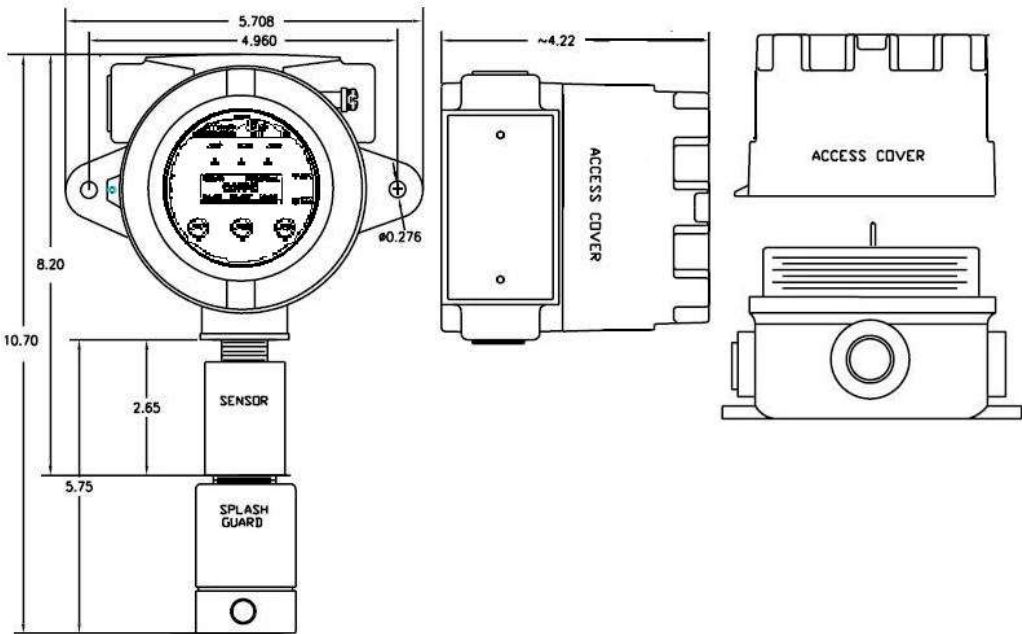


REVISIONS						
ECN	REV.	DESCRIPTION	DATE	DRAW	CHECK	APPROVED
T262	A	Initial Release	2012-09-19	XY	XY	XY



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 or NDIR
 Toxic gases and Oxygen: Electrochemical
 Carbon Dioxide: Non-Dispersive Infra-Red (NDIR)
 Volatile Organic Compounds (VOC): Photoionisation (PID)

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)

