

# FMU Surge Protection Panel Installation and Replacement

(FMU-2500 Classic and Plus/FMU-3000/FMU-3500, Commercial and DoD)

Surge protection became standard equipment with the classic FMU-2500. The surge protection panel provided surge protection for incoming telephone and AC power wires. The Power Management Board, also introduced with the FMU-2500, provided surge protection for the DC components in the FMU upper cabinet.

The Surge Protection Panel (STS part number 931C0110 for tan FMUs, 931C0110B for gray FMUs) consists of the surge protection box (STS part number 215880 for tan FMUs, 215880A for gray FMUs), wire harnesses to make the necessary connections, and a panel which serves to cover exposed high voltage wires and provide a mounting platform for the surge protection. When the surge protection must be replaced, only the surge protection box (not the whole panel) is replaced.

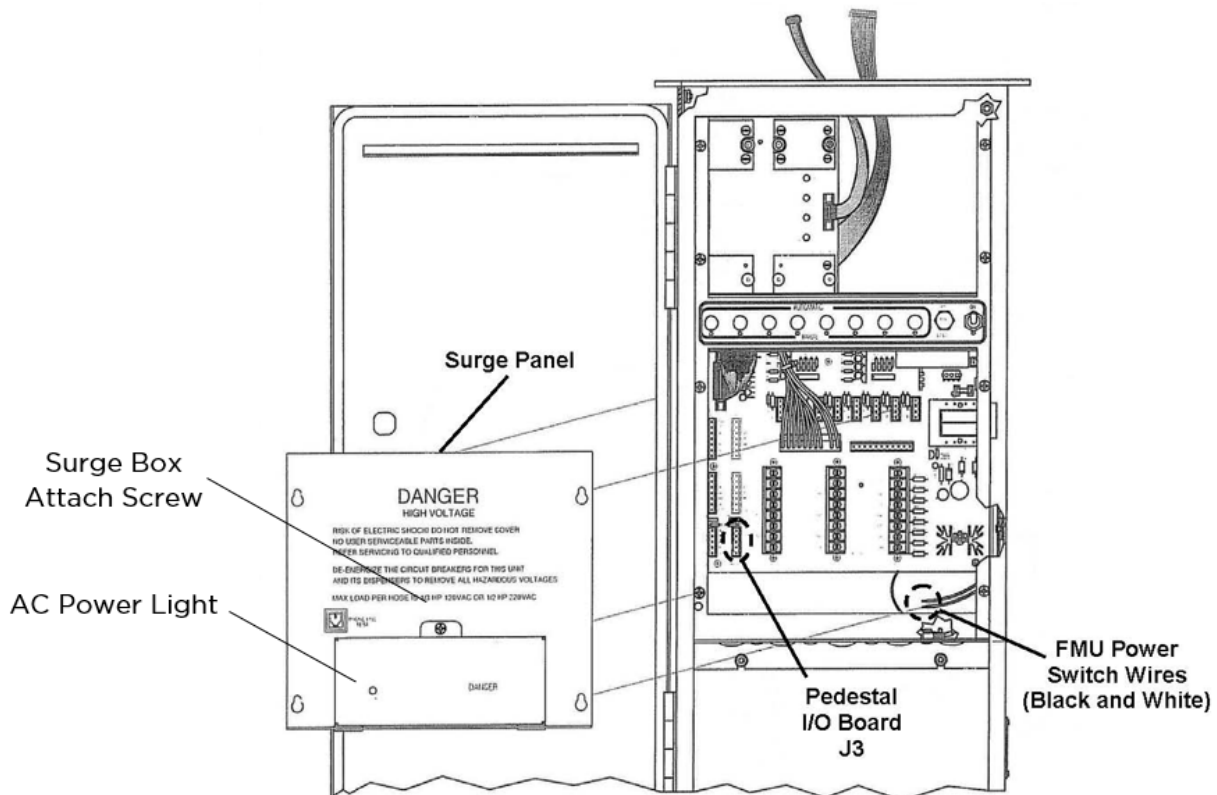


Figure 1. Surge Panel Installation Location

## Installation

Installation is normally a function of FMU installation as the surge panel is provided with all new FMU purchases. Refer to Figure 1 and 2, and perform the following to install the surge protection panel.

### **WARNING**

The surge protection is connected to FMU power wires routed directly from the breaker panel. Remove power at the breaker panel. It is advisable to check the power wires with a multimeter to ensure power has been removed before performing this procedure. Some instances may not source power from the breaker panel.

### **CAUTION**

If not correctly installed, the Surge Protection Panel will not provide surge protection.

1. Unlock and open the FMU pedestal door.
2. Verify power is removed from the FMU power wires.
3. The Surge Panel is provided with a small bag of wire nuts and spare fuses. Locate the parts bag and remove the wire nuts. Place the bag and spare fuses in the FMU upper cabinet.

