Molecular Property Spectrometer™ Technology (MPS)

Detect over 15 Flammable gases

Sensor Poisoning solved

TrueLEL™ Multi-Gas accuracy

Zero calibration for 5 years

Hydrogen ready

CROWCON

Detecting Gas Saving Lives

Molecular Property Spectrometer™ technology accurately detects over 15 hazardous gases in one MPS sensor for better safety and more operational efficiency.

A higher standard of flammable gas detection. Keep people and premises safer, with more efficient and accurate testing. Building on over 50 years of gas expertise, Crowcon is pioneering advanced molecular property spectrometer (MPS™) sensor technology that detects and accurately identifies over 15 different flammable gases in one device. Now available in Crowcon's flagship Xgard Bright fixed detector, as well as its T4x and Gasman portable products.

No more poisoning

Less false alarms

Hydrogen ready

Reduce masked alarms

Multi-gas protection (True-LEL)

Eliminate operational disruption

Better hazard protection

Zone 0 certified

Increased battery life

	Portable	Fixed
Sensor Poisoning	The MPS™ sensor has been designed for today's multi-gas environments, resists contamination and prevents sensor poisoning. Give your teams peace of mind with a purpose-built device in any environment.	
TrueLEL™ Multi-Gas accuracy	The MPS™ sensor accurately detects and identifies over 15 different flammable gases automatically in real time without the need for calibration for 5 years or a correctional factor. Guarantee accurate readings, with no false alarms or non-alarms due to real-time environmental compensation.	
Reduced Fleet Maintenace/Zero calibration for 5 years	The MPS™ sensor technology does not require calibration or scheduled maintenance over its 5-year+ lifecycle when fitted into our Gasman product*, which reduces interruptions to your operations and increases up-time. The sensor self-monitors and automatically reports any problems with its operation, giving greater peace of mind as well as reduced total cost of ownership. The larger your fleet, the greater the benefits.	The MPS™ sensor technology does not require calibration and no maintenance over its 5-year+ lifecycle meaning a lower total cost of ownership. Scheduled maintenance is no longer needed removing interruptions to your operations. The sensor self-monitors and automatically reports any problems with its operation, giving greater peace of mind as well as reduced cost of ownership.
Hydrogen ready	The MPS™ sensor is tailor-made for Hydrogen detection. Increasingly used in industrial processes, Infrared detectors cannot identify Hydrogen, so until now, the only option has been Pellistor detection, with limitations around accuracy and more susceptible to poisoning. With the MPS™ sensor, only one device is needed saving space without compromising on safety.	
Increased Battery Life	Our portable flammable gas detectors with an MPS sensor help protect workers for longer periods by increasing the battery life by over double therefore reducing the reliance on charging and device down time.	
Zone 0	Aext Zone 0 / Type 1 approved T4x and Gasman MPS enables operators to enter an area in which an explosive gas atmosphere is present continuously or for long periods without fear their Gasman will ignite their environment.	

TrueLEL™ Gas Detection

Gas	Formula	Detection Range	Accuracy (0-50 %LEL)
Butane	C4H10	0-100 %LEL	±5 %LEL
Ethane	C2H6	0-100 %LEL	±5 %LEL
Hydrogen	H2	0-100 %LEL	±5 %LEL
Isobutane	HC(CH3)3	0-100 %LEL	±5 %LEL
Isobutylene	C4H8	0-100 %LEL	±5 %LEL
Isopropanol	C3H8O	0-100 %LEL	±10 %LEL
Methane	CH4	0-100 %LEL	±3 %LEL
Methyl ethyl ketone	C4H8O	0-100 %LEL	±5 %LEL
Octane	C8H18	0-100 %LEL	±5 %LEL
Pentane	C5H12	0-100 %LEL	±5 %LEL
Propane	C3H8	0-100 %LEL	±5 %LEL
Propylene	C3H6	0-100 %LEL	±5 %LEL
Toluene	C7H8	0-100 %LEL	±12 %LEL
Xylene	C8H10	0-100 %LEL	±12 %LEL

Performance

Resolution	0.1 %LEL
Resolution Response time (T90)	< 20 seconds
Calibration	Factory calibrated

