



Products & Services

Portable gas detectors and
fixed gas detection systems
for all applications

GfG Gesellschaft für Gerätebau mbH



Performance overview

	Ingress protected housing to IP54	Smart sensor „Plug and Play“	
	Ingress protected housing to IP67	Double sensor CO/ H ₂ S	
	Impact-protected housing	2-/4-wave-length NDIR	 
	EX-certified device	10.6 eV PID sensor for VOCs	
	Visual alarm	Compatible with docking station	
	Vibration alarm	Data-logging (10sec/24/365/20)	
	Audible alarm 90 dB (A)	Infrared data communication (IR)	
	Audible alarm 103 dB (A)	For flammable gases and vapours	
	STEL/TWA alarm	For oxygen	
	180° reversible display	For toxic gases and vapours	
	All information in the display	Comprehensive accessories	
	Zoom function in the display	Stand-alone system	
	Power supply with Alkaline batteries	Password protection	
	... with rechargeable NiMH battery pack	Automatic function/bump test	



The company

Since the beginning in 1961, GfG has positioned itself as the leading specialist for gas detection technology in the market. This position is enhanced by ongoing investment in technology and innovation.

GfG develops electronic gas measurement instruments, which were first used, with great success, in the arduous environments found in the coal mining industry. Today the company manufactures a wide range of both portable gas monitors and fixed gas detection systems, which are capable of detecting a large number of different gases. GfG is investing for the future, not only in products and technology, but also staff training and minimising the environmental impact of our operations for example. High quality, reliable products and service have built our customers' confidence in our ability to deliver: **Technology for people and the environment.**

Custom-made solutions

GfG products are designed for practically all applications where gas detection may be required, including: automotive, chemical and petrochemical, gas transmission and distribution, industry, shipping, power generation, food production, steel manufacture, mining, nuclear energy, construction, landfill operation, water and sewage management, fire-brigades, rescue services, hospitals, research institutes and universities – in fact any area where people and plant need to be protected from gas hazards.

GfG scientists work in close co-operation with leading research institutes, combining our 50 years of experience in gas detection with the latest technology to offer our customers the best solutions to their gas detection needs.

Quality

Safety and quality are GfG's top priority. GfG is certified to **ISO 9001:2008**, as well as **ATEX** and **IECEX QAR QM**. We seek continuous improvement to satisfy and exceed the requirements of our customers world-wide.

Design Excellence



reddot design award



At GfG, it not just innovation in quality that matters – we also invest in designing products with long lifetimes to reduce cost to our customers, and minimise environmental impact. The

Microtector II was the first gas detector to win the prestigious **red dot design award**. Red dot stands for high design quality as well as innovation, durability, and functionality.

In addition, users all over Europe awarded the device for its' quality and ease of use with the **GIT Security Award**.

World-wide reach

The knowledge of GfG's specialists means that detection solutions are possible for the most difficult applications. GfG's international subsidiaries ensure that our customers receive the very highest levels of product and support wherever they are in the world. GfG is a truly international company, able to support its' customers in anywhere in the world.

GfG has manufacturing facilities in Germany, USA, Switzerland and South Africa. Further GfG sales and service centres are located in the UK, France, Sweden, Poland, Austria and Singapore together with a world-wide distribution network.



The future is here now

Purchasing a GfG instrument today is a secure investment for the future. For example, we are continuing to add new sensor technologies and capabilities to our **Microtector II** portable multi-gas detector, opening up new applications. Sensor technology is continually evolving, and our products are designed to accept advances in sensor technology and concepts.

