**AC Main Source Selector Panel**

**PN 8475 / PN 3475 / PN 8575 / PN3575**  
**PN 8476 / PN3476 / PN 8576 / PN 3576**

**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: All components are sized for 100 Amps of continuous current
- Voltage Rating: See Panel Features
- Meter: AC Digital Multimeter with Alarm PN 8247
- Overall Dimensions: 8475/3475 14-3/4 x 7-1/2 374.65 x 190.50
  - 8575/3575 14-3/4 x 7-1/2 374.65 x 190.50
  - 8476/3476 14-3/4 x 11-1/4 374.65 x 285.80
  - 8576/3576 14-3/4 x 11-1/4 374.65 x 285.80
- Mounting Centers: 8475/3475 13-15/16 x 6-11/16 354.00 x 169.90
  - 8575/3575 13-15/16 x 6-11/16 354.00 x 169.90
  - 8476/3476 13-15/16 x 10-7/16 354.00 x 265.10
  - 8576/3576 13-15/16 x 10-7/16 354.00 x 265.10

**Panel Features**
- PN 8475 / 3475 / 8575 / 3575 / 8476 / 3476 / 8576 / 3576
  - PN 8247 AC Digital Multimeter with alarm
  - Two double-pole 30 Ampere AC main world circuit breaker with lockout slide
  - 15 Ampere world branch circuit breakers installed
  - PN 8575 / 3575 / 8476 / 3476 - 230 Volts AC
  - Two double-pole 16 Ampere AC main world circuit breaker with lockout slide
  - 8 Ampere world branch circuit breakers installed

**Applicable Standards**
- United States Coast Guard 33 CFR Sub Part 1, Electrical Systems.

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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 than 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 than 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 branch circuit wires**
   - Determine the minimum wire size for each branch circuit using the wire sizing chart. Verify that the standard circuit breakers installed in the panel are correct for each branch circuit. Remove and replace any that are incorrectly sized. The circuit breaker must have a rating less than the allowable amperage of the wire, yet greater than the circuit’s continuous current.

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**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. Reference Blue Sea Systems’ Digital Meter installation manual for specific meter warranty information.

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**Wire sizing chart**

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

**Allowable Amperage of Conductors**

<table>
<thead>
<tr>
<th>Wire Size (AWG)</th>
<th>Outside Engine Spaces</th>
<th>Inside Engine Spaces</th>
</tr>
</thead>
<tbody>
<tr>
<td>16</td>
<td>25.0</td>
<td>21.3</td>
</tr>
<tr>
<td>14</td>
<td>35.0</td>
<td>29.8</td>
</tr>
<tr>
<td>12</td>
<td>45.0</td>
<td>38.3</td>
</tr>
<tr>
<td>10</td>
<td>60.0</td>
<td>51.0</td>
</tr>
<tr>
<td>8</td>
<td>80.0</td>
<td>68.0</td>
</tr>
<tr>
<td>6</td>
<td>120.0</td>
<td>102.0</td>
</tr>
<tr>
<td>4</td>
<td>160.0</td>
<td>136.0</td>
</tr>
<tr>
<td>2</td>
<td>210.0</td>
<td>178.5</td>
</tr>
</tbody>
</table>

**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. Install feed circuit wires, source 1 and source 2
Install the feed wires from the shore power inlet or other AC source, referring 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.

If the feed wires are from the shore power inlet or the electrical attachment point of a permanently installed shore power cord and the inlet or attachment point is more than 10 feet from this panel, an additional fuses or circuit breakers must be installed within 10 feet of the shore power inlet. The measurement is made along the conductors.

5. 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.

6. Apply branch circuit labels and mount panel
Apply a label for each of the branch circuits from the 30 basic labels provided. If the appropriate label is not included, the Extended Label Set of 120 labels may be ordered from your marine supplier (PN 8067). Individual labels are also available from Blue Sea Systems for specific applications. Refer to the label order form for a complete listing of individual labels.

Fasten the panel to the mounting surface using the panel mounting screws supplied with the panel.

7. Testing
✓ Connect the shore power cable to the boat AC power inlet. Do not connect the shore power cable 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 plug are connected to the appropriate terminals of the panel. Refer to ABYC E-11 Figure 13 or 14 or NEC / NEMA documents for the standard pin arrangements for your plug.

✓ Connect the vessel’s shore power and verify the Reverse Polarity light is not illuminated. 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 power source is connected to the panel verify:

PN 8475 / PN 3475 / PN 8476 / PN 3476 - 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 8575 / PN 3575 / PN 8576 / PN 3576 - 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 on each branch circuit to verify power to each circuit.


8. Optional Branch LED’s
This Panel is supplied with LED’s pre-installed in all optional branch positions. For future expansion of the panel remove the hot leg of the LED from the AC Neutral Bus and connect it to the Load side of the branch circuit breaker.

Note
All Blue Sea Systems’ AC electrical distribution panels are furnished with 15 amp or 8 amp circuit breakers for branch circuits. 15 amp circuit breakers are used in all 120 volt panels and 8 amp circuit breakers are used in all 230 volt panels. These ratings were selected to minimize the need for removing the panel’s circuit breakers and reinstalling different size circuit breakers. It is very rare to have more than this amount of current flowing in any one circuit. Therefore, these circuit breakers will satisfy the vast majority of marine circuit protection situations.

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)

Useful Reference Books
Installation (continued)

**Wiring Diagram**

AC Main Source Selector Distribution Panel
(PN 8476 / PN 3476 shown for reference)