

# RA 5-1 Interface Relays



RA 5-1

1SBC 101 005 F0014

## Application

**RA 5-1** interface relay is designed to receive 24 V d.c. signals delivered by PLC's or other sources **with a low output power** and to restore them with **sufficient power** to operate the coils of the relevant **A 9 ... A 110** contactors or the **N...** contactor relays.

## Description

**RA 5-1** interface relay is made up of a miniature electromechanical relay equipped with a N.O. contact and with a low consumption 24 V d.c. coil.

The interface relay coil is controlled by the PLC while the N.O. contact ensures switching of the power contactor.

Coil switching gives rise to overvoltages which have adverse effects on the electronic devices, insulators and, more generally, on component lifetime. The RA 5-1 is equipped with surge suppressors:

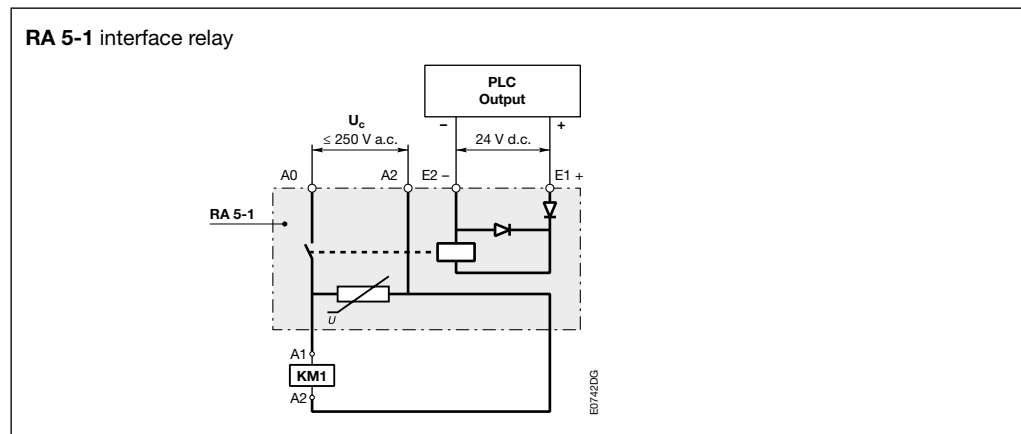
- on the 24 V d.c. relay coil via a diode,
- on the power contactor coil via a varistor.

Furthermore, the RA 5-1 is protected against relay pole reversal by a diode inserted between the E1 and E2 input terminals.

## Connection

The "E1+" and "E2-" input terminals must be connected, according to their polarity, to the PLC output.

The **RA 5-1** is equipped with two terminal pads for connection to the A1 and A2 terminals of the contactor coil. This coil is supplied between the A0 and A2 terminals of the RA 5-1.



## Mounting

Terminal pads clamped inside the contactor coil terminals.

## Ordering Details

For contactors	Coil voltages	Control voltage $U_c$	Type	Order code	Pack <sup>ing</sup> pieces	Weight kg 1 piece
A 9 ... A 110, N	24 ... 250 V / 50-60 Hz	24 V d.c.	RA 5-1	1SBN 060 300 R1000	1	0.050
			RA 5-1	1SBN 060 300 T1000	10	0.050

Notes: The interface relays provided for the A... contactors can be used for the UA, UA..RA and GA types.

# RA 5-1 Interface Relays

## Technical Data

### General technical data

<b>Compliance with standards</b>		IEC 60255-5
<b>Rated insulation voltage <math>U_i</math></b> according to IEC 60947-4-1	<b>V a.c.</b>	250
<b>Permissible ambient temperature:</b>		
– for free air operation:		
– at $U_c = 24$ V d.c. (between E1 and E2)	<b>°C</b>	-25 ... +70
– from 0.85 to 1.1 $U_c$	<b>°C</b>	-25 ... +55
– for storage	<b>°C</b>	-40 ... +70
<b>Climatic withstand</b>		Complies with that of associated contactors
<b>Operating altitude</b>	<b>m</b>	≤ 3000
<b>Mounting position</b>		No limitation
<b>Fixing</b>		Using the contactor A1 and A2 terminal connecting parts
<b>Connecting terminals</b> (delivered in open position)		M3.5 (+,-) pozidriv 2 screws with cable clamp
<b>Connecting capacity</b> (min. ... max.)		
– rigid solid	2 x mm <sup>2</sup>	1 ... 4
– flexible with cable end	2 x mm <sup>2</sup>	0.75 ... 2.5
<b>Tightening torque</b>		
– recommended	<b>Nm</b>	1.00
– max.	<b>Nm</b>	1.20
<b>Degree of protection</b> according to IEC 60947-1 / EN 60947-1 and IEC 60529 / EN 60529		Protection against direct contact in acc. with EN 50274 RA5-1 wired and mounted on the associated contactor

### Working data

<b>Surge suppression:</b>		
– for contactor coil		Varistor
– for interface relay coil		Diode
<b>Protection against polarity reversal between terminals E1 and E2</b>		Diode
<b>Interface relay operating time</b>	<b>ms</b>	Closing and drop-out ≤ 10
<b>Total operating time, interface relay + contactor:</b>		
– between energization and:		
N.O. contact closing	<b>ms</b>	20 ... 37
N.C. contact opening	<b>ms</b>	17 ... 32
– between de-energization and:		
N.O. contact opening	<b>ms</b>	17 ... 25
N.C. contact closing	<b>ms</b>	20 ... 28

