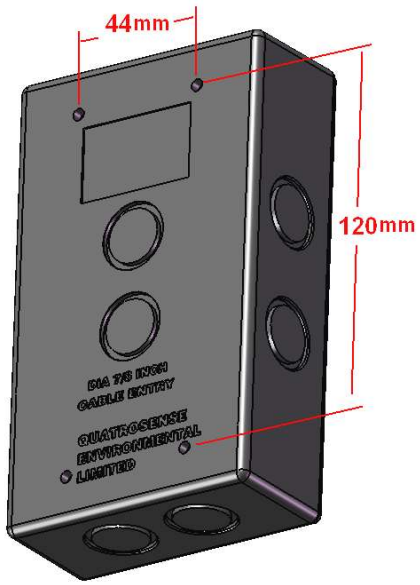
REVISIONS						
ECN	REV.	DESCRIPTION	DATE	DRAW	CHECK	APPROVED
1260	A	Initial Release	2024/10/21	XY	XY	XY



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
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)

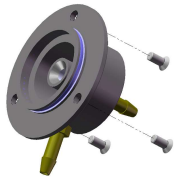
STORAGE TEMPERATURE:
0°C to 20°C, depends on sensor specification

SIZE: 150mm X 90mm X 65mm

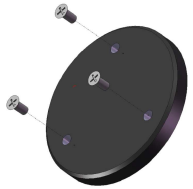
WEIGHT: LESS THAN 0.5lbs

Option Accessories:

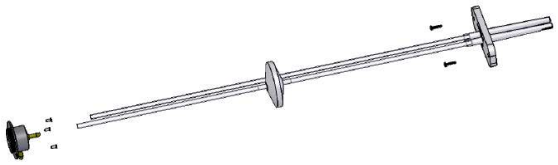
*Option Accessories are not included in Q5 or B5 Standard Package.



Pump-thru & Cal Cap Kit
SKU#: 85930-006-005



Splash Guard Kit
SKU#: 85930-007-005



Duct Mount Adapter
Kit: 85930-040-000

USB-RS485 Converter Kit: 85930-004-000

		UNLESS OTHERWISE SPECIFIED:		NAME	DATE
		DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ± 1/32 ANGULAR: MACH ± .5 degrees BEND ±	DRAWN	XY	2024/10/21
			CHECKED	XY	2024/10/21
			ENG APPR.	XY	2024/10/21
		TWO PLACE DECIMAL ± .02 THREE PLACE DECIMAL ± .010	MFG APPR.		
		INTERPRET GEOMETRIC TOLERANCING PER:	Q.A.		
		MATERIAL	COMMENTS:		
NEXT ASSY	USED ON	FINISH			
APPLICATION		DO NOT SCALE DRAWING			

Greystone Energy Systems Inc.

