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CROWCON
Detecting Gas Saving Lives

XgardIQ

Intelligent Gas Detector and Transmitter

- Smart sensor modules
- Non-intrusive calibration
- Clear user friendly display
- Remote sensor option

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XgardIQ

Intelligent Gas Detector and Transmitter

Minimise the time operators spend in hazardous areas.

XgardIQ offers powerful features which minimise the time operators spend in hazardous areas performing routine maintenance.

Easy to use

Positive Safety indicator	Status checking at a glance and from a distance.
OLED display	Bright, clear display indicates gas level even in dark locations.
Buttons	Functions performed via buttons, without the need for special magnets or tools.
Event log	Clear history of detector use.

Simple installation and maintenance

Hot-swap sensor modules	Easily removed or replaced using the tool provided without requiring hot work permit or special tools.
Auto-sense function	Automatically detects whether the control system is 4-20mA current sink or source, saving time and faults.
Auto-configure function	Detects when sensor module is plugged in and uploads the appropriate gas type, range, units and alarm levels.
Smart Bump and Speedy Bump test	Sensor health and response verified quickly and easily following simple on-screen instructions. Detector automatically provides a reminder when next bump test is due.
Calibration due warning	Automatically reminds the user when calibration is due to ensure sensors remain accurate at all times.
Sensor range selection	Users can set the full-scale range of the sensor via the display menu according to site or specific location requirements.

Product description

XgardIQ is an intelligent and versatile gas detector and transmitter compatible with Crowcon's full range of sensor technologies. XgardIQ is available fitted with a variety of flammable, toxic and oxygen gas sensors and provides a bright OLED display with clear and comprehensive status information in a range of languages.

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Gases and ranges

Gas	Sensor Type	Units	Max range*	Standard range	Alarm level 1+	Alarm level 2+	Temp range °C
Oxygen (O_2)	Electrochemical	%Vol	30	25	19 (falling)	17 (falling)	-20 to +50
Ammonia (NH_3)	Electrochemical	ppm	100/1000	50	25	35	-20 to +40
Carbon Monoxide (CO)	Electrochemical	ppm	1000	250	30	200	-30 to +50
Hydrogen Fluoride (HF)	Electrochemical	ppm	10	10	1.8	3	+5 to +40
Hydrogen Sulphide (H_2S)	Electrochemical	ppm	100/200	25	5	10	-30 to +50
Hight Temp (H2S)	Electrochemical	ppm	100	100	5	10	-30 to +70
Chlorine (Cl_2)	Electrochemical	ppm	20	5, 10 or 20	0.5	1	-20 to +50
Ozone (O_3)	Electrochemical	ppm	1	1	0.1	0.2	-20 to +40
Sulphur dioxide (SO_2)	Electrochemical	ppm	100	10	1	1	-30 to +50
Hydrogen (H_2)	Pellistor	%LEL	100	100	20	40	-40 to +75
Methane (CH_4)	Pellistor	%LEL	100	100	20	40	-40 to +75
Pentane (C_5H_12)	Pellistor	%LEL	100	100	20	40	-40 to +75
Propane (C_3H_8)	Pellistor	%LEL	100	100	20	40	-40 to +75
Ethanol (C_2H_6O)	IR	%LEL	100	100	20	40	-20 to +55
LPG	IR	%LEL	100	100	20	40	-20 to +55
Methane (CH_4)	IR	%LEL	100	100	20	40	-20 to +55
Pentane (C_5H_{12})	IR	%LEL	100	100	20	40	-20 to +55
Propane (C_3H_8)	IR	%LEL	100	100	20	40	-20 to +55

* NOTE: Measuring ranges are user-selectable on the XgardIQ transmitter

+ NOTE: Alarm levels are user-adjustable on the XgardIQ transmitter

Further gas types will be available - contact Crowcon with your requests.

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Specification

Size	XgardIQ transmitter	H278 x W140 x D89mm (10.9 x 5.5 x 3.5ins)
Weight	XgardIQ transmitter	4.1kg (9lbs, stainless steel)
Enclosure material		316 stainless steel
Ingress protection		IP66
Connection		Three M20 or 1/2"NPT cable gland entries. Certified, removable plugs are fitted to left-hand and lower right-hand entries
Power		14-30Vdc. < 4W
Display	Main display	OLED 128 x 64 pixels, yellow text on black background
	Indicators	Amber, Red and Green LEDs for detector status Blue Positive Safety LED
Electrical output		4-20mA current sink or source (auto-sense or manual selection) Warning and fault signals are configurable NAMUR NE 43 compliant RS-485 Modbus RTU HART 7 over 4-20mA signal and via local I.S. test points (optional)
	Relays (optional)	Alarm 1, Alarm 2, Fault SPDT contacts rated 5A, 230Vac (Fault relay: SPST contacts)
	Relay configuration options	Energised or de-energised Latching or non-latching Rising or falling Configurable On and Off delays for alarm relays
Event logging		Records alarm, fault and maintenance events. Events can be viewed on-screen and downloaded to a PC
Operating temperature		Transmitter only: -40°C to +75°C (-40°F to 167°F) Sensor type Oxygen (-20°C to +50°C ambient) Toxic (-40°C to +50°C ambient) Toxic (a high temperature H2S sensor -40°C to +75°C ambient) Pellistor (-40°C to +75°C ambient) Infra-red (IR) (-20°C to +55°C ambient)
Humidity		Transmitter only: 0 to 95% RH non-condensing Note: sensor humidity operating range may vary. Contact Crowcon for specific sensor data
Repeatability		+/- 2% FSD
Zero drift		+/- 2% FSD per year maximum
Response time		Sensor dependent: contact Crowcon for specific sensor data
Performance	Tested in accordance with:	EN60079-29-1 (flammable gas sensors)* EN50104 (oxygen sensors)*
Functional safety		IEC61508, EN50402, SIL 2*
Approvals		ATEX and IECEx, SGS Ex II 2 G Ex db ia IIC T4 Gb (see above for ambient temperature ranges) CU-EAC certificate
EMC compliance		EN50270, EN61000-6-4 FCC CFR47 Part 15B

* Features outstanding at the time of issue, contact Crowcon for details.

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IRmax

Fixed Point Gas Detector

- Simple to install
- Low maintenance
- Low cost of ownership
- Fail-safe
- Low power
- Local or remote display options

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IRmax

Infrared Hydrocarbon Gas Detector

IRmax is a compact, low power and highly rugged infrared gas detector, that delivers rapid, fail safe detection of methane, butane, propane and many other hydrocarbon gases and vapours.

Simple to install

Compact size	Requires less space, effort and time to install
Various installation options	Can be wall mounted, fitted to a 50mm (2 inch) pipe or connected to an auxiliary junction box using a choice of mounting acessories
Industry standard 4-20mA output	IRmax is compatible with virtually any control system
Options for HART communications and RS-485 Modbus	

Easy maintenance

Remote non-intrusive calibration	The Remote Display can be mounted up to 30 metres from the IRmax and test gas can be applied without requiring direct access to the detector
Hand-held Intrinsically Safe (I.S) calibrator	IRmax detectors fitted with an I.S barrier module can be checked and calibrated using an I.S handheld display
STAY-CLIR optics	Prevents condensation on optical components

Low cost of ownership

Low power	IRmax only consumes 1W of power, enabling small power supplies and battery back up systems to be used
Automatic optical obscuration monitoring	Minimal routine maintenance keeps costs to a minimum
Annual proof-test interval	

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Gases and ranges

Linearisation			Range
Acetone (C_3H_6O)	Pentane (C_5H_{12})	Paraxylene (C_8H_{10})	0-100% LEL
Butane (C_4H_{10})	Petrol vapour	Ethane (C_2H_6)	
Ethanol (C_2H_5OH)	Propane (C_3H_8)	Ethylene dichloride (EDC)	
Ethylene (C_2H_4)	Propylene (C_3H_6)	Cyclohexane (C_6H_{12})	
Ethyl acetate (C_4H_8O2)	THF (Tetrahydrofuran) (C_4H_8O)	Butadiene (C_4H_6)	
Heptane (C_7H_{16})	Xylene (C_8H_{10})	Toluene (C_7H_8)	
Hexane (C_6H_{14})	Methyl acetate ($C_3H_6O_2$)	Butene (C_4H^8)	
LPG	Propylacetate ($C_5H_{10}O_2$)	Methyl Ethyl Ketone (MEK)	
Methanol (CH_3OH)	Hexene (C_6H_{12})	Isopropanol (IPA)	
Methane (CH_4)			0-50, 100% LEL

Other ranges & calibrations may be available, please contact Crowcon if your requirement is not shown.

