BLUE SEA SYSTEMS
Marine Electrical Products

AC Source Selection Panel

PN 8498 / PN 3498 / PN 8598 / PN 3598

Panel Specifications

Material:	0.125” 5052-H32 Aluminum Alloy	
Primary Finish:	Chemical Treatment per Mil Spec C-5541C	
Final Panel Finish:	Graphite color 2 part textured Polyurethane	
Amperage Rating:	PN 8498 / PN 3498 is rated for 30/50 amp service	
	PN 8598 / PN 3598 is rated for 16/32 amp service	
Voltage Rating:	PN 8498 / PN 3498	120 Volts AC
	PN 8598 / PN 3598	230 Volts AC
	Inches	**Millimeters**
Overall Dimensions:	10-1/2 x 4-1/2	266.7 x 114.3
Mounting Centers:	9-11/16 x 3-11/16	246.10 x 93.70

Panel Features

PN 8498 / PN 3498 / PN 8598 / PN 3598

- 2 seperate AC load groups with transfer switch to combine into one load group

PN 8498 / PN 3498

- Three double pole 30 Ampere AC main circuit breakers and one double pole 50 Ampere AC main circuit breaker with lockout slides

PN 8598 / PN 3598

- Three double pole 16 Ampere AC main circuit breakers and one double pole 32 Ampere AC main circuit breaker with lockout slides

⚠ WARNING ⚠

- ☑ It is not possible within the scope of these instructions to fully acquaint the installer with all the knowledge of electrical systems that may be necessary to correctly install this product. If the installer is not knowledgeable in electrical systems we strongly recommend that an electrical professional be retained to make the installation.
- ☑ If either the panel front or back is to be exposed to water it must be protected with a waterproof shield.
- ☑ The panels must not be installed in explosive environments such as gas engine rooms or battery compartments as the circuit breakers are not ignition proof.
- ☑ The vessel’s shore power cord must be disconnected form shoreside power before installing this electrical panel.
- ☑ If an inverter is installed on the vessel its power leads must be disconnected at the battery before the panel installation. Be aware that many inverters have a “sleep mode” in which their voltage potential may not be detectable with measuring equipment.
- ☑ If an AC Generator is installed aboard it must be stopped and rendered inoperable before the panel is installed.
- ☑ Verify that no other AC source is connected to the vessels’ wiring before the panel is installed.

Guarantee

Any Blue Sea Systems product with which a customer is not satisfied may be returned for a refund or replacement at any time

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Installation

1. Disconnect all AC and DC power

Disconnect all AC power originating on or off the vessel. This includes inverters, generators, shore power attachments and any other device capable of supplying AC power to the ship’s circuits.

Disconnect the main positive DC cable from all batteries to eliminate the possibility of a short circuit and to disable the inverter while installing the distribution panel.

2. Select mounting location and cut opening

If this panel is to serve as your main shore power disconnect circuit breaker, select a location which is not more then 10 feet from the shore power inlet or the electrical attachment point of a permanently installed shore power cord as measured along the conductors of the feed wires. If it is more then 10 feet, additional fuses or circuit breakers must be installed within 10 feet of the shore power inlet.

Select a mounting location which is protected from water on the panel front and back and is not in an area where flammable vapors from propane, gasoline or lead acid batteries accumulate. The circuit breakers used in marine electrical panels are not ignition protected and may ignite such vapors.

Using the panel template provided, make a cut out in the mounting surface where the distribution panel is to be mounted. Do not yet fasten the panel to the mounting surface.

3. Install feed circuit wires, sources 1, 2, and 3

Install the feed wires from AC sources 1, 2, and 3. Refer to the wire sizing chart to select the correct wire size. Connect the black AC hot, white AC neutral and green AC safety ground as shown in the illustration.

Do not confuse the neutral current carrying wires (sometimes called ground) with the green normally non-current carrying wires (sometimes called grounding). These two wires must be connected only at the source of power, nowhere else.

Wire sizing chart

Use the wire sizing chart below to determine the minimum branch and feed circuit wire sizes.

Allowable Amperage of Conductors

Wire Size (AWG)	Outside Engine Spaces	Inside Engine Spaces
16	25.0	21.3
14	35.0	29.8
12	45.0	38.3
10	60.0	51.0
8	80.0	68.0
6	120.0	102.0
4	160.0	136.0
2	210.0	178.5

Note: This chart assumes wire with 105° C insulation rating and no more than 2 conductors are bundled. Not suitable for sizing flexible shore power cords.

Installation (continued)

4. Installation of Backlight System

The backlight board is a DC device. When installing it in an AC panel both wire leads must be connected to an appropriate DC source and ground.

Connect the yellow negative wire to a DC ground. Connect the red positive wire to any DC positive supply, usually a switch that controls the vessel's other nighttime illumination.

5. Apply circuit labels and mount panel

Apply a label for each circuit from the 10 basic labels provided. Fasten the panel to the mounting surface.

6. Testing

- ☑ Connect the shore power cables to the boat AC power inlet. Do not connect the shore power cables to the shore power pedestal. Instead run the shore power cable such that the shore power plug is next to the AC panel. With an Ohmmeter verify that the pins of the shore power plugs are connected to the appropriate terminals of the panel. Refer to ABYC E-11 Figure 13 or 14 or NEC / NEMA or locally approproiate documents for the standard pin arrangements for your plug.
- ☑ Connect the vessel's shore 1, shore 2, and genset power and verify the Reverse Polarity lights are not illuminated. Verify that the green LEDs are illuminated to ensure that power is present at the panel. If the red Reverse Polarity light is on then either the hot and ground or the hot and neutral wires have been crossed. Starting at the panel, trace the connections back as far as necessary to locate the error.
- ☑ Using a multimeter where the shore power is connected to the panel verify:

PN 8498 / PN 3498 - 120 Volt AC

a. 120 volts between hot and neutral (nominal, this may vary depending on source voltage)
b. 120 volts between hot and ground.
c. 0 volts between neutral and ground.

