

ABR1S111F

output interface module - 17.5 mm -
electromechanical - 110 V AC - 1 NO



Main

Range of product	Interface for discrete signals
Product or component type	Electromechanical output interface module
Contacts type and composition	1 NO
[Uc] control circuit voltage	115...127 V
Control circuit type	AC
Control circuit frequency	50/60 Hz
Width pitch dimension	17.5 mm
[In] rated current	<= 8 mA AC
Reverse polarity protection	Without, circuit application: yes
Short circuit protection	16 A external fuse gG (Ik <= 2.5 kA AC and Ik <= 100 A DC) 16 A external fuse gF (Ik <= 2.5 kA AC and Ik <= 100 A DC)
[Ith] conventional free air thermal current	12 A conforming to IEC 60947-1
Local signalling	Green mechanical indicator for position of contacts and 1 green LED control signal state

Complementary

Control voltage limits	140 V energization threshold: 86 V
Maximum switching voltage	125 V DC
Housing colour	Grey
Connections - terminals	Screw clamp terminal
Drop-out voltage	<= 34 V
Holding current	>= 2.4 mA AC
Power dissipation in W	<= 1.5 W
[Ue] rated operational voltage	<= 230 V AC conforming to IEC 60947-5-1 <= 125 V DC conforming to IEC 60947-5-1
Network frequency	50/60 Hz
[Ie] rated operational current	5 A DC-12 Ue: 24 V per 1000000 cycles conforming to IEC 60947-5-1 4 A AC-12 Ue: 230 V per 1000000 cycles conforming to IEC 60947-5-1 1 A DC-13 Ue: 24 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 1 A AC-13 Ue: 230 V per 1000000 cycles conforming to IEC 60947-5-1
Minimum switching current	3 mA
Minimum switching voltage	17 V
Electrical reliability	<= 0.00000001
Operating time	<= 12 ms between energisation of coil and closing of NO contact <= 12 ms between energisation of coil and closing of NC contact <= 12 ms between de-energisation of coil and closing of NO contact <= 12 ms between de-energisation of coil and closing of NC contact
Contact bounce time	<= 3 ms
Operating rate in Hz	<= 0.5 Hz at Ie <= 6 Hz at no-load
Mechanical durability	>= 20000000 cycles
[Ui] rated insulation voltage	250 V conforming to VDE 0110 group C 250 V conforming to IEC 60947-1
Flame retardance	V0 conforming to UL 94

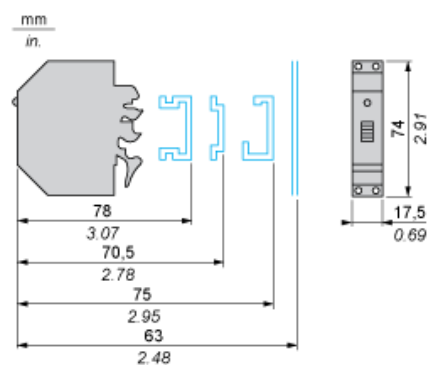
Cable cross section	0.6...2.5 mm ² , 1 or 2 wires flexible without cable end 0.34...2.5 mm ² , 1 or 2 wires flexible with cable end 0.27...4 mm ² , 1 wire rigid 0.27...2.5 mm ² , 2 wires rigid
Operating position	Any position
Installation category	II conforming to IEC 60947-1
Mounting support	Asymmetrical DIN rail Combination rail Symmetrical DIN rail
Product weight	0.095 kg

Environment

Immunity to microbreaks	6 ms
Dielectric strength	4000 V for 1 minute between coil circuit and contact circuits 2500 V for 1 minute between wired interface and earth 1500 V for 1 minute between independent 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	850 °C conforming to IEC 60695-2-1
Shock resistance	50 gn for 11 ms conforming to IEC 60068-2-27
Vibration resistance	6 gn (f = 10...55 Hz) conforming to IEC 60068-2-6
Electromagnetic compatibility	Rapid transients immunity test, on power supply 2 kV conforming to IEC 61000-4-4 Rapid transients immunity test, 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 1.2/50 ms shock waves immunity test, 0.5 kV for U < 50 V conforming to IEC 255-4 1.2/50 ms shock waves immunity test, 0.25 kV for U > 50 V conforming to IEC 255-4
Ambient air temperature for operation	-5...40 °C unrestricted operation -20...60 °C at Un
Ambient air temperature for storage	-40...70 °C
Operating altitude	<= 3000 m
Pollution degree	3 conforming to IEC 60947-5-1