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Specification

Size	IRmax	158 x 75 x 57mm (6.2 x 2.9 x 2.3ins)		
	IRmax with Fixed IR display	230 x 75 x 57mm (9 x 2.9 x 2.3ins)		
	IRmax with IS Barrier Module	261 x 75 x 57mm (2.3 x 2.9 x 2.3ins)		
	Remote IR Display	60 x 54 x 48mm (2.3 x 2.1 x 1.9ins)		
Weight	IRmax	1.58kg (3.5lbs)		
	IRmax with Fixed IR Display	2kg (4.4lbs)		
	IRmax with IS Barrier Module	2.4kg (5.3lbs)		
	Remote IR Display	0.2kg (0.4lbs)		
Enclosure material		316 stainless steel		
Description		Dual-beam infrared hydrocarbon gas detector with optional display		
Ingress protection		IP66		
Connection		One M20 or ½" NPT cable gland entry		
Power		12-30 Vdc. < 1W		
Electrical output		4-20mA current sink or source		
		2mA dirty optics warning (at 75% obscuration, configurable)		
		0mA detector fault signal (at 90% obscuration, configurable)		
		RS-485 Modbus (optional), HART 7 (optional)		
IR display		4- digit LCD with back-light		
		Function buttons can be de-activated if required		
		Terminals for connecting HART communicators (optional function)		
	LED	Red: Gas detected	Amber: IRmax fault	Green: Healthy
	Display functions	Gas level, obscuration level, supply voltage, signal current		
	Password protected functions	Zero, calibrate, ramp output, trim zero mA, trim span mA		
Operating temperature		-40°C to +75°C (-40°F to 167°F)		
Humidity		0 to 95% RH non-condensing		
Pressure range		Atmospheric +/- 10%		
Repeatability		+/- 2% FSD		
Zero drift		+/- 2% FSD per year maximum		
Rresponse time		T90 < 4 seconds		
Functional safety		IEC61508, EN50402 SIL2		
Approvals ATEX & IECEx	IRmax without Display	Ex II 2 GD Ex db IIC T6 Gb (Tamb -40°C ≤ Ta ≤ +50°C) Ex II 2 GD Ex db IIC T4 Gb (Tamb -40°C ≤ Ta ≤ +75°C) Ex II 2 GD Ex tb IIIC T135°C Db (Tamb -40°C ≤ Ta ≤ +75°C)		
	IRmax with Remote and Handheld Display	Ex II 2 GD Ex db ia IIC T4 Gb (Tamb -40°C ≤ Ta ≤ +75°C) Ex II 2 GD Ex tb ia IIIC T135°C Db (Tamb -40°C ≤ Ta +40°C)		
	IRmax with Fixed Display	EX II 2G Ex db ia IIC T4 Gb (Tamb -40°C ≤ Ta ≤ +75°C)		
EMC Compliance		EN50270, FCC CFR47 Part 15B, ICES-003		
Accuracy		+/- 2% of reading		
Linearity		+/- 3% of full-scale		

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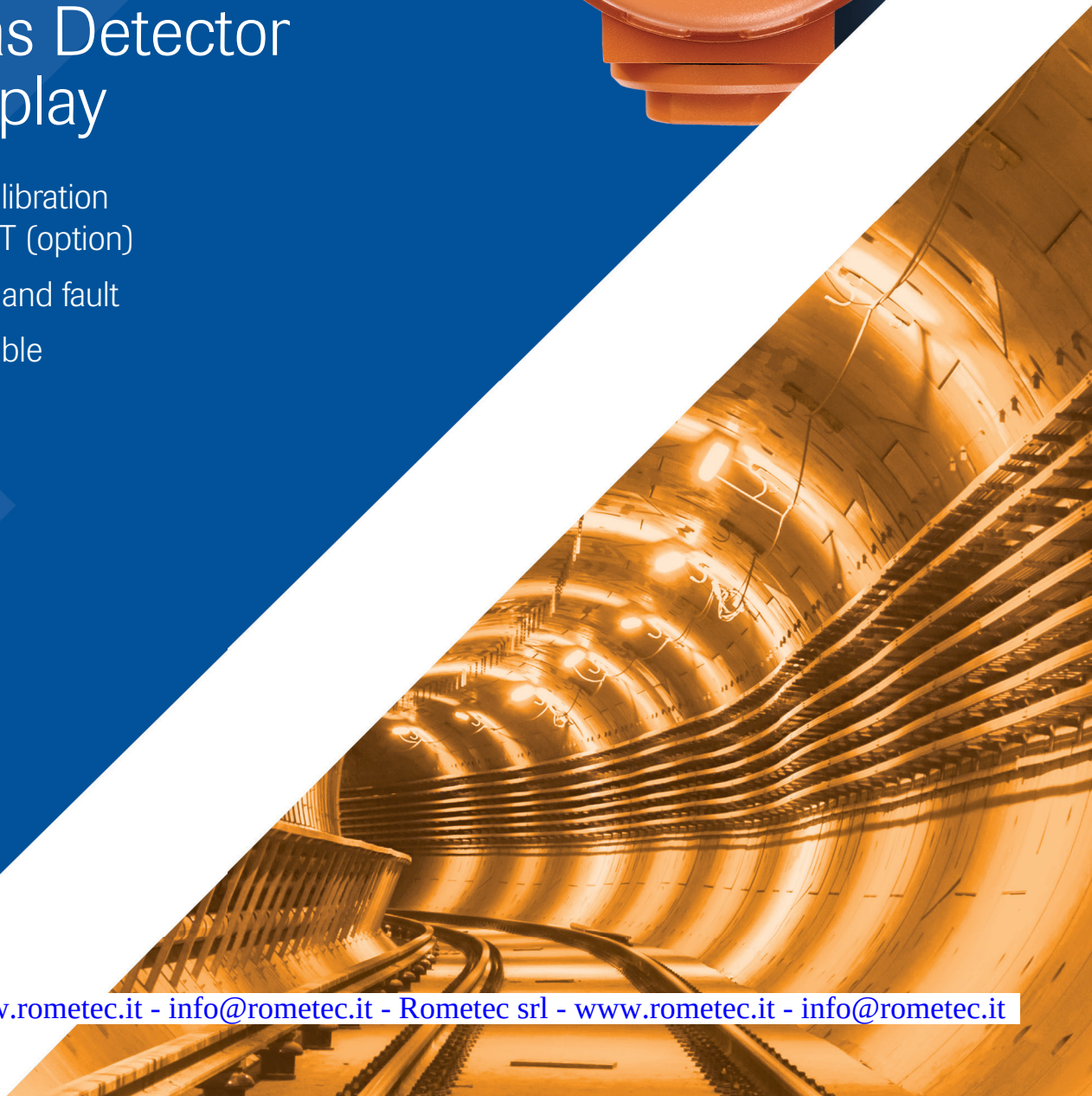
Xgard Bright

Addressable Fixed-Point Gas Detector with Display

Non-intrusive calibration
MODBUS/HART (option)

Relays for alarm and fault

4-Wire addressable



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Xgard Bright

Addressable Fixed-Point Gas Detector with Display

Xgard Bright is a versatile platform offering flammable and toxic gas detection and oxygen monitoring, while providing ease of operation and reduced installation costs.

Lowering the cost of installation, the 4-wire addressable implementation drastically reduces cabling requirements. The large OLED display allows users to easily work with Xgard Bright during install, calibration and routine maintenance without the need to open the housing.

Gases and ranges

Gas	Sensor Technology	Ranges Available
Range of flammable gases	MPS	0-100% LEL
Hydrogen sulphide (H_2S)	Electrochemical	10, 20, 25, 50, 100, 200 ppm
Oxygen (O_2)	Oxygen	0-25% vol
Carbon Monoxide (CO)	Electrochemical	0-25, 50, 100, 200, 250, 300, 1000, 2000 ppm
Methane (CH_4)	Pellistor	0-100% LEL
Pentane (C_5H_{12})	Pellistor	0-100% LEL
Hydrogen (H_2)	Pellistor	0-100% LEL
LPG	Pellistor	0-100% LEL
Carbon Dioxide (CO_2)	Infra-Red	0-5% vol
VOC*	PID	0-1000 PPM
Methane (CH_4)	Infra-Red	0-100% LEL
Propane (C_3H_8)	Infra-Red	0-100% LEL
Ammonia (NH_3)*	Electrochemical	0-50, 100 ppm
Chlorine (CL_2)*	Electrochemical	0-5, 10 ppm
Ozone (O_3)*	Electrochemical	0-1 ppm
Sulpur dioxide (SO_2)*	Electrochemical	0-10 ppm
Butane (C_4H_{10})	Infra-Red	0-100% LEL
Pentane (C_5H_{12})	Infra-Red	0-100% LEL
LPG	Infra-Red	0-100% LEL
Hydrogen Cyanide (HCN)*	Electrochemical	0-25 ppm
Hydrogen Peroxide (H_2O_2)*	Electrochemical	0-5 ppm

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Reducing the time operators spend in potentially hazardous areas:

At Crowcon we recognize the challenges faced and processes required every time an operator enters a facility or site that has been classified as a hazardous area. Permits are needed, specific training and equipment are required and procedures have to be followed. This consumes resources, which ultimately increases the cost of operations.

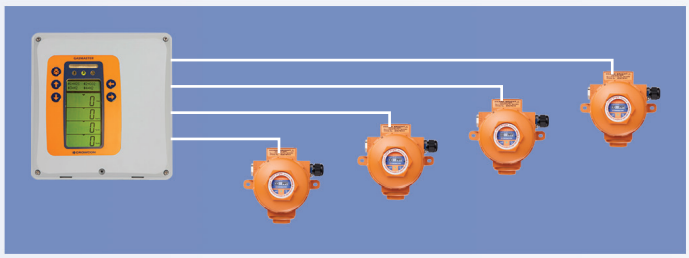
Xgard Bright has been designed with this in mind, making routine calibration and maintenance operations quick and simple to reduce the time operators spend in hazardous areas:

Non-intrusive calibration	Zero and calibration functions (plus setup, tests and adjustments) are performed via the display using the magnetic wand, without needing to open the housing reducing the need for a hot work permit.
OLED display	The brightly illuminated "organic light-emitting diode" display clearly indicates the gas level and units as well as providing comprehensive menus for setup and diagnosis. In low ambient light conditions, such as a dark room, the OLED display achieves a much higher contrast ratio than an LCD used on conventional gas detectors.

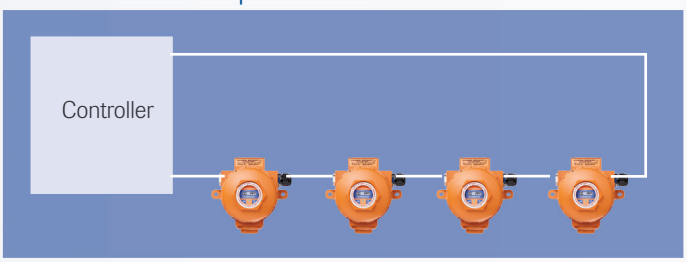
Lowering the cost of installation and maintenance

Addressable communications	Xgard Bright detectors can be connected on an addressable network using RS-485 Modbus. This option significantly reduces cable and installation costs, while increasing the flexibility and functionality of the wider system.

