PolyGard®2

Gas Controller Module GC-06

Measuring, warning and controlling module for toxic, combustible and refrigerant gases and vapours.

The gas controller series GC-06 is designed in accordance with the standard EN 50545-1. It can monitor and evaluate up to 100 gas sensors, 96 of them PolyGard®2 digital and/or 4 of them analog (4 to 20 mA) sensors. Four free adjustable alarm thresholds are provided per sensor. For the alarm messages the controller offers four alarm relays with potential-free change-over contact and two analog outputs with 4 to 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 main and field bus outputs there is an integrated overload and reverse polarity protection.

The free adjustable parameters and set points enable a very flexible use in the gas measuring technique. Simple and comfortable commissioning, however, is 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. The DGC-06 EasyConf Software enables the loading, changing and storing of the application parameters via a serial interface.

The GC-06 series 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 series 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 set-points permit individual adaptation to many applications.

The GC-06 gas controller fulfils the functions of carbon monoxide monitoring (CO) in garages, tunnels and cart tracks etc. according to the current EN 50545-1. Additionally, ammonia (NH3) refrigerant plants can be monitored according to the requirements EN 378, VBG 20 and the guidelines "safety requirements for ammonia refrigeration systems".

GC-06 Module

GC-06 for door mounting incl. mounting panel

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FEATURES

- For connection of up to 96 PolyGard®2 bus sensors
- Four analog inputs, 4 to 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 set-points
- Four free adjustable alarm thresholds per sensor
- Five menu languages, free adjustable
- Several alarm relays configurable per alarm
- Access to menu operation via four code levels
- Project protection
- Alarms in latching mode resettable via a digital input
- Temporary locking of transmitters possible for the customer
- Alarm release by falling or increasing gas concentrations selectable for each alarm
- Connector for DGC-EasyConf at the controller module
- Four own relays with change-over contact, potential-free, max. 250 V AC/ DC, 5 A
- Additional control of up to 28 relays with change-over contact, potential-free, max. 250 V AC/DC, 5 A (1 to 7 EP06 modules) and
- Additional control of up to 96 relays with change-over contact, potential-free, max. 250 V AC/DC, 5 A (via MSC2/MSB2/MGC2) and/or
- Additional control of up to 96 relays with change-over contact, potential-free, max. 40 V AC, 0.5 A (via WSB2)
- Fault relay with normally open contact, potential-free, max. 250 V AC, 5 A
- Two analog outputs, 4 to 20 mA, with selective signal output for special mode, fault, etc.
- Up to seven EP-06 modules with integrated repeater function connectable
- EN 50545-1 conformity
- SIL 2 Level conformity
- Integrated reverse polarity and overload protection for field bus and main bus output
- Suitable for rail mounting (distribution box)
- Monitoring of the UPS batteries for charge condition and functionality
- Option: Flashing light at power failure
- Option: USB port for data logger function for all measured values, alarms and faults
- Option: Serial interface with ModBus or TLS protocol for the connection to BMS etc.
- Option: MainBus interface for the connection of several GC-06 controllers
- Option: Door mounting[1]
- Option: ES (Extended Safety) mode for communication with the ES_MCM Master Module for max. 14 zones

[1] Version door mounting comes with two modules, display module for door mounting and relay module for rail mounting.

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SPECIFICATIONS

Electrical

Power supply	24 V DC ± 20 %
Power consumption	4 W, 150 mA
Analog input (4)	4 to 20 mA, overload and short-circuit- protected, input resistance 200 Ω
Tension for external analog transmitter	24 V DC (same as power supply), max. 100 mA / per sensor
Analog output (2) configurable for each input	Proportional, overload and short-circuit- protected, charge ≤ 500 Ω 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/DC, 5 A, potential-free, change-over (SPDT)
Fault relay (1)	250 V AC, 5 A, potential-free, normally open contact (SPST)

Visualization

LCD	Two lines, 16 characters each, illuminated
Status LED (4)	Operation – fault – 1st alarm – ≥ 2nd alarm
Operation	6 push-buttons
Menu language (selectable)	German, English, USA, French, Italian

Interface field bus

Transceiver	RS 485 / 19200 Baud

Gases

	Digital PolyGard®2 and analog sensors for toxic, combustible & refrigerant gases

Environmental

Humidity	15 – 95 % RH non-condensing
Working temperature	-5 °C to +40 °C (23 °F to 104 °F)
Storage temperature	0 °C to +40 °C (32 °F to 104 °F)

Physical

Enclosure		Plastic housing ABS
Colour		RAL 7035
Protection class		IP 40
Weight		0.3 kg (0.8 lb.)
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.)
Door mounting cut-out		(W x H) 164 x 127 mm (6.5 x 5.0 in.)
Door mounting dimensions		(W x H x D) 200 x 170 x 95 mm (7.9 x 6.7 x 3.7 in.)
Wire connection:	Power supply	Screw type terminal: 2.5 mm² (14 AWG)
	Output	2 x spring type terminal: min. 0.5 mm², max. 1.5 mm² (22 to 16 AWG)
	Input	Spring type: min. 0.5 mm², max. 1.5 mm² (22 to 16 AWG)

