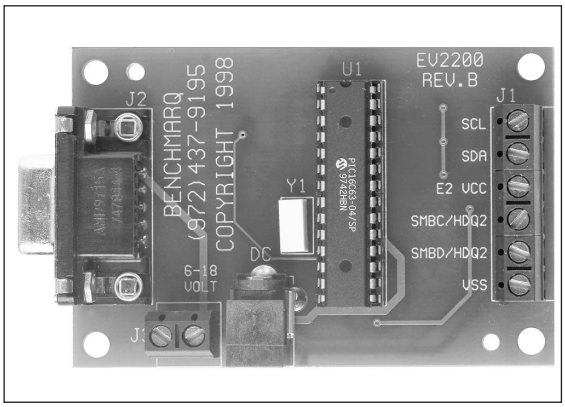
EV2200-18

Evaluation System User Guide

Contents



Introduction

The bq2018 PowerMinder™ IC provides a battery-powered system with accurate charge and discharge counting of coulomb counting. The bq2018 works with an intelligent host controller to form a complete battery monitor/fuel gauge system.

General Description

The EV2200-18 is an evaluation and demonstration system for the bq2018 PowerMinder device. It has been designed to demonstrate the functionality of the bq2018 within a battery system, and also allow flexibility for the user to configure the system to their own requirements for true application evaluation.

Kit Contents

The EV2200–18 contains the following items:

1 EV2200 Interface Board

1 Serial PC cable

3 Software disks entitled *EV2200–18 Software*

This kit should be used in conjunction with the bq2018 data sheet for reference.

Hardware and Software Setup

For the board to work correctly, an IBM PC-AT compatible computer with an available serial port is required. This computer can be running under either Windows 3.x or Windows95, with approximately 5M bytes of hard disk space required for a full installation.

Hardware Installation

PC Connection:

The serial cable should be connected between the spare serial communications (COM) port on the PC and the 9-pin D-type connector on the EV2200 interface board. Your computer manual shows the COM port locations if you are unsure.

bq2018 Connection

Connect a bq2018-based circuit, such as the bq2118, to the EV2200. Only two connections on the EV2200 are required for this operation, SMBD/HDQ1 and VSS. These two connections should be made to the HDQ and GND connections on the bq2018-based module, respectively. The bq2018 circuit should be powered correctly, as detailed in the bq2018 data sheet.

Note: The hardware should be connected correctly and powered *before* the EV2200–18 software is run.

Software Installation

The following steps install the EV2200 software,

1. Insert disk 1 into a 3 ½ inch floppy drive.
2. Select the 3 ½ inch drive using **My Computer** or **File Manager**.
3. Double-click on the **Setup.exe** icon.
4. The setup program prompts for the remaining disks and installs a Windows application group.

Starting the Program

The installation process creates an icon labeled *Ev2018ev*. Find this icon and double-click on it. The evaluation software loads in 3 to 10 seconds, depending on the speed of the PC.

During this time the EV2200 software is testing the communications to the EV2200. The subsequent message indicates the board status. After the communications port is detected, the software displays the **bq2018 Registers screen**. See Figure 1.

If you do not see the **bq2018 Registers screen,** see the *Troubleshooting Guide.*

