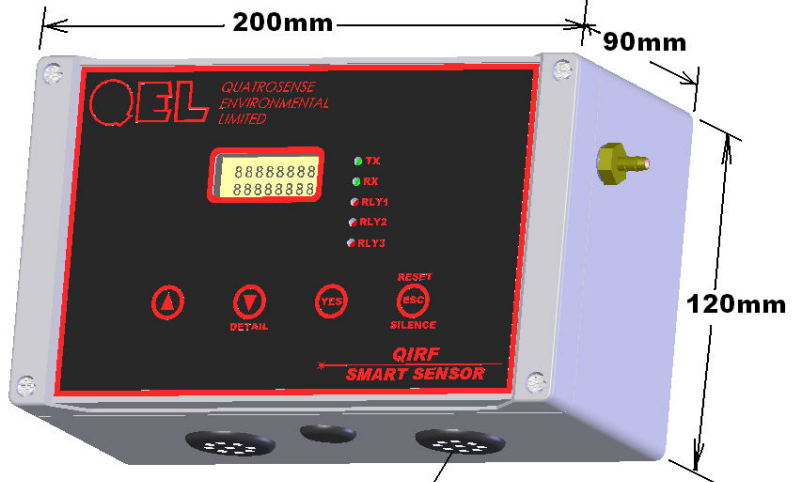


REVISIONS						
ECN	REV.	DESCRIPTION	DATE	DRAW	CHECK	APPROVED
	A	Initial Release	2011/03/09	XY	XY	XY



**CAUTION:**  
SENSOR OPENING MUST BE PROTECTED  
IN HEAVY WASHDOWN SITUATION

**SPECIFICATION**

**INPUT POWER:**  
+24VDC nominal, range: 18 to 30VDC 1.0A DC Total Max.  
~24VAC nominal, range: 15 to 24VAC 50/60HZ 1.0A AC Total Max.  
(AC must not be grounded)

**FUSE:**  
F1 on Display Board: Polyswitch 1.6A  
F2 on Display Board: Polyswitch 50mA  
Polyswitch device resets after the fault is cleared and power to the circuit is removed

**SENSOR:**  
INFRARED REFRIGERANT

**OUTPUT SIGNAL:**  
RS-485 with OPTIMUX PROTOCOL AND MODBUS PROTOCOL  
AVAILABLE CONTROLLER: M-CONTROLLER or Q4 CONTROLLER  
4-20mA Analog Output  
3X SPDT RELAYS: 1.0A MAX. @30VDC (RESISTIVE LOAD)  
0.3A MAX. @125VAC (RESISTIVE LOAD)

**ENCLOSURE:**  
IP 66 & NEMA 4, 4X, 12 & 13  
COVER SCREWS SHOULD BE TORQUED TO 2.5 lbs-in (30 cN-m)

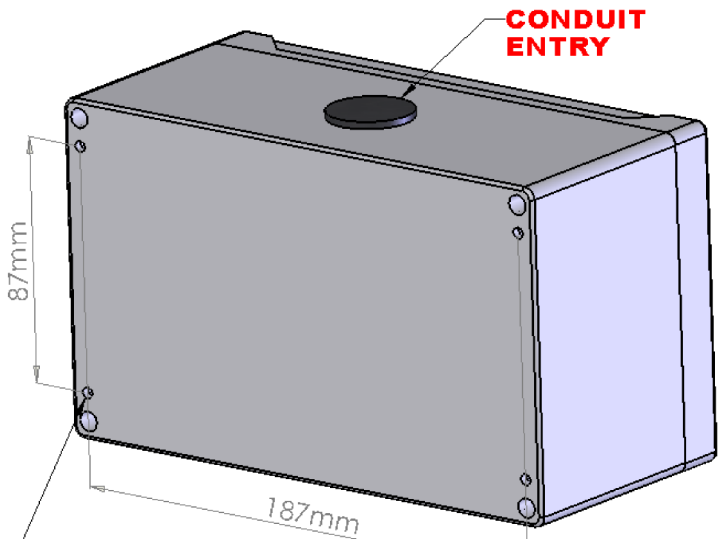
**OPERATING TEMPERATURE:**  
-45 °C TO 65 °C

