



# Xgard

The Xgard range of gas detectors has been specifically designed to meet your requirements.

The dangers presented by toxic and flammable gases as well as oxygen deficiency vary with each application. Xgard offers **four 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.

**Xgard, gas detectors you can trust.**

## Low cost of ownership

Xgard detectors are designed for easy installation and maintenance to **keep costs down**.

A **universal junction box** serves the whole range, which is designed to make **replacement of sensors and sinters extremely simple**. Spare sensors simply **plug-in**.

Xgard Types 1 and 2 utilise **oxygen sensors with a 2-year life-span**, so sensor replacement costs are halved when compared to conventional oxygen detectors.

Many **spare parts are common** to all Xgard models, which keeps spares holding requirements to a minimum.

## Flexible installation options

Xgard is designed for either **wall or ceiling mounting** without the need for additional brackets.

Xgard can accommodate **M20, M25, ½" NPT or ¾" 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.

## Wide range of sensors

Xgard offers an extremely wide range of sensors for all applications.

**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 such as **CO<sub>2</sub>, methane, helium and argon**.

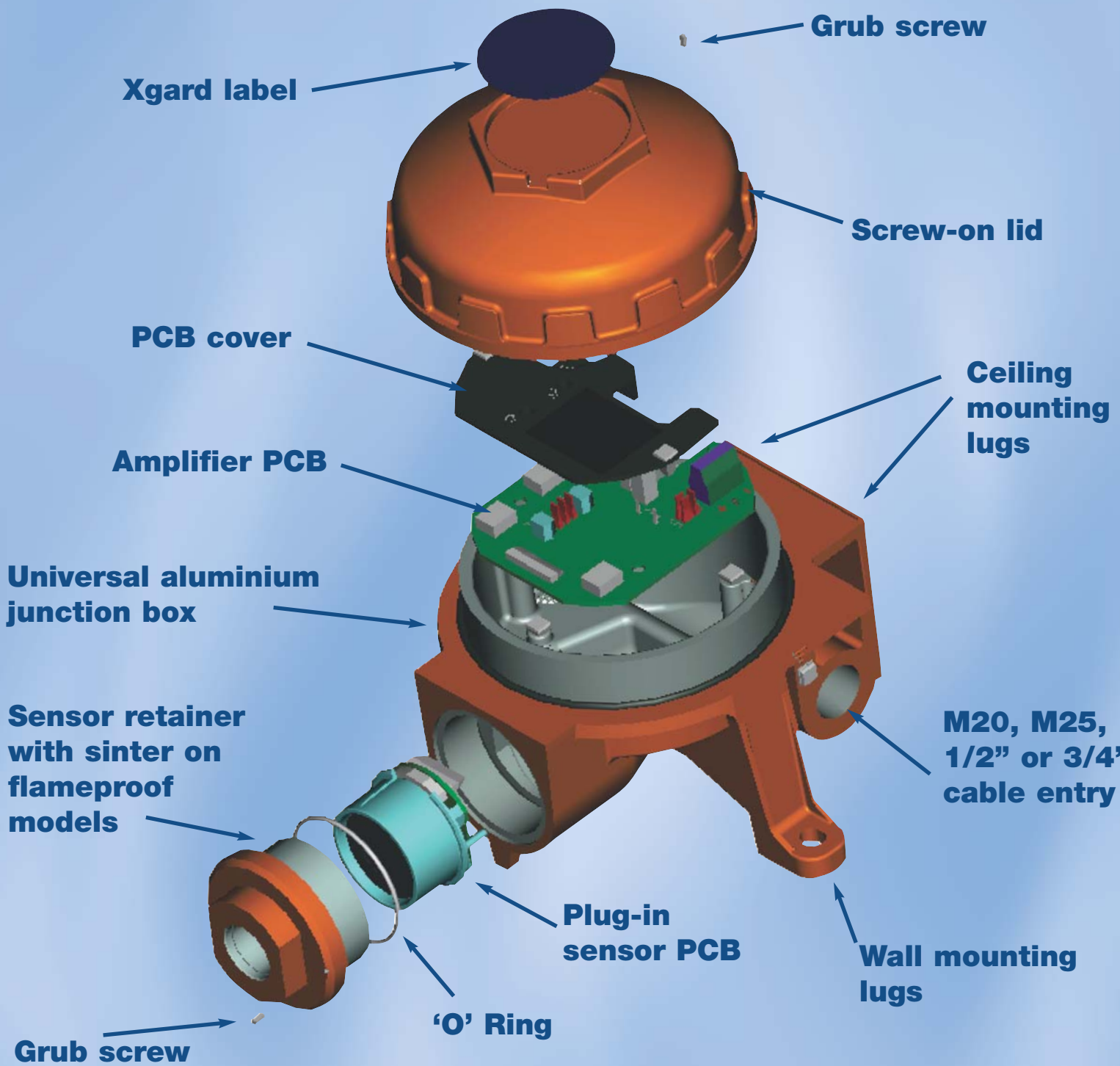
Our **unique Sulphistor** sensor for hydrogen sulphide detection is designed to **operate in high temperatures** and continuously **high background levels of gas**, where conventional electrochemical sensors would quickly fail.

