

G650

Multi-Gas Detector with Tox Alert™ broad range sensor



- Variable multi gas detector for simultaneous monitoring of 5 gases and additional ToxAlert™ to protect against unknown toxic gases
- Built-in sampling pump, no pump adapter required
- Instantly ready to use after battery or sensor replacement
- Datalogger, AutoCAL, AutoZERO, leak detection
- 360° flashlight, loud siren (99dB), vibrating alarm

Worldwide Supplier of Gas Detection Solutions



ToxAlert™ – the broadrange sensor for additional safety

More than 100 toxic gases extra – with only one detector!

Common multi-gas detectors can do a lot:

- They warn of flammable and toxic gases and of oxygen deficiency.
- They provide a built-in sampling pump.
- The detectors are small, light-weight, robust and easy to operate.

The G650 can do more:

- ✓ It warns additionally of a multitude of other toxic gases like fuel mixtures, solvents, refrigerants and many more (see chart below) – by means of different broadrange **ToxAlert™** sensors!
- ✓ The DualEx sensor catalytic combustion / thermal conductivity warns of all flammable gases, not only within the LEL range but also in the high Vol.-% range.
- ✓ It is extendable to be used as a leak detector.
- ✓ Communication between connected detectors / alarm devices means extra safety.
- ✓ The pump adapter is integrated and cannot be lost.
- ✓ It is flexible for further and future detection tasks.

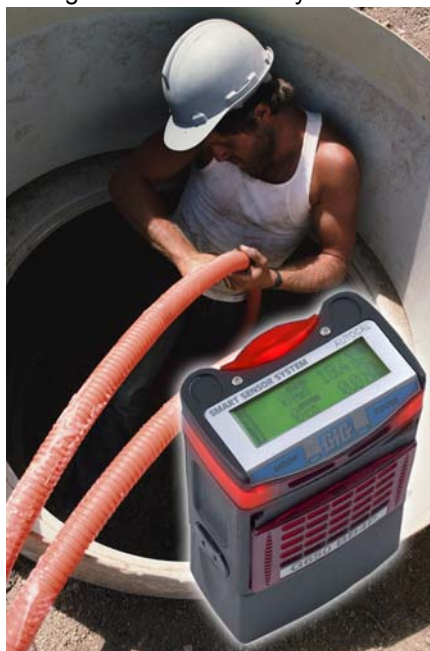
Protection from 100+ gases

The G650 monitors: Oxygen, flammable gases and vapors (in % LEL) and up to 2 toxic gases (EC). Should you require selective measurement of a third gas except of CO and H₂S, then go for the DualTox sensor CO/H₂S, which allows to fit an additional EC sensor. Finally the G650 provides the space for the **ToxAlert™** sensor. One single detector protects you from hundreds of gases!

ToxAlert™ – Protection from unknown gas hazards

Electrochemical sensors are used in gas detectors to warn of specific toxic gases. Over decades, these electrochemical sensors have been designed more and more for high selectivity. If other, unknown toxic gases appear additionally, they do not protect the user

adequately! In such cases the **ToxAlert™** is of essential importance, since its broad detection range provides a warning of a multitude of toxic gases simultaneously.



Even low concentrations of flammable gases are dangerous!

The catalytic combustion sensor detects all flammable gases. Even in low concentrations, however, toxic gases are a health hazard. The G 650 with its **ToxAlert™** sensor already warns of flammable gases before they reach their LEL. Unknown gas hazards often lurk particularly in sewer systems or in chemical plants. Time and again gas hazards occur when toxic, acid or explosive gas and vapor mixtures build up. In such cases the **ToxAlert™** sensor provides an early, reliable and safe warning.

What does OSHA think about broadband sensors?

„Where the employer has already identified (atmospheric) hazards, substance-specific sensors are preferable, because they accurately indicate the concentrations of identified air contaminants. By contrast, where the employer has not been able to identify the specific atmospheric hazards present or potentially present in a sewer, **broadrange sensors are preferable** because they indicate that the hazardous threshold of a class (or classes) of contaminants (e.g. hydrocarbons) in the sewer have been exceeded.“

1993 Confined Space Standard: 29CFR1910.146 Appendix E

OSHA – Occupational Safety and Health Association

Increased safety

A **built-in pump** allows to detect critical gas concentrations in confined spaces before entering. Switching the pump on automatically closes the diffusion inlet. This makes sure that the measurement results are not affected by ventilation and wind. A **loud alarm** (99dB) and **360° visible alarm lights** immediately indicate a gas hazard. For extremely noisy environments the G650 is available with an optional **vibrating alarm**.



