SLOxCRA5

SL-series plug-in relay, 1NO **5A** (20A/10ms) / 350VDC
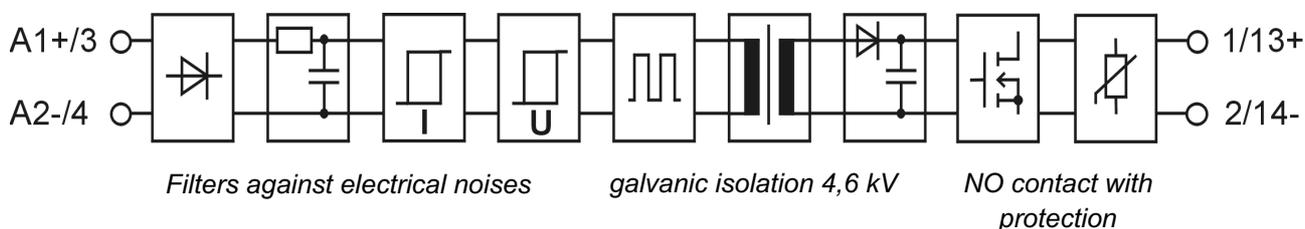
Typically used

- Control of **solenoid valves**
- High DC voltage applications such as:
  - Power network control equipment
  - Control systems for hydroelectric generators

Main features

- For resistive and inductive loads
- 10-year warranty
- MTTF (MIL-HDBK-217F) 137 years
- cULus Listed, CE (EMC and LVD)

Functional block diagram

A1+/3   1/13+

A2-/4   2/14-

Filters against electrical noises   galvanic isolation 4,6 kV   NO contact with protection

Main specifications

Breakdown voltage I/O	minimum	4600	VAC rms
Air/creepage distances I/O	minimum	8	mm
Capacitance I/O	typical	3	pF
Material of the casing	PBT	UL 94V-0	
Colour of the casing	Red		
Weight	typical	40	g
Temperature range:			
Storage	-40...+70		°C
Operation	-40...+70		°C

Electrical specifications (T_A = 25 °C)

Primary			5CRA5	12CRA5	24CRA5	48CRA5	120CRA5	220CRA5
Input voltage	nominal	VDC	5	12	24	48	120	220
Input current at nominal voltage	typical	mA	12	9	12	3,5	3,5	3,5
	maximum	mA	15	12	15	4	4	4
Input voltage range (abs.)	minimum	VDC	3	9	18	35	95	190
	maximum	VDC	7	18	32	60	140	265
Input impedance	typical	kΩ	0,42	1,3	2	13	34	63
Switch-on voltage *	typical	VDC	2,7	8	16	30	80	170
	maximum	VDC	3	9	18	35	95	190
Switch-off voltage	typical	VDC	2,5	7	14	25	60	120
	minimum	VDC	2	6	12	20	50	80

Ambient temperature (T_A) means the temperature immediate in vicinity of relays, where the air flow meets the relays.

Secondary (identical to all types)			
Load voltage	minimum	0	VDC
	nominal	350	VDC
	maximum	380	VDC
Load current	maximum	5	A
Load current	maximum	20	A (10 ms)
Voltage drop	typical	0,6	V (4 A)
Switch-on delay	typical	0,3	ms
	maximum	0,5	ms
Switch-off delay	typical	0,3	ms
	maximum	0,5	ms
Inductive load, L/R	maximum	5	ms (250 V, 5 A)
	maximum	50	ms (24 V, 5 A)
Leakage current (off-state)	maximum	1	mA

Limitations

| Ambient temperature (T_A)	Limitations *at allowed load*
-45 °C...+40 °C	No limitations
+40 °C...+55 °C	Only every other relay should be in on-state when assembled side by side.
+55 °C...+70 °C	If relays are most of the time on, there should be a gap in both sides at least 12,5 mm. Notice also the curve below.

