GMA200-MGSS

Compact Gas sampling system with the proven GMA technology

- Efficient alternative to expensive Gas sampling systems
- Electronic sampling pump pump for sucking from inaccessible areas
- Fully automated flow monitoring
- Internal gas distributor for a catalytic sensor and two electrochemical sensors
- Condensate trap, water filter and flame arrestors to protect the system

smart
GasDetection
Technologies

Compact, flexible, safe

A gas sampling system is required in all places where the gas atmospheres cannot be monitored with conventional transmitters and sensors. In order to reliably measure gases in narrow pipes under high pressure influence, or in complete closed cycle processes or under extreme temperature conditions, samples of the atmosphere must be first removed and placed in a valuable state.

The concept

The GfG gas sampling system GMA 200-MGSS combines all the necessary skills on the smallest space. With a size of only 30x30x10 cm, this it is the smallest available unit for such metrological requirements. Based on the ultra-modern and flexible GfG technology of the gas detection controller GMA200, and on the transmitter series EC/CC22, the gas sampling version comprises only robust and durable components. In the absence of large stainless steel cabinets and without the need to unnecessary house components in the measurement technology, an extremely space-saving, high-quality, yet affordable complete solution is thus obtained.

Measurement Technology

The actual measurement contains a specially constructed measuring block in the in the GMA200-MGSS. This consists of a measuring chamber and up to three measuring units. The compact design saves space and makes costly internal tubings and cabling superfluous. The measured gas must be pumped only in a single measuring chamber and no longer to three different transmitters. This protects the pump and saves energy while delivering significantly faster measurement results.

Integrated relays

Eight internal relays - six of which are freely configurable to allow implementation of safety measures and alarms - make the GMA200-MGSS a very flexible protective device. Optionally, the relay can also switch additional valves, in order to take up to six different extraction gas samples. This will ensure the proper evaluation or the charging of the sensors with fresh air to extend the life of the sensor in aggressive gases. Benefitting the four optional GfG relay modules, up to 70 freely programmable relays are available for the expanding and implementing of comprehensive security concepts.

Clearly arranged display elements

The status LEDs of the suction device show at a glance whether the system is either in operation, in a defective state or in the service mode. The LCD graphic display of the GMA200-MGSS shows the current measurement values. In case of an alarm, both a red backlight of the display, the alarm LEDs, the relay LEDs and the alarm siren are activated, while the respective alarm value is shown on the display.

Operation via keyboard

The operator needs only five keys to operate the suction device GMA200-MGSS. The main features of the keyboard include the possibility to acknowledge the alarms and the menu of the device.

Digital interface GMA-BUS

The bus interface can be used to connect the relay modules GMA200-RT/D or to integrate to the MGSS, into an overall system network. Via this interface, a Modbus protocol in the RTU mode frame is sent, enabling the read and processing of the data by the GMA200-MGSS. The GMA200-Visual software is suitable for the best visualization of these data. An appropriate GfG gateway can make available the current data of the suction device in an Ethernet network, via Profibus or Profinet.

Membrane pump

Flow sensor

Gas inlet

20W power supply unit

gas sensor block

Gas outlet
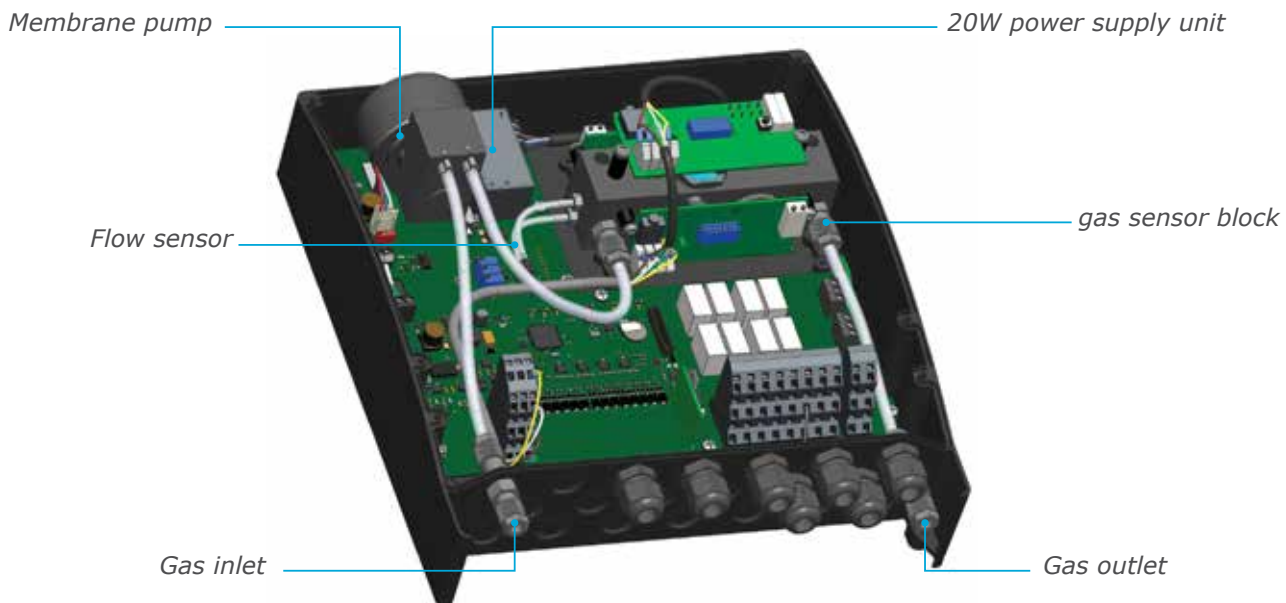
Customization through optional extensions

