Product data sheet
Characteristics

ABR1S311F
output interface module - 17.5 mm - electromechanical - 110 V AC - 1 C/O

Main

Range of product	Interface for discrete signals
Product or component type	Electromechanical output interface module
Contacts type and composition	1 C/O
[Uc] control circuit voltage	115...127 V
Control circuit type	AC
Control circuit frequency	50/60 Hz
Width pitch dimension	17.5 mm
Maximum [In] rated current	8 mA AC
Reverse polarity protection	Without
Short-circuit protection	16 A external fuse gF (Ik <= 2.5 kA AC and Ik <= 100 A DC) 16 A external fuse gG (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 circuit 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
Minimum holding current	2.4 mA AC
Maximum power dissipation in W	1.5 W
[Ue] rated operational voltage	<= 125 V DC conforming to IEC 60947-5-1 <= 230 V AC conforming to IEC 60947-5-1
Network frequency	50/60 Hz
[Ie] rated operational current	1 A AC-13 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-15 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 4 A AC-12 Ue: 230 V per 1000000 cycles conforming to IEC 60947-5-1 5 A DC-12 Ue: 24 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 de-energisation of coil and closing of NC contact <= 12 ms between de-energisation of coil and closing of NO contact <= 12 ms between energisation of coil and closing of NC contact <= 12 ms between energisation of coil and closing of NO contact
Contact bounce time	<= 3 ms
Operating rate in Hz	6 Hz at no-load 0.5 Hz at Ie
Mechanical durability	10000000 cycles
[Ui] rated insulation voltage	250 V conforming to IEC 60947-1 250 V conforming to VDE 0110 group C

Flame retardance	V0 conforming to UL 94
Cable cross section	0.34…2.5 Mm², 1 or 2 wires flexible with cable end 0.6…2.5 Mm², 1 or 2 wires flexible without cable end 0.27…2.5 Mm², 2 wires rigid 0.27…4 mm², 1 wire rigid
Operating position	Any position
Installation category	II conforming to IEC 60947-1
Mounting support	Asymmetrical DIN rail Symmetrical DIN rail Combination rail
Net weight	0.095 kg

Environment

Immunity to microbreaks	6 ms
Dielectric strength	1500 V for 1 minute between independent contacts 2500 V for 1 minute between wired interface and earth 4000 V for 1 minute between coil circuit and contact circuits
Standards	IEC 60947-5-1
Product certifications	DNV BV CSA 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 conforming to IEC 60068-2-6 (f = 10…55 Hz)
Electromagnetic compatibility	1.2/50 ms shock waves immunity test conforming to IEC 255-4 Electrostatic discharge immunity test, level 3 8 kV conforming to IEC 61000-4-2 Rapid transients immunity test on input/output 1 kV conforming to IEC 61000-4-4 Rapid transients immunity test on power supply 2 kV conforming to IEC 61000-4-4
Ambient air temperature for operation	-20…60 °C at Un -5…40 °C unrestricted operation
Ambient air temperature for storage	-40…70 °C
Operating altitude	<= 3000 m
Pollution degree	3 conforming to IEC 60947-5-1

Packing Units

Package 1 Weight	0.096 kg
Package 1 Height	0.770 dm
Package 1 width	0.220 dm
Package 1 Length	0.750 dm

Offer Sustainability

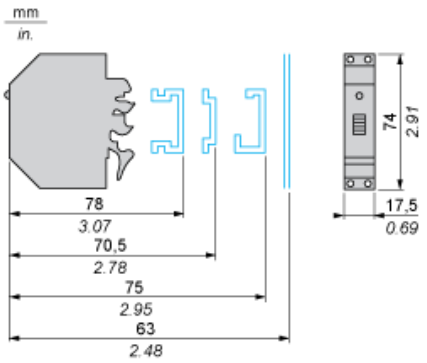
Sustainable offer status	Green Premium product
REACh Regulation	REACh Declaration
EU RoHS Directive	Pro-active compliance (Product out of EU RoHS legal scope) EU RoHS Declaration
Mercury free	Yes
RoHS exemption information	Yes
China RoHS Regulation	China RoHS Declaration
Environmental Disclosure	Product Environmental Profile
WEEE	The product must be disposed on European Union markets following specific waste collection and never end up in rubbish bins