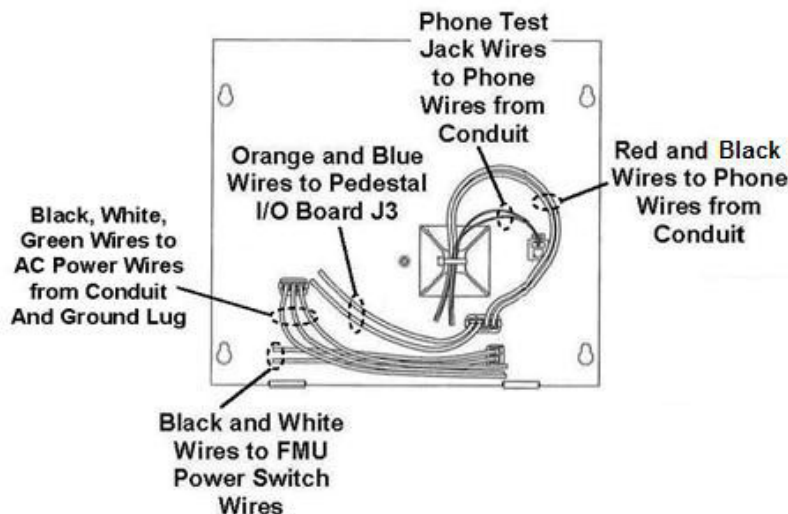


Figure 2. Surge Panel Wiring

4. Perform the following to connect AC power to the Surge Panel:
  - a. Locate the black, white, and green power wires coming from the conduit.
  - b. Using the yellow wire nuts, connect the black/hot wire from the conduit to the black wire on the 3-wire harness.
  - c. Use another yellow wire nut to connect the white/neutral wire from the conduit to the white wire on the 3-wire harness.
  - d. Loosen the screw in the ground lug at the bottom of the electrical enclosure and push the stripped end of the two green/ground wires from the conduit and 3 wire harness into the ground lug under the clamp, then tighten the clamping screw to secure the wires in place. If there are other wires in the clamp, be sure those wires are also

captured under the clamp. Twisting them together may provide a more secure connection.

5. Perform the following to connect AC power to the FMU power switch:
  - a. Locate the black and white wires coming from the FMU power switch. They should have yellow wire nuts attached to each of them.
  - b. Remove the wire nuts.
  - c. From the 2-wire harness, use a wire nut and connect the black wire to the black wire from the FMU power switch.
  - d. Use the other wire nut to connect the white wire from the 2-wire harness to the white wire from the FMU power switch.

**NOTE** All FMUs do not have a phone line connection.

6. If applicable, perform the following to make the phone wire connection:
  - a. Locate the two phone wires coming from the conduit. The red and black wires from the 4-wire harness, and the two small gauge red and green Phone Test Jack Wires are routed through a tie wrap on an adhesive mount for strain relief.
  - b. Use an orange wire nut and twist the red wire from the 4-wire harness to one of the Phone Test Jack Wires, and to one of the phone wires from the conduit.
  - c. Use the other orange wire nut to twist the black wire from the 4-wire harness to the other Phone Test Jack Wire, and to the other phone wire from the conduit.
  - d. Connect the orange wire from the 4-wire harness to either pin 4 or 5 of the 5-pin connector on J3 of the Pedestal I/O Board.
  - e. Connect the blue wire from the 4-wire harness to either pin 4 or 5 of the 5-pin connector on J3 of the Pedestal I/O Board.
7. Plug the 2, 3, and 4 wire harnesses into the applicable receptacle in the Surge Panel. The receptacles are keyed to only accept correct installation of the harness connectors.
8. The 4 mount screw holes in the surge panel are enlarged and elongated so they can fit over the 4 mount screws without removing them. Position the Surge Panel in place over the mount screws, then tighten the 4 mount screws to secure the Surge Panel in place.
9. Reapply power from the circuit breaker panel. The green AC Power Light should illuminate.
10. Turn on the FMU power switch. The FMU should initialize to:

**FUELMASTER FUEL MANAGEMENT SYSTEM**

**INSERT KEY, HOLD 1 SECOND TO BEGIN**

11. If a phone line connection was made, check for phone line dial tone on the FMU modem card in the FMU upper cabinet.
12. Close and lock FMU pedestal and upper cabinet doors.
13. Reverse the procedure to remove the Surge Panel.

## Replacement

### **WARNING**

The surge protection is connected to FMU power wires routed directly from the breaker panel. Remove power at the breaker panel. It is advisable to check the power wires with a multimeter to ensure power has been removed before performing this procedure. Some instances may not source power from the breaker panel.

1. Unlock and open the FMU pedestal door.
2. Verify power is removed from the FMU power wires.
3. Loosen the 4 surge panel mount screws and remove the panel. Do not disconnect the wire nut connections to the wire harnesses.
4. Unplug the 3 wire harnesses from the surge panel.
5. Remove the Surge Box Attach Screw and rotate the Surge Box forward to release it from the lower attach point.
6. Insert the tabs in the bottom of the new Surge Box in the slots in the bottom of the Surge Panel, and rotate the Surge Box back against the Surge Panel.
7. Install the Surge Box Attach Screw to secure the Surge Box to the Surge Panel.
8. Connect the 3 wire harnesses to the Surge Box. The wire harnesses are keyed to only fit the receptacles correctly.
9. Reinstall the Surge Panel on the 4 mount screws.
10. Reapply power from the circuit breaker panel. The green AC Power Light should illuminate.
11. Turn on the FMU power switch. The FMU should initialize to:

**FUELMASTER FUEL MANAGEMENT SYSTEM**

**INSERT KEY, HOLD 1 SECOND TO BEGIN**

12. If a phone line connection was made, check for phone line dial tone on the FMU modem card in the FMU upper cabinet.
13. Close and lock FMU pedestal and upper cabinet doors.

### **TIP**

If any questions arise, contact Syntech Systems, Inc.'s Customer Satisfaction Center (CSC) at 1-800-888-9136, ext. 2, or email [support@myfuelmaster.com](mailto:support@myfuelmaster.com).