CROWCON
Detecting Gas Saving Lives

Xgard Bright MPS™

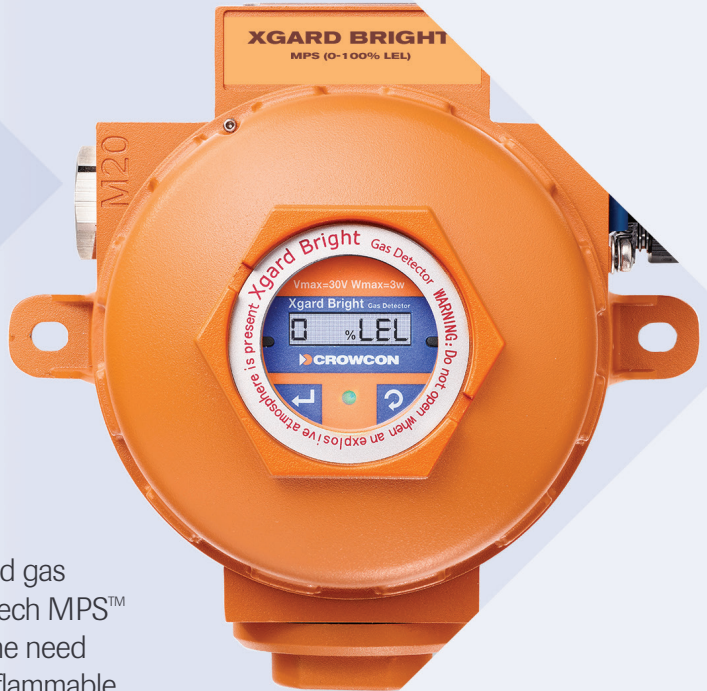## The next generation of flammable gas detectors

Calibration is over

Sensor poisoning is solved

TrueLEL™ Multi-gas accuracy

Hydrogen ready

XGARD BRIGHT
MPS (0-100% LEL)

Xgard Bright Gas Detector
Vmax=30V Wmax=3w
Xgard Bright Gas Detector
0 %LEL
CROWCON
WARNING: Do not open when an explosive atmosphere is present

MPS™

Xgard Bright MPS™

Meet the next generation of flammable gas detection

Crowcon has introduced the first molecular property spectrometer (MPS™) flammable gas sensor for a fixed gas detector. Crowcon's Xgard Bright with Nevada Nanotech MPS™ sensor provides advanced technology that removes the need to calibrate and provides a 'True LEL™' reading for all flammable gases in a multi-species environment, resulting in lower ongoing maintenance costs and reduced interaction with the unit.

This reduces risk to personnel, and avoids costly downtime. The MPS™ sensor is also immune to sensor poisoning.

The MPS™ sensor delivers key features which provide real world tangible benefits to operator and site operations.

No calibration:	The Xgard Bright with MPS™ sensor technology does not require calibration. This in turn reduces the interaction with the detector resulting in a lower total cost of ownership over the sensor life cycle, and reduces risk to personnel and production output to complete regular maintenance.
Multi-species True LEL™:	The Xgard Bright with MPS™ sensor can accurately detect multiple flammable gases at once. The MPS™ sensor has an on board environmental compensation and does not require a correctional factor. Inaccurate readings and false alarms are now a thing of the past.
No sensor poisoning:	The Xgard Bright with MPS™ sensor cannot be poisoned. Sensor failure due to poisoning can be a frustrating and costly experience. The technology in the MPS™ sensor is not affected by contaminates in the environment. Processes that have contaminates now have access to a solution that operates reliably with fail safe design to alert the operator to offer peace of mind for personnel and assets located in hazardous environments.
Hydrogen detection:	The Xgard Bright with MPS™ sensor provides a far better solution for Hydrogen detection. The challenges faced with traditional sensor technology are completely removed. A long life hydrogen sensor that does not require calibration throughout the life cycle of the sensor, without the risk of poisoning or false alarms can significantly save on total cost of ownership and reduces interaction with unit resulting in peace of mind and reduced risk for operators leveraging MPS™ technology.