Deratings

Allowed load is derated to 1/3 linearly from +30 ºC to +70 ºC ambient temperature. When relays are mounted together as a bank the maximum load current for long period of time should be restricted in total to 50 % of the current from the curve. I.e. all relays at 50 % load continuously or 50 % of the relays at 100 % load continuously or all relays at 100 % load 50 % of the time. This restriction does not apply if there is at least 12,5 mm gap between relays. These deratings apply when assembled to the horizontal rail. If a shroud is used there must be enough room for air circulation. Assembly to vertical rail is not recommended.

Derating curve for SLO -CRA5.

Delcon Oy
Veikkointie 4
FI-03100 NUMMELA
Finland   2

www.delcon.fi
sales@delcon.fi
Tel. +358 40 220 5823
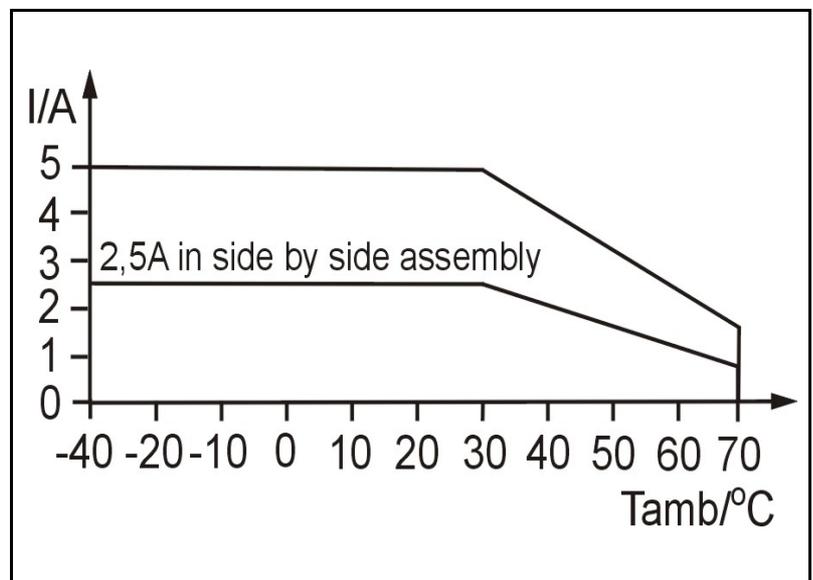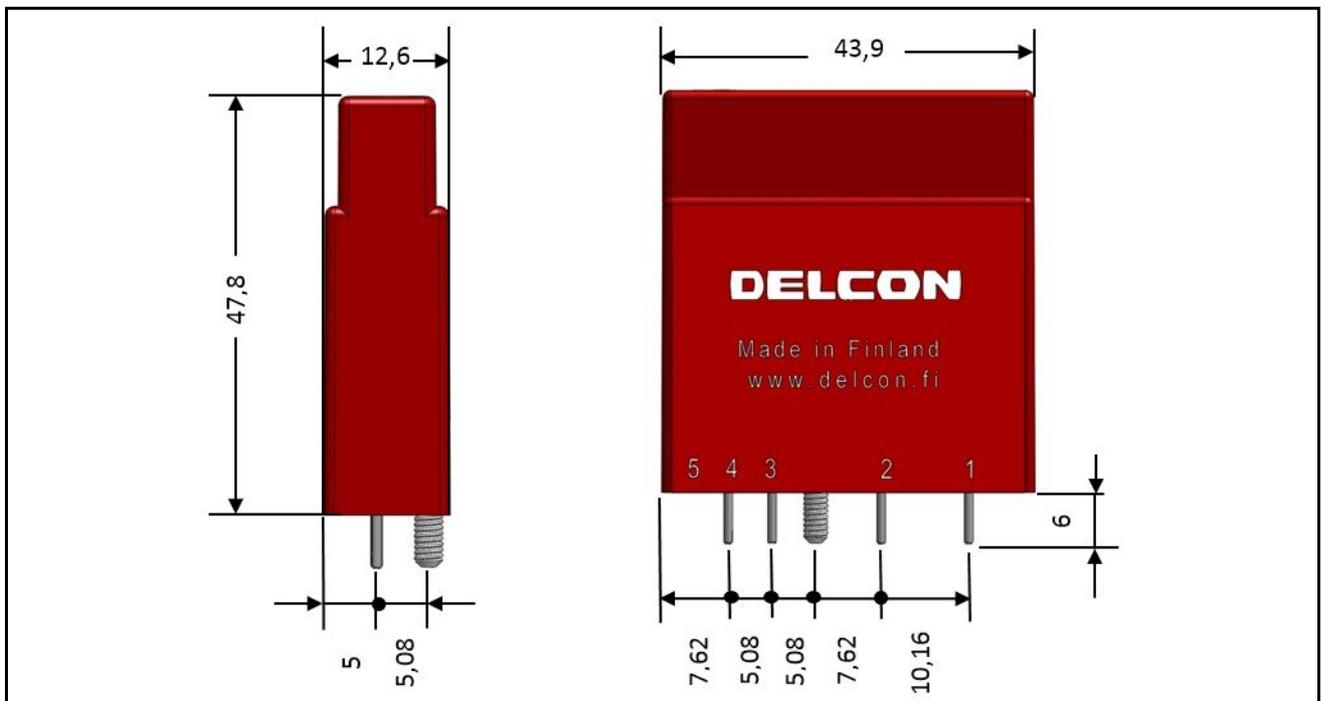
Derating when switching inductive loads

