

Pluggable interface relays

Ordering details



2CDC 291 047 F0004

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 AC	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									



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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



CR-U...

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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)
6-230 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)
24-60 V DC		green, A1+, A2-	CR-U 41V	1SVR405662R1000				
		red, A1+, A2-	CR-U 41B	1SVR405662R4000				
		green, A1+, A2-	CR-U 41BV	1SVR405662R4100				
110-230 V DC		red, A1+, A2-	CR-U 41C	1SVR405662R9000				
		green, A1+, A2-	CR-U 41CV	1SVR405662R9100				
6-24 V AC	Spark quenching		CR-U 51B	1SVR405663R0000		10	0.007	(0.015)
24-60 V AC			CR-U 51D	1SVR405663R4000				
110-230 V AC			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				
110-230 V AC/DC		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				
110-230 V AC/DC		red, for DC A1+, A2-	CR-U 91C	1SVR405665R0100				
		green, for DC A1+, A2-	CR-U 91CV	1SVR405665R1100				
24 V AC	Overvoltage protection		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)

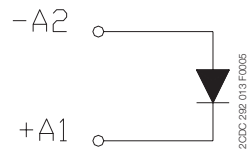
All CR-U modules can be plugged onto sockets CR-U2S and CR-U3S.



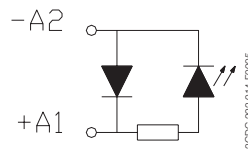
CR-U T

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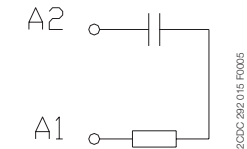
Connection diagrams



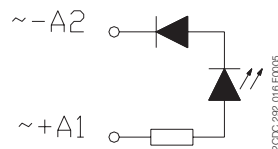
CR-U 21



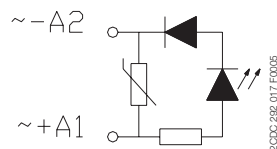
CR-U 41, CR-U 41V, CR-U 41B, CR-U 41BV, CR-U 41C, CR-U 41CV



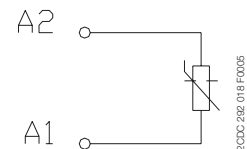
CR-U 51B, CR-U 51C, CR-U 51D, CR-U 51CV



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



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



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

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				
Maximum switching voltage	DC	300 V DC		250 V DC				
	AC	400 V AC		250 V AC				
Minimum switching current	5 mA (AgNi), 2 mA (AgNi/Au)							
Rated free air thermal current I _n	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 A	1.5 A	1.5 A	1 A	1.5 A	
	DC12 (resistive) 24 V	16 A	8 A	12 A	10 A	6 A	10 A	
	DC13 (inductive) 24 V	2 A	2 A	8 A	8 A	6 A	2 A	
AC rating (UL 508)	Utilization category (Control Circuit Rating Code)					-	B 300	
	max. rated operational voltage					-	300 V AC	
	max. continuous thermal current at B 300					-	5 A	
	max. making / breaking apparent power at B 300					-	3600/360 VA	
	Utilization category General Purpose (single phase)					-	10 A, 250 V AC	10 A, 250 V AC
	Utilization category (Resistive)	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	6 A, 250 V AC 10 A, 150 V AC	10 A, 250 V AC	-
	Minimum switching power	0.3 W (AgNi), 0.1 W (AgNi/Au)					0.3 W	
Maximum switching power AC-1	4000 VA	2000 VA	3000 VA	2500 VA	1500 VA	2500 VA		
Contact resistance	≤ 100 mΩ			≤ 100 mΩ				
Maximum switching capacity 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 AC1 (resistive)	> 10 ⁹ switching cycles		> 10 ⁹ switching cycles		> 10 ⁹ switching cycles		> 10 ⁹ switching cycles	
	(16 A, 250 V) : (8 A, 250 V)		(12 A, 250 V) : (10 A, 250 V)		(6 A, 250 V)		(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 contacts	2.5 kV AC		2 kV AC		2 kV AC		
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							

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Pluggable interface relays

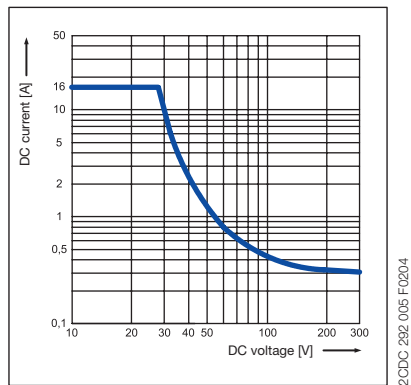
Technical data, Load limit curves

Type		CR-P...1	CR-P...2	CR-M...2	CR-M...3	CR-M...4	CR-U...2	CR-U...3
Environmental data								
Ambient temperature range	operation DC	-40 ... +85 °C			-40 ... +70 °C			
	operation AC	-40 ... +70 °C			-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					73/23/EEC			

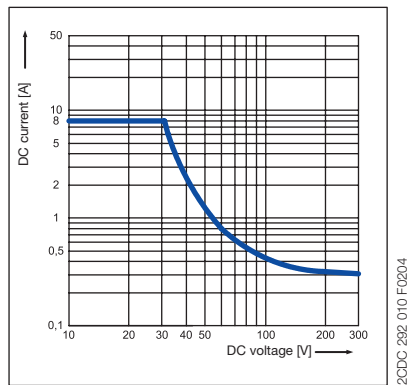
Approvals see page 5/6.

Load limit curves - Maximum switching power at resistive DC load

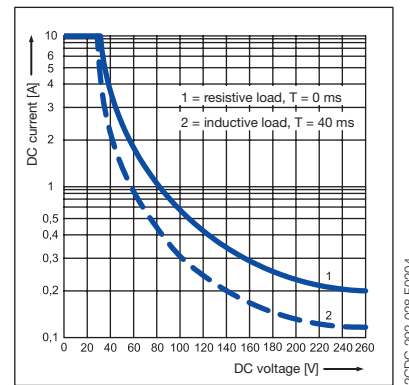
CR-P with 1 c/o contact



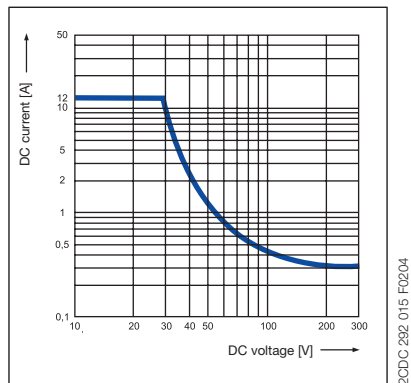
CR-P with 2 c/o contacts



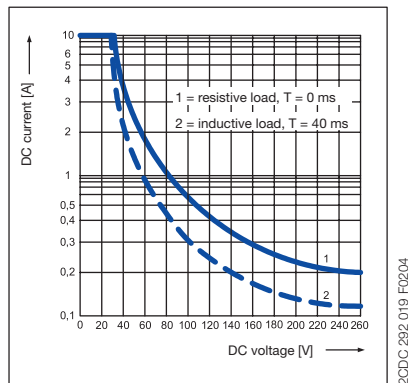
CR-U with 2 and 3 c/o contacts



CR-M with 2 c/o contacts



CR-M with 3 c/o contacts



CR-M with 4 c/o contacts

