

# BDX Battery Disconnect



## Single and Dual Battery Disconnect Systems

**BATTERY DISCONNECTS** provides a simple and safe means of disconnecting the coach and chassis battery(s) of an RV. With just the touch of a switch on the monitor panel conveniently located inside the RV, the battery(s) will be completely disconnected. Since the 12 Volt battery system plays such a vital role in the use and enjoyment of your RV, Battery Disconnect can give you peace of mind.

Through its correct use you may:

- Prevent unwanted discharging of batteries during extended periods of storage
- Prevents shorts or fire hazard while storing on the 12 Volt electrical system
- Prevent overcharging of batteries if RV is plugged into shore power (120 VAC) for extended periods.

These instructions contain all the information needed to help you install the Battery Disconnect. It is assumed the installer has basic skills in electrical wiring, mechanics, and carpentry. If you have any doubts about these techniques or instructions, consult with someone you connect a wire or cut a hole.

It is best to read before doing. These instructions are written for a typical travel coach, not for any specific make or model. You should devote some thought and ingenuity to finding the best way to accomplish each step, so that the finished job will be a worthy addition to the coach in which it is installed.

As you read these instructions, unpack each part and become familiar with it. Be sure that you have all the parts and that you can identify each one.

### Included parts:

- 1x Monitor Panel
- 1x Disconnect Relay (2x for dual battery kits)
- 1x wire cable harness
- 2x fuses (4x for dual battery kits)
- 4x Phillip head screws
- Installation Manual

Since this kit is for many different types of vehicles, not everything you need can be included. The parts required are listed below and can be purchased at any RV or automotive store:

- Crimp on battery cable lugs. Two (2) for each relay. Must fit copper studs on relay.
- Relay Mounting bolts, 1/4"-20, length to suit with nut, flat washer and lock washer for each. Two (2) per relay.
- If the battery cables are too short to reach where the relays will be mounted, additional cable will be needed.



## Installation Procedure

### CHOOSE THE LOCATION

The Monitor Panel is the small lighted display which is installed in the living area of the coach. It should be visible and reachable by occupants. One typical location is on an interior wall near the entrance door of the coach. It should be noticeable as you enter and leave the coach to remind you to connect/disconnect the battery(s).

Be sure there are no structural members or other obstructions at the location; there must be at least 3/4 inch of clear space behind the panel. When selecting the location, bear in mind that a cable must be routed from this panel to the battery compartment.

### MARK AND CUT THE OPENING

Tape the Template for the Monitor Panel over the chosen location. Mark the centers of the four mounting holes using a punch and mark the outline of the large hole. Carefully cut out the hole along the dotted line. Cut only as deeply as necessary, being careful not to cut anything which may be behind the wall such as wiring.

### ROUTE THE CONTROL CABLE

The Control Cable connects the Monitor Panel to the Disconnect Relay(s) and to the vehicle ground. On kits with ignition option be sure to connect this signal. Locate where the relays will be mounted. Make a path for the cable and put it through. Be sure the PC board (flat) connector is at the Monitor Panel cut out. Leave a foot of slack at the panel end so that it can be plugged in and secure the cable to the inside of the wall. It is not necessary to run this cable inside conduit or take other special precautions.

Note: For wire connections please refer to suggested wiring diagram on page 5. For the 100 amp disconnects, the power and feedback lines to the switch panel will plug into the battery disconnect cap where the fuse is to be inserted.

### INSTALL THE MONITOR PANEL

Plug the Monitor Panel connector end of the Control Cable onto the Monitor Panel. Note that the connector end only fits one way on the Monitor Panel circuit board. Arrange the Control Cable in the wall while inserting the Monitor Panel in through hole. Attach the Monitor Panel with four Phillips-head wood screws in the locations previously marked.

### INSTALLING THE DISCONNECT RELAY(S)

The relay is the electro mechanical switch that actually disconnects the battery. It should be located near the battery for wiring simplicity. When installed, the relay will be inserted "in-line" with the cable coming from the positive (+) terminal of the battery.



