

Blue Sea Systems 7610

Blue Sea Systems 7610 120 Amp SI-Series Automatic Charging Relay Instruction Manual

Model: 7610 | Brand: Blue Sea Systems

1. INTRODUCTION

The Blue Sea Systems 7610 SI-Series Automatic Charging Relay is designed to automatically manage the charging of two battery banks. This system eliminates the need for manual switching, ensuring your engine's starting battery remains charged while also maintaining the charge of your house batteries. It provides reliable power management for marine and automotive applications.

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Video 1: Blue Sea Systems ML ACR Product Overview. This video provides a general overview of the Automatic Charging Relay's function and benefits, including automatic battery management and isolation.

2. SETUP AND INSTALLATION

The 7610 SI-Series Automatic Charging Relay is designed for straightforward installation. Ensure all power is disconnected from the battery banks before beginning installation. The unit should be mounted in a location that allows for short, clean wire runs to the battery banks and charging source.

2.1 Component Overview



Figure 1: Blue Sea 7610 SI-ACR with its protective cover removed, illustrating the main terminals and control connections. This view helps identify the connection points for installation.

2.2 Wiring Connections

Connect the main battery cables to the large terminals labeled 'A' and 'B' on the relay. The smaller terminals are for control wiring, including ground, start isolation, and LED output. Refer to the detailed wiring diagram provided with your product for specific connections. The relay is dual sensing, meaning it can detect charging voltage from either battery bank.



Figure 2: Close-up view of the Blue Sea 7610 SI-ACR's terminals and product label. The label provides key specifications and a QR code for additional information. The terminals are clearly visible for wiring. For optimal performance, ensure all connections are secure and properly insulated. The unit is ignition protected, making it safe for installation in engine compartments.

3. OPERATING INSTRUCTIONS

The SI-Series Automatic Charging Relay operates automatically to combine battery banks for charging and isolate them for discharge. This ensures the starting battery is always reserved for engine starting.

3.1 Automatic Operation

When a charging source (alternator, shore power charger, solar panel) is active and the voltage on either battery bank rises above a preset threshold, the relay will automatically combine the battery banks, allowing both to charge. When the charging source is removed and the voltage drops, the relay will automatically separate the battery banks to prevent discharge from one bank affecting the other.

3.2 Manual Override and Lock-Off

The SI-Series ACR features a manual override function, typically a yellow knob or lever, which allows for greater control:

- **Force Connect:** Manually combine batteries for emergency starting or charging.

- **Isolate Batteries:** Manually separate batteries, preventing any connection between them.
- **Automatic:** Return to standard automatic operation.
- **Lock Off:** Completely disable the relay, preventing any automatic or manual connection. This is useful for maintenance or long-term storage.

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Video 2: Blue Sea Systems Add-a-Battery Product Overview. This video demonstrates the automatic charging and isolation features, as well as the manual override options available on similar Blue Sea Systems products.

3.3 LED Indicator

The integrated LED provides instant feedback on the relay's status:

- **Solid ON:** Batteries are combined and charging.
- **Single Flash (15 sec.):** Standby mode, waiting for charging voltage.
- **Double Flash:** Start Isolation, preventing house battery drain during engine start.
- **Triple Flash:** Under Voltage Isolation, indicating low voltage on one or both batteries.



Figure 3: Detailed view of the product label, highlighting the LED indicator and its corresponding flash codes for different operational statuses.

4. MAINTENANCE

The Blue Sea Systems 7610 SI-Series Automatic Charging Relay is built for durability in harsh marine and automotive environments. It is waterproof (IP67 rated) and ignition protected, requiring minimal maintenance.

- Regularly inspect all wiring connections for tightness and corrosion.
- Keep the unit clean and free from debris.
- Ensure the manual override knob/lever operates smoothly.
- No internal user-serviceable parts. Do not attempt to open the sealed unit.

5. TROUBLESHOOTING

If the Automatic Charging Relay is not functioning as expected, refer to the LED indicator for diagnostic information:

- **No LED activity:** Check power connections to the relay. Ensure the unit is not in "Lock Off" mode.
- **Single Flash (Standby):** The relay is waiting for a charging voltage to combine batteries. Verify your charging source (alternator, charger) is active and producing sufficient voltage.
- **Double Flash (Start Isolation):** This is normal during engine cranking. If it persists after the engine starts, check the engine's charging system.
- **Triple Flash (Under Voltage Isolation):** Indicates that one or both battery banks are below the minimum voltage threshold for combining. Charge the batteries manually if necessary, or check for excessive load.
- **Batteries not combining:** Ensure the manual override is not set to "Isolate Batteries" or "Lock Off". Check for proper voltage from the charging source.
- **Batteries not isolating:** Ensure the manual override is not set to "Force Connect". Check for parasitic loads or a faulty charging source keeping voltage high.

For persistent issues, consult a qualified marine or automotive electrician.

6. SPECIFICATIONS

Feature	Specification
Model	7610
Connector Type	Screw
Contact Material	Copper
Contact Type	Normally Open
Current Rating	120 Amps (Continuous)
Mounting Type	Panel Mount
Operation Mode	Automatic
Coil Voltage	24 Volts (Compatible with 12V/24V systems)
Number of Terminals	2 (Main Power) + Control Terminals
Specification Met	Automotive and Marine Electrical System Standards (SAE J1171, ISO 8846)
Waterproof Rating	IP67
Item Weight	0.01 Ounces
Unit Count	1.0 Count

7. WARRANTY AND SUPPORT

The Blue Sea Systems 7610 120 Amp SI-Series Automatic Charging Relay comes with a manufacturer's warranty. For specific warranty details, please refer to the documentation included with your product or visit the official Blue Sea Systems website.

Manufacturer: Blue Sea Systems

For technical support, product information, or to view detailed wiring diagrams, please visit the official Blue Sea Systems website: www.blueseasystems.com

