



Galvanic Isolator Series
OWNER'S MANUAL

GALVANIC ISOLATORS
With Status Monitoring

<u>Models</u>	<u>Amperage</u>
2530P	30 Amps
2550P	50 Amps
2460P	60 Amps



Installation and Instruction Manual

1. INTRODUCING THE GALVANIC ISOLATOR

The Guest Model 2530P, 2550P or 2460P Galvanic Isolators is installed in your boat, and electrically connected between the boat's AC panel ground and the dockside AC ground wire.

The Galvanic Isolator is designed to permit AC ground currents to pass safely between the boat and the dockside, but to block the small DC currents that can flow in seawater between boats in a marina because different metals on the boats are in the water.

Experience has shown that the different metals (steel vs. aluminum, for example) actually become the electrodes of a battery. The battery fluid is the seawater. A direct electrical connection of your boat's hull ground to the dock ground passes on to the hull of a nearby boat, and becomes a short circuit to the seawater battery. So currents flow between the different metals, and actually cause movement of metal just like a plating bath. You may lose metal off your prop shaft or prop blade because of these currents, or you may suffer accelerated corrosion of some boat parts. If zincs protect your boat, they may erode very quickly.

The Galvanic Isolator is a passive device in that it has no control functions, but only serves to block the galvanic currents between boats. It stops the accelerated corrosion caused by these currents and preserves the usefulness of important boat accessories and zincs.

The Guest Model 2530P, 2550P or 2460P includes active Status Monitoring of the internal circuitry, and the external ground connections to assure full effectiveness and safety. Read section 3 for the circuit description.

A green LED is illuminated when the Status Monitoring determines that both internal and external conditions are safe. A red LED is illuminated when either an internal fault or external shore ground unsafe condition exists.

2. INSTALLING THE GALVANIC ISOLATOR

Location

The Guest Model 2530P, 2550P or 2460P Galvanic Isolator should be mounted in the boat hull adjacent to the shore power connector so that no part of the grounding system bypasses the isolator. This location must be ventilated, dry and in an accessible location.

Mounting

Hold the case against the bulkhead wall, and mark the slots with a pencil. Drill mounting holes for a #10 screw in the slot areas you have marked. Then mount and fasten the Model 2530P, 2550P or 2460P to the bulkhead. Depending upon your boat's construction, you may wish to mount the Galvanic Isolator using self-tapping screws, or common machine screws, washers and nuts. We recommend using stainless steel #10 fasteners if possible. The case of the Guest Model 2530P, 2550P or 2460P is flame-retardant ABS plastic.

Warning:

Avoid serious injury or death from electrical shock.
Before opening panel and installation, turn off AC power supply.

AC Connections

The Model 2530P, 2550P or 2460P Galvanic Isolator shall be connected in series with the AC grounding system adjacent to the shore power connection. The external tinned copper bars used for the SHORE GND and BOAT GND terminals have been designed with pressed studs for ease of assembly. Crimp your ground wires (SHORE and BOAT) into suitable ring terminals, and clasp between the pressed studs, nuts and washers provided.

Tightening Torque:

200 inch pounds on Boat GND and Shore GND terminals.

Status Monitoring Connections

The Model 2530P, 2550P or 2460P Galvanic Isolator uses both the boat DC power and the shore power AC neutral (white wire) input connections for monitoring. The 2530P, 2550P or 2460P comes pre-wired with female pins. The female connectors are included separate and may be connected by snapping the color-coded wire with female pin to the respective connector and connector location as shown in figure 1. You may also choose to hard wire the cables directly, in this case please be sure to connect the wires as followed:

<u>Galvanic Isolator</u>	<u>Connection to</u>
Red wire	12VDC – battery positive terminal
Black wire	Ground – battery negative terminal
White wire	AC Neutral

