

Chapter 5 – Batteries

5.1 Description

The DSI2100 is equipped with two redundant one-hour Lithium Ion batteries. The batteries are designed to protect the data in SDRAM memory. Specifically, if external power to the DSI2100 is lost, the system will continue to function, running on the internal batteries.

The batteries in the DSI2100 are linked to the power supply units. In the event a power supply is removed or broken its attached battery will not work. The batteries are designed to provide power for the system in the event external power is lost, not in case both power supplies fail.

The DSI2100 can be configured to run on battery power for up to 60 minutes after external power is lost. The system default is to stay on for fifteen minutes after power fails. If power is restored within this time period, the system will stay online.

If the batteries are not fully charged, the system may initiate a shutdown before the allotted time is up. This is to ensure that the data is protected and stored to disk.

Warning:

Only replace batteries when the system is “OFF”

1. **5.2 Electro-Static Discharge Warning**
2. **5.3 Procedure to Remove the Batteries**

Important:

Please take full E.S.D. precautions if it is necessary at any time to come into contact with any circuit boards, components or connectors. The components used in the DSI2100 and its interfaces can be damaged by electrostatic discharge.

Follow this procedure to protect data and equipment:

5.3.1 Determine Battery to Replace

The system monitors Battery status. If you are replacing a battery due to a battery status message, please note whether you need to replace Battery A or Battery B. The diagram at the end of this section (5-1) shows a top view of the system with labels for the Batteries.

5.3.2 Backup Data Stored on DSI2100

It is safest to backup the DSI2100 to other Server or External Storage prior to operations that involve a manual shutdown. This is merely a safeguard, as the DSI2100 is designed to backup its data when the system loses power, or when a Manual Shutdown is initiated.

5.3.3 Perform Manual Shutdown

The DSI2100 may be shut down from the front panel. This procedure will safely synchronize all data in RAM to the internal disk drive storage. To shut down the system using the front panel, use the arrow buttons to cycle through the top-level menu to select “Manual Shutdown”. Use the “*Select*” button to select this menu item. You will be prompted to confirm that you wish to “Power Off System”. To cancel the shutdown, use the “↑” button again to return to the main menu. To proceed with the shutdown, use the “↓” button to confirm the system power off. The front panel display will now indicate that the system is powering off.

5.3.4 Move System to Work Space

Replacing the batteries requires removing the system lid and easy access to the middle of the system. While it is possible to remove the lid with system still attached to the rack, it may be difficult to access the system in the confined space. It might be easier to remove from the system from the rack and place it on a table or workspace before proceeding. That is up to the technician to decide.

5.3.5 Remove Both Power Supplies

This is a precaution to ensure that there is no chance for injury or system component damage. When the system is off, unplug the power cables from both power supplies. Remove both power supplies by pressing down on the black latch and pulling firmly on the handle. It may take some force to extract the supplies.

5.3.6 Remove Front Panel

The DSI2100 Front Panel is snap mounted onto the chassis, therefore it can be removed by pulling it off the chassis. The front panel is connected by a ribbon cable to the inside of the system. These wires connect the front panel display and can be disconnected.

5.3.7 Remove Top Panel

The DSI2100 Top Panel is screwed into the chassis at six points along the sides and front of the chassis. Remove these screws before attempting to remove the top cover of the DSI2100. Once the screws are removed, lift the front side of the top panel until it has cleared the chassis. Once it has cleared the lip of the chassis, it is safe to lift the top panel off. Lift the top panel carefully, making sure not to let the top panel slip and hit any system electronics.

5.3.8 Disconnect the Blue Ribbon Cable

The batteries have 5 sets of blue ribbon cables running over the tops of the batteries that must be disconnected at one end to allow access. Disconnect the end of each cable nearest to the rear of the chassis, attached to either the interface board or the disk board. Be sure to note how the cables are connected, as they are not clearly labeled. The cables might be glued in place, and you must remove the glue first. Defluxer does a good job of dissolving some of the glue, but a flathead screwdriver works fairly well by itself. After disconnecting the cables, lay them backwards over the memory board(s).

5.3.9 Disconnect Battery Cables

Important:

Follow these instructions carefully. Failure to disconnect the cables in the correct order may result in damage to the battery chargers.

