



PolyXeta®2

## Gas Controller Module GC-80

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

The gas controller series GC-80 is designed in accordance with the standard EN 50545-1. It can monitor and evaluate up to 100 gas sensors, 96 of them PolyXeta®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-80 the Gas Controller can manage up to 32 analog PolyXeta®2 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-80 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-80 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-80 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 (NH<sub>3</sub>) refrigerant plants can be monitored according to the requirements EN 378, VBG 20 and the guidelines "safety requirements for ammonia refrigeration systems".



GC-80 Module



GC-80 for door mounting  
incl. mounting panel





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### FEATURES

- For connection of up to 96 PolyXeta®2 bus sensors
- Four analog inputs, 4 to 20 mA, for analog PolyXeta®2 sensors
- Suitable for about 50 toxic, combustible and refrigerant gases
- 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
- Six 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 alarm relays with change-over contact, potential-free, max. 250 V AC, 5 A
- 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-80 modules 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: Monitoring of the connected warning devices for functionality and discontinuity at alarm relays AR03 and AR04
- 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-80 controllers
- Option: Door mounting<sup>1</sup>

<sup>1</sup> 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)<br>configurable for each input | Proportional, overload and short-circuit- protected, charge ≤ 500 Ω<br>4 - 20 mA = measuring range<br>3.0 < 4 mA = underrange<br>>20 – 21.2 mA = overrange<br>2.0 mA = fault |
| Alarm relay (4)                                  | 250 V AC, 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, Dutch, USA, French, Swedish |

## Interface field bus

|             |                     |
|-------------|---------------------|
| Transceiver | RS 485 / 19200 Baud |
|-------------|---------------------|

## Gases

|  |   |
|--|---|
|  | Digital and analog PolyXeta®2 sensors for toxic, combustibile & refrigerant gases |
|--|---|

## Environmental

|                     |                                    |
|---------------------|------------------------------------|
| Humidity            | 15 – 95 % RH non-condensing        |
| Working temperature | -10 °C to +45 °C (14 °F to 113 °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 boxes                                    |
| Dimensions               | (W x H x D) 104 x 86 x 56 mm (4.1 x 3.4 x 2.2 in.)   |
| Door mounting cutout     | (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 mm <sup>2</sup> (14 AWG)  |
| Output                   | 2 x spring type terminal: min. 0.5 mm <sup>2</sup> , max. 1.5 mm <sup>2</sup> (22 to 16 AWG) |
| Input                    | Spring type: min. 0.5 mm <sup>2</sup> , max. 1.5 mm <sup>2</sup> (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        |

## Warranty

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





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## SPECIFICATIONS - OPTIONS

|  |  |
|--|--|
| <b>Flashing light at power failure</b>       | Battery backed LEDs  |
| Operation duration                           | 10 h (flashing)  |
| <b>Data Logger</b>                           |  |
| 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  |
| <b>Interface ModBus RTU RS 485</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 |
| <b>Control of external warning devices</b>   |  |
| 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-80-XXXXXX-00

00 Special version (is defined by MSR-E)

|         |   |
|---------|---|
| 1XXXXX  | Power failure flashing light                |
| X1XXXX  | Door mounting without mounting panel        |
| X2XXXX  | Door mounting with mounting panel           |
| X3XXXX  | Door mounting with mounting panel, lockable |
| XX1XXX* | Data logger incl. USB flash drive           |
| XXX1XX  | Interface MODBus RTU RS 485                 |
| XXX4XX* | Interface TLS Protokoll RS 485              |
| XXXX1X* | MainBus interface                           |
| XXXXX1* | Control of external warning devices         |

\* only on request

## EXAMPLE

Gas Controller Module GC-80 incl. power failure flashing light, Interface MODBus

Ordering number: GC-80-100100





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## WIRING CONFIGURATION

