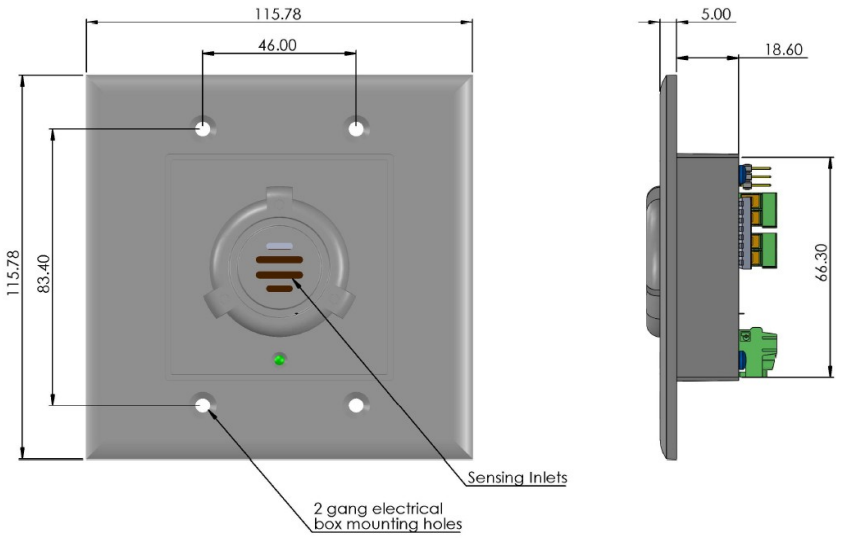
REVISIONS						
ECN	REV.	DESCRIPTION	DATE	DRAW	CHECK	APPROVED
1274	A	Initial Release	2024/10/23	XY	XY	XY

Specification:

Power Supply	Voltage: 24VDC nominal, range 18 to 30VDC 24VAC nominal, range 15 to 24VAC 50/60HZ **Note: QVRF has a half-wave rectifier circuit 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.** Current: max. 0.4 A (normal working mode)
Fuse	F1 on the Main Board: Polyswitch 750mA Polyswitch device resets after the fault is cleared and power to the circuit is removed.
Enclosure	IP54 ratings with splashing guard
Environmental conditions	Location: Indoor use only Altitude: Up to 2 000 m Temperature: -40 °C to 70 °C Relative Humidity: 0 to 95% RH (non-condensing)
Measure Range	0 – 50%LFL R32, R454A, R454B, R454C
LED Indicator	Green blinking: Normal status with communication Yellow flash: Sensor Fault Red flash: Alarm and purge
Accuracy	+/- 2.5%LFL at 0 – 25%LFL standard measurement range +/- 5.0%LFL at 25 – 50%LFL extended measurement range
Storage Temperature	-45 to 85C
Relay Output	2 Relays SPDT, Dry contacts, Relay1 & 2 • 1.0A maximum at 30 VDC (resistive load) • 0.3A maximum at 125VAC (resistive load) Relay1 is switched on when concentration > 20%LFL Relay1 is switched off when concentration < 15%LFL Relay2 is switched on when any fault happens
Buzzer	When relay1 is ON, the buzzer is on • 50 db at 10 cm, 2700 Hz

Digital Output	RS-485 OptoMux protocol • Connect to Controller: M-Controller, Q-Controller, or Q4 Controller RS-485 with Modbus RTU protocol Default: Address 3, OptoMux, Baud rate: 4800bps
Size	150mm x 150mm x 50mm
Weight	Less than 0.5lbs
Mounting Box	2 Gang electrical box **(Not included)**

Unit: mm



NEXT ASSY	USED ON	
APPLICATION		DO NOT SCALE DRAWING

UNLESS OTHERWISE SPECIFIED:
DIMENSIONS ARE IN INCHES
TOLERANCES:
FRACTIONAL ± 1/32
ANGULAR:
MACH ± .5 degrees BEND ± .02
TWO PLACE DECIMAL ± .010
THREE PLACE DECIMAL ± .010
INTERPRET GEOMETRIC TOLERANCING PER:
MATERIAL
FINISH

	NAME	DATE
DRAWN	XY	2024/08/15
CHECKED	XY	2024/08/15
ENG APPR.	XY	2024/08/15
MFG APPR.		
Q.A.		
COMMENTS:		