Each battery has a cable running from the power board the battery charger board, connected to the battery in the middle. See the diagram at the end of this section (5-1) for the appropriate connectors. First disconnect the appropriate battery cable connected to the power board. It is a tight squeeze, so make sure you don't have any other wires blocking the connector. Now, disconnect the connector at the battery charger board. Free the battery cable as best you can from the other power cables and lay it on top of the battery, out of the way.

5.3.10 Remove the Battery Holding Bracket

There is a large metal bracket between both batteries that holds the batteries in place. To remove the bracket, simply remove both screws at the bottom of the bracket, being careful not to lose the washers. After this is done, the bracket should just slide straight up, off of the batteries.

5.3.11 Replace the Bad Battery

Now that the batteries should be loose, pick up the bad battery from the center of the chassis (where the bracket was) and slide it out. Take the replacement battery and put it in its place.

5.3.12 Replace the Battery Holding Bracket

Slide the metal bracket back over the batteries and secure it with the two screws. The batteries should be firmly in place when done correctly.

5.3.13 Connect the Battery Cables

Important:

Follow these instructions carefully. Failure to connect the cables in the correct order may result in damage to the battery chargers.

You will connect the new battery cable in the reverse order of how it was removed. Connect the battery cable to the battery charger board. You should not see any red LEDs light up on the charger board when you do this. If you do see a red LED flash briefly, then the charger circuit has been damaged and must be replaced. Now connect the battery cable to power board. Again, this can be a tight fit, so try and move any power cables out of your way.

5.3.14 Reconnect the Blue Ribbon Cables

Reattach the blue ribbon cables to their appropriate connectors. If U.L. approved glue has been provided, glue the cables to the connector.

5.3.15 Replace the Top Panel

Carefully replace the top panel on the system, securing it with all six screws.

5.3.16 Reattach Front Panel

Reattach the wiring for the front panel display. Reattach the front panel, being careful not to pinch the display cable.

5.3.17 Insert Power Supplies

Reinsert the system's power supplies into their slots. Be careful to line them up with the edges of the opening to ensure proper alignment when inserting.

5.3.18 Power Up DSI2100

Plug the power cables back into the power supplies and the system will turn on within about 7 seconds. After the system successfully boots, check the management software to ensure the new battery is working fine. If the battery is not already full, it should be charging.

5.4.0 DSI2100 Battery Test Program

To initiate a battery test you must first have firmware 1.23 or higher installed on the DSI2100. To obtain this firmware, visit:

http://www.dynamicsolutions.com/firmware_entry.asp

You can also contact DSI by email at support@dynamicsolutions.com or by phone at (303) 754-2000 to obtain the firmware.

You must have the DSI2100 attached to your network or to a PC with Telnet capabilities to run the battery test. Once you have logged into the DSI2100 (default username is "admin" and password is "ssd"), at the "DSI2100>" prompt type "test" and hit enter. Follow the onscreen instructions to test both batteries. Each test takes up to 1 hour to complete on an idle system. **This test should NOT be run within 24hrs of the unit powering on. Only perform this test if there is a suspected problem with the batteries.**

Before each subsequent time you test the batteries, you will need to clear the test results to get a valid result.

DSI2100 login: admin
Password:
DSI2100> test

** System Component Testing Utility **

Last test results: Last test time:
Battery A: UNKNOWN NEVER TESTED
Battery B: UNKNOWN NEVER TESTED

1. Test Battery now
 2. Clear Battery test results
- Q. Quit

Enter selection: 1

Which battery would you like to test (A,B,C:Cancel): A

Testing Device, Hit "C" to cancel 01:00:12

** System Component Testing Utility **

Last test results: Last test time:
Battery A: PASSED Tue Oct 12 2004 17:54:56
Battery B: UNKNOWN NEVER TESTED

1. Test Battery now
 2. Clear Battery test results
- Q. Quit

Enter selection: 1

Which battery would you like to test (A,B,C:Cancel): B

Testing Device, Hit "C" to cancel 01:07:09 /

** System Component Testing Utility **

Last test results: Last test time:
Battery A: PASSED Tue Oct 12 2004 17:54:56
Battery B: PASSED Tue Oct 12 2004 18:57:41

