

Pluggable interface relays

Technical data

6

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 _{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 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	-
Minmum 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 ⁵ switching cycles			> 10 ⁵ switching cycles		> 10 ⁵ switching cycles	
	cos φ	(16 A, 250 V)	(8 A, 250 V)	(12 A, 250 V)	(10 A, 250 V)	(6 A, 250 V)	(10 A, 250 V)	
		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		2.5 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

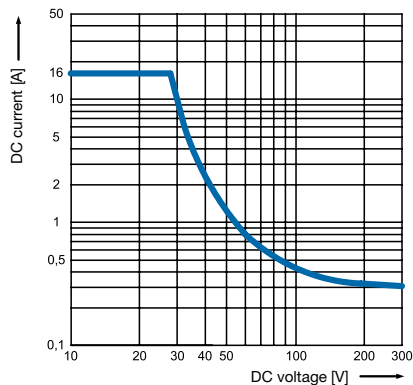
Interface relays
CR Range

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						

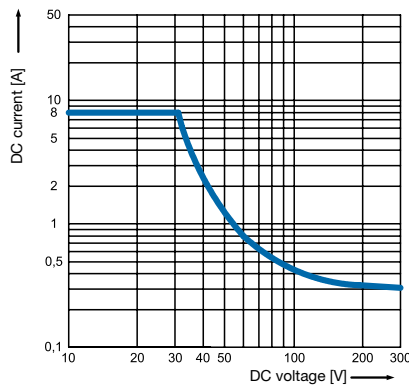
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Load limit curves - Maximum switching power at resistive DC load