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

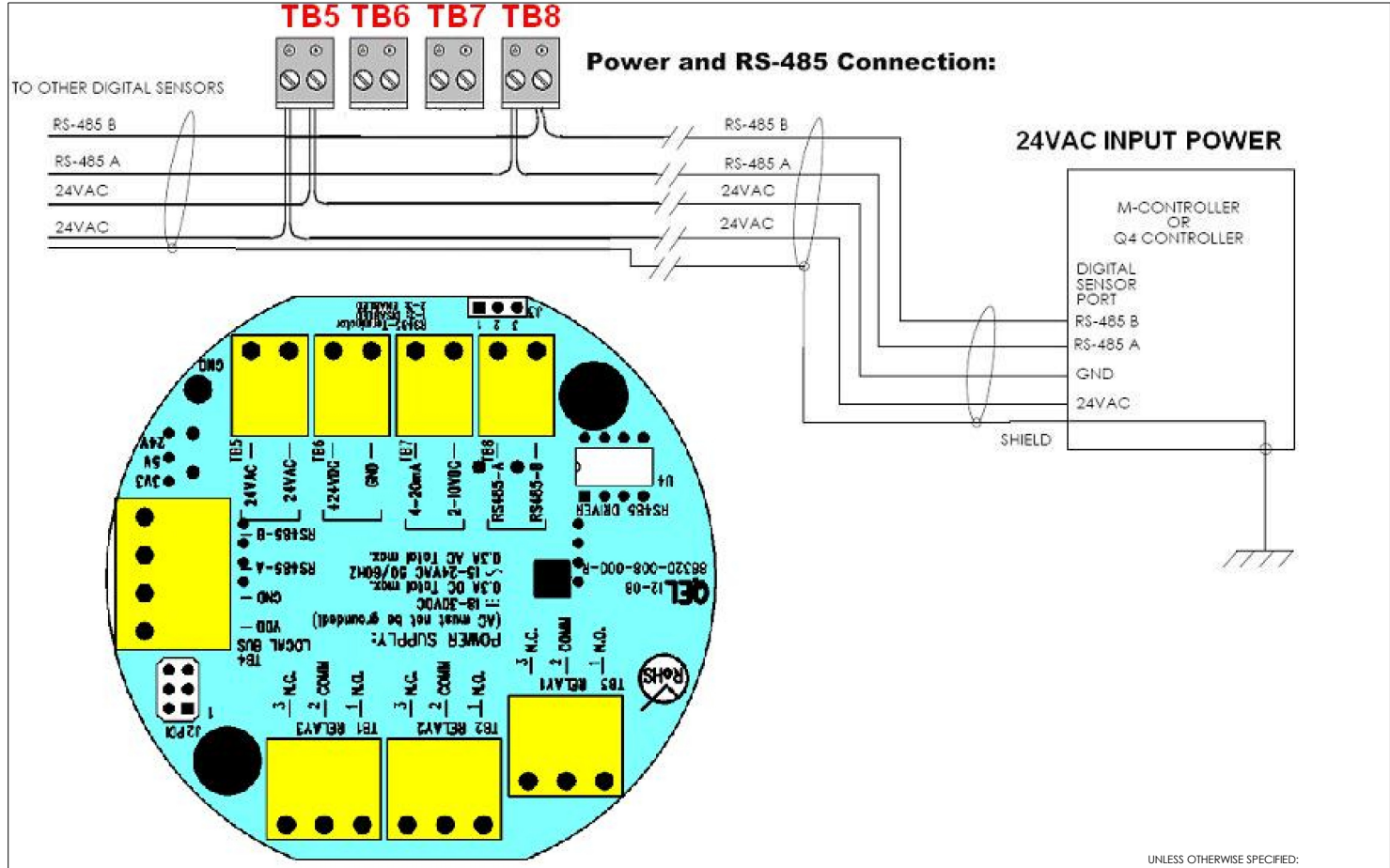
ENCLOSURE:
 Aluminium Pressure Die-Casting
 Entries: 2X 3/4 NPT

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UNLESS OTHERWISE SPECIFIED:		NAME	DATE	Greystone Energy Systems Inc.
DIMENSIONS ARE IN INCHES		DRAWN	2024/11/15	
TOLERANCES:		CHECKED	2024/11/15	TITLE: Q8, GES INSTALLATION DRAWING
FRACTIONAL: ± 1/32		ENG APPR.	2024/11/15	
ANGULAR: MACH ± .5 degrees BEND ± TWO PLACE DECIMAL ± .02 THREE PLACE DECIMAL ± .010		MFG APPR.		
INTERPRET GEOMETRIC TOLERANCING PER:		Q.A.		SIZE DWG. NO. REV B 86350-002-005 A
MATERIAL		COMMENTS:		
NEXT ASSY	USED ON	FINISH		SCALE: 1:8 WEIGHT: SHEET 1 OF 7
APPLICATION		DO NOT SCALE DRAWING		

Power and RS-485 Connection with M-Controller or Q4C

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



The Q8 power supply voltage requirements are nominally 24VAC or 24VDC.

The Q8 has full wave rectifier and half wave rectifier on board. If the Q8 connects to a controller, 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.

- GES Q-Controller uses half-wave rectifier only, M-Controller uses full-wave rectifier only, so the Q8 can work with both controllers
- When the Q8 shares a common AC source with a Q-Controller, use the half wave rectifier connector TB6 (24VDC)
- When the Q8 shares a common AC source with an M-Controller or Q4 Controller, use the full wave rectifier connector TB5 (24VAC)