## Rugged and reliable

Xgard is constructed from **highly durable marine-grade aluminium with a tough polyester coating**, which is 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.

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## Accessories (all accessories require an Accessory Adaptor to be fitted to the Xgard junction box)

### Spray Deflector

For outdoor use and protection against wash-down operations.



### Weatherproof Cap

For use in very wet conditions, such as offshore installations and ships.



### Collector Cone

For aiding detection of gases which are lighter than air, such as Hydrogen and Methane.



### Flow Adaptor

For use in sampling applications.



### Accessory Adaptor

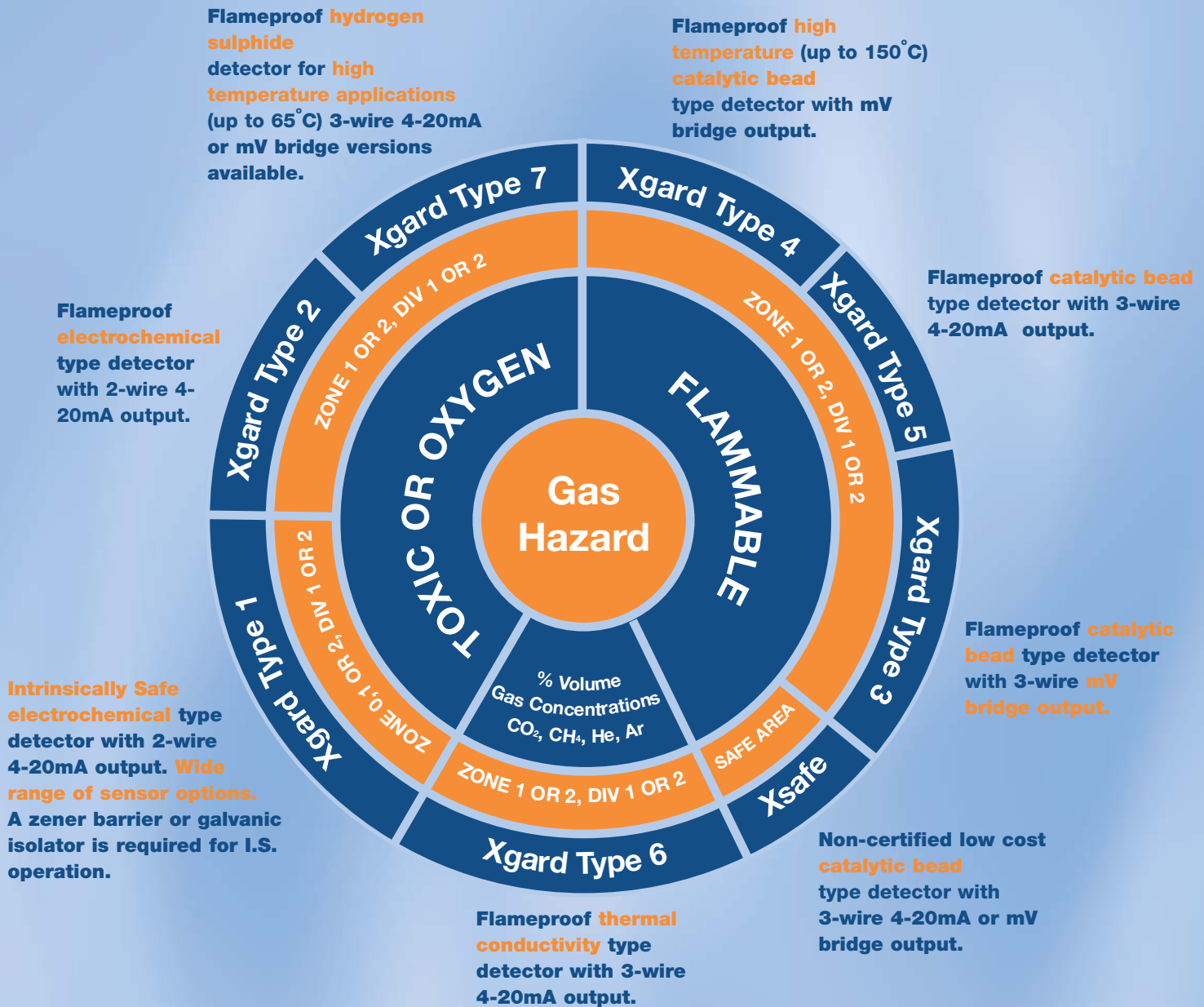
For fitting accessories to Xgard.



