Introduction

This Quick Start Guide describes the operation of Zilog's World of Sensors Design Board. A controller module, such as a Mini-Z™ 28-pin Module, is required to operate the Board. There are a number of Mini-Z Modules that you can use for this purpose; all of them follow the same methodologies presented in this guide. The World of Sensors Design Kit includes a Mini-Z ZNEO 28-Pin Module, which is itself a reference design that can be used with any stamp-compatible development board.

This guide also provides instructions about how to test certain I/O functions such as the Module's ADC block, or turning ports on and off when using the Mini-Z console shell. Performing these tests does not require advanced programming skills.

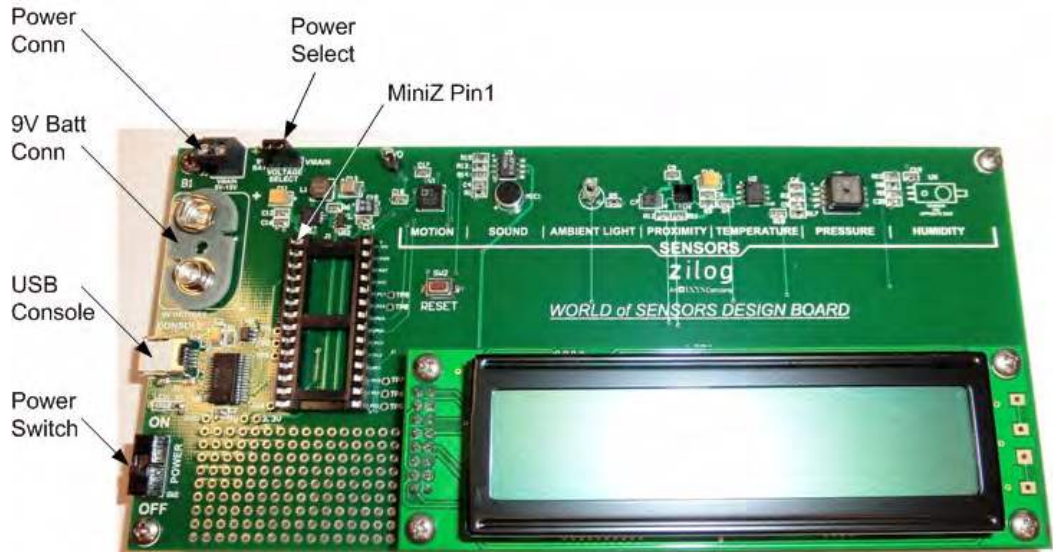Figure 1 identifies key components of the World of Sensors Design Board.

Figure 1. The World of Sensors Design Board

Kit Contents

The World Of Sensors Design Board (Zilog part number Z16F28WS100MODG) consists of the Board itself plus a USB cable; Mini-Z modules are sold separately. However, the World Of Sensors Design Kit (Zilog part number Z16F28WS100KITG) includes everything you need to start working with your Board right out of the box, including the following items:

• World of Sensors Design Board

• Mini-Z ZNEO Module

• USB Smart Cable

• Mini-Z to Smart Debug Cable adapter

• USB cable (A to Mini-B Male)

• DIP Extractor

Software

All Mini-Z Modules are preprogrammed with a command shell that allows control of the modules, including adding applications to extend the capabilities of the shell to exercise the design boards. The World Of Sensors Design Board ships with a shell application that can be added to the shell to offer users the ability to control the Board. The shell must be version 01.01.26 or higher to operate the World of Sensors Design Board shell application. The World of Sensors Design Board shell application (RD0012-SC01) adds the ability to access the different sensors from the console as well as the LCD display on the Board.

The World of Sensors Design Board also includes a stand-alone operation (RD0012-SC02) that requires programming through the USB Smart Cable with the Mini-Debug Adapter (available only in the Design Kit), that will replace the command shell on the Mini-Z Module with an application to cycle through all of the sensors and display output on the LCD.

Setting Up for Initial Operation

Observe the following procedure to set up, configure and start the World of Sensors application.

1. Unpack the contents from Board from its protective packaging. ESD precautions must be used when handling these devices.

