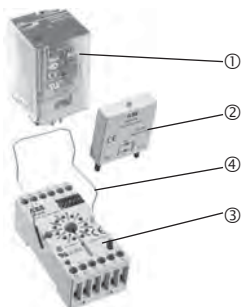


# Pluggable interface relays CR-U

## 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
<b>CR-U024AC2</b>	<b>24 V AC</b>	<b>1SVR 405 621 R0000</b>
CR-U048AC2	48 V AC	1SVR 405 621 R5000
<b>CR-U110AC2</b>	<b>110 V AC</b>	<b>1SVR 405 621 R7000</b>
CR-U120AC2	120 V AC	1SVR 405 621 R2000
<b>CR-U230AC2</b>	<b>230 V AC</b>	<b>1SVR 405 621 R3000</b>
Interface relays without LED, 3 c/o (SPDT) contacts: 250 V, 10 A		
CR-U012DC3	12 V DC	1SVR 405 622 R4000
<b>CR-U024DC3</b>	<b>24 V DC</b>	<b>1SVR 405 622 R1000</b>
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
<b>CR-U024AC3</b>	<b>24 V AC</b>	<b>1SVR 405 622 R0000</b>
CR-U048AC3	48 V AC	1SVR 405 622 R5000
CR-U060AC3	60 V AC	1SVR 405 622 R5200
<b>CR-U110AC3</b>	<b>110 V AC</b>	<b>1SVR 405 622 R7000</b>
CR-U120AC3	120 V AC	1SVR 405 622 R2000
<b>CR-U230AC3</b>	<b>230 V AC</b>	<b>1SVR 405 622 R3000</b>

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
<b>CR-U024DC2L</b>	<b>24 V DC</b>	<b>1SVR 405 621 R1100</b>
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
<b>CR-U024AC2L</b>	<b>24 V AC</b>	<b>1SVR 405 621 R0100</b>
CR-U048AC2L	48 V AC	1SVR 405 621 R5100
<b>CR-U110AC2L</b>	<b>110 V AC</b>	<b>1SVR 405 621 R7100</b>
CR-U120AC2L	120 V AC	1SVR 405 621 R2100
<b>CR-U230AC2L</b>	<b>230 V AC</b>	<b>1SVR 405 621 R3100</b>
Interface relays with LED 3 c/o (SPDT) contacts: 250 V, 10 A		
CR-U012DC3L	12 V DC	1SVR 405 622 R4100
<b>CR-U024DC3L</b>	<b>24 V DC</b>	<b>1SVR 405 622 R1100</b>
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
<b>CR-U024AC3L</b>	<b>24 V AC</b>	<b>1SVR 405 622 R0100</b>
CR-U048AC3L	48 V AC	1SVR 405 622 R5100
<b>CR-U110AC3L</b>	<b>110 V AC</b>	<b>1SVR 405 622 R7100</b>
CR-U120AC3L	120 V AC	1SVR 405 622 R2100
<b>CR-U230AC3L</b>	<b>230 V AC</b>	<b>1SVR 405 622 R3100</b>
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		
<b>CR-U2S</b>	for 2 c/o (SPDT) contacts + module	<b>1SVR 405 670 R0000</b>
<b>CR-U3S</b>	for 3 c/o (SPDT) contacts + module	<b>1SVR 405 660 R0000</b>
<b>CR-U3E</b>	for 3 c/o (SPDT) contacts	<b>1SVR 405 660 R0100</b>
Small sockets		
<b>CR-U2SM</b>	for 2 c/o (SPDT) contacts	<b>1SVR 405 670 R1100</b>
<b>CR-U3SM</b>	for 3 c/o (SPDT) contacts	<b>1SVR 405 660 R1100</b>
Accessories for CR-U sockets		
<b>CR-UH</b>	Metall holder	<b>1SVR 405 669 R0000</b>

