PS080, PowerTool™ 800 Development Software User's Guide

Chapter 1. Preface

Features

- Supports user-friendly environments for development of battery systems incorporating Microchip's PS8XX IC family
- Microsoft® Windows® XP compatible
- Interfaces to PS8XX using Microchip PowerInfo™ 2 or PowerCal™ 2 hardware
- Direct input of system parameters in battery cell specified units
- Advanced interactive editor allows quick IC configuration
- Logs reported parameters during discharge test for PS8XX device-based battery systems
- Verifies proper assembly and correct communication
- Can be used without hardware to develop configuration files for PS8XX

Ordering Information

Part No.	Description
PS080	PowerTool™ 800 Development Software

Supported Hardware

Part No.	Description
PS051	PowerInfo™ 2 Interface Board
PS052	PowerCal™ 2 Calibration Board
PS8070	PS8XX Fuel Gauge Evaluation Board

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Chapter 2. Overview

2.1 GENERAL OVERVIEW

PowerTool 800 is a Windows XP compatible software package that supports the rapid development and production of rechargeable battery systems based on Microchip's PS8XX ICs. PowerTool 800 simplifies the design process by providing a high-level, menu driven environment that allows the designer to quickly and easily develop, calibrate and test PS8XX device-based battery systems.

PowerTool 800 software interfaces to the battery system through the PowerInfo 2 interface board and PowerCal 2 calibration board. Dual data screens for raw and calculated data provide a user-friendly environment for design and debug.

During development, configuration defaults allow quick setup of PS8XX controlled systems. A simple parameter editor and an enhanced, interactive wizard help tailor the IC to the specific needs of the application and battery. Entry of battery parameters is performed using battery cell specified units, such as volts (V), millivolts (mV), milliamperes (mA) and milliampere-hours (mAh). The PowerTool 800 interface is divided into several pages which give access to a variety of fuel gauge functions.

With all of its advanced features, PowerTool 800 software increases the value of the complete Microchip battery management solution by lowering the costs associated with development, minimizing time to market and maximizing production throughput. PowerTool 800 software is offered free of charge and is available for download on the Microchip web site. It is also included with Microchip's hardware development tools summarized in Table 5-1. The following is a very brief overview of PowerTool 800 features. Please use the HTML Helpfile for additional information. It can be activated by clicking "Help" in the lower right corner of PowerTool 800.

2.1.1 Configuration Wizard

Upon initial start-up of PowerTool 800, the configuration wizard begins. This five-step wizard guides you through basic PS8XX configuration. Click "Step 1" to begin.

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Chapter 3. Manufacturing Mode

