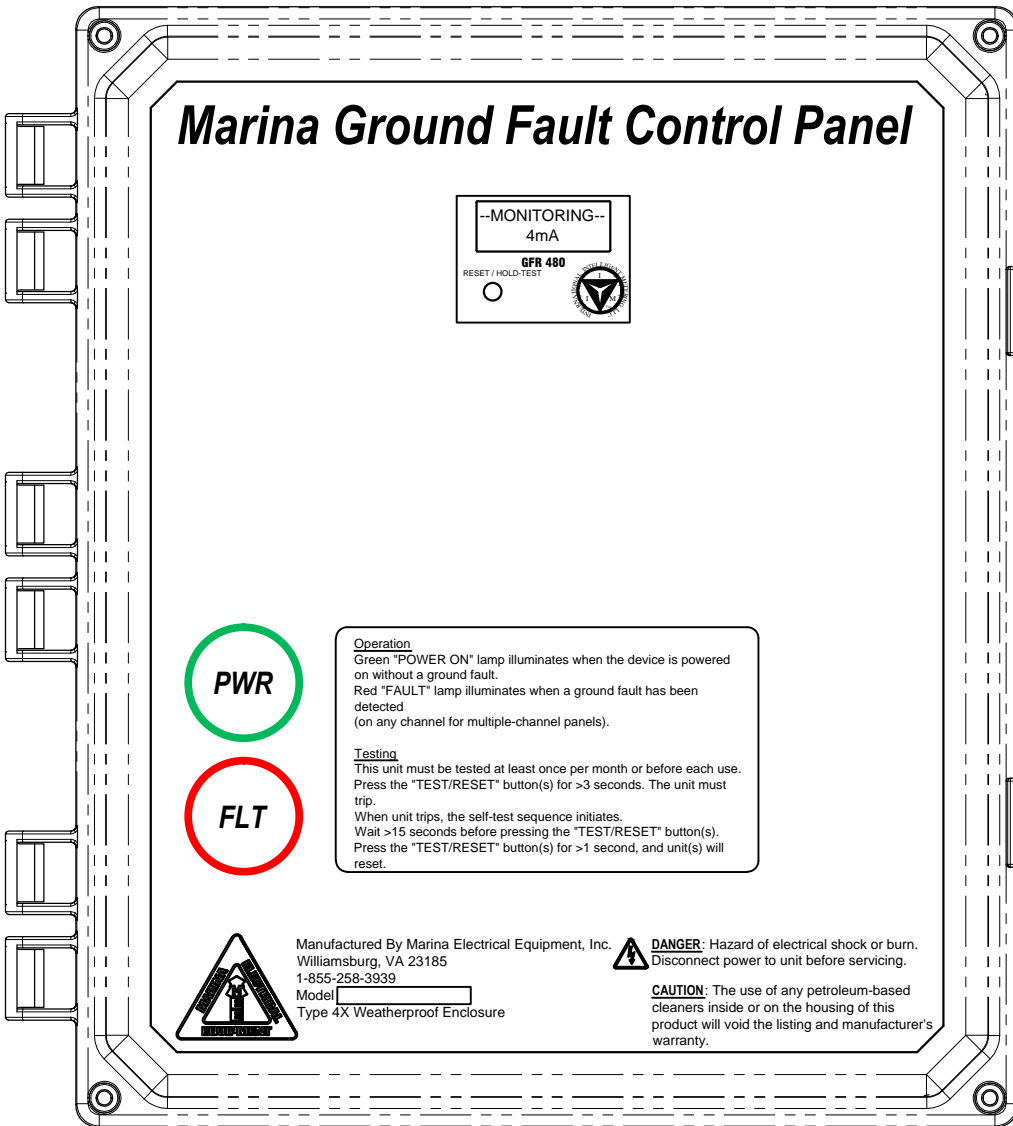


# Marina Ground Fault Control Panel Specifications



Marina Electrical Equipment, Inc.  
1715 Merrimac Trail  
Williamsburg, VA 23185  
Toll Free: 1-855-258-3939  
Fax: 1-757-258-3988



# Specifications - Marina Ground Fault Control Panel

## SECTION A: ACCEPTABLE MANUFACTURERS:

Marina Electrical Equipment, Inc.  
1715 Merrimac Trail  
Williamsburg, VA 23185  
Toll Free: 1-855-258-3939  
Web: [www.marinaelectricalequipment.com](http://www.marinaelectricalequipment.com)

## SECTION B: GENERAL REQUIREMENTS

1. Marina Ground Fault Control Panel assembly shall be listed and marked, certified to conform to Standard UL508A entitled "Industrial Control Panels."
2. Internal Ground Fault Relay components shall be listed and marked, tested and certified to conform to Standard UL® 1053 entitled "Ground Fault Relay Sensing Equipment" and CUL Standard C22.2 No. 144 entitled "Standard Ground Fault Circuit Interrupter."
3. Shall be compliant with NEC 250.20, 555.3 entitled "Ground-Fault Protection."
4. Control panel assembly and associated components shall be either factory installed and wired integral to distribution equipment, or as a complete assembly within an enclosure meeting NEMA 1, 2, 3, 3R, 4, 4X, 5, 6/6P, 12 & 13 specifications.