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

**STORAGE TEMPERATURE:**  
-45 °C TO 70 °C

**SIZE:**  
200mm X 120mm X 90mm

**WEIGHT:**  
LESS THAN 1.5lbs ( 0.680 kg)



**MOUNTING HOLE**  
3.90mm X 4

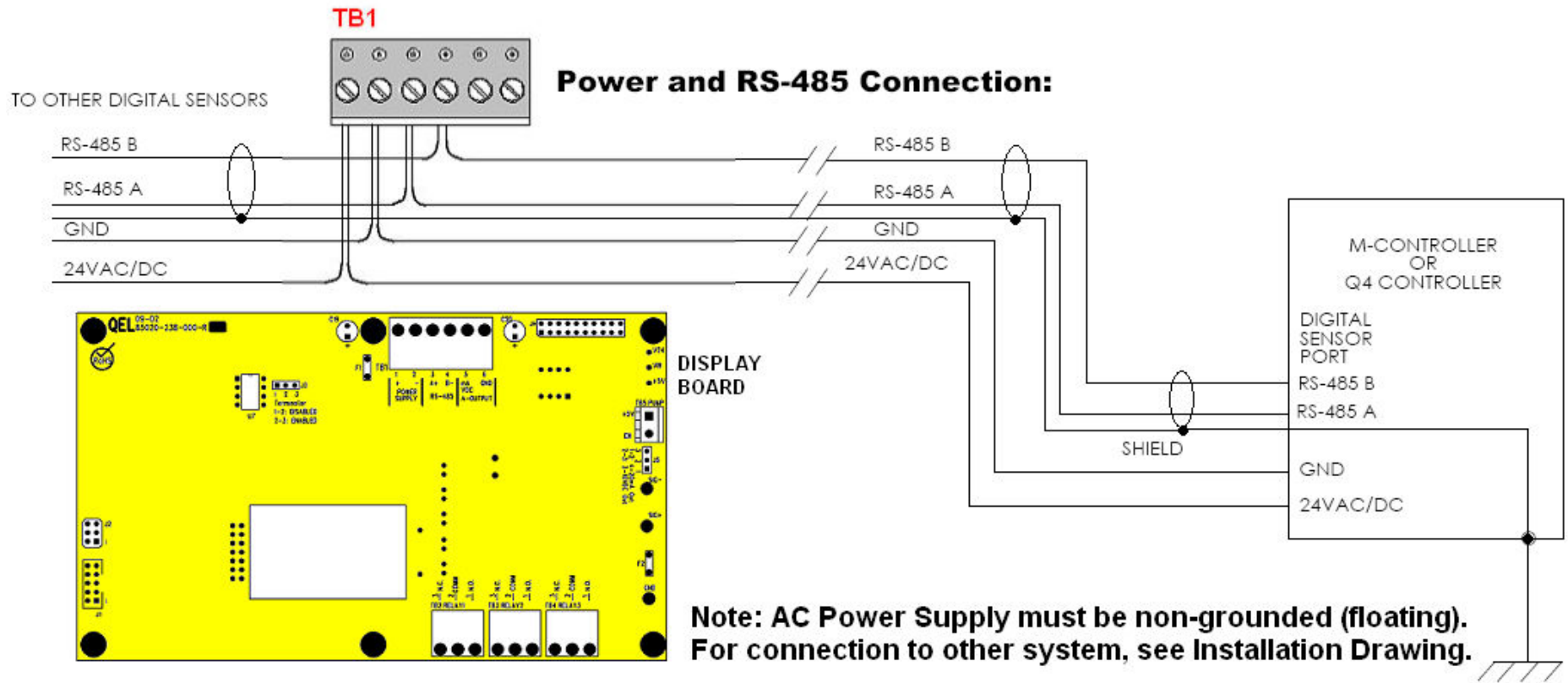
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		TOLERANCES:		CHECKED		2011/03/09			
		FRACTIONAL: ± 1/32		ENG APPR.		2011/03/09			
		ANGULAR: MACH ± .5 degrees BEND ± TWO PLACE DECIMAL ± .02 THREE PLACE DECIMAL ± .010		MFG APPR.					
		INTERPRET GEOMETRIC TOLERANCING PER:		Q.A.				SIZE DWG. NO. REV	
		MATERIAL		COMMENTS:				<b>B</b> 85050-302-000 <b>A</b>	
NEXT ASSY		USED ON		FINISH				SCALE: 1:2 WEIGHT: SHEET 1 OF 5	
APPLICATION		DO NOT SCALE DRAWING							