### Electrical input data

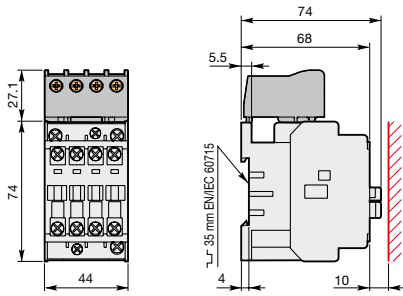
<b>Control voltage</b> (E1 and E2 terminals) $U_c$		
– rated value	<b>V d.c.</b>	24
– max. range at ambient temperature 20 °C	<b>V d.c.</b>	19 ... 30
<b>Max. consumption</b> for $U_c = 24$ V d.c., $\theta = 20$ °C	<b>W</b>	0.3
<b>"0" status</b> (relay open) for $U_c$	<b>V d.c.</b>	≤ 2.4
or $I_c$	<b>mA</b>	< 1
<b>"1" status</b> (relay closed) for $U_c$	<b>V d.c.</b>	≥ 19
<b>Max. short supply interruption immunity time</b>	<b>ms</b>	2

### Electrical output data

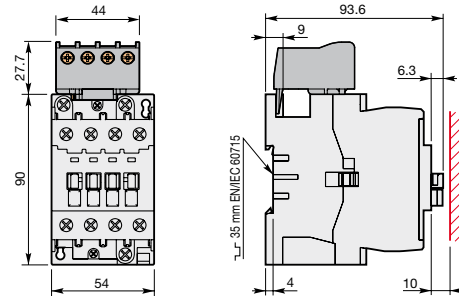
<b>Switching voltage</b> (A0 and A2 terminals)	<b>V a.c.</b>	≤ 250
<b>Electrical durability</b> million of operating cycles		2 (600 cycles/h) on A 9 ... A 75 contactors or N... contactor relay 0.5 (600 cycles/h) on A 95 and A 110 contactors

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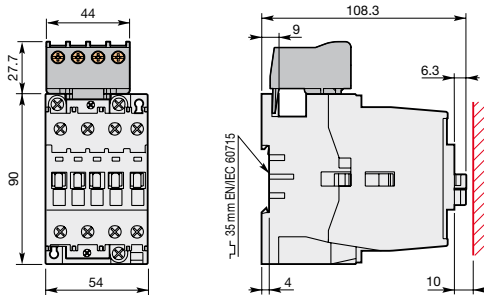
## Dimensions



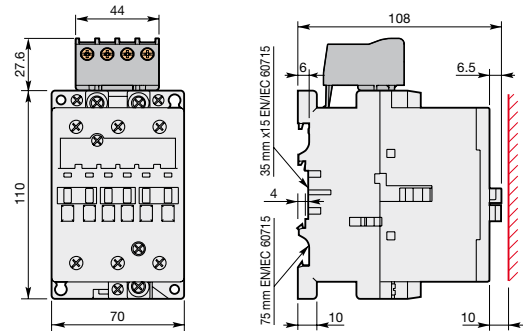
3-pole A 9, A 12 and A 16 contactors,  
4-pole A9 and A16 contactors, N... contactor relays  
+ RA 5-1 interface relay



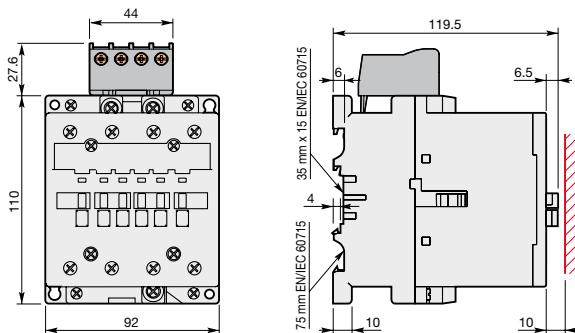
3-pole and 4-pole A 26 contactors  
+ RA 5-1 interface relay



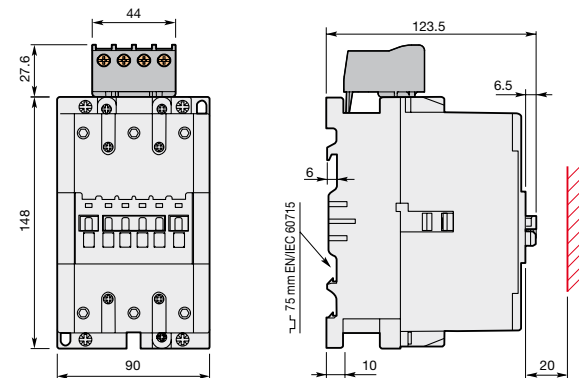
3-pole A 30 and A 40 contactors  
+ RA 5-1 interface relay



3-pole A 50, A 63 and A 75 contactors  
+ RA 5-1 interface relay



4-pole A 45, A 50 and A 75 contactors  
+ RA 5-1 interface relay



3-pole A 95 and A 110 contactors  
+ RA 5-1 interface relay