



# Service Bulletin

Title: **DCM-1 Power Cycle Update**  
Bulletin #: DCM0001 Issue Date: January 30, 2001  
Models Affected: DCM-1 Bulletin Revision: A  
Production Range: January 1999–August 2000 (serial # range: see “Units Affected,” below)

## Description

When the DCM-1 is turned off and then turned on again within 15 seconds, the front panel LEDs do not respond to the monitor selector buttons. Any amplifiers connected to the DCM remain in standby. If the DCM-1 is turned off and after 15 seconds, turned on again, the unit will operate as normal.

## Units Affected

Only DCM-1 units manufactured from January 1999 through August 2000 are affected. The first four digits of the serial number indicate the year and week of manufacture in YYWW form (e.g., “0021” is the 21st week of the year 2000). Thus, the units affected by this bulletin have serial numbers between 9901xxx and 0024xxx.

## Instructions

### Tools and materials required:

- Grounded anti-static wrist band and work surface
- Personal computer with Windows (95/98/2000/NT/ME) operating system and Lattice Semiconductor ispVM™ System software (downloadable from Lattice Semiconductor’s web site: <http://www.latticesemi.com>) and QSC DCM Commander software installed
- ispDOWNLOAD™ cable and parallel port interface box (available from Lattice Semiconductor)
- RS-232 serial cable (straight through)
- DataPort cable
- JEDEC file containing the update code (available from QSC Technical Services)
- 0.031" (0.8 mm) diameter rosin-core solder (60/40 or 63/37 eutectic type)
- Soldering iron with fine tip
- Desoldering equipment or solder braid
- 8-pin, 0.1" center right-angle male header (QSC part # CO-000083-00, a 10-pin right-angle header; prepare by cutting off 2 pins at one end)
- DCM input test cable (see last page)
- DCA amplifier
- 8-ohm resistive load with power rating adequate for the DCA amplifier
- Sinusoidal audio signal generator
- Oscilloscope

**CAUTION: Take appropriate anti-static precautions to guard against electrostatic discharge (ESD).**

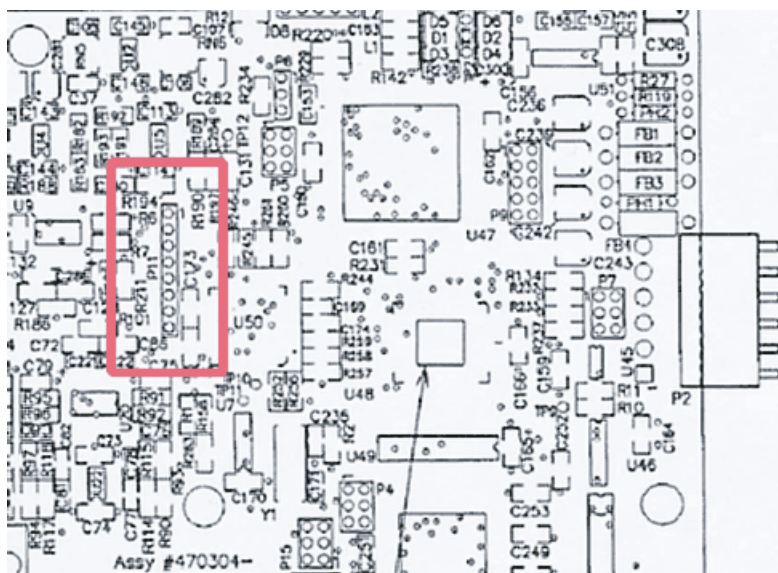


Figure 1. Locate and remove solder from the eight pads at P11 (inside the rectangle). The component side of the rear panel PCB is shown.

### Procedure: Installing the download header

1. Connect the DCM-1 to the computer’s RS-232 port via the serial cable. Turn on the DCM-1 and verify that it operates properly. If the front panel stops responding, turn off the unit, wait 15 seconds, and turn it back on. Once the DCM-1 is functioning correctly, open the DCM Commander application on the computer.