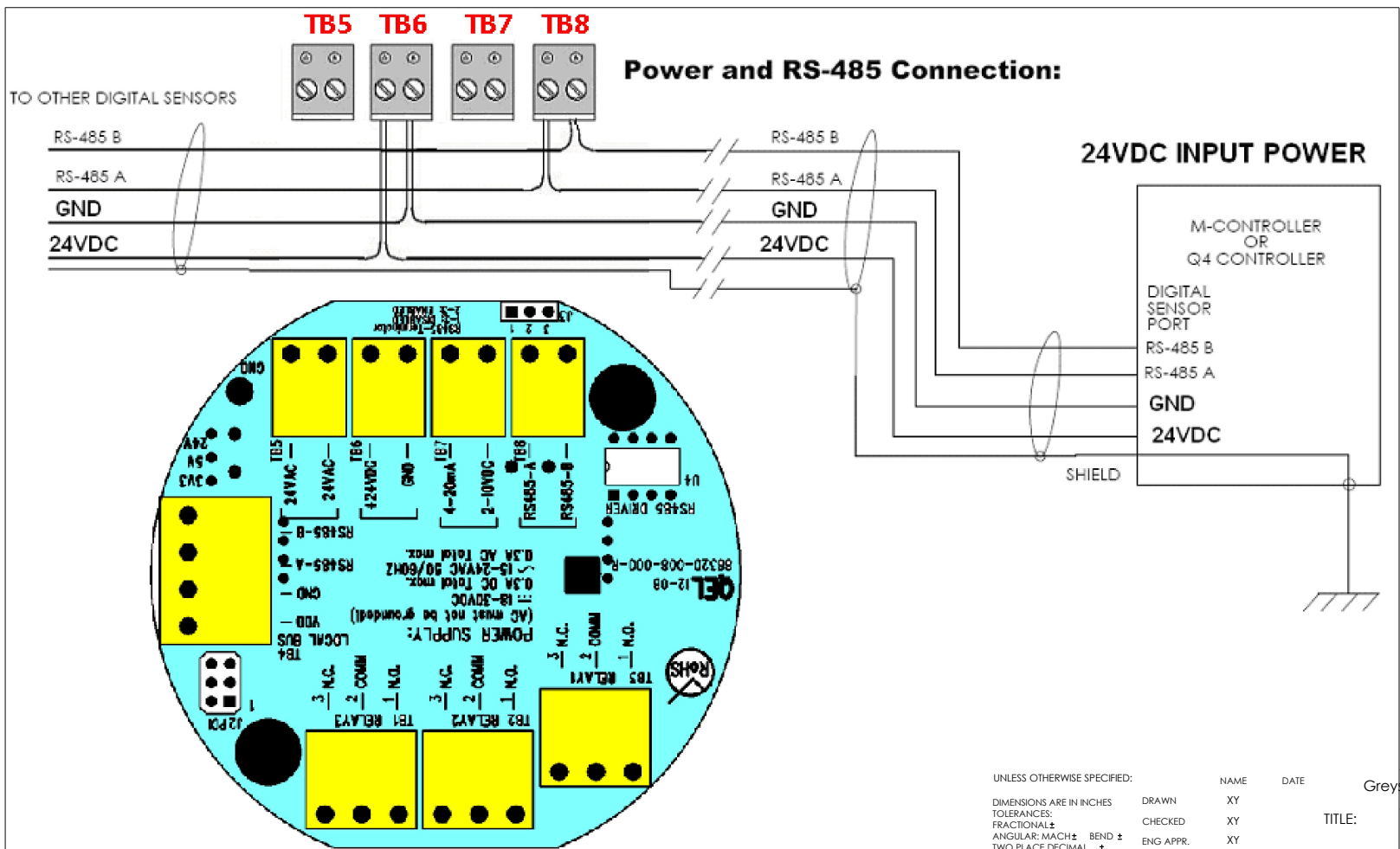
NOTE:
1. GROUND THE SHIELD IN CONTROLLER SIDE
2. GROUND ON ONE END ONLY

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UNLESS OTHERWISE SPECIFIED:		NAME	DATE	Greystone Energy Systems Inc.
DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ± ANGULAR: MACH ± BEND ± TWO PLACE DECIMAL ± THREE PLACE DECIMAL ±		DRAWN	XY	
INTERPRET GEOMETRIC TOLERANCING PER: MATERIAL		CHECKED	XY	Q8, GES INSTALLATION DRAWING
FINISH		ENG APPR.	XY	
NEXT ASSY	USED ON	MFG APPR.		B 86350-002-005 A
APPLICATION		Q.A.		SCALE: 1:2 SHEET 2 OF 7
DO NOT SCALE DRAWING		COMMENTS:		