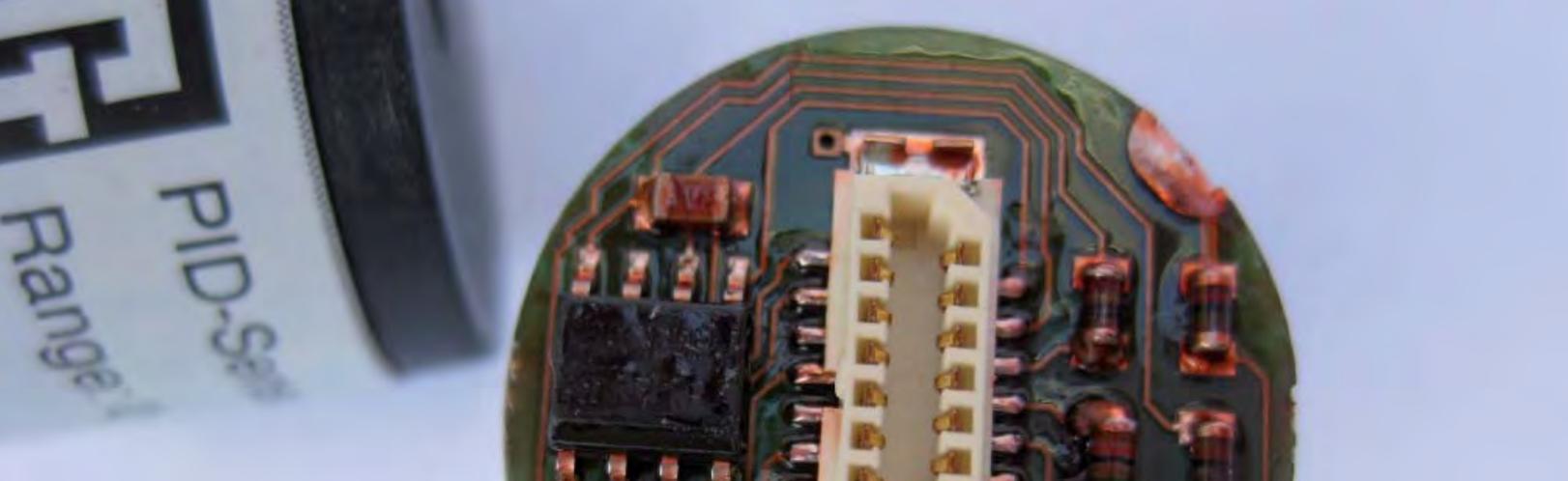
GfG is a partner in many European research projects, which are promoted by AiF, CORDIS, VDI/VDE-IT or the BMBF. Current examples are:

SAVe

SaVe is a complex project, which develops autonomous and networked gas sensing systems for early warning in large industrial plants. Stationary and portable devices are networked bi-directionally, to give fast and comprehensive warning of gas hazards.

AIRSHIELD

In this research project (**A**irborne **R**emote **S**ensing for **H**azard **I**nspection by Network **E**nabled **L**ightweight **D**rones), remote controlled drones for civilian applications are used. GfG sensors are at the heart of these High Tech aircraft. In the future, it will possible to track and analyse poisonous smoke from major fires effectively from the air.



Reliable technology

If toxic or flammable gases are unintentionally released into the environment, life-threatening concentrations can result in a very short time. Danger to people and plant can result. GfG offers safety and security to all users in their daily work.

Fixed gas detection systems

A fixed gas detection system permanently monitors the work environment for possible gas hazards, ensuring maximum safety. Even the smallest gas leak will trigger an alarm to enable action to be taken. GfG has a wide range of transmitters available for detection of more than 500 different toxic and combustible gases/ vapours as well as oxygen.

Portable gas detectors

To ensure the highest levels of personal safety, GfG develops compact, robust and high quality portable instruments. Electrochemical, catalytic, infrared or PID sensors are used to detect all gas hazards which may be present in the work area.

GfG offers solutions for every application, from 1-gas to up to 7-gases at the same time. Very loud audible alarms, high visibility flashing and multi-colour visual alarms and vibration alarms are used to ensure that

the worker is immediately alerted to gas hazards even in dark and noisy environments. GfG instruments offer practical solutions for continuous operation, from daily bump test to full calibration. Long sensor lifetime, low cost of ownership, ease of use and high quality are all trademarks of GfG portable gas detectors.

Water measuring systems

For reliable monitoring of water and brine circulation systems, GfG offers highly developed instrumentation. Whether in sewage treatment, water treatment, swimming pools, chemical plants, refrigeration installations or the food industry - each application requires its' own specific measuring solution.

Building management

For monitoring of exhaust gases in multi-storey car parks, underground parking garages or tunnels, GfG has developed sensors and controllers for the detection of Nitrogen monoxide (NO) and Carbon monoxide (CO) produced by diesel and petrol engines. Simultaneous detection via a double sensor means that immediate action can be taken in the event of a gas hazard being present.

Coupled with global service, GfG offers safety and security to all our users in their daily work.



Custom-made solutions

Decades of experience and partnerships with our customers have made GfG an innovative supplier of optimised gas detection solutions in many industries. Our quality products are designed to satisfy your application needs.

Ever-tougher legislation for the safe handling of dangerous gases continually challenges the GfG team to provide the correct solutions now and in the future. GfG has the right solution for each requirement. Here are some examples of applications where GfG products are used:

The **coal and steel industry** is strictly regulated, and fixed gas detection systems must be used to provide permanent monitoring. In addition, portable gas detectors are used, which warn promptly of flammable and toxic gas hazards.