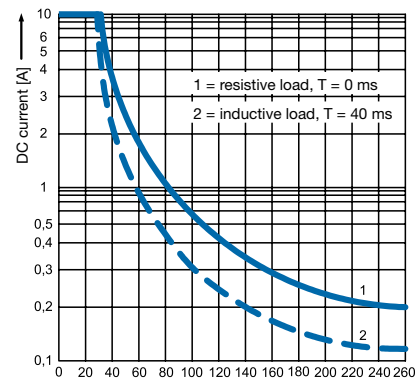
CR-P with 1 c/o contact



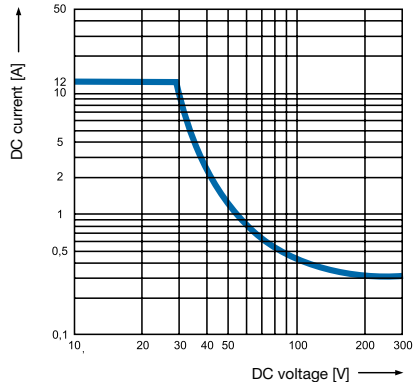
CR-P with 2 c/o contacts



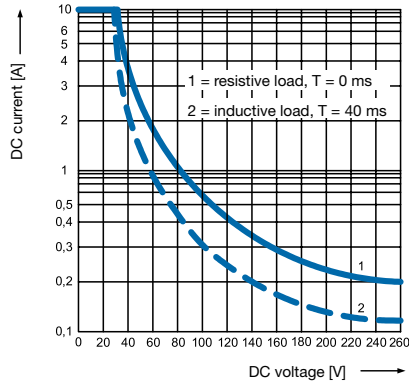
CR-U with 2 and 3 c/o contacts



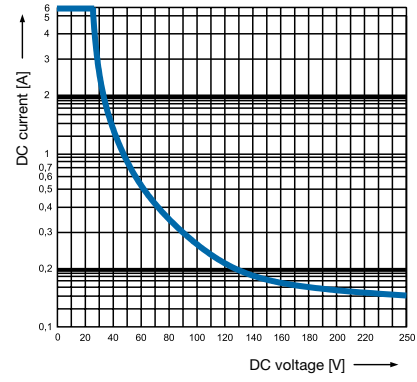
CR-M with 2 c/o contacts



CR-M with 3 c/o contacts



CR-M with 4 c/o contacts

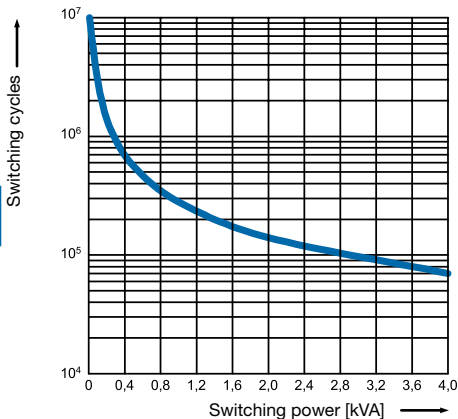


Pluggable interface relays Load limit curves

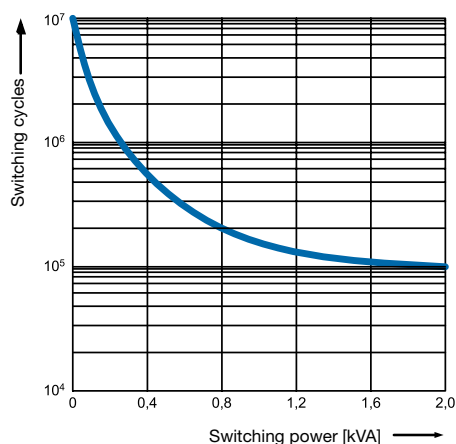
Load limit curves - Electrical lifetime at resistive AC load

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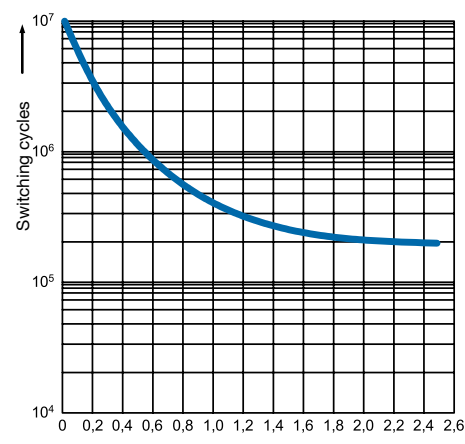
CR-P with 1 c/o contact



