**SPECIFICATION**

**INPUT POWER:**
- +24VDC nominal, range: 18 to 30VDC 0.3A DC Total Max.
- ~24VAC nominal, range: 15 to 24VAC 50/60HZ 0.3A AC Total Max.
  (AC must not be grounded)

**FUSE:**
- F2 on Main Board: Polyswitch 750mA
  Polyswitch device resets after the fault is cleared and power to the circuit is removed

**SENSOR:**
- Combustible gases: Catalytic or NDIR
- Toxic gases and Oxygen: Electrochemical
- Carbon Dioxide: Non-Dispersive Infra-Red (NDIR)

**OUTPUT SIGNAL:**
- RS-485 with OPTIMUMX PROTOCOL AND MODBUS PROTOCOL
- 4-20mA Analog Output, 1-5VDC, 2-10VDC Output
- 3X SPDT RELAYS: 1.0A MAX. @30VDC 0.3A MAX. @125VAC

**OPERATING TEMPERATURE:**
- -40°C to 70°C, depends on sensor specification

**AMBIENT HUMIDITY:**
- 5% TO 95% RH (NON-CONDENSING)

**STORAGE TEMPERATURE:**
- 0°C to 20°C, depends on sensor specification

**WEIGHT:**
- LESS THAN 1.8kg

**ENCLOSURE:**
- Aluminium Pressure Die-Casting
  Entries: 2X ¾ NPT

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**REVISIONS**

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**TITLE:** Q8

**INSTALLATION DRAWING**

**SIZE (DWG. NO.):** B 86350-002-000

**REV:** B

**SCALE:** 1:8

**WEIGHT:**
Power and RS-485 Connection for Q8:

1. GROUND THE SHIELD IN CONTROLLER SIDE
2. GROUND ON ONE END ONLY

Quatrosense Environmental Ltd

INSTALLATION DRAWING

B 86350-002-000 B
SCALE: 1:2 SHEET 2 OF 6

NOTE:
1. GROUND THE SHIELD IN CONTROLLER SIDE
2. GROUND ON ONE END ONLY
NOTE:
1. GROUND THE SHIELD IN CONTROLLER SIDE
2. GROUND ON ONE END ONLY

Power and RS-485 Connection for Q8:

TB5  TB6  TB7  TB8
RS-485 B  RS-485 A
GND
24VDC

TO OTHER DIGITAL SENSORS

24VDC

GND
RS-485 A  RS-485 B

Power and RS-485 Connection:

24VDC INPUT POWER

M-CONTROLLER OR Q4 CONTROLLER
DIGITAL SENSOR PORT
RS-485 B  RS-485 A
GND
24VDC

Installation Drawing

Quatrosense Environmental Ltd

NOTE:
GROUND THE SHIELD IN CONTROLLER SIDE
GROUND ON ONE END ONLY

PROPRIETARY AND CONFIDENTIAL
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THE COMPANY NAME HERE IS PROHIBITED.
Q8 and Remote Smart Sensor Assembly Connection

**Notes:**
1. Conduit or Approved Hazardous Location Cable connecting the remote sensor and Transmitter must have Sealing Fittings at both ends with total distance 18" (457mm).
2. Hazardous Location Cable and Sealing Fittings must be approved for Class 1, Div 1 Group B,C,D Hazardous Locations.
3. The Max Distance between Remote Sensor Head and Transmitter is not more than 100m.

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**Q8 and Remote Smart Sensor Assembly Connection**

**REMOTE SMART SENSOR BOARD**

**TB1 LOCAL BUS**

**Q8 MAIN BOARD TB1**

**QB REMOTE SMART SENSOR**

**QB TRANSMITTER**

**Q8 MAIN BOARD TB1**

**TB1 LOCAL BUS BOTTOM VIEW**

**QB REMOTE SMART SENSOR**

**QB TRANSMITTER**

**SEALING FITTING**

**SEALING FITTING**

**CONNECT TO CONTROLLER POWER SUPPLY**

**TB1 LOCAL BUS BOTTOM VIEW**

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**Quatrosense Environmental Ltd**

**INSTALLATION DRAWING**

**SIZE DWG. NO.:** 86350-002-000

**REV:** B

**SCALE:** 1:2

**WEIGHT:** SHEET 4 OF 6

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**REVISIONS**

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**DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL UNLESS OTHERWISE SPECIFIED:**

**ANGLES: MACH BEND TWO PLACE DECIMAL THREE PLACE DECIMAL**

**INTERPRET GEOMETRIC TOLERANCING PER:**

**MATERIAL FINISH**

**DRAWN:** XY 2012-09-20

**CHECKED:** XY 2012-09-20

**ENG APPR.:** XY 2012-09-20

**MFG APPR.:** XY 2012-09-20

**Q.A.:** XY 2012-09-20

**COMMENTS:**

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Q8 provides one channel 4-20 milliamp analog output and 1-5VDC or 2-10VDC analog output. The maximum output impedance is 600 ohms for 4-20mA output. The maximum current is 10 mA for VDC output.

Test point mA+ and mA- on top plate board are used to measure the 4-20mA Output current inline when the Q8 is working in the field.
Terminator Enable/Disable?

The terminator on each end of the RS485 loop is designed to match the electrical impedance characteristic of the twisted pair loop, and will prevent signal echoes from corrupting the data on the line. The terminator should be enabled on BOTH ends of the RS485 loop. Short and medium length modbus/485 loops can operate without the terminating resistor. Longer runs may require the terminating resistors. But adding terminator dramatically increases power consumption.

Sensor Location:

Several factors should be considered when selecting locations to install sensors. The following general suggestions should be considered to assure the detection of the target gas. Select the most suitable location for each sensor.

1. Air Currents: If there are fans, winds, or others sources of air movement, gases may tend to rise to collect in certain areas of a facility. The local air currents should be assessed to aid in selecting the sensor location. In outdoor situations considerations such as prevailing winds should be accounted for. Air convection can often be more important in determining gas concentrated areas than factors of Vapor Density.
2. Vapor Density: For the target gas heavier than air. Detecting location should be 9 - 18 inch (0.23m to 0.46m) above the floor.
3. Gas Emission Sources: As a rule, at least one sensor should be located in close proximity to each point where a leak is likely to occur. This is particularly important when a liquid having a low volatility is monitored.
4. Environmental Factors: Designed to rugged outdoor use consider the following in selecting locations. Install sensors where they will be protected from wind, dust, snow, water, vibration and shock.

Note:

- Avoid running communication wires or sensor input wires next to AC power wires or the relay output wires. These can be sources of noise that can affect signal quality.
- When the Q8 input power is AC, the 24VAC must not be grounded. A dedicated floating 24VAC may be needed if other nodes on the network are grounded, otherwise a DC power supply is recommended.

Twisted Pair?

RS-485 is designed to be a balanced system. The signal on one wire is ideally the exact opposite of the signal on the second wire. In other words, if one wire is transmitting a high, the other wire will be transmitting a low, and vice versa. Although RS-485 can be successfully transmitted using multiple types of media, it should be used with wiring commonly called "twisted pair."