Traditional or point-to-point



Addressable or loop



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Specification

Enclosure material	ADC 12 aluminum alloy
Dimensions	156 x 166 x 109mm (6.1 x 6.5 x 4.3inch)
Weight	Aluminum 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
Repeatability	+/- 2% FSD
Zero drift	+/- 2% FSD per year maximum
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

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Xgard

Fixed Gas Detector

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

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Xgard

Fixed Gas Detector

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

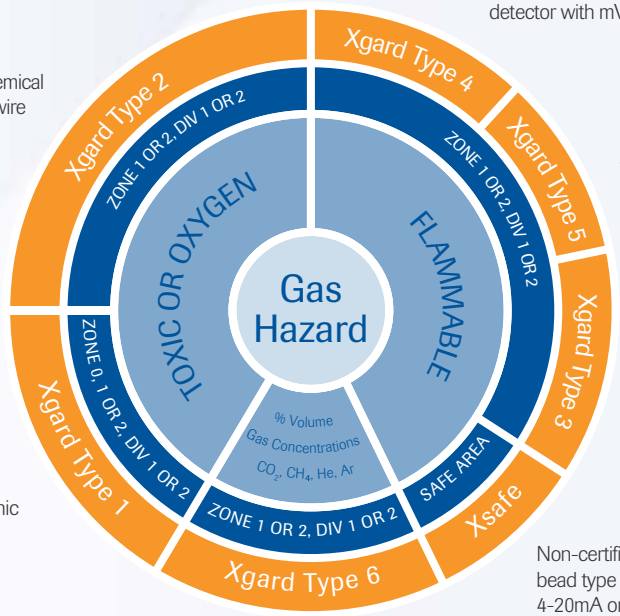
Low cost of ownership	Xgard detectors are designed for easy installation and maintenance to keep costs down. The three junction box options are all designed to make replacement of sensors and sinters extremely simple. Spare sensors simply plug-in. Many spare parts are common to all Xgard models, which keeps spares holding requirements to a minimum.
Wide range of sensors	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.
Flexible installation options	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.
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. All models have been validated to the functional safety standard IEC 61508 (SIL 1 to SIL 3).

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.

Flameproof high temperature (up to 150°C) catalytic bead type detector with mV bridge output.

Flameproof electrochemical type detector with 2-wire 4-20mA output.

Flameproof catalytic bead type detector with 3-wire 4-20mA output.



Intrinsically Safe electrochemical type detector with 2-wire 4-20mA output. Wide range of sensor options. A zener barrier or galvanic isolator is required for I.S. operation.

Flameproof catalytic bead type detector with 3-wire mV bridge output.

Non-certified low cost catalytic bead type detector with 3-wire 4-20mA or mV bridge output.

Flameproof thermal conductivity type detector with 3-wire 4-20mA output

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

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Gases and ranges

Gas	LTEL (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_2H_2)	2.3	100	-	-	0-100%* LEL	-
Ammonia (NH_3)	25 15	35 33.6	50, 100, 250, 500, 1000 ppm	-	0-25%* LEL	-
Argon (Ar)	-	-	-	-	-	Contact Crowcon
Arsine (AsH_3)	0.05	-	1 ppm	-	-	-
Bromine (Br_2)	0.1	0.2	3 ppm	-	-	-
Butane (C_4H_{10})	1.4	9.3	-	-	0-100%* LEL*	-
Carbon dioxide (CO_2)	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_2)	-	0.5	3, 5, 10, 20, 50, 100 ppm	-	-	-
Chlorine Dioxide (ClO_2)	0.1	0.3	1 ppm	-	-	-
Diborane (B_2H_6)	0.1	-	1 ppm	-	-	-
Ethane (C_2H_6)	2.4	15.5	-	-	0-100%* LEL	-
Ethylene (C_2H_4)	2.3	36	-	-	0-100%* LEL	-
Ethylene oxide (C_2H_4O)	5	-	10, 50, 100 ppm	-	-	-
Fluorine (F_2)	1	1	1 ppm	-	-	-
Germane (GeH_4)	0.2	0.6	2 ppm	-	-	-
Helium (He)	-	-	-	-	-	Contact Crowcon
Hydrogen (H_2)	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_2 in N_2)
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_2S)	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	17	-	-	0- 100% LEL	-
Nitric Oxide (NO)	5*[1]	5*[1]	25, 50, 100 ppm	-	-	-
Nitrogen dioxide (NO_2)	1*[1]	1*[1]	10, 50, 100 ppm	-	-	-
Ozone (O_3)	-	0.2	1 ppm	-	-	-
Oxygen (O_2)	-	-	25% Vol	25% Vol	-	-
Pentane (C_5H_{12})	1.1 600 ppm	8.7 1800 ppm	-	-	0- 100%* LEL	-
Petrol vapour	1.4	6	-	-	0- 100%* LEL	-
Phosgene ($COCl_2$)	0.02	0.06	1 ppm	-	-	-
Phosphine (PH_3)	0.1	0.2	1 ppm	-	-	-
Propane (C_3H_8)	1.7	10.9	-	-	0- 100%* LEL	-
Silane (SiH_4)	0.5	1	1 ppm	-	-	-
Sulphur Dioxide (SO_2)	1*[1]	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]	-	-	-

* Ranges not available for Xsafe or Xgard Type 4
LTEL & STEL figures are derived from the UK HSE document: EH40 2011
Alternative thresholds may apply in countries outside of the UK

*1 Current limits advised in the UK
*2 Nominal 0-100ppm range with Carbon Monoxide (CO).
Other sensors and ranges may be available, please contact Crowcon.

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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^2						
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 +50oC) 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 FCC Part 15 ICES- 003						

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

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Detecting Gas Saving Lives

TXgard & Flamgard Plus

Fixed point gas detectors

- Non-intrusive calibration
- Intuative display
- Flexible output options
- Low cost of ownership
- Rugged and reliable
- Wide range of sensors

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Toxic and oxygen gas detector with display

With 3 models available, we have a detector to suit your requirements.

Flamgard Plus

Flamgard Plus is a Flameproof (Ex d), ATEX, IECEx and UL certified flammable gas detector, which uses poison-resistant pellistors to detect explosive levels of hydrocarbons, hydrogen and other flammable gases and vapours, including aviation fuel and leaded petrol vapours.

TXgard Plus

TXgard Plus is a Flameproof (Ex d), ATEX, IECEx and UL certified toxic or oxygen gas detector with local LCD display. A choice of sensors are available enabling use in a wide range of applications, including water treatment, oil and gas exploration, chemical plants and steel production.

TXgard-IS+

TXgard-IS+ is an Intrinsically Safe (I.S.), 2-wire, toxic and oxygen gas detector with local LCD display. A wide choice of sensors is available for use in a variety of applications. TXgard-IS+ is ATEX and IECEx certified for use in Zone 0,1 or 2 hazardous areas, and also UL and cUL certified for use in Division 1 or 2 hazardous areas.

Low cost of ownership

Non-intrusive one man calibration	Easy to operate and maintain
Long life sensors	Keeps interruption to on-site activity to a minimum
Simple parts replacement	
Wide range of sensor options	Reduced training requirements

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Gases and ranges

Gas	LTEL (ppm)	STEL (ppm)	Range available: TXgard-IS+	Range available: TXgard Plus
Ammonia (NH_3)	25	35	50, 100, 1000ppm	-
Carbon monoxide (CO)	20	100	250, 500ppm	100, 250, 500, 1000ppm
Chlorine (Cl_2)	-	0.5	5, 10, 20ppm	-
Chlorine dioxide CLO_2)	0.1	0.3	1 ppm	-
Hydrogen (H_2)	-	-	2000ppm, 50% LEL, 100% LEL	-
Hydrogen cyanide (HCN)	0.9	4.5 (MEL)	25ppm	-
Hydrogen fluoride (HF)	1.8	3	10ppm	-
Hydrogen sulphide (H_2S)	5	10	25, 50, 100, 200ppm	15, 20, 25, 50, 100, 200ppm
Nitrogen dioxide (NO_2)	0.5	1	10ppm	-
Oxygen (O_2)	19.5% Vol. typical alarm	23.5% typical alarm	25% Vol.	25% Vol.
Ozone (O_3)	-	0.2	1ppm	-
Phosgene ($COCl_2$)	0.02	0.06	1ppm	-
Phosphine (PH_3)	0.1	0.2	2ppm	-
Sulphur dioxide (SO_2)	0.5	1	10, 20, 30ppm	-

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

Gas	LEL (%vol.)	Range available: Flamgard Plus
Acetylene (C_2H_2)*	2.3	0-100% LEL
Ammonia (NH_3)	15	
Butane (C_4H_{10})	1.4	
Ethanol (C_2H_5OH)	3.1	
Ethane (C_2H_6)	2.4	
Ethylene (C_2H_4)	2.3	
Hexane (C_6H_{14})	1.0	
Hydrogen (H_2)	4	
LPG	2	
Methane (CH_4)	4.4	
Methanol (CH_3OH)	6	
Pentane (C_5H_{12})	1.1	
Petrol vapor	1.4	
Propane (C_3H_8)	1.7	
Propanol (C_3H_8O)	2.1	

LEL figures derived from EN60079-20-1:2010

*Acetylene option not available on UL certified version

Further gas types may be available - contact Crowcon with your requests.