TrueLEL™ Multi-gas accuracy

The Xgard Bright with MPS TrueLEL™ sensor can accurately detect multiple flammable gases using the same sensor without any correctional factors

Single factory calibration:	One factory calibration to Methane delivers accuracy across 15 common flammable gases including hydrogen.
Automated environmental compensation:	Built in compensation for temperature, pressure, and humidity. Gas concentration readings are accurate across the full environmental range.
No maintenance:	The Xgard Bright with MPS™ sensor doesn't drift, decay, or poison and requires no maintenance over its lifetime

Existing technology is typically calibrated to a single flammable species, meaning that all other species will be incorrectly monitored. This means you will experience false and masked alarms.

The MPS™ sensor has TrueLEL™ multi-gas accuracy, detecting 15 different flammable gases from a single sensor.

Crowcon helps your business improves operational efficiency, giving confidence in your gas detection system.

Gas	Formula	Detection Range	Accuracy (at 50% LEL)
butane	C_4H_{10}	0-100 % LEL	±5% LEL
ethane	C_2H_6	0-100 % LEL	±5% LEL
hexane	C_6H_{14}	0-100 % LEL	±8% LEL
hydrogen	H_2	0-100 % LEL	±5% LEL
isobutane	$HC(CH_3)_3$	0-100 % LEL	±5% LEL
isobutylene	C_4H_8	0-100 % LEL	±5% LEL
isopropanol	C_3H_8O	0-100 % LEL	±10% LEL
methane	**CH_4**	**0-100 % LEL**	**±3% LEL**
methyl ethyl ketone	C_4H_8O	0-100 % LEL	±5% LEL
octane	C_8H_{18}	0-100 % LEL	±5% LEL
pentane	C_5H_{12}	0-100 % LEL	±5% LEL
propane	C_3H_8	0-100 % LEL	±5% LEL
propylene	C_3H_6	0-100 % LEL	±5% LEL
toluene	C_7H_8	0-100 % LEL	±10% LEL
xylene	C_8H_{10}	0-100 % LEL	±10% LEL

Accuracy guaranteed for methane across full environmental range

# TrueLEL™ Multi-gas accuracy

Flammable gases are prevalent in multiple industries such as energy, wastewater, petrochemical, oil, gas, and industrial manufacturing.

