

ADJUSTING MAXIMUM OUTPUT CURRENT

The full-scale output current from the ADN8810 is set by two external resistors of equal value, RS1 and RS2:

$$I_{FS} \approx \frac{4.096}{10 \times R_S} \quad (1)$$

where R_S is equal to RS1 and to RS2. These are 1.6 Ω 1% surface-mount resistors on the demo board, setting the full-scale output current to approximately 256 mA.

To change the full-scale output current, remove RS1 and RS2 and insert new resistors according to Equation 1. Holes are provided on the demo board for these sense resistors. Resistor matching of 1% or better is recommended to ensure high output impedance for the current source.

The output current from the ADN8810 is proportional to the 12-bit code sent to the device.

$$I_{OUT} = Code \times \frac{4.096}{4096} \times \frac{1}{R_S} \times \left(\frac{R_S}{15k} + 0.1 \right) \quad (2)$$

The decimal code value range is 0 to 4,095. The demo board software automatically calculates the output current.

CONNECTING DEMO BOARDS TO THE COMPUTER

Connect the parallel port of the computer to the INPUT jack on the ADN8810 demo board with a DB-25 straight-through male-to-female cable. Do not use a printer or null-modem cable as these cross wires and will not control the board. The OUTPUT jack does not require any connection.

Multiple ADN8810 demo boards can be daisy-chained together, allowing control from a single computer. Connect the output jack from one board to the input jack of another board using a DB-25 straight-through male-to-female cable. Alternatively, the boards can be plugged together directly with no cable. Supply voltages must be connected to each demo board.

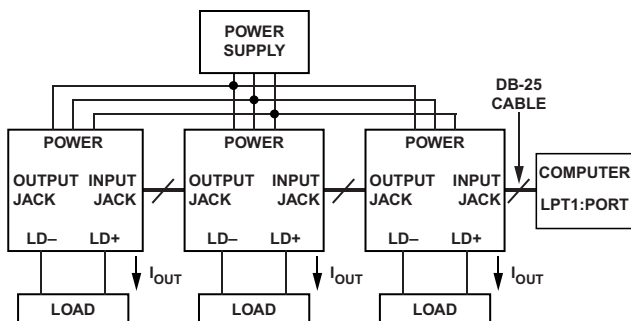


Figure 1. Connecting Multiple ADN8810 Demo Boards

DEMO SOFTWARE INSTALLATION AND UNINSTALLATION PROCEDURES

To run the ADN8810EVB Controller installation script:

1. Insert the CD into the CD-ROM drive.
2. Double-click the My Computer icon on your Windows® desktop.
3. Navigate to the CD-ROM drive and double-click Setup.exe to launch the installation wizard.
4. Follow the directions in the wizard to complete the installation process.

To uninstall the ADN8810EVB Controller, do the following:

1. Select Control Panel from Settings under the Windows Start menu.
2. When the Control Panel opens, double-click the Add/Remove Programs icon.
3. From the Add/Remove Programs dialog, select ADN8810EVB Controller.
4. Click Remove.
5. Follow the directions in the wizard for uninstallation.

RECOMMENDED SYSTEM REQUIREMENTS

To install the ADN8810EVB Controller, the computer must meet the following minimum system requirements:

- Windows 95, Windows 98, Windows ME, Windows NT 4.0 (Intel®) operating system with Service Pack 4 installed, Windows 2000 (administrative privileges required), or Windows XP
- Pentium®-class PC (200 MHz or higher recommended)
- 128 megabytes (MB) of RAM

GETTING STARTED

The ADN8810EVB Controller installation wizard places a shortcut on the Windows desktop and under the Program Files folder of the Start menu to launch the application. Using either of these shortcuts will launch the ADN8810EVB Controller.

The main interface window of the ADN8810EVB Controller is shown in Figure 2. There are four sections that a user must become acquainted with in order to properly use the ADN8810EVB Controller and evaluate the capabilities of the ADN8810 device: 1) Mode Settings, 2) Device Selection, 3) Output Current Selection, and 4) Control Buttons.