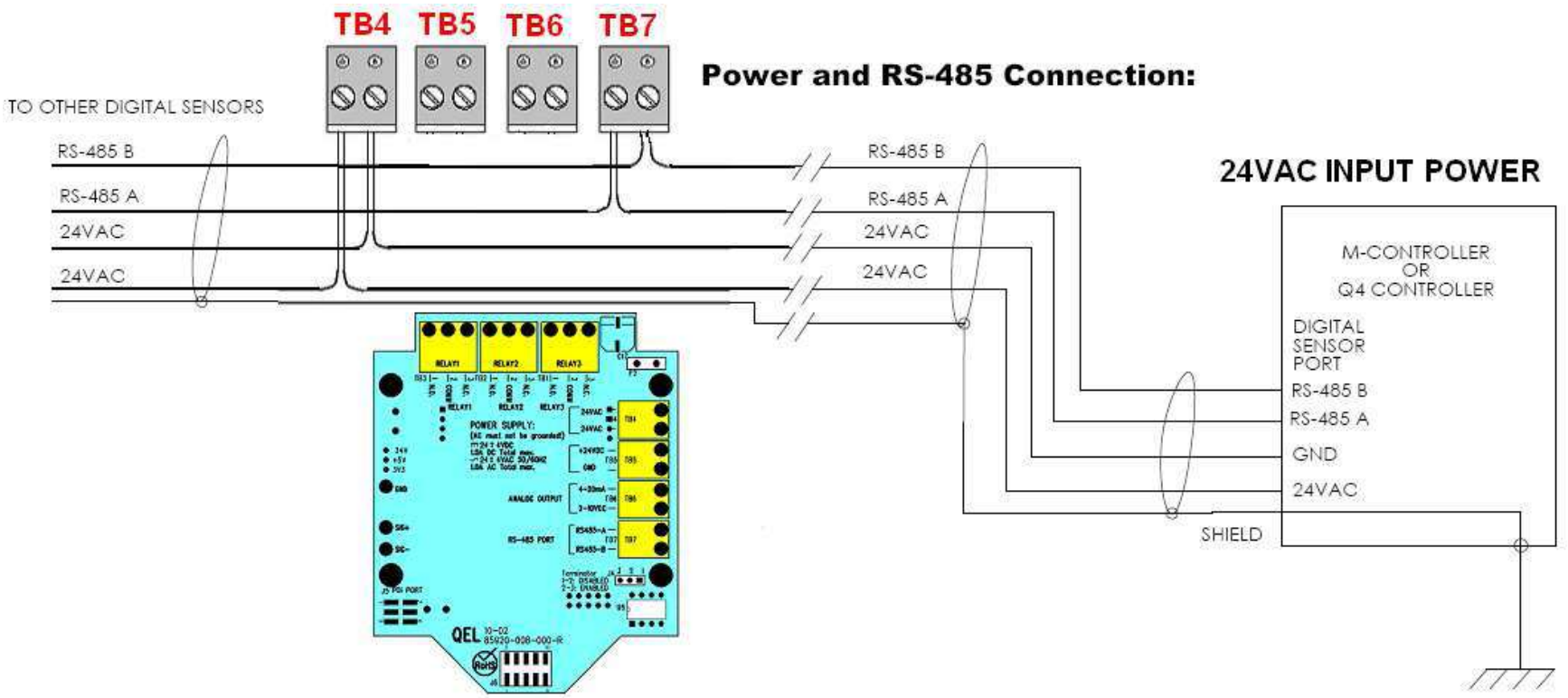
TITLE:
Q5, GES
INSTALLATION DRAWING

SIZE	DWG. NO.	REV
B	85950-002-005	A

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

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

Greystone Energy Systems Inc.