### MOUNT CHASSIS RELAY

While holding the relay in place near the chassis battery, mark the location of the two holes for the relay mounting bolts. Set the relay aside, and drill two mounting holes. Before bolting the relay in place, route the Control Cable near the mounting place, locate the two wires with the fuse connectors (orange and yellow) and insert the connectors in the relay (see the wiring diagram on the next page). Follow the color code on the relay label using the wire colors printed in red for the chassis. Install the 7.5 Amp fuses in the relay. The wires connecting to the "S" and "I" terminals on the relay (purple and grey) should also be connected at this time, again following the color code. The relay can now be bolted into place.

### CONNECT THE BATTERY CABLE

Locate the positive battery cable for the chassis battery and if possible, route it across the relay. If it is not long enough you will need to purchase a piece of cable of the same size and type to lengthen it. Carefully cut the cable near the relay. Strip the cable insulation back about 1/2" on each end and crimp on the battery cable terminals. Connect the terminals to the copper studs on the relay according to the label. It is important that the cable going to the battery be connected to the side of the relay indicated on the label as "BATTERY" and the cable going to the electrical circuits be connected to the side labeled "LOAD".

**Torque requirements for the high-power copper contact studs should be 5-7 FT-LBS, not to exceed 9 FT-LBS. You must use two wrenches to tighten the nuts on the stud, one to turn the outside nut and one to hold the nut on the inside from turning. The copper stud must not turn or relay operation may be affected.**

If your BATTERY DISCONNECT is for a two-battery system, repeat the relay mounting and battery cable instructions for the coach (auxiliary) battery. If the relays cannot be mounted close enough together for the Control Cable to reach, an 18 gauge wire may be spliced into the cable to lengthen it. This time use the wire colors printed on the label in black. Connect the black wire from the Control Cable to a good chassis ground. Connect the blue wire from the control cable to a fused 12 Volt source that is only hot when the ignition is on such as the power lead for the radio. The installation is now complete. Reconnect the negative cable(s) to the battery(s).

### SYSTEM CHECK

Press the Read Chassis button to show battery voltage of chassis battery and status of disconnect relay. If connected, press the Disconnect button. This should isolate the load side of the relay. If disconnected, press the Reconnect button. This should connect the load side of the relay.

Note: For systems with two batteries, the switch panel will indicate with battery the button controls.