2. Select **Connect to DCM** from the **Communication** menu. Then select **Read Configuration from DCM**, also from the **Communication** menu. This will load the configuration parameters currently programmed into the DCM-1 into the DCM Commander application.
3. Select **Save as ...** from the **File** menu. Choose a filename and location, and save the configuration. This configuration will be restored to the DCM-1 later, after the modification and testing are done.
4. Turn off the DCM-1 and remove the 11 screws securing the top cover of the DCM-1, and then lift off the cover.
5. Locate P11 on the back side of the rear panel printed circuit board (PCB) and remove the solder from the eight pads (Figure 1). P11 is easier to find if you remove the PCB, but if you already are familiar with its location you can save time by leaving the PCB attached to the chassis.
6. The right-angle header can be installed either way, with the pins pointing left or right. Solder the header in place at P11. The square pad is pin 1 (toward the top of the PCB). Locate pin 5 and cut it off.
7. Connect the header at P11 to the PC's parallel port via the ispDOWNLOAD cable and parallel port interface box.

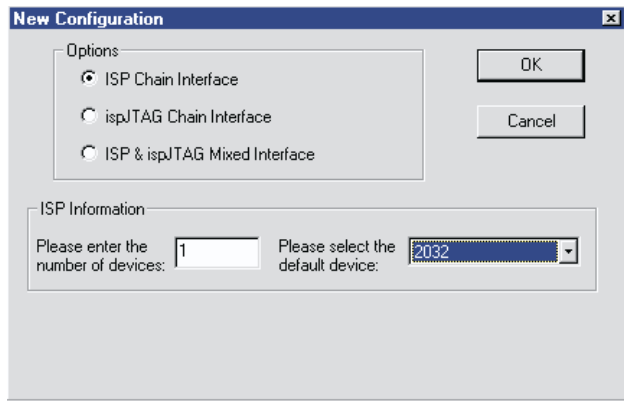


Figure 2. Select the correct device.

## Procedure: Downloading the JEDEC code

1. Open the ispVM System application. Click the **ispDCD** button to open the daisy chain download program. Select **New** from the **File** menu.  
In the **New Configuration** dialog box, select the **ISP Chain Interface** option. Under **ISP Information**, enter 1 as the number of devices, and select the 2032 chip as your default device (Figure 2).
2. In the **New Configuration Setup** window, click the **Browse** button. Search for the correct JEDEC file and see that the file path appears in the text box to the right of the **Browse** button (Figure 3).
3. In the **Operation** list, select **PV**.
4. Now turn the DCM-1 on and wait about 3 seconds for it to complete its turn-on sequence.
5. In the ispVM System application, press **CTRL+R** or click the run button. After downloading the new code, the application will display some text in the **Messages** window and also a word in the **Status** box that indicates whether the operation was successful: "Pass" means the new code has been downloaded without error, while "Fail" means some problem occurred. If the download was unsuccessful, make sure the DCM-1 has AC power and the ispDOWNLOAD cable is oriented and connected correctly, and then start the procedure over again.
6. Turn off the DCM-1 and disconnect the ispDOWNLOAD cable.