8 7 6 5 4 3 2 1

**Power and RS-485 Connection:**

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



**Note: AC Power Supply must be non-grounded (floating). For connection to other system, see Installation Drawing.**

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

**PROPRIETARY AND CONFIDENTIAL**

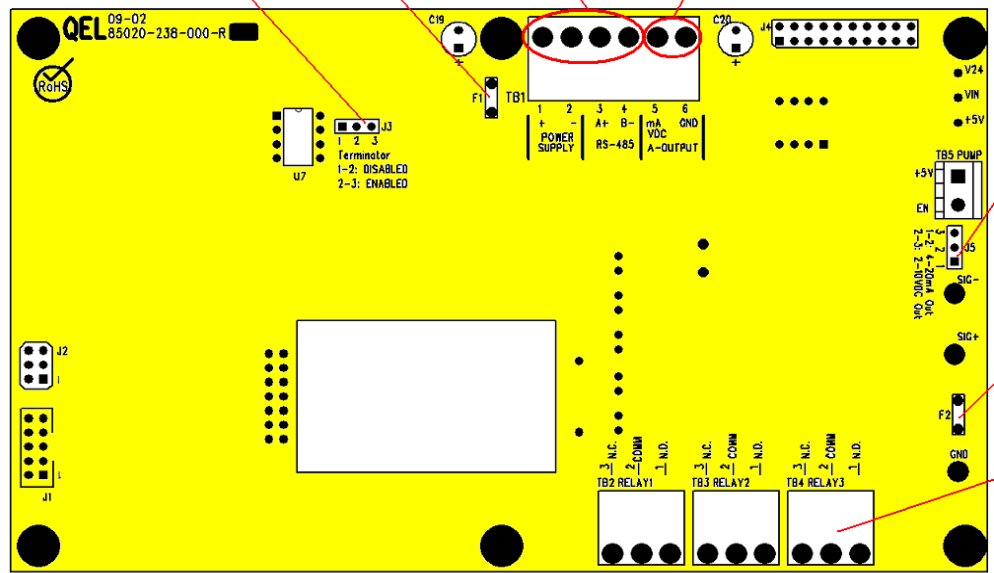
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		TWO PLACE DECIMAL ±		Q.A.					
		THREE PLACE DECIMAL ±		COMMENTS:					
		INTERPRET GEOMETRIC TOLERANCING PER:							
		MATERIAL							
		FINISH							
NEXT ASSY		USED ON						SIZE DWG. NO. REV	
								B 85050-302-000 A	
APPLICATION		DO NOT SCALE DRAWING						SCALE: 1:2 SHEET 2 OF 5	