PN 8598 / PN 3598 - 230 Volt AC

a. 230 volts between hot and neutral (nominal, this may vary depending on source voltage)
b. 230 volts between hot and ground.
c. 0 volts between neutral and ground.

- ☑ Turn off the shore power and test with the alternate source.

The Purpose of the AC Main Source Selector Panel

Two live sources of AC power, such as shore power and inverter power, or shore power and a generator, cannot be electrically connected. The AC Main Source Selector panel is designed to prevent both sources from being connected to the circuit simultaneously.

The Purpose of a Panel

There are six purposes of a marine electrical panel:

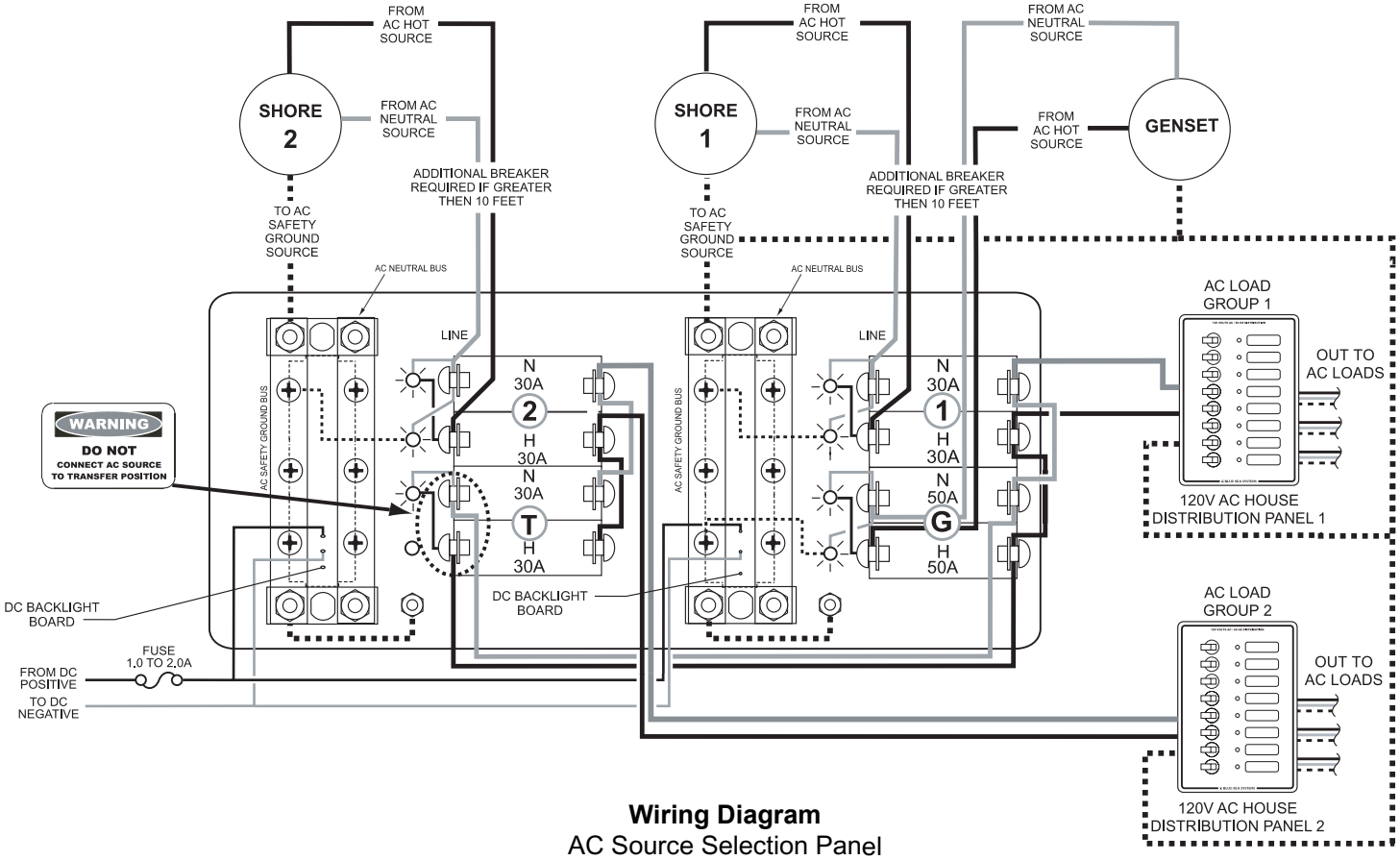
- Power distribution
- Circuit (wire) protection
- Circuit ON/OFF switching
- Reverse Polarity Indication
- Metering of voltage and amperage (In panels with meters)
- Condition Indication (circuit energized)

Applicable Standards

- American Boat and Yacht Council (ABYC) Standards and recommended Practices for Small Crafts sections: E-8, Alternating Current Electrical Systems on Boats.
- United States Coast Guard Code of Federal Regulations 33, Part 183, Subpart I, Electrical Systems on Boats.

Related Products from Blue Sea Systems

- High Amperage Fuses and Circuit Breakers for positive feed wires
- High Amperage Battery Switches
- Terminal Blocks and Common Bus Connectors
- AC Distribution Panels
- DC Distribution Panels
- AC and DC Digital and Analog Voltmeters and Ammeters



Wiring Diagram
AC Source Selection Panel
PN 8498 / PN 3498