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# GMA200-MW4 Controller

**High performance gas measurement and warning system**





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## GMA 200 Gas detection system

The GMA 200 offers 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 GMA 200-MW4 provides a cost-efficient solution for safe gas monitoring of small facilities.

## Parallel measurement and flexible application

With the GMA 200-MW4 up to four different transmitters can be monitored simultaneously. They can be connected analog or digital to the GMA 200-MW4. Using the configuration software for every connected single transmitter the measurement range, the measurement designation, the type of transmitter and the type of gas can be set individually and three alarm thresholds can be programmed. The microprocessor of the GMA 200-MW4 evaluates all receiving signals and activates alarm or relays. In doing so one single GMA 200-MW4 can master different gas detection tasks.

## Integrated relays

GMA 200-MW systems include comprehensive and fully programmable relays. Each GMA 200-MW4 controller is equipped with six internal relays. For the implementation of safety measures and alarm, four relays can be freely programmed so that in case of alarm the safety measures can be triggered automatically.

The programming grants wide-ranged and flexible possibilities such as the 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 and maintenance, there is one additional relay available.



## Relay modules

The GMA 200-RT relay module can be added and adds an additional 16 freely configurable relays. A total of four additional relay modules (for 64 additional relays) can be managed by the same GMA 200-MW4. Digital interface (RS485) with the GMA 200-RT relay module allows decentralized installation of the relay modules, which offers great flexibility and reduces cabling and installation costs.

## GMA 200-MW4 Controller

In addition to the traditional power supply the GMA 200-MW4 can be operated with a redundant, safety-oriented power supply. Based on this, the GMA 200-MW4 meets the highest safety requirements and guarantees a permanent availability of gas detection systems for potential gas hazards.

# « Decisive Safety Advantage. »

## LED indicator lights

LEDs show the Status of the GMA 200-MW4 controller (including operation, fault, service alarm and relay status).

## Graphical display

Currently measured values are displayed on a backlit, graphical LCD. In the event of an alarm the display changes color from green to red, and highlights the affected channels. Furthermore the display of alarm 1, alarm 2 and alarm 3 occurs on the LED graphic display. Simultaneously the status of the affected channels 1-8 is shown by the LED lamps in the case of alarm.

The integrated storage allows the reading of alarm stages.

## Data logger

For long-term storage and documentation of the measured values, the GMA200-MW4 can be equipped with a microSD memory card. Measured values, average values, alarm events and faults are stored at individually configurable intervals and are available for evaluation.

## Pushbutton interface operation

The five pushbuttons on the display allow easy operation of the GMA200-MW4. Main functions of the keypad are the alarm acknowledgement, and viewing controller status, the transmitter and the relays through the operation menu.

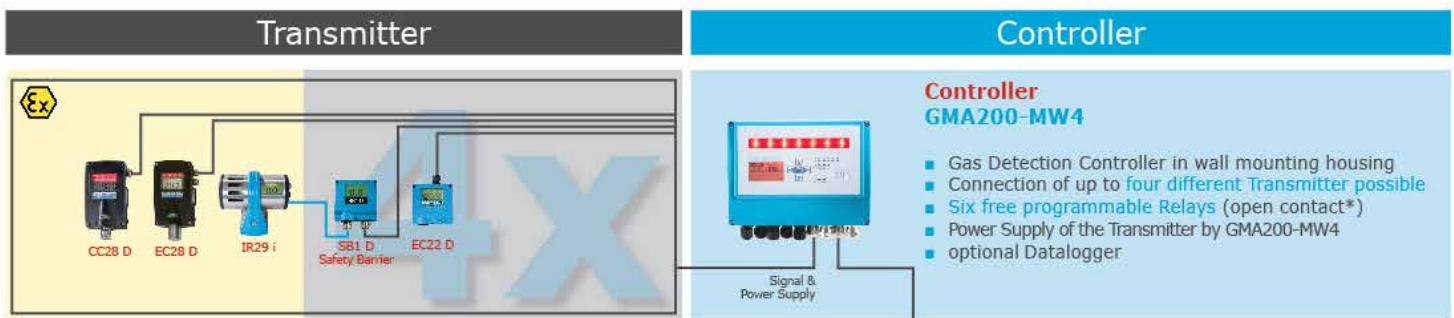


## Configuration

A built-in USB port in the GMA 200-MW4 is used for connection to the configuration software.

## GMA 200 Visualization

Complex Gas Detection Systems with several controllers and numerous different transmitters call for a clear overview to guarantee safety. The rapid and precise localization of gas hazards is critical to protect facilities, environment and human life. The PC – based Visualization Software, GMA 200 clearly displays the status of the entire Gas Detection System. If any alarm threshold is exceeded, the alarm triggers a measuring station with associated designation, the measured value, the measured unit (% volume or % LEL) and the type of gas is displayed immediately on the screen, so that appropriate measures can be taken quickly.



Power of the GMA200-MW4 Controller system.

## GMA 200 bus interfaces (RS485)

There are three RS485 interfaces on the GMA 200-MW systems, a 2 x TRM – BUS and a 1 x GMA – BUS.

