Portable Gas Detectors

smart
GasDetection
Technologies

G999S

Versatile gas detector for six measuring tasks

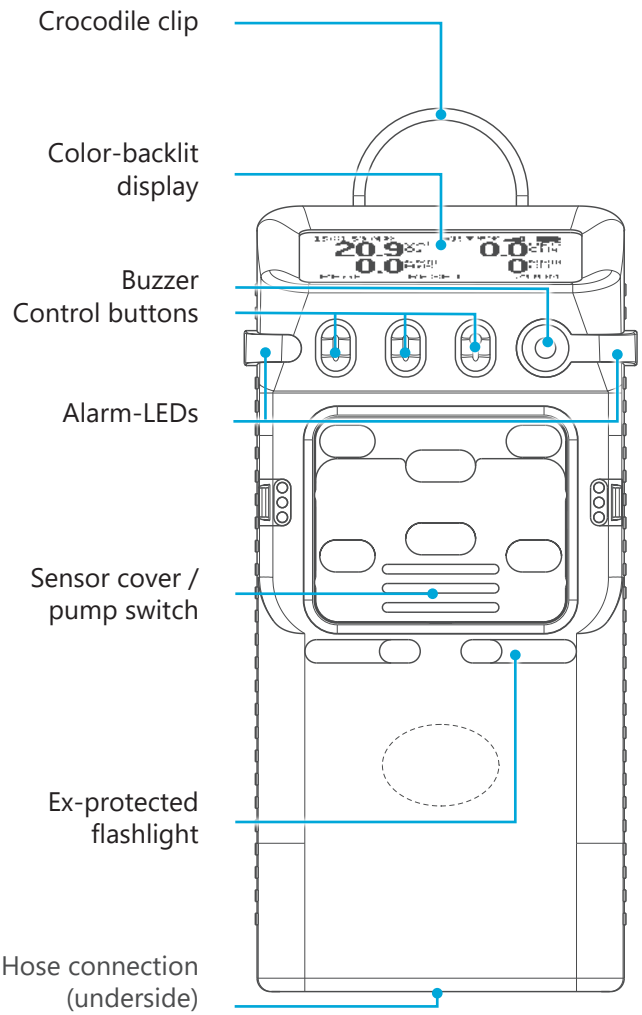
www.gfgsafety.com/us-en

Polytector III G999S –

Versatile gas detector

The Polytector III G999S expands the reliable G999 series with a multi-gas detector using a hybrid sensor for applications using natural gas or hydrogen. The sensor, which was specifically designed for this purpose, uses semiconductor (SC), catalytic combustion (CC) and Thermal Conductivity (TC). This combination allows a single sensor to seamlessly detect methane in measuring ranges from 0 to 10,000 parts-per-million (ppm), 0 to 100% of the lower explosion limit (LEL) and 0 to 100% volume as well as hydrogen in the H_2-ready range (0 to 25% volume).

Depending on the measuring task, the G999S can also be used in a sniffer mode, for explosion protection, for measuring gases in the HI%* range (e. g. 100% volume CH_4) or as a CH_4 leak detector. Should the application require it, the G999S can contribute to your personal safety by monitoring the ambient air (diffusion mode) or help you analyze the air in confined spaces or containers before entering them (pump mode). The G999S features slots for three electrochemical sensors (EC) and one infrared sensor (IR), just like the other G999 detectors. Choose from a large selection of smart EC sensors for toxic gases, hydrogen or oxygen and IR sensors for carbon dioxide, hydrocarbons or a combination of the two and expand the spectrum of the gases you can measure simultaneously.



G999S device design

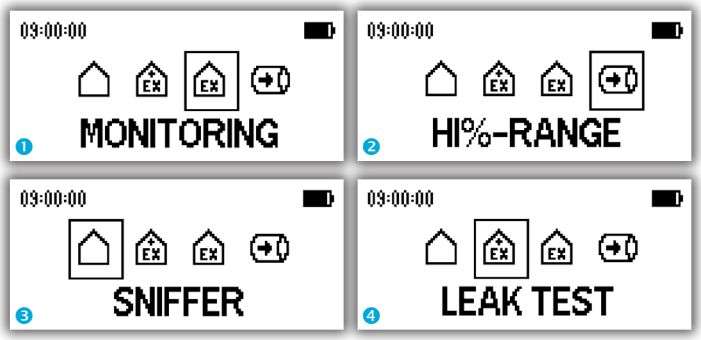
**HI% is the Volume (0-100%) measurement for explosive (CH_4) gases*

Versatility thanks to hybrid sensors

What makes the G999S unique is its hybrid sensor which is available with either two or three sensor elements and measuring methods. On the two-element version (CC/TC), you can switch between explosion protection mode and HI% measurement mode (CH_4 or H_2). On the three-element version (CC/TC/SC), you will additionally have the sniffer and leak detection mode (CH_4 only) available. Depending on the measuring task, either all of the sensor elements or just individual ones will be active. The hybrid sensors for the G999S are optionally available with a filter for increased resistance to poisoning from substances such as silicones and halogens.

