



Detectors that use infrared technology to detect explosive gases, CO<sub>2</sub>, N<sub>2</sub>O, SF<sub>6</sub> and refrigerants (A1 safety groups).

Infrared sensors internally incorporate a microprocessor with controls for temperature compensation, linearisation, and memorisation of calibration parameters. This provides for easy replacement in the installation without the need for recalibration or gas.

**Available formats:**

- **RS485** addressable, 4-wire connection, compatible with **DURGAS** control units with up to 16 detectors installable in parallel in the same loop and controlling up to four different refrigerants up to a distance of 1km. Local alarm relay output incorporated in refrigerants, optional for other gases
- **4-20mA** 3-wire connection, compatible with any system having this type of input (not available for refrigerants, or SF<sub>6</sub>).

Optical indicators of sensor and loop failures  
Optional programmable alarm relay (**4-20mA**)

	Explosive gases	CO <sub>2</sub>	N <sub>2</sub> O	Refrigerants and SF <sub>6</sub>
Range	0-100% L.E.L.	0-2% vol (0-20,000ppm)	0-1,000ppm	0-2,000ppm
Resolution	>0.5% L.E.L.	>1.2% of measurement range	±2% measurement range	>1% of measurement range

## AVAILABLE GASES

Explosive gases: Methane, Natural Gas and Propane. Refrigerants: R-507/R-125/R-404a/R-407a/R-407f/R-410a/R-449 R-417a/R-448a/R-227ea/R-1233zd/R-513a/R-422d/R-134a/R452a others please check. SF<sub>6</sub>.

Toxic gases: Carbon Dioxide CO<sub>2</sub> . Nitrogen Oxide (I) N<sub>2</sub>O.

## APPLICATIONS

- Detection of explosive or toxic gases such as N<sub>2</sub>O or CO<sub>2</sub>
- Installations, generally refrigerated, refrigerant gases.
- Installations with the presence of inhibitor or poisonous gases of catalytic detectors – pellistors-.
- Atmospheres with no presence of oxygen.
- Installations where maintenance operations must be reduced to a minimum.

## LOCATION / HEIGHT OF THE INSTALLATION

A) In those areas where gas tends to accumulate, at a distance of 1.5m from any gas outlet point, and avoiding any draughts.

B) Refrigerants. Protect all possible sources of leaks, connections, elbows, gas inlets/outlets, valves, welds, compressors, etc...

C) The coverage area is 16 m<sup>2</sup> for explosive gases and 75m<sup>2</sup> for CO<sub>2</sub> (not applicable to refrigerants)

Recommended height of installation:

- 30 cm from the ceiling: Methane, Natural Gas.
- 100 cm from the floor: Propane.
- 75/100 cm from the floor: CO<sub>2</sub>
- 30/50 cm from the floor: N<sub>2</sub>O
- All refrigerant gases of the group. A1 Safety are heavier than air, take into account that explained in point B.

## AFFORDABLE MAINTENANCE

The **DIREX** detectors have been factory-calibrated with span gas and do not require recalibration during installation.

Revise the **DIREX** detectors at least once every 3 years or in accordance with current standards and follow the installation manual's instructions for verification and recalibration operations whenever necessary.

Easy replacement of the sensor in the factory-calibrated installation.

## TECHNICAL CHARACTERISTICS

Technology	Dual wavelength infrared sensor with thermal compensation and SIL2* microprocessor	Temperature range	-20°C to +50°C
Supply voltage	From 10V to 30V DC	Humidity range	0 to 95% HR no condensation
Maximum consumption	80mA at 12V DC/100mA activated relay	Atmospheric pressure limit	80 to 110kPa (0.8 to 1.1 bar)
Max. loop resistance (4-20mA)	250Ω	4-20mA connections	3 wires + earthing mesh
Max. output current (4-20mA)	21.3 mA (Tip)	RS485 connections	4 wires
Loop fault current (4-20mA)	< 2mA	Optical indicators of sensor and loop failures	By local LED (4-20mA)
EXP gases measurement range	0-100% L.E.L. (5% vol. Methane) - linear full scale -	Optical indicator of communication statuses	Digital (RS485)
CO <sub>2</sub> measurement range	0-20,000 ppm (0-2% v/v) - linear full scale -	Programmable alarm relay (optional) 4-20mA	Choice between 2 programmable alarm levels immediate/ delayed disconnection, delayed disconnection programming and initial idle relay status.
N <sub>2</sub> O measurement range	0-1,000ppm linear full scale	alarm relay incorporated in RS485 refrigerants	20% L.F.L. A2 group.
Refrigerants and SF <sub>6</sub> range	0-2,000ppm	Coverage area	EXP 16 m <sup>2</sup> approx. CO <sub>2</sub> 75 m <sup>2</sup> approx. N <sub>2</sub> O 30m <sup>2</sup> approx. refrigerants see point B on cover page. * Infrared sensors
Resolution	Exp: >0.5% L.E.L. CO <sub>2</sub> >1.2% of measurement range N <sub>2</sub> O >2% of measurement range refrigerants >1% of measurement range	Protection grade	IP65
Zero drift	Exp: ±3% L.E.L. max / year at 20°C CO <sub>2</sub> : ±0.7% / year N <sub>2</sub> O ±1% F.S./ year refrigerants ±2% year	Box material	Makrolon and ABS
Span drift	EXP: ± 3% L.E.L. / year at 20°C CO <sub>2</sub> : ± 0.7% F.S. /year N <sub>2</sub> O ±1% F.S./ year refrigerants ±0.1% F.S year	Cable diameter	6-10mm <sup>2</sup>
Stabilisation time	< 30 min -all specifications-	Cable type (4-20mA)	Shielded 3 x 1.5mm ø
Response Time T50/T90	<15s and 30s respectively	Cable type (RS485)	4 wires 2 x 1.5mm - 2 x 0.25mm ø
Useful life (MTBF)	> 5 years	Installation max. distance	1,000m (RS485) 300/400m (4-20mA)
Maintenance periods	Every 3 years-recommended-or according to current standards	Dimensions (mm)	120 x 160 x 60
		Weight (g)	288 approx.

## WARRANTY

**DIREX** detectors are guaranteed against any manufacturing defect for 1 year from the equipment's date of purchase . The warranty conditions are set out in the detector's installation manual.

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