Optional extensions

The GMA200-MGSS facilities customised on process with optional elements such as cooling coils, filters, a water barrier, Condensate trap and flame arrester guarantee a secure and permanent monitoring of dangerous gas concentrations. Through these options, the GMA200-MGSS is developed with each measurement task.

The flame arrester

If a gas sample is taken from a explosive area, it must be secured with a flame arrester. For this purpose, a flame arrester is integrated in the suction device GMA200-MGSS. In the event that the sample gas is supplied back to the explosive area after the measurement, there is the option to install another flame arrestor at the gas outlet of the GMA200-MGSS device.

Condensate separator

Gas samples may have contaminants such as dust particles and condensate. These pollute and damage the integrated sensors. The condensate trap filters the pollutants from the gas samples and extends enormously the life of the sensors.

Water barrier

When taking samples, it may cause unwanted suction of the water or other liquids. The water barrier effectively prevents the aspiration of fluids when taking samples.

Cooling coil

Gas samples can, if they were removed from areas of extreme temperatures, have their own temperature, which influences the measuring operation or may, in the worst case, damage the sensor. The cooling coil integrated in the intake will cool down or, resp., heat the temperature of the gas sample. A safe and reliable measurement is thus ensured at all times.
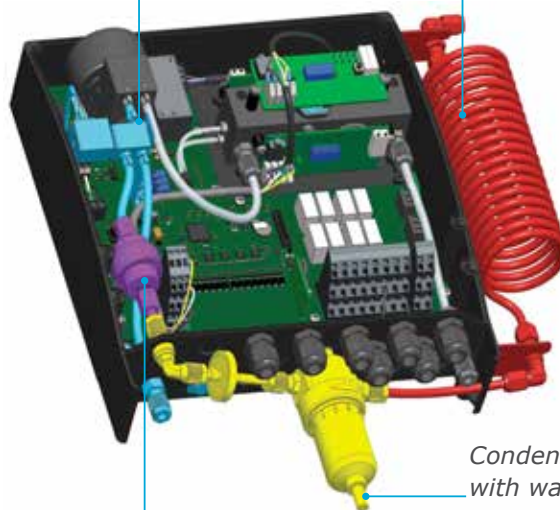
Solenoid valve for test gas job with service switch

6-valve manifold to the suction port switch

Solenoid valve for test gas job with service switch

Cooling coil for the temperature control of the gas meter

Condensate separator with water barrier

Flame arrester FA30

Technical data

GMA200-MGSS

Display and control elements:
2,2" graphics display and 5 keys;
15 status LEDs for alarms, operating
and relay conditions

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

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

Montage site:
only inside up to an altitude of 2000 m
above the sea level

Power supply:
Operating voltage:
100-240V AC 50-60Hz or
24V DC (20-30V DC allowable)

Power consumption:
max. 42 VA

Fuses:
F1=T 500mA (for GMA200) F2=T
500mA (for the gas sensors) F5=T
315mA (for the flow controller)

Measurement gas feed Gas treatment:
Cooling coil (optional)
Condensate separator with water barri-
er (optional) Flame arrester (optional)

Inlet switch: Solenoid valve (optional)

Measuring gas pump:
Membrane pump, flow controlled
(optional)

Gas Sensors:
Catalytic Combustion Sensor:
1 sensor for the flammable gases and
fumes

Electrochemical Sensors:
2 sensors for toxic gases and oxygen

Relays outputs:
Contacts:
8 relays with one inverter

Contact load:
3A/250V AC or 3A/30V DC

RS485 outputs
TRM Bus1:
RS485; Half-Duplex; max. 38400 Baud
(only for GMA200 relay module)

GMA Bus: RS485; Half-duplex; Max.
230400 baud (for GMA200- relay mo-
dule, central unit, PC, PLC or gateway)

Data logger (optional):
2GB microSD card with FAT (FAT16)
formatting

USB port:
Mini-USB socket for device configurati-
on with PC

Connection cable:
Cable entries:
7 Pieces M16x1.5 (for
Cable diameter 4.5-10 mm)

Terminal Blocks:
0.08..2.5mm2 on cross-section

Cable:
3core ≥0.75mm2 LiYY, NYM
(for GMA200 supply)

2core 1x2x0.22mm2 BUS-LD
(for GMA Bus)

Casing:
Protection class:
IP44 or IP54 (depending on version)

Material:
Plastic

Weight:
2.1kg (depending on version)

Dimensions:
270 x 290 x 98mm WHD (depending
on version)

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