MK246 MK241

« The G999S seamlessly switches between different measuring ranges. »



❶ In **Explosion Protection** mode, the catalytic combustion sensor is active to monitor the lower explosion limit (LEL) of methane. If an alarm threshold is exceeded (e.g. 20% LEL), the G999S will immediately signal an alarm. This sensor element is also active in normal measuring mode using diffusion and in pump mode.

❷ The thermal conductivity sensor is activated for Gas Detection in the HI% range and measures either up to 100% volume methane or up to 25% volume hydrogen, without sounding an alarm.

❸ When used in **Sniffer** mode, the gas detector will sense even the smallest amounts of methane in the ppm range. An audible signal, with a frequency proportional to the measured methane concentration (up to 10,000), will assist you in searching for the source of gas. The CH_4 concentration is also displayed in a bar graph.

❹ In **Leak Test** mode, all sensor elements are active and the measuring range will automatically switch between resolutions according to the measured CH_4 concentration (up to 5,000 ppm <> up to 100% LEL <> 100% vol.).

Overview of Hybrid Sensors:

Sensor	Filter	Sensor elements and measuring ranges						Modes
MK241-0	–	CC	0 – 100% LEL[1] 0.5% resolution	TC	0 – 100% volume CH_4 0.1% resolution			
MK241-1	✓	CC	0 – 100% LEL[1] 0.5% resolution	TC	0 – 100% volume CH_4 0.1% resolution			
MK241-1	✓	CC	0 – 100% LEL[1] 0.5% resolution	TC	0 – 25% volume H_2 0.5 ppm resolution			
MK246-0	–	CC	0 – 100% LEL[2] 0.5% resolution	TC	0 – 100% volume CH_4 0.1% resolution	SC	0 – 10,000 ppm CH_4 2 ppm resolution	
MK246-1	✓	CC	0 – 100% LEL[2] 0.5% resolution	TC	0 – 100% volume CH_4 0.1% resolution	SC	0 – 10,000 ppm CH_4 2 ppm resolution	

[1] CH_4 (methane), C_3H_8 (propane), C_4H_{10} (butane), C_5H_{12} (pentane), C_6H_{14} (n-hexane), H_2 (hydrogen), C_2H_2 (acetylene), C_2H_4 (ethylene), C_2H_6 (ethane)

[2] CH_4 (methane), H_2 (hydrogen), C_2H_2 (acetylene), C_2H_4 (ethylene), C_2H_6 (ethane)

Safety while working and measuring

The G999S is suitable for use in biogas plants. In pipeline construction and for energy suppliers (natural gas and HCNG), its versatility is an advantage for personal protection since it warns its users of dangerous gas concentrations in the ambient air or for clearing shafts and ducts before entering them. The gas detector can also be used to discover even the smallest CH_4 leaks as well as for gas analysis in the high-percentage range. The thermal conductivity sensor can also be used in applications where HI% measurements with an infrared sensor are not possible, for example in high humidity or for H_2 and natural gas.