In the **automotive industry**, hazardous gases are used in many processes. To ensure that workers are adequately protected, the ambient air must be continuously monitored for concentrations of toxic gases, or the threat of oxygen deficiency/ enrichment.

For rescue and **first response teams**, use of portable gas detectors is essential. Toxic gases are produced when materials burn. Flammable gases and vapours may be present. Combustion may also cause a dangerous reduc-

tion in the oxygen level. **Police** and **army teams** have additional requirements, to check for toxic gas hazards associated with illegal drug manufacturing, and terrorist threats.

Water and sewage treatment are areas where flammable, toxic and oxygen depleted environments are frequently encountered. Portable gas detectors, together with docking stations for daily bump check, calibration and data management are normally used.

Many different gases are used in the **production and storage of food** today. Greenhouses contain carbon dioxide detection systems to ensure that plant growth is accurately controlled. This is also important in food storage, where food can be ripened when required by controlling the atmosphere in which the food is stored.

In the **chemical and petrochemical industry**, continuous monitoring of plant areas where flammable and toxic atmospheres can form is required. Gas detection instruments fitted with PID sensors to detect volatile organic compounds (VOCs) may also be required.

GfG offers solutions for all customer requirements, protecting people and plant against any possible gas hazards.



Three alarm levels are available, with a further two (TWA and STEL) for toxic gases. Vibration alarm and an extremely loud 95dB (A) alarm are provided, together with a very bright flashing visual alarm.



A **data-interface station**, and **docking station** are also available which make bump testing, calibration and data management significantly easier and save the user time and money. The Micro IV has an IR interface for fast and simple data transfer.

Motorised pump

Unique for a single gas instrument, the Micro IV has an attachable motorised pump. The pump has its' own power supply, so does not reduce the operational time of the Micro IV.



The robust single-gas Micro IV detector offers unrivalled economy and flexibility for your daily work.

Single-gas detectors



MICRO IV



This innovative single-gas detector was designed for personal. It is small and robust, highly reliable and

available for a wide range of different gases.

The Micro IV is equipped with an extensive range of functions rarely found in a single-gas instrument, and with long sensor lifetime and use of standard AA batteries offers unbeatable long-term cost of ownership.

Using only one AA battery the Micro IV runs for up to 9 months in continuous use. This offers the user maximum safety, together with extremely low operating cost.

The Micro IV uses „**Smart sensor**” technology, meaning that sensors for O₂, CO, H₂S, CO, NO, NH₃ or up to 36 different gases can be quickly and easily interchanged. The sensors are „plug and play”.





Multi-gas-detectors

GfG multi-gas detectors are compact, reliable and simple to operate. Loud audible and bright visual alarms give immediate warning of up to 7 gas hazards at the same time.

A wide variety of gas sensor types and technologies can be accommodated to ensure the best possible protection against all dangerous gases.

The **Polytector II G750** is a robust and flexible gas detector and detects up to 6 different gases simultaneously. The multi-gas detector is based on modules, which makes it usable for all hazardous areas.

The new **Microtector II** series (G450 and G460) are robust, light and compact with a rubberised housing, which is shockproof and waterproof (IP67).

*The innovative multi-gas detectors G450 and G460 have successfully achieved **performance test approval**, and they are certified to **EN 60079-29-1** (combustible gas performance), **EN 50104** (oxygen) and **EN 45544** (toxic).*

A comprehensive **range of accessories** are available, ensuring that the G450 and G460 can be used in all applications.

Microtector II G450

The G450 is a **4-gas detector**, which can detect up to 4



gases simultaneously: LEL, O₂, H₂S and CO. The G450 can be securely fastened to the user's clothing with either a durable crocodile clip, or steel belt clip, ensuring hands free operation.

A large, colour **graphic display** ensures clear readings of all data. The display can be reversed 180° by just pushing a button – this allows the display to be read easily even if the detector is worn on the belt. A **zoom function** allows single values to be magnified for easy reading.

The G450 has **audible, visual and vibration alarms**. The complete display changes colour, like a „traffic light“ from green to orange to red and ensures a safe warning of exceeded alarm thresholds.

Bright, flashing LEDs give additional warning of hazards, and a **103 dB (A)** audible alarm (the loudest on the market) also ensure that the user is instantly alerted.

