



## INSTALLATION AND TESTING PROCEDURE



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### **IMPORTANT!**

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

**Please read all the information on this sheet.**

### **WARNING**

A Ground Fault Circuit Interrupter (GFCI) is an electrical safety device that under normal use is intended to mitigate electric shock hazard. Use this product 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 must 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 fuse or circuit breaker must 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.
  - 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).
- During installation, turn power off at the service panel to prevent serious injuries.

### **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. This power interruption is quickly accomplished to prevent serious injuries.

### **Why do we need a GFCI?**

The human body is conductive to electricity, and electric shocks can be fatal. Any electrical tool or appliance is a potential shock hazard, especially when used near wet locations; and this is where a GFCI is needed the most. 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 supply protection (most receptacle type GFCIs do not sense open neutral condition) as well as dual indication of operating modes, with fault indication or 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 5 mA +/- 1 mA. The tripping action must be within a fraction of a second to prevent serious injuries.

### **What a GFCI cannot do:**

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

## **North Shore Safety TWO YEAR LIMITED MANUFACTURER'S 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 2-years of the date of the product's purchase provided that the defect occurred during normal use. The defective unit must be returned freight prepaid, with a RGA (Returned Goods Authorization) including a description of the problem, and a proof of purchase date to the Quality Assurance Dept. North Shore Safety, Ltd. 7335 Production Drive, Mentor, OH 44060. 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 or not covered if this device is found to be: not properly installed, tampered with, not used according to label instructions and ratings, enclosure breached (button cover label, conduit hubs, vent, or lid fasteners), surged, short circuited, or abused.

# Specifications

## TECHNICAL:

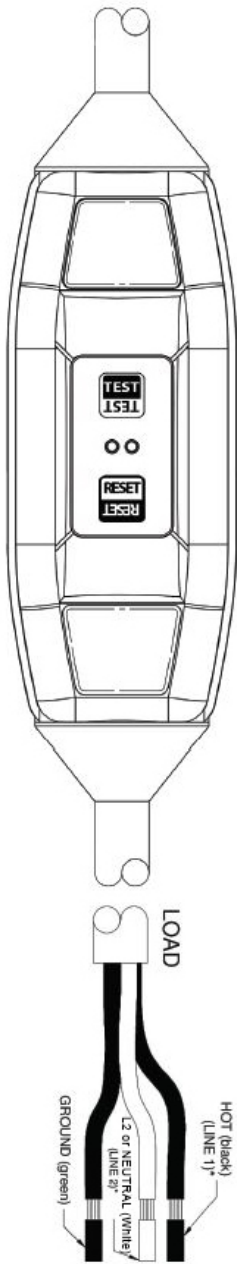
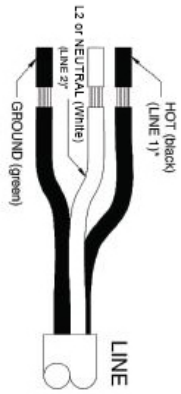
Rated Voltage:	120VAC, 208VAC, 240VAC
Operating Voltage Range: Current:	85% to 110% of rated
Frequency:	Up to 20 Amps or Device Rating
Trip Level:	60 Hz
Phase:	5 +/- 1mA
Response Time:	Single
Dielectric Withstand:	25 mS max at 500ohms 1500 VRMS across contact 4000 VRMS between conductors and enclosure
Surge Withstand:	Up to twenty 4kV 2kA impulses, per IEC 61000-4-5
Operating Temperature range:	-35°C to +66°C
Leakage Current @ 93 Humidity:	Zero
RF Noise Susceptibility:	Normal Operation with 0.5 VRMS injected on power line between frequencies 0.15-230 MHz
Let go Line Voltage:	75% of Rated
Grounded Neutral Detection:	2 Ohms or less (on applicable models)

## GENERAL

Construction:	Industrial Grade Design
Type:	Class A with Self Testing feature
Power – Up Type *:	Auto or Manual (requiring user reset)
Endurance:	3000 Operations Minimum
Open Neutral Protection:	Trips Upon Loss of Neutral
Grounded Neutral Protection:	Trips if Ground and Neutral touch at load side (on applicable models)
Power ON Indication:	Lighted Green LED
Power OFF Indication:	Blinking Red LED
Enclosure Rating:	TYPE 4X, IP69, IP69K
Mounting Type:	Portable
Wiring Application:	3 Wire, Single Phase (Hot, Neutral, and Ground)
Switch Interface:	Double Insulated
Latching Mechanism:	Electromagnetic
False trip due to impact:	None
Agency Approval:	UL E205630

## IMPORTANT NOTE:

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



**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.

#### 120V AC 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.

#### 240V AC 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 Procedure

1. Apply rated power to GFCI.
2. Press and release RESET button, GREEN LED should turn ON and appear in window above reset button. (For Auto Power-Up model, GREEN LED will automatically turn on and appear in window when power is restored)
3. Press Test Button, GREEN LED (Power) turns off and disappears from window. Press and release reset button, GREEN LED turns on and reappears in window.
4. CHECKING FOR CORRECT WIRING:  
If GFCI is wired to protect a cord receptacle, plug a household lamp into the protected cord 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 illuminate when pressing RESET button, unplug GFCI, 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, unplug GFCI, check and correct your wiring connections. Repeat steps 1-4. If problem persists, **do not use this GFCI**. Consult a qualified electrician.