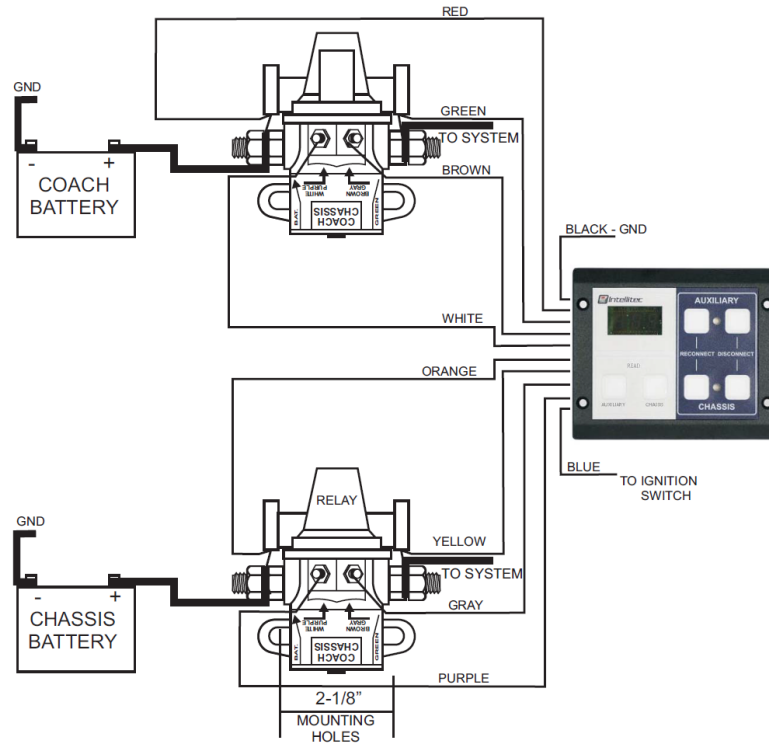
## Troubleshooting

Symptom	Cause / Remedy
Relay won't connect/disconnect	<ul style="list-style-type: none"> <li>• Battery voltage below 10.5Volts - recharge battery.</li> <li>• Control Cable connected improperly - check wiring.</li> <li>• Fuses on relay blown –replace.</li> <li>• The chassis relay on Bd2 and BD3 cannot be disconnected when the ignition is on.</li> </ul>
Relay connectors for store and disconnects for use	<ul style="list-style-type: none"> <li>• Wires on S and I terminals of relay are reversed - check wiring.</li> </ul>
Pressing “USE/STORE” switch will not connect the battery.	<ul style="list-style-type: none"> <li>• Battery may be fully discharged. Recharge battery or “jump” with direct connections.</li> <li>• Check fuses on LATCHING RELAYS and replace if blown with same type and rating (7.5 Amp).</li> </ul>
12 Volt RV power operates normally, but indicator lights/voltmeter will not illuminate.	<ul style="list-style-type: none"> <li>• Check fuses on LATCHING RELAYS and replace if blown with same type and rating (7.5 Amp).</li> </ul>
Battery switched to “STORE” position, but indicator light remains on.	<ul style="list-style-type: none"> <li>• RV is plugged into 120 VAC shore power or operating on Gen-set.</li> </ul>
Gen-set will not crank.	<ul style="list-style-type: none"> <li>• Check that COACH battery is switched to “USE”.</li> </ul>
RV engine will not crank or chassis accessories will not operate.	<ul style="list-style-type: none"> <li>• Check that CHASSIS battery is switched to “USE”.</li> </ul>

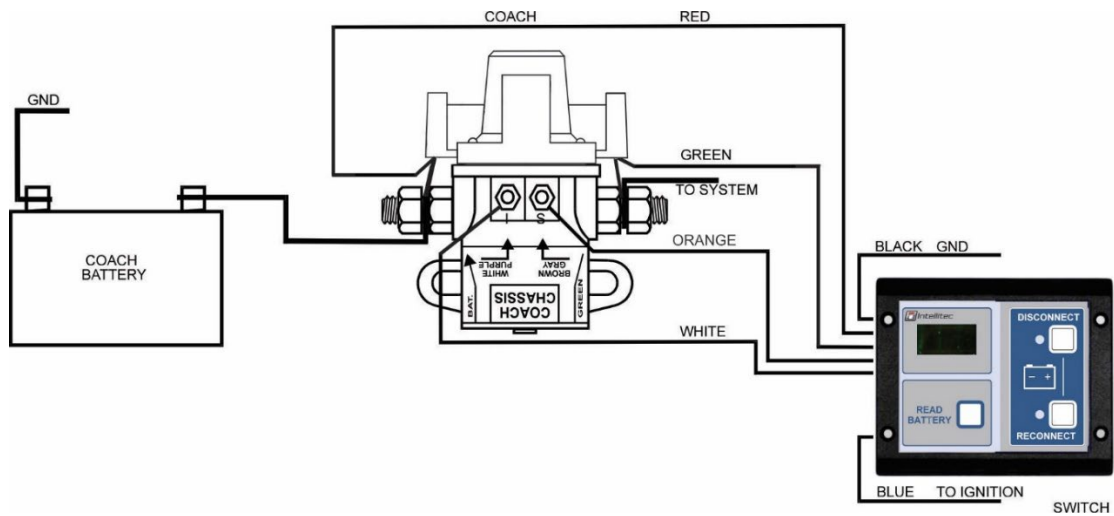
In the event a battery cannot be connected due to any difficulty with the BATTERY DISCONNECT, simply move the “LOAD” battery cable to the same relay stud as the “BATTERY” battery cable and the relay will be out of the circuit.