Common gas detectors warn of 4 or 5 gases

The G650 ToxAlert™ sensor protects from hundreds!

Toxic gases, solvents, fuel mixtures (incl. kerosene and naphta) refrigerants (e.g. R22, R23, R123, R134a, R142, R143, R152a)

Aceton	Chlorine	Ethyl acetate	Methane	Propylene oxide
Acetonitrile	Chlorobenzene	Ethylamine	Methanol	Sulphur dioxide
Acetylene	Chloromethane	Ethylene	Methyl acetate	Hydrogen sulfide
Acrylnitrile	Hydrogen chloride	Ethylene oxide	Methylamine	Nitrogen dioxide
Ammonia	Cyclohexane	Heptane	Methylethylketon	Nitrogen monoxide
Benzene	Cyclopentane	Hexane	Methylisobutylketon	Styrene
Hydrogen	Dichlorobenzene	Isobutane	Nonane	Tetrahydrofuran
Cyanide	Dichloroethane	Isobutanol	Octane	Toluene
Bromomethane	Diethylether	Isopentane	Pentane	Trichloroethane
Butadiene	Difluoroethane	Isopropanol	Propane	Hydrogen
Butane	Dimethylether	Isobutyl acetate	Propanol	Xylene
Butanol	Dioxan	Carbon monoxide	Propene	
2-Butanon	Ethane	LPG	Propine	
Butene	Ethandiol		Propyl acetate	
Butyl acetate n	Ethanol			

...and many more hydrocarbons, alcohols, ketones, esters and aromatic compounds

G650 – flexible, robust, attractive

Robust design for use in harsh environments

The rugged and small detector weighs **only 600 grams (21 oz.)** and is dust and splash water proof as per IP 64. It is designed for extremely tough operation under most difficult conditions. A rubber boot makes the G650 **extremely resistant** against damages from falling and protects the detector even if it stands in 3 cm (1.2 in.) of water.



Remote monitoring

The G650 allows the data communication with other detectors. The displays read the same value. This allows to recognize hazards early and to start rescue operations in time.

In future you may also connect an external display with an extra loud alarm module instead of a second detector. This makes the detector work as an area monitor.

Reduced down-time

After replacing the battery or sensors the unit is ready for operation immediately (1 min. run-in time). With the quick-charger the accumulator has its full capacity after only four hours. Waiting periods are therefore reduced and utilizability increased.

The **data logger** saves minimum and peak values, which can be displayed and edited on a PC.

The **large display** allows clear readings of up to 6 gases simultaneously, even under difficult conditions.



Flexibility by smart-sensors

The smart sensor technology allows easy exchange of the sensors. The G650 recognizes the sensor type, the detection gas, the detection range, the date of the previous calibration, the alarm thresholds, etc. No further adjustment is necessary.

Easy handling

The G650 is very user-friendly and easy to operate. The pump is activated by moving the slider upwards. Many gas detectors need a separate pump adapter – the G650 features a built-in sampling pump where no parts can be lost.

G650 – new standards in gas detection!

The G650 combines the flexibility and functionality of a multi-gas detector with the sensitivity of a **leak detector**.



Easily readable display even at the belt without contortion.



The Display can be turned 180° by simply touching a key.