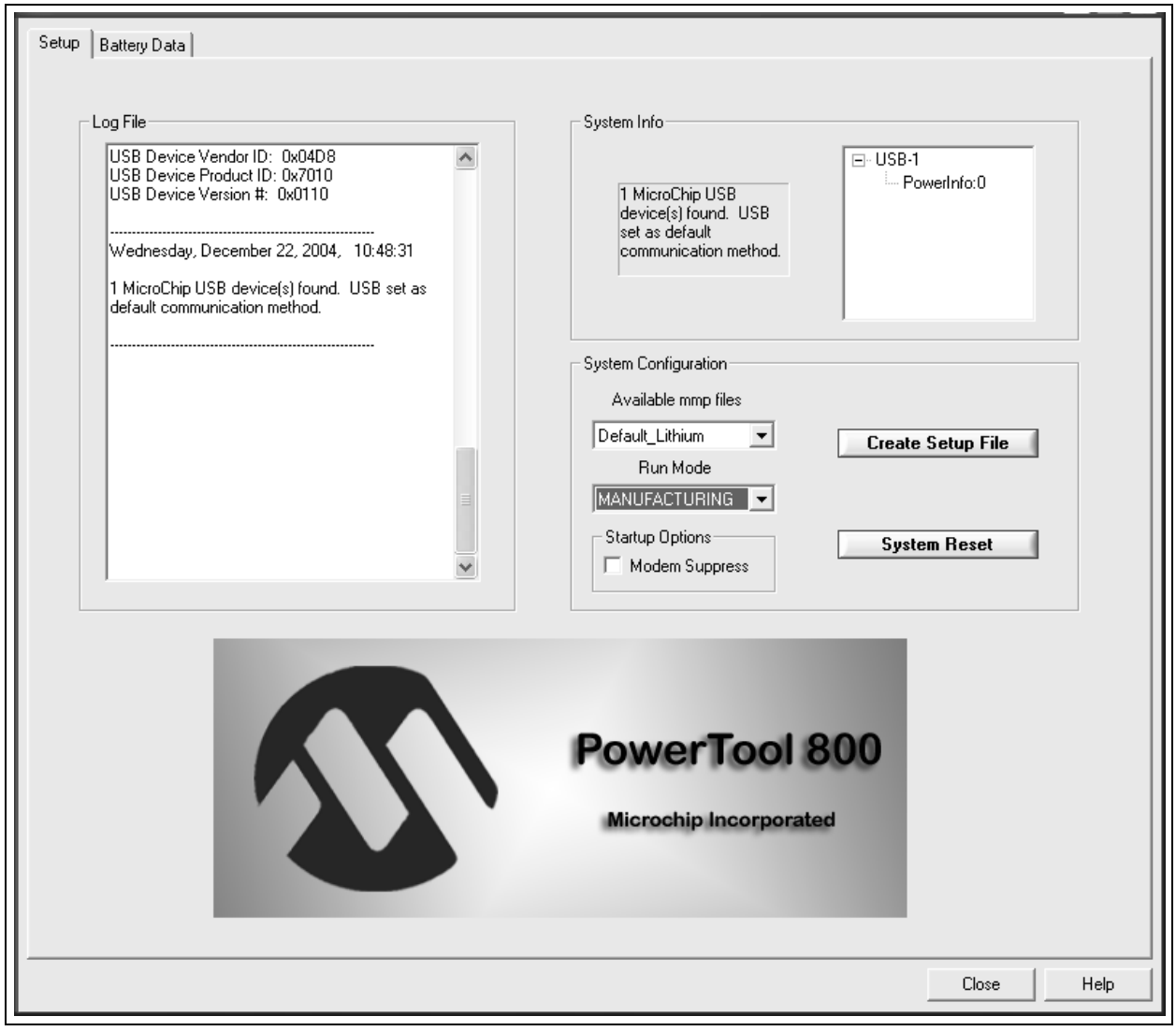
3.1 MANUFACTURING MODE

PowerTool 800 can be run in Manufacturing or Advanced Configuration mode. Manufacturing mode is typically used in production environments to limit access to only the programming and calibration functions.

3.1.1 Setup Page

Page which contains detailed operation log, Run mode selection, system information and software Reset.