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

Power and RS-485 Connection with M-Controller or Q4C



UNLESS OTHERWISE SPECIFIED:		NAME	DATE	Greystone Energy Systems Inc.
DIMENSIONS ARE IN INCHES		DRAWN	XY	
TOLERANCES:		CHECKED	XY	TITLE:
FRACTIONAL ±		ENG APPR.	XY	
ANGULAR: MACH ± BEND ±		MFG APPR.		
TWO PLACE DECIMAL ±				
THREE PLACE DECIMAL ±		Q.A.	XY	Installation Drawing
INTERPRET GEOMETRIC TOLERANCING PER:		COMMENTS:		
MATERIAL		SIZE B DWG. NO. 86350-002-005 REV A		
FINISH				
NEXT ASSY	USED ON	SCALE: 1:2 WEIGHT: SHEET 3 OF 7		
APPLICATION				
DO NOT SCALE DRAWING				

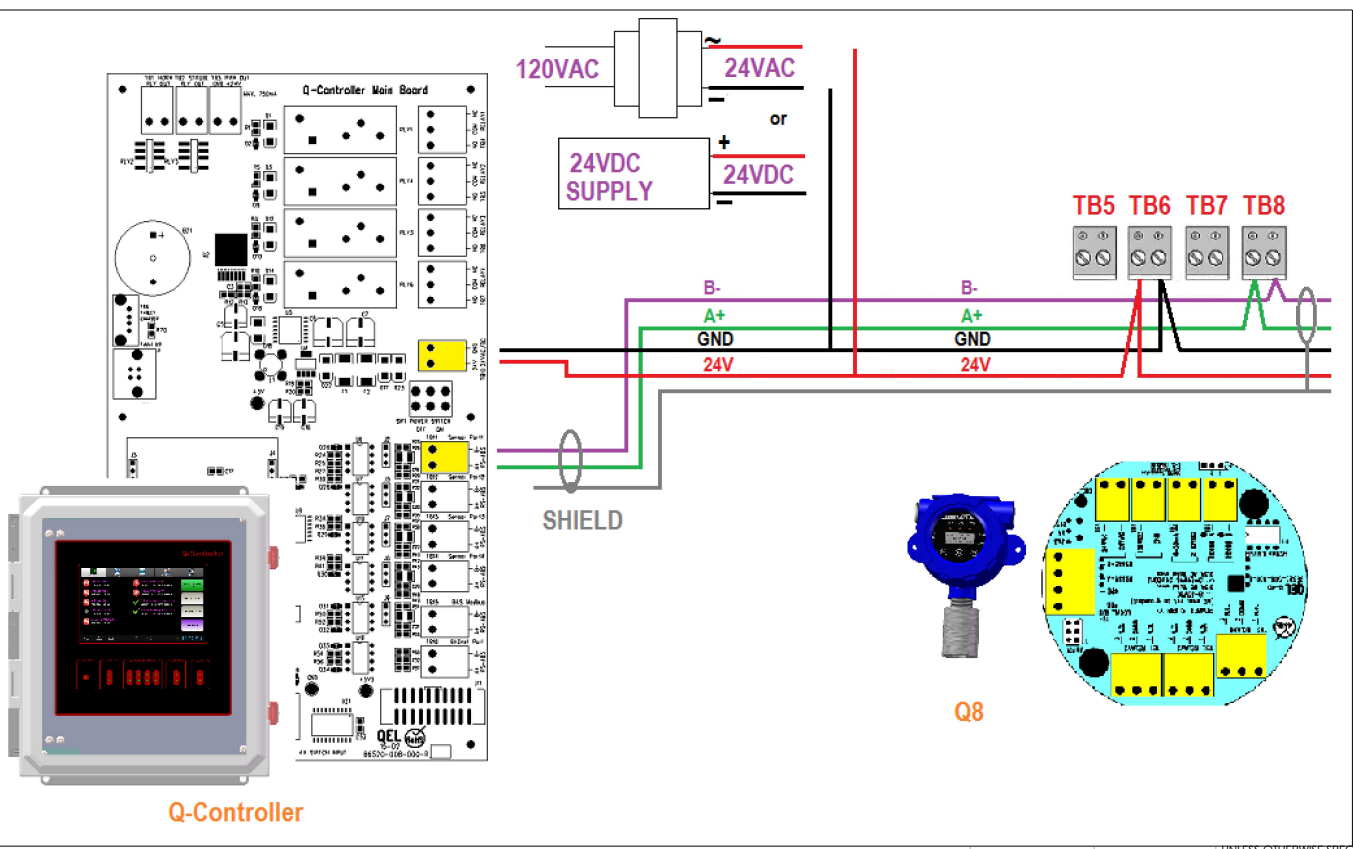
- NOTE:**
- GROUND THE SHIELD IN CONTROLLER SIDE
 - GROUND ON ONE END ONLY

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Power and RS-485 Connection with Q-Controller

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



The Q8 power supply voltage requirements are nominally 24VAC or 24VDC.

