

Gas Detection.



Technical Datasheet



PolyGard®2

Analog-Relay-Board ARB2

DESCRIPTION

APPLICATION

FEATURES

SPECIFICATIONS

ORDERING INFORMATION

WIRING CONFIGURATION

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.

PolyGard® is a registered trademark of MSR-Electronic GmbH.

www.msr-electronic.de



DESCRIPTION

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 1x analog 4–20 mA sensor with increasing gas signal (not for oxygen), e.g. of the PolyGard®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.

APPLICATION

The ARB2 is designed for measuring and warning of toxic and combustible environment and refrigerant gases in many commercial and industrial applications.

The analog sensor can be placed remotely in a distance of up to 500 m from the ARB2.

FEATURES

- Hardware and software according to SIL 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
- 1x analog input 4–20 mA, e.g. MC2 series
- 1x analog output 4–20 mA / 2–10 V
- 2x relays with change-over contact, potential-free, max. 250 V AC, 5 A; 30 V DC, 2 A
- Different housing types with IP65
- Operating voltage 24 V AC/DC
- 100–240 V AC (option)
- Warning buzzer and status LED for alarm, fault and operation (option)
- Display (option)
- ANSI/UL 61010 1 and CAN/CSA-C22.2 No. 61010-1 (option)
- Duct mounting kit (accessory): See datasheet MC2

SPECIFICATIONS

ELECTRICAL		
Power supply	24 V DC ± 20 %, AC ± 15 %, reverse-polarity protected	
Power consumption (24 V)		
• Control Board	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)	250 V AC, 5 A; 30 V DC, 2 A, potential-free, change-over contact (SPDT)	
Analog input	4–20 mA overload and short-circuit proof, input resistance 130 Ω	
Tension for analog sensor unit	24 V DC, max.100 mA	
Analog output signal	Proportional, overload and short-circuit proof, load ≤ 500 Ω 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 (approx. 5000 ft.)	
RECOMMENDED STORAGE CONDITIONS		
Storage temperature range	-20 °C bis +65 °C (-40 °F to +149 °F)	
Storage time	Ca. 6 months	
Humidity range	15–95 % RH not-condensing	
PHYSICAL		
Housing	Type A	Type G
Material	Polycarbonate	Polycarbonate
Combustion	UL 94 V2	UL 94 V2
Housing colour	Similar to RAL 7035 (light grey)	Similar to RAL 7035 (light grey)
Dimensions (W x H x D)	94 x 130 x 57 mm (3.70 x 5.12 x 2.24 in)	94 x 130 x 81 mm (3.70 x 5.12 x 3.18 in)
Weight ca.	0.25 kg / (0.55 lb)	0.3 kg (0.66 lb)
Protection class (delivery status) ¹	NEMA 4X (IP65)	NEMA 4X (IP65)
Installation	Wall mounting, sensor downwards	
Knockouts for cable entry	2x M12 / 3x M20	2x M12 / 3x M20
Knockouts for installation of MC2/WAO	2x	2x
Wire connection:		
• Power supply, field bus	Screw-type terminals 0.25–2.5 mm², 24–10 AWG	
• Analog in/output; dig. input	Screw-type terminals 0.25–2.5 mm², 24–10 AWG	
• Relays	Screw-type terminals 0.25–1.3 mm², 24–16 AWG	
Cable lengths for remote sensor	500 m (1640 ft.)	
REGULATIONS		
Directives	EMC directives 2014/30/EU Low voltage directive 2014/35/EU CE UKCA EN 61010-1:2010 Option: 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	

¹ If there are changes on the housing it has to be re-evaluate.

OPTIONS	
DISPLAY	
LC-Display	2 lines, 16 characters each
Consumption	5 V, 60 mA, 0.3 VA
Temperature range	-20 °C to +60 °C (-4 °F to 140 °F)
WAO STATUS-LED/BUZZER	
Colour (mode)	Red/yellow/green (alarm-fault-operation)
Acoustic pressure	> 85 dB (A) (distance 0.1 m)
Frequency	2300 Hz ± 300 Hz
Protection class	IP65
POWER SUPPLY 110/230 V AC	
Wide range input	100–240 V AC, 50/60 Hz
Consumption	Max. 5 VA
Overvoltage category	II

All specifications were collected under optimal test conditions.

We confirm compliance with the minimum requirements of the applicable standard.

The T 021 (DGVU-I-213-056) and T 023 (DGVU-I-213-057) as well as T 055 leaflets must be observed.

ORDERING INFORMATION

ARB2-	X-	X	X	X	X	X	
						0	Without further options
						A	Version UL/CSA 61010-1
							Further Options
						0	Without sensor unit
						1	Sensor unit MC2 installed ex works (please specify exact type when ordering)
						2	Accessory kit for remote sensor
							Sensor unit ¹
						0	Without buzzer & status LED
						1	With buzzer & status LED (red, yellow, green)
							Optical/acoustical indicator (WAO)
						0	Without display
						1	With display (only in conn. with MC2 sensor unit in the same housing)
							Display
						2	24 V AC/DC
						5	100–240 V AC
							Power supply
						0	Without housing
						A	Housing type A, (not for display option)
						G	Housing type G (for display option)
							Housing

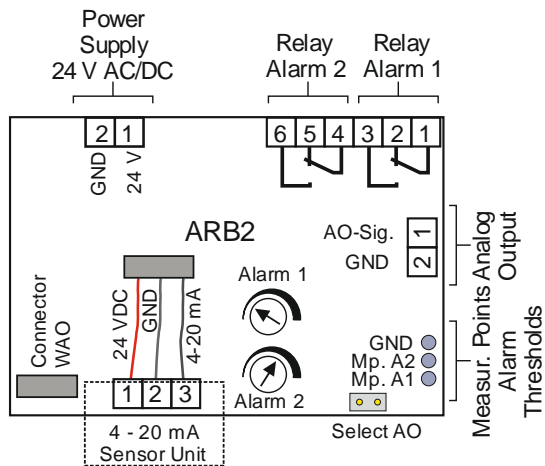
¹ Not for oxygen

STANDARD VERSION

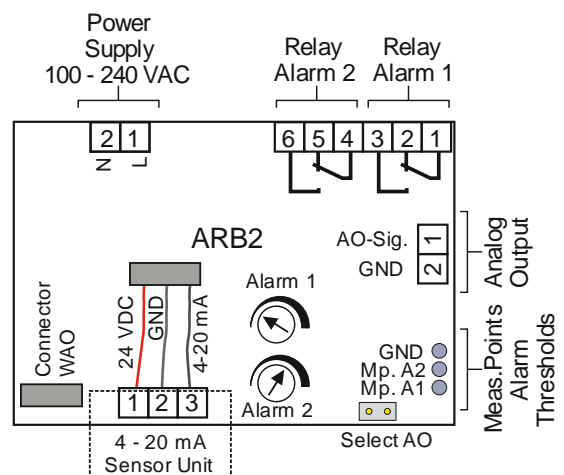
Description: Analog Relay Board, 24 V DC, x digital output (pot. free relays), thresholds adjustable via potentiometer, 1x analog input (4–20mA), 1x analog output (4–20mA or 2–10 V), w/o display, w/o WAO, sensor integrated, w/o further options (ordering number: ARB2-A-20010)

WIRING CONFIGURATION

24 V AC/DC



110 / 230 V AC



Note:

When connecting catalytic bead sensors for combustible gases, you must provide an external "self-holding" of the alarm relay if the measuring range may possibly be exceeded.