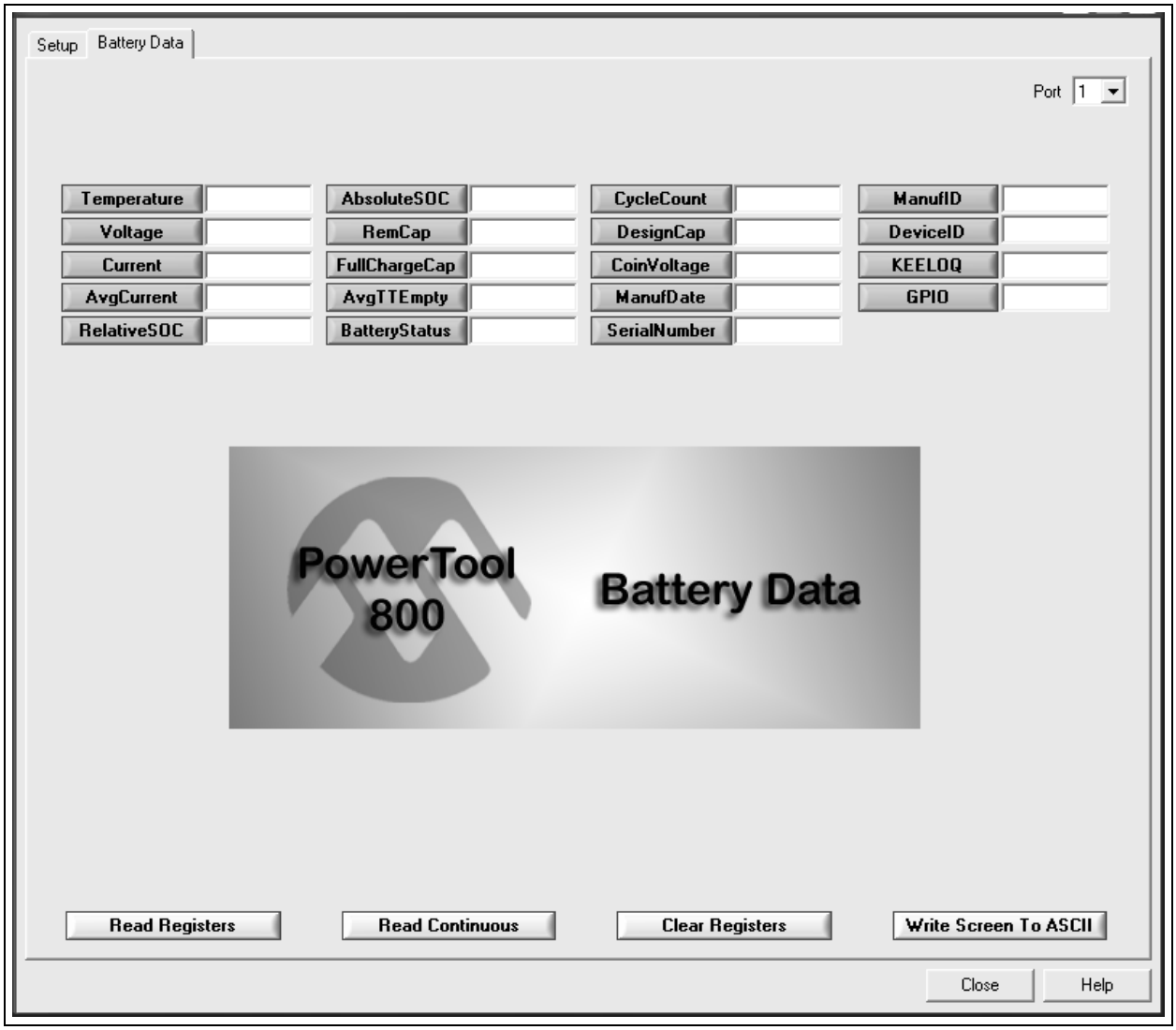
FIGURE 3-1: SETUP PAGE



3.1.2 Battery Data Page

Read all battery data values which are available over the communication interface. Write the values to a file and read and log data continuously from this page.

FIGURE 3-2: BATTERY DATA PAGE



3.1.3 Calibration Page

Set up and perform parameter initialization, calibration and testing. Use the View buttons to display the various routines. Click "Start" to write the configuration hexa-decimal data file and fuel gauge created with the wizard and the date (the green buttons indicate that these two functions are enabled) to PS8XX memory.