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Specification

	Flamgard Plus	TXgard Plus	TXgard-IS+
Size	200 x 115 x 115mm (7.9 x 6.1 x 6.1ins)		160 x 123 x 92mm (6.3 x 4.8 x 4.5ins)
Weight	2.2kg (4.9lbs)		0.7kg (1.5lbs)
Enclosure material	Junction box: Marine grade alloy Sensor housing: 316 stainless steel		Junction box: Carbon loaded nylon Sensor housing: ABD Plastic
Ingress protection	IP65		
Cable entries	2 x M20 or 1/2" NPT		1 x M20 or 1/2" NPT with adaptor
Power	10-30Vdc, 210mA max (relay version) 160mA max (non relay)		8-32Vdc, 4-20mA loop-powered
Operating temperature	-10°C to +55°C (14°F to 131°F)	-10°C to +55°C (14°F to 131°F) *	-20°C to +55°C (-4°F to 131°F) *
Humidity	0-99% RH non-condensing	15 to 90% RH non-condensing	
Relays (optional)	SPNO or SPNC contacts rated 30Vdc 1A (non-inductive load) for Alarm 1, Alarm 2, Fault		N/A
Display	3-digit LCD back-lit display, LED status indicator		2-Line, 16 character LCD
Calibration method	Via magnetically operated buttons		Via push-buttons
Electrical output	3 wire 4-20mA, sink or source		2 wire 4-20mA sink
Terminals	Suitable for up to 1.5mm² cable		Suitable for up to 2.5mm² cable
Sensor type	Catalytic bead	Electrochemical	
Repeatability	+/- 2% FSD typically		
Zero drift	+/-2% FSD, 6 months typically		
Response time	T90 <15 seconds typically	Contact Crowcon for a full list of sensor response times	
Hazardous area zones	Zone 1 or 2		Zone 0, 1 or 2, Division 1 or 2 (when connected via an isolation device)
Approvals	Ex II 2G Ex db IIC T6 Gb Tamb -20°C/+55°C		Ex II 1G Ex ia IIC T4 (-40°C to +65°C)
EMC compliance	EN50270, FCC: CFR 47 Part 15; ICES-003		

* Figures shown exclude the sensors - Please contact Crowcon for a full list of sensor operating temperatures

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TXgard & Flamgard Plus

Fixed point gas detectors

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TXgard-IS+

TXgard-IS+ is an Intrinsically Safe (I.S.), 2-wire, toxic and oxygen gas detector with local LCD display. A wide choice of sensors is available for use in a variety of applications. TXgard-IS+ is ATEX and IECEx certified for use in Zone 0,1 or 2 hazardous areas.

Low cost of ownership

Non-intrusive one man calibration	Easy to operate and maintain
Long life sensors	Keeps interruption to on-site activity to a minimum
Simple parts replacement	
Wide range of sensor options	Reduced training requirements

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Gases and ranges

Gas	LTEL (ppm)	STEL (ppm)	Range available: TXgard-IS+	Range available: TXgard Plus
Ammonia (NH_3)	25	35	50, 100, 1000ppm	-
Carbon monoxide (CO)	20	100	250, 500ppm	100, 250, 500, 1000ppm
Chlorine (Cl_2)	-	0.5	5, 10, 20ppm	-
Chlorine dioxide CLO_2)	0.1	0.3	1 ppm	-
Hydrogen (H_2)	-	-	2000ppm, 50% LEL, 100% LEL	-
Hydrogen cyanide (HCN)	0.9	4.5 (MEL)	25ppm	-
Hydrogen fluoride (HF)	1.8	3	10ppm	-
Hydrogen sulphide (H_2S)	5	10	25, 50, 100, 200ppm	15, 20, 25, 50, 100, 200ppm
Nitrogen dioxide (NO_2)	0.5	1	10ppm	-
Oxygen (O_2)	19.5% Vol. typical alarm	23.5% typical alarm	25% Vol.	25% Vol.
Ozone (O_3)	-	0.2	1ppm	-
Phosgene ($COCl_2$)	0.02	0.06	1ppm	-
Phosphine (PH_3)	0.1	0.2	2ppm	-
Sulphur dioxide (SO_2)	0.5	1	10, 20, 30ppm	-

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

Gas	LEL (%vol.)	Range available: Flamgard Plus
Acetylene (C_2H_2)*	2.3	0-100% LEL
Ammonia (NH_3)	15	
Butane (C_4H_{10})	1.4	
Ethanol (C_2H_5OH)	3.1	
Ethane (C_2H_6)	2.4	
Ethylene (C_2H_4)	2.3	
Hexane (C_6H_{14})	1.0	
Hydrogen (H_2)	4	
LPG	2	
Methane (CH_4)	4.4	
Methanol (CH_3OH)	6	
Pentane (C_5H_{12})	1.1	
Petrol vapor	1.4	
Propane (C_3H_8)	1.7	
Propanol (C_3H_8O)	2.1	

LEL figures derived from EN60079-20-1:2010

Further gas types may be available - contact Crowcon with your requests.

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Specification

	Flamgard Plus	TXgard Plus	TXgard-IS+
Size	200 x 115 x 115mm (7.9 x 6.1 x 6.1ins)		160 x 123 x 92mm (6.3 x 4.8 x 4.5ins)
Weight	2.2kg (4.9lbs)		0.7kg (1.5lbs)
Enclosure material	Junction box: Marine grade alloy Sensor housing: 316 stainless steel		Junction box: Carbon loaded nylon Sensor housing: ABD Plastic
Ingress protection	IP65		
Cable entries	2 x M20 or 1/2" NPT		1 x M20 or 1/2" NPT with adaptor
Power	10-30Vdc, 210mA max (relay version) 160mA max (non relay)		8-32Vdc, 4-20mA loop-powered
Operating temperature	-10°C to +55°C (14°F to 131°F)	-10°C to +55°C (14°F to 131°F) *	-20°C to +55°C (-4°F to 131°F) *
Humidity	0-99% RH non-condensing	15 to 90% RH non-condensing	
Relays (optional)	SPNO or SPNC contacts rated 30Vdc 1A (non-inductive load) for Alarm 1, Alarm 2, Fault		N/A
Display	3-digit LCD back-lit display, LED status indicator		2-Line, 16 character LCD
Calibration method	Via magnetically operated buttons		Via push-buttons
Electrical output	3 wire 4-20mA, sink or source		2 wire 4-20mA sink
Terminals	Suitable for up to 1.5mm² cable		Suitable for up to 2.5mm² cable
Sensor type	Catalytic bead	Electrochemical	
Repeatability	+/- 2% FSD typically		
Zero drift	+/-2% FSD, 6 months typically		
Response time	T90 <15 seconds typically	Contact Crowcon for a full list of sensor response times	
Hazardous area zones	Zone 1 or 2		Zone 0, 1 or 2, Division 1 or 2 (when connected via an isolation device)
Approvals	Ex II 2G Ex db IIC T6 Gb Tamb -20°C/+55°C		Ex II 1G Ex ia IIC T4 (-40°C to +65°C)
EMC compliance	EN50270, FCC: CFR 47 Part 15; ICES-003		

* Figures shown exclude the sensors - Please contact Crowcon for a full list of sensor operating temperatures

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TXgard Plus is a Flameproof (Ex d), ATEX and IECEx certified toxic or oxygen gas detector with local LCD display. A choice of sensors are available enabling use in a wide range of applications, including water treatment, oil and gas exploration, chemical plants and steel production.

TXgard-IS+

TXgard-IS+ is an Intrinsically Safe (I.S.), 2-wire, toxic and oxygen gas detector with local LCD display. A wide choice of sensors is available for use in a variety of applications. TXgard-IS+ is ATEX and IECEx certified for use in Zone 0,1 or 2 hazardous areas.

Low cost of ownership

Non-intrusive one man calibration	Easy to operate and maintain
Long life sensors	Keeps interruption to on-site activity to a minimum
Simple parts replacement	
Wide range of sensor options	Reduced training requirements

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Gases and ranges

Gas	LTEL (ppm)	STEL (ppm)	Range available: TXgard-IS+	Range available: TXgard Plus
Ammonia (NH_3)	25	35	50, 100, 1000ppm	-
Carbon monoxide (CO)	20	100	250, 500ppm	100, 250, 500, 1000ppm
Chlorine (Cl_2)	-	0.5	5, 10, 20ppm	-
Chlorine dioxide CLO_2)	0.1	0.3	1 ppm	-
Hydrogen (H_2)	-	-	2000ppm, 50% LEL, 100% LEL	-
Hydrogen cyanide (HCN)	0.9	4.5 (MEL)	25ppm	-
Hydrogen fluoride (HF)	1.8	3	10ppm	-
Hydrogen sulphide (H_2S)	5	10	25, 50, 100, 200ppm	15, 20, 25, 50, 100, 200ppm
Nitrogen dioxide (NO_2)	0.5	1	10ppm	-
Oxygen (O_2)	19.5% Vol. typical alarm	23.5% typical alarm	25% Vol.	25% Vol.
Ozone (O_3)	-	0.2	1ppm	-
Phosgene ($COCl_2$)	0.02	0.06	1ppm	-
Phosphine (PH_3)	0.1	0.2	2ppm	-
Sulphur dioxide (SO_2)	0.5	1	10, 20, 30ppm	-

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

Gas	LEL (%vol.)	Range available: Flamgard Plus
Acetylene (C_2H_2)*	2.3	0-100% LEL
Ammonia (NH_3)	15	
Butane (C_4H_{10})	1.4	
Ethanol (C_2H_5OH)	3.1	
Ethane (C_2H_6)	2.4	
Ethylene (C_2H_4)	2.3	
Hexane (C_6H_{14})	1.0	
Hydrogen (H_2)	4	
LPG	2	
Methane (CH_4)	4.4	
Methanol (CH_3OH)	6	
Pentane (C_5H_{12})	1.1	
Petrol vapor	1.4	
Propane (C_3H_8)	1.7	
Propanol (C_3H_8O)	2.1	

LEL figures derived from EN60079-20-1:2010

Further gas types may be available - contact Crowcon with your requests.

