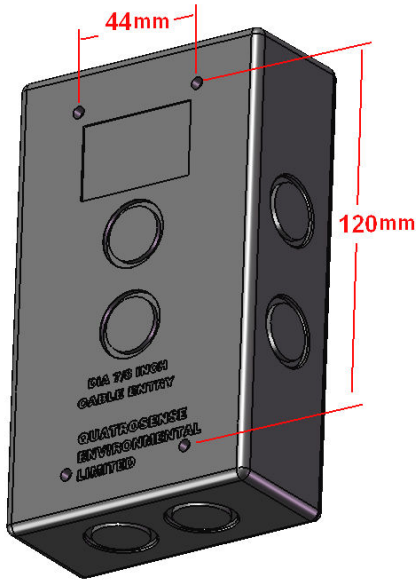
REVISIONS						
ECN	REV.	DESCRIPTION	DATE	DRAW	CHECK	APPROVED
924	A	Initial Release	2010/02/25	XY	XY	XY
929	B	Update Duct Mount Kit	2010/08/23	XY	XY	XY
966	C	ADD B5	2011/10/05	XY	XY	XY



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 OPTIMUX PROTOCOL AND MODBUS PROTOCOL
4-20mA Analog Output, 1-5VDC, 2-10VDC Output (Q5 only)
BACnet MS/TP master protocol (B5 only)
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)

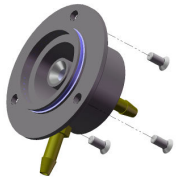
STORAGE TEMPERATURE:
0°C to 20°C, depends on sensor specification

SIZE: 150mm X 90mm X 65mm

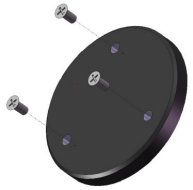
WEIGHT: LESS THAN 0.5lbs

Option Accessories:

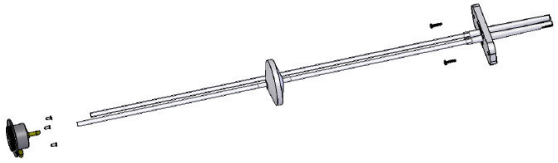
*Option Accessories are not included in Q5 or B5 Standard Package.



Pump-thru & Cal Cap Kit
SKU#: 85930-006-000

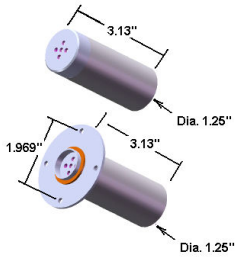


Splash Guard Kit
SKU#: 85930-007-000



Duct Mount Adapter
Kit: 85930-040-000

Q-View & USB-RS485 Converter Kit: 85930-004-000



Free-Stand
or Duct Mounted
IR-Probe

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		UNLESS OTHERWISE SPECIFIED:		NAME	DATE
		DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ± 1/32 ANGULAR: MACH ± .5 degrees BEND ± .5 degrees TWO PLACE DECIMAL ± .02 THREE PLACE DECIMAL ± .010	DRAWN	XY	2010/02/25
			CHECKED	XY	2010/02/25
			ENG APPR.	XY	2010/02/25
			MFG APPR.		
			Q.A.		
		INTERPRET GEOMETRIC TOLERANCING PER:	COMMENTS:		
		MATERIAL			
NEXT ASSY	USED ON	FINISH			
APPLICATION		DO NOT SCALE DRAWING			

