

Controller GMA200-MW4

High-performance gas warning system for various requirements to measure gas hazards



- Connection of four analog or 16 digital transmitters for measuring combustible and toxic gases/vapours and oxygen
- Freely programmable relays
- Flexible, reliable und economic
- Clearly structured, backlit LCD graphical display
- Loud and bright acoustical and optical alarm functions
- Wall mounting housing IP 65
- Connection of other measuring devices/transmitters with 4-20 mA output signal possible

Decisive safety advantage

GfG

Since over 50 years, GfG is classified as specialist for development and production of safe, powerful and live-saving Gas detection devices. The owner managed company belongs to the world leading, biggest, autonomic and concern independent manufacturers of portable Gas detection devices and fixed gas detection systems. Since its' founding GfG pursues the goal to increase the general global safety by the protection of humans, industrial facilities and environment. Once started as a supplier of the mining industry, the GfG established as a worldwide acting technology venture.

Conception of the Gas detection system GMA200

The gas detection controller GMA200 continues with the tradition of the company under consideration of innovative technology and trend-setting flexibility. It is designed for commercial and industrial applications for the measurement of combustible and toxic gases as well as for the measurement of oxygen. The compact construction of the GMA200-MW4 provides a cost-efficient solution for safe gas monitoring of industrial facilities.

Parallel Measurement and flexible application

Up to four analog and 16 digital transmitters can be connected to GMA200-MW4 and monitored simultaneously. Via the configuration software the measurement range, the measurement designation, the type of transmitter and the type of gas can be set individually as well as three alarm thresholds can be programmed for every connected single transmitter. The microprocessor of the GMA200-MW4 evaluates all receiving signals and activates alarm and relays. In doing so one single gas detection controller GMA200-MW4 can master different gas detection tasks.

Integrated Relays

Permanent increasing demands on safety measures require complex gas detection systems and redundant protective

measures to protect from gas hazards. Therefore the GMA200-MW4 has six internal relays. For the implementation of safety measures and alarm, four relays can be programmed freely so that in case of alarm the safety measures can be triggered automatically. The programming grants wide-ranged and flexible possibilities like allocation of one or more measurement points to relay, single alarm per measurement point, configuration of collective alarm and group alarm, error report and voting function. For each, safety related error report and maintenance, one further relay is available.

Relay modules

With a relay module GMA200-RT respectively GMA200-RTD the GMA200-MW4 can be expanded on further 16 free programmable relays. Up to four additional relay modules with 16 relays each can be administrated by the GMA200-MW4. The relay module GMA200-RT is connected via the digital interface RS485 and allows a decentralized installation of the relay modules, which offers great flexibility on this basis and enables cost savings due to less effort of installation.

System functions: LED-lamps

The Status of the controller, i.e. operation, error, service and active relays are shown via LED's

Graphic display

The clear conception of the controller GMA200-MW4 allows the rapid recognition of hazardous situations. Current measurement values are shown continuous on the LCD- graphic display. At Alarm a red back light is active. Furthermore the displaying of

Alarm 1, Alarm 2 and Alarm 3

occurs on the LED graphic display. Simultaneously the status of the active relays 1-6 is shown by the LED lamps in the case of alarm. The integrated storage allows the reading of alarm stages and minimum



Analog connection of up to four different transmitters.

Universal: various detectors can be connected and evaluated

and maximum of gas concentration on the LCD-display for the first hazard assessment.

Data logger function

For the Storage of measurement data the controller GMA200-MW4 can be equipped with a Micro SD memory card. Measurement values, averages, alarm events and errors can be saved and evaluated long lasting.

Keyboard operation

Five buttons enable the operation of the controller GMA200-MW4. Main functions of the keyboard are the acknowledgement of alarms and operating via menu of the GMA-MW4. In the operation menu, the status of the controller, the Transmitter and the relays can be accessed.

Configuration

A USB interface on the Controller GMA200-MW4 can be used for the connection with the configuration software on a PC.

Digital Interfaces of the GMA200-MW4 (RS485)

The Gas Detection Controllers of the GMA200 product line have three RS485 interfaces.

Digital Interface TRM BUS

The TRM BUS allows the connection of up to 16 digital Transmitters by GfG. They can be connected flexibly in loop structure or line structure to GMA200 and offers wide range of possible connections. In addition every TRM BUS offers to integrate the external Relay module GMA200 RT or GMA200-RTD.