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Specification

	Flamgard Plus	TXgard Plus	TXgard-IS+
Size	200 x 115 x 115mm (7.9 x 6.1 x 6.1ins)		160 x 123 x 92mm (6.3 x 4.8 x 4.5ins)
Weight	2.2kg (4.9lbs)		0.7kg (1.5lbs)
Enclosure material	Junction box: Marine grade alloy Sensor housing: 316 stainless steel		Junction box: Carbon loaded nylon Sensor housing: ABD Plastic
Ingress protection	IP65		
Cable entries	2 x M20 or 1/2" NPT		1 x M20 or 1/2" NPT with adaptor
Power	10-30Vdc, 210mA max (relay version) 160mA max (non relay)		8-32Vdc, 4-20mA loop-powered
Operating temperature	-10°C to +55°C (14°F to 131°F)	-10°C to +55°C (14°F to 131°F) *	-20°C to +55°C (-4°F to 131°F) *
Humidity	0-99% RH non-condensing	15 to 90% RH non-condensing	
Relays (optional)	SPNO or SPNC contacts rated 30Vdc 1A (non-inductive load) for Alarm 1, Alarm 2, Fault		N/A
Display	3-digit LCD back-lit display, LED status indicator		2-Line, 16 character LCD
Calibration method	Via magnetically operated buttons		Via push-buttons
Electrical output	3 wire 4-20mA, sink or source		2 wire 4-20mA sink
Terminals	Suitable for up to 1.5mm² cable		Suitable for up to 2.5mm² cable
Sensor type	Catalytic bead	Electrochemical	
Repeatability	+/- 2% FSD typically		
Zero drift	+/-2% FSD, 6 months typically		
Response time	T90 <15 seconds typically	Contact Crowcon for a full list of sensor response times	
Hazardous area zones	Zone 1 or 2		Zone 0, 1 or 2, Division 1 or 2 (when connected via an isolation device)
Approvals	Ex II 2G Ex db IIC T6 Gb Tamb -20°C/+55°C		Ex II 1G Ex ia IIC T4 (-40°C to +65°C)
EMC compliance	EN50270, FCC: CFR 47 Part 15; ICES-003		

* Figures shown exclude the sensors - Please contact Crowcon for a full list of sensor operating temperatures

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FGard IR3

Flame detector

For hazardous industries where fast fire detection is critical and nuisance alarms are not an option

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FGard IR3

Multi Spectrum IR Flame Detector

The Crowcon FGard IR3 flame detector is an explosion proof multi spectrum IR flame detector. The device delivers superior performance, responding to hydrocarbon liquid fuel and gas fires at long distances.

The FGard IR3 has been independently tested to demonstrate it can detect a hydrocarbon fuel pan fire at nearly 200 feet in less than 5 seconds.

The FGard IR3 delivering superior performance in the detection of hydrocarbon fires. The FGard IR3 utilises the latest IR flame detection algorithms to ensure maximum false alarm immunity.

Applications

Typical applications include:

- On / Offshore Oil and Gas Processing Facilities
- Refineries
- Petrochemical Plants
- Chemical Facilities
- Pharmaceutical
- Aircraft Hangars
- Road Tunnels
- Power Generation
- Tank Farms
- Road & Rail Loading Racks
- LNG / LPG
- Warehouses / Storage Areas
- Waste Recycling / Biomass Plants
- Printing Industry

Features and benefits

- Multi Spectrum IR design delivers long detection distances and enhanced false alarm immunity
- Continuous optical test, without a reflector
  - Verifies operation and improves device up-time
- Microprocessor controlled heated optics
  - Maintains operation in harsh weather conditions (snow, ice, condensation)
- International hazardous area approvals
  - FM / ATEX / IEC Ex / INMETRO / PESO
- Certified performance testing to multiple fuels
  - FM 3260
  - EN 54-10
- Adjustable sensitivity levels
  - For application flexibility
  - Ensure detectors do not cross vote
- External testing with a long-range flame simulator
  - Minimises the need for scaffolding
- Easy integration using industry standard outputs:
  - Alarm and Fault Relays
  - 0-20mA
  - HART®, as standard
- Certified SIL 2 capable
- 5-year warranty

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Accessories

- Flame simulator
- Pole mount bracket
- Retrofit mounting bracket
- Marine mounting bracket

Technical Specifications

Environmental	
Operating Temp	-60ºC to +85ºC (-76ºF to +185ºF)
Storage Temp	-60ºC to +85ºC (-76ºF to +185ºF)
Humidity	0-100 % RH (Non condensing)
Operating Voltage	24 Vdc Nominal – (Range 18 to 32 Vdc)
Power Consumption	3 W minimum (without heater), 15 W at 32 Vdc with heater on maximum.
Speed of Response	~5 seconds (Typical)
Enclosure	
Dimensions	4” Dia x 8” L (inches) 100 mm Dia x 200 mm
Material	Copper free aluminum or 316 stainless steel
Entry size	3/4 inch NPT or M25
Weight	Alu 5.5 lbs (2.5 Kg) / SS 13.2 lbs (6.0kg)
Outputs	Relay contacts (DPDT 2A at 30Vdc) - alarm and fault.
	0-20mA, HART®

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Flame sensitivity

	Fuel	Fire Size	Distance
High Sensitivity	n-Heptane	1’x1’ / 30cm x 30cm	196 feet (60m)
	n-Heptane + arc welding	1’x1’ / 30cm x 30cm	196 feet (60m)
	Gasoline	1’x1’ / 30cm x 30cm	196 feet (60m)
	Diesel	1’x1’ / 30cm x 30cm	164 feet (50m)
	Crude oil (heavy fuel)	20”x20” 0.5mx0.5m	164 feet (50m)
	JP4	1’x1’ / 30cm x 30cm	196 feet (60m)
	Methane	24” plume / 60 cm	164 feet (50m)
	Ethanol	1’x1’ / 30cm x 30cm	137 feet (42m)
	Methanol	1’x1’ / 30cm x 30cm	137 feet (42m)
Standard sensitivity	n-Heptane	1’x1’ / 30cm x 30cm	98 feet (30m)
	Gasoline	1’x1’ / 30cm x 30cm	98 feet (30m)
	JP4	1’x1’ / 30cm x 30cm	98 feet (30m)
	Methane	24” plume / 60 cm	98 feet (30m)
	Ethanol	1’x1’ / 30cm x 30cm	98 feet (30m)

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Performance approvals

FM 3260

EN 54-10

Ingress - IP66 / NEMA type 4X

Certified SIL 2 Capable - IEC 61508

Certification

Class 1 Div 1 Groups B, C, D T4
Ambient –50°C to +85°C

Class 1 Zone 1 AEx/Ex db IIC T4
Ambient –50°C to +85°C

ATEX Ex .1 2 G Ex db IIC T4
IECEx Ex db IIC T4
Ambient –60°C to +85°C

INMETRO Ex db IIC T4
PESO Ex db IIC T4
Ta = -60°C to +85°C

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Xgard

Rivelatori fissi per gas infiammabili, tossici o ossigeno

Xgard Tipo1:	Rivelatore di gas tossici e di ossigeno a sicurezza intrinseca
Xgard Tipo 2:	Rivelatore di gas tossici e ossigeno a prova di esplosione
Xgard Tipo 3:	Rivelatore di gas infiammabili a prova di esplosione
Xgard Tipo 4:	Rivelatore di gas infiammabili per alta temperatura e a prova di esplosione
Xgard Tipo 5:	Rivelatore di gas infiammabili a prova di esplosione con uscita 4-20mA
Xgard Tipo 6:	Rivelatore di gas del tipo a conducibilità termica a prova di esplosione
Xsafe:	Rivelatore di gas infiammabili per area sicura

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Xgard

La gamma Xgard di rivelatori di gas è stata studiata appositamente per soddisfare i vostri requisiti. I pericoli presentati da gas tossici e infiammabili oltre che dalla carenza di ossigeno variano con ogni applicazione.

Xgard offre tre sensori di concezione diversa, in modo che possiate scegliere esattamente ciò che vi occorre sul posto. Xgard è disponibile in versione antideflagrante, a sicurezza intrinseca o per zone di sicurezza, per poter essere usato in tutti gli ambienti, qualunque ne sia la classificazione.

Bassi costi di esercizio

- I rivelatori Xgard sono progettati in modo da facilitarne l'installazione e la manutenzione, per contenere i costi
- Le tre scatole di giunzione in offerta sono tutte studiate per semplificare al massimo la sostituzione di sensori e gruppi sinterizzati. I sensori vengono inseriti semplicemente a innesto.
- Numerosi pezzi di ricambio sono comuni a tutti i modelli Xgard, il che riduce al minimo il magazzino ricambi.

Ampia gamma di sensori

Xgard offre una gamma estremamente vasta di sensori per tutte le applicazioni.

- Pellistor resistenti ai veleni per tutte le esigenze di rilevamento di materiali infiammabili, tra cui idrocarburi, idrogeno, ammoniaca, cherosene, benzina con piombo e vapori contenenti alogeni.
- I sensori elettrochimici vengono usati per rilevare un'ampia gamma di gas tossici e ossigeno.
- Per monitorare elevate concentrazioni di gas sono disponibili sensori a conducibilità termica.