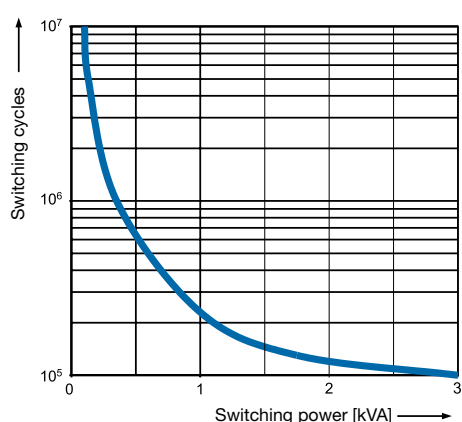
CR-P with 2 c/o contacts



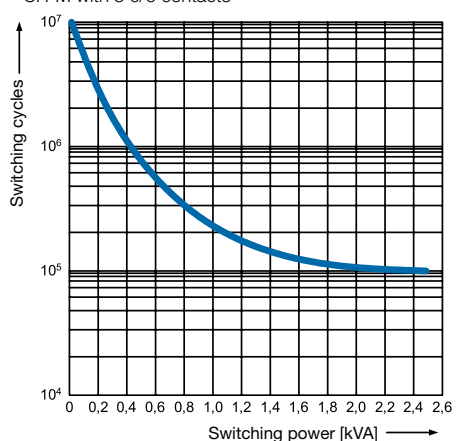
CR-U with 2 and 3 c/o contacts



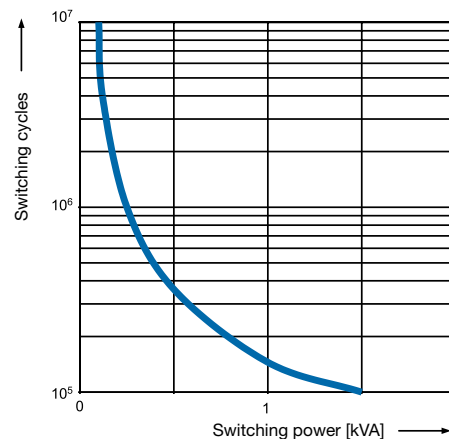
CR-M with 2 c/o contacts



CR-M with 3 c/o contacts

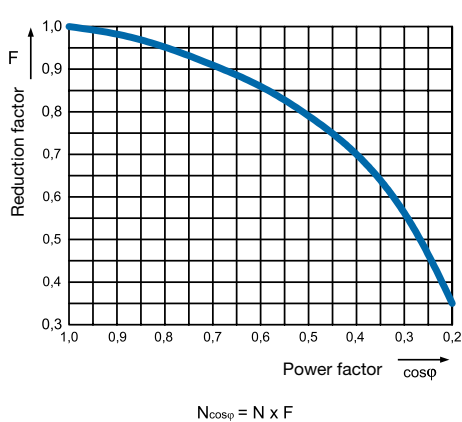


CR-M with 4 c/o contacts

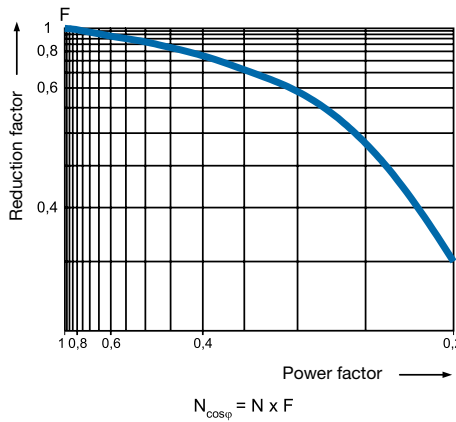


Reduction factor F at inductive AC load

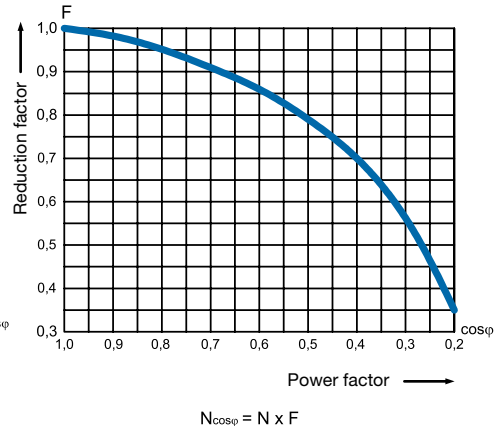
CR-P



CR-M



CR-U

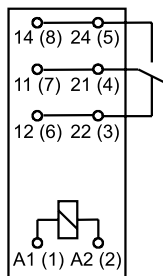


Pluggable interface relays

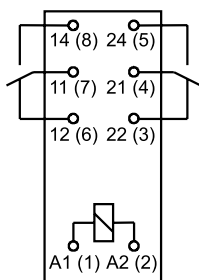
Connection diagrams

Interface relays
CR Range

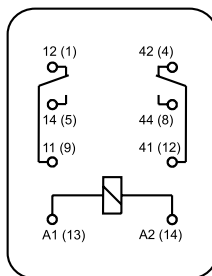
Connection diagrams



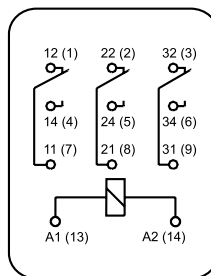
CR-P with 1 c/o contact



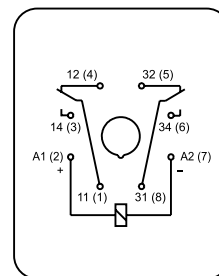
CR-P with 2 c/o contacts



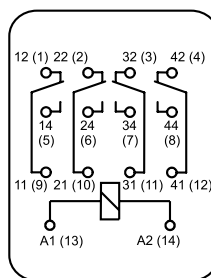
CR-M with 2 c/o contacts



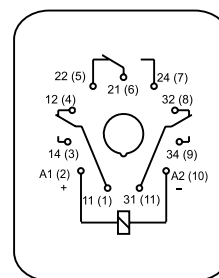
CR-M with 3 c/o contacts



CR-U with 2 c/o contacts

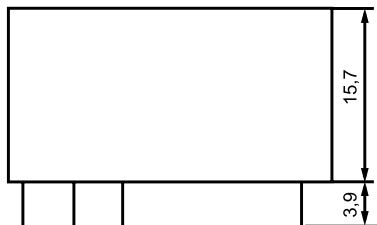
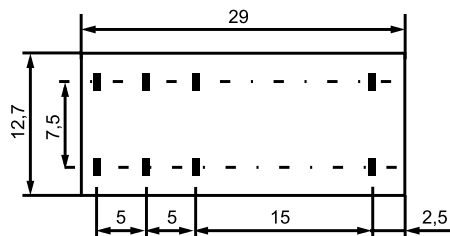