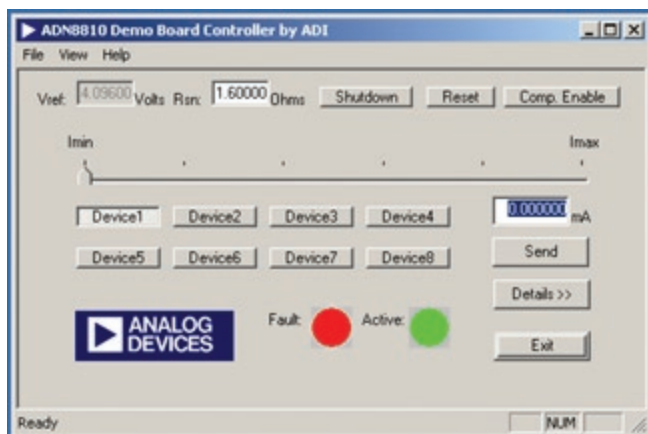


Figure 2. ADN8810EVB Controller Main Window

Mode Settings

The Mode Settings section of the main interface window is composed of the components shown in Figure 3. In this section, users can change the full-scale output current by modifying the sense resistor value, R_{SN} . The demo board comes with $1.6\ \Omega$ RS1 and RS2 resistors. For more information on changing the full-scale output current, see the Adjusting Maximum Output Current section.

In addition to setting the R_{SN} value, the Mode Settings area of the ADN8810EVB Controller allows you to toggle Shutdown, Reset, and Comp Enable. For more details on internal compensation of the ADN8810, see the ADN8810 Data Sheet.

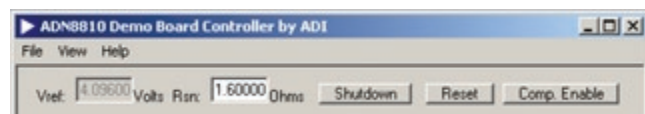


Figure 3. Mode Settings Section

Device Selection

The Device Selector section consists of eight radio buttons labeled Device1 to Device8. The default selection for the ADN8810EVB Controller is Device1, which has a binary address of 0000. To select a different device to program, simply select another radio button by left clicking the desired device. Note that although the binary address of the device is four bits long, only eight different device addresses can be used, so the highest binary address, 0111, corresponds to Device8.



Figure 4. Device Selector Section

Output Current Selection

The Slider and Edit box components in this section of the main interface window provide two ways to modify the output current level of an ADN8810 device. By moving the slider or typing an output current value in the edit box, the ADN8810EVB Controller will calculate the proper DAC bit code to send to the selected ADN8810 device address. Changing the slider position will result in a modified display value in the Edit box and vice versa.



Figure 5. Output Current Selector Section

Control Buttons

The Control Buttons section of the ADN8810EVB Controller main application window are Send, Details, and Exit. The selected device will not be programmed with the output current selection (Edit box value) until the Send button is clicked.

Clicking the Details button launches a Bit-Code Details window similar to the one in Figure 6. This window has three bit codes. The first (top) bit code is the complete code sent via the SPI interface to the ADN8810 device. The second and third bit codes are simply the address bits and the code used to program the internal DAC of the ADN8810, respectively. This window is provided so users of the evaluation software and demo board can easily write applications to program a desired current output to the ADN8810 device in their applications.

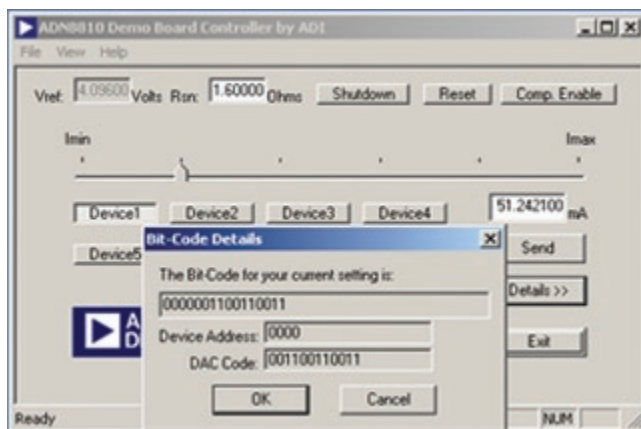


Figure 6. Details Dialog Window

The Exit button simply closes the ADN8810EVB Controller. Exiting the ADN8810EVB Controller does not put the ADN8810 device(s) into shutdown or reset mode. As long as power is provided to the demo board(s), the ADN8810 device(s) will retain its output current setting.