# Detector Selector

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.



## Ordering Requirements

The following code is designed to help in the selection of the correct detector. The product reference number should be compiled by inserting the appropriate integer in each box.

Detector	Type No.	Code	Output	Junction Box	Code	Cable Entry	Code	Certification	Code	Gas Type	Range
XGARD	Type 1	1		Aluminium	A	M20	M20	ATEX	AT	Abbreviated up to 8 characters	From selection shown on table
XSAFE	Type 2	2		Stainless Steel	S*	M25	M25	UL	UL		
	Type 3	3				½"NPT	½	CSA*	CS		
	Type 4	4 <sup>+</sup>				¾"NPT	¾				
	Type 5	5									
	Type 6	6									
	Type 7	7	mV or mA								
	XSAFE	XS	mV or mA								

\*The stainless steel junction box will be available from Autumn 2004. CSA certification will be available from December 2004.

<sup>+</sup> Contact Crowcon for Xgard type 4 availability.

For example, the product reference for an intrinsically safe 0-25ppm H<sub>2</sub>S detector with ATEX certification and M20 cable entry in an aluminium junction box would be: XGARD/1/A/M20/AT/H<sub>2</sub>S/25.

Gas type	LTEL(ppm) LEL(%vol)	STEL(ppm) UEL(%vol)	Ranges Available: Type 1	Ranges Available: Type 2	Ranges Available: Type 3,4,5 & Xsafe	Ranges Available: Type 6	Ranges Available: Type 7
Acetic Acid (CH <sub>3</sub> COOH)	10	15	30,50,100 ppm				
Acetylene (C <sub>2</sub> H <sub>2</sub> )	2.5	100			0-100% lel		
Acid gas (HX)	-	-	10, 20 ppm				
Ammonia (NH <sub>3</sub> )	25 15	35 28	10,25,50,100,200* 250,300*,500,1000 ppm	10,25,50,100,250 500,1000 ppm	0-25%lel		
Argon (Ar)	-	-				0-25% vv (in air)	
Arsine (AsH <sub>3</sub> )	0.05	-	1 ppm				
Bromine (Br <sub>2</sub> )	0.1	0.3	1*,3*,5 ppm				
Butane (C <sub>4</sub> H <sub>10</sub> )	1.8	9			0-100% lel	0-25% vv (in air)	
Carbon Dioxide (CO <sub>2</sub> )	5000 (0.5%Vol)	15000 (1.5%Vol)				0-25%,50%, 100% vv (in air)	
Carbon Monoxide (CO)	30	200	50, 100, 150, 200, 250, 300, 500, 1000 ppm	50, 100, 150, 200, 250, 300, 500, 1000 ppm			
Chlorine (CL <sub>2</sub> )	0.5	1	3,5,10,15,20,30,50, 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> )	3	15.5			0-100% lel		
Ethylene (C <sub>2</sub> H <sub>4</sub> )	2.7	36			0-100% lel		
Fluorine (F <sub>2</sub> )	1	1	3 ppm				
Germane (GeH <sub>4</sub> )	0.2	0.6	2 ppm				
Helium (He)	-	-				0-5%,10%,20% 50%,100% vv (in air)	
Hydrogen (H <sub>2</sub> )	4	80	200,500,2000,20000 ppm (20000 ppm= 50% lel)	200, 500, 2000 ppm	0-100% lel	0-5%,10%,50% vv (in air) 0-20%,25%,30- % vv (H <sub>2</sub> in N <sub>2</sub> )	
Hydrogen Cyanide (HCN)	-	10 (MEL)	25,30 ppm				
Hydrogen Fluoride (HF)	1.8	3	10 ppm				
Hydrogen Sulphide (H <sub>2</sub> S)	5	10	2,5,10,20,25,30,50, 100,200,250,300, 1000 ppm	2,5,10,20,25,30,50 100,200 ppm			100 ppm
LPG	2	10			0-100% lel		
Methane (CH <sub>4</sub> )	5	15			0-100% lel	0-10%,25% 100% vv (in air) 0-100% vv (CH <sub>4</sub> in CO <sub>2</sub> )	
Nitrogen Dioxide (NO <sub>2</sub> )	1	1	5,10,30,50,100 ppm				
Ozone (O <sub>3</sub> )	-	0.1	1 ppm				
Oxygen (O <sub>2</sub> )	-	-	25% Vol	25% Vol			
Pentane (C <sub>5</sub> H <sub>12</sub> )	1.5	7.8			0-100% lel		
Petrol	1.3	6			0-100% lel		
Phosgene (COCL <sub>2</sub> )	0.02	0.06	1				
Phosphine (PH <sub>3</sub> )	-	0.3	1,2 ppm				
Propane (C <sub>3</sub> H <sub>8</sub> )	2.2	10			0-100% lel	0-25% vv (in air)	
Silane (SiH <sub>4</sub> )	0.5	1	1 ppm				
Sulphur Dioxide (SO <sub>2</sub> )	1	1	5,10,15,20,50,100, 250 ppm				
Vinyl Chloride (VCM) (CH <sub>2</sub> =CHCl)	3.6	33			0-100% lel		