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
Diode - Reverse polarity protection			
<b>CR-U 21</b>	<b>6-230 V DC</b>	<b>A1+, A2-</b>	<b>1SVR 405 661 R0000</b>
Diode and LED - Reverse polarity protection			
<b>CR-U 41</b>	<b>6-24 V DC</b>	<b>red, A1+, A2-</b>	<b>1SVR 405 662 R0000</b>
<b>CR-U 41V</b>	<b>6-24 V DC</b>	<b>green, A1+, A2-</b>	<b>1SVR 405 662 R1000</b>
<b>CR-U 41B</b>	<b>24-60 V DC</b>	<b>red, A1+, A2-</b>	<b>1SVR 405 662 R4000</b>
<b>CR-U 41BV</b>	<b>24-60 V DC</b>	<b>green, A1+, A2-</b>	<b>1SVR 405 662 R4100</b>
<b>CR-U 41C</b>	<b>110-230 V DC</b>	<b>red, A1+, A2-</b>	<b>1SVR 405 662 R9000</b>
<b>CR-U 41CV</b>	<b>110-230 V DC</b>	<b>green, A1+, A2-</b>	<b>1SVR 405 662 R9100</b>
RC element - Arc elimination			
<b>CR-U 51B</b>	<b>6-24 V AC</b>		<b>1SVR 405 663 R0000</b>
<b>CR-U 51D</b>	<b>24-60 V AC</b>		<b>1SVR 405 663 R4000</b>
<b>CR-U 51C</b>	<b>110-230 V AC</b>		<b>1SVR 405 663 R1000</b>
Diode and LED			
<b>CR-U 61</b>	<b>6-24 V AC/DC</b>	<b>red, for DC: A1+, A2-</b>	<b>1SVR 405 664 R0000</b>
<b>CR-U 61V</b>	<b>6-24 V AC/DC</b>	<b>green, for DC: A1+, A2-</b>	<b>1SVR 405 664 R1000</b>
<b>CR-U 61E</b>	<b>24-60 V AC/DC</b>	<b>red, for DC: A1+, A2-</b>	<b>1SVR 405 664 R4000</b>
<b>CR-U 61EV</b>	<b>24-60 V AC/DC</b>	<b>green, for DC: A1+, A2-</b>	<b>1SVR 405 664 R4100</b>
<b>CR-U 91</b>	<b>110-230 V AC/DC</b>	<b>red, for DC: A1+, A2-</b>	<b>1SVR 405 664 R0100</b>
<b>CR-U 91V</b>	<b>110-230 V AC/DC</b>	<b>green, for DC: A1+, A2-</b>	<b>1SVR 405 664 R1100</b>
Varistor and LED - Overvoltage protection			
<b>CR-U 61C</b>	<b>6-24 V AC/DC</b>	<b>red, for DC: A1+, A2-</b>	<b>1SVR 405 665 R0000</b>
<b>CR-U 61CV</b>	<b>6-24 V AC/DC</b>	<b>green, for DC: A1+, A2-</b>	<b>1SVR 405 665 R1000</b>
<b>CR-U 61D</b>	<b>24-60 V AC/DC</b>	<b>red, for DC: A1+, A2-</b>	<b>1SVR 405 665 R4000</b>
<b>CR-U 61DV</b>	<b>24-60 V AC/DC</b>	<b>green, for DC: A1+, A2-</b>	<b>1SVR 405 665 R4100</b>
<b>CR-U 91C</b>	<b>110-230 V AC/DC</b>	<b>red, for DC: A1+, A2-</b>	<b>1SVR 405 665 R0100</b>
<b>CR-U 91CV</b>	<b>110-230 V AC/DC</b>	<b>green, for DC: A1+, A2-</b>	<b>1SVR 405 665 R1100</b>
Varistor - Overvoltage protection			
<b>CR-U 71</b>	<b>24 V AC</b>		<b>1SVR 405 666 R0000</b>
<b>CR-U 71A</b>	<b>115 V AC</b>		<b>1SVR 405 666 R1000</b>
<b>CR-U 81</b>	<b>230 V AC</b>		<b>1SVR 405 666 R2000</b>

#### Multifunction time module

Type	Rated control supply voltage $U_s$	Order code
Multifunction timer module		
<b>CR-U T</b>	<b>24-240 V AC/DC</b>	<b>pluggable onto CR-U2S and CR-U3S</b>

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

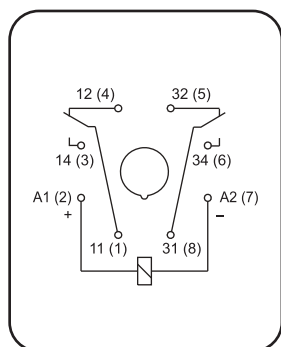
#### Application

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.