This relay is meant for resistive and inductive loads. The surge current is not allowed to exceed the specification. For reasons of heat dissipation, when the load will be switched frequently, the average current over a reasonable time should not exceed the specification for continuous operation.

L/R:
5 ms
10 ms
20 ms
50 ms
100 ms
200 ms

Derating curve for inductive loads.
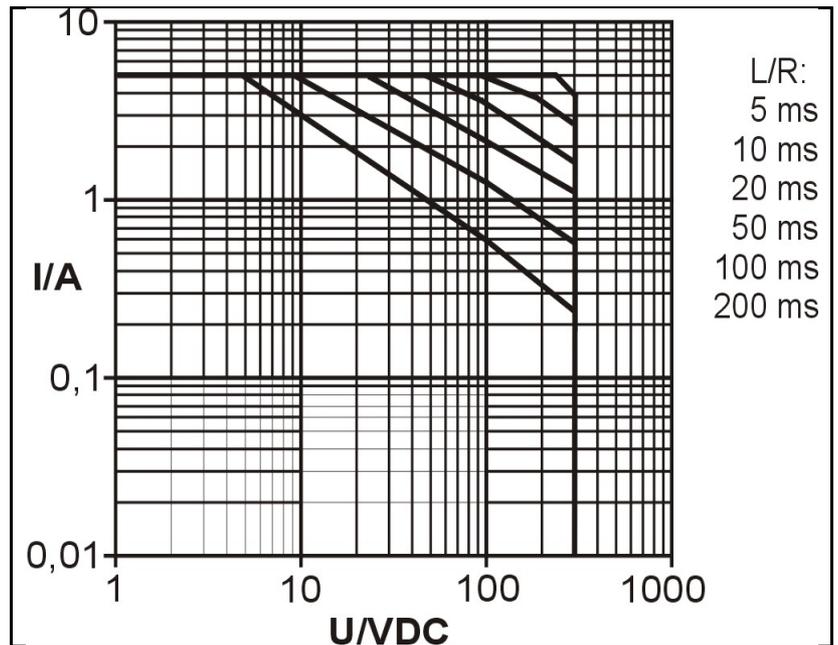
Assembling

All MOS 1... -mounting sockets. The recommended installation is to the horizontal rail for better cooling of the relays.

Mechanical dimensions

SLO-relay (plug-in), dimensions in mm, nominal.

c (UL) US LISTED 3HMB IND. CONT. EQ.	Certificate: E162828
CE	Fulfils main requirements of the EMC-directive 2004/108/EC. Fulfils requirements of the low voltage directive (LVD) 2006/95/EC.

Guarantee

This solid state I/O relay type made by Delcon Oy is guaranteed free from design and manufacturing defects for a period of 10 years from the manufacturing date. The guarantee liability is limited to replacement of defective material and related shipping charges. Defective products must be returned to the manufacturer for evaluation. This guarantee does not cover damage due to incorrect use or electrical overload.