Notes: Other sensors and ranges are available, please contact Crowcon.

\*Ranges not available with IS certification, safe area use only

# Xgard Specifications

Xgard Model	Type 1	Type 2	Type 3	Type 4*	Type 5	Type 6	Type 7	Xsafe
Junction box material	A356 marine grade alloy with polyester coating	A356 marine grade alloy with polyester coating	A356 marine grade alloy with polyester coating	A356 marine grade alloy with polyester coating	A356 marine grade alloy with polyester coating	A356 marine grade alloy with polyester coating	A356 marine grade alloy with polyester coating	A356 marine grade alloy with polyester coating
Dimensions	156 x 166 x 111mm (6.1 x 6.5 x 4.3 inches)	156 x 166 x 111mm (6.1 x 6.5 x 4.3 inches)	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)	156 x 166 x 111mm (6.1 x 6.5 x 4.3 inches)	156 x 166 x 111mm (6.1 x 6.5 x 4.3 inches)	156 x 166 x 111mm (6.1 x 6.5 x 4.3 inches)
Weight	1Kg (2.2 lbs)	1Kg (2.2 lbs)	1Kg (2.2 lbs)	1.5Kg (3.3 lbs)	1Kg (2.2 lbs)	1Kg (2.2 lbs)	1Kg (2.2 lbs)	1Kg (2.2 lbs)
Ingress protection	IP65, IP66 with weatherproof cap	IP65, IP66 with weatherproof cap	IP65, IP66 with weatherproof cap	IP54	IP65, IP66 with weatherproof cap	IP65, IP66 with weatherproof cap	IP65, IP66 with weatherproof cap	IP65, IP66 with weatherproof cap
Cable entries	1 x M20, M25, ½" NPT or ¾" NPT on right-side	1 x M20, M25, ½" NPT or ¾" NPT on right-side	1 x M20, M25, ½" NPT or ¾" NPT on right-side	1 x M20, M25, ½" NPT or ¾" NPT on right-side	1 x M20, M25, ½" NPT or ¾" NPT on right-side	1 x M20, M25, ½" NPT or ¾" NPT on right-side	1 x M20, M25, ½" NPT or ¾" NPT on right-side	1 x M20, M25, ½" NPT or ¾" NPT on right-side
Terminations	0.5 to 2.5mm <sup>2</sup> (20 to 13awg)	0.5 to 2.5mm <sup>2</sup> (20 to 13awg)	0.5 to 2.5mm <sup>2</sup> (20 to 13awg)	0.5 to 2.5mm <sup>2</sup> (20 to 13awg)	0.5 to 2.5mm <sup>2</sup> (20 to 13awg)	0.5 to 2.5mm <sup>2</sup> (20 to 13awg)	0.5 to 2.5mm <sup>2</sup> (20 to 13awg)	0.5 to 2.5mm <sup>2</sup> (20 to 13awg)
Sensor type	Electrochemical	Electrochemical	Catalytic bead	VQ600H 316 s/s sensor housing with catalytic beads	Catalytic bead	Thermal conductivity	Sulphistor	Catalytic bead
Operating temperature	-20 to +50°C (-4 to 122°F) (typical) (to +55°C intermittent)	-20 to +50°C (-4 to 122°F) (typical) (to +55°C intermittent)	-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 131°F)	-20 to +65°C (-4 to 149°F) (mV version) -20 to +55°C (-4 to 131°F) (mA version)	-40 to +80°C (-40 to 176°F) (mV version) -40 to +55°C (-40 to 131°F) (mA version)
