2023

[INSTALLATION & OPERATION MANUAL]

TABLE OF CONTENTS

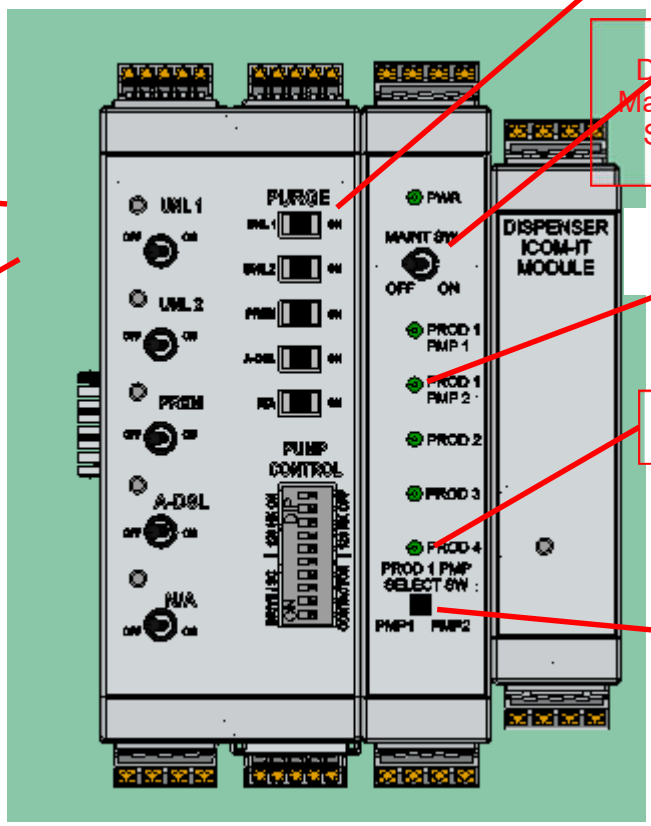
THIS PANEL IS SHIPPED IN PURGE MODE

The ISO Fuel panel has been developed to save time and money in the electrical installation of the fuel equipment while maintaining NEC 2017 compliance for fuel station control systems. This panel contains all of the power, contactors, work switches, and terminals needed for the fuel installation.

The exact hardware placement for your panel may differ from the illustrations in this installation manual due to the site-specific design of the ISO Fuel panel.

ANY **UNAUTHORIZED** CHANGES TO THE WIRING INSIDE THE PANEL WILL **VOID THE WARRANTY!**

1 ISO Fuel Module



(General Design, your layout may differ.)

1.1 Modules

All necessary controls for maintenance are located on the front of the ISO Fuel modules,

[1.1a & 1.1b]: At the left of the Pump control module there are submersible pump work switches with LED pilot devices. The work switches can be pushed to the left to turn off the submersible pump for maintenance or to remove from service. This function is in compliance with NEC 2017 requirements for fueling equipment.

[1.1c]: At the top right of the Pump control module there are PURGE slide switches. can be pushed to the right to turn on the submersible pump for Purge service.

