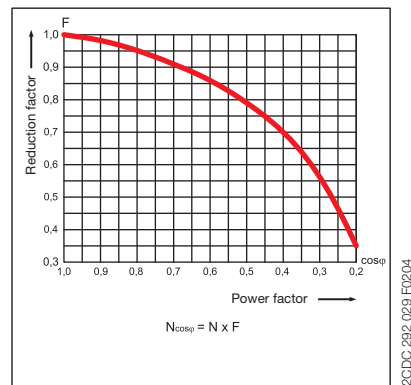
Load limit curve -
Maximum switching power
at resistive DC load



Load limit curve -
Electrical lifetime
at resistive AC load

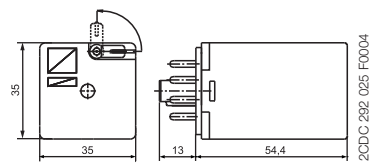


Reduction factor F at inductive AC load

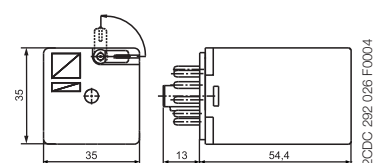


Dimensions

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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