Electromechanical Interface Module

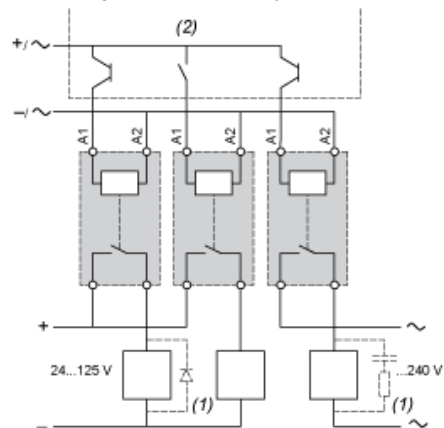
Dimensions



Electromechanical Interface Module

Example of Application with PLC

Interfacing PLC discrete outputs

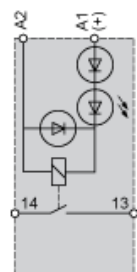


- (1) Essential on inductive loads (can be replaced with peak limiter)
- (2) PLC positive logic transistor (or relay) outputs

Interface with Mechanical Indication + LED

Circuit Diagram

1 N/O

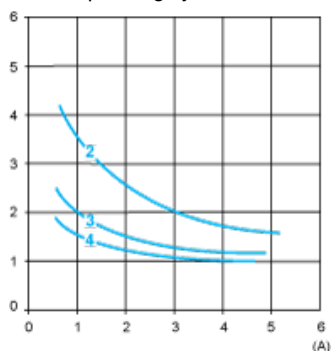


Electrical Durability of Contacts

AC Loads

Test conditions: in accordance with standard IEC 947-5-1 set up for rated control voltage, operating rate: 1800 cycles/hour. (0.5 Hz).

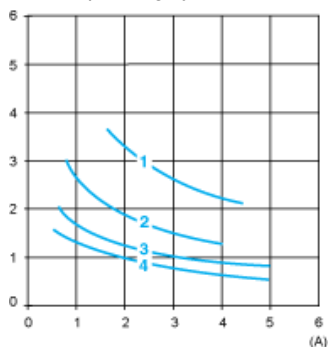
AC-12 operating cycles in millions



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) 127 V
- (4) 230 V

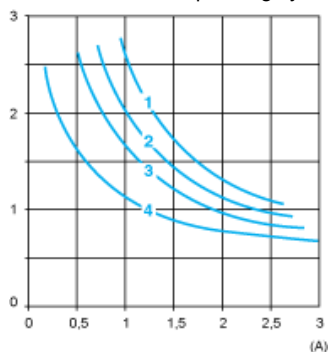
AC-13 operating cycles in millions



AC-13 Control of isolated solid state loads via transformer ($\cos \phi \geq 0.65$)

- (1) 24 V
- (2) 48 V
- (3) 127 V
- (4) 230 V

AC-14 and AC-15 operating cycles in millions



AC-14 Control of weak electromagnetic loads of electromagnets ≤ 72 VA (make: $\cos \phi = 0.3$, break: $\cos \phi = 0.3$)

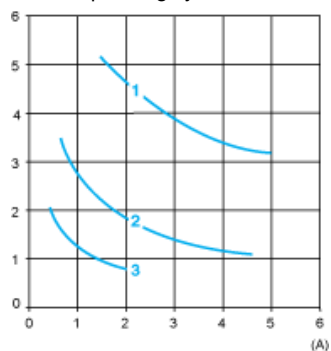
AC-15 Control of electromagnetic loads of electromagnets > 72 VA (make: $\cos \phi = 0.7$, break: $\cos \phi = 0.4$)

- (1) 24 V
- (2) 48 V
- (3) 127 V
- (4) 230 V

DC Loads

Test conditions: in accordance with standard IEC 947-5-1 set up for rated control voltage, operating rate: 1800 cycles/hour. (0.5 Hz).

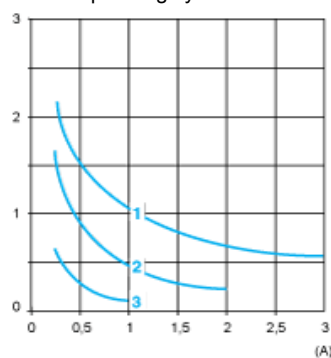
DC-12 operating cycles in millions



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) 127 V

DC-13 operating cycles in millions



DC-13 Control of electromagnets ($L/R \leq 2 \times (U_e \times I_e)$ in ms, with U_e : rated operating voltage and I_e : rated operating current)

- (1) 24 V
- (2) 48 V
- (3) 127 V