Humidity	0-90% RH non-condensing	0-90% RH non-condensing	0-99% RH non-condensing	0-99% RH non-condensing	0-99% RH non-condensing	0-90% RH non-condensing	0-99% RH non-condensing	0-99% RH non-condensing
Repeatability	<2% FSD (Typ.)	<2% FSD (Typ.)	<2% FSD (Typ.)	<2% FSD (Typ.)	<2% FSD (Typ.)	<2% FSD (Typ.)	<2% FSD (Typ.)	<2% FSD (Typ.)
Zero drift	<2% FSD / month (Typ.)	<2% FSD / month (Typ.)	<2% FSD / month (Typ.)	<2% FSD / month (Typ.)	<2% FSD / month (Typ.)	<2% FSD / month (Typ.)	<2% FSD / month (Typ.)	<2% FSD / month (Typ.)
Response time	T90 <10s Oxygen T90 <30s Toxic (Typ)	T90 <10s Oxygen T90 <30s Toxic (Typ)	T90 <15s (Typ)	T90 <15s (Typ)	T90 <15s (Typ)	T90 <15s (Typ)	T90 <15s (Typ)	T90 <15s (Typ)
Operating voltage	8 – 30V dc	8 – 30V dc	2.0V dc +/- 0.1V (Typ)	2.0V dc +/- 0.1V (Typ)	10 – 30V dc	10 – 30V dc	10 – 30V dc (mA version) 6.5V dc (mV version)	10 – 30V dc (mA version) 2.0V dc (mV version)
Power requirements	24mA max.	24mA max.	300mA (Typical)	300mA (Typical)	50mA @ 24V dc 1.2W	50mA @ 24V dc 1.2W	150mA @ 24V dc 3.6W	mA version: 50mA @ 24V dc 1.2W mV version: 300mA (Typ.)
Electrical output	2-wire 4-20mA (current sink)	2-wire 4-20mA (current sink)	3-wire mV bridge Typical signal 12-15mV / %lcl CH4	3-wire mV bridge Typical signal >10mV / %lcl CH4	3-wire 4-20mA (current sink or source)	3-wire 4-20mA (current sink or source)	mA version: 3-wire 4-20mA (current sink or source) mV version: 3-wire mV bridge 200mV @ 10ppm, 400mV @ 100ppm Log. scale	mA version: 3-wire 4-20mA (current sink or source) mV version: 3-wire mV bridge Typical signal 12-15mV / %lcl CH4
Approvals	ATEX:  II 1 G EExia IIC T4 (Tamb -40 to +55°C) UL: Class 1, Div. 1 Groups A,B,C,D* CSA: Pending	ATEX:  II 2 G EExd IIC T6 (Tamb -40 to +50°C) UL: Class 1, Div. 1 Groups B,C,D* CSA: Pending	ATEX:  II 2 G EExd IIC T4 (Tamb -40 to +80°C) EExd IIC T6 (Tamb -40 to +50°C) UL: Class 1, Div. 1 Groups B,C,D* CSA: Pending	ATEX:  II 2 G EExd IIC T3 (Tamb -20 to +150°C) Junction box UL: Class 1, Div. 1 Groups B,C,D* Detector: FM Class 1, Div. 1 Groups B,C,D	ATEX:  II 2 G EExd IIC T6 (Tamb -40 to +50°C) EExd IIC T4 (Tamb -40 to +80°C) UL: Class 1, Div. 1 Groups B,C,D* CSA: Pending	ATEX:  II 2 G EExd IIC T6 (Tamb -40 to +50°C) EExd IIC T4 (Tamb -40 to +80°C) UL: Class 1, Div. 1 Groups B,C,D* CSA: Pending	ATEX:  II 2 G EExd IIC T4 (Tamb -40 to +80°C) EExd IIC T6 (Tamb -40 to +50°C) UL: Class 1, Div. 1 Groups B,C,D* CSA: Pending	Not certified for use in a hazardous environment.
EMC compliance	EN 50270	EN 50270	EN 50270	EN 50270	EN 50270	EN 50270	EN 50270	EN 50270

\*Contact Crowcon for type 4 availability

\*Pending