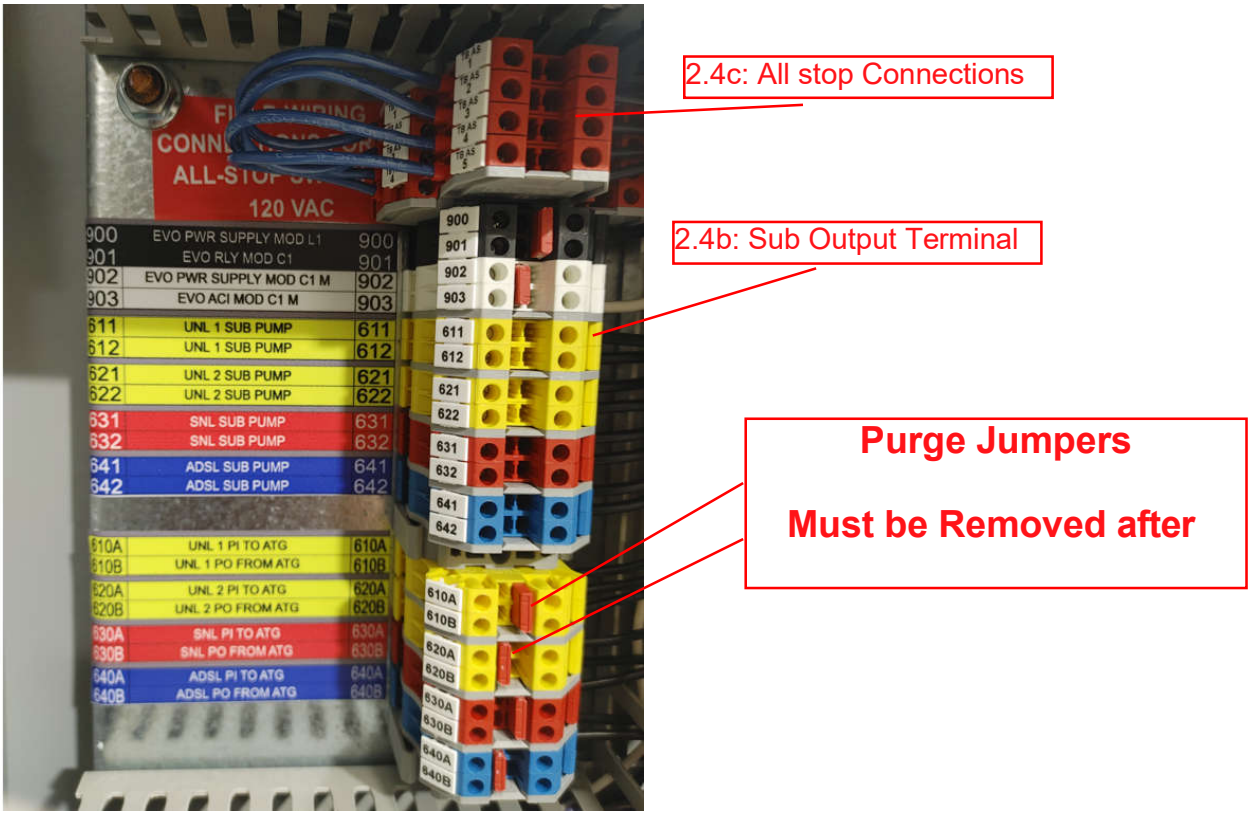
[1.1e]: At the top of the dispenser Module there are work switches for each dispenser. By pressing the switches to the left, all wiring to the dispenser will be disconnected, power and neutral, data and credit card. This function is in compliance with NEC 2017 requirements for fueling equipment.

[1.1f]: At the left side of the dispenser module there are work indicator lights for each dispenser., they will lite when the product is selected at the dispenser.

[1.1g]: At the bottom of the dispenser module there is a selector switch to choose which UNL pump will work with that dispenser.