2. Attach the Mini-Z Module to the World Of Sensors Design Board. Ensure that Pin 1 is aligned correctly on both the socket and the Module. Pin 1 on the Mini-Z Module is marked by a chamfered corner, as indicated in Figure 2. Pin 1 on Zilog's World of Sensors Design Board is labeled with the numeral 1.
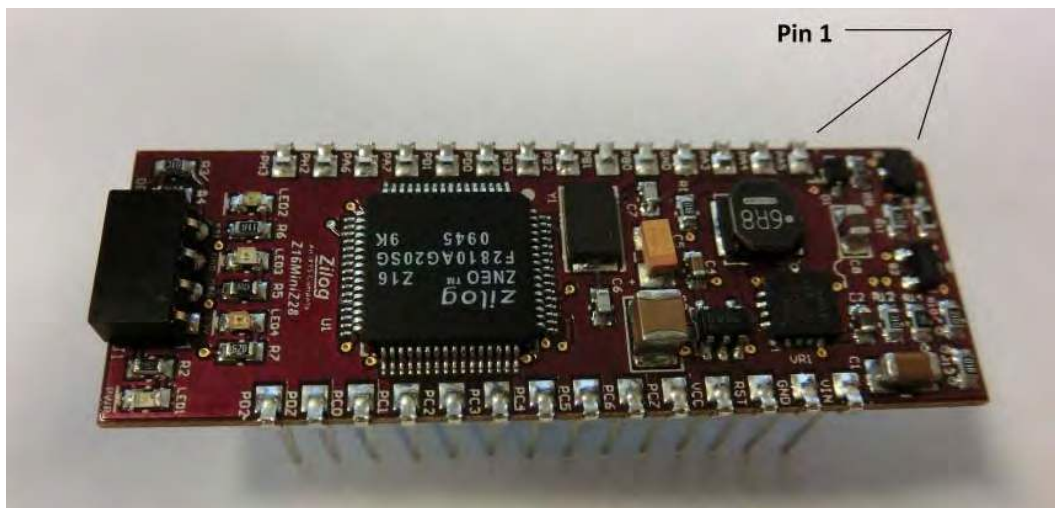

Figure 2. The Location of Pin 1 and Chamfer on the Mini-Z 28-Pin Module

⚠️ **Caution:** To avoid bending any pins while inserting the Mini-Z Module into the 20-pin socket on the World of Sensors Design Board, ensure that all of the Module's pins are properly aligned to the socket before gradually applying downward pressure to insert the Module.

▶ **Note:** If you purchased the World of Sensors Design Kit, the Mini-Z Module is already attached to the Board.

3. Connect the USB cable from the World of Sensors Design Board's Micro USB port to the computer. If you have not used a FTDI virtual COM port before, you will be prompted for the driver, which can be downloaded from the FTDI website at http://www.ftdichip.com/Drivers/VCP.htm.

4. Connect a power supply or 9V battery to the World Of Sensors Design Board; this power supply can range between 5.5 volts and 15 volts DC.

5. Launch a terminal emulation application, such as Tera Term, and connect it to the VCP COM port that was assigned during the driver installation. Set the communication values to:

   – 57600 baud rate
   – 8 bits
   – 1 stop bit
   – No parity
   – No flow control

> **Note:** If you are unfamiliar with terminal programs, see the Configure the COM Port section on page 6 for detailed instructions.

6. Turn the World of Sensors Design Board on (the Power Switch is indicated in Figure 1 on page 1). You should see the following command prompt on the terminal software:

   `Z16MiniZ>`

   If you do not see the above prompt, press the Enter key to acquire the prompt, which is dependent on the Mini-Z Module being used.

> **Note:** The prompt shown above will appear if you are working with the ZNEO Module. If you are instead working with Zilog's WLAN Module, you'll see this prompt portrayed as `WLANMiniZ>`. With the Z-PAN Module, this prompt will appear as `BTMiniZ>`.

7. At the prompt, enter the `version` command, then press the Enter key. The version of the Module shell will be returned. If this version number is less than 01.01.26, you

will need to update your Module to operate the World of Sensors Design Board shell application. Please refer to the appropriate Shell and Flash Loader Reference Manual for your Mini-Z Module for information about how to update the console shell.

> **Note:** If you purchased the World of Sensors Design Kit, a Mini-Z Module is included in the Kit. However, if you purchased the World of Sensors Design Board only, you must flash the World of Sensors shell application to a Mini-Z Module (available separately) through the terminal application by using the FlashApp command. For more information about flashing the application, refer to the World of Sensors Design Board Reference Design (RD0012) document or to the appropriate Mini-Z Module's reference design document. The Mini-Z Module that is contained in the World of Sensors Design Kit has already been flashed with the shell application.

8. Once the application has been flashed, enter the following command at the console prompt:

    Execapp

9. Press the Enter key to start the World of Sensors application, which will provide additional shell commands for reading the different sensors and activating the LCD display. You will need to repeat this command whenever the unit is reset or powered up to start the World of Sensors applications.

Shell Commands

To view a list of available commands, enter the ? command at the console prompt, followed by the Enter key. The ? command displays a list of the shell's commands. To learn more about using a command, enter the command followed by a space and the ? character, the press the Enter key.

For a description of the shell commands, refer to the document titled World of Sensors Design Board Reference Design (RD0012).

Terminal Application Details

A terminal emulator application is required to link your PC to the Mini-Z Module; in this document, Tera Term is used.

> ➤ **Note:** Zilog does not offer technical support for the Tera Term program; however, other terminal programs may be used, such as HyperTerminal. Tera Term may be downloaded for free at http://logmett.com/index.php?/download/tera-term-474-freeware.html.