The G450 is highly flexible, and can be supplied with either a rechargeable NiMH battery pack or alkaline battery pack.

Microtector II G460



This compact and robust portable multi-gas detector is the newest addition to the proven Microtector II family. With five sensor positions, and use of „smart sensor“ technology the G460 offers more powerful detection and flexibility than ever before in a compact instrument. Such is the innovation in the G460, that up to **7 gases** can be detected **simultaneously**. A patented multi-frequency IR sensor for detection of CO₂, methane, propane or n-nonane is available.

The G460 is the smallest detector in the world which can be equipped with both PID and infra-red sensors. The internal data-logger records gas concentrations detected, alarms, calibration and instrument usage details. The data storage capacity can be increased by inserting an SD memory card to give 45 years

of data-logging. For the first time, a worker's lifetime exposure information can be stored on one instrument.

Accessories and Options

A wide range of accessories and sensor combinations ensure that the G450 and G460 can be used in all applications.

An attachable **high-performance pump** is available, that can be switched on and off, giving the user the flexibility of working in either pumped or diffusion mode. The pump has its own power supply so does not reduce the run time of the instrument.

Another innovation is the optional **Ex certified LED flashlight**, which is built into the battery pack. Either rechargeable NiMH battery packs or alkaline battery packs can be used. A **variety of chargers** are also available, so that charging over a range of voltages from 12/24Vdc, 115VAC to 230VAC is possible. The charger is also the platform for data transfer from the Microtector II to PC.

The **Dockingstation DS400** is a complete device management system, that offers the user reduced cost and time for performing functional tests (Bump tests), calibration and documentation. The DS400 ensures that your detectors are always ready to go, in a safe condition and at a minimum cost.



redDot design

GIT SECURITY AWARD





Controller systems

GfG fixed systems are available in various mounting formats; either **DIN-rail mounted**, **wall mounted** or as part of a **19" rack**.

DIN-rail mounted

GMA40 series

This series comprises flexible, cost-effective controllers for DIN-rail mounting. The controllers can be clipped directly on to standard DIN-rails in switchgear cabinets. Multiple controllers can be connected.



Each controller has four relays which can be switched normally open or closed. These relays can activate external alarm devices, or switch on ventilation, for example. Using an internal **plug connector** (bus system), a number of controllers can be combined as an option. A common power supply and transmission of multiple alarms can therefore be achieved without the need for additional wiring.

The **3-digit LED display** provides continuous reading of gas concentrations. Detection range and gas type can also be displayed simply via a button push. Zero adjustment and calibration are easily performed via push buttons. The max/min gas concentration detected is accurately recorded in memory after an alarm. The highest or lowest measured value is stored and displayed on the LED display.

A 4-20mA output (GMA41) means the transmitter signal can be forwarded to other control or data-logging equipment.

GMA40 series versions:

GMA41 for 1 transmitter, to control 1 detection point (1-channel) and 4-20mA output.

GMA43 for 3 transmitters, to control up to 3 detection points (3-channel)

GMA44 for 4 transmitters, to control up to 4 detection points (4-channel).

Fixed gas detection systems

A fixed gas detection system permanently monitors the work environment for possible gas hazards, ensuring maximum safety. Even the smallest gas leak will trigger an alarm to enable action to be taken.

Controllers

When used with the appropriate **transmitter, controller units** provide a complete gas detection system for a large number of different flammable gases, toxic gases and oxygen. All transmitter types can be connected. More than 500 different gases and vapours can be monitored.

Transmitters

In many industrial applications, permanent monitoring of certain areas is necessary. Controller units with transmitters for **flammable gases**, **toxic gases** and **oxygen** depletion/ enrichment protect people and plant.

For example, many different gases are used in the production and storage of food today. Controller units with transmitters for detection of **carbon dioxide**, **ammonia** or **oxygen** ensure optimum protection from possible gas hazards.

...**B** with integrated bus system for power supply, transmission of alarm and failure reporting.

...**EC** with integrated power pack for operation of transmitters with electro-chemical sensors

...**ECB** with integrated power pack for transmitters with electro-chemical sensors and bus system

GMA 160 series



This system was specifically developed for the **monitoring and ventilation control** of underground car parks, where CO and CO gas are a hazard. Both gases can be detected at the same time. The micro-

processor-based GMA160 is highly configurable, and a wide variety of different alarms can be programmed.

Another version, **GMA160.A** allows other gases to be monitored, e.g. oxygen, toxic and flammable gases.