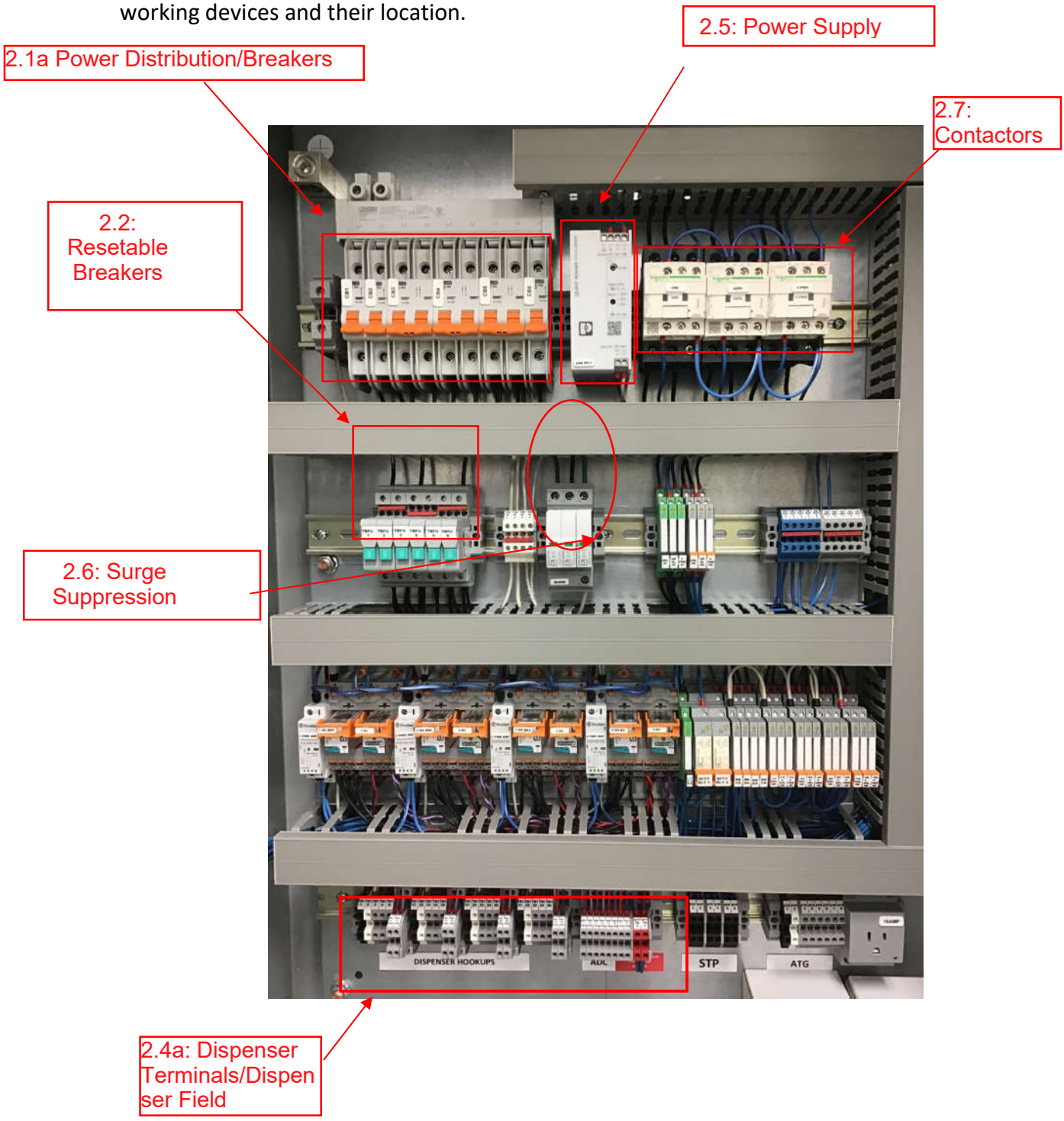
[1.1h]: There are Low Voltage or ICOM modules, they are powered by the corresponding dispenser module. By pressing the dispenser switches to the left, all wiring to the dispenser will be disconnected. This function is in compliance with NEC 2017 requirements for fueling equipment.

Figure 2.9c-1 EVO Interface Terminals



ISO Fuel Subpanel (Exact layout subject to site specific design)

The sub panel layout is a visual aid to allow for familiarization of the internal working devices and their location.



2.1 a ISO Fuel Power Distribution

This is the main power feed for the ISO Fuel control panel. This contains all necessary circuit breakers for fuel operations. ***The ISO Fuel power panel requires a 100A – 120/208 3 phase circuit.*** Any open spaces in the ISOFuel main power panel shall not be used for field wiring.

