

**ML-Series**

**Remote Battery Switches** (with manual control)

PN 7700 / PN 7702

**Solenoid Switches** (without manual control)

PN 7701 / PN 7703

- Magnetic Latch—draws no current in ON or OFF state, only draws current when changing state of switch
- Silver alloy contacts provide high reliability for switching live loads
- Manual control override knob provides an added level of safety allowing control with or without power, and offering LOCKED OFF capability for servicing (Remote Battery Switch ONLY)
- LED output to remotely indicate switch state
- Tin-plated copper studs for maximum conductivity and corrosion resistance
- Label recesses for circuit identification

Specifications	12V DC	24V DC
Cranking Rating	See table below	See table below
Intermittent Rating	See table below	See table below
Continuous Rating	See table below	See table below
ML-Coil Function	Bi-Stable	Bi-Stable
Operating Voltage (contacts)	0-64V	0-64V
Control Voltage	9-16V DC	18-32V DC
Amperage Operating Current	0 mA continuous	0 mA continuous
	<7A when changing state (20 ms)	<4A when changing state (20 ms)
Terminal Stud Size	3/8"-16	3/8"-16
Maximum Terminal Stud Torque	140 in-lb (15.8 N•m)	140 in-lb (15.8 N•m)
Ring Terminal Size	3/8" (M10)	3/8" (M10)
Terminal Ring Diameter Clearance	1.18" (30 mm)	1.18" (30 mm)
Live Current Switching	10,000 @ 12V, 300A 10,000 @ 24V, 150A 2,000 @ 48V, 100A	10,000 @ 12V, 300A 10,000 @ 24V, 150A 2,000 @ 48V, 100A
Mechanical Switching	100,000 Cycles	100,000 Cycles

**Remote Switch PN 2145**

Action	Momentary SPDT (ON)-OFF-(ON)
Seals	Internal & External Gasket Panel Seal
Mounting Hole	0.83"x 1.45" (21.08 mm x 36.83 mm)
LED Rating	100,000 hours half-life

**Regulatory** Meets ISO 8846 and SAE J1171 external ignition protection requirements, CE marked, Rated IP66

**Wire Size and Current Ratings**

Wire Size	Cranking 30 sec.	Intermittent 5 min.	Continuous (UL 1107)
2/0 AWG (70 mm <sup>2</sup> )	1,000A	400A	225A
4/0 AWG (120 mm <sup>2</sup> )	1,100A	400A	300A
2x 4/0 AWG (2x 120 mm <sup>2</sup> )	1,450A	700A	500A

Solenoid Switch			
PN	Termination	Manual Control	Control Circuit
7701	Tinned Wires	No	12V DC
7703	Tinned Wires	No	24V DC

Remote Battery Switch			
PN	Termination	Manual Control	Control Circuit
7700	Tinned Wires	Yes	12V DC
7702	Tinned Wires	Yes	24V DC

**Overview of Application**

The ML-Series Remote Battery Switch/Solenoid Switch provides high-current carrying and switching under load. The Remote Battery Switch/Solenoid Switch is installed close to the battery banks. A single pole double throw (SPDT) Control Switch Panel, or two momentary push button switches, operate the Remote Battery Switch/Solenoid Switch. Control Switches are installed in a convenient location near other electrical controls or companionway (see Illustrations on reverse).

**The Manual Control Override Knob provides** (Remote Battery Switch Only):





- an added level of safety that allows manual ON-OFF control with or without power
- LOCK OFF for servicing the electrical system

A remote LED (sold separately) indicates a closed connection between battery bank and load, or between two battery banks when used as an emergency cross-connect.

**Remote Operation.** The momentary (SPDT) (ON)-OFF-(ON) Remote Control Contura Switch can provide cross connect and/or battery isolation. The Control Switch should be mounted in a convenient location near helm controls to allow for quick access.