The Q8 has full wave rectifier and half wave rectifier on board. If the Q8 connects to a controller, 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.

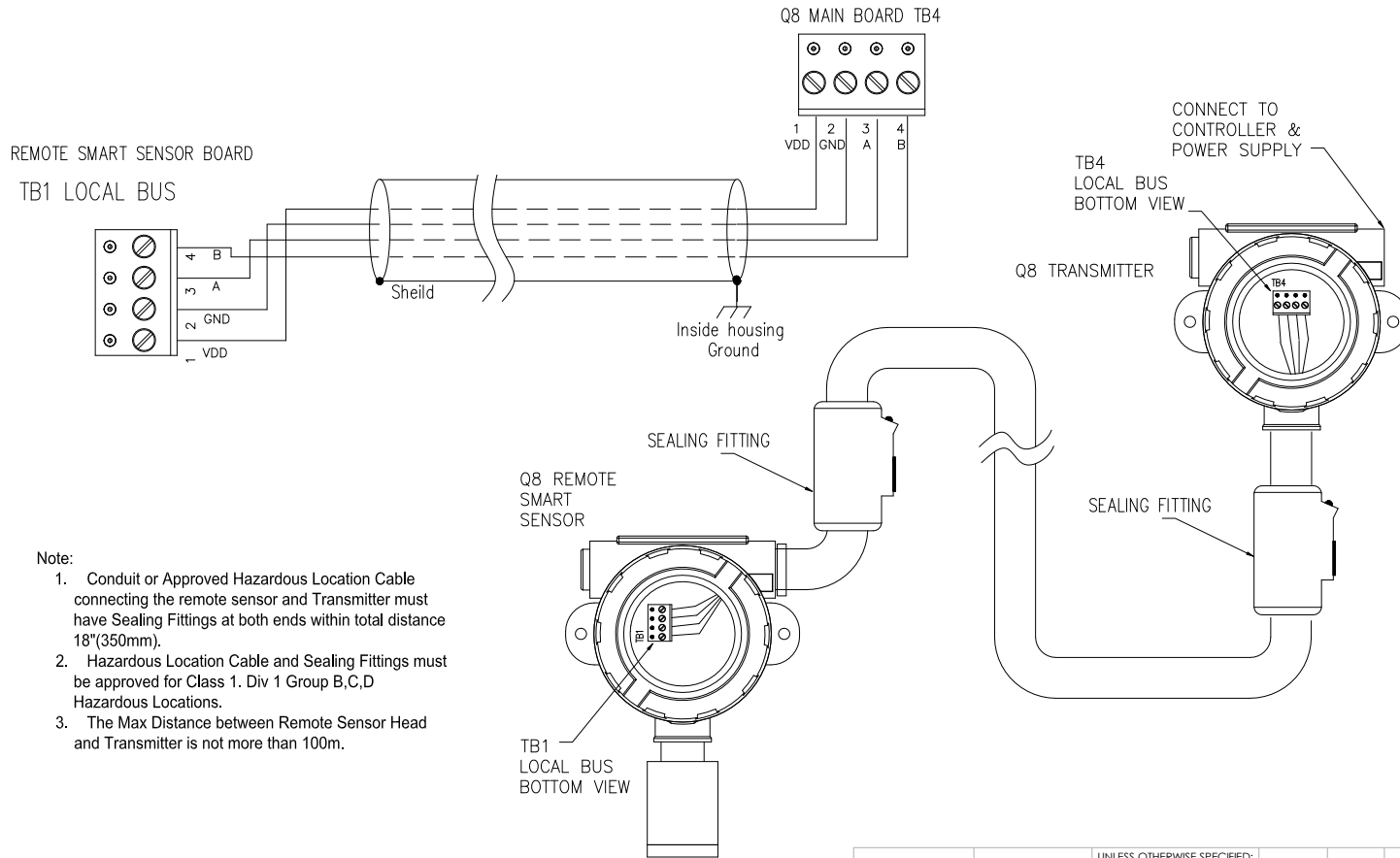
- GES Q-Controller uses half-wave rectifier only, M-Controller uses full-wave rectifier only, so the Q8 can work with both controllers
- When the Q8 shares a common AC source with a Q-Controller, use the half wave rectifier connector TB6 (24VDC)
- When the Q8 shares a common AC source with an M-Controller or Q4 Controller, use the full wave rectifier connector TB5 (24VAC)

