

GMA 300

Gas Monitoring System



- Intelligent and flexible
- Gas monitoring and warning system
- 1 to 4 sensor controller
- Function tested by DMT-IBS/PFG

GMA 300

Fixed Gas Monitoring System

Technical Information

GfG Instrumentation, Inc. stationary gas monitors consist of a remote sensor and a control module—the GMA 300. The remote sensor converts the gas concentration to an electrical signal and sends it to the GMA 300 controller via a cable. The transmission distance may extend to several hundred feet. The GMA 300 digitizes the sensor signals and passes the values on to its microprocessor, which linearizes the signals.

This digital signal processing allows unparalleled flexibility in the monitoring system. The GMA 300 can filter measurement signals, suppress zero point deviations, delay or accelerate alarms or, by recognizing certain trends, activate an alarm even before a dangerous gas concentration is reached. Three adjustable alarm thresholds which may be latching or self-resetting can be set. You can activate or change functions and calculation parameters to adapt the complete monitoring system to specific measurement tasks. A service key prevents unauthorized access to the program. Zero point sensitivity and span adjustments can be checked and corrected on the front keyboard, considerably simplifying service efforts and saving maintenance costs.

The GMA 300 provides four potential-free relay outputs for alarm and failure. They can be used to turn on alarm horns or lamps or to stop production processes (e.g. close valves or switch off the power). The relays can be operated either as normally closed (NC) or normally open (NO) contacts. The measurement values are available as an analog output signal of 0–10 V and 4–20 mA. The correct unamplified sensor signal (0–1 V) and the standard signal (0–10 V) can be verified without opening the unit. Four logical outputs allow the activation of collective gas or failure alarms. Measurement data, alarms and service data are all available from the GMA 300's CAN-BUS digital interface. The data can be sent to any computer for processing by the specially developed GfG Instrumentation recording and documentation software.

Control your own safety

There is an increasing demand for personal and environmental protection—resulting in the demand for ever more reliable gas monitoring equipment. Even very low gas concentrations may cause hazardous situations. It is an absolute must for a gas monitor to react reliably and immediately.

The GMA 300 combines state-of-the-art technology and GfG Instrumentation, Inc.'s decades of experience in gas measurement. When developing the GMA 300, every detail was considered, from the design of communication connectors up to

user-orientated software modules—your guarantee of easy updates to future system requirements.

GMA 300—A controller for all measurement tasks

Every GfG Instrumentation, Inc. remote sensor can be connected to the GMA 300. More than 100 different gases can be monitored.

By means of its three adjustable alarm thresholds, the GMA 300 ensures reliable warning to gas hazards, whether caused by combustible or toxic gases or by oxygen deficiency or enrichment. Corrective actions can always be taken in time.

Performance and unmatched versatility

To date, no other gas monitoring system has achieved the flexibility of the GMA 300. The unit's touch keys and display menus make it easy to customize settings for your application. A coded service key protects the system from unauthorized access.

Alarm—set to your requirements

The three alarm thresholds are adjustable throughout the entire detection range. DIP switches are used for individually programming the alarm functions (latching / non-latching, resettable / non-resettable and exceeding or falling below the set point). A rise-delay time and a fall-delay time on alarm points can be set from 1 second up to 100 minutes.

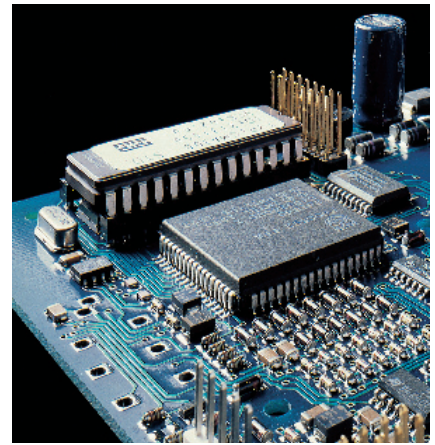
Since every second counts in explosive atmospheres, sudden changes of the gas concentration are recognized by the GMA 300's "Delta-Alarms" even before reaching the pre-set thresholds.

