



North Shore Safety, Ltd.
Safety Through Innovation



INSTALLATION AND TESTING PROCEDURE

IMPORTANT!

THIS DEVICE MUST BE INSTALLED BY A QUALIFIED PERSON WHO UNDERSTANDS ELECTRICAL CIRCUITS.

Please read all the information on this sheet.

WARNING

Ground Fault Circuit Interrupter (GFCI) is a safety device under normal use and it is not intended to promote activity of elevated risk. Use only within the specified operating parameters (Failure to do so may result in bodily injury). Consult a licensed electrician for assistance on installation and repairs. Do not use this GFCI if it fails to function as instructed. Never attempt to tamper with this device. This GFCI should never be used as a switch to connect or disconnect power. (Power should be disconnected at main power feed or by secondary switch located at the primary feed of GFCI). This GFCI is not an over-current protection device. (An appropriate current breaker should be used in series at primary power feed). This GFCI does not provide protection against shocks caused by holding both circuit conductors. This GFCI does not provide protection against electrical shocks generated by the conductors supplying power to the device. **Note: primary feed to GFCI is live even when GFCI is tripped. (Power should be disconnected at main service panel before servicing load side of GFCI.)**

- Do not use this device to feed power to life support apparatus.
- To minimize nuisance tripping:
 - Do not use on swimming pool equipment installed before 1965 NEC code.
 - Limit load cable to 250 feet.
 - Do not use on electric clothes dryers or electric ranges with frames grounded by Neutral conductor.
- Installation must comply with local and national electrical codes (NEC).
- Turn power off at the service panel to prevent serious injuries.

NORTH SHORE SAFETY, LTD.

7335 PRODUCTION DRIVE

MENTOR, OHIO 44060

PHONE: 440-205-9188

TOLL FREE: 877-4 SAFE 4U

FAX: 440-205-9187

WEB SITE: WWW.NSSLTD.COM

EMAIL: SALES@NSSLTD.COM

What is a GFCI?

A GFCI is a device designed to interrupt power when a ground fault (a current that takes a path to ground) exceeds a predetermined value. The interruption of this power is fast in order to prevent serious injuries.

Why do we need a GFCI?

The human body is conductive to electricity. However, we were not meant to do so. Electric shocks can be fatal. Any electrical tool or appliance is a potential shock hazard especially when used near wet locations. That's where a GFCI is needed the most and can save your life. This is why most electrical codes require GFCI protection in kitchens, bathrooms, garages, outdoor outlets, laundry rooms, workshops, etc..

North Shore Safety's GFCI LineGard will offer such protection. Its safety scope surpasses its peers to include open neutral protection (most receptacle type GFCIs do not sense open neutral condition), fault indication, and power status.

How does a GFCI operate?

The GFCI constantly monitors the current balance of the conductors supplying power to the load. When a ground fault occurs, by a leakage or by shock, the imbalance of current is sensed and the GFCI trips when the ground fault exceeds 0.006 Amp. The tripping action must be within a fraction of a second to prevent serious injuries.

What a GFCI cannot do:

- Will not protect line side.
- Will not protect you when touching two current carrying conductors of opposite polarity (GFCI sees this as a load).
- Will not protect you when touching a line of another circuit.
- Will not detect overcurrent.

SPECIFICATIONS

TECHNICAL:

Rated Voltage:	120VAC, 240VAC, 120/240VAC
Operating Voltage Range:	85% to 110% of rated
Current:	Up to 30 Amps or Device Rating
Frequency:	60 Hz.
Trip Level:	5 +/- 1mA
Phase:	Single
Response Time:	25 mS max.
Dielectric Withstand:	1500 VRMS across contact 4000 VRMS between conductors and enclosure
Surge Withstand:	6000V impulse, 0.5 microsecond rise time, 100KHZ ringing frequency with 40% decay per cycle
Operating Temperature range:	-35 °C to +66 °C
Leakage Current @ 93% Humidity:	Zero
Overload Current:	180 Amps, 50% Inductive
RF Noise Susceptibility:	Normal Operation with 0.5 VRMS injected on power line with Frequencies up to 450 MHz.
Let go Line Voltage:	60% of Rated
Grounded Neutral Detection:	2 Ohms or less

GENERAL:

Construction:	Industrial Grade Design
Type:	Class A
Power – Up Type *:	Auto or Manual
Endurance:	5000 Operations Minimum
Open Neutral Protection:	Trip Upon Loss of Neutral
Grounded Neutral Protection:	Trips if Ground and Neutral touch at load side
Power ON Indication:	Lighted Green LED
Power OFF Indication:	Blinking Red LED, plus Optional Enunciator
Enclosure	NEMA 4X
Mounting Type:	Panel, Surface, and Portable
Wiring Application:	3 Wire, Single Phase (Hot, Neutral, and Ground**) 4 Wire, Single Phase (Line 1, Line 2, Neutral, Ground**)
Wiring Connections:	Permanent Hardwire (See Type Under Model Configuration Chart)
Switch Interface	Double Insulated
Latching Mechanism:	Electromagnetic
False trip due to impact:	None
Agency Approval	U.L. and CSA

IMPORTANT NOTE:

* Manual configuration should be specified when automatic power up would create an unsafe condition after restoration of circuit power.

** Ground connection is done external to device enclosure.

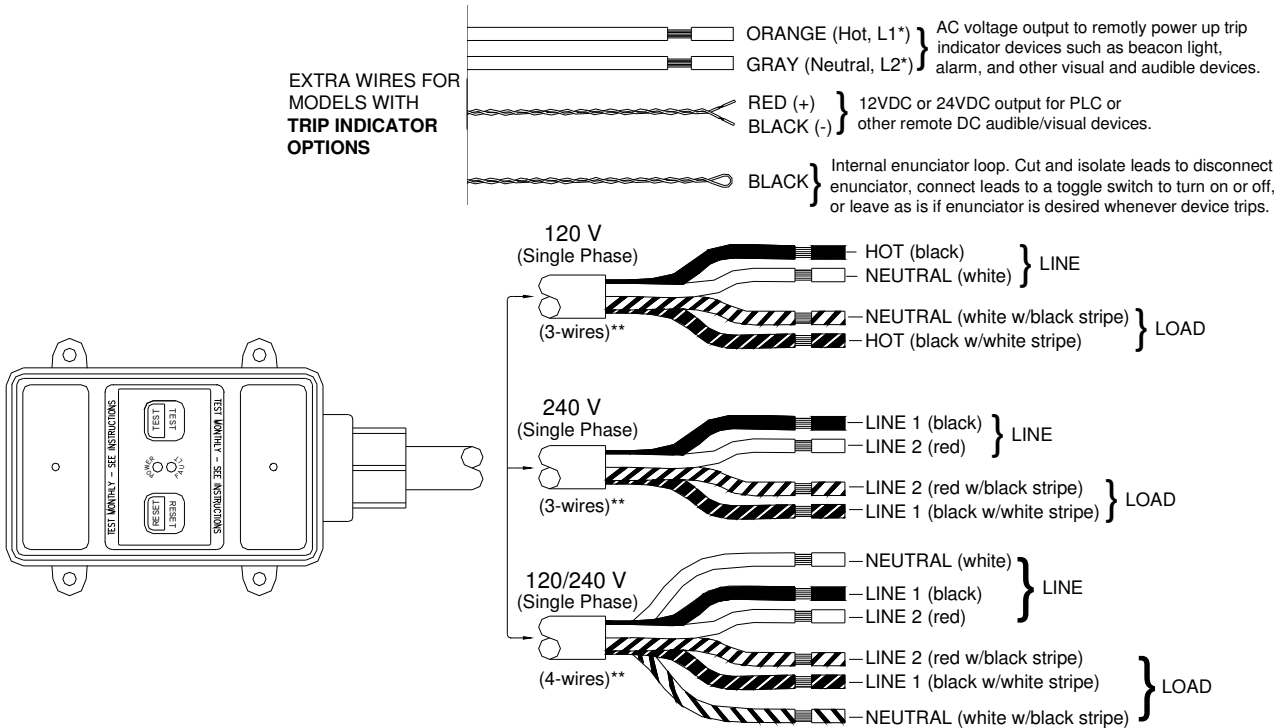
NORTH SHORE SAFETY'S TWO-YEAR WARRANTY

North shore safety warrants to the consumer its Line-Gard Ground Fault Circuit Interrupter (GFCI) to be free from defects in materials and workmanship under normal use and service for a period of two years from date of purchase. North Shore Safety, at its option, will repair or replace the defective GFCI without charge within two years period from date of purchase provided that the defect occurred during normal use. Defective unit must be returned prepaid, with a description of the problem, and a proof of purchase date to Quality Assurance Dept., North Shore Safety, Ltd. 7335 Production Drive, Mentor, OH 44060. Please include \$10.00 for shipping and handling cost.