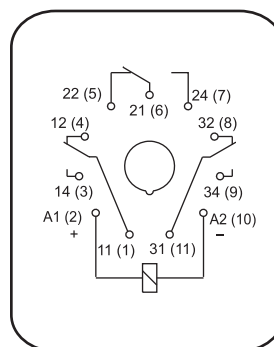
#### Connection diagrams



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
<b>DC coils</b>	12 V DC	-	9.6 V DC	13.2 V DC	$\geq 0.1 U_s$	1.5 W	110 $\Omega$	$\pm 10\%$
	24 V DC	-	19.2 V DC	26.4 V DC	$\geq 0.1 U_s$	1.5 W	430 $\Omega$	$\pm 10\%$
	48 V DC	-	38.4 V DC	52.8 V DC	$\geq 0.1 U_s$	1.5 W	1750 $\Omega$	$\pm 10\%$
	110 V DC	-	88.0 V DC	121.0 V DC	$\geq 0.1 U_s$	1.5 W	9200 $\Omega$	$\pm 10\%$
	125 V DC	-	96.0 V DC	132.0 V DC	$\geq 0.1 U_s$	1.5 W	11000 $\Omega$	$\pm 10\%$
	220 V DC	-	176.0 V DC	242.0 V DC	$\geq 0.1 U_s$	1.5 W	37000 $\Omega$	$\pm 10\%$
<b>AC coils</b>	24 V AC	50 / 60 Hz	19.2 V AC	26.4 V AC	$\geq 0.15 U_s$	2.8 VA (50 Hz) 2.5 VA (60 Hz)	75 $\Omega$	$\pm 10\%$
	48 V AC	50 / 60 Hz	38.4 V AC	52.8 V AC	$\geq 0.15 U_s$	2.8 VA (50 Hz) 2.5 VA (60 Hz)	305 $\Omega$	$\pm 10\%$
	60 V AC	50 / 60 Hz	48.0 V AC	66.0 V AC	$\geq 0.15 U_s$	2.8 VA (50 Hz) 2.5 VA (60 Hz)	475 $\Omega$	$\pm 10\%$
	110 V AC	50 / 60 Hz	88.0 V AC	121.0 V AC	$\geq 0.15 U_s$	2.8 VA (50 Hz) 2.5 VA (60 Hz)	1700 $\Omega$	$\pm 10\%$
	120 V AC	50 / 60 Hz	96.0 V AC	132.0 V AC	$\geq 0.15 U_s$	2.8 VA (50 Hz) 2.5 VA (60 Hz)	1910 $\Omega$	$\pm 10\%$
	230 V AC	50 / 60 Hz	184.0 V AC	253.0 V AC	$\geq 0.15 U_s$	2.8 VA (50 Hz) 2.5 VA (60 Hz)	7080 $\Omega$	$\pm 10\%$

# Pluggable interface relays CR-U

## Universal relays

### Data sheet

Type	CR-U...2		CR-U...3
<b>Output circuits</b>	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 $\varphi$		see reduction factor F
Response time	typ. 18 ms (DC) / typ. 12 ms (AC)		
Release time	typ. 7 ms (DC) / typ. 10 ms (AC)		
<b>Isolation data</b>			
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		
<b>General data</b>			
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		
<b>Electrical connection</b>			
Connection	by socket		
<b>Environmental data</b>			
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
<b>Standards</b>			
Product standards	EN 60255-1-00		
Low Voltage Directive	73/23/EEC		

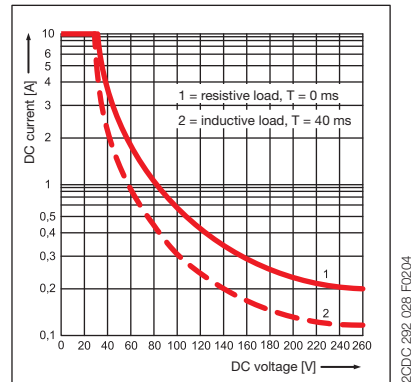
# Pluggable interface relays CR-U

## Universal relays

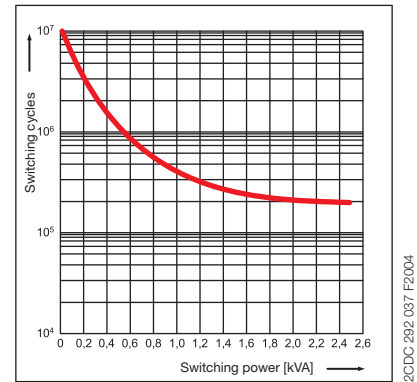
### Data sheet

#### Technical diagrams

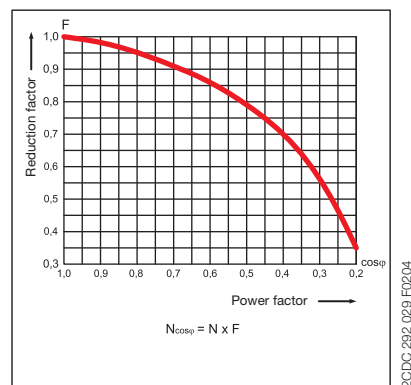
Load limit curve -  
Maximum switching power  
at resistive DC load



Load limit curve -  
Electrical lifetime  
at resistive AC load

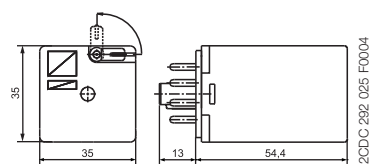


Reduction factor F at inductive AC load

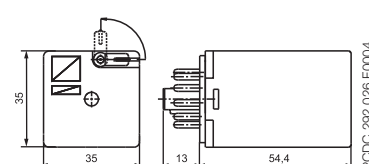


#### Dimensions

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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