CR-M with 4 c/o contacts

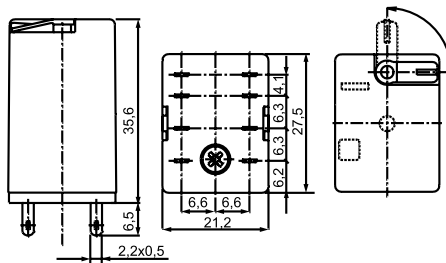


CR-U with 3 c/o contacts

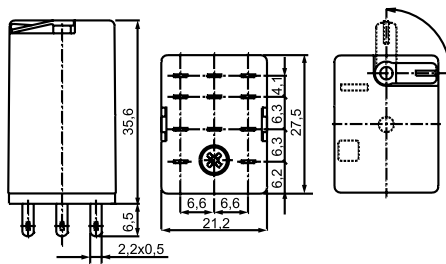
Dimensional drawings



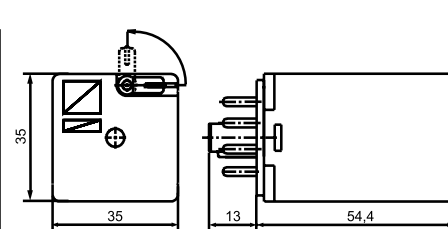
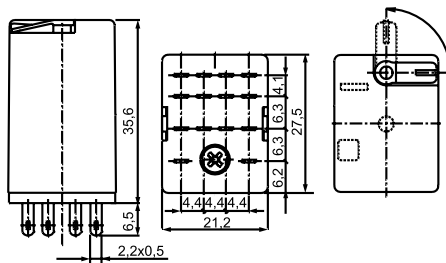
CR-P



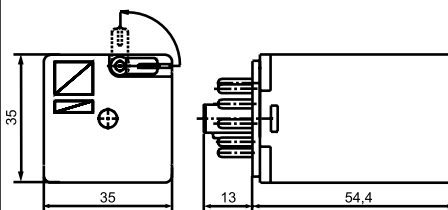
CR-M with 2 c/o contacts



CR-M with 3 c/o contacts



CR-U with 2 c/o contacts



CR-U with 3 c/o contacts

Dimensions in mm

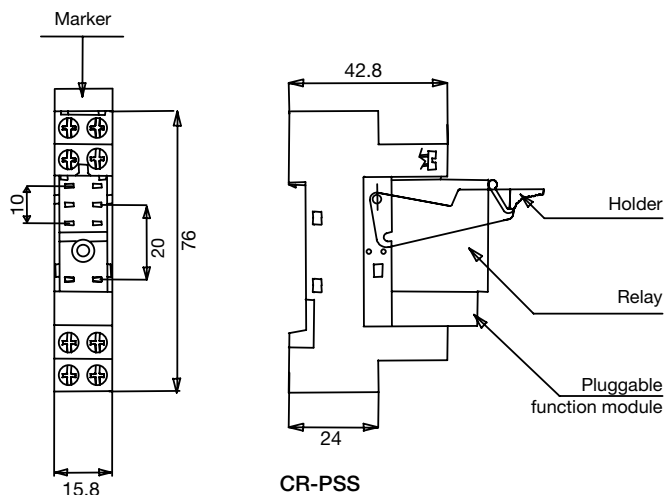
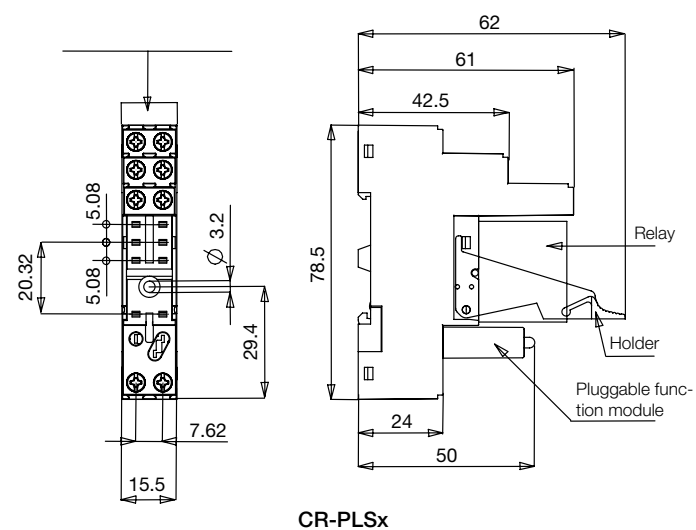
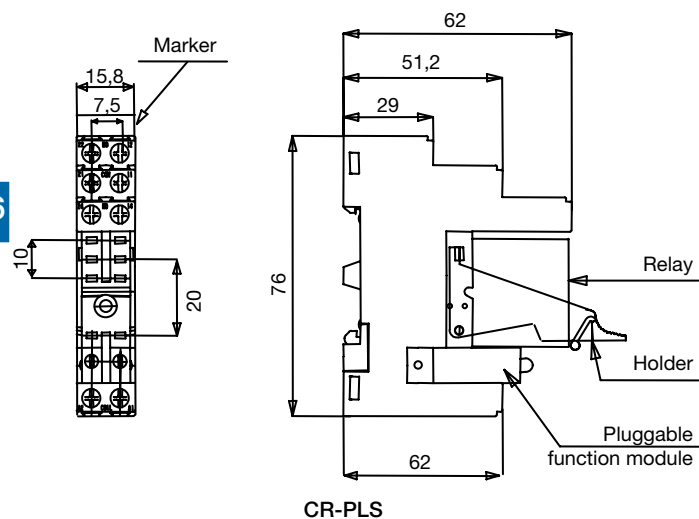
Pluggable interface relays