## SECTION C: CONSTRUCTION REQUIREMENTS

1. All materials and components used in the construction of the control panel shall be listed.
2. Enclosure (if applicable): Shall be surface-mount, constructed of listed UL® 94 V-0 materials and shall be listed as a NEMA 1, 2, 3, 3R, 4, 4X, 5, 6/6P, 12 & 13 enclosure with lockable door.
3. All electronic components shall be factory-installed within the enclosure and protected with a deadfront panel (hinged on enclosed models).
4. User Interface: Shall be constructed of UL® 94 V-0 materials with indicator LEDs and reset button(s).
5. Operational Range: 0-1200A, up to 600VAC in single or three phase systems, 60Hz.
6. Protection: Fuse protected within assembly for tamper-resistance.
7. Shall be either single or multiple-channel with preset trip values of 5 mA, 30 mA, or 100 mA (maximum of twelve (12) channels within single surface-mount enclosure - custom trip values and assemblies are available-consult factory for details).

## SECTION D: USER INTERFACE AND INDICATOR LIGHTS

1. Single-channel models shall provide digital LCD display of ground fault leakage current levels and elapsed time since last fault, audible alarm, and common "Power" and "Fault" indicator lights.
2. Multiple-channel model shall provide individual LED indication and audible alarm for power or fault status and common "Power" and "Fault" indicator lights.
3. All models shall contain labeled test/reset buttons visible and accessible.

## SECTION E: WIRING

1. Control panels require 120VAC supply voltage, which shall be tapped from the line side of the mains device. 480V/600V models incorporate an integral control transformer with 480V/600V primary, of which (2) leads shall be tapped from the line side of the mains device.
2. Ground Fault Relays: Shall be installed from the factory to operate 120V N/O shunt-trip circuit breakers to provide the desired level of ground fault protection (5 mA, 30 mA or 100 mA).
3. Current-Sensing Transformer(s) CT(s): Shall be non-directional, and placed around all phase leads and neutral(if present) while excluding the ground lead. A yellow test wire shall be factory-installed through the CT.
4. Shall be connected to the line side of the mains terminals using minimum 22 gauge tin-plated copper wire.

## SECTION F: SETTINGS

1. **Trip Settings:** Shall be set from the factory in accordance to current ANSI/UL and NEC regulations and sealed to prevent tampering.
2. **Trip Time Setting:** Shall be set from the factory at 1-3 mS.
3. **Range:** Can be set at 5 mA , 30 mA or 100 mA (other values may be available - consult factory for details).

# Specifications - Marina Ground Fault Control Panel

## SECTION G: FUNCTION

Typical marina AC shore power systems are composed of distribution transformers which provide grounded 120/240VAC, 208Y/120VAC, 277Y/480VAC, 480VAC or 347Y/600VAC secondary voltages. When monitoring main or branch feeders, the Marina Ground Fault Control Panel is connected to a current-sensing transformer (CT), which is placed in one of the following positions:

### Position 1 - Direct Method:

The CT is placed on the bonding conductor which connects an isolation transformer's neutral point and main ground terminal (main bonding jumper). Ground current must flow back to the source through the main bonding jumper regardless of what path it takes. When ground fault current returns through the main bonding jumper to the source neutral point, it results in current being induced in the current transformer secondary that is detected by the ground fault relay(s) in the control panel.

Note this method is not recommended for us in service-entrance equipment.