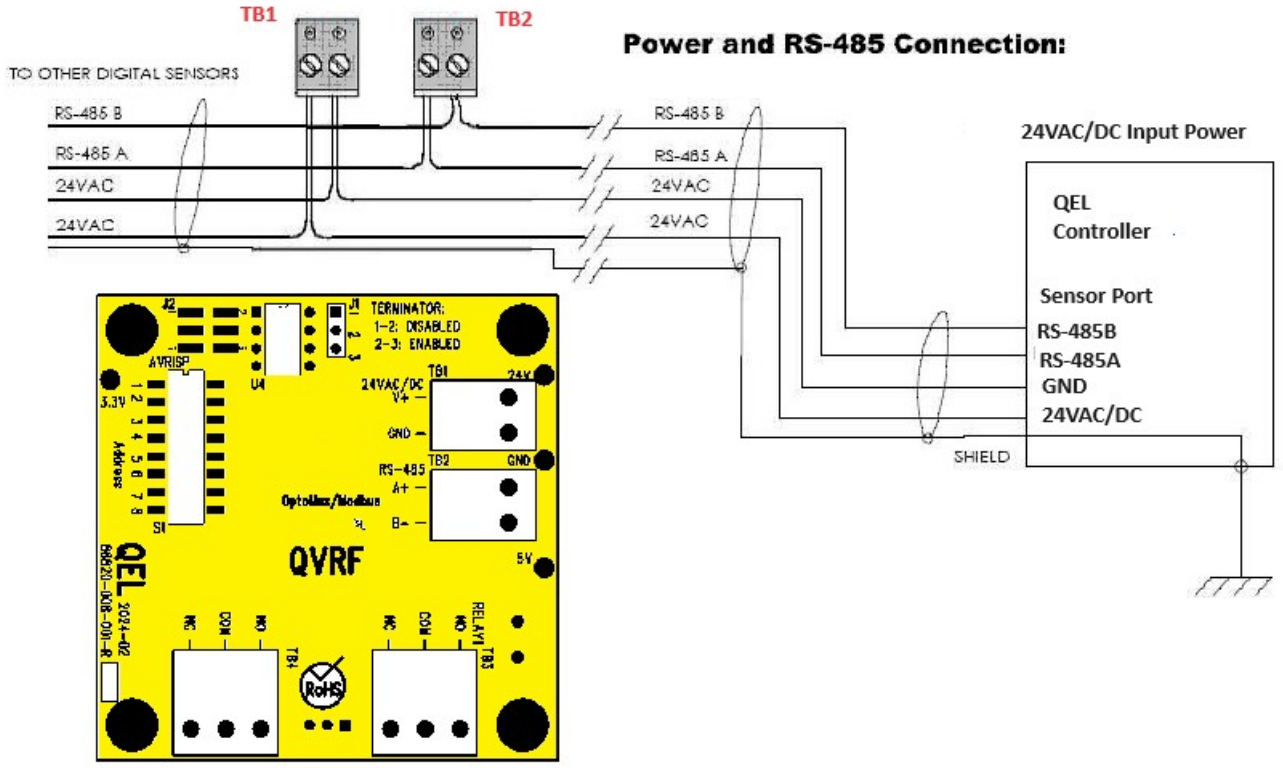
Greystone Energy Systems Inc.

TITLE:
QVRF, GES
INSTALLATION DRAWING

SIZE	DWG. NO.	REV
B	86850-002-005	A

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

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	2024/08/15
CHECKED	XY	2024/08/15
ENG APPR.	XY	2024/08/15
MFG APPR.		
Q.A.		

COMMENTS:

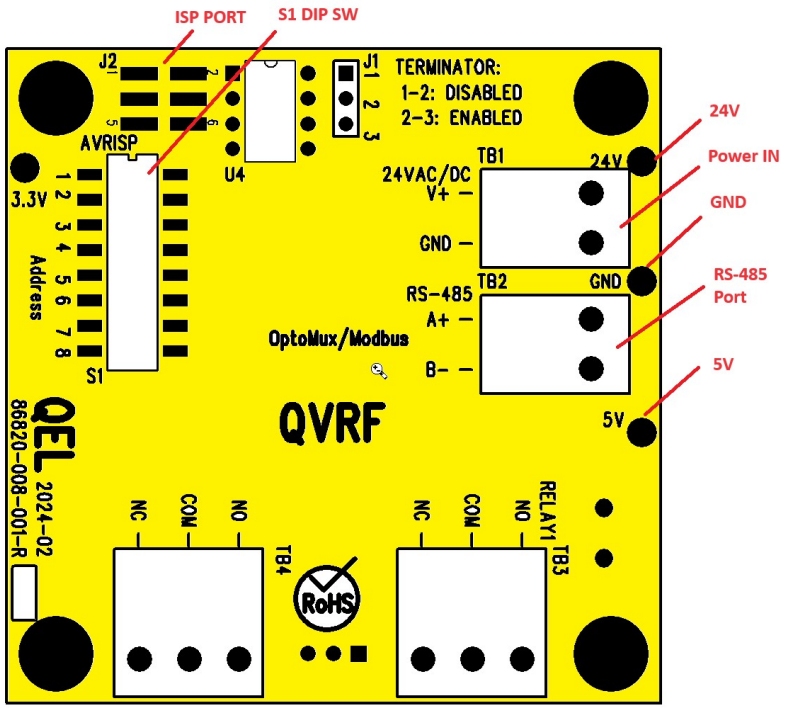
Greystone Energy Systems Inc.