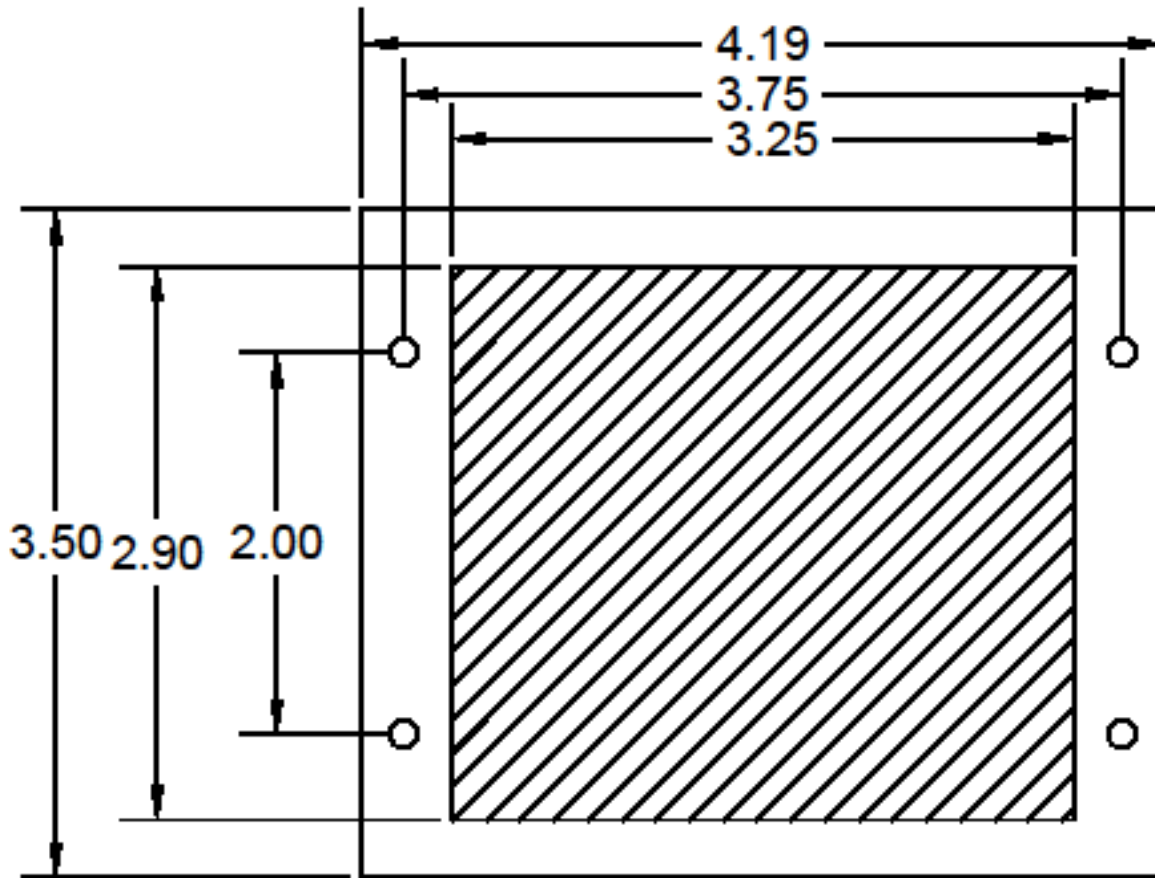


**Suggested wiring diagram for dual battery systems**



**Suggested wiring for single battery systems**





Note: Cut out is not to scale.



Available Product Literature and Guides:

Brochure:	53-01090-000
Product Specification:	53-01090-001
User's Guide:	53-01090-100
Installation and Applications:	53-01090-200
Supporting Documents:	53-01090-300

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