**SI-ACR Automatic Charging Relay with Start Isolation**

- Automatically combines batteries during charging, isolates batteries when discharging and when starting engines.
- Supports high-output alternators up to 120 Amps.
- Ignition protected—safe for installation aboard gasoline powered boats.
- LED light is ON when batteries are combined.
- Allows temporary isolation of house loads from engine circuit during engine cranking to protect sensitive electronics—start isolation indicated by blinking LED.
- Under voltage lockout—will not close when the lower battery is below 9.5V @ 12V systems or 19V @ 24V systems—lockout indicated by blinking LED.
- For 12 or 24 volt systems.
- Dual Sensing—senses charge source on either battery bank.

**Specifications**

*12V DC 24V DC*

- Continuous Rating: 120A 120A
- Intermittent Rating (5 min.): 210A 210A
- Maximum Cable Size: 1/0 AWG 1/0 AWG
- Terminal Stud Size: 3/8”-16 (M10) 3/8”-16 (M10)
- Maximum Torque: 140 in-lbs 140 in-lbs

**Relay Contact Position**

- Combine (30 sec.): 13.6V 27.2V
- Open Low (10 sec.): 12.35V 24.7V
- Over Voltage Lockout: 16.0V 30.0V
- Under Voltage Lockout: 9.5V 19V

**Regulatory**

- Rated IP67—temporary immersion for 30 minutes.
- Marked for ignition protection, meets ISO 8846, UL 1500 and SAE J1771 external ignition protection requirements.

**SI-ACR Installation:**

- To minimize corrosion to wire and terminals, mount in a dry and protected location. Avoid locations directly above battery banks.
- To sense charging sources on either battery bank, connect one battery bank positive to stud terminal A. Connect the other battery bank positive to stud terminal B.
- Connect the quick connect terminal marked GND (ground) to the DC system ground through a ten to fifteen amp in-line fuse to prevent fault currents from flowing in this wire.
- Connect a wire from the quick connect terminal marked SI (start isolation) to the terminal or wire running from the start key switch to the starter solenoid. Make this connection through an in-line fuse of 1 to 10 Amps. This connection can be made at the start key switch or at the starter solenoid, but must be to the line that is positive only when cranking. Connection to a line that is positive while the engine is normally running will prevent the charging relay from working properly.
- To connect a remote LED indicator, connect the red wire of the LED to a positive source through a 2A inline fuse. Connect the yellow wire of the LED to the quick connect terminal marked LED.
- Remote indicator lamp – mirrors “COMBINED” LED on unit. Appropriate 12/24V LEDs include Blue Sea Systems PNs 8033 (amber), 8171 (red), or 8172 (green).

**Operation**

- Turn all loads off before turning the battery switch to OFF.
- Do not switch to OFF while the engine is running.
- Open/Close Cycling—if your electrical system is configured with a charging source that cannot supply the full load current being drawn from the receiving batteries, an open/close cycling process can occur. If this cycling continues, the second battery bank could eventually discharge even though a charge source is present.
- The 120A SI-ACR is not intended to carry starting currents. Use the battery switch COMBINE BATTERIES position to combine battery banks for emergency starting.

**Guarantee**

Blue Sea Systems stands behind its products for as long as you own them. Find detailed information at www.bluesea.com/about.

For customer service, call 800-222-7617.
**Wire Size and Fuse Ratings**

<table>
<thead>
<tr>
<th>Charging Amps</th>
<th>Minimum Wire Size*</th>
<th>Fuse Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>≤50</td>
<td>10 mm²</td>
<td>75-90A</td>
</tr>
<tr>
<td>≤70</td>
<td>16 mm²</td>
<td>80-90A</td>
</tr>
<tr>
<td>≤90</td>
<td>25 mm²</td>
<td>125-130A</td>
</tr>
<tr>
<td>≤110</td>
<td>35 mm²</td>
<td>150A</td>
</tr>
<tr>
<td>≤120</td>
<td>50 mm²</td>
<td>150-175A</td>
</tr>
</tbody>
</table>

* Larger wire sizes may be required to minimize voltage drop in long wire runs. For more information, please visit the Circuit Wizard at circuitwizard.bluesea.com

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**Installation Diagram**

Engines With Combined Alternator and Starter Wires
- typical of outboard motors

Engines With Separate Alternator and Starter Wires
- typical of inboard engines

**Alternator Wiring may Include the Following:**
1. to Starter
2. to Engine terminal of battery switch
3. to Start Battery
4. to House Battery

Alternator connected to a larger battery bank is most efficient. This diagram is for reference only. Alternator wiring configuration does not affect ACR installation.

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**Dimension Drawings**