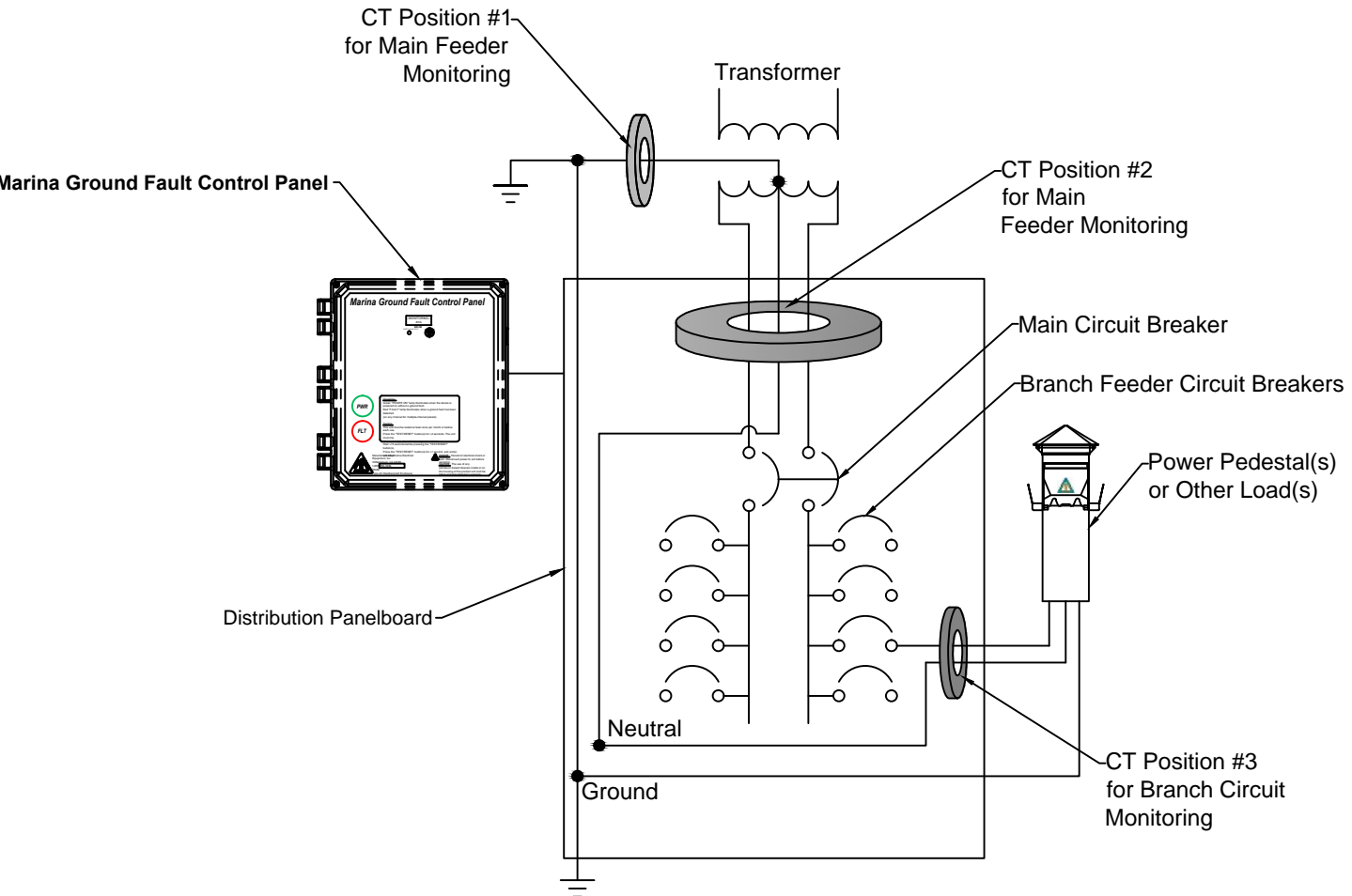
### Position 2 - Summation Method of Main:

The CT is on all main feeder phase ("hot") conductors **AND** grounded neutral conductors (if present). Note equipment ground conductors are **NOT** routed through the CT. This method monitors for a net imbalance of current flow between the phase and/or grounded neutral, which corresponds to total ground fault leakage current downstream in the electrical system.

Note this method is used to trip the main overcurrent protective device in distribution equipment, including service entrance equipment.

### Position 3 - Summation Method of Branch Feeders:

Monitoring individual branch circuits works in a similar method as Position 2, however the individual branch feeder circuits are monitored separately. Note a multi-channel control panel with multiple CTs is required for individual branch monitoring.



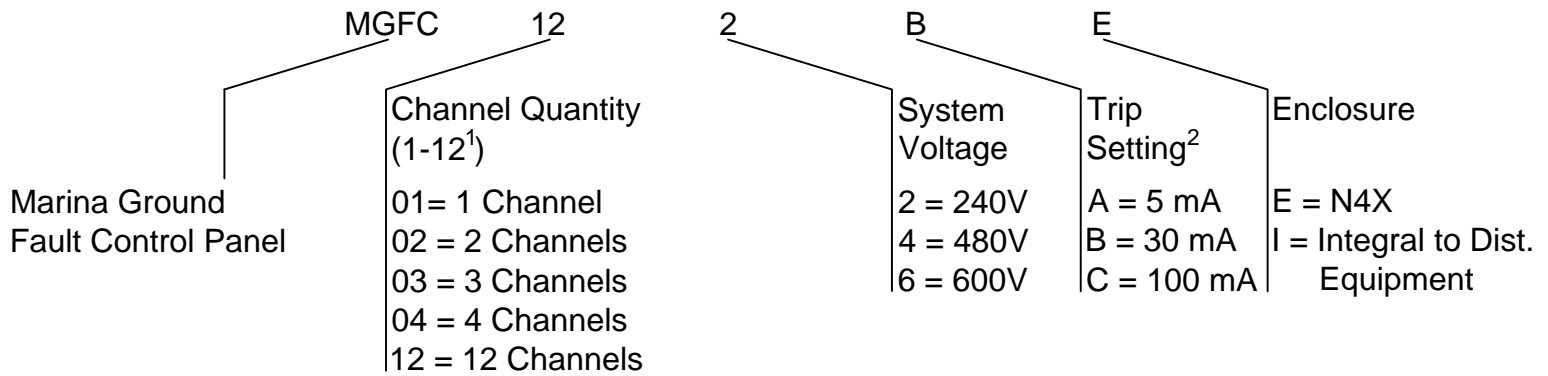
END OF SECTION

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# Specifications - Marina Ground Fault Control Panel

## SECTION H: MODEL NUMBERS

### Model Number Structure



<sup>1</sup>Custom channel quantities may be available-consult factory for details.

<sup>2</sup>Custom trip settings may be available-consult factory for details.