TITLE:
Q5, GES
INSTALLATION DRAWING

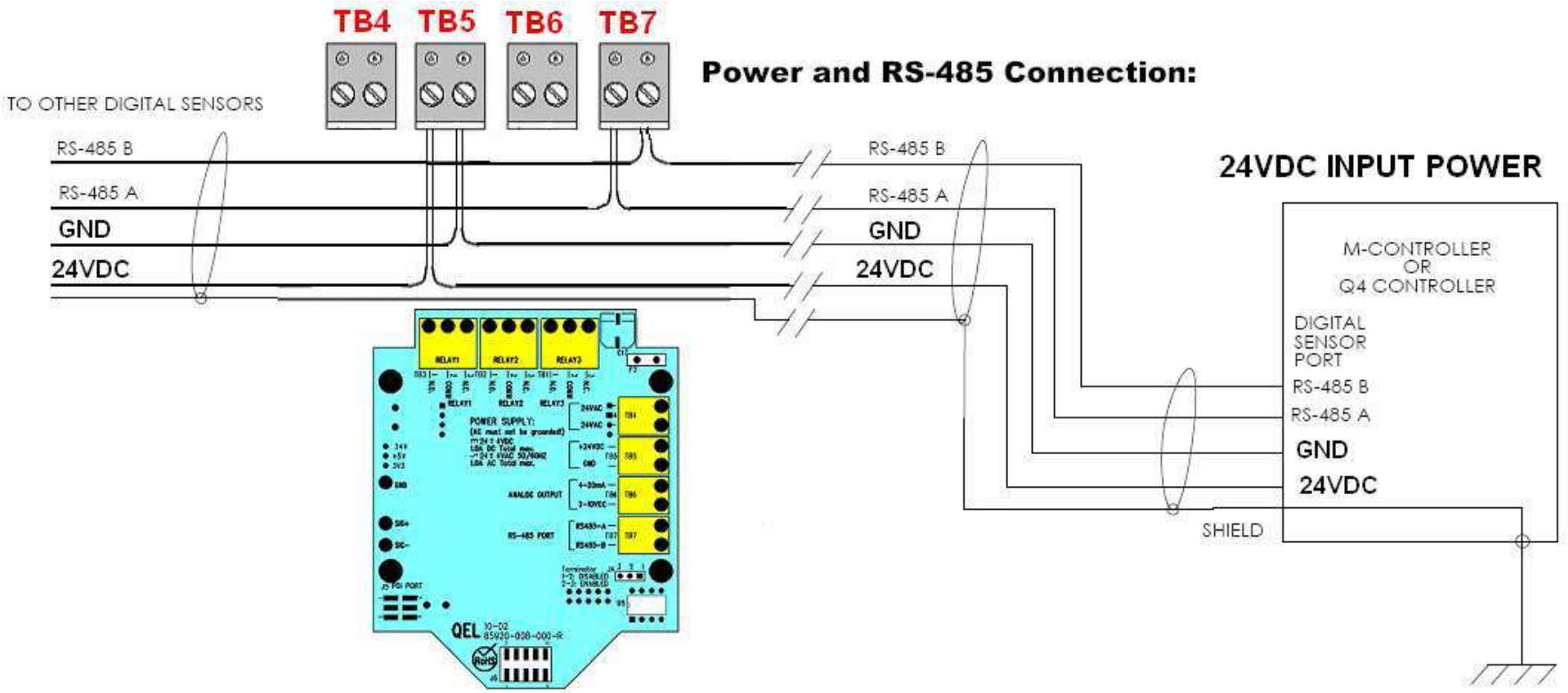
SIZE	DWG. NO.	REV
B	85950-002-005	A

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

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

Greystone Energy Systems Inc.

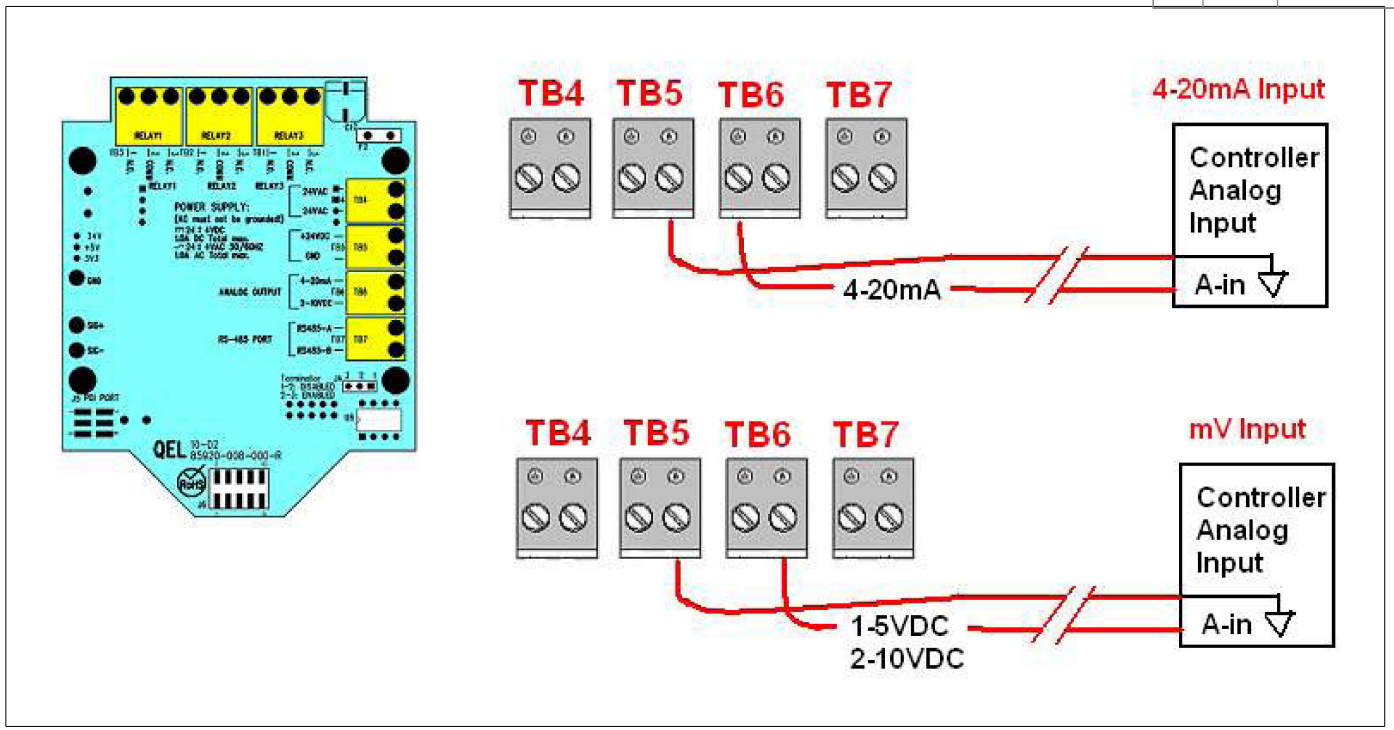
TITLE:
Q5, GES
Installation Drawing

SIZE	DWG. NO.	REV
B	85950-002-005	A

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.

