



Fixed detectors
For flammable, toxic or oxygen gases

Xgard

- | | |
|---------------|--|
| Xgard Type 1: | Intrinsically safe toxic and oxygen gas detector |
| Xgard Type 2: | Flameproof toxic and oxygen gas detector |
| Xgard Type 3: | Flameproof flammable gas detector |
| Xgard Type 4: | Flameproof high temperature flammable gas detector |
| Xgard Type 5: | Flameproof flammable gas detector with 4-20mA output |
| Xgard Type 6: | Flameproof thermal conductivity type gas detector |
| Xsafe: | Safe area flammable gas detector |

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 **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.

Xgard, gas detectors you can trust.

Low cost of ownership

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**.

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, $\frac{1}{2}$ " NPT or $\frac{3}{4}$ " 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.

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**.

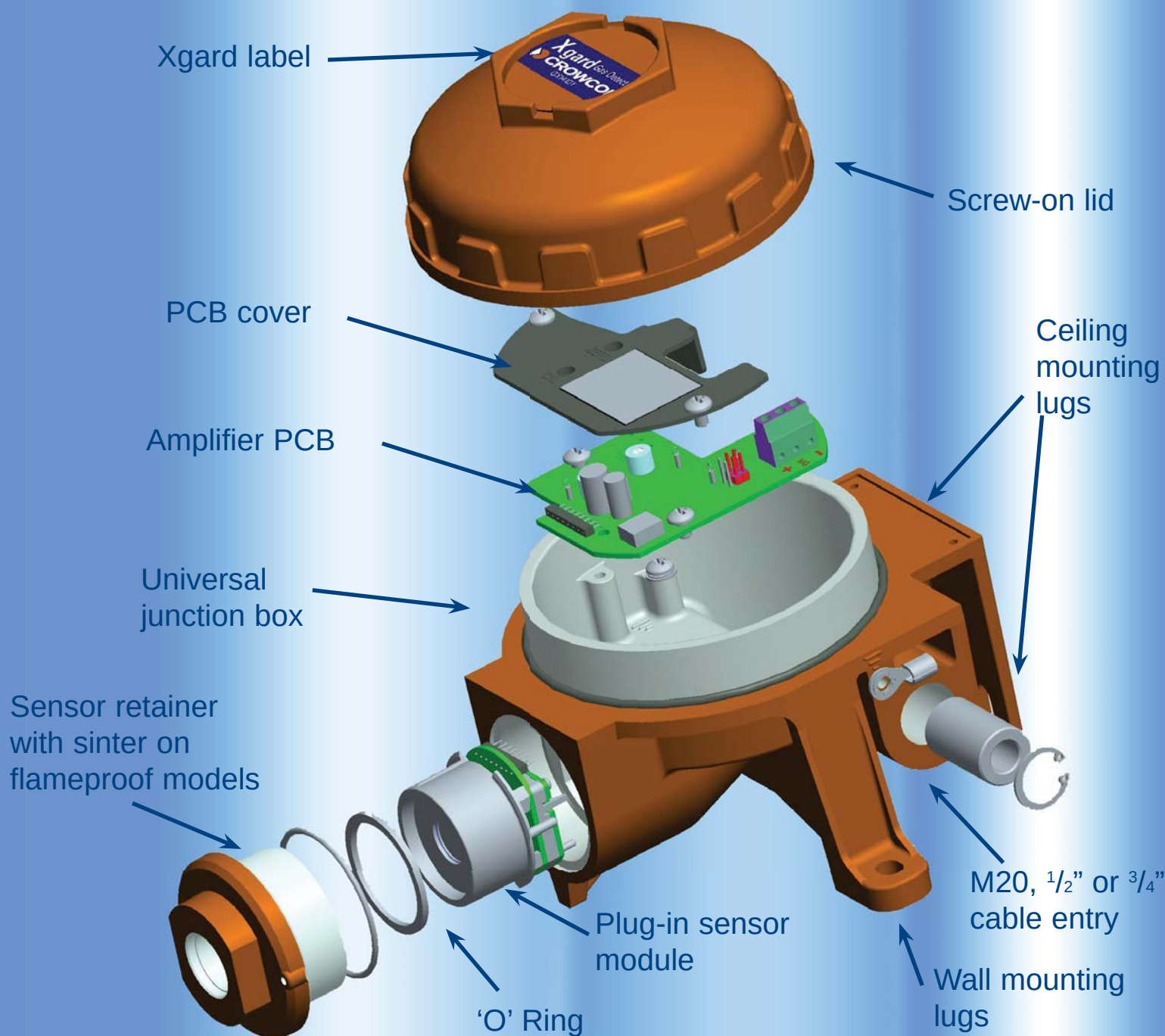
Thermal conductivity sensors are available to monitor **volume concentrations** of gases.

