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

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

**ENCLOSURE:**
- IP 66 & NEMA 4, 4X, 12 & 13

**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

**SIZE:**
- 150mm X 90mm X 65mm

**WEIGHT:**
- LESS THAN 0.5lbs

**OPTION ACCESSORIES:**
- Pump-thru & Cal Cap Kit SKU#: 85930-006-000
- Splash Guard Kit SKU#: 85930-007-000
- Duct Mount Adapter Kit: 85930-040-000
- Q-View & USB-RS485 Converter Kit: 85930-004-000

*Option Accessories are not included in Q5 or B5 Standard Package.*

**Q5 INSTALLATION DRAWING**

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

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

**ENCLOSURE:**
- IP 66 & NEMA 4, 4X, 12 & 13

**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

**SIZE:**
- 150mm X 90mm X 65mm

**WEIGHT:**
- LESS THAN 0.5lbs

**OPTION ACCESSORIES:**
- Pump-thru & Cal Cap Kit SKU#: 85930-006-000
- Splash Guard Kit SKU#: 85930-007-000
- Duct Mount Adapter Kit: 85930-040-000
- Q-View & USB-RS485 Converter Kit: 85930-004-000

*Option Accessories are not included in Q5 or B5 Standard Package.*

**Q5 INSTALLATION DRAWING**

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

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

**ENCLOSURE:**
- IP 66 & NEMA 4, 4X, 12 & 13

**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

**SIZE:**
- 150mm X 90mm X 65mm

**WEIGHT:**
- LESS THAN 0.5lbs

**OPTION ACCESSORIES:**
- Pump-thru & Cal Cap Kit SKU#: 85930-006-000
- Splash Guard Kit SKU#: 85930-007-000
- Duct Mount Adapter Kit: 85930-040-000
- Q-View & USB-RS485 Converter Kit: 85930-004-000

*Option Accessories are not included in Q5 or B5 Standard Package.*
Power and RS-485 Connection for Q5:

TO: OTHER DIGITAL SENSORS

RS-485 B
RS-485 A
24VAC

Q5 MAIN BOARD

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

Quatrosense Environmental Ltd

INSTALLATION DRAWING

SCALE: 1:2

Sheet 2 of 6
Power and RS-485 Connection for Q5:

**Q5 MAIN BOARD**

TO OTHER DIGITAL SENSORS

RS-485 B
RS-485 A
GND
24VDC

**24VDC INPUT POWER**

M-CONTROLLER OR Q4 CONTROLLER

DIGITAL SENSOR PORT

24VDC

**Power and RS-485 Connection:**

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

**Quatrosense Environmental Ltd**

**Installation Drawing**

**Model:** Q5

**Title:** Installation Drawing

**Drawing Number:** 85950-002-000

**Scale:** 1:2

**Sheet:** 3 of 6

**Quatrosense Environmental Ltd**

**Title:** Q5

**Installation Drawing**

**Model:** Q5

**Title:** Installation Drawing

**Drawing Number:** 85950-002-000

**Scale:** 1:2

**Sheet:** 3 of 6
4-20mA and VDC Output for Q5:

Q5 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 SIG+ and SIG- are used to measure the current online when the Q5 is working in the field.
**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."

** 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 Q5 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 DC power supply is recommended.