## Installation (continued)

### Surface Mount

3. **Shunt Location**

Blue Sea Systems' Ammeters from 50 Amperes to 300 Amperes utilize an external shunt as their current sensing device. The nature of current measurement is that the full current to be measured must flow through the shunt. Choose the site in the circuit to be measured where the shunt is to be installed. It may be either in the positive or negative side of the circuit. The shunt may be mounted at any point in the circuit, but mounting it close to the meter will keep the sense wires short, minimizing voltage loss and interference, creating the most accurate meter reading.

4. **Connections**

Blue Sea Systems offers zero center ammeters for the purpose of measuring flow in those circuits in which current at different times flows in different directions. Examples of bidirectional current circuits are:

- **Negative wire connecting the ship's batteries to the negative distribution bus.** During discharge current flows toward the battery and during charging current flows away from the battery. Measuring current flow in this wire will tell at any moment whether the battery is in a net charge or discharge situation.

- **Circuits which have auxiliary charging devices mixed with load devices.** Frequently charging devices such as wind generators and solar panels are connected to circuits that also power load devices. This mixture of load and charge devices can create net current values that are sometimes positive and sometimes negative depending on whether the charge device is producing more current than the load devices are consuming.

- **Inverter/Charger - DC cables connecting the inverter to the battery.** The positive wire of this circuit has current flowing away from the batteries during inverter use and toward the batteries when the inverter is receiving AC input and is acting as a battery charger. A zero center meter in this circuit will indicate whether the inverter is acting as a battery charger or is pulling current from the batteries.

### Panel Mount: For thicker mounting surfaces, the meter can be mounted into a 0.125” thick panel. Blue Sea Systems offers meter mounting panels for our standard size meters only. Use PN 8013 to mount a single meter or PN 8014 to mount two meters.
4. Connections (continued)

In many situations, it will require a thoughtful analysis by the boater to determine exactly where to place the ammeter sensing shunt in a circuit to obtain the current flow information that is sought. As illustrated in the initial example, it may sometimes be necessary to place the shunt in the negative wire of the circuit to be able to isolate the exact current value that is desired. The shunt can be placed in either the positive or negative line. Assuming one positive wire from voltage source to load and one negative wire returning to the voltage source, the amperage is always exactly the same in both the positive and the negative wire.