

Product: XgardIQ Sensor Module

Subject: Technical Specification

Document reference: M071031

Issue 4, March 2021



Product:	XgardIQ
Sensor Module Part Number:	XIQ-BW
Gas Type:	LPG (Liquid Petroleum Gas)
Sensor Technology:	Pellistor

Environmental Specification:

ATEX and IECEx Approved Ambient Temperature Range	-40°C to +75°C **
Operational Temperature and Humidity Range:	-40°C to +75°C ** 0 to 95% RH non-condensing
Recommended Storage Temperature and Humidity Range	-30°C to +70°C 0 to 99% RH non-condensing
Warranty Period:	12 months if operated within stated environmental limits and not exposed to excessive gas concentrations or contaminants (see Product Notes).
Pressure Range:	Atmospheric +/-10%

** For operation in excess of 70°C, to avoid overheating of the transmitter, the sensor should use the remote cable accessory with the transmitter sited in a cooler location.

Performance Characteristics:

Expected Operating Life:	>36 months in air if operated within stated environmental limits and not exposed to excessive gas concentrations or contaminants (see Product Notes).
Storage Life:	6 months from date of manufacture.
T90 Response Time:	~30 seconds
Minimum Display Resolution:	1%LEL
Linearity	< ±1.5% of full-scale [†]
Accuracy*:	< ±1.5% of full scale (-20°C to +60°C) [†]
Long Term Sensitivity Drift:	<1% LEL per month

*Accuracy in-use is dependent on the sensor being calibrated regularly by trained and competent personnel, in accordance with these instructions, using the correct accessories and fresh calibration gas.

[†] Measurements taken in accordance with EN 60079-29-1:2007

Configuration:

XgardIQ Display Name:	LPG
XgardIQ Power Requirements:	18-30V DC (for reliable pellistor performance)
Range:	0-100%LEL
Maximum User-Selectable Range:	0-100%LEL
Minimum Recommended User-Selectable Range:	0-20%LEL
Alarm 1 Threshold	20%LEL
Alarm 2 Threshold	40%LEL
Stabilisation Time	60 seconds

Product Notes and Calibration Instructions:

Crowcon recommends LPG sensors are initially calibrated on commissioning and re-calibrated every 6 months. Please refer to the XgardIQ installation, operating and maintenance instructions for information on performing sensor zero and calibration.

Crowcon recommends calibration is performed using 0.8% vol. (50%LEL) LPG (mix of 70% Propane, 30% Butane) in air at a flow-rate of 0.5 - 1 litre per minute. The sensor must be zeroed in clean air before calibration is performed.

Note: The ratio of propane and butane (and other gases) in LPG may vary in some countries, or at different times of the year. Sensor response will not be significantly affected.

XgardIQ allows cross-calibration using easily obtainable and usable vapours where the target gas is impractical for calibration. When using the Calibration menu, the user will be offered a choice of calibrating with the target gas (ie LPG), or two others (propane and pentane). The cross-calibration gas must be applied in the concentration shown on-screen: in this case 0.85% (50%LEL) propane or 0.55% (50%LEL) pentane; XgardIQ will automatically calibrate so that the sensor responds correctly to LPG.

The correction factors are detailed below for reference, however these are already stored in the sensor module configuration and thus the user just needs to choose the gas type.

Note: This sensor is not suitable for use with acetylene. Pellistors can suffer from loss of sensitivity if exposed to poisons or inhibitors such as silicones, sulphides, chlorine, lead or halogenated hydrocarbons. Sensors must be tested regularly with gas to verify response. In applications where such compounds are present we recommend the use of infrared flammable gas sensors.

The operational life of the pellistors depends on the application and the amount of gas and contaminants to which the pellistor has been exposed. Under normal conditions (6 monthly calibration with periodic exposure to calibration gas) the life expectancy is 3-5 years.

The sinter should be inspected regularly; a blocked sinter may prevent gas from reaching the sensor.

Note: if a dust filter accessory is fitted to the sensor, calibration must be performed with the filter in-place. Filters must be inspected regularly and replaced as soon as they show signs of contamination. A dust filter will affect the T90 response time of the sensor: response time may be significantly longer than shown on this datasheet.

Note: modules will be calibrated with a 70%/30% Propane/Butane LPG gas mixture where 100%LEL LPG = 1.61% volume in air.

Measured Cross Calibration Data:

0.85% Vol. (50%LEL) Propane (C₃H₈) = 51.5%LEL LPG. Cross calibration factor = **1.02**
0.55% Vol. (50%LEL) Pentane (C₅H₁₂) = 39%LEL LPG. Cross calibration factor = **0.78**

Note: The cross calibration factors have been measured at 20°C (nominally) and at 50%LEL concentration of the gases specified above.

Safety Information:

XgardIQ sensor modules are designed to detect gases or vapours in air, and not inert or oxygen deficient atmospheres.

Maintenance and calibration operations must be performed by qualified service personnel.

Disclaimer:

The data contained on this document is provided for guidance purposes only and is correct at the time of issue. Performance data is typical as measured at Crowcon; no guarantees can be made on the performance of individual products. Environmental specifications are specific to the sensor listed, and may differ from those shown on the gas detector datasheet.