UNLESS OTHERWISE SPECIFIED:

DIMENSIONS ARE IN INCHES
TOLERANCES:
FRACTIONAL ±
ANGULAR: MACH ± BEND ±
TWO PLACE DECIMAL ±
THREE PLACE DECIMAL ±

INTERPRET GEOMETRIC TOLERANCING PER:

MATERIAL

FINISH

NEXT ASSY | USED ON

APPLICATION | DO NOT SCALE DRAWING

	NAME	DATE
DRAWN	XY	
CHECKED	XY	
ENG APPR.	XY	
MFG APPR.		
Q.A.		

COMMENTS:

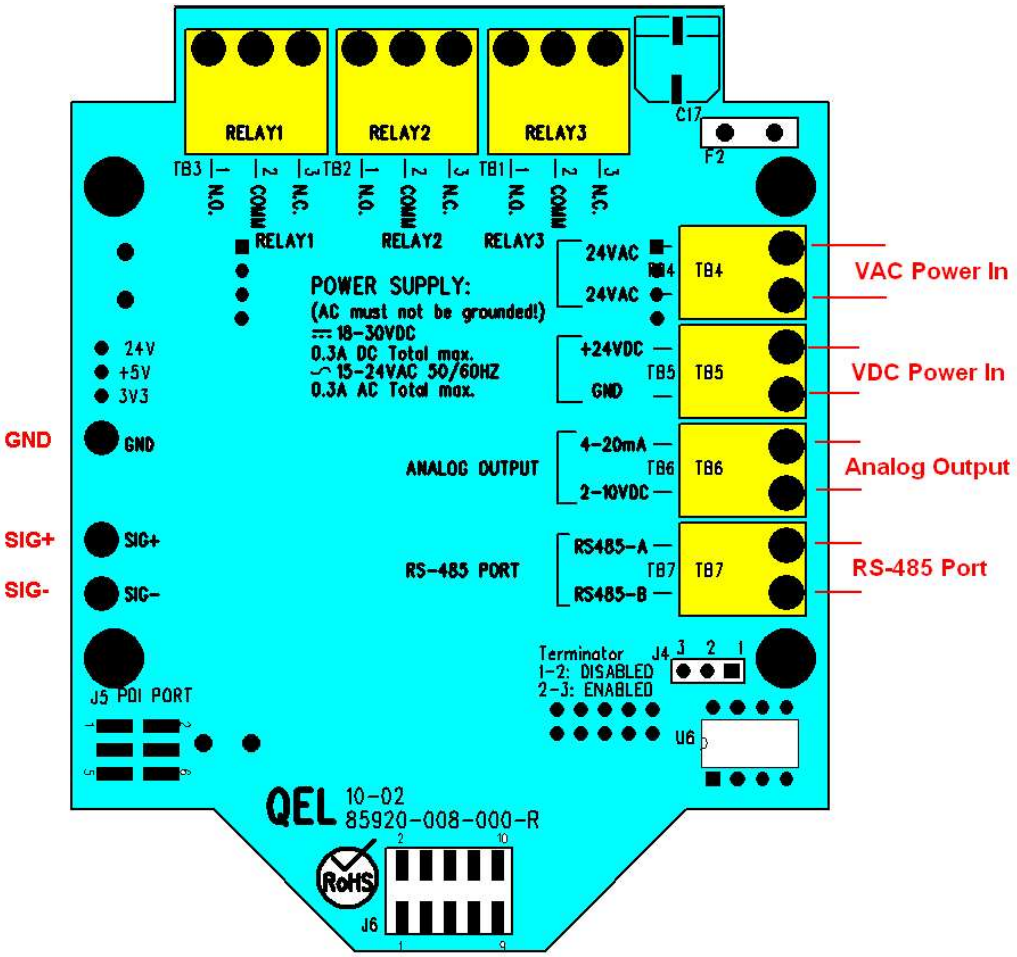
Greystone Energy Systems Inc.