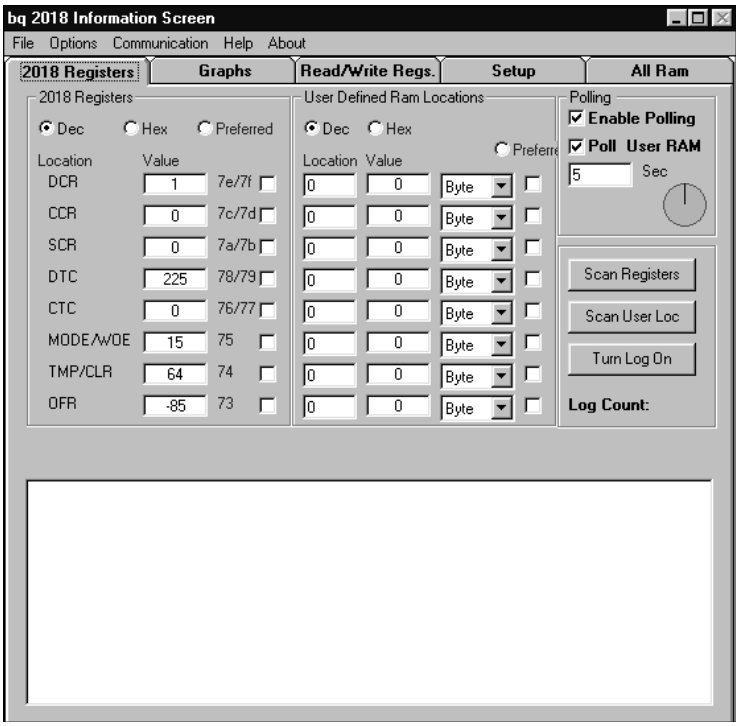


Figure 1. bq2018 Registers Screen

Software Instructions

When the software is running, you can select 5 tabs: **2018 Registers, Graphs, Read/Write Regs., Setup,** and **All Ram.**

Setup Screen

Enter the Battery Capacity and the R_{SNS} value in mΩ on this screen. See Figure 2. You can also format the graph axis here. After the correct settings have been entered you can save the settings by clicking on the **Write Settings to File** button and click on the **Initialize Battery** button to ensure these values are used.

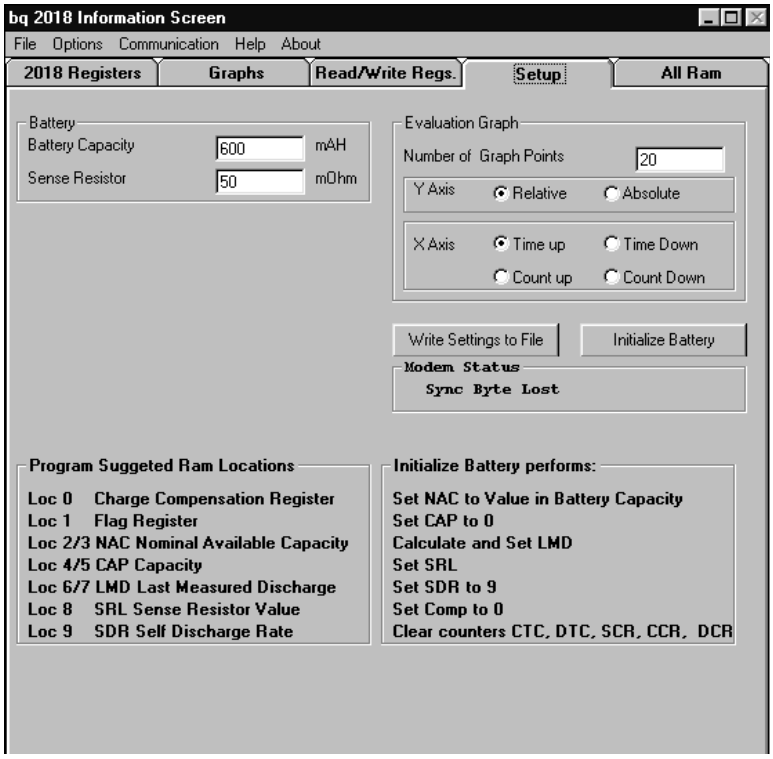


Figure 2. Setup Screen

bq2018 Registers Screen

The register section at the top of this screen is common to the Graphs and the Read/Write Regs. tabs. In the register display section, each of the allocated bq2018 registers can be viewed in hexadecimal (Hex) or decimal (Dec). Ten-user locations can also be monitored. To update each register, click on the **Scan Registers** or **Scan User Loc** buttons. This can be made automatic by checking the **Enable Polling** or **Poll User RAM** buttons, respectively. The period of each scan is set in the timing box provided beneath the automatic polling check boxes. At the bottom of this screen is shown the data being collected when the data logging is active. Click the **Turn Log On** button and follow the instructions on the screen to activate this function. See Figure 3.