Delta alarm—time lead over gas hazards

With a sudden outbreak of combustible gases, every second counts to prevent damage. The "Delta Alarm" of the GMA 300 gives you the decisive lead. The intelligent GMA 300 immediately recognizes an extraordinarily rapid increase in gas concentration and activates an alarm before a hazardous situation builds up. Three Delta Alarms are available in addition to the three standard alarm thresholds.

Control function

Activation and de-activation of alarms can be delayed for any time between one second and 100 minutes. Time delay relays and controllers are no longer necessary, since the



GMA 300 serves as the central measurement and control unit at no additional cost.

Analog...

Four potential-free relays are available to control external warning devices (alarm lamps, sirens etc.) and emergency shutdown of gas conduits or the electrical current. Logical outputs can be used for collective alarms from a group of remote sensors. The measurement values are available as analog signals (0–10 V or 4–20 mA) for additional processes. A collective alarm card can be plugged into the GMA 300 back panel to form group alarms that work with other GMA 300 controllers.

...and digital outputs

All measurement data, alarms and function adjustments are available from a digital interface, the CAN-BUS. Data can be read by any computer, providing almost unlimited options for data storage and processing. The special GfG software allows professional preparation and documentation of measurement data. The values can be recorded as charts or graphs over extended periods, and data transfer to a database or graphic program is also possible.

All information at a glance

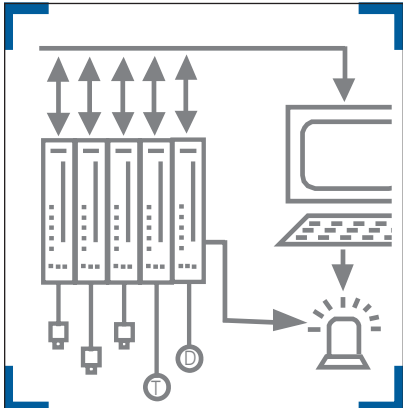
The measurement values are displayed continuously, with trends shown by an additional bar graph. LEDs clearly indicate alarm, operational mode and signals for every single detection point.

Adaptable intelligent monitor

Gas monitoring in production plants requires an exceptionally flexible gas warning system. The GMA 300 control modules can exchange data between each other and a computer. This allows a combination of intelligent monitoring equipment customized to meet your specific requirements. Additional sensors for temperature, pressure and different gases allow evaluation and data storage of these parameters as well. For safety, however, the GMA 300's alarm functions remain entirely isolated from its external data links to maintain their integrity in case of computer failure.

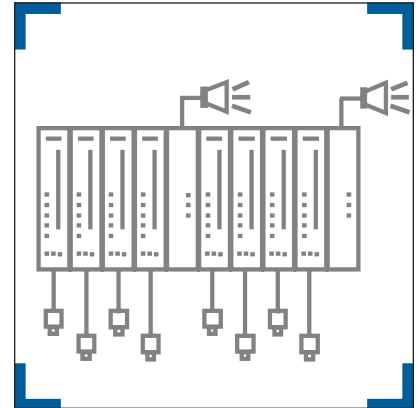
GMA 300

The Intelligent Gas Monitoring System



The four-channel control module

The GMA 300 / 4's control module will monitor up to four remote sensors simultaneously. The four-channel module provides the same variety of functions as the GMA 300. The bar graph display of the GMA 300 / 4 indicates the alarm, operational status and failure for every individual remote sensor, and different LED colors clearly communicate critical information at a glance. The GMA 300 / 4 provides collective alarms for all connected sensors.



Datalogger

The GMA 300 datalogger stores 30 minute averages, minimum and peak values or the complete measurement curve, including date and time, for a period of up to six months. The data can then be stored and retrieved from a computer. Paper records can be eliminated. A battery backup saves the stored data even in case of main power failure. The GMA 300 with datalogger guarantees the availability of all your current and past gas monitoring data.

