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Analog Relay Board ARB2

ARB2-X-XXXX

Gas measuring and warning controller board based on state-of-the-art technology for continuous monitoring of the ambient air to detect toxic, combustible and refrigerants gases.

The ARB2 is designed for the connection of one 4-20 mA analog sensor with increasing gas signal (nor for oxygen), e.g. of the µGard®2 MC2 series. The board monitors the measured value and activates the alarm relays if the set alarm thresholds for pre-alarm and main alarm are exceeded. In addition, the value is provided at the analog output as 4-20 mA signal.

Options such as LCD display and warning unit (WAO) ensure proper adaptation to the wide range of applications in gas detection technology.

Similar to picture

APPLICATION

The ARB2 is designed for measuring and warning of toxic and combustible environment and refrigerant gases in many commercial and industrial applications.
The sensor can be placed remotely in a distance of up to 500 m away from the ARB2.

FEATURES

- Hardware and software according to SIL2 compliant development process
- Easy maintenance / calibration by replacing the MC2 sensors or via comfortable on-site calibration
- Modular technology (plug-in and exchangeable)
- Remote installation of the sensor in a distance of up to 500 m
- Reverse polarity protected, overload and short-circuit proof
- One analog input 4-20 mA, e.g. MC2 series
- One analog output 4-20 mA / 2-10 V
- Two relays with change-over contact, potential-free, max. 240 V AC, 5 A
- Different housing types with IP 65
- Operating voltage 24 V AC/DC
- 100 - 240 V AC (option)
- 12 V DC (option)
- WAO, status LEDs with warning buzzer (option)
- Display (option)
- ANSI/UL 61010 1 & CAN/CSA-C22.2 No. 61010-1 (option)
- Duct mounting kit (accessory): See datasheet MC2

Specifications subject to change without notice.
Up-to-date data sheets and user manuals can be found in the download area of www.msr-24.com.
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SPECIFICATIONS

Electrical			
Power supply	24 V DC ± 20 % AC ± 15 % , reverse-polarity protected		
Power consumption (24 V)			
- Control Baord	Max. 60 mA (1.5 VA), w/o sensor, w/o WAO		
- Sensor (MC2)	Max. 85 mA (2.1 VA)		
- WAO	Max. 40 mA (1.0 VA)		
Overvoltage category	I		
Alarm relays (2)	240 V AC, 5 A, potential-free, change-over contact (SPDT)		
Analog input	4 – 20 mA overload and short-circuit proof, input resistance 200 Ω		
Tension for analog sensor unit	24 V DC, max.100 mA		
Analog output signal	Proportional, overload and short-circuit proof, load ≤ 500 Ohm (for 12 V DC supply max. 200 Ohm) 4 - 20 mA or 2-10 V		
Ambient conditions			
Temperature range	-25 °C to +50 °C (-13 °F to +122 °F)		
Humidity range	15 - 95 % RH not-condensing		
Pressure range	Atmosphere ± 10 %		
Pollution degree	2 (for indoor use only), not suitable for wet environment		
Permissible height above sea level	1500 m (env. 5000 ft.)		
Storage temperature	+5 °C to +40 °C (+41 °F to +104 °F)		
Storage time	6 months		
Physical			
Housing	Type A	Type G	Type N
Material	Polycarbonate	Polycarbonat	ABS
Combustion	UL 94 V2	UL 94 V2	---
Housing colour	Light grey RAL 7032	Hellgrau RAL 7032	Light grey RAL 7032
Dimensions W x H x D in mm / (inch.)	94 x 130 x 57 / (3.70 x 5.12 x 2.24)	94 x 130 x 81 (3.70 x 5.12 x 3.18)	80 x 82 x 56 / (3.15 x 3.22 x 2.20)
Weight ca. in kg / (lb.)	0.25 / (0.55)	0.3	0.2 / (0.44)
Protection class (delivery status)*	NEMA 4X (IP 65)	NEMA 4X (IP 65)	IP 65
Installation	Wall mounting, sensor downwards		
Knockouts for cable entry	2 x M12 / 3 x M20	2 x M12 / 3 x M20	1 x M20 (borehole)
Knockouts for installation of MC2/WAO	2 x	2 x	1 x MC2, 1 x WAO (borehole)
Wire connection: Power supply, field bus	Screw-type terminals 0.25 to 2.5 mm^2, 24 to 10 AWG		
Analog in/output; dig. input	Screw-type terminals 0.25 to 2.5 mm^2, 24 to 10 AWG		
Relays	Screw-type terminals 0.25 to 1.3 mm^2, 24 to 16 AWG		
Cable lengths for remote sensor	500 m (1640 ft.)		
Directives	EMC directives 2014/30/EU Low voltage directive 2014/35/EU CE EN 61010-1:2010 Optional: ANSI/UL 61010-1 CAN/CSA-C22.2 No. 61010-1		
Warranty	1 year on sensor (not if poisoned or overloaded), 2 years on device		

*If there are changes on the housing it has to be re-evaluated.

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	OPTIONS
Display	LCD, two lines, 16 characters each
Power consumption	5 V, 60 mA, 0.3 VA
Status LED / buzzer (WAO)	
Colour / mode	Red / yellow / green (alarm – fault – operation)
Buzzer	Acoustic pressure > 85 dB (A), frequency 2300 Hz
Protection class	IP 65
Power supply 110 / 230 V AC	
Wide range input	100 -240 V AC - 50/60 Hz
Consumption	5 VA
Overvoltage category	II
Power supply 12 V	
Power consumption (12 V DC)	
- Control Board	Max. 120 mA (1.5 VA), w/o sensor, w/o WAO
- Sensor	Max. 170 mA (2.1 VA)
- WAO	Max. 80 mA (1.0 VA)

ORDERING INFORMATION

ARB2- X- X X X X X X

FURTHER OPTIONS
- **0** No further options
- **A** Version UL/CSA 61010-1

SENSOR UNIT[1]
- **0** **Without sensor unit**
- 1 Sensor unit MC2 installed ex works (please specify exact type when ordering)
- 2 Accessory kit for remote sensor

VISUAL/ AUDIBLE WARNING DEVICES
- **0** **Without WAO**
- 1 With WAO (not retrofittable in housing N)

DISPLAY
- **0** **Without display**
- **1** With display (only in connection with MC2 sensor unit mounted in the same housing – N[2] or G)

POWER SUPPLY
- 1 12 V DC
- **2** **24 V AC/DC**
- 5 100 – 240 V AC

HOUSING
- **N** **Housing type N**[2] (not compliant to ANSI/UL 610010-1 and CAN/CSA-C22 No. 610010-1)
- A Housing type A (not for display option)
- G Housing type G (for display option)

[1] Not for oxygen
[2] Housing type N is not possible for display option & 230 V supply option together.

Standard version: ARB2-N-20010

Description: Analog Relay Board, 24 V DC, 2 x digital output (pot. free relays), thresholds adjustable via potentiometer, 1 x analog input (4-20mA), 1 x analog output (4-20mA or 2 – 10 V), w/o display, w/o WAO, sensor integrated, w/o further options.

MSR-Electronic GmbH ::: Würdinger Str. 27 & 27A ::: 94060 Pocking ::: Germany
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ELECTRICAL CONNECTION

Example 24 V AC/DC