

# RA4 interface relays



RA4

1SBN01065V0014

## Description

RA4 interface relay is designed to receive 24 V DC 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 AF09 ... AF96 contactors or the NF contactor relays. RA4 interface relay is made up of a miniature electromechanical relay equipped with a N.O. contact and with a low consumption 24 V DC 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 RA4 is protected from surge thanks to the built-in surge protection of AF09 ... AF96. Furthermore, the RA4 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 RA4 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 RA4.

## Mounting

Remove the coil terminal block from the contactor and clip the interface relay without any screwing operation.

## Ordering details

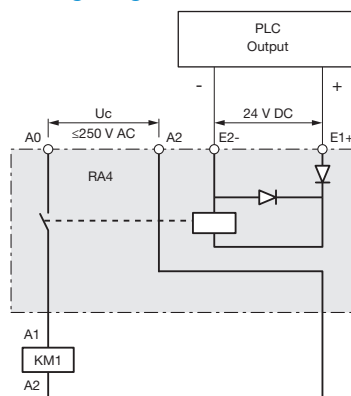
For contactors <sup>1)</sup>	Coil voltages <sup>2)</sup>	Rated control circuit voltage Uc	Catalog number	Global code	Pkg qty	Weight (1 pce)
	V AC 50/60 Hz	V DC				kg
AF09 ... AF96	24 ... 250	24	AF-RA4	1SBN060100R1000	1	0.040
NF			AF-RA4-T <sup>3)</sup>	1SBN060100T1000	10	0.040

<sup>1)</sup> LDC4 additional terminal blocks and CAT4 auxiliary contact blocks not suitable with RA4.

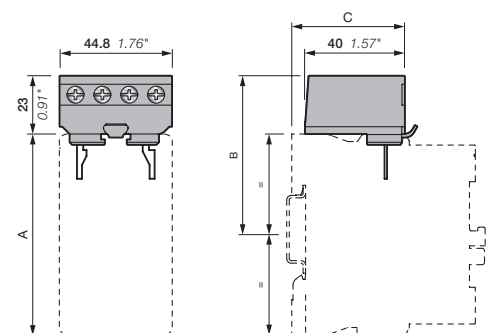
<sup>2)</sup> Main use with contactor coils 41, 11, 12, 13.

<sup>3)</sup> On request. Please contact your ABB local sales organization

## Wiring diagram



## Main dimensions mm, inches



RA4 mounted on	AF09 ... AF38	AF40 ... AF96
A	80 mm / 3.15"	119.5 mm / 4.70"
B	63 mm / 2.48"	83 mm / 3.27"
C	45 mm / 1.77"	40 mm / 1.57"





# RA4 interface relays

## Technical data

### Utilization characteristics according to IEC

Type	RA4
Standards	IEC 60947 5-1
Rated insulation voltage $U_i$ acc. to IEC 60947 5-1	250 V AC 50/60 Hz
Ambient air temperature	
In free air operation	at $U_c = 24$ V DC (between E1 and E2) from 0.85 to 1.1 x $U_c$
Storage	
Climatic withstand	Category B according to IEC 60947-1 Annex Q
Maximum operating altitude	≤3000 m
Mounting positions	Mounting positions 1, 1 ±30°, 2, 3, 4, 5

### Connecting characteristics

Connection capacity (min. ... max.)		
 Rigid solid	1 x	1 ... 2.5 mm <sup>2</sup>
	2 x	1 ... 2.5 mm <sup>2</sup>
 Flexible with non insulated ferrule	1 x	0.75 ... 2.5 mm <sup>2</sup>
	2 x	0.75 ... 2.5 mm <sup>2</sup>
 Flexible with insulated ferrule	1 x	0.75 ... 2.5 mm <sup>2</sup>
	2 x	0.75 ... 1.5 mm <sup>2</sup>
 Lugs	L <	8 mm
Connection capacity acc. to UL/CSA	1 or 2 x	AWG 18 ... 14
Stripping length		10 mm
Tightening torque		1.2 Nm / 11 lb.in
Degree of protection acc. to IEC 60947-1 / EN 60947-1 and IEC 60529 / EN 60529		IP20 protection against direct contact in acc. with EN 50274 RA4 wired and mounted on the associated contactor
Screw terminals		Delivered in open position
All terminals		M3.5
Screwdriver type		Flat Ø 5.5 / Pozidriv 2

### Working data

Surge suppression		Included inside AF built-in surge protection
For interface relay coil		
Protection against polarity reversal between terminals E1 and E2		Diode
Interface relay operating time		Closing and drop-out ≤10 ms
Total operating time		
interface relay + contactor (1)		
Between energization and:	N.O. contact closing	42 ... 95 ms (AF09 ... AF38, NF) 44 ... 105 ms (AF40 ... AF96)
	N.C. contact opening	40 ... 90 ms (AF09 ... AF38, NF) 40 ... 100 ms (AF40 ... AF96)
Between de-energization and:	N.O. contact opening	15 ... 57 ms (AF09 ... AF38, NF) 21 ... 107 ms (AF40 ... AF96)
	N.C. contact closing	17 ... 60 ms (AF09 ... AF38, NF) 23 ... 112 ms (AF40 ... AF96)

(1) For contactor coils 41, 11, 12, 13.

### Electrical input data

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

### Electrical output data

Switching voltage (A0 and A2 terminals)	≤250 V AC
Electrical durability	
Switching frequency	600 cycles/h
Number of operating cycles	2 million operating cycles