North Shore Safety will not be liable, directly or indirectly, for installation or removal of this device, or for any personal injury, or property damages, or incidental, indirect, or consequential damages of any kind, as a result of a defective device. The exclusive remedy under this warranty is the repair or replacement of the defective device. In no case shall North Shore Safety's liability exceed the purchase price. This warranty is void if this device is not properly installed, tampered with, not used according to label instructions and ratings, opened, or abused.

INSTALLATION PROCEDURE:

DANGER: HAZARD OF ELECTRICAL SHOCK, BURN, OR EXPLOSION. Disconnect power at main panel before you start the installation, including Enunciator option installation. **Failure to do so will cause severe shock, personal injury and death.**



* 240V MODELS

** Ground wire is connected externally. Ground wire does not enter or exit the GFCI box. Although GFCI does not require Ground to operate, Ground connection is recommended and should be made at junction box.

1. Read all the instructions in this leaflet and on the device label.
2. Identify all the features and wires (see above drawing)
3. Identify Line wires (solid color) and Load wires (with stripes)
4. Verify that the ratings on the device match your field line ratings.
5. **Disconnect power at main panel.**
6. Determine GFCI location and drill mounting holes using pamphlet provided.
7. Strip wires to 5/8"
8. Feed wires into junction box through appropriate hole and secure cable or conduit end of GFCI to junction box.
9. Choose the right wiring application and connect wires according to the above drawing.
10. Secure GFCI box to mounting panel.
11. Install covers.

3-Wires, 120VAC application:

- Connect Field-Hot wire to GFCI Line-Hot wire (Solid black) using a wire connector.
- Connect Field-Neutral wire to GFCI Line-Neutral wire (solid White) using a wire connector.
- Connect GFCI Load-Hot wire (Black W/White stripe) to protected equipment or receptacle Hot.
- Connect GFCI Load-Neutral wire (White W/Black stripe) to protected equipment or receptacle Neutral.

3-Wires, 240VAC application:

- Connect Field-Line 1 wire to GFCI Line-Line1 wire (Solid black) using a wire connector.
- Connect Field-Line2 wire to GFCI Line-Line2 wire (solid Red) using a wire connector.
- Connect GFCI Load-Line1 wire (Black W/White stripe) to protected equipment or receptacle Line 1.
- Connect GFCI Load-Line2 wire (Red W/Black stripe) to protected equipment or receptacle Line 2.

4-Wires, 120/240VAC application:

- Connect Field-Line 1 wire to GFCI Line-Line1 wire (Solid black) using a wire connector.
- Connect Field-Line2 wire to GFCI Line-Line2 wire (solid Red) using a wire connector.
- Connect Field-Neutral wire to GFCI Line-Neutral wire (solid White) using a wire connector.
- Connect GFCI Load-Line1 wire (Black W/White stripe) to protected equipment or receptacle Line 1.
- Connect GFCI Load-Line2 wire (Red W/Black stripe) to protected equipment or receptacle Line 2.
- Connect GFCI Load-Neutral wire (White W/Black stripe) to protected equipment or receptacle Neutral.

