



## 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**

**“Special Purpose” - “Ground Fault Circuit Interrupter” (SPGFCI)** is a device intended to protect against current leakage. 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 SPGFCI if it fails to function as instructed. Never attempt to tamper with this device. This SPGFCI 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 SPGFCI). This SPGFCI is not an over-current protection device. (An appropriate current breaker should be used in series at primary power feed). This SPGFCI does not provide protection against leakages between both circuit conductors. This SPGFCI does not provide protection against current leakages generated by the conductors supplying power to the device. **Note: primary feed to SPGFCI is live even when SPGFCI is tripped. (Power should be disconnected at main service panel before servicing load side of SPGFCI.)**

- Do not use this device to feed power to life support apparatus.
- Do not use with equipment requiring a neutral conductor.
- Installation must comply with local and national electrical codes (NEC).
- Turn power off at the service panel to prevent serious injuries. Such as arc flash!

### **What is a SPGFCI?**

A SPGFCI is a device that ensures that all current is returning from the protected equipment without significantly leaking to ground. 20mA, Special Purpose GFCIs were created for systems with center grounding voltage references greater than 150VAC, where general 6mA thresholds are no longer practical for the application.

### **Why we need a SPGFCI monitoring?**

Electric current leakage to ground may be fatal to personnel, especially with the higher system voltages of a heavy industrial work environment. SPGFCIs are utilized mostly in wet, extreme temperature, or any other high pollution location. This is why most electrical codes require SPGFCI protection in such applications or environments... North Shore Safety's SPGFCI LineGard will offer such protection.

### **How does a SPGFCI operate?**

The SPGFCI constantly monitors the current balance of the conductors supplying power to the load. When a ground fault occurs, by inherent leakage or by shock, the imbalance of current is sensed and the SPGFCI trips when the ground fault exceeds the trip level of the device. The tripping action must be within a fraction of a second to prevent fatality, or conditionally critical injury. A secondary Ground Assurance pilot-system is put into place by SPGFCI design requirements. This ensures that any residual currents under 20mA are being carried away from the protected equipment's personnel interface by grounding, reducing possibilities of serious injury.

### **What a SPGFCI cannot do:**

- Will not protect line side.
- Will not provide protection due to leakage between two current carrying conductors of opposite polarity (SPGFCI sees this as a load).
- 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:	480VAC (305V to ground max) "Class-C"
Operating Voltage Range:	85% to 110% of rated
Current:	Up to 60 Amps or Device Rating
Horsepower:	25HP 3ph / 7.5HP (300LRA) 1ph
Frequency:	60 Hz.
Trip Level:	17.5mA +/- 2.5mA
Response Time:	21ms max at 500ohm fault
Assured Chassis Impedance: Power up:	110ohms +/-15% Auto / Manual (RESET button needs pressed on grid power return)
Display:	Illuminated TEST/RESET pushbuttons, triple indication of Monitoring & Power-out or
Enclosure:	Fault High impact polycarbonate, 8x10x4in, NEMA 4X
Temperature:	-35C to 50C
Connections:	1in-trade, Various UL Listed category DWTT and NEMA 4X, Hubble P100NGYA
Short Circuit:	(stocked) 10KA (panel tested), >100KA with appropriate fusing
Dielectric Withstand:	2000 VRMS across contact, 4000V to enclosure
Surge Withstand:	4000V/2000A 20-times per IEC 61000-4-5
Agency:	Listed to UL943C (KCYC.E485932)

## IMPORTANT NOTE:

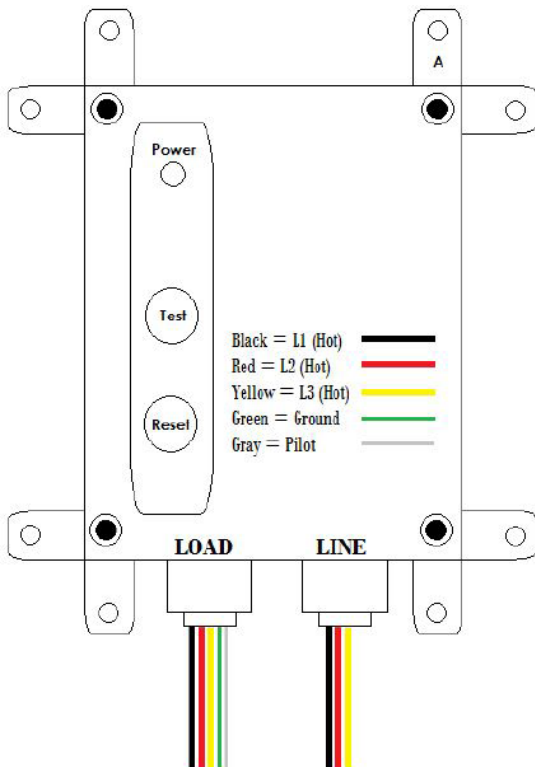
\*Manual configuration should be specified when automatic power-up would create an unsafe condition after restoration of circuit power.