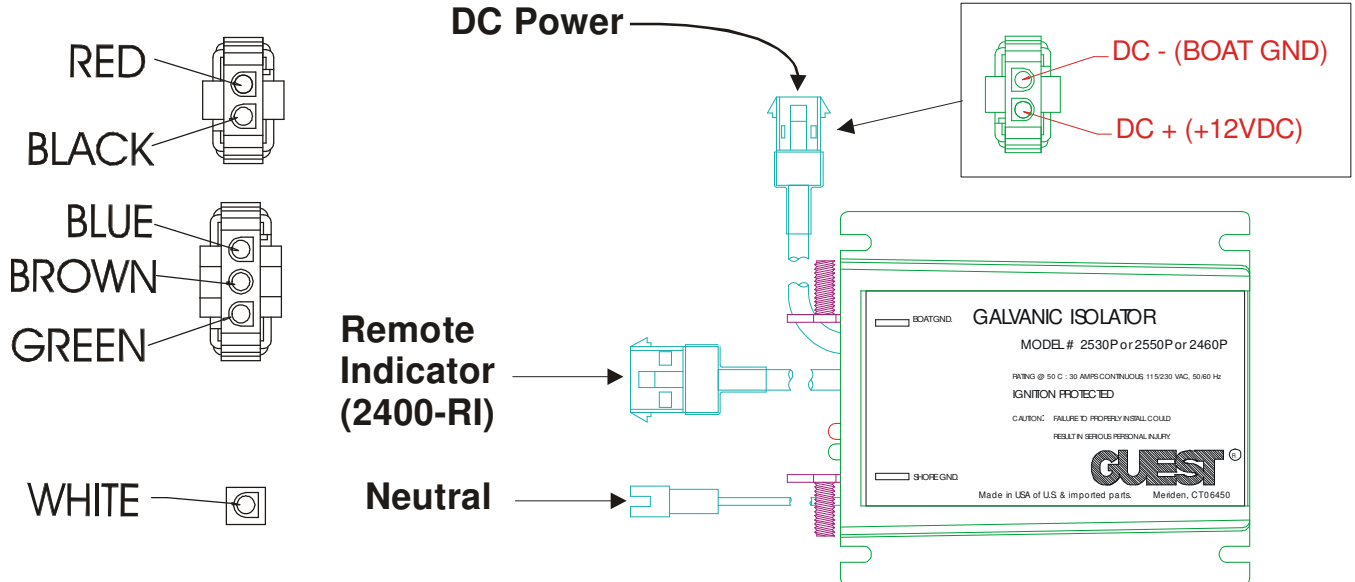


Figure 1

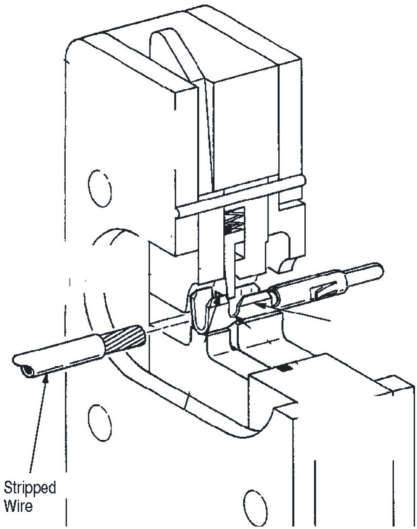
Fusing Requirement:

To ensure a safe installation of the galvanic isolator a UL listed 32VDC, 1A fuse is required in line with the 12VDC connection.

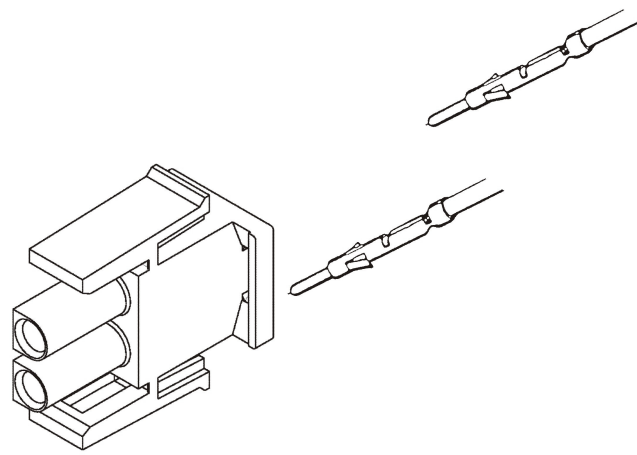
The mating connectors listed below are included in the package:

<u>Connection</u>	<u>Quantity</u>	<u>AMP Connector Part Number</u>	<u>Quantity</u>	<u>Amp Pin Part Number</u>
DC Power	1	1-480698-0	2	350547-1
Neutral	1	1-350867-0	1	350547-1

To use the mating connectors included simply crimp the pins to the connecting minimum 18AWG wires and insert the pins into the respective connector in a way to ensure proper polarity. See figures below.

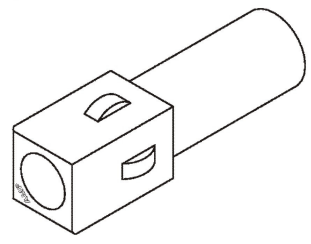


We recommend using AMP crimp tool 58439-1.