### Current-Sensing Transformers (CTs)

<u>MODEL NUMBER</u>	<u>INSIDE DIAMETER</u>
2158	1.00 In.
3255	2.00 In.
4367	3.00 In.
7267	6.00 In.
9267	8.00 In.

\*Custom sizes may be available-consult factory for details.

END OF SECTION

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# Specifications - Marina Ground Fault Control Panel

## SECTION I : INSTALLATION

**IMPORTANT:** Installation instructions for use by qualified personnel or an electrician only.

**Step 1:** Disconnect power prior to any service. Remove the screws securing the deadfront panel and hinge this deadfront panel outward to access the terminals.

**Step 2:** Mount the control panel with the provided mounting feet to a vertical surface.

**Step 3: Installing the CT(s):** Determine which circuit(s) will be monitored by the ground fault relay(s). The CT(s) must be placed around all hot leads in the circuit including neutral, if applicable. Route wires in the circuit through the CT and reconnect. Route CT wires away from any obstructions or sharp edges. Do not route the ground conductors or a conductor from another circuit through the CT. Terminate each channel CT on the appropriate labeled CT terminals within the control panel.

**Step 4: Power Leads: The control panel operates on 120VAC.** Connect the black and white leads to the 120V hot (Black) and neutral (White) to the labeled terminals within the control panel.

**Step 5: Shunt (if applicable):** Connect the 120V external shunt wires to the appropriate labeled channel shunt terminals within the control panel to disconnect power on the circuit being monitored.

## SECTION J: OPERATION

**Step 1: Energize the control panel (120VAC).** The integral ground fault relay(s) will automatically self-test, illuminating the indicator light(s) and activating the alarm(s). Note if the control panel is wired to any shunts, the circuit breaker(s) will trip during this process and can be reset once the self test is complete (approx. 15 seconds)

**Step 2:** Perform a functional test by pressing and holding the TEST/RESET button (per channel) for 3 seconds. Single channel model: the LCD screen will inform you whether the test has passed or failed, an audible alarm will be heard, the main "FLT" indicator light will illuminate, and the breaker (if applicable) will trip. If this does not occur, the ground fault relay is not protecting the circuit and must be replaced. Multiple channel models: the RED LED on the individual ground fault relay devices will remain red and the alarm will continue to sound until the TEST/RESET button is pressed again (for <1 second). If the GREEN LED on the ground fault relay does not illuminate, and the RED LED/alarm continue, the ground fault relay is not protecting the circuit and must be replaced.

**Step 3:** Clear the manual test fault by pressing the TEST/RESET button once. If the test passed, the circuit is safe to use.

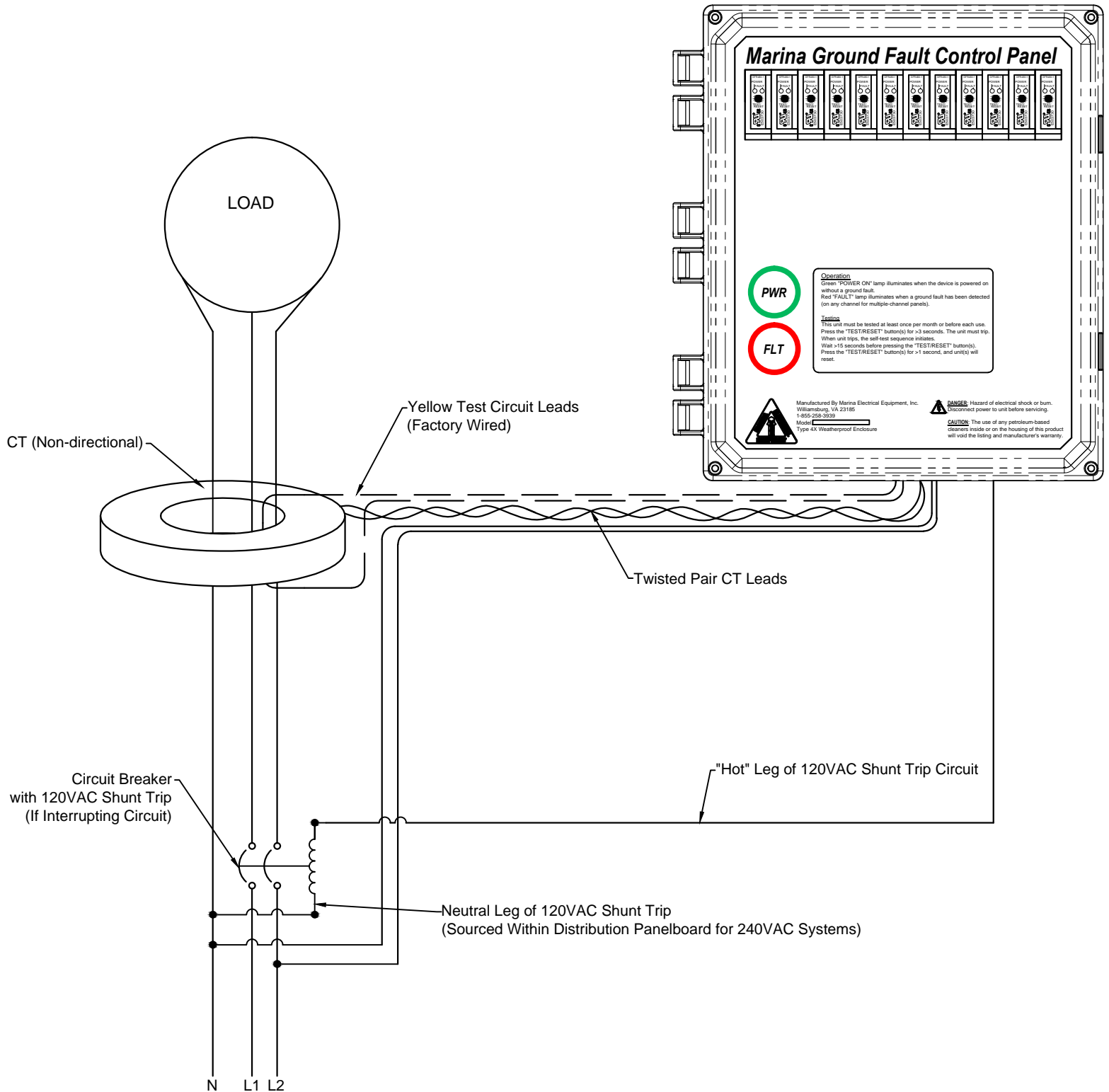
**In the case of a ground fault:** Fix or remove the ground fault before re-energizing the circuit. Common issues resulting in the ground fault relay are neutral-ground bonds, failing appliances, and faulty shorepower cords.