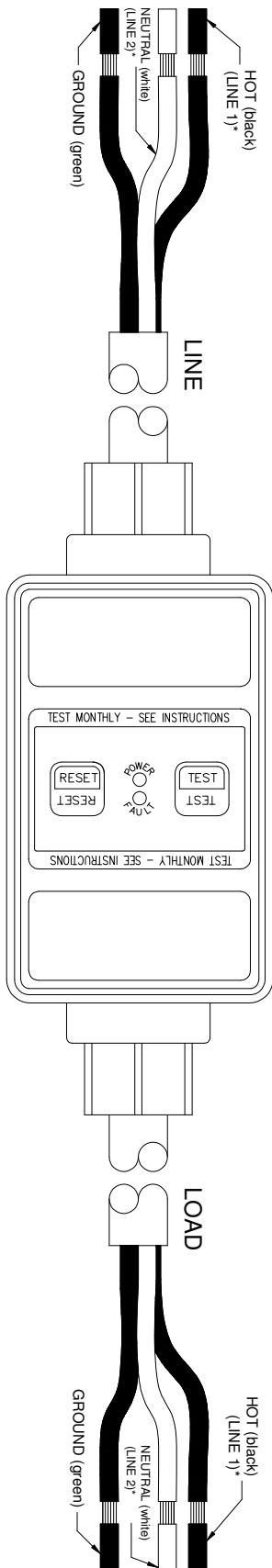
TESTING AND TROUBLESHOOTING

1. Restore the power to the GFCI.
2. Press and release RESET button, Green Light (Power) should turn ON. (For Auto Power-Up model, Green Light will automatically turn on when power is restored)
3. Press Test Button. Green Light (Power) turns off and Red Blinking Light (Fault) turns on.

4. CHECKING FOR CORRECT WIRING:

If GFCI is wired to protect a receptacle, plug a lamp into the protected receptacle. Press and release the RESET button, lamp should turn on. Press the TEST button. Lamp should turn off. If lamp stays on when pressing TEST button, or if lamp does not Light when pressing RESET button, turn main power off, check and correct your wiring connections. Repeat steps 1-4. If problem persists, **do not use this GFCI**. Consult a qualified electrician.

If GFCI is wired to protect equipment, press and release RESET button. Verify that equipment power is on. Press TEST button. Equipment power should turn off. If equipment power does not come on when pressing and releasing RESET button, or if power stays on when pressing TEST button, turn main power off, check and correct your wiring connections. Repeat steps 1-4. If problem persists, **do not use this GFCI**. Consult a qualified electrician.



DANGER: HAZARD OF ELECTRICAL SHOCK, BURN OR EXPLOSION. Disconnect power before you start installation. **Failure to do so will cause severe shock, personal injury or death.**

1. Read all the instructions in this leaflet and on the device label.
2. Identify all the features and wires (see drawing)
3. Identify LINE wires and LOAD wires.
4. Verify that the ratings on the device match your field line ratings.
5. Strip wires to 5/8", or as recommended for your connections.
6. Choose the right wiring application (120V or 240V) and connect wires according to the drawing on this page and the instructions below.

120VAC Application:

- Connect GFCI Line-Hot wire (Solid Black) to primary Hot.
- Connect GFCI Line-Neutral wire (Solid White) to primary Neutral.
- Connect GFCI Line-Ground wire (Green) to primary Ground.
- Connect GFCI Load-Hot wire (Black) to protected equipment or receptacle Hot.
- Connect GFCI Load-Neutral wire (White) to protected equipment or receptacle Neutral.
- Connect GFCI Load-Ground wire (Green) to protected equipment or receptacle Ground.

240VAC Application:

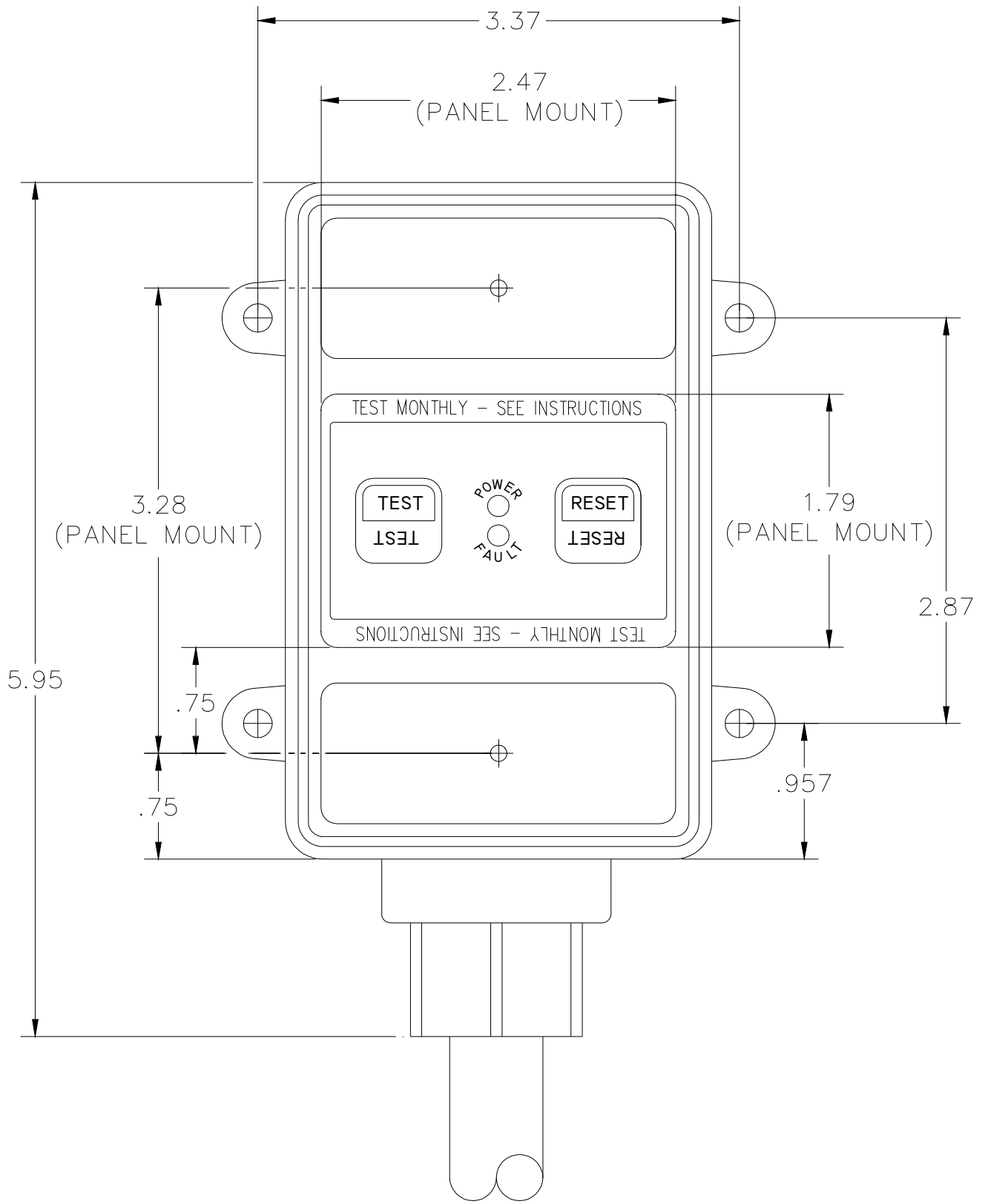
- Connect GFCI Line-Line 1 wire (Solid Black) to primary Line 1.
- Connect GFCI Line-Line 2 wire (Solid White) to primary Line 2.
- Connect GFCI Line-Ground wire (Green) to primary Ground.
- Connect GFCI Load-Line 1 wire (Black) to protected equipment or receptacle Line 1.
- Connect GFCI Load-Line 2 wire (White) to protected equipment or receptacle Line 2.
- Connect GFCI Load-Ground wire (Green) to protected equipment or receptacle Ground.