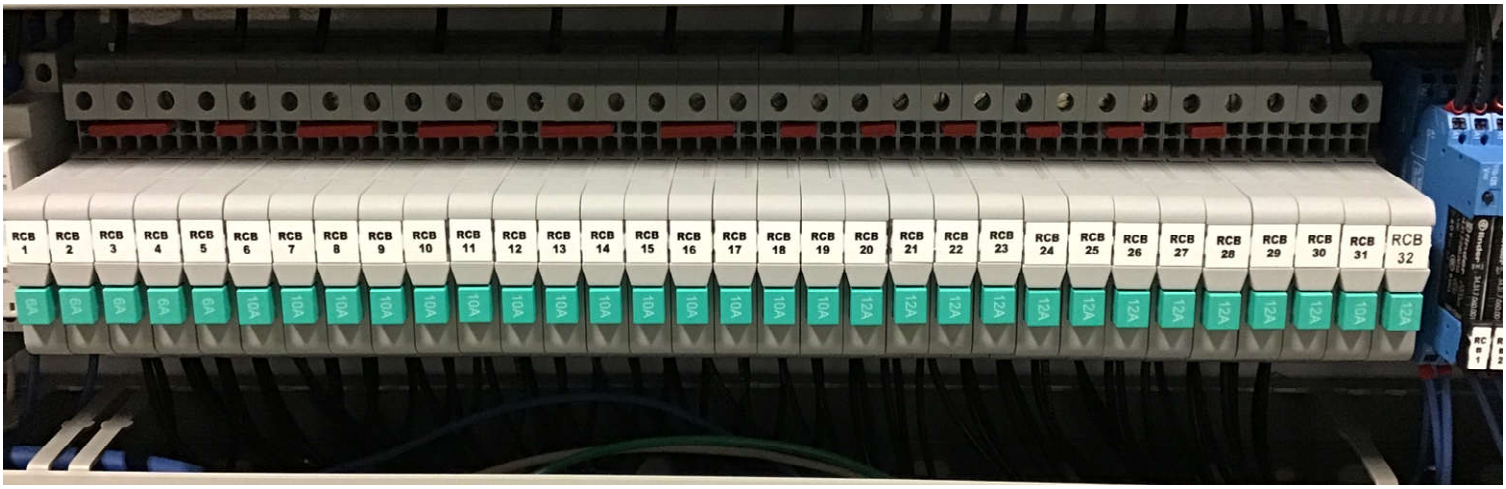
2.1 b Fuel Related Circuit Breakers

Circuit protection is provided for fuel related equipment. These circuit breakers feed each dispenser, submersible pump, site controllers, and monitoring system. ***The fueling equipment is feed from opposite phases and mechanical isolation is achieved in the panel. Field alterations can cause damage to dispensing equipment and/or the ISO Fuel panel.***

2.2 Resettable Circuit Breakers

These resettable circuit breakers fuse down the power to 6, 10, and 12 amps. The breaker

RCB1 will always be your control circuit. Each dispenser has its own breaker.

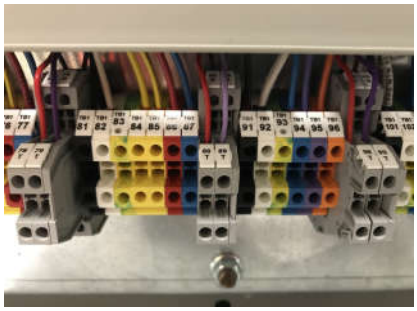


2.3 a & 2.3b Relay Banks

Each relay has the coil voltage listed next to the LED indicator light as well as a description label on the black removal handle***. Please make note of the coil voltage, if replacing a relay, as the physical properties are common between different voltages.***

2.3 a Dispenser Terminals

The dispenser terminals are color coded, and a legend is installed beneath the terminals for easier installation. Each dispenser terminal block will have 2 data connections and 2 credit card connections. The electricians will land the data and credit card wiring to the respective terminal noted by the legend.