\*\* Ground connection is done external to device enclosure.

PGFS-	Permanent Ground Fault Splice
5	480VAC
1-6	Amperage for de-rated lead wires 14-6awg
1/0	Automatic / Manual "safe start" (power-up type)
0	No alarms available
7	SPGFCl (designator)
-XXX	OEM or custom coding

## INSTALLATION PROCEDURE:

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

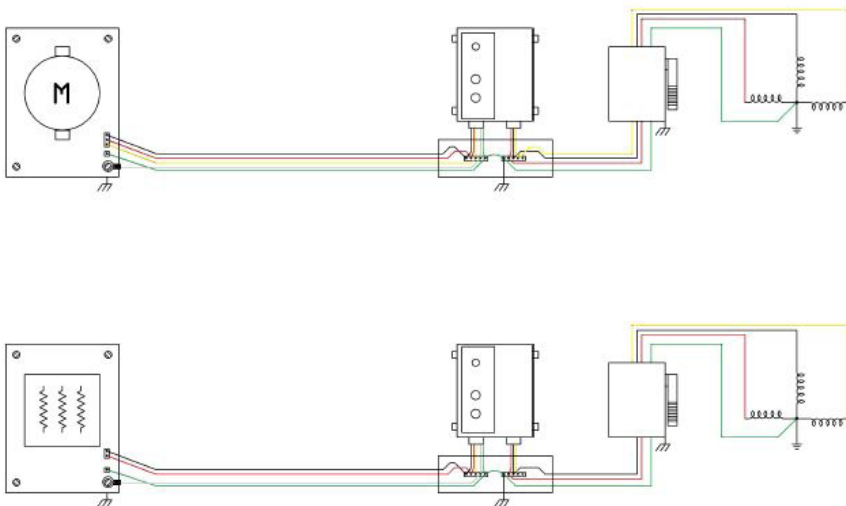


### Single Phase Wiring 277/480 or 240/480 VAC applications:

- Connect Field-Line 1 wire to SPGFCI's Line1 wire (Black) using a wire connector or terminal block.
- Connect Field-Line 2 wire to SPGFCI's Line2 wire (Red) using a wire connector or terminal block.
- SPGFCI's Yellow line wire is cut and capped off for single phase use.
- Connect SPGFCI's Load1 wire (Black) to the protected equipment's Line 1 run.
- Connect SPGFCI Load2 wire (Red) to protected equipment's Line 2 run.
- SPGFCI's Yellow line wire is cut and capped off for single phase use.
- Extend pilot wire (Gray) using a splice connector to connect all the way to chassis of protected equipment (user interface or most contacted panel).
- Connect thin ground wire (Green) locally in the junction box using a wire connector.

### Three Phase Wiring 277/480VAC applications:

- Connect Field-Line 1 wire to SPGFCI's Line1 wire (Black) using a wire connector or terminal block.
- Connect Field-Line 2 wire to SPGFCI's Line2 wire (Red) using a wire connector or terminal block.
- Connect Field-Line 3 wire to SPGFCI's Line3 wire (Yellow) using a wire connector or terminal block.
- Connect SPGFCI's Load1 wire (Black) to protected equipment's Line 1 run.
- Connect SPGFCI's Load2 wire (Red) to protected equipment's Line 2 run.
- Connect SPGFCI's Load3 wire (Yellow) to protected equipment's Line 3 run.
- Extend pilot wire (Gray) using a splice connector **to connect all the way to chassis of protected equipment (user interface or most contacted panel).**
- Connect thin ground wire (Green) locally in the junction box using a wire connector or terminal block.



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 and Load wires (with ground and pilot).
4. Verify that the ratings on the device match your equipment's ratings (Voltage, Current and Horse Power).
5. Disconnect power at main panel.
6. Determine SPGFCI location and drill mounting holes using pamphlet provided.
7. Cut conductors to length and strip wires to length
8. Feed wires into junction box through appropriate hole and secure 1" conduit ends of SPGFCI to junction box.
9. Choose the right wiring application connecting the wires according to the above instruction. The external grounding conductor is to be at least the same size as power conductors.
10. Secure SPGFCI box to mounting panel.

## TEST PROCEDURE:

After the installation has been completed, apply line side power at the branch circuit breaker or fused disconnect. Within a few seconds the SPGFCI shall close its contacts showing a GREEN illuminated RESET button, and YELLOW illuminated OUTPUT POWER light at the top left; (RESET must first be pressed for manual models). After 10sec (self tests completed) press the TEST button, now only the TEST button shall be illuminated RED.

