



## Main

Range of product	Interface for discrete signals
Product or component type	Slim electromechanical output interface module
Contacts type and composition	1 NO
[Uc] control circuit voltage	24 V
Control circuit type	DC
Width pitch dimension	12 mm
[In] rated current	<= 28 mA
Reverse polarity protection	With for yes
Short circuit protection	6.3 A external fuse fast blow (Ik <= 1 kA AC and Ik <= 100 A DC)
[Ith] conventional free air thermal current	5 A conforming to IEC 60947-1
Local signalling	Green mechanical indicator for position of contacts and 1 green LED control signal state
Sale per indivisible quantity	5

## Complementary

Control voltage limits	28.8 V energization threshold: 16.9 V
Connections - terminals	Screw clamp terminal
Drop-out voltage	<= 3.8 V
Holding current	2 mA
Power dissipation in W	0.64 W
Maximum switching voltage	250 V AC 150 V DC
[Ue] rated operational voltage	<= 230 V AC conforming to IEC 60947-5-1 <= 120 V DC conforming to IEC 60947-5-1
Network frequency	50/60 Hz
[Ie] rated operational current	1.7 A DC-12 Ue: 24 V per 1000000 cycles conforming to IEC 60947-5-1 1.5 A DC-13 Ue: 24 V per 1000000 cycles conforming to IEC 60947-5-1 3 A AC-12 Ue: 230 V per 1000000 cycles conforming to IEC 60947-5-1 1 A AC-15 Ue: 230 V per 1000000 cycles conforming to IEC 60947-5-1 1 A AC-14 Ue: 230 V per 1000000 cycles conforming to IEC 60947-5-1
Minimum switching current	5 mA
Minimum switching voltage	5 V
Electrical reliability	<= 0.00000001
Operating time	<= 12 ms between de-energisation of coil and closing of NO contact DC <= 10 ms between energisation of coil and closing of NO contact DC
Contact bounce time	<= 5 ms
Operating rate in Hz	0.5 Hz at Ie 10 Hz at no-load
Mechanical durability	>= 10000000 cycles
[Ui] rated insulation voltage	300 V conforming to IEC 60947-1 250 V conforming to VDE 0110 group C
Flame retardance	V0 conforming to UL 94
Cable cross section	0.6...2.5 mm <sup>2</sup> , 1 or 2 wires flexible without cable end 0.34...2.5 mm <sup>2</sup> , 1 or 2 wires flexible with cable end 0.27...4 mm <sup>2</sup> , 1 wire rigid
Operating position	Any position

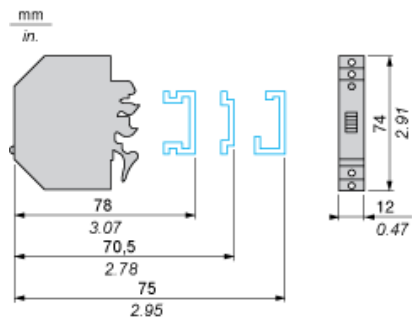
Installation category	II conforming to IEC 60947-1
Mounting support	Asymmetrical DIN rail Combination rail Symmetrical DIN rail
Product weight	0.041 kg

## Environment

Immunity to microbreaks	1 ms
Dielectric strength	4000 V for 1 minute between coil circuit and contact circuits 2500 V for 1 minute between wired interface and earth 1000 V for 1 minute between open contacts
Standards	IEC 60947-5-1
Product certifications	BV CSA DNV LROS (Lloyds register of shipping) UL
IP degree of protection	IP20 conforming to IEC 60529
Protective treatment	TC
Fire resistance	960 °C conforming to IEC 60695-2-1
Shock resistance	30 gn for 11 ms conforming to IEC 60068-2-27
Vibration resistance	3 gn (f = 10...150 Hz) conforming to IEC 60068-2-6
Electromagnetic compatibility	Fast transients immunity test level 3, on power supply 2 kV conforming to IEC 61000-4-4 Fast transients immunity test level 3, on input/output 1 kV conforming to IEC 61000-4-4 Electrostatic discharge immunity test level 3, 8 kV conforming to IEC 61000-4-2 Electromagnetic field immunity test level 3, 10 V/m between 27...1000 MHz conforming to IEC 61000-4-3 1.2/50 µs shock waves immunity test, 2.5 kV for U < 300 V conforming to IEC 60947-1 1.2/50 µs shock waves immunity test, 1.5 kV for U < 150 V conforming to IEC 60947-1 1.2/50 µs shock waves immunity test, 0.5 kV for U < 50 V conforming to IEC 60947-1
Ambient air temperature for operation	-5...55 °C from 0.85...1.1 Us -5...40 °C unrestricted operation -25...70 °C at Us with 8 mm space between ABR2S1... -25...55 °C at Us
Ambient air temperature for storage	-40...80 °C
Operating altitude	<= 3000 m
Pollution degree	2 conforming to IEC 60947-1