Rugged and reliable

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.

Xgard



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.



Sun Shield

For use where a detector is installed in direct sunlight



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

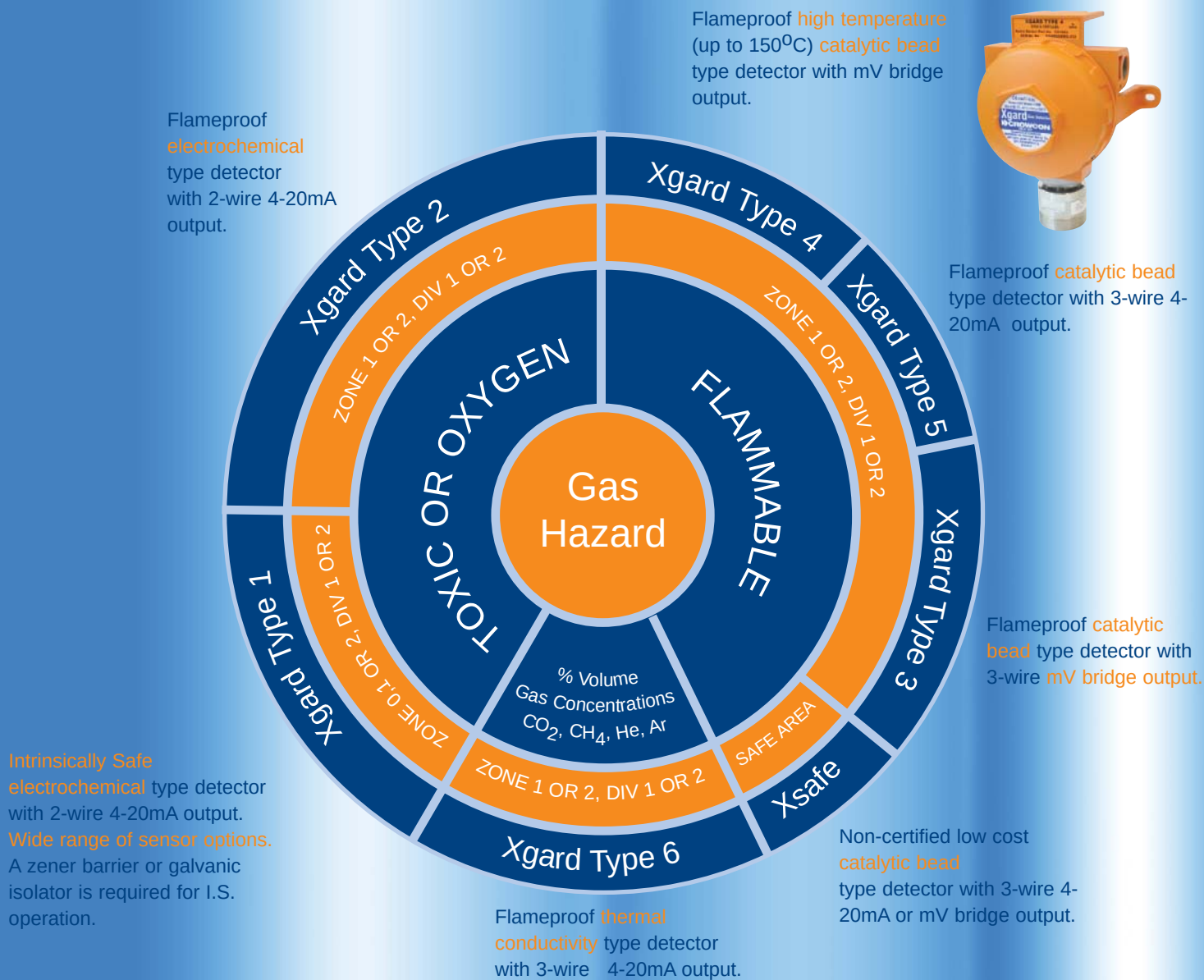
For fitting accessories to Xgard.