2.4b Sub Output Terminals

These terminals are the output terminals for the field connection of the submersible pump motor leads. Depending on the site-specific configuration, the output terminals will be designed to feed an intermediate pump control device such as a VFD, VFC, Smart Controller, or some other device. If this design is used, a black and white terminal will accompany each set of output terminals, the black and white terminals will be used as the initiating circuit for the intermediate device. The initiating output voltage is 120VAC.

2.4 c All Stop Connections

The connection for the All Stop wiring is on the first 2 terminals on the left end of the main terminal strip. The All Stop circuit is a 24VDC closed loop circuit powered from the ISO Fuel panel and is designed to simultaneously disconnect power and related wiring to all fueling equipment. A single push button and enclosure is provided. Terminal jumpers are installed during the factory testing process and must be removed after the push button installation. All Stop terminals will require a normally closed contact, from the secondary device. These terminals will also have factory jumpers and if this secondary connection point is not used, the factory jumpers will need to stay in place for the main All Stop to function.

2.5 Power Supply

The power supply is a 120VAC-24VDC regulated source.

2.6 Surge Suppression

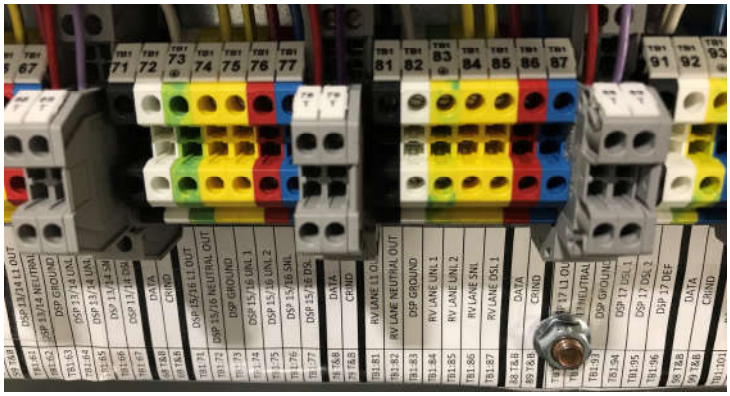
Surge suppression is a Type II device. Designed to protect the ISO Fuel, the surge suppression detects high continuous voltage and reroutes any transient voltage to ground. The surge device has a GREEN flag in the status window. **If the GREEN turns to a RED, then the device must be replaced and is no longer providing TVSS protection.** The ISO Fuel panel will continue to work with a failed surge device. If one of the status windows shows **RED** contact **ISO FUEL Tech Support.**

2.7 Submersible Contactors

These contactors are responsible for providing and breaking power to the submersible pumps. Contactors can be used to start and stop each submersible pump or they can be used to provide power to an external device, such as a VFC or Smart Controller. The functionality is per design and site specific.

2.8 Data/Credit Card Wiring Terminals

These terminals are used to bring the credit card and data wiring through the ISO Fuel control panel to tie in with the ESTOP and dispenser work switch. The 2 wire DATA is listed as (DATA) and the 2 wire CREDIT CARD is listed as (CRIND). ***Most applications have the D-Boxes factory installed on the door of the ISOFuel.***



2.8b Site Controller Terminals

These terminals are used to provide a field connection point for power to the Site Controller (D- Box, Commander, Fusion, etc.). Additional output terminals may be installed for other fuel-related devices. These output terminals are for 120VAC devices.
and are NOT controlled by the ESTOP circuit.

2.9b Automatic Tank Gage (Monitoring System)

These Terminals are to provide a field connection point for 120VAC power to the fuel monitoring system (Veeder Root, EVO, In-Con, etc.). The monitoring power circuit is phase matched with the main control power. ***Do not alter the ISO Fuel power distribution as damage to the monitoring system can occur.***

2.9c ATG Interface Wiring (EVO)