Approximate dimensions

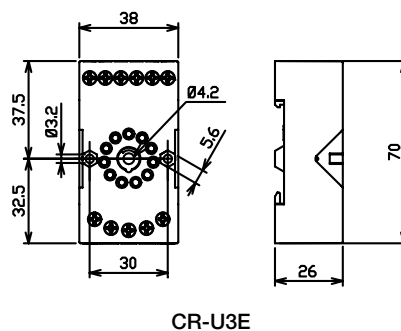
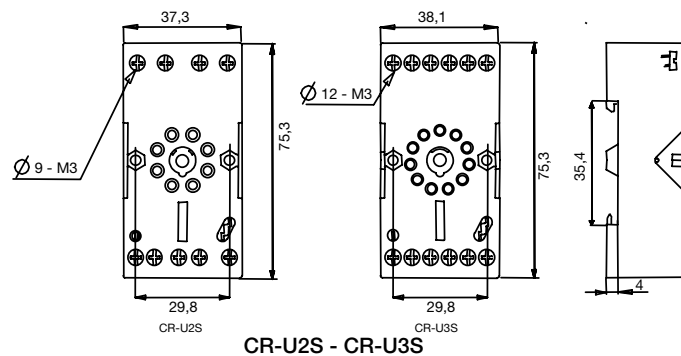
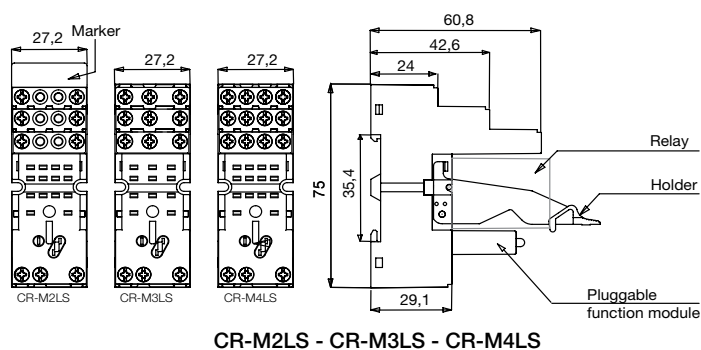
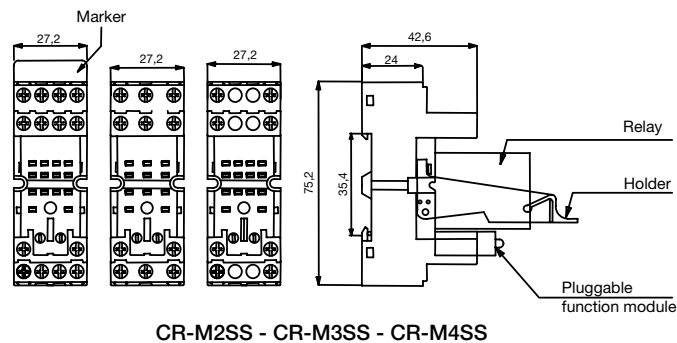
Dimensional drawings