12VDC - battery positive

Ground - battery negative



AC Neutral wire

External Remote indicators

For external remote indicator, please purchase Guest Model 2400-RI.

Wire does not need to be connected when not in use.

3. CIRCUIT DESCRIPTION

The Model 2530P, 2550P or 2460P Galvanic Isolator has been designed to the full requirements of the American Boat and Yacht Council (A.B.Y.C.) A-28 standard, including the Status monitoring features. The basic ratings include:

- Rated current of 30 Amps AC continuous @ 50 / 60 Hz;
- AC surge (fault) current of 3,000 Amps for the 2530P;
- AC surge (fault) current of 5,000 Amps for the 2550P;
- AC surge (fault) current of 6,000 Amps for the 2460P;
- DC (Galvanic) blocking of ± 1.1 VDC at 30 mA, including the effects of a 3 Amp AC test current superimposed;
- Ignition Protected

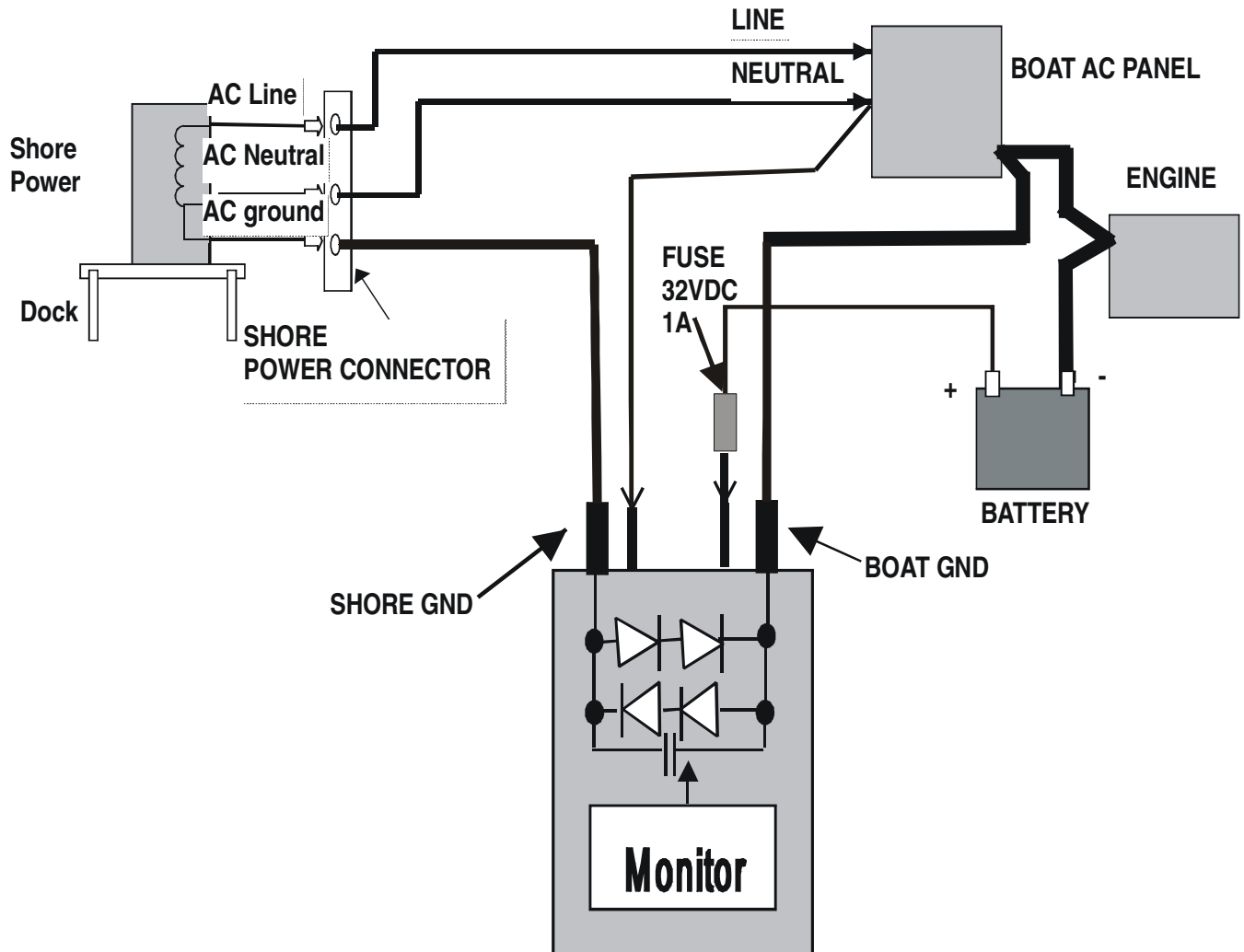
The internal Status Monitoring features include:

- Checking for open or shorted diode;
- Failure to block galvanic current;
- Circuit continuity of the shore grounding;
- Failure of the status monitoring system.

