



QIR - 8000

INFRARED NON-INTRUSIVE COMBUSTIBLE TRANSMITTER / SENSORS

The QIR-8000 Series transmitter/sensors are designed to detect and monitor the presence of methane and broadband hydrocarbons using non-dispersive infrared (NDIR) technology. Two infrared detectors are used with a reference for background compensation. A temperature sensor is mounted for temperature compensation. These are housed in a stainless steel flameproof enclosure with an integral sintered stainless steel filter element for the safe diffusion of the gases. The base model provides a 4-20mA or 2-10VDC output based on the gas detected with non-intrusive calibration. The extended features option additionally provides two SPDT relays and RS-485 communication in Modbus or Opto 22 protocols for digital communication with the QEL M-CONTROLLER or any other PLC or SCADA systems.

MODEL NUMBER ORDERING CODE

Q I R - 8 X - S 0

Transmitter Type

- 0 to 100% LEL — 2
- 0 to 100% VOL — 3

Gas Type

(See Gas Selection Table for #)

Revision (Factory Provided)

X

Enclosure (Industrial Nema 4x, 7, 9)

comes with Stainless Steel sensor housing

S

Options (Enter 0 for No Selection)**Protective Sensor Guard**

P

Extended Feature Option

2 relays - programmable for latching (requires remote reset switch)
RS-485 Digital Communication (Modbus slave, Opto-22 slave)

R

Remote Calibration Adapter

F

Remote Mount Intelligent Sensor

I

Non-Standard Calibration

X

Special (Consult Factory)

S



GAS SELECTION TABLE

GAS TYPE	#
Methane	170
Ethylene	371
Methanol	372
Propane	173
Butane	174
n-Pentane	175
Benzene	373
Acetone	374
Butanol	375

PRINCIPLE OF OPERATION

Ambient gas diffuses into the optical chamber through a particulate filter at one end of the sensor body. Internal lithium tantalate pyroelectric detectors are used to provide output signals, dependent upon changes in the thermal energy incident on their surface. A long-life tungsten filament lamp is used as a broadband infrared thermal source directed at the detectors. The detector signals consist of the response ripples superimposed on a DC offset voltage. The filter fitted to the 'active' detector is transparent to the strong fundamental absorption band of the particular gas. This allows a short optical path length to be used while maintaining satisfactory resolution and allowing a compact sensor package. The output peak-to-peak ripple amplitude from the active detector is then reduced as the optical radiation is attenuated on passing through the gas. The second 'reference' detector is made insensitive to this change by using a different filter. By taking the ratio of the two peak-to-peak detector signals, the QIR-8000 can discriminate the signal reduction due to the target gas from that due to ambient and physical variations.

SPECIFICATIONS

STANDARD FEATURES

- Power:** 24 VDC
18 - 30 VDC
- Fuse:** 1.0 Amp socketed Pico fuse
- Output signals:** 4-20 mA or 0-10 V
- Enclosure:** Nema Type 4X, 7 and 9 Explosion Proof.
Class 1, Div 1, Group B,C,D,
Copper free aluminum
Epoxy coated.
- Sensor housing:** Stainless Steel
- Display:** Alphanumeric LCD backlit display
2 lines by 8 characters
- Calibration:** Non-Intrusive (Magnetic Keypad)
- Sensor Technologies:** Dual Beam Infrared

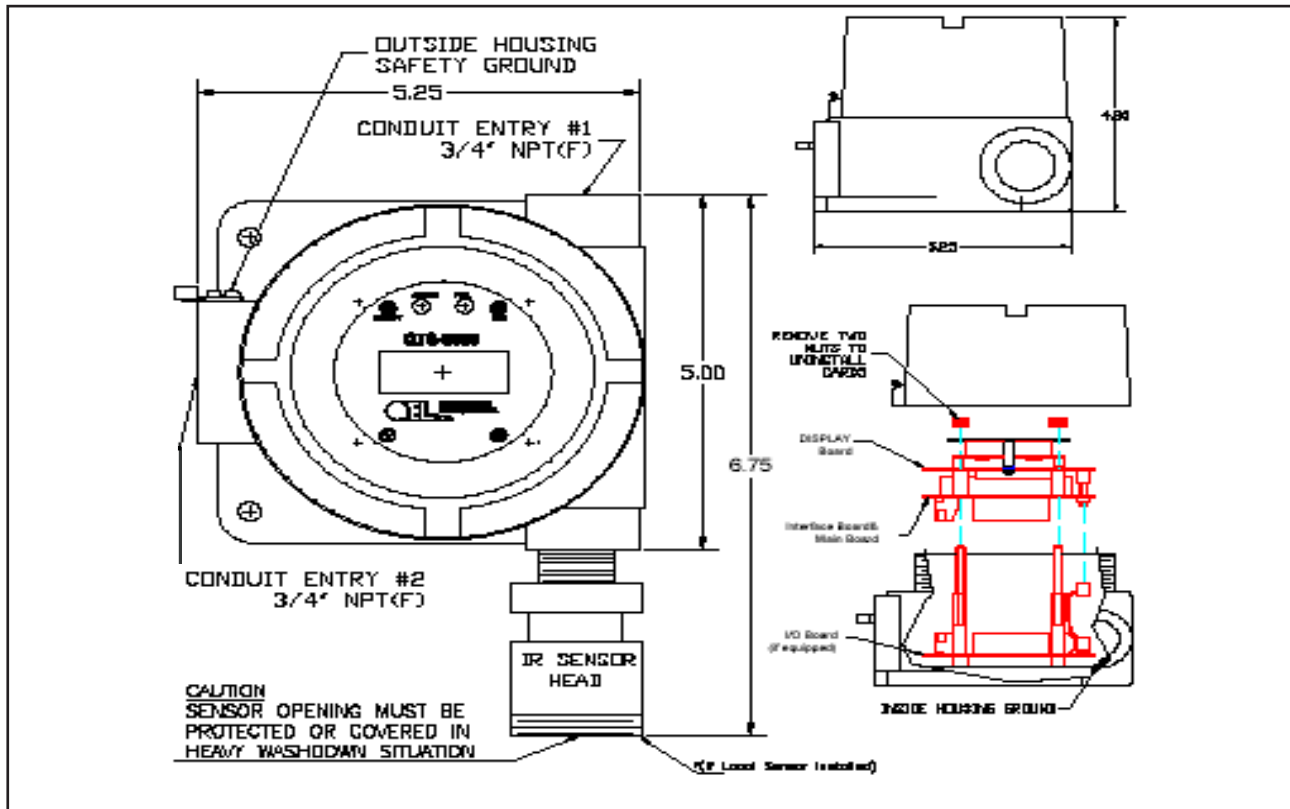


- Humidity:** 15 to 95% Non Condensing
- Temperature:** -40°C to 75°C
- Pressure:** Atmospheric +/- 10%
- Repeatability:** +/- 1 %

EXTENDED FEATURE OPTION

- AC Power:** 24 VAC Nominal
15 - 24 VAC
- Relays:** 2 SPDT, 115 VAC,
30 VDC, 1 amp
- Communications:** RS-485:
Modbus Slave
Opto-22 Slave

Approvals:



QUATROSENSE ENVIRONMENTAL LTD.
5935 OTTAWA STREET,
RICHMOND, ONTARIO
CANADA K0A 2Z0
PHONE 1 613 838 4005
FAX 1 613 838 4018
email QEL@QELsafety.com
www.QELsafety.com



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Read and understand fully all instructions before using these products.

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