Chapter 4. Advanced Configuration Mode

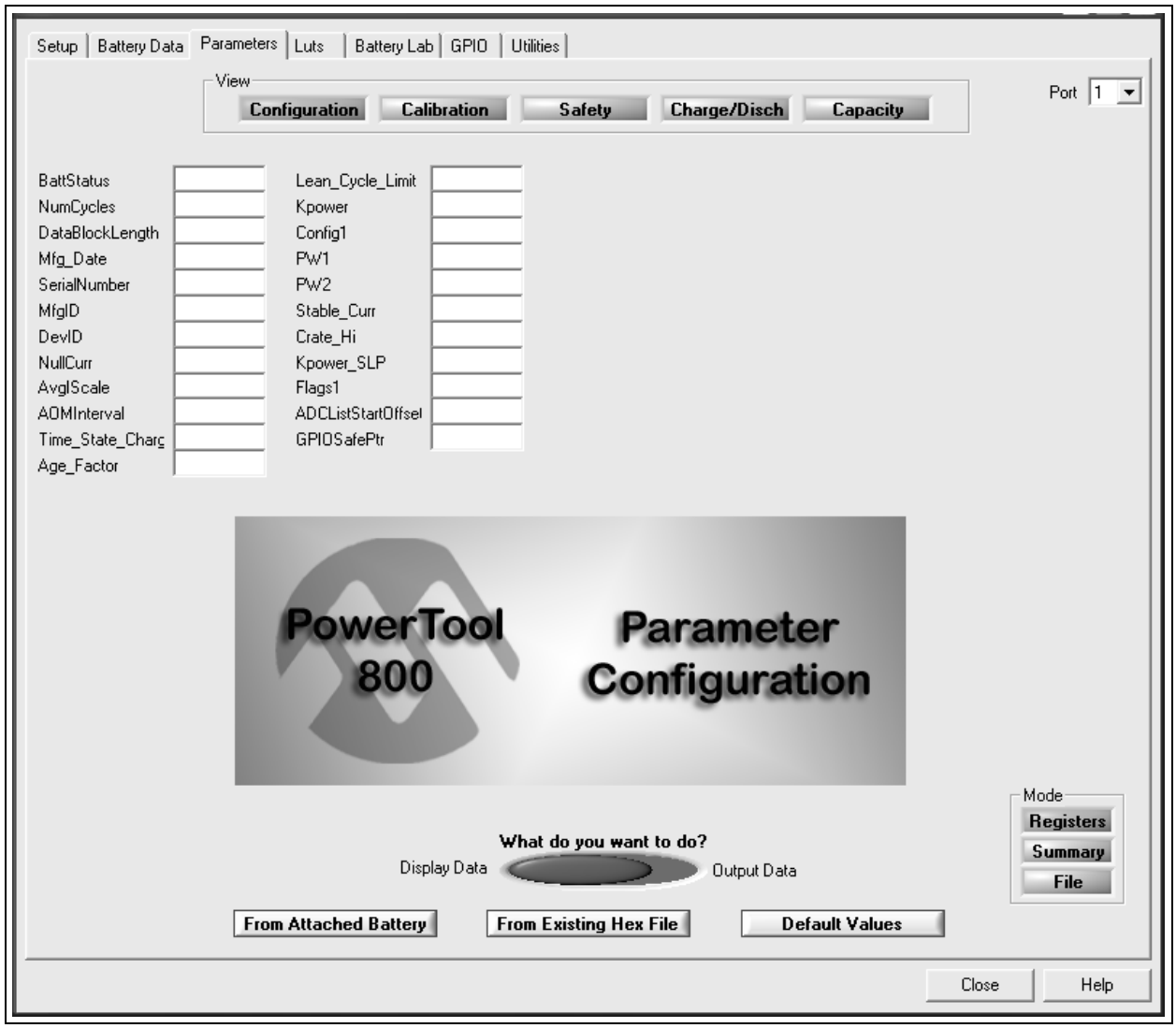
4.1 ADVANCED CONFIGURATION MODE

PowerTool 800 can be run in Manufacturing or Advanced Configuration mode. Advanced Configuration mode is typically used by engineers during system development and testing. Advanced Configuration mode includes the pages available in Manufacturing mode and those explained in this section.

4.1.1 Parameters Page

Read and write all memory locations. Use buttons in the View box to display parameters in various categories. Click in the value text box of any parameter to display a description.