Slim Electromechanical Interface Module

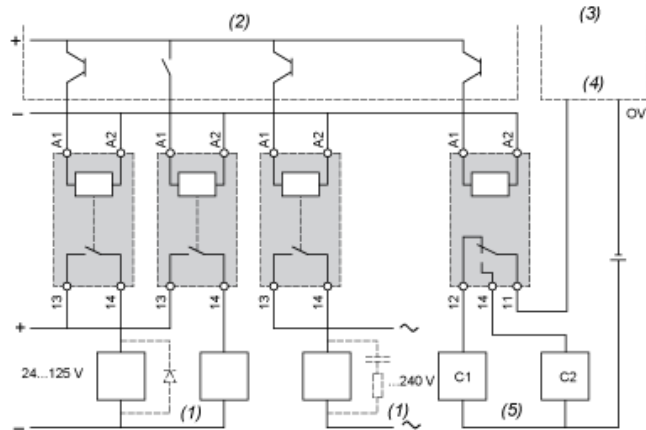
Dimensions



Slim Electromechanical Interface Module

Example of Application with PLC

Interfacing PLC discrete outputs



ABR 2S\*\*\*\*

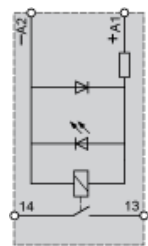
ABR 2SB12B

- (1) Essential on inductive loads (can be replaced with peak limiter)
- (2) PLC positive logic transistor (or relay) outputs
- (3) PLC analog inputs
- (4) Channel X
- (5) Analog sensors

Slim Electromechanical Interface Module

Circuit Diagram

1 N/O

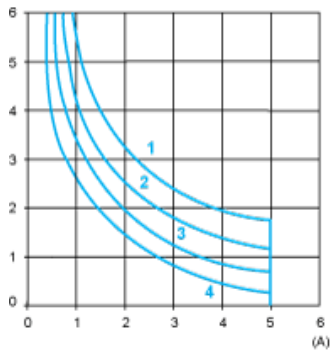


Electrical Durability of Contacts

AC Loads

Test conditions: in accordance with standard IEC 947-5-1 set up for rated control voltage.

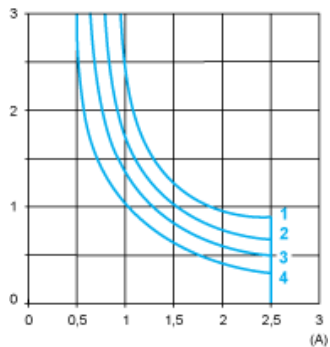
AC-12 operating cycles in millions



AC-12 Control of resistive loads and isolated solid state loads via optocoupler ( $\cos \phi \geq 0.9$ )

- (1) 24 V
- (2) 48 V
- (3) 115 V
- (4) 230 V

AC-14 and AC-15 operating cycles in millions



AC-14 Control of weak electro-magnetic loads of electro-magnets  $\leq 72$  VA (make:  $\cos \phi = 0.3$ , break:  $\cos \phi = 0.3$ )

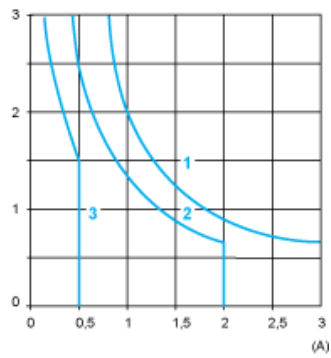
AC-15 Control of electro-magnetic loads of electro-magnets  $> 72$  VA (make:  $\cos \phi = 0.7$ , break:  $\cos \phi = 0.4$ )

- (1) 24 V
- (2) 48 V
- (3) 115 V
- (4) 230 V

DC Loads

Test conditions: in accordance with standard IEC 947-5-1 set up for rated control voltage.

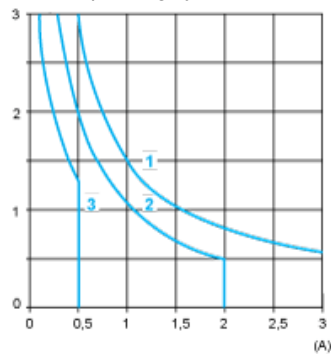
DC-12 operating cycles in millions



DC-12 Control of resistive loads and isolated solid state loads via optocoupler ( $L/R \leq 1$  ms)

- (1) 24 V
- (2) 48 V
- (3) 115 V

DC-13 operating cycles in millions



DC-13 Control of electro-magnets ( $L/R \leq 2 \times (U_e \times I_e)$  in ms, with  $U_e$ : rated operating voltage and  $I_e$ : rated operating current, with a load protection diode)

- (1) 24 V
- (2) 48 V
- (3) 115 V