

# Xgard

## Fixed Gas Detector

- Low cost of ownership
- Wide range of sensors
- Flexible installation options
- Rugged and reliable
- Highly versatile



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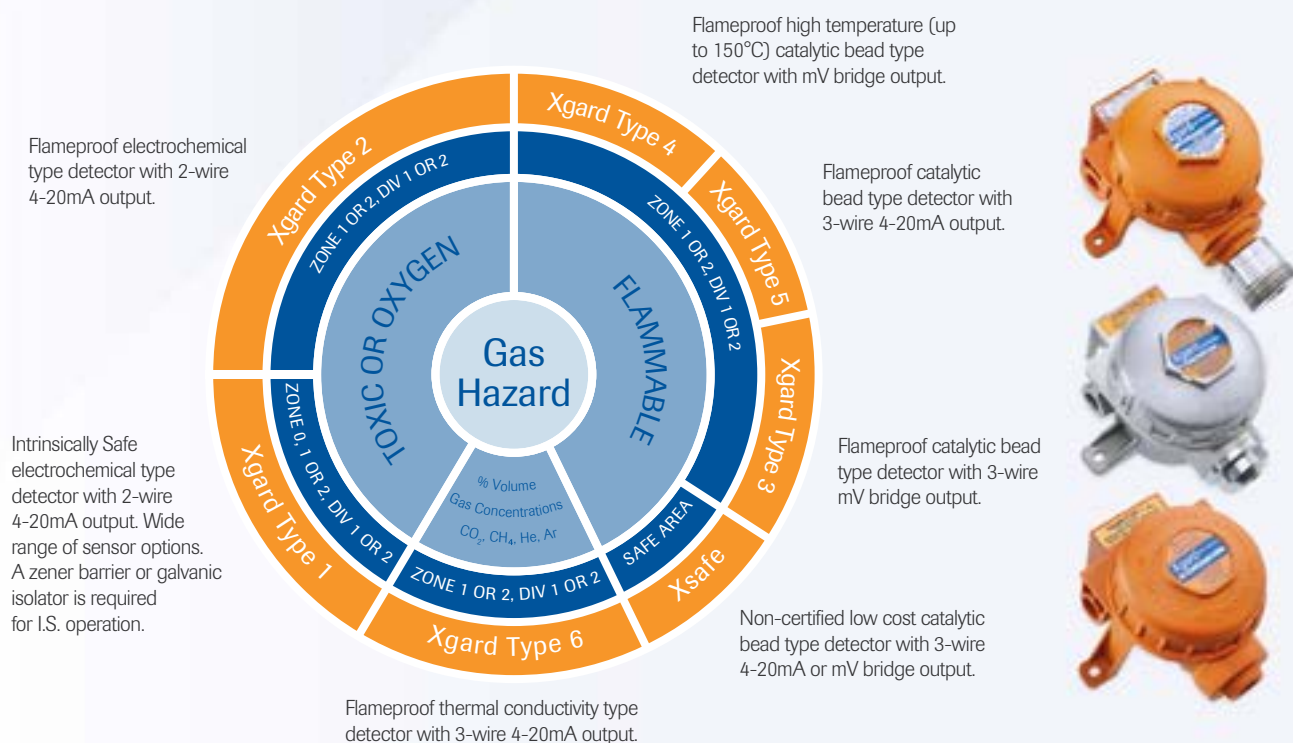
### Choosing the gas detector for your needs

Xgard offers three different sensor concepts so you can choose exactly what you need for your site. Xgard is available in flameproof, intrinsically safe, or safe area formats for use in all environments, whatever the classification.

### Features

<p>Low cost of ownership</p>	<p>Xgard detectors are designed for easy installation and maintenance to keep costs down. The three junction box options are all designed to make replacement of sensors and sinters extremely simple. Spare sensors simply plug-in. Many spare parts are common to all Xgard models, which keeps spares holding requirements to a minimum.</p>
<p>Wide range of sensors</p>	<p>Poison resistant pellistors, for all flammable detection needs including hydrocarbons, hydrogen, ammonia, jet fuel, leaded petrol and vapours containing halogens. Electrochemical sensors are used to detect a vast range of toxic gases and oxygen. Thermal conductivity sensors are available to monitor % volume concentrations of gases.</p>
<p>Flexible installation options</p>	<p>Xgard is designed for either wall or ceiling mounting without the need for additional brackets. Xgard can accommodate M20, 1/2" NPT or 3/4" NPT cable glands to suit all site requirements. High temperature models are available for hot environments (up to 150°C). Accessories are available for duct mounting and sampling applications as well as remote gassing for simple sensor checking.</p>
<p>Rugged and reliable</p>	<p>Xgard is manufactured using a choice of three materials: glass reinforced nylon, highly durable aluminium with a tough polyester coating, or 316 stainless steel for ultimate corrosion resistance. All versions are designed to operate even in the harshest conditions. Spray deflectors and weatherproof caps are available for use in areas subject to regular wash-downs, or offshore environments. All models have been validated to the functional safety standard IEC 61508 (SIL 1 to SIL 3).</p>

The Xgard range offers a comprehensive selection of fixed point gas detectors that meet the diverse requirements for flammable and toxic gas detection and oxygen monitoring in industries throughout the world. This diagram is designed to help you choose the correct Xgard detector to suit your needs.