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END OF SECTION

# Specifications - Marina Ground Fault Control Panel

## SECTION K: TYPICAL WIRING DIAGRAM (PER CHANNEL)



END OF SECTION

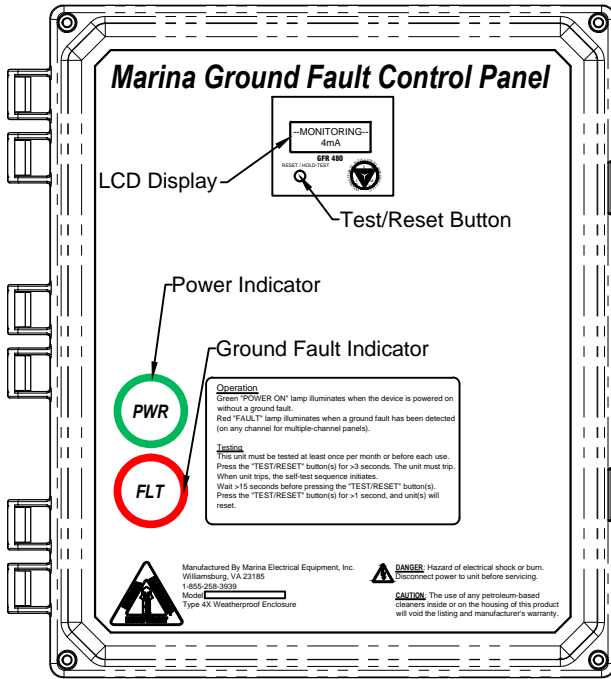
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# Specifications - Marina Ground Fault Control Panel

