

Gas Detection.



## Technical Datasheet

PolyGard®2

# Gas-Controller Module GC-06



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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](http://www.msr-24.com).

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## DESCRIPTION

### **Measuring, warning and controlling device for toxic, combustible and refrigerant gases and vapours.**

The GC-06 Gas-Controller is designed in accordance with the standard EN 50545-1, among others. It can monitor and evaluate up to 100 gas sensors, 96 digital PolyGard®2/PolyXeta®2 and/or 4 analog (4–20 mA) sensors. 4 free adjustable alarm thresholds are provided per sensor. For the alarm messages the Controller offers 4 alarm relays with potential-free change-over contact and two analog outputs with 4–20 mA signal. With the extension modules EP-06 the Gas-Controller can manage up to 32 analog gas sensors, 32 alarm relays and 16 analog outputs. For the field bus outputs there is an integrated overload and reverse polarity protection.

The free adjustable parameters and setpoints enable a very flexible use in many applications of the gas measuring technique. Simple and comfortable commissioning, however, is also granted by the configuration with default parameters.

Configuration, parameterization and operation are easy to do directly at the Controller without special programming knowledge due to the logical, simple menu structure. Alternatively, the PCE06 Software enables the convenient loading, changing and storing of the application parameters via a serial interface.

The GC-06 is equipped with a self-monitoring system with integrated hardware watchdog and with a power failure message as well as with a functional control of the registered digital/analog sensors according to the requirements of the gas measuring technique.

The optional data logger permits to protocol all measured values, alarms and faults.

## APPLICATION

The GC-06 Gas-Controller is used for the monitoring and warning of toxic and combustible gases and vapours as well as of Freon refrigerants within a wide range of the gas measurement technique. Numerous adjustable parameters and setpoints permit individual adaptation to many applications.

The GC-06 fulfils the functions of monitoring carbon monoxide (CO) in garages, tunnels and cart tracks etc. according to the current EN 50545-1. In addition, the functions of leakage monitoring in refrigeration plants are fulfilled in accordance with the requirements EN 378, VBG 20 and the guidelines "Safety requirements for ammonia refrigeration systems".

## FEATURES

- For connection of up to 96 PolyGard®2/PolyXeta®2 bus sensors
- 4 analog inputs, 4–20 mA, for analog sensors
- Suitable for more than 50 different toxic, combustible and refrigerant gas types
- Simple and comfortable commissioning by configuration with standard parameters
- Logical system menu
- Flexible configuration thanks to programmable parameters and setpoints
- 4 free adjustable alarm thresholds per sensor
- 6 menu languages, free adjustable
- Several alarm relays configurable per alarm
- Access to menu operation via 4 code levels
- Project protection
- Temporary locking of transmitters possible for the customer
- Alarm release by falling or increasing gas concentrations selectable for each alarm threshold
- Connector for PCE06 Software at the Controller module
- 4 own relays with change-over contact, potential-free, max. 250 V AC, 5 A; 30 V DC, 2 A
- Additional control of up to 28 relays with change-over contact, potential-free, max. 250 V AC, 5 A; 30 V DC, 2 A (1–7 EP-06 modules)
- Additional control of up to 96 relays with change-over contact, potential-free, max. 250 V AC, 5 A; 30 V DC, 2 A (via MSC2/MSB2)
- Additional control of up to 96 relays with change-over contact, potential-free, max. 30 V AC, 0.5 A (locally via WSB2)
- Fault relay with normally open contact, potential-free, max. 250 V AC, 5 A; 30 V DC, 2 A
- 2 analog outputs, 4–20 mA, with selective signal output for special mode, fault, etc.
- Up to 7 EP-06 expansion modules with integrated repeater function connectable
- Serial interface RS-485 with Modbus RTU protocol
- EN 50545-1 compliant
- SIL2 Level compliant
- Integrated reverse polarity and overload protection for field bus outputs
- Suitable for rail mounting (distribution box)
- Monitoring of the external uninterruptible power supply (UPS) DGC-06-USV (with deep discharge protection and battery monitoring)
- Flashing light at power failure (option)
- USB port for data logger function for all measured values, alarms and faults (option)
- Door mounting (option): The door mounting version comes with the door mounting housing and 2 modules (display module for door mounting and relay module for rail mounting). See fig. 1 and 2.



