Yandina LLC.

GALVANIC ISOLATOR PLUS

2.5 Volts for ALUMINUM HULLS Model GI+

Installation Instructions For 30 or 50 amps

SUMMARY

Aluminum hulls have a built-in electric potential of -0.75 to -1.0 depending on the alloy, temperature, salinity and movement. Conventional Galvanic Isolators provide about 1.2 volts of isolation so protection is degraded by up to 80% to negative stray voltages when applied to Aluminum hulls.

The Yandina Galvanic Isolator PLUS for metal boats or aggressive locations provides approximately 2.5 volts isolation in the ground lead of your shore power supply to isolate DC and AC electrolytic voltages coming from the dock but yet pass safety currents to ground in the event of a short circuit, wiring error or power leakage on your boat.

FEATURES

50 amps AC continuous rating.
Use on any shore power connection up to 50 amps.
Only one required for dual 30 amp connections.
Works on 115 or 230 volt supply, one or two phase.
Will work on foreign hook-ups with ground wire.
Failsafe,
Large Capacitor included
Meets ABYC electrical standards. (Except 2.5 volt rating exceeds specifications)
Waterproof - will operate underwater
No heat produced under normal use.
Two 18" 10 gauge Marine Grade leads.
Non metallic housing with mounting tabs.
Ignition protected for use in explosive atmospheres.
Suitable for operation up to 122 F or 50 C
Mounting and connection hardware included.
Very compact size, 8" x 3" x 1.5"

THEORY OF OPERATION

Boats with metal in contact with water are subject to galvanic corrosion when connected to shore power as a result of connection to the common AC grounding conductor. This connection will affect the vessel's cathodic protection system resulting in abnormal deterioration of the zincs and it can result in damaging corrosion of the underwater hull and equipment.

It is necessary for safety reasons to have the hull and exposed metal fixtures connected to ground to prevent electrical shock in the event of a failure in the AC wiring or an appliance. Without that ground connection, the boat could become alive at the line voltage which could injure or kill when stepping onto the boat, or swimming in close proximity.

If an electrical fault doesn't trip the breaker, the ground connection has to be able to withstand rated current indefinitely to conduct the fault current and prevent dangerous voltages. The Yandina Galvanic Isolator PLUS is rated for 50 amps AC continuous current and each isolator is individually tested to 135% of this rating per ABYC standards until the temperature stabilizes.

SAFETY CONSIDERATIONS

The galvanic isolator is connected between the internal grounding system on your boat and the ground lead of the shore power cable(s). This connection is important for safety considerations and you should not attempt this installation unless you understand the circuit and are competent in this type of electrical work.

Although highly reliable, it should be tested once per season, and re-tested after a condition that may have influenced it, such as a lightning strike in the vicinity, or an on-board electrical short that either caused a circuit breaker or fuse to rupture or if the ground connection was used in error for the neutral conductor.

INSTALLATION

1. Mount the isolator inside the vessel to any convenient surface, preferable within about 15 inches of the shore power entry connector using the screws supplied.
2. Disconnect the shore power cord to prevent electric shock while working on the connector.
3. Remove the existing ground wire from the shore power connector. The ground wire is usually green, or green with a yellow stripe. If there is any uncertainty to which is the ground wire, get competent help before proceeding.
4. Connect either of the green leads from the isolator to the vacated terminal of the shore power connector.
5. Connect the other green lead from the isolator to the vessel ground wire you removed, using the U bolt connector supplied. Shorten the leads if necessary.
6. Dress and attach the wires so they are firmly fastened. It is not necessary to insulate the compression connector but you can wrap it with insulation tape if desired.
7. For dual 30 amp cords, connect their ground terminals together before passing through the galvanic isolator PLUS. See the schematic diagram on the next page.
8. IF THE ENTRY ACCESS ABOVE IS INCONVENIENT OR COVERED, CHOOSE THE NEXT DOWNSTREAM GROUND CONNECTION LOCATION.

TESTING

Diode testing meters are frequently unreliable for testing a 2.5 volt diode instead of standard 0.6 volt.

Remove the shore power cable from the dock end only and bring the loose end aboard. Make up a simple test circuit using a battery (6 volts or more) and lamp that lights when the circuit is closed. Do not use a battery already installed on the boat wiring.

Connect the test circuit to the ground pin of the shore power cable and any on-board ground and check the lamp lights. Measure the voltage between the test leads is around 2.5 to 4 volts depending on the size of the bulb. A lower or higher reading indicates the isolator has failed.

You should then reverse the connection to the isolator and repeat the test with the current flowing the opposite direction.

Yandina LLC. **UNLIMITED WARRANTY**
INSTALLATION HELP www.yandina.com
TECHNICAL EMAIL QUERY tech@yandina.com
or call 877 355 2184. Made in the USA

DUAL 30 AMP SCHEMATIC