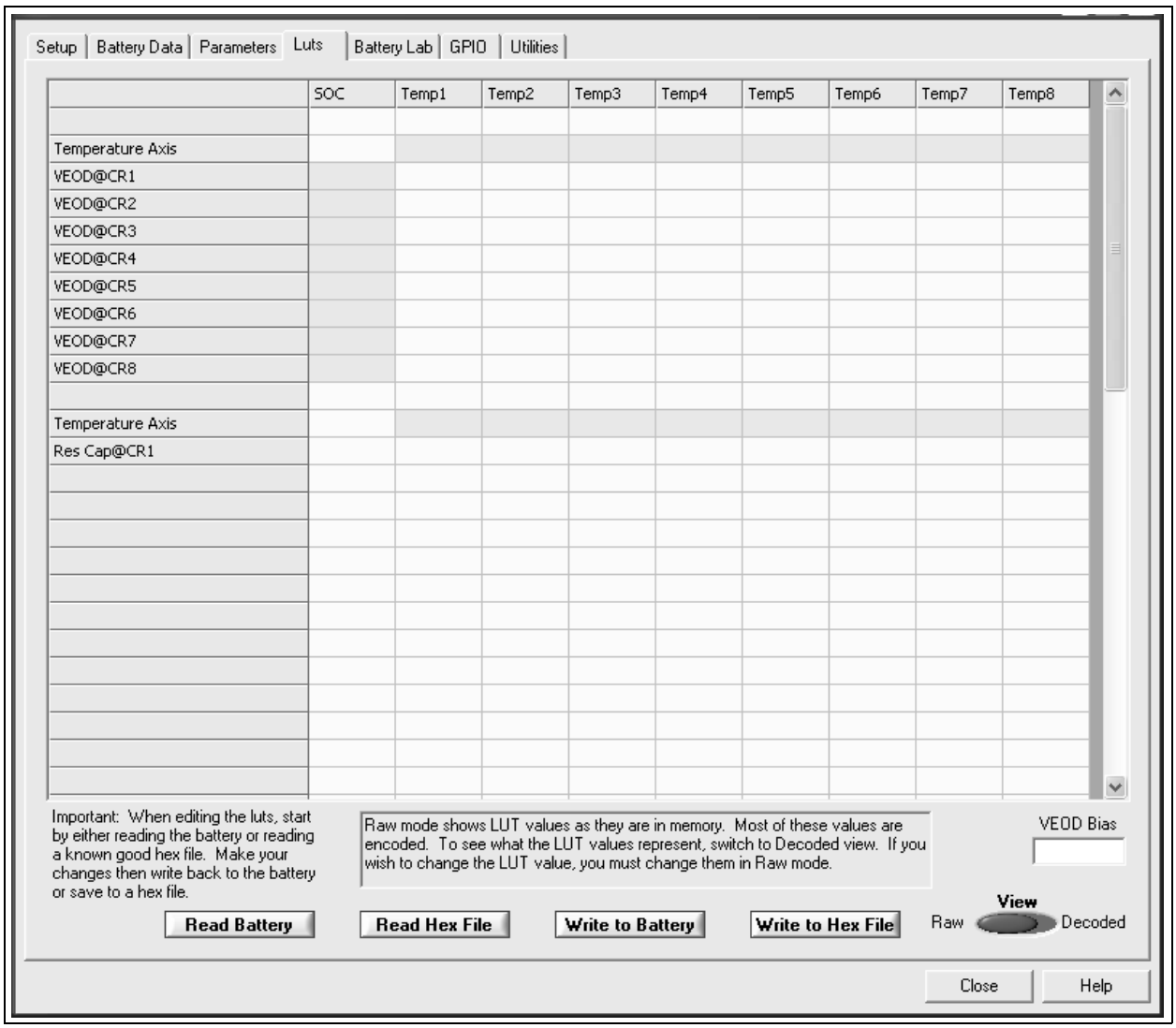
FIGURE 4-1: PARAMETERS PAGE



4.1.2 LUTs Page

The modeled cell data is displayed here in raw (internal units) or decoded format.