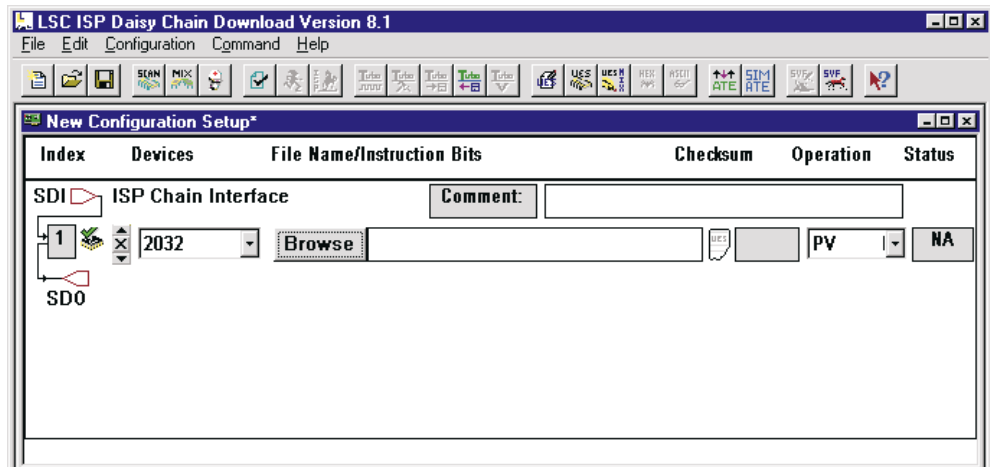


Figure 3. Browse for the JEDEC update file. When you select the file, the path will appear in the text box to the right of the **Browse** button.

## Procedure: Test and Verification

1. Connect the DCA amplifier to Port A of the DCM-1 via a DataPort cable. Attach the 8-ohm load to the output of amplifier Channel 1. Connect the RS-232 cable between the DCM-1 and the computer's serial port.
2. Turn the DCM-1 on and wait a few seconds. Turn it off and within 15 seconds, turn it on again. Verify that the front panel controls operate properly.
3. Clear all monitor selections (all the monitor LEDs on the front panel should be off) and open the DCM Commander application. Select **Serial Port Selection** from the **Communication** menu and choose the appropriate serial port. The DCM Commander application opens with a default configuration that sets crossovers for the left, center and right zones at 1500 Hz; leave these settings as they are for this test. For each port, select the model number that corresponds to the test DCA amplifier on Port A.
4. Attach the oscilloscope probe to the loaded output of the test DCA amplifier and turn the amplifier's gain controls up all the way. Turn the amplifier on.
5. Put a 3-volt sinusoidal test tone into the Left input of the DCM-1 (see the Appendix on the last page for a description of the input connection). Use a frequency far enough below the 1500 Hz crossover point to be unattenuated by the filter—for example, 1 kHz or lower. Verify that the signal passes to the amplifier's output on Channel 1, and that the output voltage corresponds to the amplifier's 8-ohm power rating (see Table 2 below; use RMS voltages if you are measuring with a meter, and peak values if you are using the oscilloscope).
6. Turn off the test tone and connect the load resistor and oscilloscope to the other channel. Change the generator frequency to 2500 Hz or higher and check the output of amplifier Channel 2. The voltage should also correspond to the maximum rated power level.
7. Repeat steps 5 and 6 with the Center (Port B) and Right (Port C) screen channels. See Table 1 for specific channel and port assignments.
8. Also check the Subwoofer (Ports G and H) channels and the Surround Left and Surround Right (Ports M, N, and O) channels. These channels have no crossover, so a mid frequency will be suitable as a test tone. Verify that the output voltages correspond to full rated power.

DCM-1 Port	Description	Channel 1	Channel 2
<b>A</b>	Left	Low frequency	High frequency
<b>B</b>	Center	Low frequency	High frequency
<b>C</b>	Right	Low frequency	High frequency
<b>G</b>	Subwoofer	Sub 1	Sub 2
<b>H</b>	Subwoofer	Sub 1	Sub 2
<b>M</b>	Surround	Surround Left 1	Surround Right 1
<b>N</b>	Surround	Surround Left 2	Surround Right 2
<b>O</b>	Surround ( <i>back wall</i> )	Surround Left 3	Surround Right 3

Table 1. DCM-1 channel and port assignments.

Model	V <sub>OUT</sub> (full power @ 8Ω)
DCA 1222	40 V RMS; 56 V peak
DCA 1622	49 V RMS; 69 V peak
DCA 2422	58 V RMS; 82 V peak
DCA 3022	66 V RMS; 94 V peak
DCA 3422	75 V RMS; 106 V peak
DCA 1644	45 V RMS; 63 V peak
DCA 1824	37 V RMS; 52 V peak

Table 2. The full-power (@ 8 ohms) output voltages of the DCA amplifier models.



Figure 4. This screen indicates the configuration was successfully transferred to the DCM-1.