Quatrosense Environmental Ltd

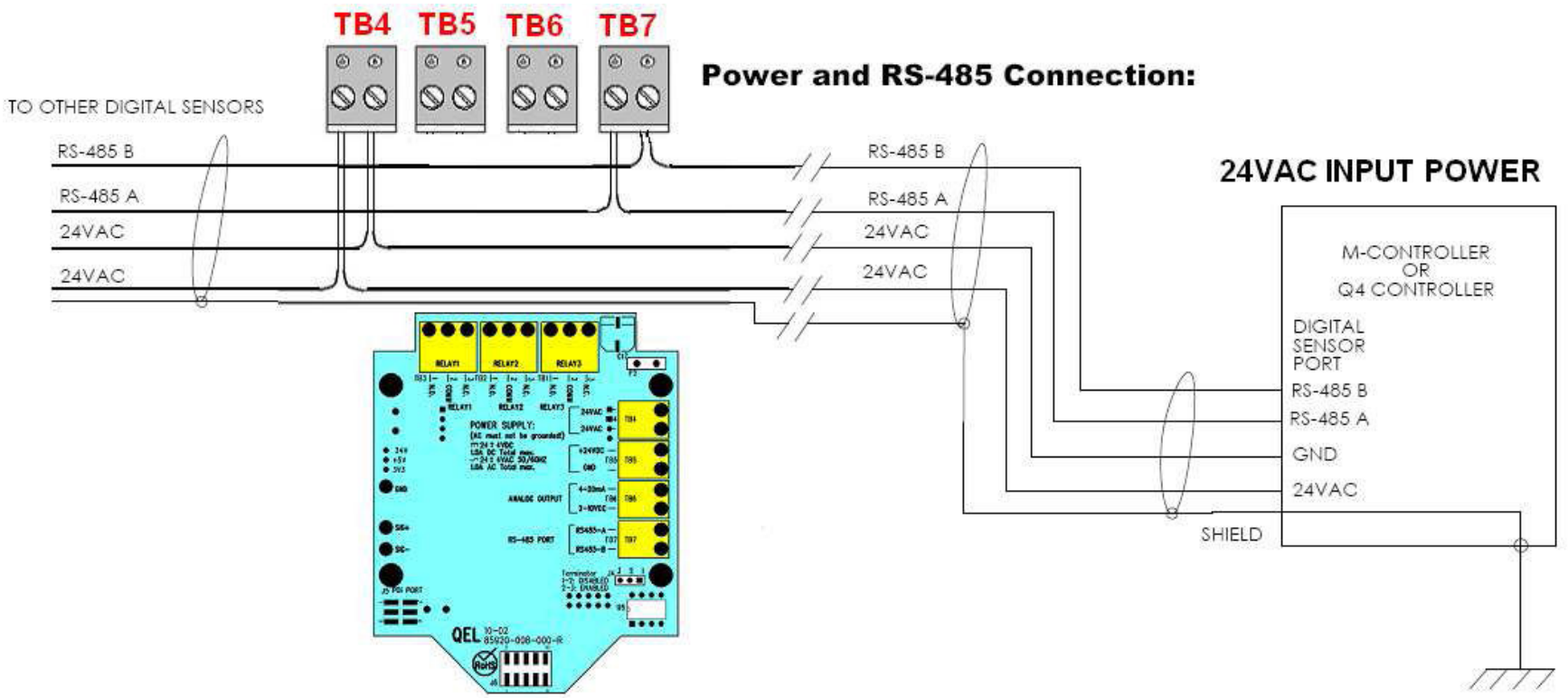
TITLE:
Q5/B5
INSTALLATION DRAWING

SIZE	DWG. NO.	REV
B	85950-002-000	C

SCALE: 1:8 | WEIGHT: | SHEET 1 OF 6

REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
-	-	See Sheet1	-	-

Power and RS-485 Connection for Q5:



Q5 MAIN BOARD

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

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APPLICATION		DO NOT SCALE DRAWING

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FRACTIONAL ±
ANGULAR: MACH ± BEND ±
TWO PLACE DECIMAL ±
THREE PLACE DECIMAL ±

INTERPRET GEOMETRIC TOLERANCING PER:

MATERIAL

FINISH

	NAME	DATE
DRAWN	XY	2010/02/25
CHECKED	XY	2010/02/25
ENG APPR.	XY	2010/02/25
MFG APPR.		
Q.A.		

COMMENTS:

Quatrosense Environmental Ltd

TITLE:
Q5/B5
INSTALLATION DRAWING

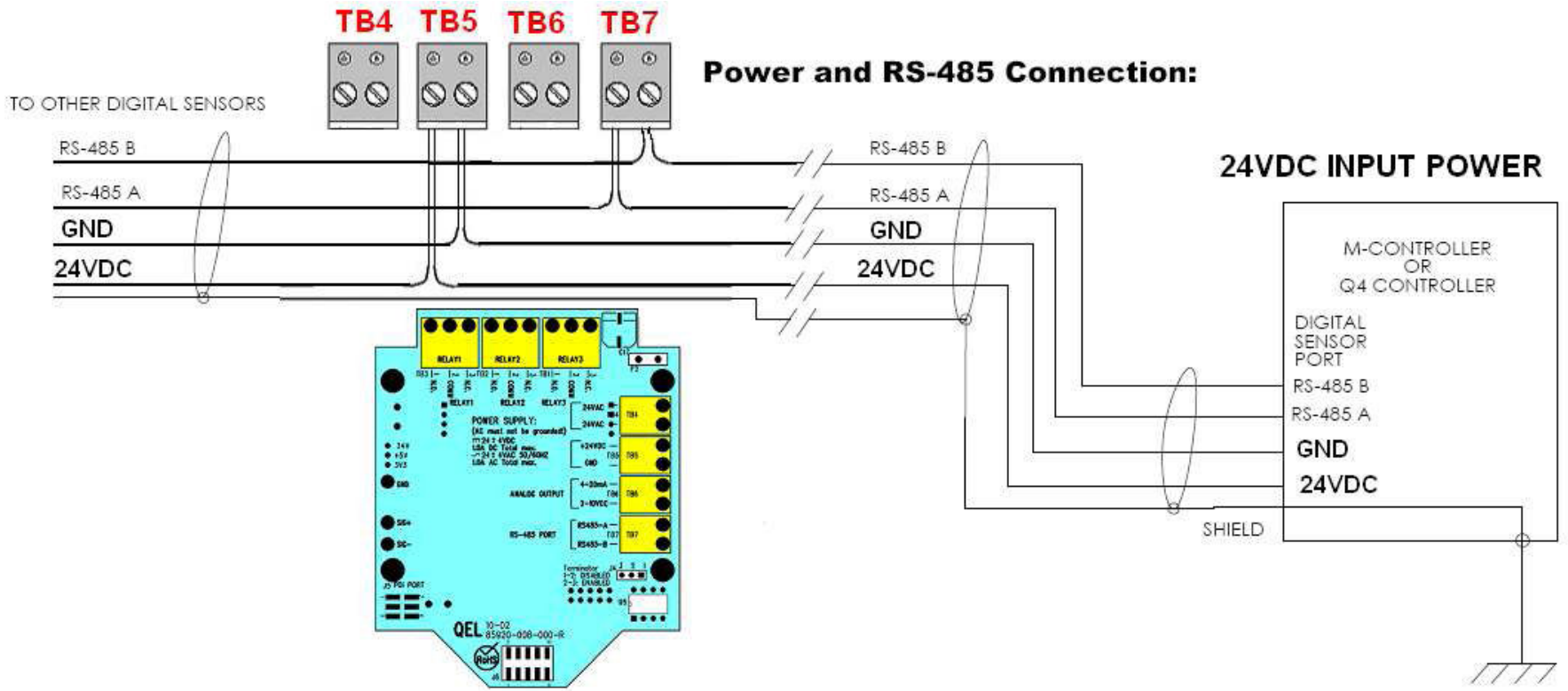
SIZE	DWG. NO.	REV
B	85950-002-000	C

SCALE: 1:2 | SHEET 2 OF 6

REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
-	-	See Sheet1	-	-

Power and RS-485 Connection for Q5:

Q5 MAIN BOARD



NOTE:
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2. GROUND ON ONE END ONLY

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TWO PLACE DECIMAL ±
THREE PLACE DECIMAL ±

INTERPRET GEOMETRIC TOLERANCING PER:

MATERIAL

FINISH

	NAME	DATE
DRAWN	XY	2010/02/25
CHECKED	XY	2010/02/25
ENG APPR.	XY	2010/02/25
MFG APPR.		
Q.A.	XY	2010/02/25

COMMENTS:

Quatrosense Environmental Ltd

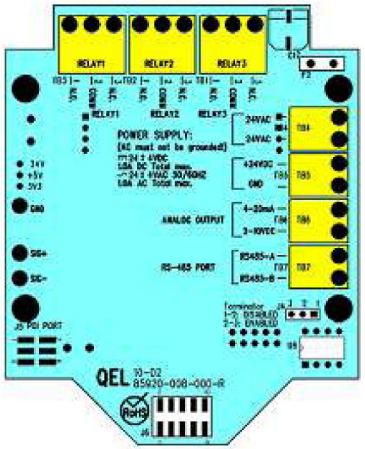
TITLE:
Q5/B5
Installation Drawing

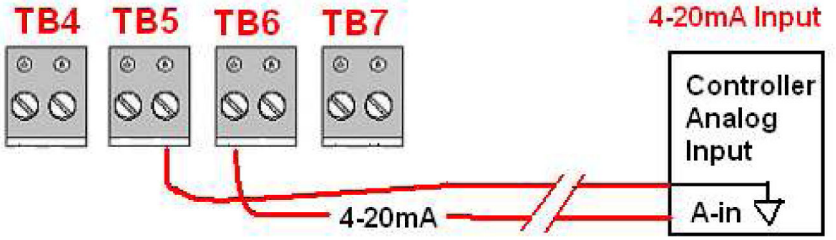
SIZE	DWG. NO.	REV
B	85950-002-000	C

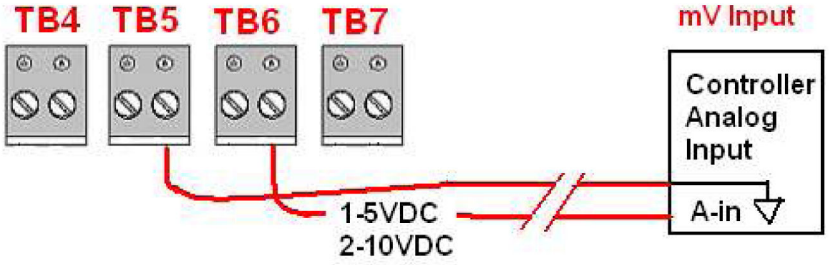
SCALE: 1:2	WEIGHT:	SHEET 3 OF 6

4-20mA and VDC Output for Q5:

REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
-	-	See Sheet1	-	-







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.

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THREE PLACE DECIMAL ±

INTERPRET GEOMETRIC TOLERANCING PER:

MATERIAL

FINISH

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CHECKED	XY	2010/02/25
ENG APPR.	XY	2010/02/25
MFG APPR.		
Q.A.		

COMMENTS:

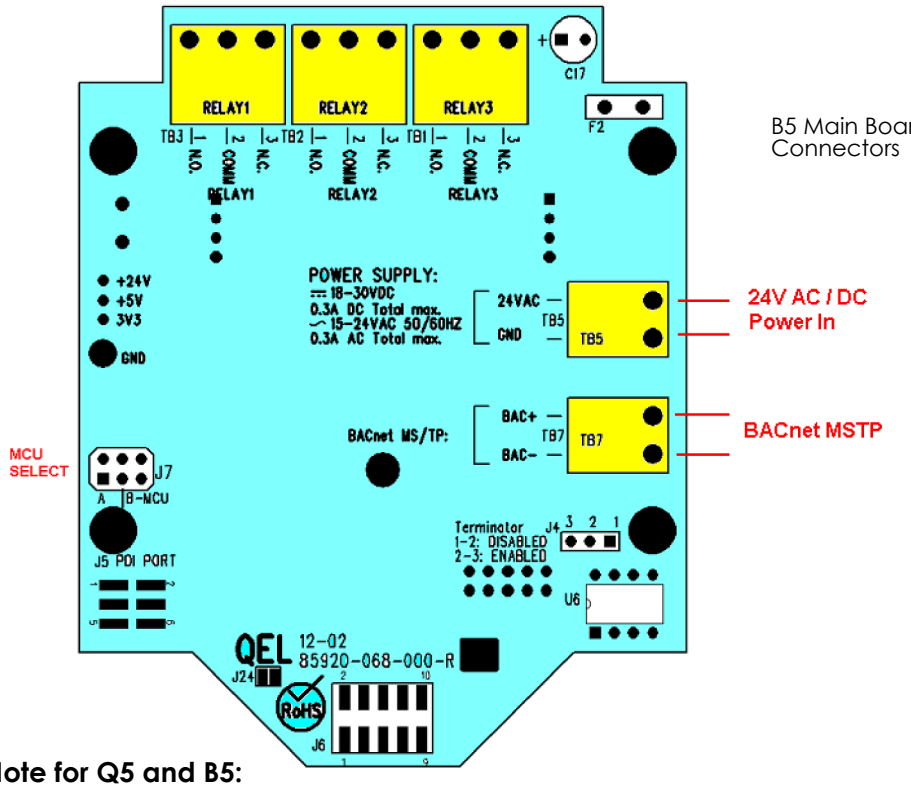
Quatrosense Environmental Ltd

TITLE:

Q5/B5
INSTALLATION DRAWING

SIZE	DWG. NO.	REV
B	85950-002-000	C

SCALE: 1:2 | SHEET 4 OF 6



B5 Main Board Connectors

REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
-	-	See Sheet1	-	-

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 for Q5 and B5:

- B5 supports BACnet MS/TP protocol and can be networked to form a BACnet MS/TP network.
- B5 default baud rate is 38400bps. Q5 default baud rate is 4800bps
- Each B5 on the MS/TP network must have a unique BACnet MAC address and unique Device Instance Number (Object ID).
  - B5 valid MAC addresses are 0-127 for master node, 0-254 for slave node
  - B5 default MAC address is 126
  - Default Device Instance Number is 4005
  - Q5 default MAC address is 3
- B5 power supply and RS-485 connection are similar to the Q5. B5 doesn't have TB4 and TB6 terminal block.
- 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.
- When the B5 input power is AC, the 24VAC can be either grounded or non-grounded. Polarization is very important when the B5 is connected to a network. Make sure the Neutral is connected to the GND of TB5.