8 7 6 5 4 3 2 1

8 7 6 5 4 3 2 1

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



**J3: JUMPER**  
RS-485 Terminator  
1-2: Disabled  
2-3: Enabled

**F1: Fuse 1.6A**

to M-Controller  
or Q4 Controller  
Smart Sensor Port

to other Controller  
Analog Input

**J5: Jumper**  
for TB1 5/6 pin  
Output

1-2: 4-20mA  
2-3: 2-10VDC

**F2: Fuse**  
50mA

**Relay1-3**  
Outputs

**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.

**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."

**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.

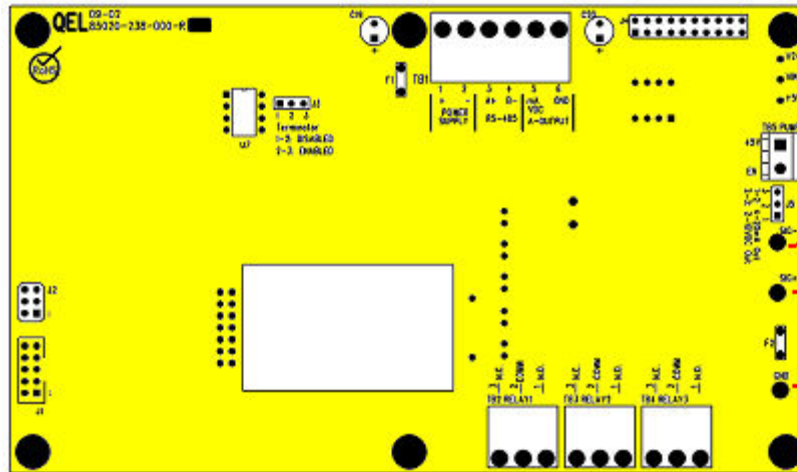
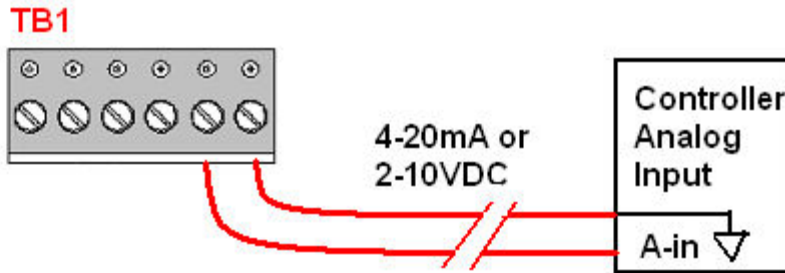
1. Air Currents: If there are fans, winds, or others sources of air movement, gases may tend to rise to collect in certain areas of a facility. The local air currents should be assessed to aid in selecting the sensor location. In outdoor situations considerations such as prevailing winds should be accounted for. Air convection can often be more important in determining gas concentrated areas than factors of Vapor Density.
2. Vapor Density: R11, R22, R123 and R134a are 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.

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		TWO PLACE DECIMAL ±		Q.A.					
		THREE PLACE DECIMAL ±		COMMENTS:					
		INTERPRET GEOMETRIC TOLERANCING PER:							
		MATERIAL							
		FINISH							
NEXT ASSY		USED ON							
APPLICATION		DO NOT SCALE DRAWING							
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		SIZE		DWG. NO.		REV			
		B		85050-302-000		A			
		SCALE: 1:2				SHEET 3 OF 5			

8 7 6 5 4 3 2 1

# 4-20mA Output:



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

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

Test point SIG+ and SIG- are used to measure the current online when the IR-FREON-D is working in the field.

- Jump J5 2-3 : 2-10VDC Output
- Jump J5 1-2 : 4-20mA Output (Default)

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		TWO PLACE DECIMAL ±		Q.A.			
		THREE PLACE DECIMAL ±		COMMENTS:			
		INTERPRET GEOMETRIC TOLERANCING PER:					
		MATERIAL					
		FINISH					
NEXT ASSY	USED ON					SIZE <b>B</b> DWG. NO. 85050-302-000 REV A	
APPLICATION		DO NOT SCALE DRAWING				SCALE: 1:2 SHEET 4 OF 5	