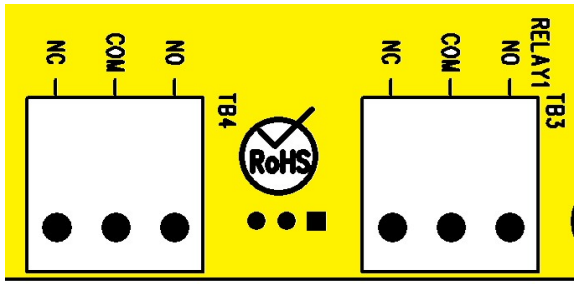
TITLE:
QVRF, GES
INSTALLATION DRAWING

SIZE	DWG. NO.	REV
B	86850-002-005	A

SCALE: 1:2 | SHEET 2 OF 4

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





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.

Installation Note on Terminal Block

- Remove the terminal block from the pin headers before wiring the terminal blocks. Torquing the terminal screws while attached to the pin header can damage the contact and can also cause loose connections.
- Don't over-torque the terminal block screws. If available, use a torque screwdriver to tighten the screw to 0.4NM.

Relays Output

QVRF is equipped with two Single-Pole Double-Throw (SPDT) Relays on board, which can make it work alone to control other equipment, such as fans, lights, horns, or visual alarm indicators in different applications.

Switching capability of each relay TB3/TB4 is:

- 1.0 A maximum resistive load at 30 VDC
- 0.3A maximum resistive load at 125VAC

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	2024/08/15
CHECKED	XY	2024/08/15
ENG APPR.	XY	2024/08/15
MFG APPR.		
Q.A.		
COMMENTS:		

Greystone Energy Systems Inc.

TITLE:
QVRF, GES
INSTALLATION DRAWING

SIZE	DWG. NO.	REV
B	86850-002-005	A

SCALE: 1:2 | SHEET 3 OF 4

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

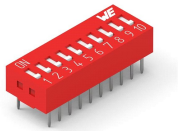
QVRF DIP Switch S1 Settings

SW-1	SW-2	SW-3	SW-4	SW-5	Address
OFF	OFF	OFF	OFF	OFF	0
ON	OFF	OFF	OFF	OFF	1
OFF	ON	OFF	OFF	OFF	2
ON	ON	OFF	OFF	OFF	3
OFF	OFF	ON	OFF	OFF	4
ON	OFF	ON	OFF	OFF	5
OFF	ON	ON	OFF	OFF	6
ON	ON	ON	OFF	OFF	7
OFF	OFF	OFF	ON	OFF	8
ON	OFF	OFF	ON	OFF	9
OFF	ON	OFF	ON	OFF	10
ON	ON	OFF	ON	OFF	11
OFF	OFF	ON	ON	OFF	12
ON	OFF	ON	ON	OFF	13
OFF	ON	ON	ON	OFF	14
ON	ON	ON	ON	OFF	15
OFF	OFF	OFF	OFF	ON	16
ON	OFF	OFF	OFF	ON	17
OFF	ON	OFF	OFF	ON	18
ON	ON	OFF	OFF	ON	19
OFF	OFF	ON	OFF	ON	20
ON	OFF	ON	OFF	ON	21
OFF	ON	ON	OFF	ON	22
ON	ON	ON	OFF	ON	23
OFF	OFF	OFF	ON	ON	24
ON	OFF	OFF	ON	ON	25
OFF	ON	OFF	ON	ON	26
ON	ON	OFF	ON	ON	27
OFF	OFF	ON	ON	ON	28
ON	OFF	ON	ON	ON	29
OFF	ON	ON	ON	ON	30
ON	ON	ON	ON	ON	31

SW-6	Protocol
OFF	OptoMux protocol
ON	Modbus protocol

SW-7	SW-8	Baud Rate
OFF	OFF	4800 bps
ON	OFF	9600 bps
OFF	ON	19200 bps
ON	ON	38400 bps

S1



DIP-SW Default Setting

- Address: 3, OptoMux, Baud rate: 4800bps

Alarm Settings

- Alarm set point is factory set and sealed with no field adjustment as required by IEC 60335-2-40
- Alarm is ON when gas concentrations > 20%LFL
- Alarm is OFF when gas concentrations < 15%LFL

Relays and Beeper Performance

- Relay1 is activated when Alarm is on or sensor fault
- **Relay1 will remain ON for 5 minutes after the alarm has reset to maintain the purge cycle which is required by the IEC/UL 60335-2-40, so the Relay1 can be used to switch on circulation fans to meet the requirements in Annex GG and LL of IEC/UL 60335-2-40**
- Relay2 is activated only when found sensor fault
- Beeper constant beeping when Alarm is on
- Beeper chirp once every 3 seconds when in purge cycle
- Beeper chirp twice every 10 seconds when found sensor fault

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:

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SCALE: 1:2 | SHEET 4 OF 4