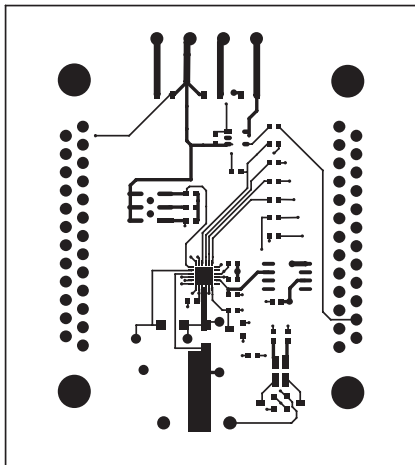


Figure 8a. Top Layer

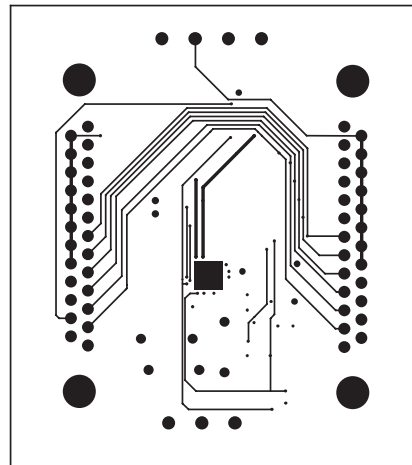


Figure 8d. Bottom Layer

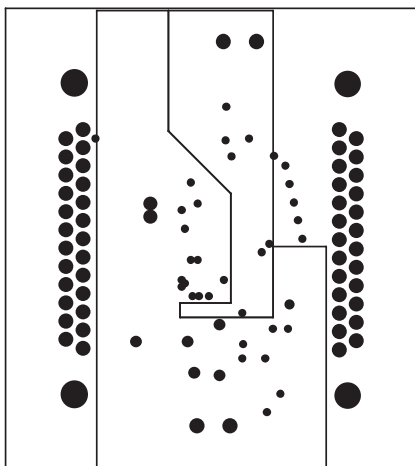


Figure 8b. GND/VSS Planes

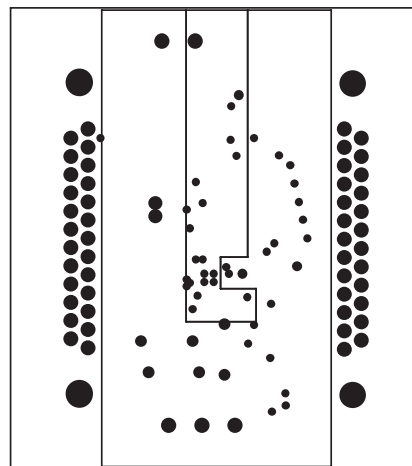


Figure 8e. PVDD/AVDD Planes

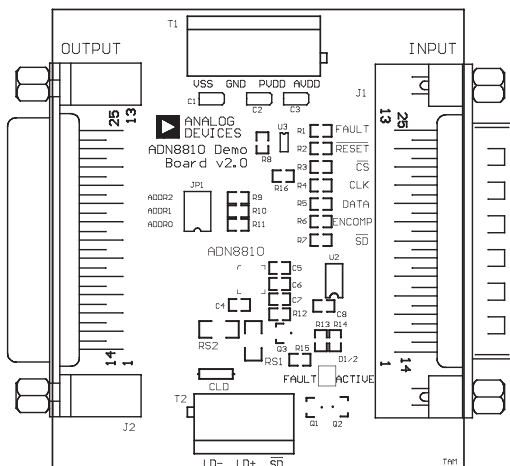


Figure 8c. Top Overlay

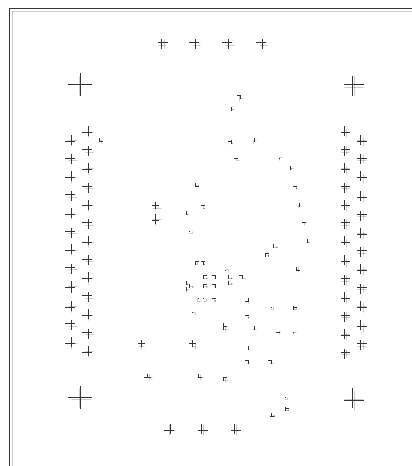


Figure 8f. Drill Guide

Figure 8. Demo Board Layers