Series versions:

GMA160 CO for up to 8 CO-transmitters (8-channel)

GMA160CO/16 for up to 16 CO-transmitter (16-channel)

GMA160 NO for up to 8 NO-transmitter (8-channel)

GMA160 CO/NO for up to 8 CO/NO dual-sensor transmitters (16-channel)

GMA160 A alarm version (for other gases)

System GMA 011



The GMA 011 is a practical control system for one transmitter.

The controller is compact, only **70mm wide**. A variety of different transmitters for flammable gas, toxic gases and oxygen can be attached. Alarm thresholds can be adjusted from the front panel.

Wall Mounted

GMA80 series

These compact, wall-mounted controllers are highly flexible and can be used in all application areas. Three alarm thresholds can be individually adjusted.



In addition, each controller has four floating relays which can be switched normally open or closed. These relays can activate external alarm devices, or switch on ventilation, for example. Gas leaks are rapidly detected.

Series versions:

GMA81 for 1 transmitter, to control 1 detection point. 3 adjustable threshold alarms are available and 4-20mA output.

GMA83 for 3 transmitters, to control up to 3 detection points. Individual alarms for each transmitter.

GMA84 for 4 transmitters, to control up to 4 detection points. 3 adjustable threshold alarms as common alarms are available.

GMA88 for 8 transmitters, to control up to 8 detection points. 3 adjustable threshold alarms as common alarms are available.

The GMA 81, 84 and 88 are also available with integrated audible and visual alarms (**GMA...A**).

This removes the cost for additional wiring and external warning devices.



19" Rack-mounting



The **GMA101** and **GMA300** series are rack-mounted microprocessor-based control and monitoring systems for all gas detection applications. Depending on the transmitter type connected, the GMA101 or GMA300 series form a complete gas detection system for detection of toxic, oxygen or flammable gases. The wide variety of functions and high degree of flexibility available mean that the systems can be adapted for all applications. 3 alarm thresholds per can be set per detector. Additional relay and alarm functions are available. In case of mains failure the optional battery back-up takes over automatically and without delay.

The **GMA101's** highly flexible construction and variety of functions make the system suitable for all applications. Gas concentration, gas type and detection range can all be displayed via a simple button push.

In addition to the GMA101 system, the **GMA300** offers digital communication via CAN OPEN bus. Gas concentration is continuously shown on a 3-digit LED display. Gas concentration, gas type and detection range can all be displayed via a simple button push.

Transmitters

Infrared (IR)



Transmitter IR29 Pathfinder for flammable gases

The stainless steel enclosure and powerful soft-and hardware make the IR29 suitable for all applications. The transmitter guarantees trouble-free detection of flammable gases and vapours – from ppm range to the lower explosion limit (LEL), up to the % vol range. Patented **4-wavelength infrared technology** ensures



measurement accuracy and long-term stability. Built-in audible and visual alarms give clear alarm status recognition. The IR29 is also available in an **intrinsically safe version**, suitable operation in Zone 0.



Transmitter IR24 for carbon dioxide (CO₂) or methane in non

Ex-proof applications

Infrared gas detection is unique and completely selective. The electronics ensure permanent accuracy, even when exposed to temperature variations. Infrared sensors have a proven lifetime of more than 5 years.

Chemosorption (CS)



Transmitter CS21 toxic and combustible gases and vapours in non

Ex-proof applications

The extremely short response time of the transmitter and a wide temperature range makes the CS21 useful for a variety of applications, particularly for the **protection of refrigeration plants**.



Charge Carrier Injection (CI)



Transmitter CI 21 for ammonia

This transmitter has been specially designed for detection of ammonia in refrigeration plants. The detection principle „Charge Carrier Injection“ (CI) combines the specificity of electro-chemical sensors with the longevity of chemosorption sensors (CS).

Cross-sensitivities are largely eliminated. The sensor signal remains stable over a wide temperature range. The transmitter CI21 covers a wide range of operation, which other sensors do not provide.

Zirconium dioxide (ZD)



Transmitter ZD21 for oxygen

This measurement technology has an extremely fast response time and excellent long-term stability and selectivity. The sensor is very resistant to the effects of pressure and temperature changes, or changes to humidity. It is also resistant to CO₂, a disadvantage for conventional electrochemical oxygen sensors in certain applications.

Catalytic Combustion (CC)



Transmitter CC28 for flammable gases and vapours

Wherever flammable gases or vapours are found, the CC28 provides the best solution for safe monitoring.

