Infrared Exchange: Pellistor Replacement IR Gas Detector

IREX

IREX is an innovative infrared (IR) flammable gas detector designed specifically to directly replace pellistor (catalytic bead) type flammable gas detectors. IREX operates from control systems designed solely for use with pellistor-based gas detectors: it produces a mV Wheatsone Bridge type signal (as per a pellistor) and operates from as little as 2.9Vdc. IREX is supplied with an M20 type fixing enabling originally installed detector junction boxes and cables to be retained.

The IREX concept enables pellistor-based gas detection systems to be upgraded to dual-wavelength IR gas detector technology without incurring the very significant costs associated with upgrading the control system and re-installation.

IR Technology versus Pellistor Gas Sensors

Pellistor sensor technology has provided effective flammable gas detection at low cost for many years. Pellistors do however have several disadvantages:

- **Pellistors do not fail safe:** sensors can be 'poisoned' and rendered insensitive to gas by silicones, lead, sulphurs and chlorinated compounds.
- **Pellistors must be operated behind a sinter (flame arrestor):** which may become blocked, thus preventing gas from reaching the sensor.
- **Pellistors are high-maintenance:** sensors must be regularly tested with gas to ensure they are still operational. Sensors typically last 3-5 years, after which they must be exchanged.
- **Pellistors may burn-out:** if exposed to gas concentrations in excess of 110% LEL.
- **Pellistors need oxygen:** their ability to detect gas reduces significantly in oxygen deficient atmospheres.

All of these issues are overcome using IREX.

>10 year life

316 Stainless Steel

IEC61508 SIL 2 compliance (pending)

ATEX and IECEx approvals

3rd-Party performance tests (pending)

Detects Methane, Propane, Butane, and many other hydrocarbons

Compatible with most mV bridge type control systems

CROWCON

Gas Detection You Can Trust

IREX Features and Benefits

IREX is a very sophisticated IR gas detector featuring:

Sinter-free operation: pellistor based detectors and other IR type gas detectors are fitted with sinters (flame arrestors) to achieve Exd Flameproof certification. Sinters slow response time significantly and can become blocked by contaminants: a dangerous un-revealed failure.

Fast response: with a T90 response time of less than 7 seconds, IREX competes with even the most expensive conventional IR gas detectors.

Excellent zero stability: drift issues associated with pellistors and cables are eliminated.

Minimal maintenance: IREX employs sophisticated systems and algorithms to ensure reliable operation at all times. No adjustments are necessary at the detector, zero and span adjustments (if required) are performed at the control panel only.

Remote gassing: gas response tests and calibration can be performed without the need to access the detector. Test gas can be applied remotely via a tube to the standard weather cover.

Minimal operating costs: IREX is designed to provide in excess of 10 years operation; there are no consumable parts, and routine testing requirements are minimised.

Ultimate dependability: IREX is designed to achieve IEC61508 SIL 2 compliance.

3rd-Party validation: IREX will be fully tested in simulated offshore environments by a highly respected testing authority.

No un-revealed failures: a fault signal is produced when the optical system becomes 75% obscured by contaminants, or in the unlikely event of any component failure.

Condensation-free optical system: specially coated window and mirror deliver dependable operation in changeable conditions.

Specifications

Description	Dual-beam infrared pellistor replacement hydrocarbon gas detector
Gases	0-100%LEL methane, propane, butane and other hydrocarbons
Enclosure material	316 stainless steel
Size	120h x 55w x 130d mm
Weight	1.5Kg
Ingress protection	IP66
Connection	Supplied either with M20 spigot gland for installation into existing junction boxes or with one M20 cable gland entry
Power	<1W
Operating voltage and current	2.9 - 3.2Vdc, 330 - 400mA Over-voltage and reverse polarity protected
Electrical output	3-wire mV (Wheatstone) Bridge. Typically 10-20mV per % volume Methane
Operating temperature	-40°C to +75°C
Humidity	0 to 100% RH non-condensing
Repeatability	+/- 2% FSD
Zero drift	+/- 2%FSD per year maximum
Response time	T90 <7 secs.
Performance	Tested in accordance with EN61779:2000
Functional safety	Validation to IEC61508 SIL 2 (pending)
Approvals	II 2 G Exd IIB + H_2 T6 (-40 to +50°C) T4 (-40 to +75°C) ATEX & IECEx
EMC compliance	EN 50270

IREX Accessories

Mounting bracket: suitable for wall or pipe mounting (not required if spigot gland is used)
Spigot gland: for mounting IREX to existing M20 junction boxes (supplied)
Calibration cap (required if ambient air speed exceeds 2m/s)
Sun Shade/Collector Cone
Duct sampling unit
Dust filter

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