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	1		Standard*1	A	M20	M20	ATEX	AT	Abbreviated up to 8 characters	From selection shown on table
XSAFE	Type 2	2		Stainless Steel*2 S		1/2"NPT	1/2	UL	UL		
	Type 3	3				3/4"NPT	3/4				
	Type 4	4									
	Type 5	5									
	Type 6	6									
	XSAFE	XS	mV or mA								

*1: Xgard Type 1 ATEX certified detectors will be supplied in a glass-reinforced nylon enclosure as standard, or in a 316 stainless steel enclosure as an option. Xgard Type 1 UL certified detectors and all other Xgard Types will be supplied in aluminium as standard, or in a 316 stainless steel enclosure as an option.

*2: The stainless steel option is not available for Xsafe.

Example product reference for an I.S. 0-25ppm H2S detector with ATEX certification and M20 cable entry in a standard (nylon) junction box:

XGARD/1/A/M20/AT/H2S/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
Acetylene (C ₂ H ₂)	2.3 (2.4)	100			0-100% lel*	
Ammonia (NH ₃)	25 15 (15)	35 33.6 (28)	50, 100, 250, 500, 1000 ppm		0-25%lel*	
Argon (Ar)	-	-				0-25% vv (in air) [†]
Arsine (AsH ₃)	0.05	-	1 ppm			
Bromine (Br ₂)	0.1	0.2	3, 5 ppm			
Butane (C ₄ H ₁₀)	1.4 (1.8)	9.3 (9)			0-100% lel*	0-25% vv (in air) [†]
Carbon Dioxide (CO ₂)	5000 (0.5%Vol)	15000 (1.5%Vol)				0-50%, 100% vv (in air) [†]
Carbon Monoxide (CO)	30	200	50, 100, 150, 200, 250, 300, 500, 1000 ppm	50, 100, 250, 300, 500, 1000 ppm		
Chlorine (Cl ₂)	-	0.5	3,5,10,20,50,100 ppm			
Chlorine Dioxide (ClO ₂)	0.1	0.3	1 ppm			
Diborane (B ₂ H ₆)	0.1	-	1 ppm			
Ethane (C ₂ H ₆)	2.5 (3)	15.5			0-100% lel*	
Ethylene (C ₂ H ₄)	2.3 (2.7)	36			0-100% lel*	
Ethylene Oxide (C ₂ H ₄ O)	5	-	10, 50, 100 ppm	10, 50, 100 ppm		
Fluorine (F ₂)	1	1	1 ppm			
Germane (GeH ₄)	0.2	0.6	2 ppm			
Helium (He)	-	-				0-5%,10%,20% 50%,100% vv (in air) [†]
Hydrogen (H ₂)	4	77 (80)	200, 2000 ppm 2%, 4% vv	200, 2000 ppm 2%, 4% vv	0-100% lel*	0-5%,10%,50% vv (in air) 0-20%,25%,30%, 50% vv (H ₂ in N ₂)
Hydrogen Chloride (HCL)	1	5	5, 10, 25 ppm			
Hydrogen Cyanide (HCN)	-	10	25, 30 ppm			
Hydrogen Fluoride (HF)	1.8	3	10 ppm			
Hydrogen Sulphide (H ₂ 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 ₄)	4.4 (5)	17 (15)			0-100% lel	0-10%,25% 100% vv (in air) 0-100% vv (CH ₄ in CO ₂) [†]
Nitric Oxide (NO)	5* ¹	15* ¹	25, 50, 100 ppm			
Nitrogen Dioxide (NO ₂)	1	1	5, 10, 30, 50, 100 ppm			
Ozone (O ₃)	-	0.2	1 ppm			
Oxygen (O ₂)	-	-	25% Vol	25% Vol		
Pentane (C ₅ H ₁₂)	1.4 (1.5) 600ppm	7.8 (7.8) 1800ppm			0-100% lel*	
Petrol	1.3	6			0-100% lel*	
Phosgene (COCL ₂)	0.02	0.06	1 ppm			
Phosphine (PH ₃)	0.1	0.2	1 ppm			
Propane (C ₃ H ₈)	1.7 (2.2)	10.9 (10)			0-100% lel	0-25% vv (in air) [†]
Silane (SiH ₄)	0.5	1	1 ppm			
Sulphur Dioxide (SO ₂)	1	1	10, 20, 50, 100, 250 ppm			
Vinyl Chloride (VCM) (CH ₂ =CHCl)	3.6 3	33 -			0-100% lel*	
Volatile Organics (VO)* ²	-	-	0 - 100 ppm* ²			