Single or collective alarms

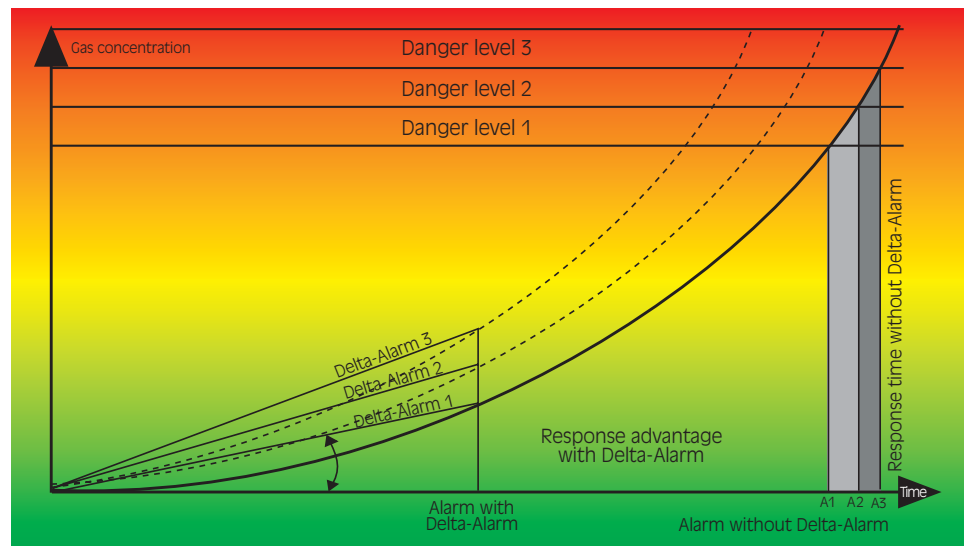
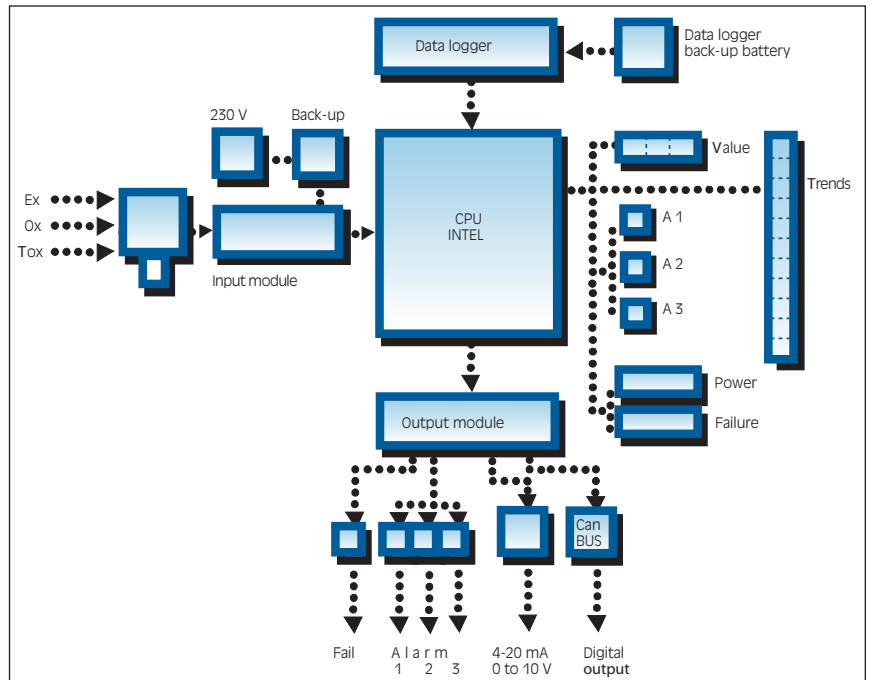
The potential-free contacts of the GMA 300 are activated as soon as the alarm set point for a gas is exceeded. Logical outputs control the relays for collective alarms and the alarm horn on the relay module GMA 300 RB, avoiding costly wiring for collective alarms. The GMA 300 SW key-operated switch disables the alarm during service.

Battery backup

A gas warning system must give a reliable warning even when other systems fail. For the GMA 300, GfG Instrumentation, Inc. developed a special battery backup. Taking the space of only three control modules, the backup system provides an emergency power supply for controllers and remote sensors for a period of up to 12 hours, depending on the type and quantity of sensors.