Contractual warranty

Warranty	18 months

Electromechanical Interface Module

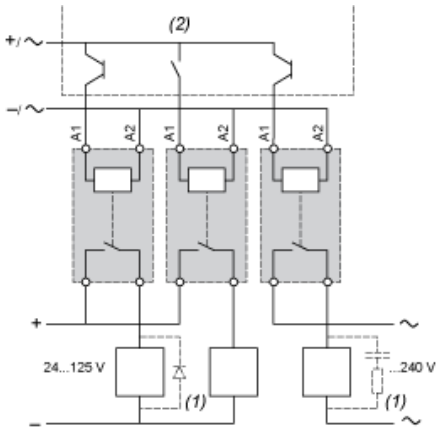
Dimensions



Electromechanical Interface Module

Example of Application with PLC

Interfacing PLC discrete outputs

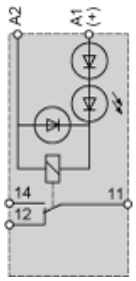


(1) Essential on inductive loads (can be replaced with peak limiter)
(2) PLC positive logic transistor (or relay) outputs

Interface with Mechanical Indication + LED

Circuit Diagram

1 C/O

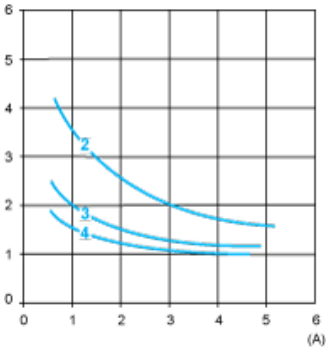


Electrical Durability of Contacts

AC Loads

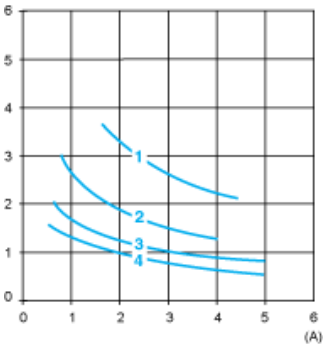
Test conditions: in accordance with standard IEC 947-5-1 set up for rated control voltage, operating rate: 1800 cycles/hour. (0.5 Hz).

AC-12 operating cycles in millions



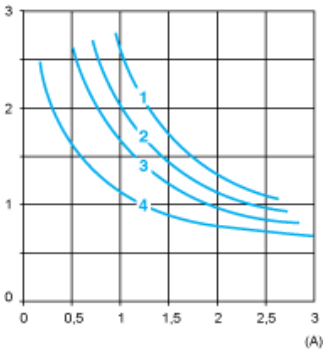
AC-12 Control of resistive loads and isolated solid state loads via optocoupler (cos ϕ ≥ 0.9)
(1) 24 V
(2) 48 V
(3) 127 V
(4) 230 V

AC-13 operating cycles in millions



AC-13 Control of isolated solid state loads via transformer (cos ϕ ≥ 0.65)
(1) 24 V
(2) 48 V
(3) 127 V
(4) 230 V

AC-14 and AC-15 operating cycles in millions

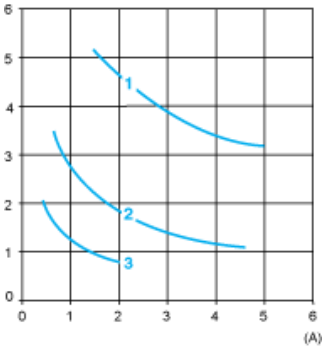


AC-14 Control of weak electromagnetic loads of electromagnets ≤ 72 VA (make: cos ϕ = 0.3, break: cos ϕ = 0.3)
AC-15 Control of electromagnetic loads of electromagnets > 72 VA (make: cos ϕ = 0.7, break: cos ϕ =0.4)
(1) 24 V
(2) 48 V
(3) 127 V
(4) 230 V

DC Loads

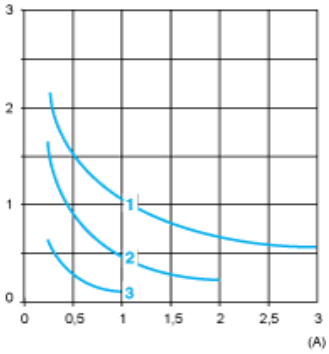
Test conditions: in accordance with standard IEC 947-5-1 set up for rated control voltage, operating rate: 1800 cycles/hour. (0.5 Hz).

DC-12 operating cycles in millions



DC-12: Control of resistive loads and isolated solid state loads via optocoupler (L/R ≤ 1 ms)
(1) 24 V
(2) 48 V
(3) 127 V

DC-13 operating cycles in millions



DC-13: Control of electromagnets (L/R ≤ 2 x (Ue x Ie) in ms, with Ue: rated operating voltage and Ie: rated operating current)
(1) 24 V
(2) 48 V
(3) 127 V