Xgard is also available as an infra red (IR) variant for detection of hydrocarbons or carbon dioxide. See Xgard IR datasheet for further details.

## Gases and ranges

Gas	LEL (ppm) LEL (% Vol)	STEL UEL (% vol)	Range available: Type 1	Range available: Type 2	Range available: Type 3, 4, 5 & Xsafe	Range available: Type 6
Acetylene (C <sub>2</sub> H <sub>2</sub> )	2.3	100	-	-	0-100%* LEL	-
Ammonia (NH <sub>3</sub> )	25 15	35 33.6	50, 100, 250, 500, 1000 ppm	-	0-25%* LEL	-
Argon (Ar)	-	-	-	-	-	Contact Crowcon
Arsine (AsH <sub>3</sub> )	0.05	-	1 ppm	-	-	-
Bromine (Br <sub>2</sub> )	0.1	0.2	3 ppm	-	-	-
Butane (C <sub>4</sub> H <sub>10</sub> )	1.4	9.3	-	-	0-100%* LEL*	-
Carbon dioxide (CO <sub>2</sub> )	5000 (0.5% Vol)	5000 (1.5% Vol)	-	-	-	Contact Crowcon
Carbon monoxide (CO)	30	200	50, 100, 200, 250, 500, 1000, 2000 ppm	50, 100, 200, 250, 500, 1000, 2000 ppm	-	-
Chlorine (Cl <sub>2</sub> )	-	0.5	3, 5, 10, 20, 50, 100 ppm	-	-	-
Chlorine Dioxide (ClO <sub>2</sub> )	0.1	0.3	1 ppm	-	-	-
Diborane (B <sub>2</sub> H <sub>6</sub> )	0.1	-	1 ppm	-	-	-
Ethane (C <sub>2</sub> H <sub>6</sub> )	2.4	15.5	-	-	0-100%* LEL	-
Ethylene (C <sub>2</sub> H <sub>4</sub> )	2.3	36	-	-	0-100%* LEL	-
Ethylene oxide (C <sub>2</sub> H <sub>4</sub> O)	5	-	10, 50, 100 ppm	-	-	-
Fluorine (F <sub>2</sub> )	1	1	1 ppm	-	-	-
Germane (GeH <sub>4</sub> )	0.2	0.6	2 ppm	-	-	-
Helium (He)	-	-	-	-	-	Contact Crowcon
Hydrogen (H <sub>2</sub> )	4	77	200, 2000 ppm	200, 2000 ppm 100% LEL	0- 100%* LEL 50% LEL, 100% LEL	0-5%, 10%, 50% vv (in air) 0-20%, 25%, 30%, 50% vv (H <sub>2</sub> in N <sub>2</sub> )
Hydrogen chloride (HCl)	1	5	10, 25 ppm	-	-	-
Hydrogen cyanide (HCN)	-	10	25 ppm	-	-	-
Hydrogen fluoride (HF)	1.8	3	10 ppm	-	-	-
Hydrogen sulphide (H <sub>2</sub> S)	5	10	5, 10, 20, 25, 50, 100, 200, 250, 300, 1000 ppm	5, 10, 20, 25, 50, 100, 200 ppm	-	-
LPG	2	10	-	-	0- 100% LEL	-
Methane (CH <sub>4</sub> )	4.4	17	-	-	0- 100% LEL	-
Nitric Oxide (NO)	5* <sup>1</sup>	5* <sup>1</sup>	25, 50, 100 ppm	-	-	-
Nitrogen dioxide (NO <sub>2</sub> )	1* <sup>1</sup>	1* <sup>1</sup>	10, 50, 100 ppm	-	-	-
Ozone (O <sub>3</sub> )	-	0.2	1 ppm	-	-	-
Oxygen (O <sub>2</sub> )	-	-	25% Vol	25% Vol	-	-
Pentane (C <sub>5</sub> H <sub>12</sub> )	1.1 600 ppm	8.7 1800 ppm	-	-	0- 100%* LEL	-
Petrol vapour	1.4	6	-	-	0- 100%* LEL	-
Phosgene (COCl <sub>2</sub> )	0.02	0.06	1 ppm	-	-	-
Phosphine (PH <sub>3</sub> )	0.1	0.2	1 ppm	-	-	-
Propane (C <sub>3</sub> H <sub>8</sub> )	1.7	10.9	-	-	0- 100%* LEL	-
Silane (SiH <sub>4</sub> )	0.5	1	1 ppm	-	-	-
Sulphur Dioxide (SO <sub>2</sub> )	1* <sup>1</sup>	1* <sup>1</sup>	10, 20, 50, 100, 250 ppm	-	-	-
Vinyl chloride (VCM) (CH <sub>2</sub> =CHCl)	3.6 3	33 -	-	-	0- 100%* LEL	-
Volatile organics (VO)* <sup>2</sup>	-	-	0-100 ppm * <sup>2</sup>	-	-	-

