Yandina LLC.

GALVANIC CAPACITOR

Installation Instructions for use with 30 or 50 amp isolators

SUMMARY

The Yandina Galvanic Capacitor provides a path for low level AC leakage currents allowing them to bypass your Galvanic Isolator. It is compatible with all Galvanic Isolators. It is NOT AN ISOLATOR and cannot be used without being connected in parallel with an isolator.

FEATURES

- 5 amps AC maximum continuous rating.
- Use with any existing or new Galvanic Isolator
- Increases bypass of internal isolator capacitors
- 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 hardware included.
- Very compact size, 4" x 2" 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 equipment.

If you have an AC appliance, especially an old one that has accumulated some salt haze, AC can leak to the ground connection and then add to the DC voltage being blocked by your galvanic isolator. While the DC voltage is typically less than 0.6 volts and being blocked by the isolator, this voltage gets added on top of the AC leakage. With 1 volt of AC leakage, the peak on each ½ cycle will be 0.6 + 1.4 = 2 volts so it will pass through the galvanic isolator. This reduces the effective isolation by up to 45% depending on the amount of AC leakage.

The Capacitor included in most galvanic isolators is routinely inadequate to bypass this AC current so in installations where you are experiencing AC leakage our Galvanic Capacitor can be added to bypass ALL the AC and restore full DC protection.

TESTING YOUR BOAT FOR AC LEAKAGE

Temporarily disconnect your Galvanic Isolator and place and AC voltmeter between the boat ground and the incoming shore power ground. It should be zero and by turning your AC devices on and off you can monitor the amount of leakage that each one is introducing. AC leakage can even be coming in from the dock connections being caused by mis-wired boats using the ground return instead of the neutral. If all readings are below 0.5 volts you are not losing DC isolation due to the AC.

You can repeat the above with the Galvanic Isolator restored to see how much AC bypass is built into your isolator. If the AC volts reading now exceeds 0.5 volts you need the Galvanic Capacitor to reduce it to nearly zero.

Particularly bad leakage AC devices should be checked to identify the source of the leakage and corrected if possible.

INSTALLATION

1. Mount the Galvanic Capacitor adjacent to the Galvanic Isolator.
2. Connect the green cables across the isolator so they are connected in parallel.

Note that it may be necessary to isolate your cable TV connection for full electrolysis protection.

TESTING

The Galvanic Capacitor is extremely reliable. Its maximum voltage rating is 6 volts but since it is installed in parallel with a Galvanic Isolator the highest voltage it sees is about 2 volts.

You can test it with a 1.5 volt flashlight battery. Do NOT use your 12 volt battery to test. With your DC amp meter **set on the highest range** connect the battery to the Galvanic Capacitor through the meter. If it is shorted you will read the maximum output current of the battery which should be low enough it won't damage your meter. If it is working you will see this current drop as the capacitor charges and it should drop below 0.1 milliamps. Then short out the capacitor to remove the charge and repeat the above test in the opposite polarity.

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