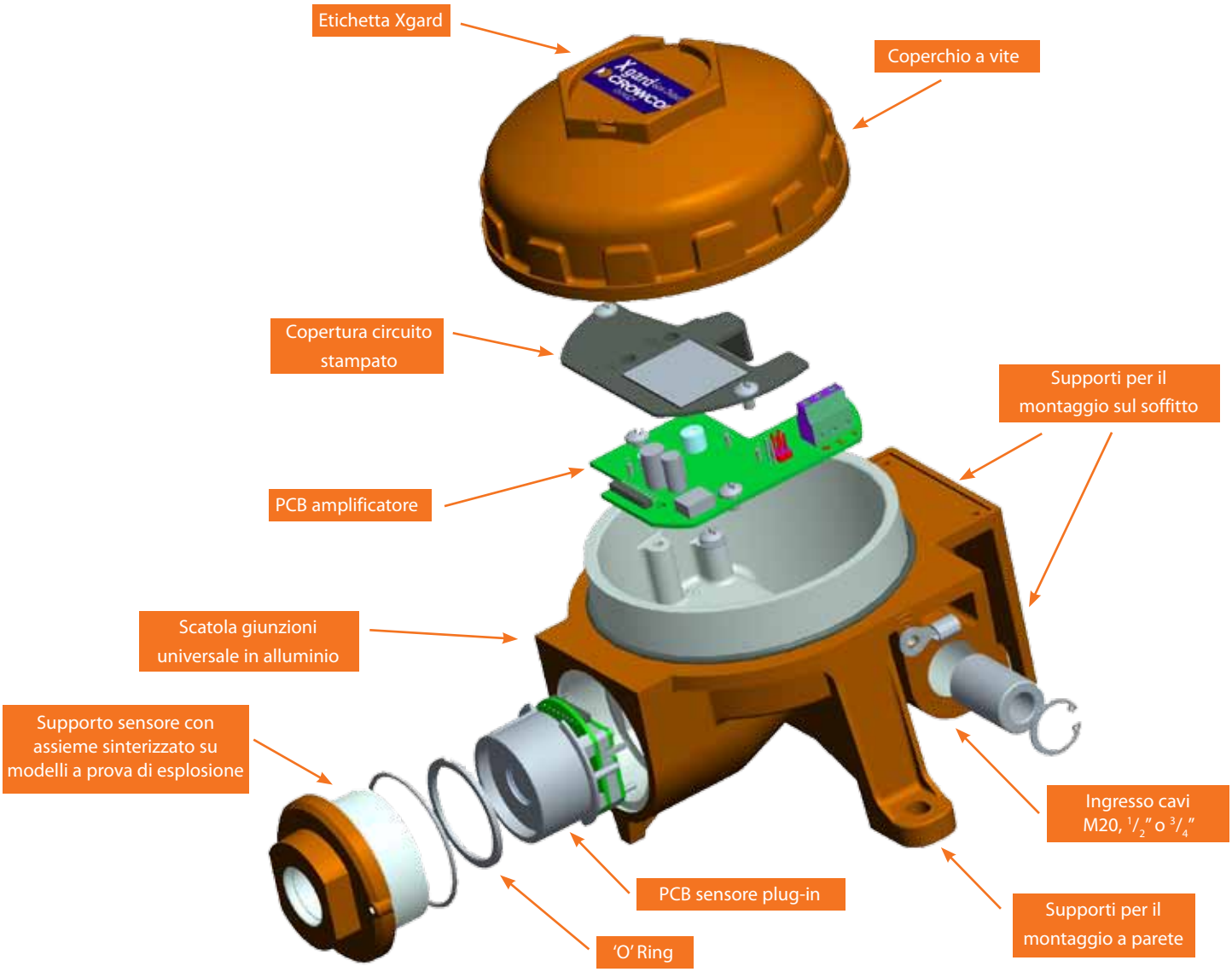
Scelte d'installazione flessibili

- Xgard è studiato per essere montato a parete o sul soffitto, senza bisogno di staffe supplementari.
- Xgard può far posto a guarnizioni passacavo M20, ½" NPT o ¾" NPT per adattarsi a qualsiasi esigenza sul posto.
- Per ambienti caldi (sino a 1500C) sono disponibili modelli per temperature elevate.
- Sono disponibili accessori per il montaggio su condutture e per il campionamento, nonché per l'emissione di gas a distanza per un semplice controllo dei sensori.

Robusti e affidabili

- Xgard viene costruito utilizzando un assortimento di tre materiali: nylon rinforzato con vetro, alluminio ad alta resistenza con un tenace rivestimento di poliestere, o acciaio inox 316 per avere la massima resistenza alla corrosione. Tutte le versioni sono progettate per funzionare nelle condizioni più avverse.
- Deviatori di spruzzi e coperture a prova di intemperie sono disponibili per l'uso in aree soggette a operazioni frequenti di lavaggio o per installazioni off-shore.
- Tutti i modelli sono certificati SIL secondo la norma IEC 61508 (da SIL1 a SIL3)

SIL IEC 61508 Validated



Accessori

(per applicare gli accessori alla scatola giunzioni dell'Xgard è necessario l'adattatore per accessori)

Deviatore di spruzzi

Per uso all'aperto e come protezione dalle operazioni di lavaggio

Schermo solare

Nei casi in cui il rivelatore installato è esposto alla luce solare diretta.

Copertura a prova di intemperie

Per uso in condizioni di elevata umidità come per installazioni off-shore e su navi.

Cono collettore

Per la rivelazione di gas più leggeri dell'aria come l'idrogeno e il metano.

Adattatore di flusso

Per uso in applicazioni dove il gas deve essere campionato.

Adattatore per accessori

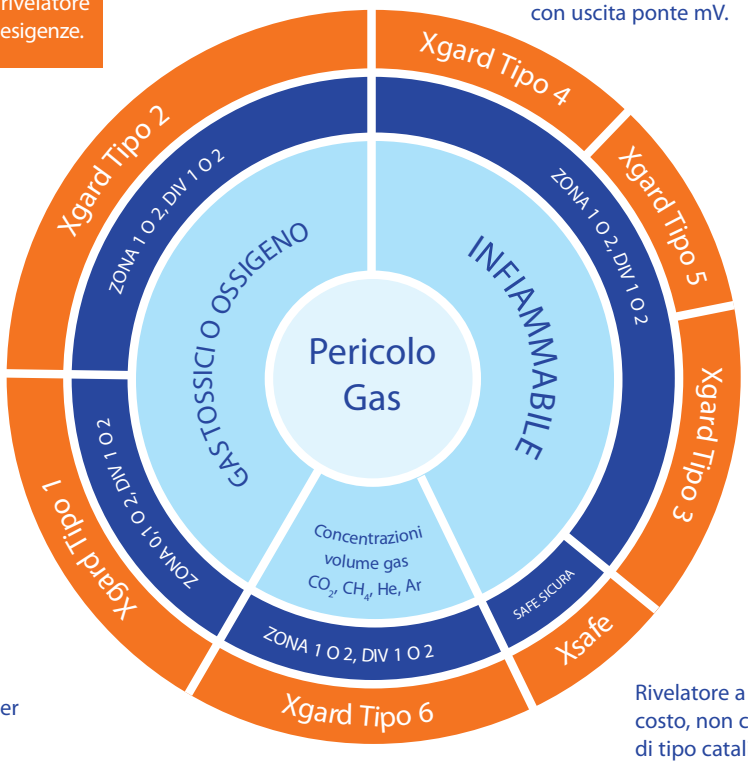
Per applicare gli accessori al rivelatore Xgard.

Selettore del rivelatore

La linea Xgard offre un'ampia scelta di rivelatori di gas da installazione fissa per soddisfare le diverse richieste di rivelazione gas infiammabili e tossici e di monitoraggio dell'ossigeno, negli ambienti industriali di tutto il mondo.

Lo schema seguente Vi aiuterà nella scelta del corretto rivelatore Xgard adatto alle Vostre esigenze.

Rivelatore di tipo catalitico a prova di esplosione per applicazioni ad alta temperatura (fino a 150°C) con uscita ponte mV.



Rivelatore di tipo elettrochimico a prova di esplosione con uscita 4-20mA a due fili.

Rivelatore di tipo catalitico a prova di esplosione con uscita 4-20mA a 3 fili.

Rivelatore di tipo catalitico a prova di esplosione con uscita ponte mV a 3 fili.

Rivelatore di tipo elettrochimico a sicurezza intrinseca con uscita 4-20mA a due fili. Ampia gamma di sensori. Per il funzionamento I.S. è richiesta una barriera zener o un isolatore galvanico.

Rivelatore a basso costo, non certificato, di tipo catalitico con uscita a 3-fili, 4-20mA o ponte mV.

Rivelatore del tipo a conducibilità termica a prova di esplosione con uscita 4-20mA a 3 fili.

Requisiti per l'esecuzione dell'ordine

I seguenti codici sono stati sviluppati per aiutare nella scelta del corretto rivelatore. Il numero di riferimento del prodotto dovrebbe essere compilato inserendo il numero intero appropriato in ciascuna casella.

Rilevatori	Tipo N.	Codice	Uscita	Scatola di giunzione	Codice	Ingresso cavo	Codice	Certificazione	Codice	Tipo di gas	Campo
XGARD	Tipo 1	1		Standard*1	A	M20	M20	ATEX	AT	Abbreviato fino a	Dalla lista
XSAFE	Tipo2	2		Acciaio inossidabile*2	S	$^1/_2$"NPT	$^1/_2$	UL	UL	8 caratteri	Illustrata nella tabbela
	Tipo 3	3				$^3/_4$"NPT	$^3/_4$				
	Tipo 4	4									
	Tipo 5	5									
	Tipo 6	6									
	XSAFE	XS	mV or mA								

*1: I rivelatori certificati Xgard Tipo 1 ATEX saranno forniti di serie in un contenitore di nylon rinforzato con vetro oppure, a scelta, in un contenitore di acciaio inox 316. I rivelatori certificati Xgard Tipo 1 UL e tutti gli altri tipi di Xgard saranno forniti di serie in un contenitore di alluminio oppure, a scelta, in un contenitore di acciaio inox 316.

*2: La versione in acciaio inox non è disponibile per Xsafe e Xgard tipo 4.
Esempio di codice di riferimento prodotto per un rivelatore I.S. 0-25 ppm H2S con certificazione ATEX e ingresso cavo M20 in una scatola di giunzione standard (nylon):
XGARD/1/A/M20/AT/H2S/25.

Gas e Gamme:

Tipo di gas	LTEL(ppm) LEL(%vol)	STEL(ppm) UEL(%vol)	Campi disponibili: Tipo 1	Campi disponibili: Tipo 2	Campi disponibili: Tipo 3,4,5 & Xsafe	Campi disponibili: Tipo 6
Acetilene (C_2H_2)	2.3 (2.4)	100			0-100% lel*	
Ammoniaca (NH_3)	25 15 (15)	35 33.6 (28)	50, 100, 250, 500, 1000 ppm		0-25%lel*	
Argon (Ar)	-	-				Contattare Crowcon
Arsina (AsH_3)	0.05	-	1 ppm			
Bromo (Br_2)	0.1	0.2	3 ppm			
Butano (C_4H_{10})	1.4 (1.8)	9.3 (9)			0-100% lel*	
Anidiride Carbonica (CO_2)	5000 (0.5%Vol)	15000 (1.5%Vol)				Contattare Crowcon
Monossido di carbonio (CO)	30	200	50, 100, 200, 250, 500, 1000, 2000 ppm	50, 100, 250, 500, 1000, 2000 ppm		
Cloro (Cl_2)	-	0.5	3,5,10,20,50,100 ppm			
Biossido di cloro (ClO_2)	0.1	0.3	1 ppm			
Diborano (B_2H_6)	0.1	-	1 ppm			
Ethano (C_2H_6)	2.5 (3)	15.5			0-100% lel*	
Etilene (C_2H_4)	2.3 (2.7)	36			0-100% lel*	
Ossido di etilene (C_2H_4O)	5	-	10, 50, 100 ppm			
Fluoro (F_2)	1	1	1 ppm			
Germanio (GeH_4)	0.2	0.6	2 ppm			
Elio (He)	-	-				Contattare Crowcon
Idrogeno (H_2)	4	77 (80)	200, 2000 ppm	200, 2000 ppm	0-100% lel*	0-5%, 10%, 50% vv (in aria) 0-20%, 25%, 30%, 50% vv (H_2 in N_2)
Acido cloridrico (HCl)	1	5	10, 25 ppm			
Acido Cianidrico (HCN)	-	10	25ppm			
Acido Fluoridrico (HF)	1.8	3	10 ppm			
Acido Solfidrico (H_2S)	5	10	5, 10, 20, 25, 50, 100, 200, 250, 300, 1000 ppm	5, 10, 20, 25, 50 100, 200 ppm		
GLP	2	10			0-100% lel	
Metano (CH_4)	4.4 (5)	17 (15)			0-100% lel	
Ossido di azoto (NO)	5*1	15*1	25, 50, 100 ppm			
Biossido di azoto (NO_2)	1	1	10, 50, 100 ppm			
Ozono (O_3)	-	0.2	1 ppm			
Ossigeno (O_2)	-	-	25% Vol	25% Vol		
Pentano (C_5H_{12})	1.4 (1.5) 600ppm	7.8 (7.8) 1800ppm			0-100% lel*	
Benzina	1.3	6			0-100% lel*	
Fosgene ($COCl_2$)	0.02	0.06	1 ppm			
Fosfina (PH_3)	0.1	0.2	1 ppm			
Propano (C_3H_8)	1.7 (2.2)	10.9 (10)			0-100% lel	
Silano (SiH_4)	0.5	1	1 ppm			
Anidride solforosa (SO_2)	1	1	10, 20, 50, 100, 250 ppm			
Cloruro di vinile (VCM) (CH_2=CHCl)	3.6 3	33 -			0-100% lel*	
Composti organici volatili (VO)*2	-	-	0 - 100 ppm*2			

Osservazioni: Possono essere disponibili altri sensori e altri campi operativi; si prega di contattare Crowcon.
*Campi non disponibili per Xsafe o Xgard Tipo 4
†Per la disponibilità contattare Crowcon.
I valori LTEL e STEL sono ricavati dal documento UK HSE: EH40 Oct 07. In paesi diversi dal Regno Unito possono essere in vigore soglie diverse.
Valori LEL ricavati dalla norma EN61779-1: 2000
*1 Limiti attuali consigliati nel Regno Unito
*2 Campo nominale 0-100 ppm con monossido di carbonio (CO). Contattare Crowcon per avere un elenco completo dei gas che possono essere rilevati con questo sensore

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Specifiche Xgard:

Modello Xgard	Tipo 1	Tipo 2	Tipo 3	Tipo 4	Tipo 5	Tipo 6	Xsafe
Materiale della scatola di giunzioni	Certificato ATEX: Nylon rinforzato vetro o inox Certificato UL: Alluminio o inox 316	Alluminio o inox 316	Alluminio o inox 316	Alluminio	Alluminio o inox 316	Alluminio o inox 316	Alluminio
Dimensioni	156 x 166 x 111mm (6.1 x 6.5 x 4.3 pollici)	156 x 166 x 111mm (6.1 x 6.5 x 4.3 pollici)	156 x 166 x 111mm (6.1 x 6.5 x 4.3 pollici)	195 x 166 x 111mm (7.6 x 6.5 x 4.3 pollici)	156 x 166 x 111mm (6.1 x 6.5 x 4.3 pollici)	156 x 166 x 111mm (6.1 x 6.5 x 4.3 pollici)	156 x 166 x 111mm (6.1 x 6.5 x 4.3 pollici)
Peso	Nylon 0.5Kg (1.1lbs) Lega 1Kg (2.2 lbs) 316 S/S: 3.1kg (6.8 lbs)	Lega 1Kg (2.2 lbs) 316 S/S: 3.1kg (6.8 lbs)	Lega 1Kg (2.2 lbs) 316 S/S: 3.1kg (6.8 lbs)	1.5Kg (3.3 lbs)	Lega 1Kg (2.2 lbs) 316 S/S: 3.1kg (6.8 lbs)	Lega 1Kg (2.2 lbs) 316 S/S: 3.1kg (6.8 lbs)	1Kg (2.2 lbs)
Classe di Protezione	IP65	IP65	IP65	IP54	IP65	IP65	IP65
Ingressi cavo	1 x M20 or ½" NPT sul lato destro	1 x M20, ½" NPT or ¾" NPT* sul lato destro	1 x M20, ½" NPT or ¾" NPT* sul lato destro	1 x M20, ½" NPT or ¾" NPT* sul lato destro	1 x M20, ½" NPT or ¾" NPT* sul lato destro	1 x M20, ½" NPT or ¾" NPT* sul lato destro	1 x M20, or ½" NPT sul lato destro
Terminali	da 0.5 a 2.5mm^2 (da 20 a 13awg)	da 0.5 a 2.5mm^2 (da 20 a 13awg)	da 0.5 a 2.5mm^2 (da 20 a 13awg)	da 0.5 a 2.5mm^2 (da 20 a 13awg)	da 0.5 a 2.5mm^2 (da 20 a 13awg)	da 0.5 a 2.5mm^2 (da 20 a 13awg)	da 0.5 a 2.5mm^2 (da 20 a 13awg)
Tipo sensore	Elettrochimico	Elettrochimico	Catalitico	Contenitore sensore inox 316 con elementi catalitici	Catalitico	Conducibilità termica	Catalitico
Temperatura di funzionamento	-20 a +50°C (-4 a 122°F) (dipendente dal sensore)	-20 a +50°C (-4 a 122°F) (dipendente dal sensore)	-40 a +80°C (-40 a 176°F)	-20 a +150°C (-4 a 302°F)	-40 a +55°C (-40 a 131°F)	+10 a +55°C (50 a 131°F)	-40 a +80°C (-40 a 176°F) (versione mV) -40 a +55°C (-40 a 131°F) (versione mA)
Umidità	15-90% RH non condensante	15-90% RH non condensante	0-99% RH non condensante	0-99% RH non condensante	0-99% RH non condensante	0-90% RH non condensante	0-99% RH non condensante
Ripetibilità Deriva di zero	<2% FSD (Tip.) <2% FSD / mese (Tip.)	<2% FSD (Tip.) <2% FSD / mese (Tip.)	<2% FSD (Tip.) <2% FSD / mese (Tip.)	<2% FSD (Tip.) <2% FSD / mese (Tip.)	<2% FSD (Tip.) <2% FSD / mese (Tip.)	<2% FSD (Tip.) <2% FSD / mese (Tip.)	<2% FSD (Tip.) <2% FSD / mese (Tip.)
Tempo di risposta	T90 <10s ossigeno T90 <30s a 120s Gas tossici (dipendente dal sensore)	T90 <10s Oxygen T90 <30s a 120s Gas tossici (dipendente dal sensore)	T90 <15s (Tip)	T90 <15s (Tip)	T90 <15s (Tip)	T90 <15s (Tip)	T90 <15s (Tip)
Alimentazione	8 – 30V dc	8 – 30V dc	2.0V dc +/- 0.1V (Tip)	2.0V dc +/- 0.1V (Tip)	10 – 30V dc	10 – 30V dc	10 – 30V dc (mA versione) 2.0V dc (mV versione)
Assorbimento	24mA max.	24mA max.	300mA (tipica)	300mA (tipica)	50mA @ 24V dc 1.2W	50mA @ 24V dc 1.2W	mA versione: 50mA @ 24V dc 1.2W. mV versione: 300mA (Tip.)
Uscita elettrica	2-fili 4-20mA (pozzo di corrente)	2-fili 4-20mA (pozzo di corrente)	Ponte mV a 3 fili Segnale tipico 12-15mV / %lel CH4	Ponte mV a 3 fili Segnale tipico >10mV / %lel CH4	4-20mA 3 fili (pozzo o sorgente di corrente)	4-20mA 3 fili (pozzo o sorgente di corrente)	Versione mA: 4-20mA 3 fili (pozzo o sorgente di corrente) Versione mV: ponte mV a 3 fili Segnale tipico 12-15mV / %lel CH4
Approvazioni	ATEX: Ex II 1 G Exia IIC T4 (Tamb –40 a +55°C) UL/cUL: Cl I, Div 1 Gruppi A,B,C,D IECEx MED Marine (Solo ossigeno) GOST-R	ATEX: Ex II 2 GD Exd IIC T6 (Tamb –40 a +50°C) UL: Class 1, Div. 1 Gruppi B,C,D IECEx MED Marine (Solo ossigeno) GOST-R	ATEX: Ex II 2 GD Exd IIC T4 (Tamb –40 a +80°C) Exd IIC T6 Tamb (-40 a +50°C) UL: Class 1, Div. 1 Gruppi B,C,D IECEx GOST-R	ATEX: Ex II 2 G Exd IIC T3 (Tamb –20 a +150°C)	ATEX: Ex II 2 GD Exd IIC T6 (Tamb –40 a +50°C) Exd IIC T4 (Tamb –40 a +80°C) UL: Class 1, Div. 1 Gruppi B,C,D IECEx GOST-R	ATEX: Ex II 2 GD Exd IIC T6 (Tamb –40 a +50°C) Exd IIC T4 (Tamb -40 a +80°C) UL: Class 1, Div. 1 Gruppi B,C,D IECEx GOST-R	Non omologato per uso in un ambiente pericoloso.
EMC compliance	EN 50270 FCC Part 15 ICES-003	EN 50270 FCC Part 15 ICES-003	EN 50270 FCC Part 15 ICES-003	EN 50270 FCC Part 15 ICES-003	EN 50270 FCC Part 15 ICES-003	EN 50270 FCC Part 15 ICES-003	EN 50270 FCC Part 15 ICES-003