TITLE:

Q5, GES
INSTALLATION DRAWING

SIZE	DWG. NO.	REV
B	85950-002-005	A

SCALE: 1:2 | SHEET 4 OF 6



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.
- The Q5 has full wave rectifier (TB4) and half wave rectifier (TB5) on board. You will damage devices if you mix half wave and full wave rectifiers on the same AC source. Use extreme caution when sharing a common AC source. Sharing a common DC source is less problematic. QEL Q-Controller uses half-wave rectifier only, M-Controller uses full-wave rectifier only, so the Q5 can work with both controllers.
- 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.

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.

UNLESS OTHERWISE SPECIFIED:
DIMENSIONS ARE IN INCHES
TOLERANCES:
FRACTIONAL ±
ANGULAR: MACH ± BEND ±
TWO PLACE DECIMAL ±
THREE PLACE DECIMAL ±
INTERPRET GEOMETRIC TOLERANCING PER:
MATERIAL
FINISH
NEXT ASSY | USED ON
APPLICATION | DO NOT SCALE DRAWING

	NAME	DATE
DRAWN	XY	
CHECKED	XY	
ENG APPR.	XY	
MFG APPR.		
Q.A.		

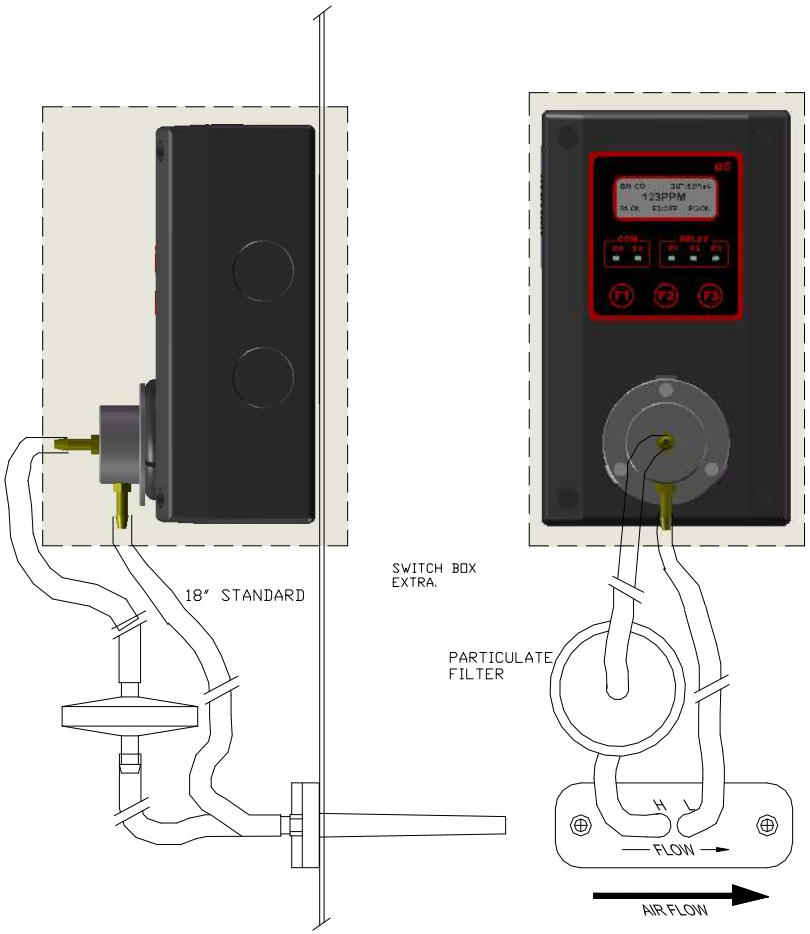
COMMENTS:

Greystone Energy Systems Inc.

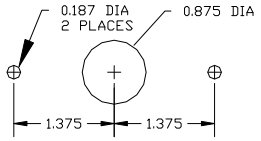
TITLE:
Q5, GES
INSTALLATION DRAWING

SIZE	DWG. NO.	REV
B	85950-002-005	A

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.

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

Greystone Energy Systems Inc.

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Q5, GES

INSTALLATION DRAWING

SIZE	DWG. NO.	REV
B	85950-002-005	A

SCALE: 1:2	WEIGHT:	SHEET 6 OF 6