There are challenges with traditional sensor technology in environments with multiple flammable gases present. The below graphs demonstrate the response of 3 sensor technology types which all have been factory calibrated to Methane (CH_4) 50% LEL.
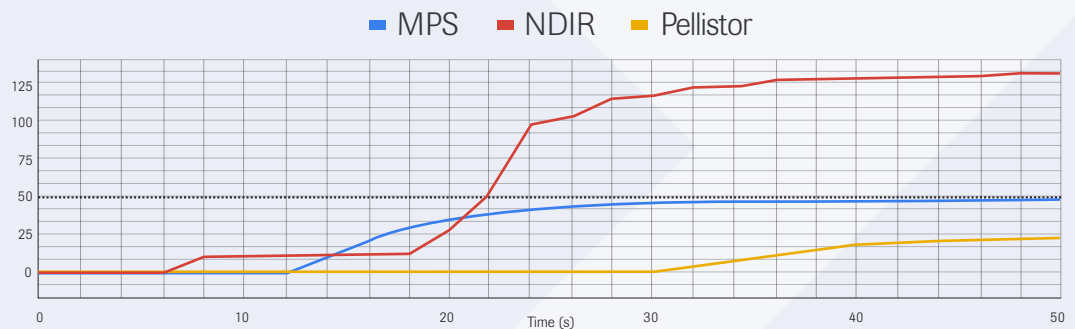
Methane
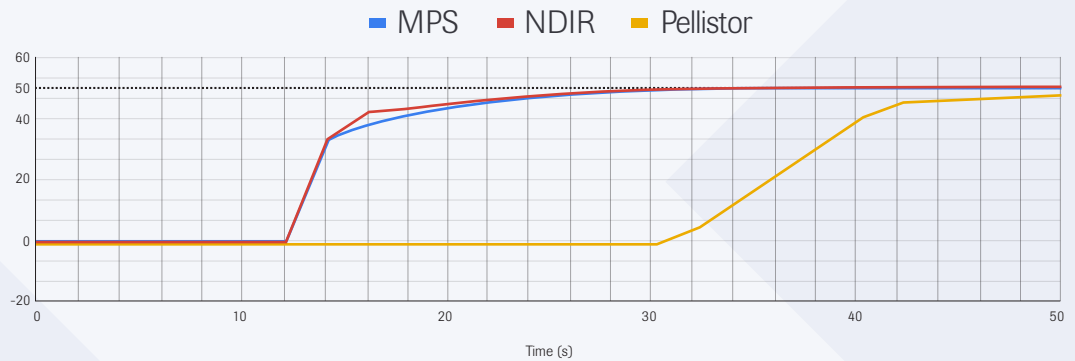
Hydrogen
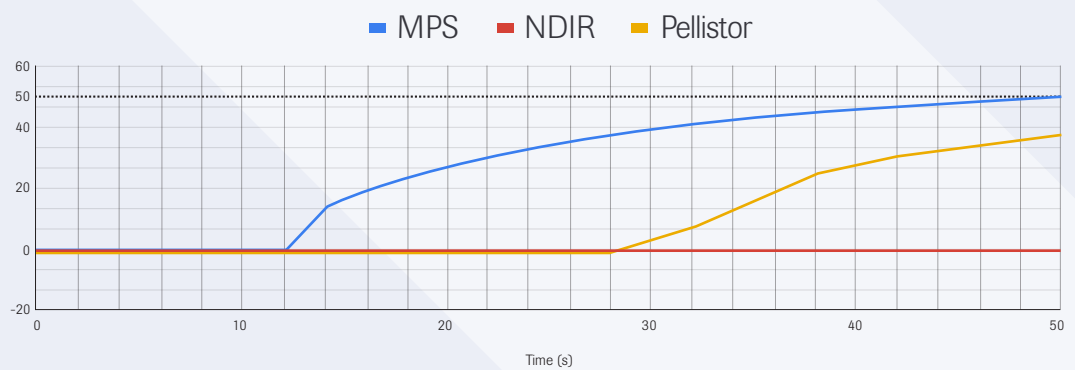
Butane

All 3 sensor types will react with the same output delivering an accurate reading for Methane (CH_4).
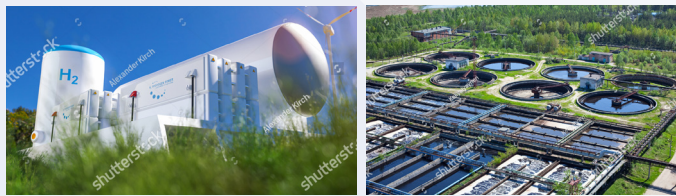
But replicating a multi species gas environment where an alternative flammable gas is exposed to the same detector with the same sensor a different reading is detected.

Traditional sensor technology when exposed to a non target gas will provide an inaccurate reading. When applying different flammable gas concentrations of Butane 50% LEL & Hydrogen 50% LEL the results captured display over readings, and under readings of gas levels. The detector will respond to inaccurate over readings and under readings with false alarms or masked due to the inability to accurately detect multiple flammable gases.

The only sensor option that will provide accurate TrueLEL™ readings across 15 flammable gas species is the MPS™ sensor.

Industry spotlight

	No calibration	No poisoning	Multi-species (True LEL™)	Hydrogen (H²) detection
Waste water	●	●	●	
Waste to energy	●	●		
Chemical	●	●	●	
Biogas	●		●	
Petrochemical	●	●	●	
Downstream	●		●	
Power				●
Upstream	●			
Midstream	●			
Gas distribution	●			
Boiler rooms	●			
Automotive		●		
Steel				●
Blue green energy				●

Keep people and premises safer, with more efficient and accurate monitoring

Application suitability Multiple industry and applications will greatly benefit from the key features that MPSTM technology delivers

Wastewater processing generates multiple gas hazards and requires end-to-end gas monitoring to keep people and property safe.