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

*Ranges not available for Xsafe or Xgard Type 4

[†]Contact Crowcon for availability

LTEL & STEL figures are derived from the UK HSE document: EH40 Oct 07. Alternative thresholds may apply in countries outside of the UK

LEL figures derived from EN61779-1: 2000

*¹ Current limits advised in the UK

*² Nominal 0-100ppm range with Carbon Monoxide (CO). Contact Crowcon for a full list of gases that can be detected using this sensor

Xgard Specifications

Xgard Model	Type 1	Type 2	Type 3	Type 4	Type 5	Type 6	Xsafe
Junction box material	ATEX Certified: Glass-reinforced nylon or 316 S/S UL Certified: Aluminium or 316 S/S	Aluminium or 316 Stainless Steel	Aluminium or 316 Stainless Steel	Aluminium or 316 Stainless Steel	Aluminium or 316 Stainless Steel	Aluminium or 316 Stainless Steel	Aluminium
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)
Weight	Nylon 0.5Kg (1.1lbs) Alloy 1Kg (2.2 lbs) 316 S/S: 3.1kg (6.8 lbs)	Alloy 1Kg (2.2 lbs) 316 S/S: 3.1kg (6.8 lbs)	Alloy 1Kg (2.2 lbs) 316 S/S: 3.1kg (6.8 lbs)	Alloy 1Kg (2.2 lbs) 316 S/S: 3.1kg (6.8 lbs)	Alloy 1Kg (2.2 lbs) 316 S/S: 3.1kg (6.8 lbs)	Alloy 1Kg (2.2 lbs) 316 S/S: 3.1kg (6.8 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
Cable entries	1 x M20 or ½" NPT on right-side	1 x M20, ½" NPT or ¾" *NPT on right-side	1 x M20, ½" NPT or ¾" *NPT on right-side	1 x M20, ½" NPT or ¾" *NPT on right-side	1 x M20, ½" NPT or ¾" *NPT on right-side	1 x M20, ½" NPT or ¾" *NPT on right-side	1 x M20, or ½" NPT on right-side
Terminations	0.5 to 2.5mm ² (20 to 13awg)	0.5 to 2.5mm ² (20 to 13awg)	0.5 to 2.5mm ² (20 to 13awg)	0.5 to 2.5mm ² (20 to 13awg)	0.5 to 2.5mm ² (20 to 13awg)	0.5 to 2.5mm ² (20 to 13awg)	0.5 to 2.5mm ² (20 to 13awg)
Sensor type	Electrochemical	Electrochemical	Catalytic bead	316 s/s sensor housing with catalytic beads	Catalytic bead	Thermal conductivity	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)	-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
Repeatability	<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.)
Response time	T90 <10s Oxygen T90 <30s to 120s Toxic (sensor dependant)	T90 <10s Oxygen T90 <30s to 120s Toxic (sensor dependant)	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) 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	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 / %l _{el} CH4	3-wire mV bridge Typical signal >10mV / %l _{el} 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 Typical signal 12-15mV / %l _{el} CH4
Approvals	ATEX:  II 1 G Exia IIC T4 (Tamb –40 to +55°C) UL/cUL Groups A,B,C,D IECEX MED Marine (96/98/EC) Oxygen Only	ATEX:  II 2 GD Exd IIC T6 (Tamb –40 to +50°C) UL: Class 1, Div. 1 Groups B,C,D IECEX MED Marine (96/98/EC) Oxygen Only	ATEX:  II 2 GD Exd IIC T4 (Tamb –40 to +80°C) Exd IIC T6 Tamb (-40 to +50°C) UL: Class 1, Div. 1 Groups B,C,D IECEX	ATEX:  II 2 G Exd IIC T3 (Tamb –20 to +150°C)	ATEX:  II 2 GD Exd IIC T6 (Tamb –40 to +50°C) Exd IIC T4 (Tamb –40 to +80°C) UL: Class 1, Div. 1 Groups B,C,D IECEX	ATEX:  II 2 GD Exd IIC T6 (Tamb –40 to +50°C) Exd IIC T4 (Tamb -40 to +80°C) UL: Class 1, Div. 1 Groups B,C,D IECEX	Not certified for use in a hazardous environment.
EMC compliance	EN 50270	EN 50270	EN 50270	EN 50270	EN 50270	EN 50270	EN 50270

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



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