Environmental Operating Range

Temperature	– 40 to 75 ˚C
Humidity	0 to 100 %RH
Pressure	80 to 120 kPa

Flammable Gases Detected

Gas	Formula	Class5	Detection Range (%LEL)	% Volume of gas at 100 %LEL (ISO 10156)	MPS Accuracy 0 to 50 %LEL (ISO 10156)	% Volume of gas at 100%LEL (IEC60079-20-1)	MPS Accuracy 0 to 50 %LEL (IEC60079-20-1)
Butane	C4H10	4	0-100 %LEL	1.8	±5 %LEL	1.4	±5 %LEL
Ethane	C2H6	4	0-100 %LEL	3.0	±5 %LEL	2.4	±5 %LEL
Hydrogen	H2	1	0-100 %LEL	4.0	±5 %LEL	4.0	±7 %LEL
Isobutane	HC(CH3)3	4	0-100 %LEL	1.8	±5 %LEL	1.3	±9 %LEL
Isobutylene	C4H8	4	0-100 %LEL	1.8	±5 %LEL	1.8	±5 %LEL
Isopropanol	C3H8O	4	0-100 %LEL	2.0	±10 %LEL	2.0	±20 %LEL
Methane	CH4	3	0-100 %LEL	5.0	±3 %LEL	4.4	±3 %LEL
MEK	C4H8O	5	0-100 %LEL	1.4	±5 %LEL	1.5	±16 %LEL
Pentane	C5H12	5	0-100 %LEL	1.5	±5 %LEL	1.1	±6 %LEL
Propane	C3H8	4	0-100 %LEL	2.1	±5 %LEL	1.7	±6 %LEL
Propylene	C3H6	4	0-100 %LEL	2.4	±5 %LEL	2.0	±5 %LEL
Acetone	C3H6O	5	0-100 %LEL	2.5	±20 %LEL	2.5	±24 %LEL
Ethylene	C2H4	4	0-100 %LEL	2..7	±11 %LEL	2.3	±11 %LEL
Heptane	C7H16	5	0-100 %LEL	1.1	±12 %LEL	0.85	±15 %LEL
Octane	C8H18	6	0-100 %LEL	1.0	±12 %LEL	0.8	±15 %LEL
Styrene	C8H8	6	0-100 %LEL	1.1	±20 %LEL	1.0	±17 %LEL
Toluene	C7H8	6	0-100 %LEL	1.2	±12 %LEL	1.0	±13 %LEL
Xylene	C8H10	6	0-100 %LEL	1.1	±12 %LEL	1.0	±13 %LEL

Notes:

Accuracy guaranteed for methane across full environmental range.

Other gases will typically meet published tolerances across the full environmental range but guaranteed only near standard conditions: 20˚C, 50%RH.

Accuracy (+) %LEL corresponds to a higher-than-delivered reading and Accuracy (-) %LEL corresponds to a lower-than-delivered reading.

The MPS is also confirmed to detect other gases including ammonia, acetylene, ethanol, and methanol.

Please consult Crowcon for more info about your requirement

Response to Non-Flammable Gases

Oxygen (O2): Normal air has an O2 concentration of 20.95% by volume. Higher ambient O2 concentrations up to ~21.8 %VOL have little to no effect on the sensor. Concentrations exceeding this can be reported as a flammable gas at %LEL levels. The cross sensitivity is approximately 1.07 %LEL per 1 %vol O2 (e.g., oxygen at 30 %vol in air, a 9.1 %vol enrichment, would read approximately 9.7 %LEL and be identified as Class 2 - Hydrogen Mixture). The sensor is immune to poisoning by O2.

**Note: if O2 concentrations decrease, the sensor response will depend on what gas is displacing the oxygen. Flammable gases displace oxygen. Methane at 100%LEL (5 %VOL methane) will reduce oxygen's relative concentration by 1.05 % VOL in ambient air, meaning the O2 concentration decreases from 20.9 to 19.85 %VOL. Such flammable-gas-caused O2 depletions are already considered by the sensor calibration and therefore cause no unwanted effects on sensor output. *Calculated %LEL assumes normal "air" as the background. Actual %LEL is dictated by limiting oxygen concentration.*

Carbon Dioxide (CO2): CO2 is present at concentrations near 400 ppm in normal air. This ambient level of CO2 is already considered by sensor calibrations. The sensor is unaffected by elevated CO2 concentrations up to approximately 5,000 ppm. Concentrations above this can be misinterpreted by the sensor as flammable gas. The cross sensitivity is approximately 1.74 %LEL per 1,000 ppm CO2 (e.g., CO2 at 10,000 ppm would read approximately 17.4 %LEL). The sensor is immune to poisoning by CO2.

**Note: Exhaled human breath contains CO2 at concentrations of approximately 4-5 %VOL (40,000-50,000 ppm). (During respiration, the CO2 replaces oxygen, reducing its concentration from 20.95% by volume in normal air to 13.6-16% in exhaled air.) As such, breathing directly onto the sensor can cause it to falsely report flammable gas for a brief period.*

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Crowcon reserves the right to change the design or specification of the product without notice.
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