Configure the COM Port

Observe the following procedure to configure the COM port.

1. Launch the Tera Term Virtual Terminal Console application, and select **Serial Port…** from the **Setup** menu, as shown in Figure 3.
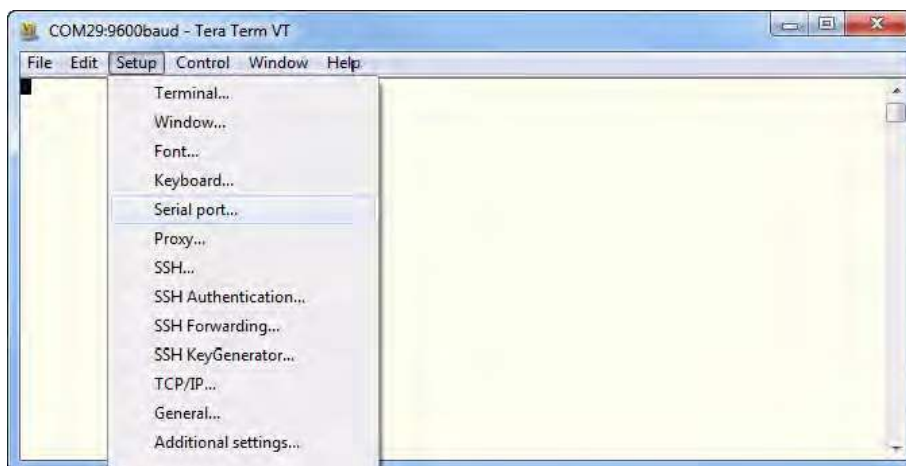
Figure 3. Setup Menu: Serial Port Selection

2. The New Connection dialog box will appear, as shown in Figure 4. From the **Port:** drop-down menu in the **Serial** panel, select the serial port assigned to the World Of Sensors Design Board, as indicated in the figure.

Figure 4. USB Serial Port Selection

3. The Tera Term Serial Port Setup dialog box will appear. Select 57600 from the **Baud Rate:** menu, as shown in Figure 5.
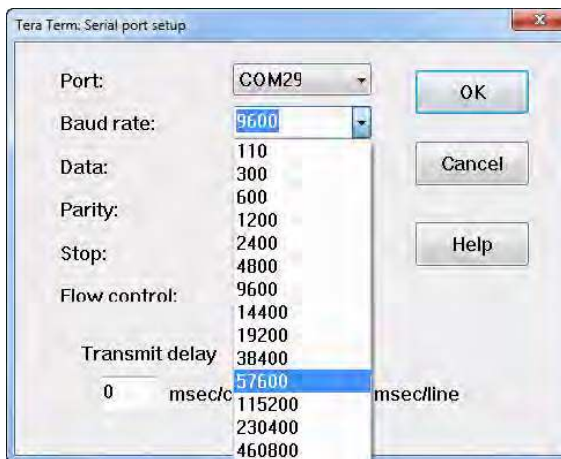
Figure 5. Baud Rate Selection

4. Allow all remaining settings to remain at their default values, as shown in Figure 6. Click **OK**.
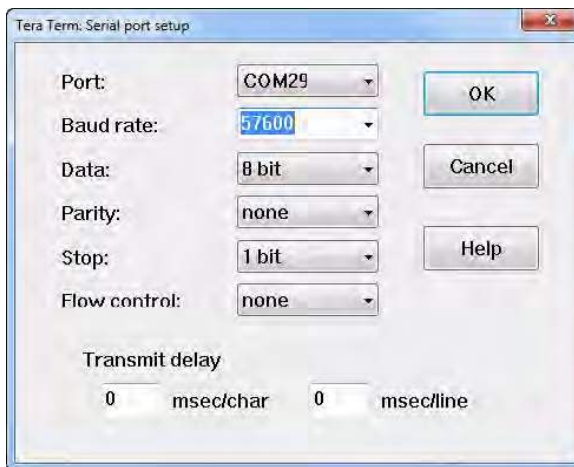
Figure 6. USB Serial Port Setup

Documentation and Software

The following technical documentation supporting Zilog's Mini-Z 28-pin modules is available for free download from the Zilog website.

Documentation

• Mini-Z ZNEO 28-Pin Module Reference Design (RD0006)

• Mini-Z WLAN 28-Pin Module Reference Design (RD0008)

• Mini-Z ZPAN 28-Pin Module Reference Design (RD0009)

• Mini-Z Shell and Flash Loader Reference Manual (RM0063)

Software

• Shell source code for the World of Sensors Reference Design (RD0012-SC01)

• Stand-alone source code for the World of Sensors Reference Design (RD0012-SC02)

Please refer to the Zilog website to obtain the most up-to-date documentation.

Customer Support

To learn more about this product, find additional documentation, get your technical questions answered or report issues, please contact esales@zilog.com.

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