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DIMENSIONS ARE IN INCHES		DRAWN	XY	
TOLERANCES:		CHECKED	XY	TITLE: Q8, GES Installation Drawing
FRACTIONAL: ±		ENG APPR.	XY	
ANGULAR: MACH ± BEND ±		MFG APPR.		
TWO PLACE DECIMAL ±		Q.A.	XY	SIZE: B
THREE PLACE DECIMAL ±		COMMENTS:		DWG. NO. 85950-002-005
INTERPRET GEOMETRIC TOLERANCING PER:				REV A
MATERIAL:				SCALE: 1:2 WEIGHT:
FINISH:				SHEET 4 OF 7
NEXT ASSY	USED ON			
APPLICATION		DO NOT SCALE DRAWING		

Q8 and Remote Smart Sensor Assembly Connection

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

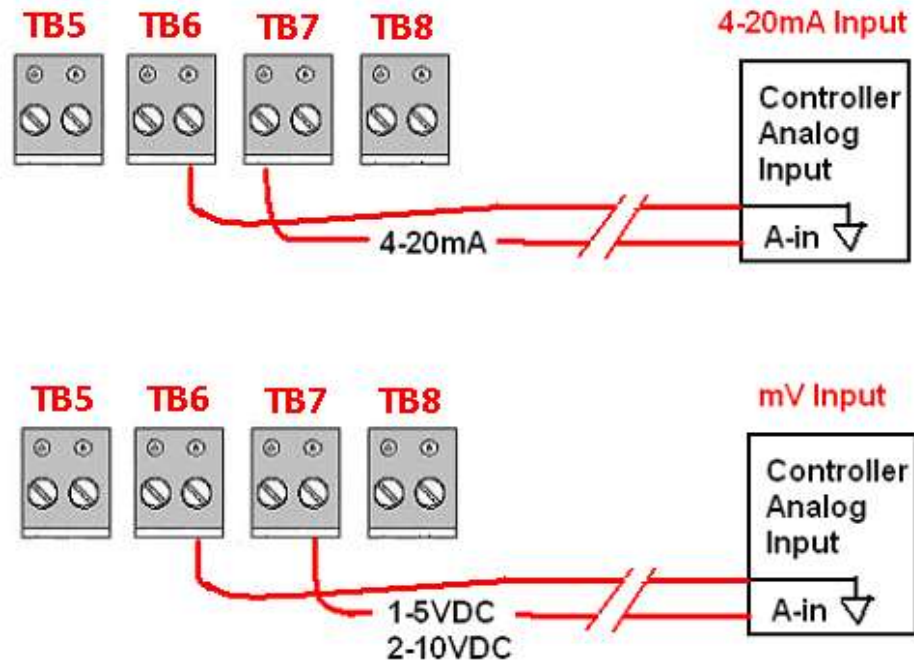
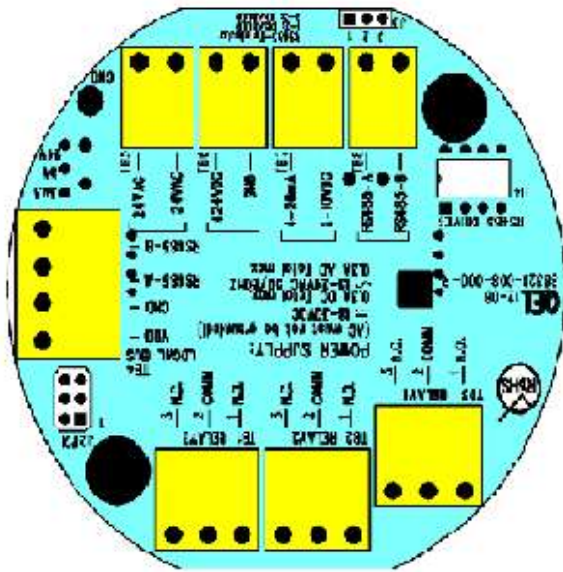


- Note:
1. Conduit or Approved Hazardous Location Cable connecting the remote sensor and Transmitter must have Sealing Fittings at both ends within total distance 18"(350mm).
 2. Hazardous Location Cable and Sealing Fittings must be approved for Class 1, Div 1 Group B,C,D Hazardous Locations.
 3. The Max Distance between Remote Sensor Head and Transmitter is not more than 100m.