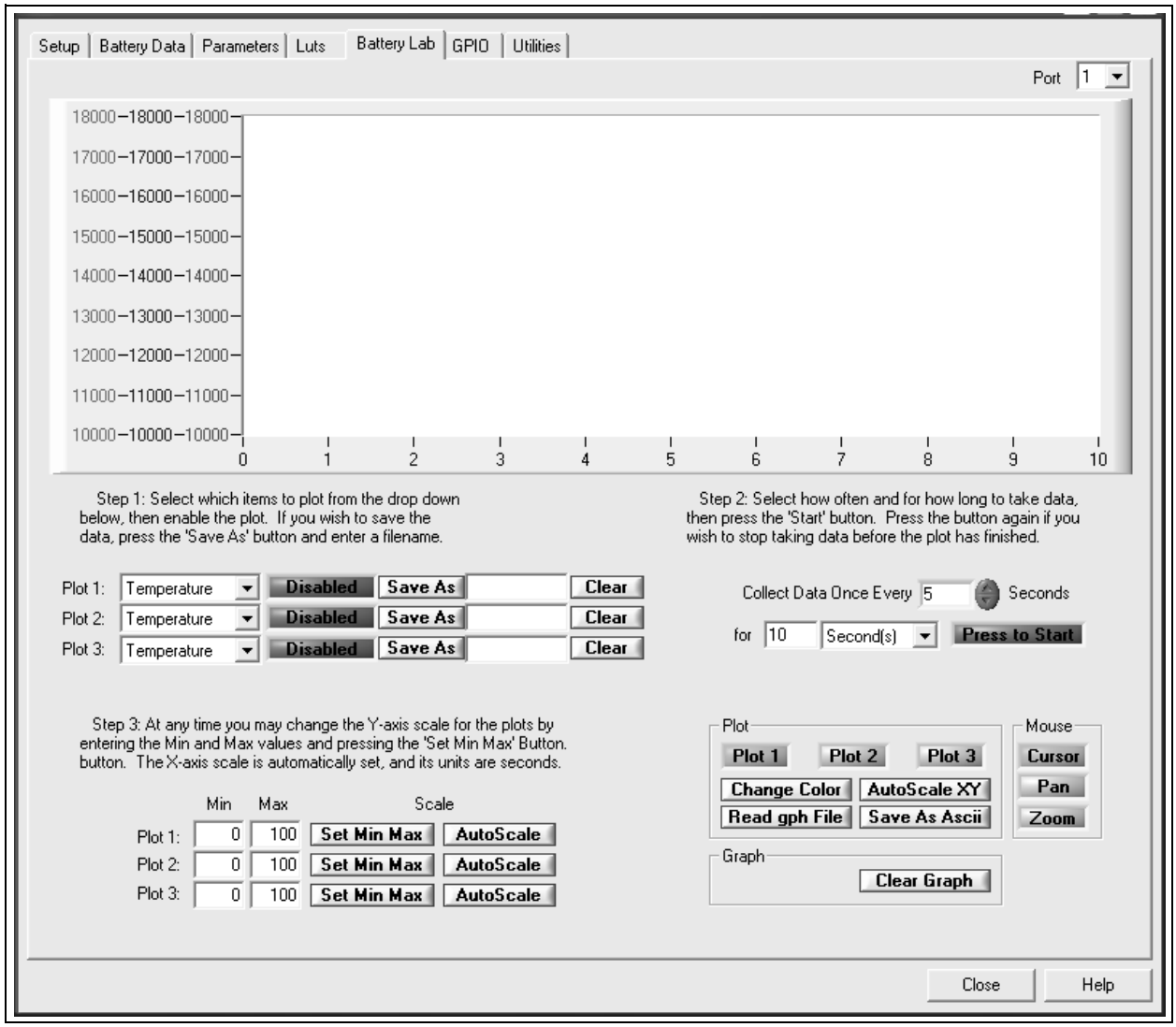
FIGURE 4-2: LUTs PAGE



4.1.3 Battery Lab Page

Graphical data can be collected and saved using the integrated plot utility.