Sockets for screw connection

6



Dimensions in mm

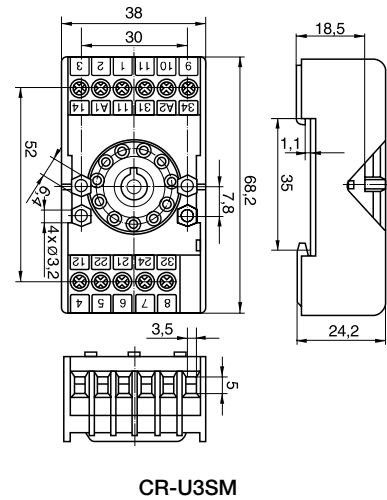
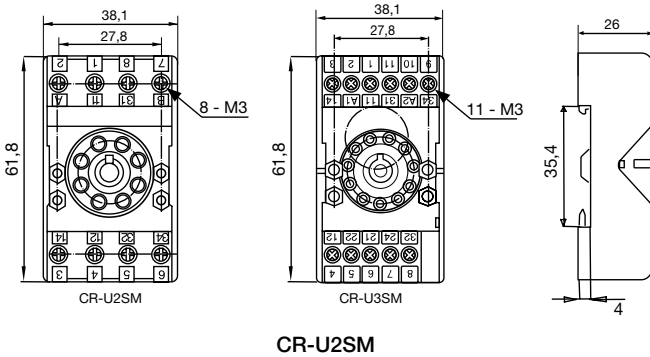


Pluggable interface relays Approximate dimensions

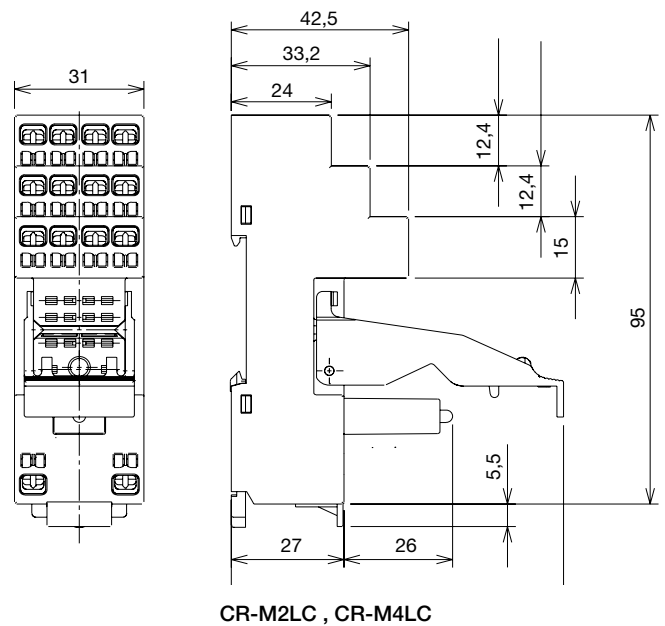
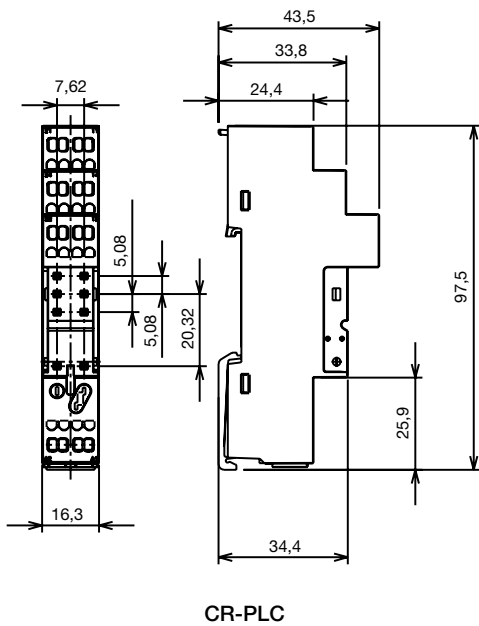
Interface relays
CR Range

Dimensional drawings

Dimensions in mm



Sockets for spring connection



Jumper