Guidelines

	EMC – Directive 2014/30/EU Low voltage directive 2014/35/EU EN 50 545-1 EN 50271 EN 61010-1:2010 ANSI/UL 61010-1 CAN/CSA-C22.2 No. 61010-1 CE

Warranty

	1 year on sensor (not if poisoned or overloaded) 2 years on device

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MSR ELECTRONIC

SPECIFICATIONS - OPTIONS

Flashing light at power failure	Battery backed LEDs
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
Interface ModBus RTU RS 485	
Function	Transmission of current and average values, alarm and relay status, and analog output states in MODBus RTU RS 485 protocol to external devices
Control of external warning devices	
Power supply of the external warning devices	24 V DC
Measuring resistance at the warning device	12 kΩ, 0.5 W, 5 %

ORDER INFORMATION

GC-06- XXXXXX- 00

00	Special version (is defined by MSR-E)
1XXXXX	Power failure flashing light
X**1**XXXX	Door mounting without mounting panel
X**2**XXXX	Door mounting with mounting panel
X**3**XXXX	Door mounting with mounting panel, lockable
XX**1**XXX	Data logger incl. USB flash drive
XXX**1**XX	Interface MODBus RTU RS 485
XXX**4**XX*	Interface TLS Protokoll RS 485
XXXX**1**X*	MainBus interface
XXXXX**2***	ES mode

* only on request

EXAMPLE

Gas Controller Module GC-06 incl. power failure flashing light, Interface MODBus

Ordering number: GC-06-100100

ISO9001 CERTIFIED   TÜV SÜD   P

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WIRING CONFIGURATION

MSR-Electronic GmbH ::: Würdinger Str. 27 & 27A ::: 94060 Pocking ::: Germany
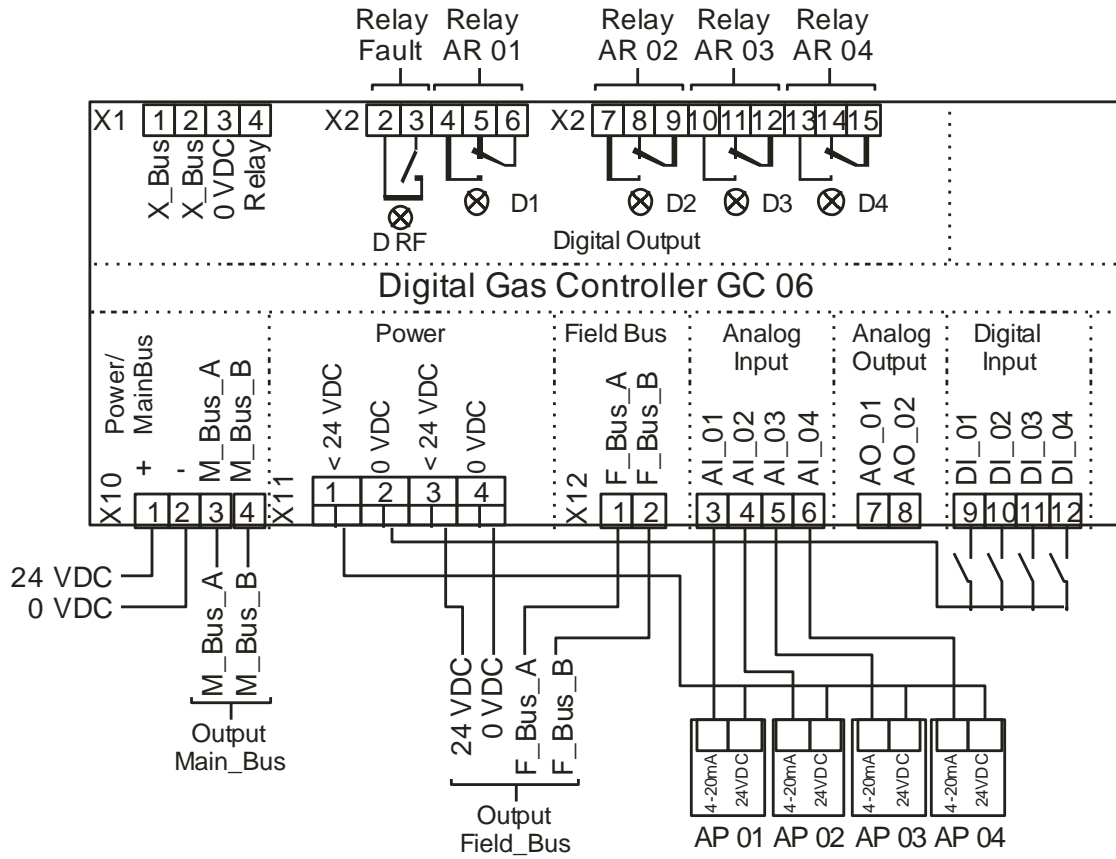
Specifications subject to change without notice
Up-to-date data sheets and user manuals can be found in the download area of www.msr-24.com.
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