



Detectors that use infrared technology to detect explosive gases, CO₂, N₂O, SF₆ 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 SF₆).

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

	Explosive gases	CO ₂	N ₂ O	Refrigerants and SF ₆
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. SF₆.

Toxic gases: Carbon Dioxide CO₂. Nitrogen Oxide (I) N₂O.

APPLICATIONS

- Detection of explosive or toxic gases such as N₂O or CO₂
- 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 m² for explosive gases and 75m² for CO₂ (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: CO₂
- 30/50 cm from the floor: N₂O
- 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 ₂ 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 ₂ O measurement range	0-1,000ppm linear full scale	alarm relay incorporated in RS485 refrigerants	20% L.F.L. A2 group.
Refrigerants and SF ₆ range	0-2,000ppm	Coverage area	EXP 16 m ² approx. CO ₂ 75 m ² approx. N ₂ O 30m ² approx. refrigerants see point B on cover page.
Resolution	Exp: >0.5% L.E.L. CO ₂ >1.2% of measurement range N ₂ 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 ₂ : ±0.7% / year N ₂ 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 ₂ : ± 0.7% F.S. /year N ₂ O ±1% F.S./ year refrigerants ±0.1% F.S year	Cable diameter	6-10mm ²
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.

* Infrared sensors

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.

ORDER INFORMATION

When placing your order please provide the correct code for the product required and verify that its description is in order.

RS485 Detectors IP65	
CODE	DESCRIPTION
DIRYCO2	Infrared RS485 detector for CO ₂
DIRYCO2r	Infrared RS485 detector for CO ₂ with relay output
DIRY***	Infrared RS485 detector for explosive gases
DIRY***r	Infrared RS485 detector for explosive gases with relay output
DIRYN2O	Infrared RS485 detector for N ₂ O
DIRYN2Or	Infrared RS485 detector for N ₂ O with relay output
DYRYREFr*	Infrared RS485 detector for refrigerants with relay
DYRYSF6r	Infrared RS485 detector for SF ₆ with relay

*** available gases: NAT (Natural Gas or METHANE) or PRO (PROPANE-BUTANE)

*The gas must be specified, for example DYRYREFr-R410a

CO₂ available ranges: 0-0.5%, 0-1% and 0-2%

4-20mA Detectors IP65	
CODE	DESCRIPTION
DIRY4CO2	Infrared 4-20mA detector for CO ₂
DIRY4CO2r	Infrared 4-20mA detector for CO ₂ with relay output
DIRY4***	Infrared 4-20mA detector for explosive gases
DIRY4***r	Infrared 4-20mA detector for explosive gases with relay output
DIRY4N2O	Infrared 4-20mA detector for N ₂ O
DIRY4N2Or	Infrared 4-20mA detector for N ₂ O with relay output

*** available gases: NAT (Natural Gas or METHANE) or PRO (PROPANE-BUTANE)

CO₂ available ranges: 0-0.5%, 0-1% and 0-2%



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