Existing flammable gas sensor solutions can only monitor a single target gas accurately resulting in multiple detectors required for detecting different flammable gas.

Chemical, petrochemical, Oil & gas downstream processes all face the burden of calibration which entails an ongoing cost and regular disruption by visit of an engineer to complete. A solution that requires a single factory calibration will drastically reduce ongoing calibrations costs and disruption.

Multiple industries suffer from poisoned sensors which is caused by inhibitors or poisons in the environment. Existing sensor technology suffers poisoning from commonly used compounds such as sealant which contain silicon. Even environments with H²S present such as waste to energy power stations could face challenges due to exposure to H²S which can reduce existing technology effectiveness to monitor target flammable gas by up to 90% in just a few minutes.

There are various industry and application highlights that would benefit from MPS™ technology – **Biogas / Power stations / Oil & Gas upstream / Oil & Gas midstream / Boiler rooms / Automotive / Steel & Blue Green energy plants (Hydrogen)**.

Wastewater

Wastewater processing generates multiple gas hazards and requires end-to-end gas monitoring to keep people and property safe. Industry needing to monitor flammable gashave had to select either a traditional flame sensor detector with a pellistor calibrated for a specific gas (and multiple pellistors in multi-species environments), or an improved capability sensor using infra-red (IR) which also requires a separate sensor to be calibrated for each gas.

The Xgard Bright with MPS™ sensor ability to detect multiple flammable gases and gas mixtures quickly, accurately and simultaneously is an advantage in environments with multiple, fluctuating, gas hazards.

Green Energy

Demand for hydrogen is growing. Not only is it used as a feedstock for industry, it is also increasingly popular as a zero-emissions fuel for buildings and vehicles and as a means of storing energy from renewable and other green sources. IR detectors cannot identify hydrogen, which until recently has left pellistor technology as the only option. However, pellistors are vulnerable to poisoning. Thus, they require constant maintenance and, in some conditions, frequent replacement.

The Xgard Bright with MPS™ sensor provides a far better solution for Hydrogen detection. The challenges faced with traditional sensor technology are completely removed. A long life hydrogen sensor that does not require calibration throughout the life cycle of the sensor, without the risk of poisoning or false alarms can significantly save on total cost of ownership.

MPS™

1st February 2021

Specification

Enclosure material	ADC 12 aluminium alloy
Dimensions	156 x 166 x 109mm (6.1 x 6.5 x 4.3inch)
Weight	Aluminium alloy 1kg (2.2lbs)
Ingress protection	IP65 & IP66 (with weatherproof cap)
Cable entry	2x M20 (stopping plug fitted to left-side entry) or supplied with ½" NPT adapters
Power	10-30Vdc. 3W max
Electrical output	4-20mA current sink or source RS-485 Modbus RTU HART (optional)
Relays	Alarm 1, Alarm 2, Fault SPST contacts rated 1A 30Vdc
Sounder out	24Vdc (nominally), 250mA maximum load
Operating temperature	-40°C to +70°C (-40°F to 158°F) Note: sensor operating temperatures vary widely Refer to the sensor module datasheet or contact Crowcon for specific sensor data.
Humidity	0 to 95% RH, non-condensing
Approval codes	ATEX and IECEx Ex II 2G Ex db IIC T6 Gb Ex II 2D Ex tb IIIC T80°C Db Certificate numbers: TUV 16 ATEX 7908 X IECEx TUR 16.0035 X
Standards	EN60079-0:2012 + A11:2013 EN60079-1:2014 EN60079-31:2014 IEC60079-0:2017 Edition 7 IEC60079-1:2014-06 IEC60079-31:2013
Zones	Certified for use in Zone 1 and Zone 2 areas
EMC compliance	EN50270:2015
Response time	T90 < 25 seconds*
Expected life span	5 years +
Warranty	4 years
Sensor technology	MPS™

*Dependent on gas type. Number shown based on Methane 100% LEL

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