Fusing

To protect relay against short circuit and overload a fast fuse with the correct rating for the load and the capacity of the relay should be chosen. Note that when overload current is not large it is possible that the fuse will not protect the relay because of the tolerance on the fuse rating.

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Veikkointie 4
FI-03100 NUMMELA
Finland

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sales@delcon.fi
Tel. +358 40 220 5823
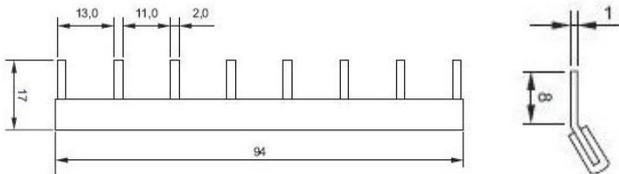
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Related products for SLOxxx relays

DIN-rail sockets for single relays

MOS 1GN   screw terminals
MOS 1CCN   spring terminals

Jumper bars for cross-connecting relays in parallel

JUMPER 8-13   Chaining Jumper for 8 relays
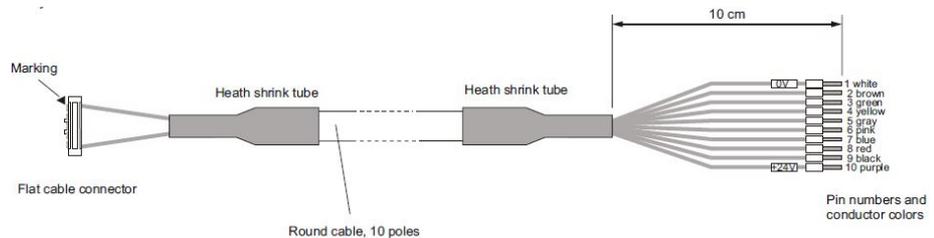**JUMPER 16-13**   Chaining Jumper for 16 relays

DIN-rail mounting bases with easy PLC connection

MBS 8BIOP   for 8 relays, screw terminals
MBS 8BIOPCC   for 8 relays, spring terminals

RC10X-xxx   applicable 10-pole round cable (xxx = length /cm, in 50 cm steps)
                      Connection to PLC with colour coded single wires with ferrules

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MBS 16BIOP   for 16 relays, screw terminals
MBS 16BIOPCC   for 16 relays, spring terminals

RC20X-xxx   applicable 20-pole round cable (xxx = length/cm, in 50 cm steps)
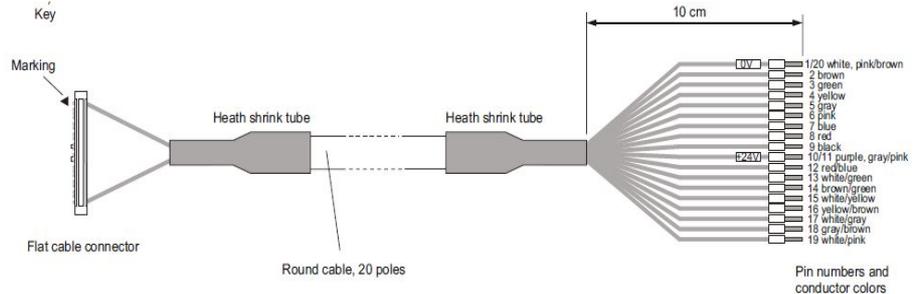Connection to PLC with colour coded single wires with ferrules

Key

Marking

Heath shrink tube   Heath shrink tube

10 cm

Flat cable connector

Round cable, 20 poles

0V   1/20 white, pink/brown
2 brown
3 green
4 yellow
5 gray
6 pink
7 blue
8 red
9 black
24V   10/11 purple, gray/pink
12 red/blue
13 white/green
14 brown/green
15 white/yellow
16 yellow/brown
17 white/gray
18 gray/brown
19 white/pink

Pin numbers and conductor colors

PCB sockets

PC0 1N

PCU 1N

Installed pin connectors:
4   3   2   1

Installed pin connectors:
5   4   3   2   1

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sales@delcon.fi
Tel. +358 40 220 5823