Cost-effective safety

Long-life and long-term stable sensors ensure low cost of ownership



G 650

Technical Data

Gases and detection ranges

ToxAlert™ sensor TAL (CS), built-in

Broadband hazard monitoring

1. Toxic gases 1 - 100 digits

Electrochemical sensors EC

2. Oxygen, 1 year	O ₂	0 - 25 Vol.-%
3. Oxygen, 2 years	O ₂	0 - 25 Vol.-%
4. Hydrogen sulfide	H ₂ S	0 - 100 ppm
5. Hydrogen sulfide	H ₂ S	0 - 500 ppm
6. Carbon monoxide	CO	0 - 300 ppm
7. Carbon monoxide	CO	0 - 1000 ppm
8. Carbon monoxide	CO	0 - 2000 ppm
9. Hydrogen	H ₂	0 - 2000 ppm
10. Ammonia	NH ₃	0 - 200 ppm
11. Ammonia	NH ₃	0 - 1000 ppm
12. Nitrogen dioxide	NO ₂	0 - 30 ppm
13. Nitrogen monoxide	NO	0 - 100 ppm
14. Hydrogen cyanide	HCN	0 - 50 ppm
15. Hydrogen chloride	HCl	0 - 30 ppm
16. Chlorine	Cl ₂	0 - 10 ppm
17. Sulphur dioxide	SO ₂	0 - 10 ppm
18. Phosphine	PH ₃	0 - 10 ppm
19. Silane	SiH ₄	0 - 20 ppm
20. Ethylene oxide	C ₂ H ₄ O	0 - 20 ppm
21. Chlorine dioxide	ClO ₂	0 - 2 ppm

DualTox electrochemical sensors EC

22. Hydrogen sulphide	H ₂ S	0 - 100 ppm
and Carbon monoxide	CO	0 - 300 ppm
23. Hydrogen sulphide	H ₂ S	0 - 100 ppm
and Carbon monoxide	CO	0 - 500 ppm

This allows to fit an additional EC sensor

Catalytic combustion sensors CC

for all flammable gases, calibrated for:

24. Methane	CH ₄	100 % LEL
or calibrated for		
25. Natural gas	C _n H _m	100 % LEL
26. Ethane	C ₂ H ₆	100 % LEL
27. Propane	C ₃ H ₈	100 % LEL
28. n-Butane	C ₄ H ₁₀	100 % LEL
29. n-Pentane	C ₅ H ₁₂	100 % LEL
30. Heptane	C ₇ H ₁₆	100 % LEL
31. Octane	C ₈ H ₁₈	100 % LEL
32. Nonane	C ₉ H ₂₀	100 % LEL

DualEx sensor catalytic combustion / thermal conductivity CC/TC

33. Methane	CH ₄	100 % LEL
and	CH ₄	100 Vol.-%

ToxAlert™, external leak detection

34. (on helix cable or gooseneck as leak detector)
2 - 10,000 ppm

Sensor cartridge

For 5 smart sensors.

With DualSensors you can detect:

- 3 x toxic gases (H₂S/CO + 1 additional EC)
- 1 x oxygen (EC)
- 2 x combustible gases (CC and TC)
- 1 x ToxAlert™

Power supply

- Metal hydride battery pack
- rechargeable
- quick battery replacement
- charging time: 4 hours
- charge control integrated in the battery pack

Operational time

10 .. 30 hours
depending on fitted sensors and sampling time

Casing

IP 64, may stand in 3 cm water in its rubber boot

Display

Graphic display, automatic digit adjustment for optimal readings, indication of battery capacity, indication of gas concentration as actual value and as bar graph, zoom function, backlight illumination

Interface

Serial digital interface, remote data transmission over up to 30 m, software updates can be downloaded from the internet (www.g650.com)

Weight

600 g / 21 oz.

Dimensions

77 x 139 x 44 mm /
3.08 x 5.56 x 1.76 inches (WxHxD)

Ambient temperature

-20 ... +50°C

Ambient pressure

800 ... 1300 hPa

Data logger (option)

1650 parameters (i.e. a logging interval of 2 minutes allows to store data over a period of 55 hours) with measurement value and time, documentation with GfG software package

Gas supply

Diffusion or built-in pump (the pump mode closes the diffusion inlet automatically)

Response time

5 .. 60 seconds, depending on gas

Alarm

Visual: 360° visible alarm flash
Audible: siren, 99 dB in 30 cm (1 ft) distance
Vibrating alarm (option)

Ex-protection

EEx ib IIC T4(ATEX EX II2G) pending
UL Class 1, Division 1, Group ABCD T3C, pending

Function test certificate pending

Accessories

Rubber boot, stainless steel belt clip, helix cable, gooseneck, plug-in charger, docking station



GfG Instrumentation

1194 Oak Valley Drive Suite 20, Ann Arbor, MI 48108
Phone: (800) 959-0329, Fax: (734) 769-1888
E-mail: info@gfg-inc.com
Internet: www.gfg-inc.com

We reserve the right of modification

GfG Gesellschaft für Gerätebau mbH

P.O. Box 440164, D-44390 Dortmund, Germany
Phone: +49-231-564000, Fax: +49-231-516313
E-mail: info@gfg-mbh.com
Internet: www.gfg.biz