Additional gateways are offered by GfG and enable the digital status monitoring and data processing using additional external modules (e.g. PLC).

# Technical Data: GMA200-MW4

<b>Displays and controls:</b> Status LEDs: Display: Pushbuttons: Alarm:	13 status LEDs for alarms, operating and relay states 2.2 inch graphic display with 132 x 65 pixels 5 function keys Horn max. 100 dB(A) adjustable
<b>Power supply:</b> Operating voltage: Power consumption: Fuses:	100-240 V AC 50-60 Hz mains voltage and/or 24 V DC (20-30 V DC) through stabilized SELV or PELV power supply unit Max. 16 VA (without transmitters) Max. 42 VA (with transmitters) F1: T 500 mA changeable (for GMA200) F2: M 1 (for transmitters)
<b>Transmitter connections:</b> Supply output $U_{out}$ : Analog signal input $I_{in}$ : Digital signals TRM bus 1+2:	24 V DC $\pm 3\%$ supplied by the internal power supply unit, otherwise 20-30 V DC (see above) 4x 150 mA or $I_{ges}=0.6$ A with different allocation 4-20 mA or 0.2-1 mA Measuring tolerance: $\pm 0.3\%$ MR @ 4-20 mA or $\pm 1.2\%$ MR @ 0.2-1 mA (MR = measuring range) (Load approx. 50 to 100 $\Omega$ , $I_{max} = 70$ mA continuous / 500 mA short-time) RS-485; half-duplex; max. 38,400 baud
<b>Measurement value processing:</b> Update time: Adjustment time for RS485: for 4-20 mA: for 0.2-1 mA: Ready delay:	1s (If there are more than 16 transmitters and relay modules on the same TRM bus and the data transmission is only at 9600 baud, the cycle time is extended from 1.0 to max. 1.3 s, so that the time of 1 s cannot be maintained) Rise time $t_{50}<2s$ or $t_{90}<2sec$ Decay time $t_{50}<2s$ or $t_{10}<2sec$ Rise time $t_{50}<2s$ or $t_{90}<4sec$ Decay time $t_{50}<2s$ or $t_{10}<4sec$ Rise time $t_{50}<6s$ or $t_{90}<10sec$ Decay time $t_{50}<6s$ or $t_{10}<10sec$ (extended by setting times of the gas measuring transmitters) <40s (can be extended by running-in times of gas measuring transmitters)
<b>RS-485 outputs:</b> GMA bus: RS485 bus:	RS-485; half-duplex; max. 230,400 baud (for GMA200 relay modules, control center, PC, PLC or gateway) RS-485; half-duplex; max. 38,400 baud (only for GMA200 relay modules)
<b>Relay outputs</b> Contacts: Insulation distances: Contact load capacity: Minimum switching current: Minimum switching voltage: Switching frequency:	6 relays with normally open contact Basic insulation between the relays: 1&2, 3&4, 5&6 Double insulation between the relays: 2&3, 4&5 3 A/250 V AC or 3A/30 V DC 10 mA 5 V Max. 100 per year (per relay contact), valid for SIL applications according to EN 50402
<b>Analog outputs:</b> $I_{out}$ 1+2: Accuracy:	4-20 mA with linear transfer function (load max. 560 $\Omega$ ) $\pm 0.3\%$ MR @ 10 to 30 $^{\circ}C$ or $\pm 0.8\%$ MR @ -20 to 50 $^{\circ}C$ (MR=measurement/signal range)
<b>Alarm acknowledgement inputs:</b> Reset 1+2:	0-3V DC (alarm acknowledgement occurs on contact with GND; UMAX=30V DC)
<b>Environmental conditions:</b> Mounting location: Temperature for storage: Temperature for operation	Indoors only up to an altitude of 2,000 m above sea level -13 to +140 $^{\circ}F$ / -25 to +60 $^{\circ}C$   0 to 99% r.h (recommended +32 to +86 $^{\circ}F$ / 0 to +30 $^{\circ}C$   40 to 60% r.h.) -4 to +131 $^{\circ}F$ / -20 to +55 $^{\circ}C$   0 to 99% r.h.
<b>Housing:</b> Protection class: Dimensions:	IP65 8.23 x 7 x 2.52 in / 209 x 180 x 64 mm (W x H x D)
<b>Approvals / Certifications:</b> ATEX approval : Electromagnetic compatibility: Electrical Safety: Functional Safety: Metrological suitability:	ATEX 94/9/EC EN 50270:2015 (Interference emission: Type class I, Interference immunity: Type class II) EN 61010-1:2010 (pollution degree 2, overvoltage category III for relay contacts) EN 50402:2017; IEC 61508-1 to -7:2010 (SIL2/SC3) EN 50271:2018; EN 62061:2016; ISO 13849-1:2015 EN 60079-29-1:2016 (EX); EN 50104:2010 (OX); EN 45544-1/-2/-3:2015 (TOX)



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 All specifications on this brochure are subject to technical changes due to further development.

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