* Ingresso cavo da 3/4" disponibile solo su scatole di giunzione in alluminio

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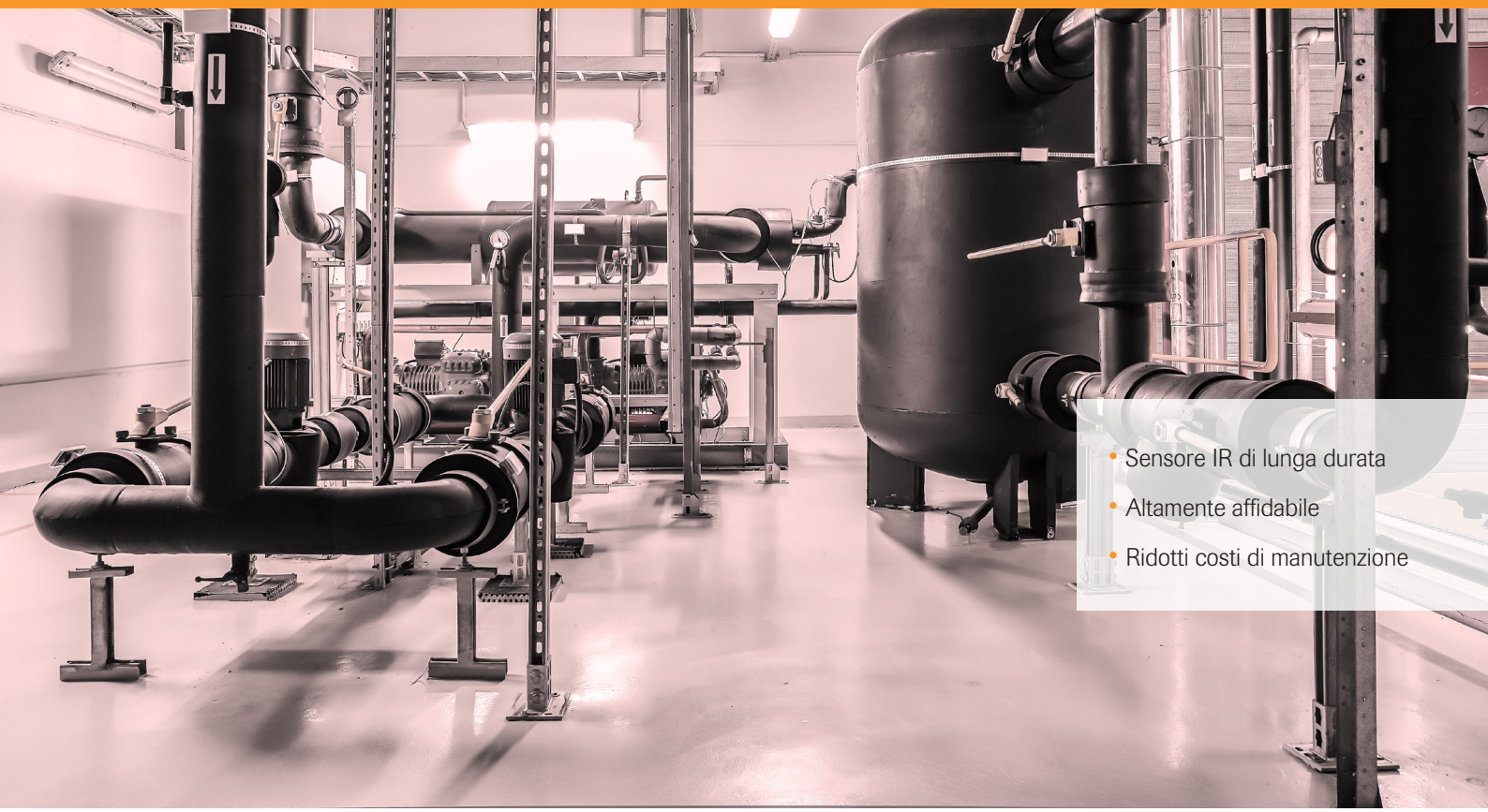
CROWCON
Detecting Gas Saving Lives

Rilevatore F-Gas Crowcon

Rilevatori di gas fissi



- Sensore IR di lunga durata
- Altamente affidabile
- Ridotti costi di manutenzione

Rilevatore F-Gas

Gas refrigerante e rilevatore SF_6

Quando vite umane e beni sono a rischio e sono necessarie apparecchiature di rilevamento gas veramente affidabili, Crowcon è la soluzione Da oltre 40 anni Crowcon sviluppa e produce dispositivi di alta qualità altamente affidabili e tecnologicamente avanzati.

I rilevatori fissi Crowcon sono stati provati in molti ambienti difficili, inclusi prospezione di petrolio e gas, trattamento acque, acciaierie e industrie chimiche. Il rilevatore Crowcon F-Gas rileva in modo sicuro gas refrigeranti ed SF6 esafluoruro di zolfo in applicazioni per locali tecnici o di distribuzione elettrica.

Scegliere il rilevatore di gas fisso per le proprie necessità

Il rilevatore Crowcon F-Gas è un dispositivo fisso ad infrarossi (IR) di alta qualità che rileva in modo affidabile i gas freon. Disponibile per il rilevamento di diversi gas refrigeranti ed anche dell'esafluoruro di zolfo (SF6), il rilevatore F-Gas Crowcon può essere collegato a qualsiasi sistema di controllo che accetti un segnale analogico.

Il rilevatore F-Gas Crowcon utilizza un sensore IR di alta qualità tarato specificamente per rilevare gli F-Gas comunemente utilizzati. Il rilevatore F-Gas funziona a 24 V CC e fornisce un segnale a 4-20 mA (è anche possibile impostare l'uscita a 0-20 mA, 0,2 V, 0-5 V oppure 0-10 V CC).

Alloggiato in un contenitore IP54 rinforzato, F-Gas è adatto all'utilizzo in aree non a rischio quali locali tecnici o di distribuzione elettrica.

Oltre a proteggere il personale dal rischio di gas tossici, il rilevatore F-Gas aiuta a contenere l'emissione di gas serra nell'ambiente.

Preciso ed affidabile

Sensore IR tecnologicamente avanzato	Assicura velocità, stabilità e prestazioni affidabili per lungo tempo e con minima manutenzione. A differenza dei sensori a semi-conduttore, più economici, il rilevatore F-Gas non viene influenzato da altri tipi di gas o da variazioni di temperatura o umidità.

Semplice e versatile

Indicatori a LED	Tre LED colorati indicano lo stato di funzionamento del rilevatore e, assieme ai tasti funzione, facilitano regolazioni quali zero e taratura.
Scelta dei segnali di uscita	È possibile impostare il segnale di uscita analogica a 4-20 mA, 0-20 mA, 0-2 V, 0-5 V o 0-10 V CC per la compatibilità con praticamente qualsiasi sistema di controllo.

Lunga durata e ridotti costi di manutenzione

Assenza di parti soggette ad usura	Utilizzabile per molti anni senza dover sostituire il sensore o altri componenti.
Semplice da testare	Necessita soltanto di controllo gas semestrale. La calibrazione è necessaria solo se le letture sono fuori intervallo.
Contenitore classificato IP54	Protetto contro polvere e acqua in interni.

Sicurezza e conformità

Compatibile con le norme F-Gas	Consente a fornitori e utenti F-Gas di rispettare le norme europee F-Gas.
Rilevamento veloce delle perdite di gas	Fornisce un 'allerta precoce' su fughe di gas, mantenendo così il sistema efficiente e riducendo al contempo gli elevati costi di sostituzione del gas.
Protezione per l'ambiente	Contribuisce a contenere il rischio di emissione di gas serra nell'ambiente.

Accessori rilevatore F-Gas

Adattatore taratura
Consente di applicare il gas di taratura al sensore.

Gas di taratura e regolatori
Gas Freon e SF6 sono disponibili per attivare controllo e taratura del sensore.

Per le specifiche tecniche complete vedere l'ultima pagina.

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Dimensioni	mm. 151 x 80 x 60 (5,9 x 3,1 x 2,4 pollici) (dimensioni totali con pressacavo: (mm. 151 x 102 x 60)
Peso	0,25 kg (8,8 once)
Protezione ingresso	IP54
Principio di misurazione	Infrarossi di tipo non dispersivo (NDIR)
Intervallo	0-1.000 ppm
Risoluzione	1 ppm
Alimentazione	12-28 V CC
Uscita analogica	4-20 mA (impostabile a 0-20 mA, 0-2 V, 0-5 V o 0-10 V)
Temperatura d'esercizio	Da -20 a +40 °C
Umidità	0-95% RH senza condensa
Ripetibilità	+/- 1% FSD
Linearità	+/- 2% FSD
Tempo di start-up	<120 secondi
Tempo di risposta	Approssimativamente 30 secondi
Pressione	800-1.200 mBar
Omologazioni	EMC: EN50270

Questo prodotto è progettato solo per funzionamento in aree non pericolose.

Opzioni gas refrigerante:

Fluidi puri:

Fluidi	Formula	Nome	Campo di misurazione
HCFC 22 (R22)	$CHClF_2$	Clorofluorocarburo	1.000 ppm
HCFC 123 (R123)	$CHCl_2CF_3$	2,2-Dicloro-1,1,1-trifluoroetano	1.000 ppm
HFC 125 (R125)	C_2HF_5	Pentafluoroetano	1.000 ppm
HFC 134a (R134a)	CH_2FCF_3	1,1,1,2-Tetrafluoroetano	1.000 ppm

Fluidi miscelati utilizzati nel campo della refrigerazione/condizionamento:

Refrigerante	Componenti	Intervallo di misurazione
R404a	R143a/125/134a	1.000 ppm
R407a	R32/125/134a	1.000 ppm
R407c	R32/125/134a	1.000 ppm
R410a	R32/125	1.000 ppm
R507	R143a/125	1.000 ppm

Fluido speciale utilizzato per la refrigerazione di veicoli:

Fluido	Formula	Nome	Intervallo di misurazione
R1234yf	$CH_2{=}CFCF_3$	Tetrafluoropropene	1.000 ppm

Gas dielettrico:

Gas	Nome	Intervallo di misurazione
SF_6	Esafluoruro di zolfo	1.000 ppm

Crowcon si riserva il diritto di modificare progetto e specifiche del prodotto senza preavviso.
Per aggiornamenti consultare il sito Web www.crowcon.com

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Detecting Gas Saving Lives

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