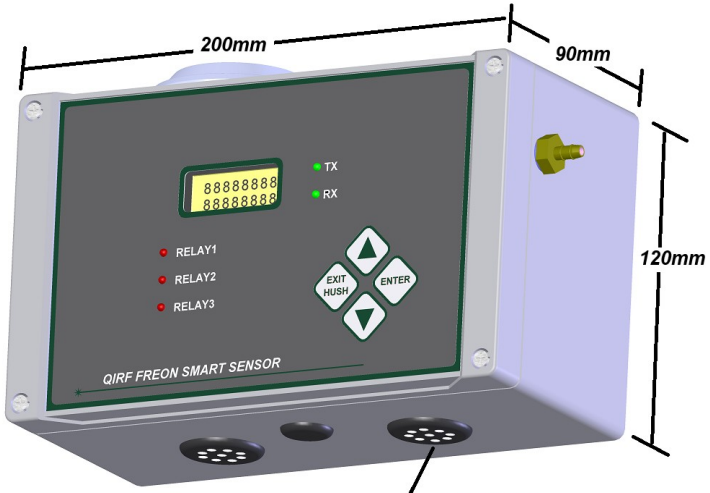
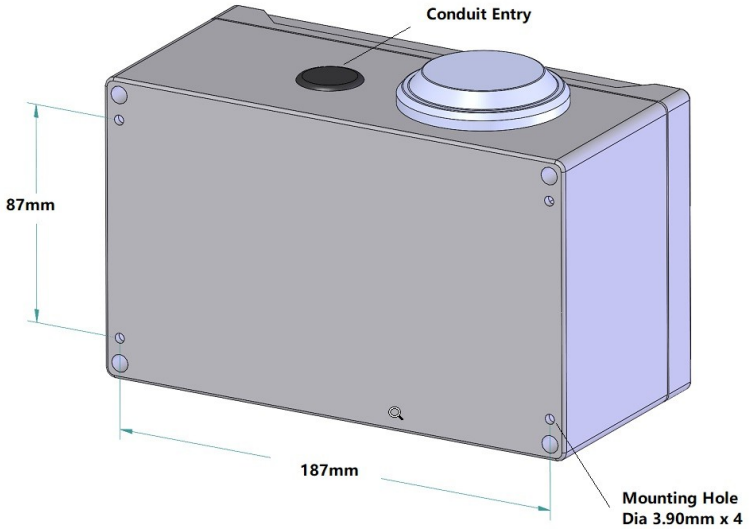
REVISIONS						
ECN	REV.	DESCRIPTION	DATE	DRAW	CHECK	APPROVED
1264	A	Initial Release	2024/10/16	XY	XY	XY





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.
Note: QIRF-II has full-wave rectifier and half-wave rectifier circuit on board for flexibility. 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.

FUSE:
F1 Polyswitch 750mA, F2 Polyswitch 750mA
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, Modbus RTU Protocol and BACnet MS/TP Protocol
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 50 °C

AMBIENT HUMIDITY:
5% to 95% RH (Non-Condensing)

STORAGE TEMPERATURE:
-45 °C TO 55 °C

SIZE:
200mm X 120mm X 90mm

WEIGHT:
LESS THAN 1.5lbs (0.680 kg)

UNLESS OTHERWISE SPECIFIED:
DIMENSIONS ARE IN INCHES
TOLERANCES:
FRACTIONAL ± 1/32
ANGULAR:
MACH ± .5 degrees BEND ± .5 degrees
TWO PLACE DECIMAL ± .02
THREE PLACE DECIMAL ± .010
INTERPRET GEOMETRIC TOLERANCING PER:
MATERIAL
FINISH
NEXT ASSY | USED ON
APPLICATION | DO NOT SCALE DRAWING

	NAME	DATE
DRAWN	XY	2024/10/16
CHECKED	XY	2024/10/16
ENG APPR.	XY	2024/10/16
MFG APPR.		
Q.A.		
COMMENTS:		

Greystone Energy Systems Inc.