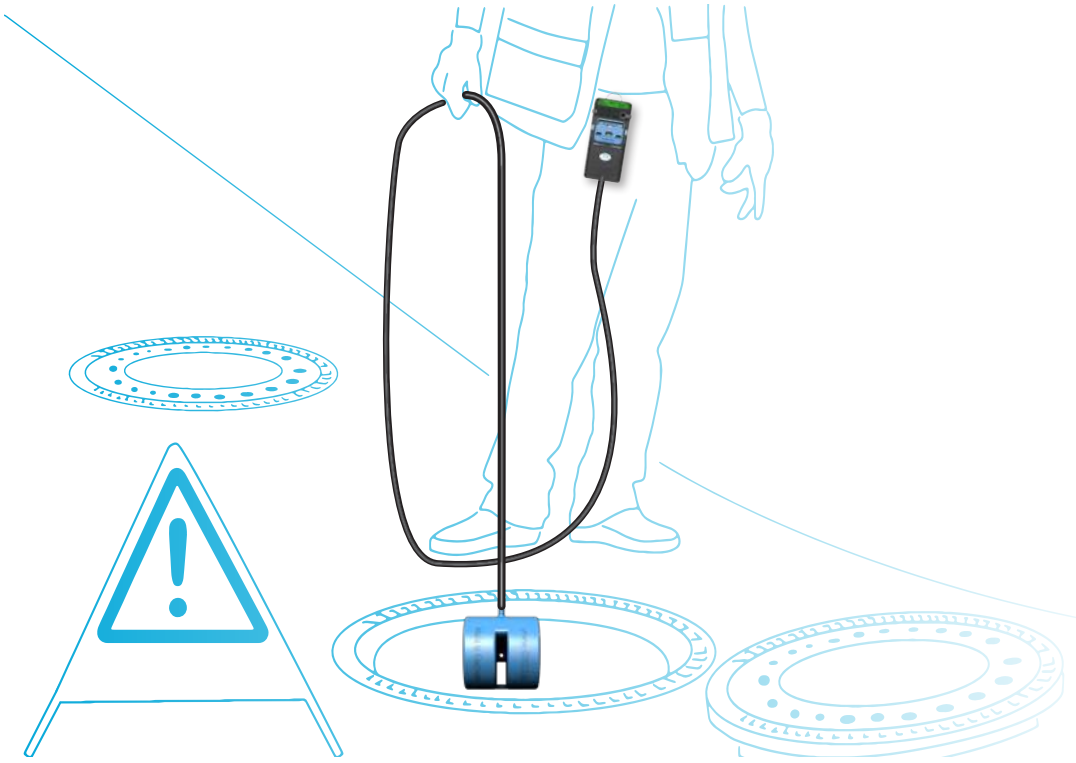
G999S

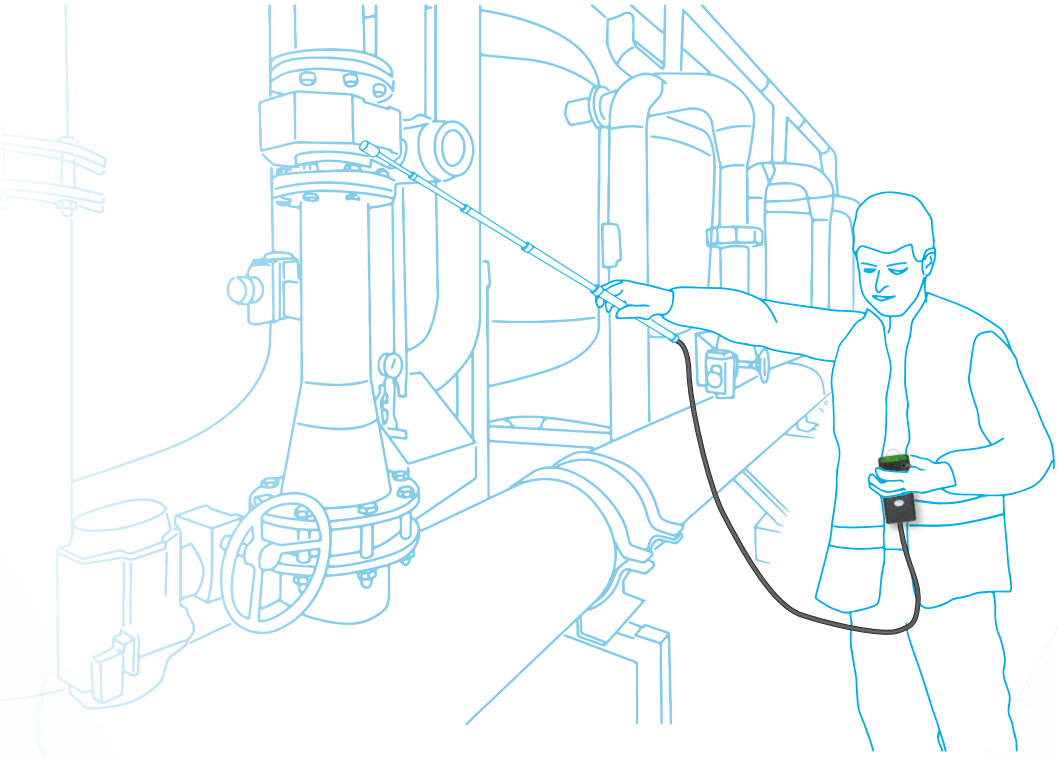
- **» Leak measurement / Sniffer modes**
- **» Leakage detection**
- **» LEL monitoring**
- **» % volume measurement**
- **» Personal protection**
- **» Analyzing confined spaces**

Suitable accessories for different measuring tasks

Analyzing confined spaces

If you need to enter a confined space, such as ducts or sewers, you will first have to "**Clear**" it by analyzing the ambient air inside. The motorized sample pump and a suspended hose allow you to do so efficiently. The floating probe prevents any water that might be on the floor from accidentally being sucked into the device.