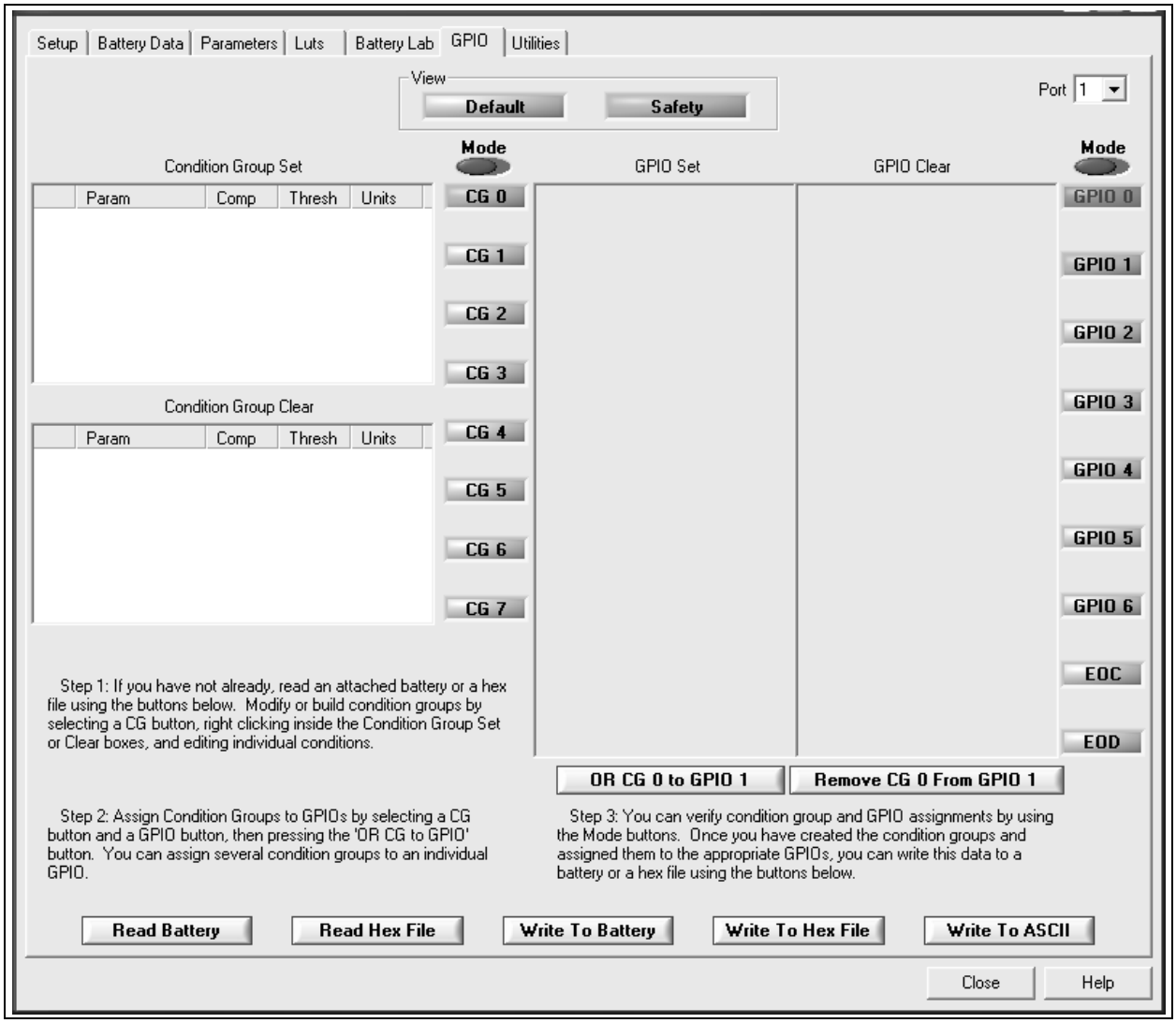
FIGURE 4-3: BATTERY LAB PAGE



4.1.4 GPIO Page

The general purpose I/Os are configured with the utility on this page. It is very flexible and allows the user to easily set up complex conditions to set and clear the GPIO pins.

