

Polytector III G999

7-Gas-Detector with integrated wireless module and suction pump



- Integrated wireless module for transmission of all measurement data and dead man's warning
- 13cm small / 320g light
- Full featured, rugged design (IP67)
- Optical alarm system with colour-change display
- Extremely loud alarm, 103 dB(A) for optimum personnel protection
- Simultaneous monitoring of hydrocarbons (Methane, Propane and acetylene) and carbon dioxide
- 4-beam infrared sensor (NDIR)
- Up to 4 selective electrochemical sensors
- PID sensor for direct reading of toxic volatile organic compounds
- Integrated suction pump

Technology for people and the environment



Safe and simple

The Smallest All-rounder

The Polytector III G999 is the smallest and lightest multi-gas detector with a wireless module and integrated suction pump in the world. With five sensor slots and the ability to measure up to 7 gases simultaneously, the Polytector III G999 offers more than comparable detectors. Depending on which sensors it is equipped with, this gas detector warns users of hazards due to toxic, flammable gases and vapors, as well as against a lack of oxygen or excess oxygen. Due to individual sensor combinations and a wide range of accessories, the Polytector III G999 is suitable for every set of requirements.

Wireless

A special highlight of the Polytector III G999 is its ability to transmit the current measurement data wirelessly to a nearby control center. This means the head of operations always has precise information about the current hazards to which his or her employees are exposed. An additional acceleration sensor informs the head of operations when the detector carrier is in motion and even in which position it is in (vertical/horizontal). In addition, the Polytector III G999 is equipped with a dead-man's warning. In an emergency, this means no time will be lost before you are able to take appropriate rescue measures. The range of the wireless unit is 100 m. The wireless signal can be amplified using a separate repeater so that the



range of the signals can be extended to 1500 m and can penetrate stable brick walls.

Easy operation

The Polytector III G999 has just three buttons. The device is ready for operation after pressing just one button. Two more buttons and a clearly structured menu guarantee intuitive handling. The pump is turned on by sliding the sliding switch. Since the diffusion openings are all covered at the same time, the result of the measurement will not be affected by the ambient air.

Smart sensor technology

Depending on the version of the device used, you can use a combination of precalibrated, plug-in sensors. All sensors such as electrochemical or infrared sensors are detected automatically, and all parameters, properties, and gas-specific limit values are applied and processed. The sensors are characterized by a long service life, high measuring accuracy, quick response, and low cross-sensitivities.

Sensor combinations and device variants

In principle, there are numerous different sensor combinations possible. The sensor slots can be equipped as desired with the following number of sensors:

11 catalytic combustion sensor (CC) for CH₄, 1 infrared sensor (IR) and 4 electrochemical sensors (EC), and 1 photoionization detector (PID).

Some sensors can detect several gases, which, when optimally combined, can be used to implement up to 8 gas monitoring tasks simultaneously using a single device.

Experience has shown that the following combinations are used in far more than 80% of applications.

Variant 1

1 IR and/or 1 CC and up to 3 EC
Potential applications can be found in all areas in which gases are produced, processed, and need to be monitored. If you want to monitor flammable gases in the LEL range or in their % by volume as well as CO₂ at the same

time, then our infrared sensor is the right choice. If broadband monitoring of all flammable gases is sufficient for your application, then you can use our reliable WT. Three additional electrochemical sensors can then be selected according to your needs (e.g.: O₂, H₂S, and CO)

Variant 2

(in development)
1 IR and up to 4 EC

Potential applications can be found in many areas, e.g. in sewage treatment plants, in the biogas segment, or on refrigeration units, just to name a few. Equipping the sensor slots in this manner is useful and safer anywhere where you need to measure flammable gases as well as monitor chlorine or ammonia levels, for example, in addition to the "standard" gases.

Other variants are possible.

Reliable detection of CO₂ and CH₄

Equipped with a selectively measuring 4-beam infrared sensor (NDIR), it is possible to detect CO₂ in ppm or % by volume and flammable gases in the LEL and % by volume ranges. Damage to the sensor from substances toxic to the sensor, e.g. silicone compounds or hydrogen sulfide, is impossible when you use the IR technology. An advantage of IR sensors over heat tone sensors is that they will not be damaged, even at high gas concentrations, and will supply precise measurement values.