9. Turn off the amplifier and disconnect it from the DCM-1. Also disconnect the audio generator.
10. In the DCM Commander application, select **Open** from the **File** menu. Select the configuration file you saved earlier. Download the configuration to the DCM-1 by selecting **Write Configuration to DCM** from the **Communication** menu. The application will inform you that the configuration was transferred successfully (Figure 4).
11. Turn off the DCM-1, disconnect the cables, and reinstall the top cover. The unit may be returned to use.

## Appendix: DCM input test cable

For inputs the DCM-1 uses a female DB25 connector that connects to a cinema processor via a standard interconnect cable. To test the DCM-1, you will need a way to connect the audio signal generator to its six inputs.

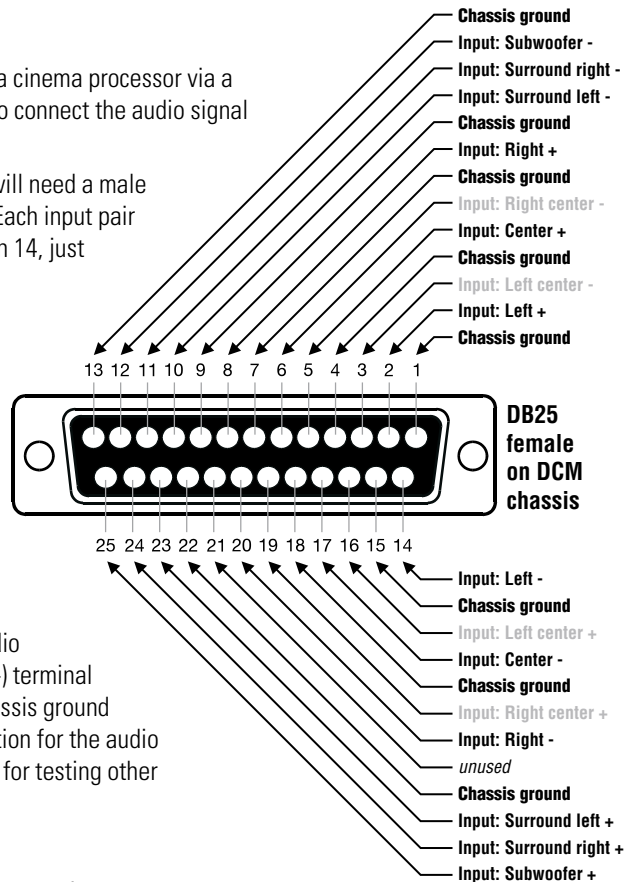
The illustration at right shows the pinout of the DB25 connector. You will need a male DB25 connector, and you will need to attach the six inputs as shown. Each input pair is on adjacent pins; for example, Left + is on pin 2, while Left - is on pin 14, just below and to the right.

The input pairs are as follows:

Left:	2 = +; 14 = -
Center:	5 = +; 17 = -
Right:	8 = +; 20 = -
Subwoofer:	25 = +; 12 = -
Surround left:	23 = +; 10 = -
Surround right:	24 = +; 11 = -

The inputs for the Left center and Right center screen channels are not used on the DCM-1.

On each pair, use wire and a connector that is appropriate for your audio generator. If the audio generator output is unbalanced, connect each (-) terminal of the balanced inputs—Left, Center, Right, and Subwoofer—to a chassis ground terminal as well. One option is to build the cable with a single connection for the audio generator and use a six-way switch (or eight-way, if you wish to use it for testing other DCM models) to connect it to the input you are testing.



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### Contact information

If you need any further information regarding this service procedure, please contact QSC Technical Services at the addresses or numbers below. You can also order CM16 parts; to expedite processing please use the correct part number when ordering.

*Telephone:* 1-800-772-2834 (within USA only)  
+1 714-957-7150

*Fax:* +1 714-754-6173

*E-mail:* tech\_support@qscaudio.com

*Web Site:* www.qscaudio.com (product info/support)  
www.qscstore.com (on-line accessory and replacement component sales)

*Postal and parcel address:*  
QSC Audio Products, Inc.  
Technical Services Group  
1665 MacArthur Blvd.  
Costa Mesa, CA 92626 USA