1. Test Battery now

- 2. Clear Battery test results
- Q. Quit

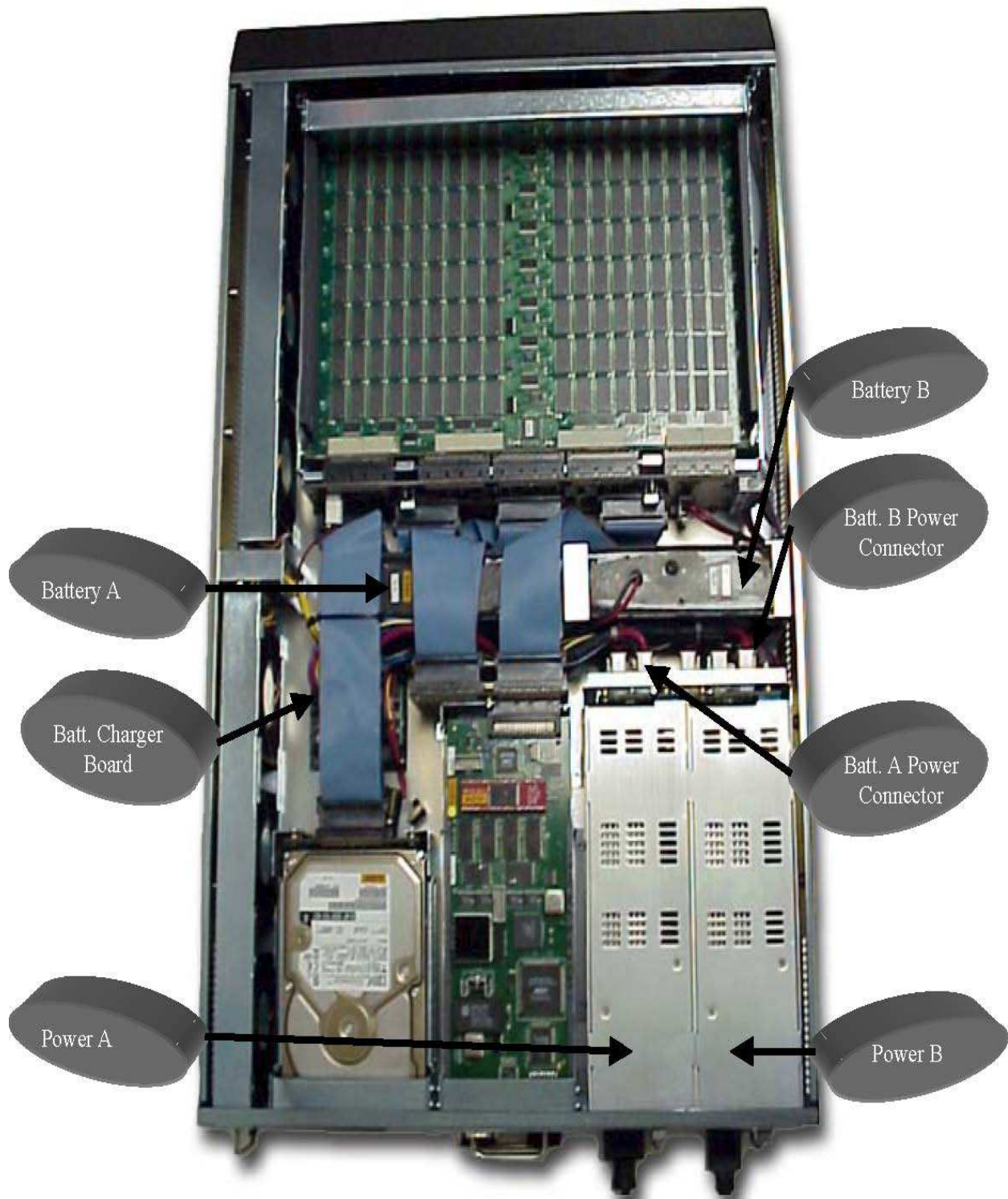


Figure 5-1: DSI2100 Overhead View