The infrared principle (NDIR)

With only one IR measurement chamber, the Polytector III G999 can precisely detect carbon dioxide, methane, propane, and especially acetylene (hydrocarbons) at the same time. The sensor uses up to four detector elements to accomplish this. The absorption paths and wavelengths of the beams are optimally designed to match the gases and the measurement ranges. As an option, the infrared sensor can be equipped with pressure compensation if large fluctuations in the atmospheric pressure are expected in the application (e.g.: in underground mines).

Practice-oriented Design

PID photoionization detector

Light volatile organic compounds (VOC) such as solvents and gasoline, diesel, heating oil, or kerosine vapors are hazardous to your health even in low concentrations. The Occupational Exposure Limit values (OELs) for most VOCs are so low that they cannot be detected with other types of sensors. The photoionization detector from GfG is able to detect 300 of these compounds optimally, and many can be detected at concentrations below 1 ppm.

Data logger

The integrated data logger records the measured gas concentrations and activates alarms over a period of up to 45 years. The data stored can be read out and documented using the TS400 test station or the DS400 docking station.

Large display with zoom function

Due to the clear graphic display and the 180° rotation, the measured values can be read out at any time (even under extreme conditions). The great thing about it: you have both hands free in every situation. A zoom function provides individual measured values temporarily using an oversize font. This makes it unnecessary to wear reading glasses under the protective mask. The zoom display makes it easier to read individual measurement values, and it also displays additional information on the corresponding gas measured.

Innovative alarm system

Alarm situations are signaled acoustically using multi-frequency alarm tones at 103 dB (A) and are also signaled visually. The visual alarm system, based on the principle of a traffic light, significantly increases the comprehensibility of the alarm. The entire background of the display changes to the corresponding color, from green to yellow and red. In addition, the surrounding LED strip blinks in the same color as the alarm displayed:

Red

Second alarm, highest alarm level!

Yellow/orange

First alarm, caution!

Green

All measured values are in the normal range



Alarm limit values

Three alarm limit values for flammable gases and oxygen as well as two current limit values for toxic gases indicate its high performance. In addition to the Occupational Exposure Limit value (OEL), the Long-Term Average value (LTA) and Short-Term Average value (STA) are also monitored automatically, and their average values are stored. All limit values are protected by a code that you can specify individually.

Suction pump

The integrated high-performance pump can intake gases with its high suction capacity at distances of up to 50 m. The pump allows for enormous flexibility when taking samples remotely. The safe solution for applications outdoors and in tight spaces, tanks, basement rooms, or channels. When the pump is switched on (using a simple sliding switch), the diffusion openings are covered and the measured results are not affected by air currents. A filter system protects the pump and sensors from dust and

moisture. When the pump is switched off, the gas detector automatically switches to the diffusion mode.

Ex-protected lamp

The Polytector III G999 is equipped with an integrated ex-protected lamp. Among other uses, the lamp can be used to illuminate dark shafts or channels in a room.

Water-resistant

Due to its high quality rubber coating, the Polytector III G999 is slip-resistant, shock-resistant, and water-resistant (IP67).

Safety meets design

The Polytector III G999 unites technical innovation with attractive design. Independent design awards confirm the outstanding performance in terms of design and functionality, while highlighting its compact size and exceptionally low weight in particular.