Using GfG's unique „**Smart sensor**“ technology, coupled with a special „chimney-effect“ the CC28 transmitter has the fastest response time on the market, detecting flammable gases using catalytic bead technology. The gas alarm is transmitted to the control panel, simultaneously warning the control room and the worker in the hazardous area.



Versions for all applications:

CC28 basic unit

CC28 D with display of gas concentration

CC28 DA with bright LED visual alarm and loud audible alarm. The extra costs for installing Ex-certified audible and visual alarms are removed. ATEX-certified design, built-in EX-certified sounder and bright LED lights allow safe operation within highly flammable areas. When used in conjunction with the GMA controller series, a programmable delta alarm function can be used to shorten the response time still further.



Electrochemical (EC)



Transmitter EC28 for toxic gases, hydrogen and oxygen

Wherever toxic or oxygen gas hazards are to be found, EC28 provides the best solution for safe monitoring.

Versions for each application:

EC28 basic unit

EC28 D with display

EC28 DA with bright LED visual alarm and loud audible alarm. The extra costs for installing Ex-certified audible and visual alarms are removed.

EC28 DAR with LED visual alarm, loud audible alarm and external alarm relay

EC28 B with MODBUS connection

EC28 DB with display and MODBUS output

EC28 DAB with bright LED visual alarm and loud audible alarm, also MODBUS output.

EC28 i intrinsically safe version, basic unit

EC28 Di with display

ATEX-certified design, built-in EX-certified sounder and



bright LED lights allow safe operation within highly flammable areas. Sensor exchange is quick and easy due to „Smart sensor“ technology.

Different gas sensors can be fitted to the same transmitter. One-man calibration at the transmitter is also possible, without the need to open the housing.



Remote control RC2 and RC3



Remote control RC2 for transmitter series CC28, EC28 and IR29

The RC-2 remote control is connected to the transmitter via a cable, and makes one-man remote calibration and maintenance possible. If transmitters are installed close to the ceiling, all adjustments can be made comfortably from floor level. When connected to transmitters without display, the remote control shows the detected values on its' own display. The cable can be used over distances up to 10 metres.



IR-remote control RC3 for transmitter series IR29 Pathfinder



The RC-3 is a wireless remote control for use with the IR29 Pathfinder – no cable is required. The RC-3 has a wireless range of up to 6 metres.

CO-NO Detection



Transmitter for measuring exhaust emissions

In multi-storey, underground car parks or tunnels, vehicles produce toxic gases: primarily Nitrogen monoxide (NO) from diesel engines and Carbon monoxide (CO) from petrol engines.

To ensure accurate detection of these gases, special transmitters and controllers have been developed by GfG.

GMA160 controllers allow zoning to be set up within, for example, a car park or tunnel. Different ventilation actions can be programmed for different zones. When toxic levels of gas are detected, ventilation is activated automatically, and warning alarms generated.

Simultaneous detection of CO and NO in one transmitter is possible with the double sensor DS (double sensor) version.

GMA160 is the optimum solution for management of areas where vehicle emissions can be a hazard.



Stand-alone systems

GMA36 pro



For toxic gases, hydrogen and oxygen

A complete transmitter and controller in one unit - an intelligent and flexible measuring system, simply wall mounted with integrated sounder and alarm LEDs. Configuration and calibration use simple menus accessed via the 3 keys on the front panel. Operation and maintenance are straightforward. The AutoCal program ensures an automatic calibration of the sensor to a known concentration of test gas. The GMA36 pro uses smart, plug and play electro-chemical sensors that can be easily exchanged.



GMA 011. RC



For ammonia monitoring

A complete transmitter and controller in one unit, simply wall mounted. Integrated relays can activate external alarm devices, or switch off production lines, for example. An electro-chemical sensor with a large temperature range is used, even at -30C. At these lower temperatures, auxiliary heating is used. A 4..20 mA output is provided for external signal applications.



Service, support & project planning

GfG offers a comprehensive service for consultation, planning, project engineering, start-up, repair, maintenance and long-term support. Our offering is constantly reviewed, in order to support our customers' new challenges and objectives.

Regular maintenance ensures that regulations are complied with, and the mandatory safety standards met.

GfG means **safety and quality**. GfG products support our customers in their daily work over the long term, protecting them against possible gas hazards. Should a repair be necessary, this is actioned quickly and reliably by suitably trained personnel.

GfG serves many applications. Specialized sales engineers and experienced technicians support our customers globally via an extensive service network. These measures ensure high product availability of the products and fast response for maintenance and service of all products. **Technology for people and the environment.**

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