Leak detection

GfG offers telescopic stainless-steel sample probe with a total length of up to 77.16 inches for targeted **Leak Detection**. This allows you to inspect gas pipes for tiny leaks, even in hard-to-reach places. The intake probe is attached to the pump opening of the G999S with a short piece of hose. The suction nozzle is equipped with a filter that protects the pump from liquid and contamination.

Charging, testing and adjusting

The NiMH battery of the G999S has enough power to last a whole working day, even with heavy use. To recharge the device at the end of your shift, simply place it in the charging tray which is powered either by a power supply unit or a 12 Volt plug. The daily bump test can be performed automatically, quickly and cost-effectively by one of GfG's test and docking stations.

Choose between the TS888/999 and TX888/999 test stations and the DS400/404 docking stations, depending on whether you only want to carry out the bump test before the start of a shift or whether you also want to carry out calibrations and regular function checks. We can also provide suitable test gases and test gas compounds as well as additional calibration accessories for your gas detector.

TX888/999

DS400/404

DIC888/999

G999S

Safety at the highest level: Connected Safety

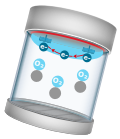
Like the other model versions in the G888 and G999 series, the G999S is available with an optional radio module (915 MHz with a range of up to 328 yards in free field). The supervisor can use the TeamLink Connected Safety Monitor to secure individual workers or teams with a total of up to 10 portable gas detectors, as all connected device continuously transmit their measured values, manual alarms or motionlessness alarms in real time through radio signal.

Any alarms, faults or disruptions of the radio connection are displayed on the TeamLink as well as on the handy LED front panel in red or yellow, allowing the supervisor to initiate safety measures quickly and effectively.

Using the G888/G999 Visual software, the status of team members can be displayed even more clearly on the screen of a laptop or tablet. It also lets you send short messages.

TeamLink
G999L

Technical Data: G999S

Measuring principle:	Catalytic combustion (CC) for combustible gases and vapors (up to 100 % LEL)	Thermal conductivity (TC) for hydrogen and methane (% volume)	Semiconductor (SC) for methane (ppm)	Electrochemical (EC) for toxic gases, oxygen and hydrogen	Infrared (IR) for flammable gases and vapors and carbon dioxide
					
Gas supply:	Using diffusion opening when pump is switched off or using suction opening during pump operation (closed sensor cover)				
Display:	Illuminated LC full graphic display, automatic size adjustment for ideal legibility, display of battery capacity, gas concentration as current value and peak value				
Alarm:	Depending on gas type: 3 or 2 current value and 2 exposure value alarms, battery alarm with visual and audible signaling as well as indication on the display, display color depending on alarm status (orange/red), buzzer: 103 dB(A) (can be reduced to 90 dB(A))				
Zero point and sensitivity adjustment:	Manually or automatically with adjustment program If necessary, test gas supply with the "SMART CAP" at 0.5 – 0.6 slpm				
Radio:	Optionally 915 MHz, Range approx. 328 yards / 300 m (Free field)				
Power supply:	NiMH battery module; 5.2 V 2100 mAh; rechargeable				
Environmental conditions:					
Operational temperature:	-4 to +122° F / -20 to +50 ° C				
Storage temperature:	-13 to +131° F / -25 to +55° C				
Humidity:	5 to 95% RH				
Pressure:	70 to 130 kPa (32 to +86° F / 0 to +30° C recommended)				
Housing:					
Material:	Rubberized polycarbonate				
Dimensions:	2.68 x 5.35 x 1.54 in / 68 x 136 x 39 mm (W x H x D)				
Weight:	Up to 13.93 oz / 395 g (depending on sensor configuration)				
Protection class:	IP67				
Approvals / Certifications:					
Markings and ignition protection types:	⟨Ex⟩ I M2 Ex ia db I Mb	⟨Ex⟩ II 2G Ex ia db IIC T4 Gb	-20 °C ≤ Ta ≤ +122 °F		
EU Type Examination Certificate:	BVS 15 ATEX E 064 X				
IECEx Certificate of Conformity:	IECEx BVS 15.0056 X				
Electrochemical compatibility:	DIN EN 50270:2015	Interference emission: Type class I Interference resistance: Type class II			

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