To connect battery bank to load, or combine battery banks	Momentarily depress control switch actuator to "ON". Remote LED indicates closed connection.*
To disconnect battery bank from load, or isolate battery banks that are connected	Momentarily depress control switch actuator to "OFF".*

**Emergency Manual Control Override Operations** (Remote Battery Switch Only)

To connect battery bank to load, or combine battery banks	With Override Knob in (REMOTE position), push button until latched (Push to Latch On).	
To disconnect battery bank from load, or isolate battery banks that are connected	Rotate Override Knob to right to release button from Latch On mode (button pops up). Rotate Override Knob to left (REMOTE position).	
To prevent remote operation	Rotate Override Knob to right (LOCK OFF position).	
To secure for servicing	With Override Knob in (LOCK OFF position), pass cable tie through hole.	

\* If the Control Switch is held ON or OFF for 5 seconds, the internal coil protection will engage and the Remote Battery Switch/Solenoid Switch will not respond to further remote input for approximately 10 seconds.

## ⚠ CAUTION ⚠

- ✓ These instructions are intended to provide assistance with the installation of this product, and are not a substitute for a more comprehensive understanding of electrical systems. We strongly recommend that a competent electrical professional perform the installation of this product.
- ✓ The illustrated wiring diagram represents a common installation and is not meant to be a guide for wiring a specific vessel. The wiring diagram shows a single battery bank installation.
- ✓ Disconnect all negative battery connections before beginning the installation.
- ✓ All unused control wires should be carefully insulated from each other and from accidental contact using heat shrink tubing or electrical tape. External contact or shorting between control wires can lead to malfunction.

## Installation Instructions

### Mounting

Install as close as possible to battery bank. To avoid corrosion to connecting wires and terminals, mount in a dry and protected location. Avoid mounting directly above vented lead acid batteries so that the Remote Battery Switch/Solenoid Switch is not exposed to corrosive gasses expelled from the batteries.

### High Current Primary Circuit Connections (stud terminals A and B)

For help selecting the appropriate wire size and circuit protection rating, go to [www.bluesea.com](http://www.bluesea.com) and click the *Circuit Wizard* quick link.

**NOTE:** Stud terminals A and B are interchangeable. The load can be connected to A or B; the battery bank can be connected to A or B.

#### To connect high current circuit wires:

1. Connect the battery bank to one of the stud terminals marked A or B.
2. Connect the load to the other stud terminal marked B or A.
3. Torque the high current terminal stud nuts to 140 in-lbs (15.8 N·m) maximum.

**NOTE:** If switching an inverter, windlass, bow thruster, etc., the circuit wires must have circuit protection to comply with ABYC guidelines. Wires used for engine starting do not require circuit protection.

### Control Circuit Connections (wires contained in the wire harness)

**NOTE:** The Remote Battery Switch/Solenoid Switch is designed to be controlled by momentary SPDT switch, (included), or two momentary push button switches. Use minimum 16 AWG wire for the Control Circuit.

#### To connect DC power to the Remote Battery Switch/Solenoid Switch Control Circuit:

1. Connect the red wire through a 10A (min) circuit protection device to DC+. The power source should be a direct connection to the battery.
2. Connect the black wire to DC ground.

#### To connect the momentary SPDT Contura Control Switch:

1. Connect the common load terminal of the Control Switch, pin 2, through a 2A (min) circuit protection device to DC+. Use a 24-hour power source (connected directly to the battery).
2. Connect the brown wire to the CLOSE side of the Control Switch, pin 3.
3. Connect the orange wire to the OPEN side of the Control Switch, pin 1.
4. Connect the LED power terminal of the Control Switch, pin 8, through 2A (min) circuit protection device to DC+. **Note: This connection can share the same wire/fuse as step #1 above, (see diagram).**
5. Connect the LED Ground terminal of the Control Switch, pin 7, to the yellow wire of the Remote Battery Switch.

### Guarantee

Blue Sea Systems stands behind its products for as long as you own them.

Find detailed information at [www.bluesea.com/about](http://www.bluesea.com/about).

For customer service, call 800-222-7617.

## Installation Instructions