Fig. 1: Door mounting version with 3 individual components



Fig. 2: Door mounting version, installed

## SPECIFICATIONS

<b>ELECTRICAL</b>	
Power supply	24 V DC $\pm$ 20 %
Power consumption	4 W, 150 mA
Analog input (4)	4–20 mA, overload and short-circuit proof, input resistance 130 $\Omega$
Tension for external analog transmitter	24 V DC (same as power supply), max. 130 mA / per sensor
Analog output (2) configurable for each input	Proportional, overload and short-circuit proof, charge $\leq$ 500 $\Omega$ 4–20 mA = measuring range 3.0–<4 mA = underrange > 20–21.2 mA = overrange 2.0 mA = fault
Alarm relay (4)	250 V AC, 5 A; 30 V DC, 2 A potential-free, change-over (SPDT)
Fault relay (1)	250 V AC, 5 A; 30 V DC, 2 A potential-free, normally open contact (SPST)
<b>VISUALISATION</b>	
LCD	2 lines, 16 characters each, illuminated
Status LED (4)	Green = Power, yellow = Fault, Light red = Alarm 1, dark red = Alarm 2
Operation	6 pushbuttons
Menu language (selectable)	German, English (UK), Spanish, French, Italian, English USA
<b>INTERFACE FIELD BUS</b>	
Transceiver	RS-485 / 19200 Baud
<b>INTERFACE RS-485 MODBUS RTU</b>	
Function	Transmission of current and average values, alarm and relay status, and analog output states in Modbus RTU RS 485 protocol to external devices (see GA_GC06_Modbus_Supplement_E)
<b>GASES</b>	
	Digital PolyGard®2/PolyXeta®2 sensors and analog sensors for toxic, combustible & refrigerant gases and oxygen
<b>AMBIENT CONDITIONS</b>	
Humidity range	15–95 % RH non-condensing
Working temperature range	-5 °C to +40 °C (23 °F to 104 °F)
Storage temperature range	0 °C to +40 °C (32 °F to 104 °F)
<b>PHYSICAL</b>	
Housing	Plastic housing ABS
Colour	Similar to RAL 7035 (light grey)
Protection class	IP40
Weight	Ca. 0,3 kg
Packaging volumes	Ca. 4.4 l
Mounting	Top DIN rail mounting, installation in distribution box
Dimensions (W x H x D)	106 x 110 x 62 mm (4.2 x 4.3 x 2.4 in.)
Wire connection:	
• Power supply	Screw type terminal: 0.5–2.5 mm <sup>2</sup> (22–14 AWG)
• Output relays	2 x spring type terminal: 0.5–1.5 mm <sup>2</sup> (22–16 AWG)
• Digital/analog signals	Spring type: 0.5–1.5 mm <sup>2</sup> (22–16 AWG)
<b>REGULATIONS</b>	
Directives	EMC Directive 2014/30/EU Low Voltage Directive 2014/35/EU EN 50271 EN 61010-1:2010 UKCA  Conformity to: EN 50402 EN 50545-1 IEC/EN 61508-1–3 ANSI/UL 2017 / UL 61010-1 CAN/CSA-C22.2 No. 61010-1
Warranty	2 years on device

OPTIONS	
FLASHING LIGHT AT POWER FAILURE	
LED	Battery-buffered
Operation duration	10 h (flashing)
DATA LOGGER	
Function	Storage of measured values, of faults and alarm status with time and date stamp on an USB flash drive
Log rate	Log rate adjustable from 10 to 10,000 sec.
Data format	Output of the data in standard Excel format
DOOR MOUNTING (see fig. 1 and 2)	
Components (3)	<ul style="list-style-type: none"> <li>• Door mounting housing</li> <li>• Display module for door mounting</li> <li>• I/O relay module for rail mounting</li> </ul>
<b>Housing</b>	See also DIMENSIONS DOOR MOUNTING
Door mounting dimensions (W x H x D)	200 x 170 x 97 mm (7.9 x 6.7 x 3.8 in.)
Door mounting cut-out (W x H)	165 x 138 mm (6.5 x 5.4 in.)

All specifications were collected under optimal test conditions.  
We confirm compliance with the minimum requirements of the applicable standard.