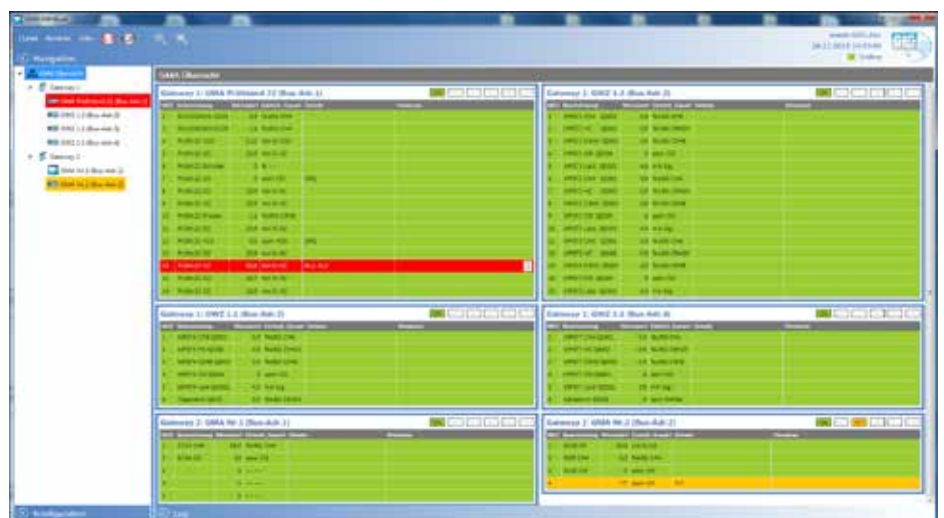
Digital Interface GMA BUS

Besides the option to use this BUS for the connection of external relay module, this interface offers the possibility to integrate the Gas Detection Controller GMA200 into network of facilities. A Modbus protocol in the RTU mode, which is transmitted via the GMA BUS interface allows reading out the status of the Gas Detection Controller GMA 200 by using a PC. Additional gateways (Profibus, Prof-

inet) are offered by GfG and enable the digital status monitoring and data processing via further external modules (e.g. PLC)

GMA200-Visual

Complex Gas Detection Systems with several Gas Detection Controllers type GMA200 and numerous different Transmitters call for a clear overview to guarantee safety. The rapid and precise localization of gas hazards is decisive to protect facilities, environment and human life. The PC based Visualization Software GMA200-Visio evaluates the status of the entire Gas Detection System GMA200 and displays it clearly. In the case that any alarm threshold is exceeded, the alarm triggering measuring station with associated designation, the measured value, the measured unit (vol. % or %LEL) and the type of gas immediately is marked on the screen, so that appropriate measures can be taken promptly.



Controller GMA200-MW4 and visualization software GMA200-Visual for an easy and safe monitoring of your gas detection system.

Technical data

GMA200-MW4

Measuring gases:

combustible and toxic gases and vapours, for all GfG transmitters

Display and control elements:

2,2"-LCD graphic display;
5 button keyboard (left, right, up, down, OK);
13 LEDs for Alarms, operation and Relay status

Environmental conditions:

for storage:
-25..+60°C | 0..99%r.F.
(recommended 0...+30°C)

for operation:
-20..+55°C | 0..99%r.F.

Power supply:

Operating voltage:
100-240V AC 50-60Hz or/and
24V DC (20-30V DC valid)

Power consumption:
max.7W (without Transmitter)
max.25W (with Transmitter)

Fuse:
F1=T 500mA (for GMA200-MW4)
F2=M 1A (for Transmitter)

Transmitter connection:

Power supply:
24V DC $\pm 3\%$ with built in power supply unit, otherwise 20-30VDC (see above)
4x 150mA respectively $I_{total}=0,6A$ at any other subdivision

Analog signals I_{IN1-4} :
4-20mA respectively 0,2-1mA
(Burden ca.50..100 Ω , $I_{max}=70mA$ permanent / 500mA momentary)
Digital signals TRM-Bus1+2:
RS485; Half-Duplex; max. 38400 Baud

RS485 outputs:

TRM-Bus1+2:
RS485; Half-Duplex; max. 38400 Baud
(only for GMA200-MW4 relay modules)

GMA-Bus:
RS485; Half-Duplex; galvanically isolated; max. 230400 Baud
(for GMA200-MW4 relays modules, control center, PC, SPS or Gateway)

Relay Outputs:

Contactors:
Six Relays with one open contact each

Contact current capacity:
3A/250V AC or 3A/30V DC

Isolation spacings:
Basic isolation between the Relays:
1&2, 3&4, 5&6
Double isolation between the Relays:
2&3, 4&5

Analog outputs:

2 x analog output
4-20mA (burden max.560 Ω)
free allocatable

Alarm acknowledgement inputs:

2 x Reset
free allocatable

Data logger (optional):

2GB microSD memory card with
FAT (FAT16) formatting

USB terminal:

Mini USB jack for configuration of the device via PC

Connection cable:

Cable entries:
max. 9 units M16x1,5 (for cable cross section 4,5-10mm)

Terminal blocks:
0,08..2,5mm² cross section

cable:
3-4cored $\geq 0,75mm^2$ LiYY, NYM
(for GMA200-MW4 power supply)
2-4cored 0,5-1,5mm² LiYY, LiYCY
(for Transmitter)
2cored 1x2x0,22mm² BUS-LD
(for GMA-Bus at a length >10m)

Housing:

Protection:
IP65

Material:
Plastics

Weight:
ca. 890g

Dimensions:
209 x 180 x 64mm (W x H x D)

Approvals/Testings:

Electromagnetic compability:
DIN EN 50270:2006
emitted interference: Type I
interference immunity: Type II

Electrical Safety:
DIN EN 61010:2010
pollution degree 2
Overvoltage category II
for power supply
Overvoltage category III
for relay contacts

Metrological suitability testing:

Requested according to
DIN-EN 60079-29-1

Functional Safety:

SIL 2/3 requested



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