## SECTION L: LAYOUTS

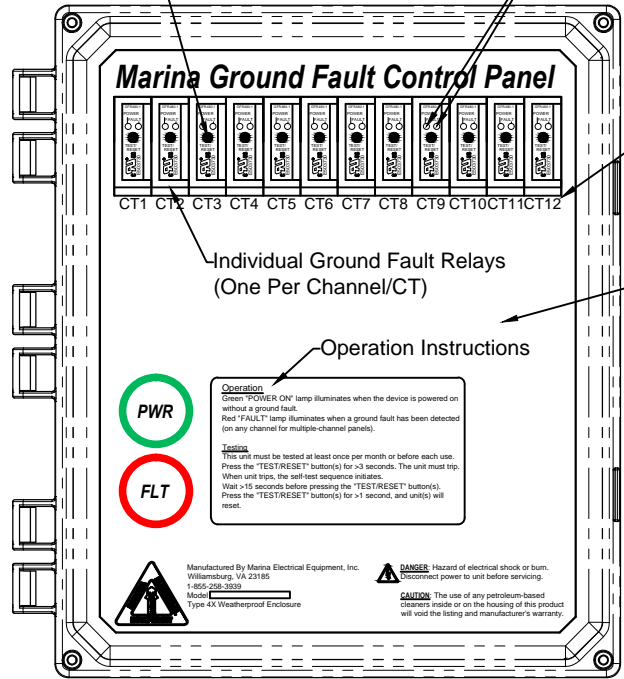
## 240V System Voltage Panels

SINGLE CHANNEL PANEL  
FRONT EXTERIOR VIEW

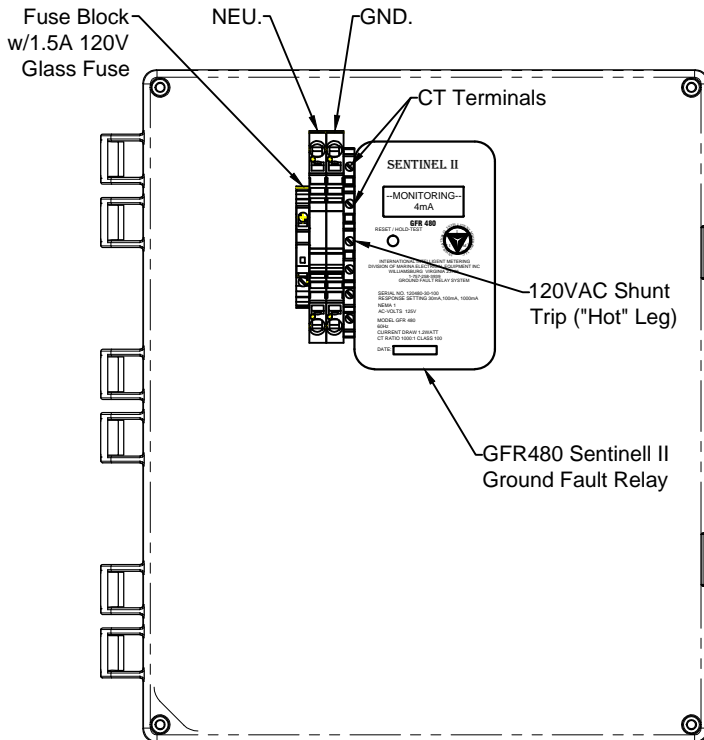


Individual Test/Rest  
Button per Channel/CT

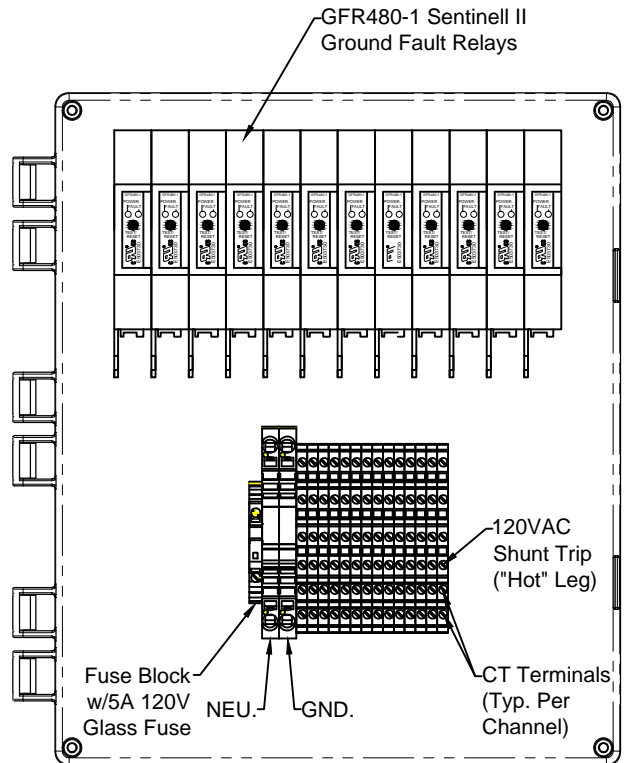
12- CHANNEL PANEL  
FRONT EXTERIOR VIEW



SINGLE CHANNEL PANEL - CUSTOMER TERMINATIONS  
(Hinged door & deadfront not shown for clarity)



MULTIPLE CHANNEL PANEL - CUSTOMER TERMINATIONS  
(Hinged door & deadfront not shown for clarity)

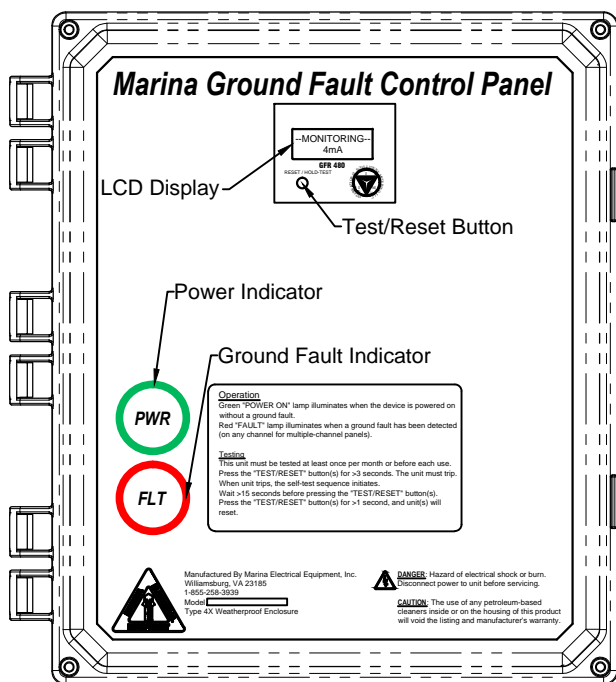


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# Specifications - Marina Ground Fault Control Panel