4. OPERATION OF THE GALVANIC ISOLATOR

The operation of the Galvanic Isolator in blocking the stray currents that are attracted to your boat in the water, while passing the necessary AC currents back to shore power, diagram is shown below

2530P, 2550P or 2460P Galvanic Isolator



The diodes block the galvanic currents up to ± 1.1 VDC, the highest expected voltage for galvanic effects in water. The capacitor permits AC currents to pass safely back to shore.


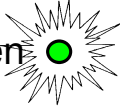
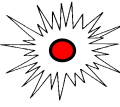

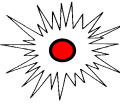

Status Monitoring

The internal Status Monitor continuously checks the proper functioning of the following:

- Diodes
- Capacitor
- Integrity of the external shore ground connection

It reports malfunctions via the red FAULT LED on the case and FAULT output.

The **LED Function Chart** below describes the status monitoring function

Display	Operating condition
Red  Green 	When the green LED is on , the 2530P, 2550P or 2460P is in fact blocking low voltage DC galvanic current flow while permitting the passage of AC current normally associated with the grounding. If the green LED stays on when AC power is disconnected, refer to Problem 1 in the troubleshooting section in this manual.
Red  Green 	When the red LED is on continuously , the 2530P, 2550P or 2460P is detecting a fault condition internally to the Galvanic Isolator. If this is the case, refer to Problem 2 in the troubleshooting section in this manual.
Red  Green 	When the red LED is blinking on and off , either: <ul style="list-style-type: none"> • The AC power is disconnected, this will also be the case when you are underway because the connection between AC neutral and AC safety ground is open, or; • There is large amount of current in the grounding system. Note: This may takes a minute to occur the Galvanic Isolator is set to verify functionality every minute. If this is the case, refer to Problem 3 in the troubleshooting section in this manual.

5. TROUBLESHOOTING

Problem	Cause	Solution
1. Green LED stays ON even when AC power is disconnected	2. Sensing of the AC neutral and AC safety ground connection.	<ol style="list-style-type: none"> 1. Verify that no part of the grounding system bypasses the isolator. 2. Verify the AC Neutral connection is in place.
2.Red LED is ON continuously	1. A fault internal to the galvanic isolator has occurred.	1. Return Galvanic Isolator to the Guest Service Department.
3. Red LED flashes ON and OFF.	<ol style="list-style-type: none"> 1. The AC power is disconnected. 2. Large amount of current is flowing through the safety ground system. 	<ol style="list-style-type: none"> 1. Connect AC power and verify the green LED turns ON, if so then when AC is disconnected the fault may be ignored. 2. Verify that no part of the grounding system bypasses the isolator 3. Verify the AC Neutral connection is in place 4. Disconnect all appliances connected to AC power on vessel, verify green LED turns ON. 5. Contact Guest Service Dept.
4. Neither of the LED's turn on.	<ol style="list-style-type: none"> 1. No BOAT GND or 12VDC connection 2. Component failure 3. Bad DC fuse 	<ol style="list-style-type: none"> 1. Connect BOAT GND and 12VDC 2. Return Galvanic Isolator to the Guest Service Dept. 3. Replace DC fuse.

LIMITED WARRANTY

For one (1) year from the date of original purchase, The Guest Co. will at its discretion repair or replace for the original consumer, free of charge, any parts found defective in material or workmanship. All transportation charges under this warranty must be borne by the consumer.

Proof of Purchase is required. A computerized register receipt is required. Hand written receipts are not accepted for warranty proof of purchase. In the absence of a receipt, warranty period will be calculated from date of manufacture printed or stamped on the product.

There is no other expressed warranty. Implied warranties, including those of merchantability and fitness for a particular purpose, are limited to one year from date of purchase. This is the exclusive remedy, and consequential damages are excluded where permitted by law.

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