\* Ranges not available for Xsafe or Xgard Type 4  
LEL & STEL figures are derived from the UK HSE document: EH40 2011  
Alternative thresholds may apply in countries outside of the UK  
LEL figures derived from EN60079-20-1: 2010

\*<sup>1</sup> Current limits advised in the UK

\*<sup>2</sup> Nominal 0-100ppm range with Carbon Monoxide (CO).

Other sensors and ranges may be available, please contact Crowcon.

# Specification

	Type 1	Type 2	Type 3	Type 4	Type 5	Type 6	Xsafe
Size	156 x 166 x 111mm (6.1 x 6.5 x 4.3 inches)			195 x 166 x 111mm (7.6 x 6.5 x 4.3 inches)	156 x 166 x 111mm (6.1 x 6.5 x 4.3 inches)		
Weight	Nylon: 0.5kg (1.1 lbs) Alloy: 1kg (2.2 lbs) 316 S/S: 3.1kg (6.8 lbs)	Aluminium: 1kg (2.2 lbs) Stainless steel: 3.1kg (6.8lbs)		1.5kg (3.3 lbs)	Aluminium: 1kg (2.2 lbs) Stainless steel: 3.1kg (6.8lbs)		1kg (2.2 lbs)
Enclosure material	ATEX certified: Glass reinforced nylon or 316 S/S UL Certified: Aluminium or 316 S/S	Aluminium or 316 Stainless Steel		Aluminium	Aluminium or 316 Stainless Steel		Aluminium
Ingress protection	IP65			IP54	IP65		
Cable entries	1 x M20, 1/2" NPT or 3/4" NPT* on right-side						
Terminations	0.5 to 2.5mm <sup>2</sup>						
Sensor types	Electrochemical		Catalytic bead	316 S/S sensor housing with catalytic beads	Catalytic bead	Thermal conductivity	Catalytic bead
Operating temperature	-20 to +50°C (-40 to 122°F) (Sensor dependant)	-20 to +50°C (-4 to 122°F) (Sensor dependant)	-40 to +80°C (-40 to 176°F)	-20 to +150°C (-4 to 302°F)	-40 to +55°C (-40 to 131°F)	+10 to +55°C (50 to 301°F)	mV: -40 to +80°C (-40 to 176°F) mA: -40 to +55°C (-40 to 131°F)
Humidity	0-90% RH non-condensing		0-99% RH non-condensing			0-90% RH	0-99% RH
Repeatability	<2% FSD (Typical)						
Zero drift	<2% FSD per Month (Typical)						
Response time	T90 <15s Oxygen T90 <30s to 120s Toxic (sensor dependant)		T90 <15s (Typical)				
Operating voltage	8- 30V dc		2.0V dc +/- 0.1V (Typical)		10-30V dc		mA: 10- 30V dc mV: 2.0Vdc
Power requirements	24mA maximum		300mA (Typical)		50mA at 24V dc 1.2W		mA: 50mA at 24V dc 1.2W mV: 300mA (Typical)
Electrical output	2-wire 4-20mA (current sink)		3- wire mV bridge Typical signal: 12-15 mV/ %LEL CH4	3- wire mV bridge Typical signal: >10 mV/ %LEL CH4	3- wire 4-20mA (current sink or source)		mA: 3- wire 4-20mA (current sink or source) mV: 3- wire mV bridge Typical signal: 12-15mV/ %LEL CH4
Approvals	ATEX: II 1 G Exia IIC T4 Ga (Tamb -40 to +55°C) UL/cUL: Class I, Div. 1 Groups A, B, C, D IECEX EAC	ATEX: II 2 GD Exd IIC T6 Gb (Tamb -40 to +50°C) UL: Class I, Div. 1 Groups B, C, D IECEX EAC	ATEX: II 2 GD Exd IIC T4 Gb (Tamb -40 to +80°C) Exd IIC T6 Gb (Tamb -40 to +50°C) Ex tb IIIC T180oc Db UL: Class I, Div. 1 Groups B, C, D IECEX EAC	ATEX: II 2 GD Exd IIC T3 Gb (Tamb -40 to +150°C)	ATEX: II 2 GD Exd IIC T6 Gb (Tamp -40 to +50°C) Exd IIC T4 Gb (Tamb -40 to +80°C) Ex tb IIIC T180°C Db UL: Class 1, Div. 1 Groups B, C, D IECEX EAC		
EMC compliance	EN 50270	FCG Part 15	ICES- 003				

\* 3/4" cable entry only available on aluminium junction boxes

## Disclaimer

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