Polytector III G999 with suction lance

Technical data

Polytector III G999

Detection principle

Electrochemical (EC) (up to 4):

Toxic gases and oxygen
(ppm / %Vol)

Catalytic combustion (CC):

Flammable gases and vapours
(to 100 %LEL)

Infrared (IR):

Carbon dioxide (%Vol / ppm)
Flammable gases and vapours
(100 %LEL and %Vol)

Photoionization detector (PID):

VOC (ppm)

Expected sensor lifetime:

Up to 5 years, depending on sensor

Test gas supply:

Diffusion, suction pump for a suction distance up to 50m

Display:

Illuminated full-graphic LCD with colour change for alarm, automatic size adjustment for optimal readout, zoom function for maximum readability, gas concentration at current value and peak level, indication of battery capacity and real time clock

Alarms:

Depending upon gas type, 3 instantaneous and 2 calculated exposure alarms, battery alarm

Optical alarm:

Colouring of the display depending upon alarm condition of the equipment (green/orange/red), 360° circulating red LED

Audible alarm:

103 dB(A)
can be reduced to 90 dB(A)

Temperature:

Operation: -20°C .. +55°C
Storage: -25°C .. +55°C
(recommended 0 .. +30°C)

Humidity:

Operation and storage:
5 .. 95 % r. h.

Pressure:

Operation and storage:
700 .. 1300 hPa

Zero point / calibration adjustment:

User-friendly, calibration via AutoCal function (pre-programmed function via service menu), manual calibration via service menu (code necessary)

Power supply:

NiMH battery rechargeable

Charging:

Charge and trickle charge via drop-in charger and dockingstation

Abmessungen:

68 x 100 x 30 mm (WxHxD)
Display diagonal 55 mm

Wight:

225 g depending upon sensor configuration

Material:

Rubberised polycarbonate

Protection class:

IP67

Inspection date:

Displayed after activation

Datalogger:

30 hours (interval of 1 minute)
1800 measured values per gas, adjustable intervals (1 s – 60 min)
recording of average, peak or instantaneous values selectable

Approval:

applied for

EC Type Examination Certificate /

EEC Performance Test Approval:

applied for

Electromagnetic compatibility:

applied for

Sensor combination		Sensor slots				
Gas	Measurement range	1	2	3	4	5
Ammonia NH ₃	0-200 ppm	EC	EC	EC		
Combustible gases: Methane, Propane, Hexane, Nonane	0-100 % LEL				CC	IR
Chlorine Cl ₂	0-10 ppm		EC	EC		
Chlorine dioxide ClO ₂	0-2 ppm		EC	EC		
Hydrogen Chlorine HCl	0-30 ppm	EC	EC	EC		
Ethylene oxide C ₂ H ₄ O	0-20 ppm		EC	EC		
VOC - Isobutylene C ₄ H ₈	0-500 ppm		PID			
VOC - Isobutylene C ₄ H ₈	0-2000 ppm		PID			
Carbon dioxide CO ₂ and Methane	0-5 Vol.-% 0-100 % UEG 0-100 Vol.-%					IR
Carbon dioxide CO ₂ and Methane, Propane, Nonane	0-5 Vol.-% 0-100 % UEG					IR
Carbon dioxide CO ₂ and Methane, Propane, Nonane	0-25 Vol.-% 0-100 % UEG					IR
Carbon monoxide CO	0-300 ppm	EC	EC	EC		
Carbon monoxide CO reduced H ₂ -sensitivity	0-300 ppm 0-500 ppm	EC	EC	EC		
Carbon monoxide CO	0-1000 ppm	EC	EC	EC		
Carbon monoxide CO	0-2000 ppm	EC	EC	EC		
Carbon monoxide CO and Hydrogen sulphide H ₂ S	0-500 ppm 0-100 ppm	2x EC				
Phosphine PH ₃	0-10 ppm	EC	EC	EC		
Oxygen O ₂	0-25 Vol.-%	EC	EC	EC		
Sulphur dioxide SO ₂	0-10 ppm	EC	EC	EC		
Hydrogen sulphide H ₂ S	0-100 ppm	EC	EC	EC		
Hydrogen sulphide H ₂ S	0-500 ppm	EC	EC	EC		
Nitrogen monoxide NO	0-100 ppm		EC	EC		
Nitrogen dioxide NO ₂	0-30 ppm		EC	EC		
Hydrogen H ₂	0-2000 ppm	EC	EC	EC		
Hydrogen H ₂	0-1 Vol.-%	EC	EC	EC		
Hydrogen H ₂	0-4 Vol.-%	EC	EC	EC		

Overview of gases and measurement ranges, more gases on request