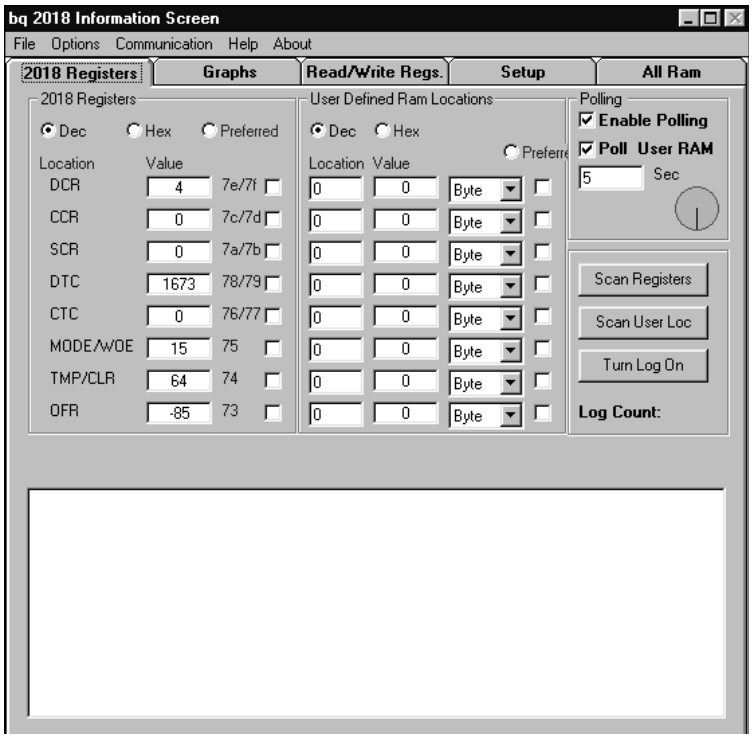


Figure 3. bq2018 Registers Screen

Graphs Screen

Below the register set display on this tab is shown a graph. The user chooses the data for this graph by checking the appropriate box on the right of the register desired. Any of the registers can be displayed and as many together as the user desires. An example of the Graph feature is shown in Figure 4.

Read/Write Regs Screen

The function of this tab is to allow the user to program any of the data registers, counters, and control registers within the bq2018. Use the memory map in the bq2018 data sheet for a guide to their individual uses. Simply enter the address and any data (for Writes) and click the appropriate button. The control registers will show the binary version below the address and data entry boxes to give a guide as to the state of the device at that time. See Figure 5.

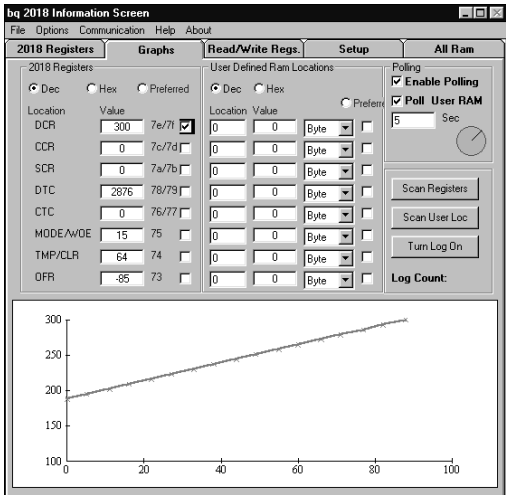


Figure 4. Graphs Screen

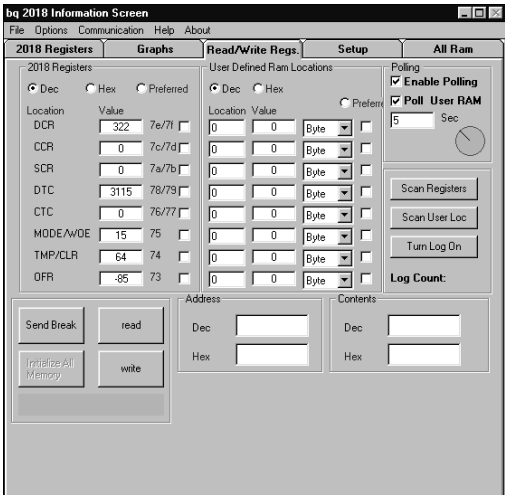


Figure 5. Read/Write Regs Screen

All Ram Screen

The bq2018 has a section of RAM that is available to the user for adding extra features such as serial number storage and configuration data storage. By clicking the Read RAM button all the data in memory will be shown. Using the Read/Write Regs tab gives access to all of these locations. See Figure 6.

Troubleshooting Guide

Q – Why can't my software communicate with the EV2200 interface board?