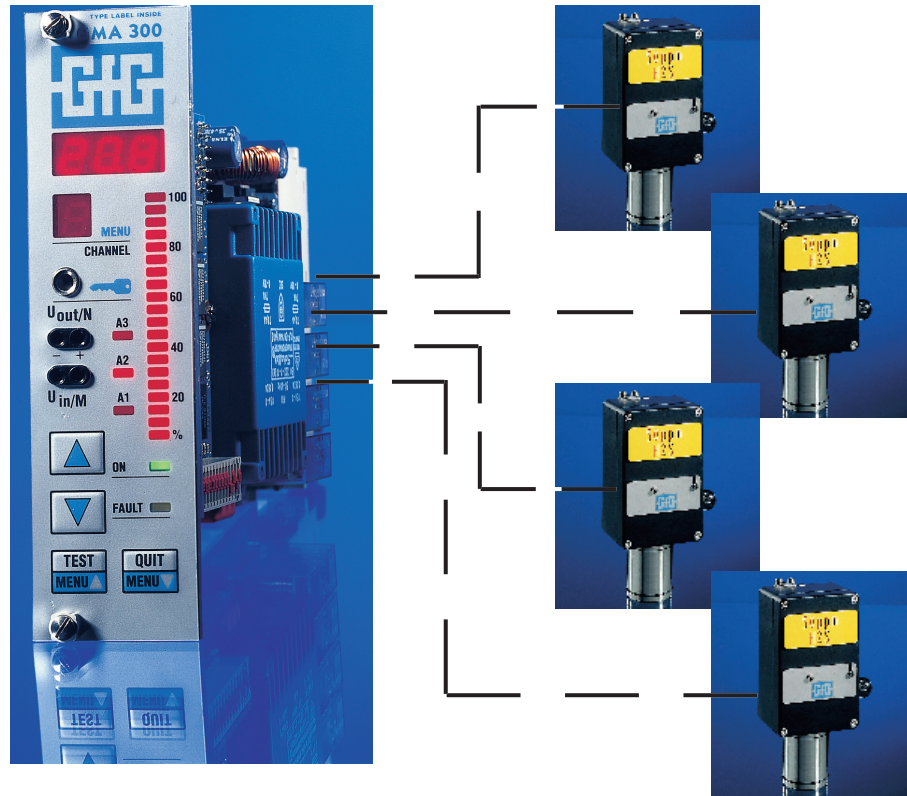
Remote sensors

GfG Instrumentation, Inc. remote sensors are available for more than 100 different gases to allow even complex monitoring tasks. EX-measurement is needed where combustible gases may build up to explosive concentrations, TOX-measurement is required for TLV monitoring of toxic gases and OX-measurement detects the oxygen content of the ambient air.



GMA 300 / 4

Customizable and Compact



Technical Data

GMA 300 gas monitoring system

Gas

Depending on remote sensors
(see relating literature)

Detection Range

Adjustable according to measurement task

Ambient Temperature

14 to 131°F / -10 to +55°C

Humidity

30 to 96% r. h.

Pressure

920 to 1,080 hPa

Power Supply

230 / 115 VAC, 50 / 60 Hz or 24 VDC

Power Consumption

13 W

Display

3 digit LED display for concentration readings
and programming
1 LED green for operation
1 LED yellow for failure
3 LED red for alarm 1, 2 and 3

Output Signal

0-10 V
4-20 mA
4 potential-free relay outputs for alarm and
failure
4 open collector logical outputs for alarm and
failure
CAN - BUS

Relay Load

250 V / 4 A

Function Keys

4 different service keys for maintenance or
changing parameters
Function keys for changing parameters and
altering the menu
Menu and parameter display

Test Sockets (Front)

Remote sensor signal 0 to 1.00 V
Standardized output signal 0 to 10.0 V

Ratings and certifications (intrinsic safety)

VDE Certificate Nr. 87918
DMT Report IBS/PFG 41300596

Weight

10.5 ounces (300 grams)

Dimensions

Control module for a 19 inch rack
5.12x1.4x6.88 inches (128x35x172 mm) (HxWxD)

Specifications subject to change without notification

Distributed by:



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