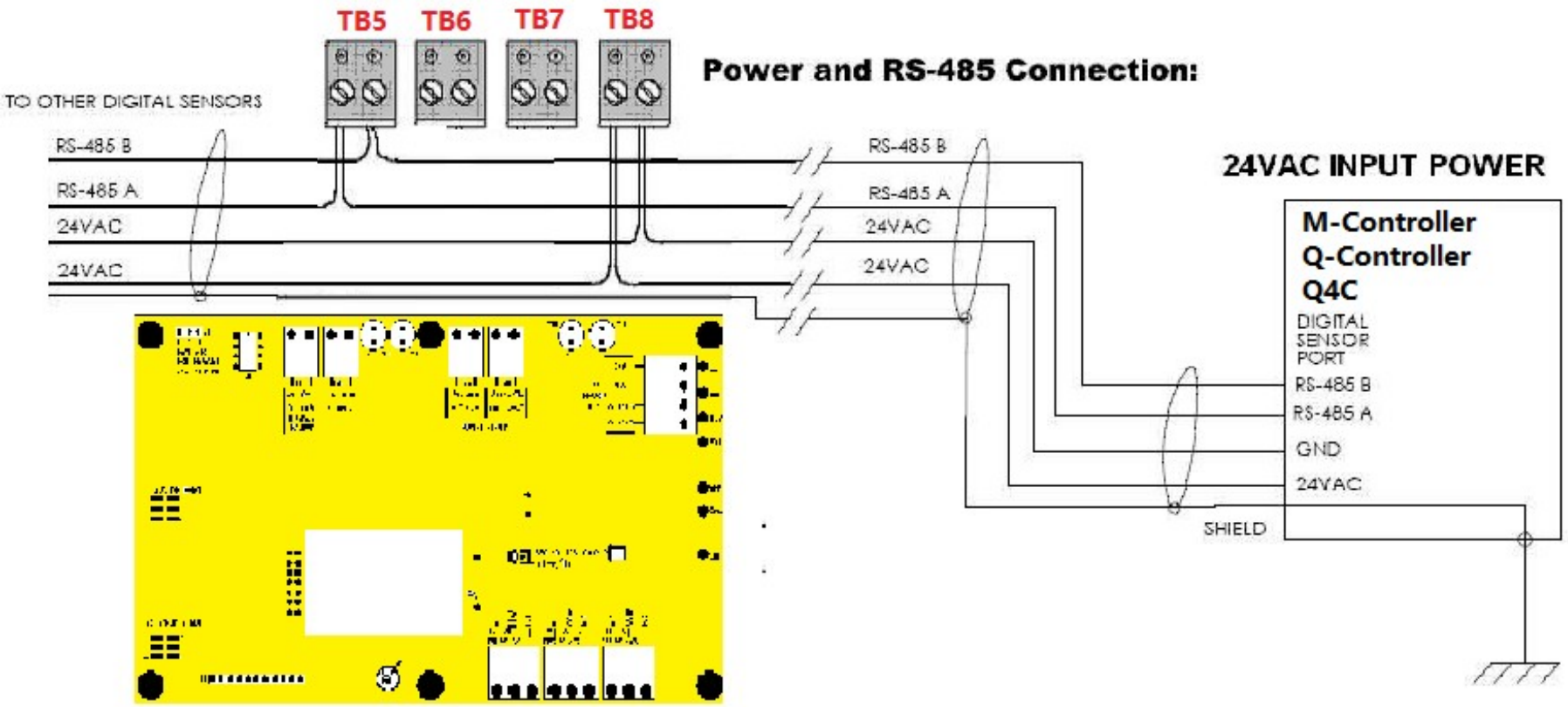
TITLE:
QIRF-II, GES
INSTALLATION DRAWING

SIZE	DWG. NO.	REV
B	85050-402-005	A

SCALE: 1:2 | WEIGHT: | SHEET 1 OF 4

Power and RS-485 Connection:

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



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

NEXT ASSY	USED ON	
APPLICATION		DO NOT SCALE DRAWING

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
DRAWN	XY	2024/10/16
CHECKED	XY	2024/10/16
ENG APPR.	XY	2024/10/16
MFG APPR.		
Q.A.		

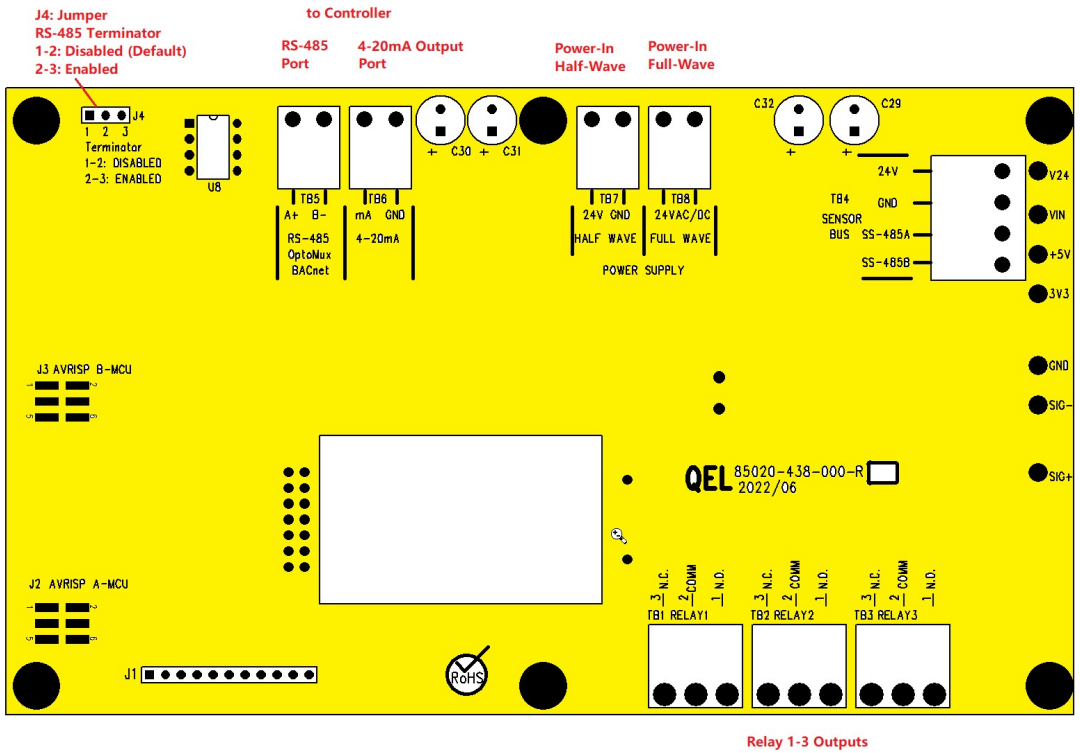
COMMENTS:

Greystone Energy Systems Inc.

TITLE:
QIRF-II, GES
INSTALLATION DRAWING

SIZE	DWG. NO.	REV
B	85050-402-005	A

SCALE: 1:2 | SHEET 2 OF 4



Relay 1-3 Outputs

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."

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

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.

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	2024/10/16
CHECKED	XY	2024/10/16
ENG APPR.	XY	2024/10/16
MFG APPR.		
Q.A.		

COMMENTS:

Greystone Energy Systems Inc.

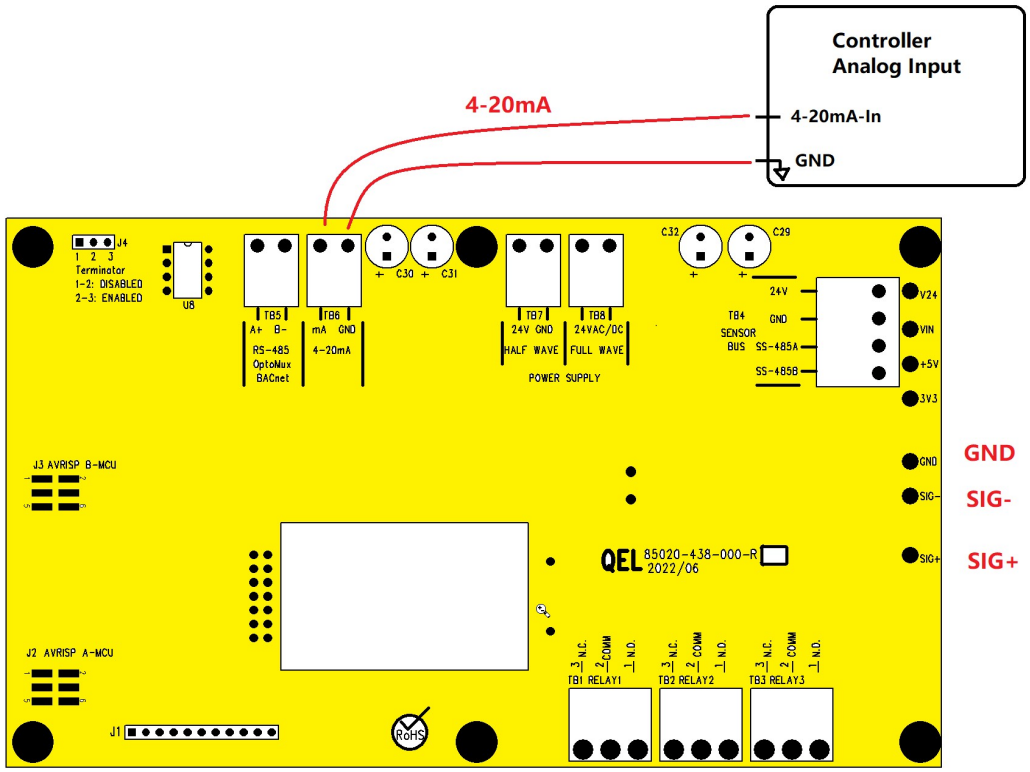
TITLE:
QIRF-II, GES
INSTALLATION DRAWING

SIZE	DWG. NO.	REV
B	85050-402-005	A

SCALE: 1:2 | SHEET 3 OF 4

4-20mA Output:

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



QIRF-II provides one channel 4-20 milliamp analog output. The maximum output impedance is 600 ohms.

Test point SIG+ and SIG- are used to measure the current online when the QIRF-II is working in the field.

		UNLESS OTHERWISE SPECIFIED:		NAME	DATE
		DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ± ANGULAR: MACH ± BEND ± TWO PLACE DECIMAL ± THREE PLACE DECIMAL ±	DRAWN	XY	2024/10/16
			CHECKED	XY	2024/10/16
			ENG APPR.	XY	2024/10/16
			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:

QIRF-II, GES
INSTALLATION DRAWING

SIZE	DWG. NO.	REV
B	85050-402-005	A

SCALE: 1:2 | SHEET 4 OF 4