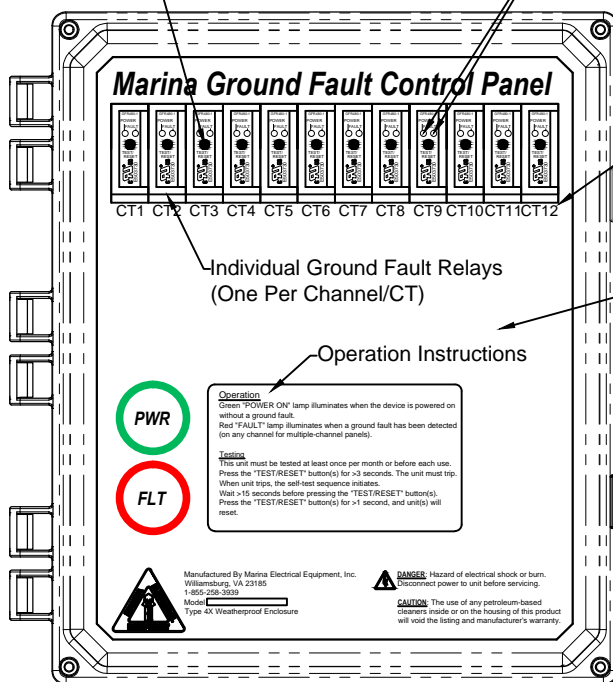
## 480V or 600V System Voltage Panels

SINGLE CHANNEL PANEL  
FRONT EXTERIOR VIEW



Individual Test/Rest  
Button per Channel/CT

12- CHANNEL PANEL  
FRONT EXTERIOR VIEW



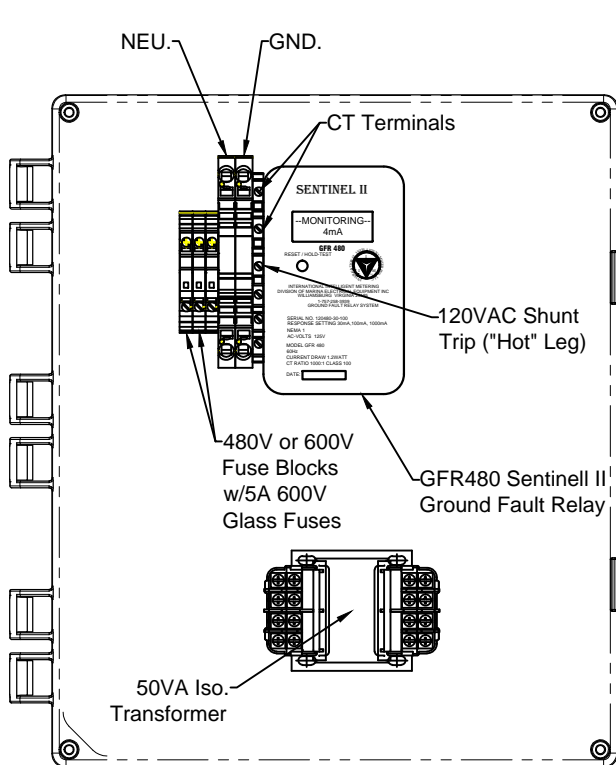
Individual Power & Fault Lights  
Per Channel/CT

Channel/CT  
Label

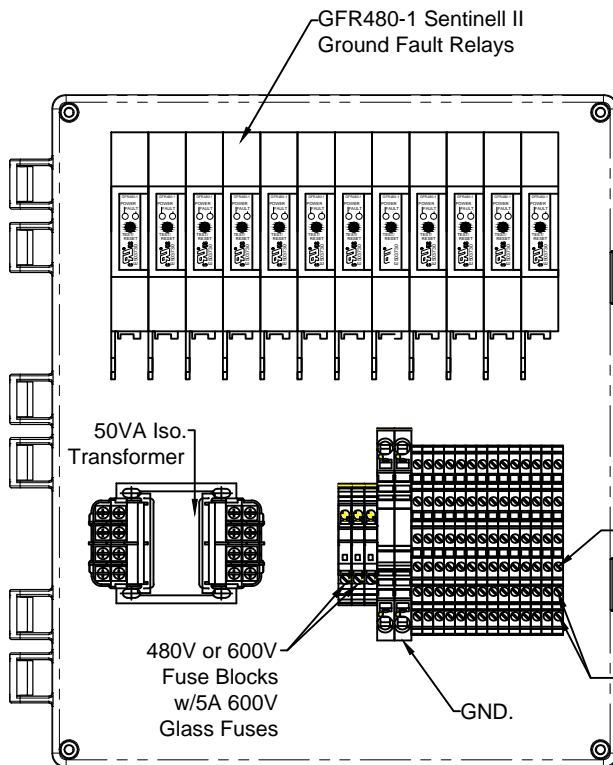
Individual Ground Fault Relays  
(One Per Channel/CT)

Operation Instructions

SINGLE CHANNEL PANEL - CUSTOMER TERMINATIONS  
(Hinged door & deadfront not shown for clarity)



MULTIPLE CHANNEL PANEL - CUSTOMER TERMINATIONS  
(Hinged door & deadfront not shown for clarity)