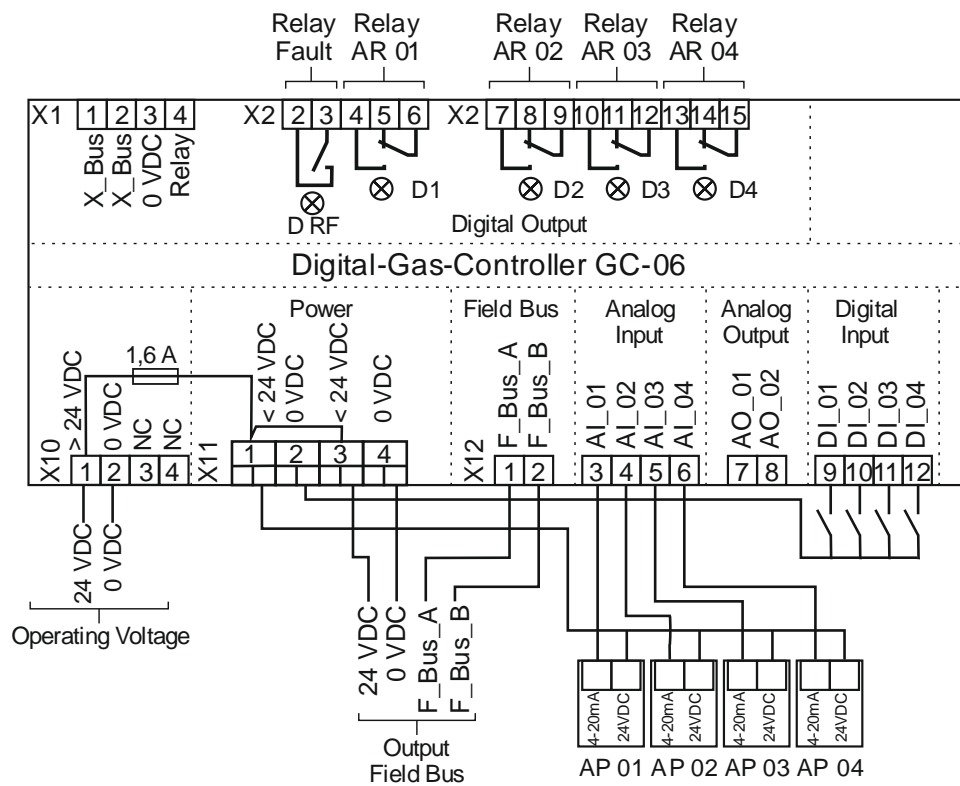
## ORDERING INFORMATION

GC-06- XXX	
000	Without further options
1XX	Power failure flashing light
X1X	Door mounting (2 modules, w/o housing)
X2X	Door mounting (2 modules with housing)
X3X	Door mounting (2 modules with lockable housing)
XX1	Data logger function & USB flash drive
Options	

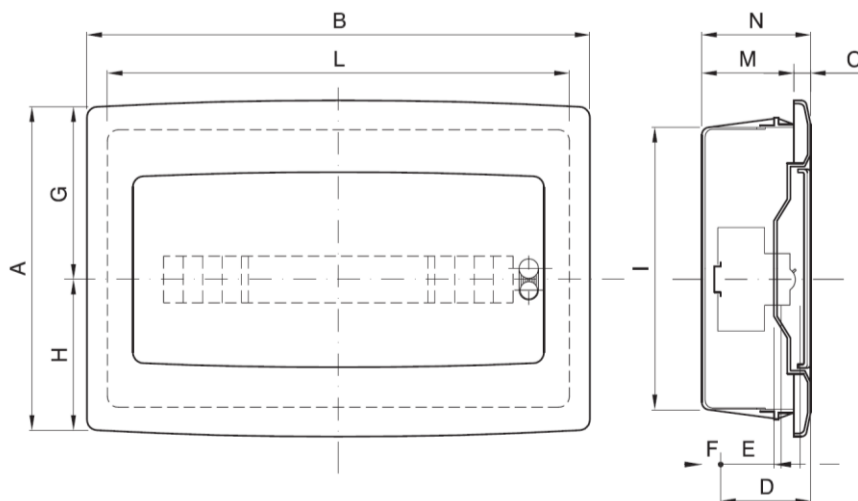
## EXAMPLE

GC-06 Gas-Controller module, with power failure flashing light (ordering number: GC-06-100)

## ELECTRICAL CONNECTION



## DIMENSIONS DOOR MOUNTING (in mm)



EXTERNAL DIMENSIONS				DEVICE MOUNTING					FIXATION		
A	B	C	N	D	E	F	G	H	I	L	M
170	200	12	97	75	48	14	90	80	138	165	85