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		UNLESS OTHERWISE SPECIFIED:		NAME	DATE	Greystone Energy Systems Inc.	
		DIMENSIONS ARE IN INCHES		DRAWN	XY	TITLE:	
		TOLERANCES:		CHECKED	XY	Q8, GES	
		FRACTIONAL ±		ENG APPR.	XY	INSTALLATION DRAWING	
		ANGULAR: MACH ± BEND ±		MFG APPR.		SIZE	
		TWO PLACE DECIMAL ±		Q.A.	XY	DWG. NO.	
		THREE PLACE DECIMAL ±		COMMENTS:		REV	
		INTERPRET GEOMETRIC TOLERANCING PER:				A	
		MATERIAL				SCALE: 1:2	
		FINISH				WEIGHT:	
NEXT ASSY	USED ON	DO NOT SCALE DRAWING				SHEET 5 OF 7	
APPLICATION							

4-20mA and VDC Output for Q8:



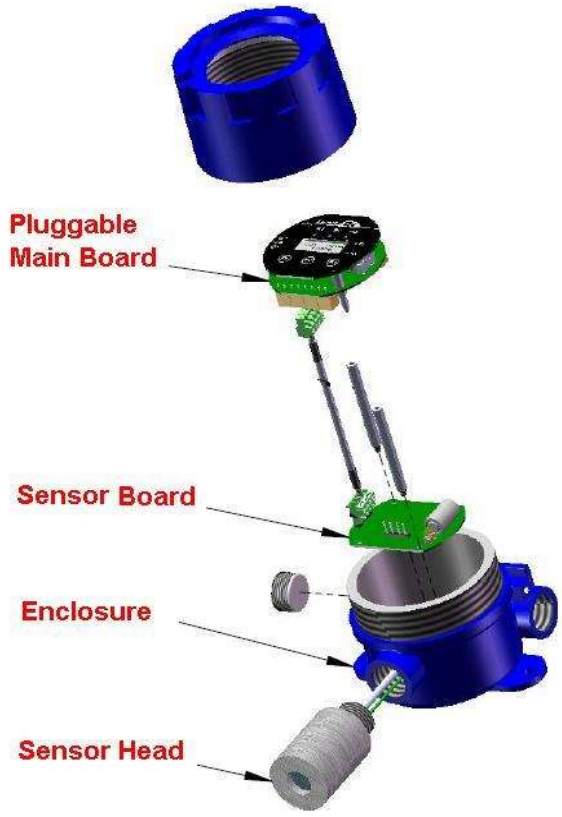
Q8 provides one channel 4-20 milliamp analog output and 1-5VDC or 2-10VDC analog output. The maximum output impedance is 600 ohms for 4-20mA output. The maximum current is 10 mA for VDC output.

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.

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		DIMENSIONS ARE IN INCHES		DRAWN	XY	TITLE:	
		TOLERANCES:		CHECKED	XY	Q8, GES	
		FRACTIONAL: ±		ENG APPR.	XY	INSTALLATION DRAWING	
		ANGULAR: MACH ± BEND ±		MFG APPR.		SIZE	
		TWO PLACE DECIMAL ±		Q.A.		DWG. NO.	
		THREE PLACE DECIMAL ±		COMMENTS:		REV	
		INTERPRET GEOMETRIC TOLERANCING PER:				86350-002-005	
		MATERIAL				A	
		FINISH				SCALE: 1:2	
NEXT ASSY	USED ON	DO NOT SCALE DRAWING				SHEET 6 OF 7	
APPLICATION							

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



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:

- 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.

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		DIMENSIONS ARE IN INCHES		DRAWN	XY	TITLE:		
		TOLERANCES:		CHECKED	XY	Q8, GES		
		FRACTIONAL: ±		ENG APPR.	XY	INSTALLATION DRAWING		
		ANGULAR: MACH ± BEND ±		MFG APPR.				
		TWO PLACE DECIMAL ±		Q.A.				
		THREE PLACE DECIMAL ±		COMMENTS:				
		INTERPRET GEOMETRIC TOLERANCING PER:				SIZE	DWG. NO.	REV
		MATERIAL				B	86350-002-005	A
NEXT ASSY	USED ON	FINISH				SCALE: 1:2		SHEET 7 OF 7
APPLICATION		DO NOT SCALE DRAWING						