TESTING AND TROUBLESHOOTING

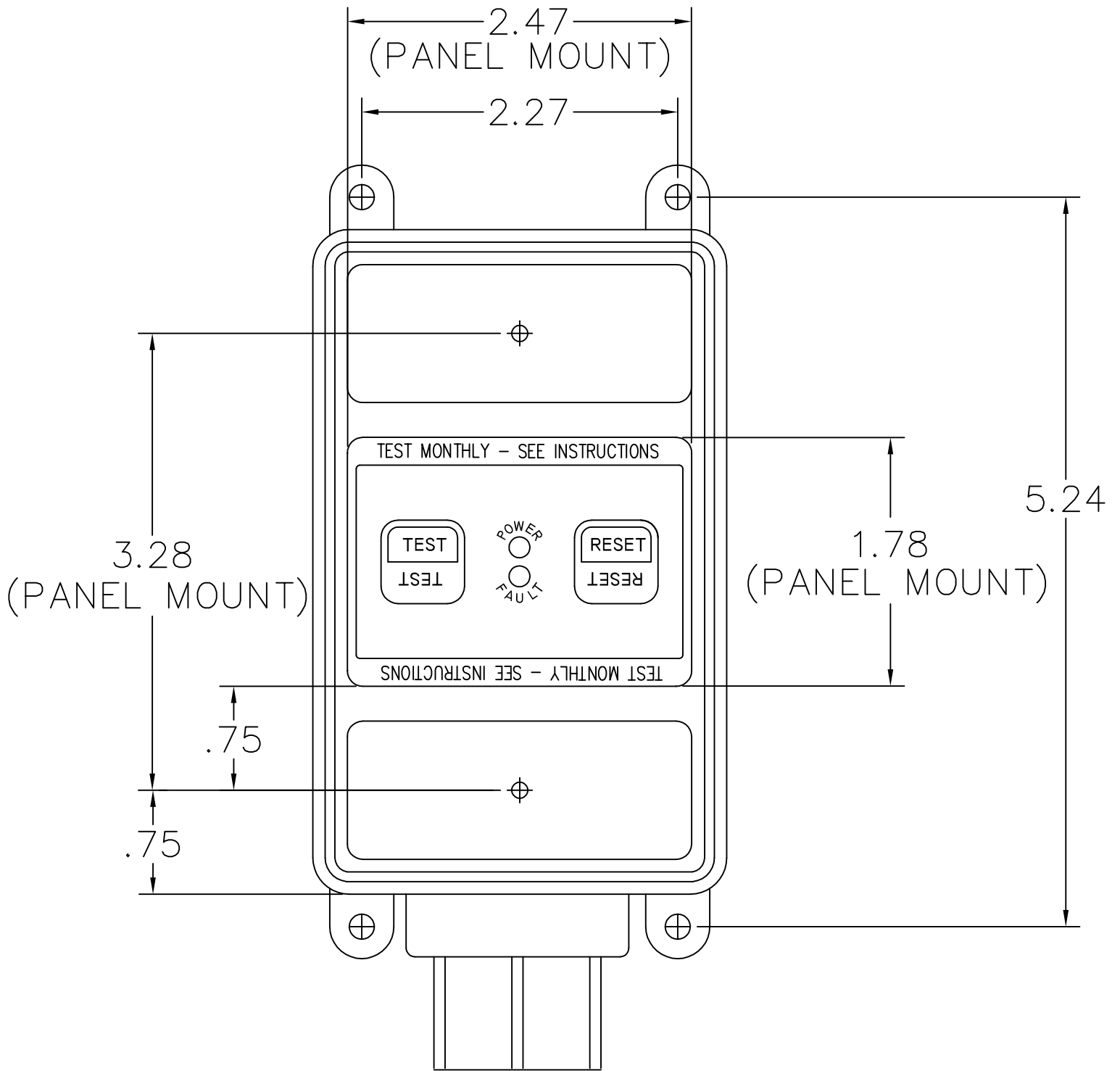
1. Apply rated power to GFCI.
2. Press and release RESET button, Green Light (Power) should turn ON. (For Auto Power-Up model, Green Light will automatically turn on when power is restored)
3. Press Test Button. Green Light (Power) turns off and Red Blinking Light (Fault) turns on.
4. CHECKING FOR CORRECT WIRING:

If GFCI is wired to protect a receptacle, plug a lamp into the protected receptacle. Press and release the RESET button, lamp should turn on. Press the TEST button. Lamp should turn off. If lamp stays on when pressing the TEST button, or if lamp does not Light when pressing RESET button, turn main power off, check and correct your wiring connections. Repeat steps 1-4. If problem persists, DO NOT USE THIS GFCI. Consult a qualified electrician.

If GFCI is wired to protect equipment, press and release RESET button. Verify that the equipment power is on. Press TEST button. Equipment power should turn off. If equipment power does not come on when pressing and releasing RESET button, or if power stays on when pressing TEST button, turn main power off, check and correct your wiring connections. Repeat steps 1-4. If problem persist, DO NOT USE THIS GFCI. Consult a qualified electrician.



INSTALLATION TEMPLATE
 (ACTUAL SIZE)



INSTALLATION TEMPLATE
 (ACTUAL SIZE)