

# IREX

## Pellistor Replacement IR Gas Detector

$\text{CH}_4$

$\text{C}_2\text{H}_6$

$\text{C}_3\text{H}_8$

$\text{C}_4\text{H}_{10}$

$\text{C}_5\text{H}_{12}$

$\text{C}_6\text{H}_{14}$

$\text{C}_7\text{H}_{16}$

$\text{C}_2\text{H}_4$

$\text{C}_2\text{H}_5\text{OH}$

$\text{C}_3\text{H}_6$

LPG



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 Wheatstone 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.

### *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 may burn-out:** if exposed to gas concentrations in excess of 110%LEL.
- **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 need oxygen:** their ability to detect gas reduces significantly in oxygen deficient atmospheres.

All of these issues are overcome using IREX.

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.

**STAY-CLIR optics:** optical components are treated with a patented coating to prevent potential obscuration in condensing atmospheres. Unlike conventional IR gas detectors, IREX does not require heated windows or mirrors. As a result IREX consumes only 1 Watt of power which ensures compatibility with a wide range of control systems.

**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 4 seconds, IREX competes with even the most expensive conventional IR gas detectors.

**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 accessing the detector. Test gas can be applied remotely via a tube to the standard weather cover, saving significant time and cost.

**3rd party validation:** IREX has been independently tested for reliability and performance in harsh offshore conditions by Micropack Engineering Ltd a highly respected test authority. This, along with 3rd-party approval to the performance standard EN60079-29-1, demonstrates IREX will operate dependably in any application.

#### IREX Accessories:

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

#### 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 (with spigot gland)
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 <4 secs.
Performance	Tested in accordance with EN60079 - 29 - 1
Functional safety	Validation to IEC61508 SIL 2*
Approvals	II 2 G Exd IIB + H <sub>2</sub> T6 (-40 to +50°C) T4 (-40 to +75°C) ATEX & IECEx
EMC compliance	EN 50270, FCC, ICES-003

\*Feature currently pending, contact Crowcon for more information

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