Terminals 900 through 904 are designed to connect to the AC Power Input, AC Relay Module and the AC Input Module in the EVO. Terminal 900 is the L1 and terminal 902 is the L2 for the main, 120VAC power into the EVO. Terminal 901 is a constant 120VAC connection that will terminate on the AC Relay Module – COM terminal for Relay Channel 1. Terminal 903 is a neutral wire that will terminate on the AC Input Module – COM, this will need to be daisy chained to all the COM terminals in the AC Input Module. **The COM connection points in the EVO on the AC Input Module and on the AC Relay Module, ARE NOT THE SAME.** Failure to connect these as described above can result in equipment failure. Terminal 904 will connect to the NO terminal in the AC Relay Module – Channel 1. This connection is the Purge/RS485 input to the ISO Fuel. When the panel leaves the factory it is in PURGE mode, which means that the product hook signals are directed to the SCIs, SCIIIs and/or the MAG VFCs and they are configured to run in a stand-alone mode. Once the EVO is programmed, the AC Relay Module, Channel 1 will close, sending 120VAC to the terminal 904 and the ISO Fuel Purge Relays will be energized, which will redirect the product hook signals to the ISO Fuel terminals 610 through 670. When this occurs, all of the SCIII controllers (optional) are internally supplied with a constant 120VAC to the hook terminals. **There is no need for any additional internal wiring for RS485 controlled SCIII controllers.** The SCIs, SCIIIs and/or the MAG VFCs will require proper addressing for RS485 communication once the purge relays are energized. **120VAC MUST BE APPLIED TO TERMINAL 904 FOR PROPER LINE LEAK OPERATION. FAILURE TO DO SO CAN RESULT IN PRODUCT LEAKS AND/OR A FIRE.** Terminals 610 through 670 are color coded and labeled to match up with the corresponding AC Input Module Channels. These inputs are 120VAC and the COM terminal in the EVO must have a neutral (from terminal 903) daisy chained through them to work as a reference for the incoming 120VAC. A 3-wire shielded cable must be installed from the EVO – RS485 terminals and terminated to the EVO+, EVO- and EVOSD terminals in the ISO Fuel. All RS485 internal wiring between the controllers is done by the factory. Please call tech support with any questions and for support online purge verses switching to RS485 control. **All Smart Controllers must be Calibrated after Purge! (Refer to individual product manuals located in ISO-FUEL manual for instructions on Calibration)**

Figure 2.9c-1 EVO Interface Terminals

3 Field Installation

Below is overview of the field installation requirements. **Installation and termination of the ISO Fuel panel must be done by a licensed electrician and meet the standards of the NEC or the local AHJ.**

3.1 Installation of ISO Fuel

- The ISO Fuel panel has a **NEMA 1** rating and must be installed indoors.
- 100A – 120/208 3 phase or 120/240 1 phase main power to the main lug panel located in the ISO Fuel. ***2.1a***
- A grounding terminal is located with each dispenser

set for field wiring convenience.

- All dispenser wiring information is listed below the dispenser terminals. ***2.4a***
- Install bulkhead connector on ISO Fuel for satellite intercom enclosure. ***3.3c***
- Field wiring between site controller and ISO Fuel. ***2.8a, 2.8b***
- Field wiring between monitoring system and ISO Fuel. **2.9a, 2.9b**

3.2 Main Enclosure Mounting

The main enclosure total weight is 400 lbs. to 500 lbs. depending on the site-specific configuration. Mounting holes are located, in the corners, in the interior of the enclosure. Use proper mounting hardware for your specific application and use caution during mounting as to not cause personal injury and/or damage to the panel.

4 Support and Hardware

4.1 Replacement Hardware

Spare devices are provided to allow for minimum down time in the event of a product failure. Replacement hardware and warranty replacement shall only be done through ISO Fuel to maintain the UL listing of the panel.

4.2 Technical Support

Call **580-255-0116** and reference the ISO Fuel UL panel number located inside the enclosure door for assistance with installation or trouble shooting.

Panel wiring schematics are proprietary and are only provided to the owner. Please contact an ISO Fuel representative if field changes are needed, **any unauthorized field wiring will void the warranty.**