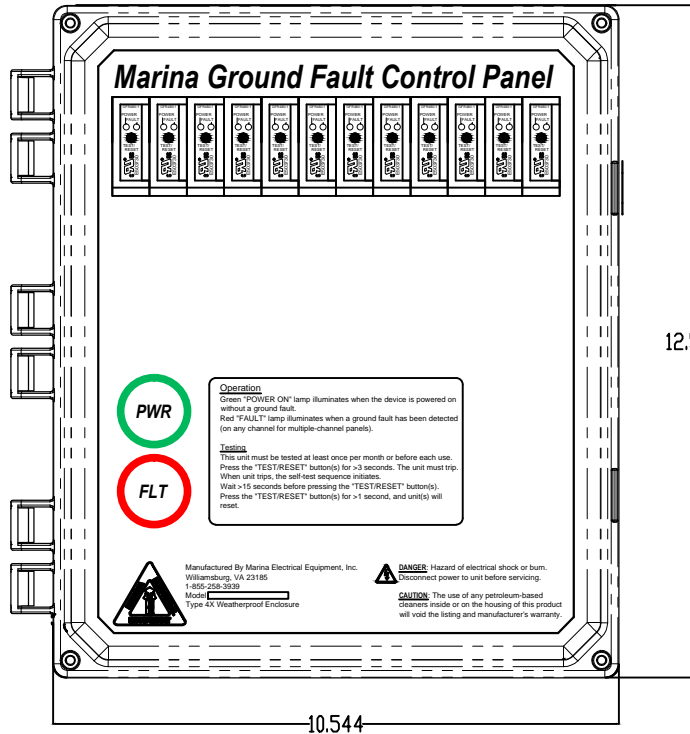
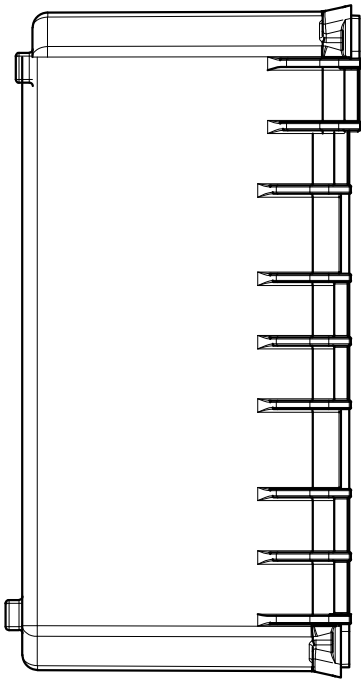
END OF SECTION

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# Specifications - Marina Ground Fault Control Panel

## SECTION M: ENCLOSURE DIMENSIONS



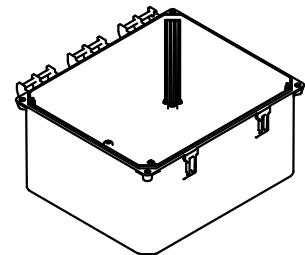
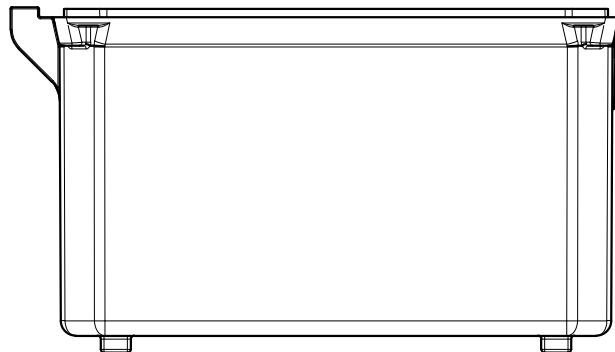
12.594

10.544

1.565

5.969

4X  
.313



END OF SECTION

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# Specifications - Marina Ground Fault Control Panel

## **SECTION N: WARRANTY POLICY**

### **Housings:**

Marina Electrical Equipment, Inc. (MEE) warrants that the main housing and attached parts (lens, button, and set screw) will be free from failure resulting from defects in material and/or workmanship, and are covered by a limited warranty of one (1) year. Should any of the above parts fail to comply with the above-mentioned warranty, MEE will either repair or replace the defective part(s), or credit the purchaser for the purchase price of the part.

### **Internal Components:**

MEE warrants that the International Intelligent Meter (IIM) Ground Fault Relay(s) will be free from failure resulting from defects in material and/or workmanship, and are covered for one (1) year. Although the IIM Ground Fault Relay contains integrated surge protection, MEE and IIM will not warrant the product against severe over-voltage conditions such as lightning strikes or abnormal utility surges. Should a ground fault relay fail to comply with the above-mentioned warranty, MEE will either repair or replace the defective part(s)/components, or credit the purchaser for the purchase price of the part. This warranty is voided if the damage to any or all of the components is the result of abuse, misuse, or Force Majeure. This warranty is voided if the factory seal is broken or manipulated.

This warranty policy does not cover damage or failure resulting from abuse, misuse, negligence or Force Majeure. All warranty claims must be made in writing and all defective products shall be returned to MEE for evaluation unless stated otherwise by MEE. MEE will not be responsible for reimbursing the purchaser for any sort of expense incurred by the purchaser as a result of the repair or replacement of a warranty claim.

Send all warranty claims to:

Marina Electrical Equipment, Inc.  
1715 Merrimac Trail  
Williamsburg, VA 23185  
Toll Free: 1-855-258-3939  
Fax: 757-258-3988

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END OF SECTION