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NEXT ASSY	USED ON	UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ± ANGULAR: MACH ± BEND ± TWO PLACE DECIMAL ± THREE PLACE DECIMAL ± INTERPRET GEOMETRIC TOLERANCING PER: MATERIAL FINISH		NAME	DATE
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			MFG APPR.		
			Q.A.		
			COMMENTS:		

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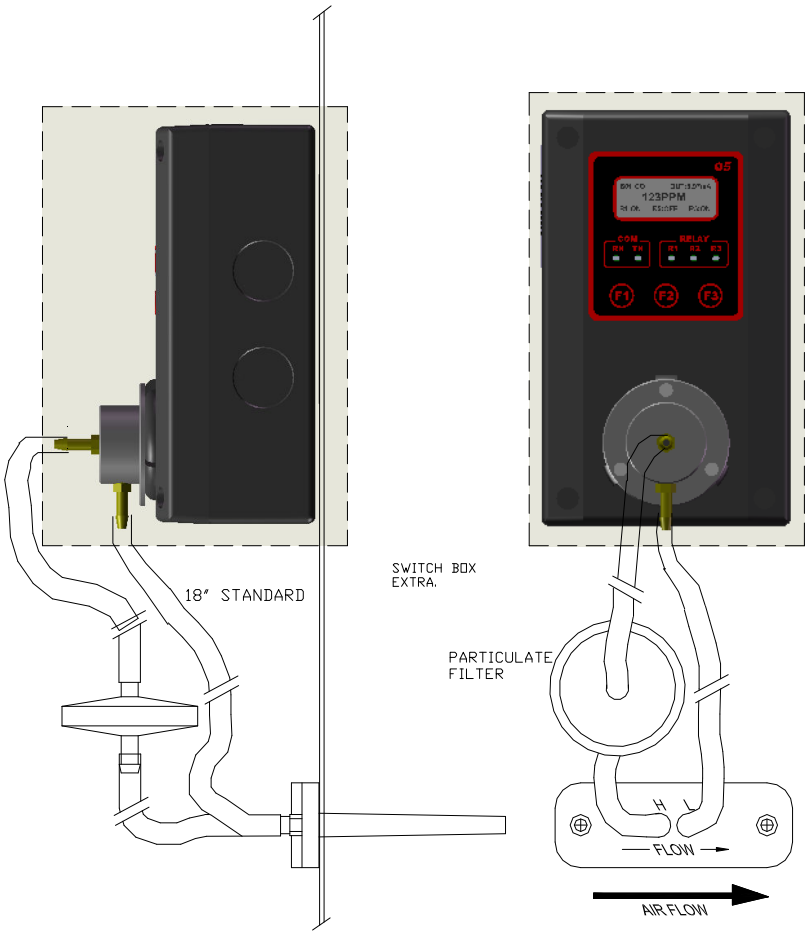
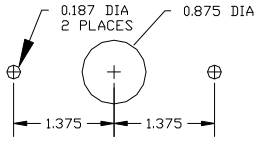
TITLE:
Q5/B5
INSTALLATION DRAWING

SIZE	DWG. NO.	REV
B	85950-002-000	C

SCALE: 1:2 | SHEET 5 OF 6



DUCT MOUNTING OPTION



CUTOUT INFORMATION
FOR FLOW SENSOR

NOTE: GAS SAMPLING OCCURS WHEN AIR FLOW ACROSS THE THE TWO TUBES CAUSES DIFFERENTIAL PRESSURE. THIS METHOD WILL NOT WORK IN STATIC AIR SAMPLING.

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FINISH
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CHECKED	XY	2012/02/13
ENG APPR.	XY	2012/02/13
MFG APPR.		
Q.A.	XY	2012/02/13

COMMENTS:

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TITLE:
Q5/B5
INSTALLATION DRAWING

SIZE	DWG. NO.	REV
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SCALE: 1:2 | WEIGHT: | SHEET 6 OF 6