A – If you are shown the screen in Figure 7 when you first clicked on the Ev2018ev icon, the serial link is not connected correctly. Secure the serial cable connection at the EV2200 and the PC and check with the computer manual to verify the COM port selection.

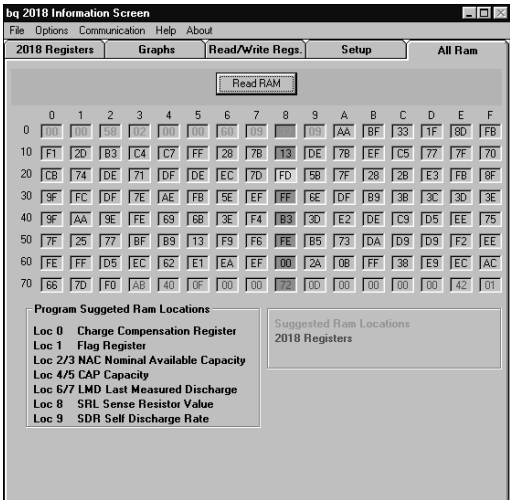


Figure 6. All RAM Screen

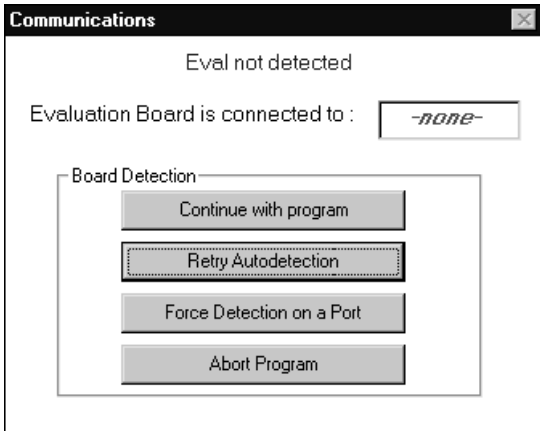


Figure 7. Board Detection Screen

Q – The EV2200 is communicating properly but the data registers are all FFh (255 Dec); see Figure 8. What is wrong?

A – The problem here is that the HDQ interface between the bq2018 and the EV2200 is not functioning. Ensure that the bq2018 and EV2200 are connected correctly and the bq2018 circuit is powered correctly. The bq2018 IC must see a potential of 3.0–3.9V on V_{CC} (pin 2) for proper operation.

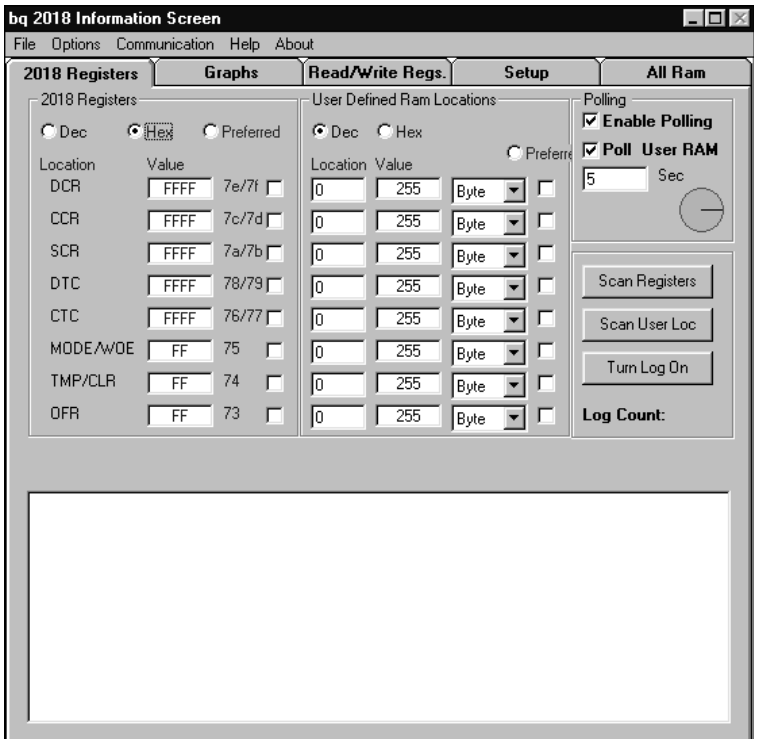


Figure 8. bq2018 Registers Screen

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