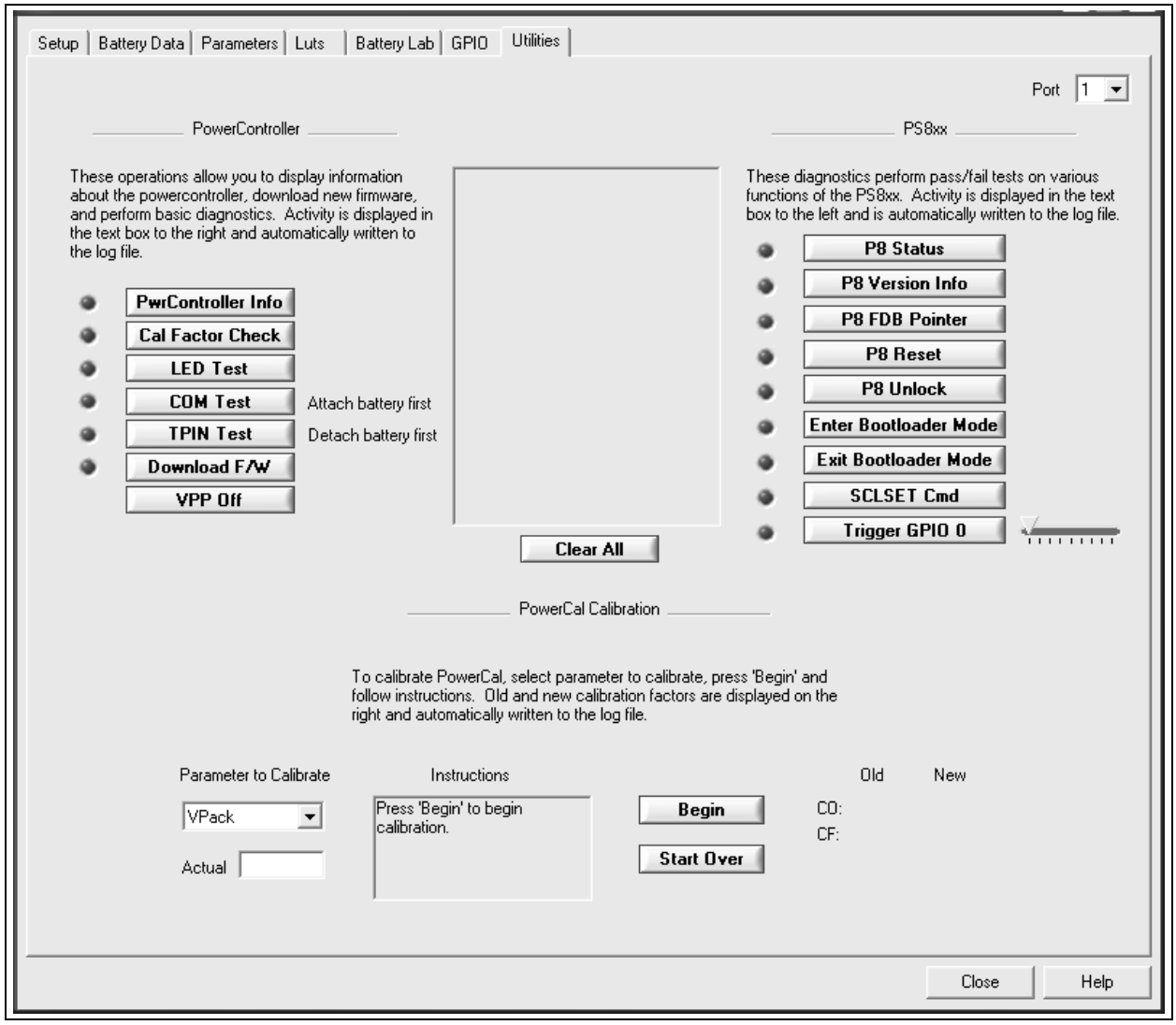
FIGURE 4-4: GPIO PAGE



4.1.5 Utilities Page

Various utilities related to the power controller boards, PowerInfo 2 and PowerCal 2, are located here.

FIGURE 4-5: UTILITIES PAGE



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Chapter 5. Development Tools

5.1 DEVELOPMENT TOOL SUMMARY

Microchip provides all the necessary hardware and software to enable easy tailoring of charging, battery control algorithm parameters and cell performance models to meet specific application requirements and attain the highest accuracy available anywhere. Table 5-1 summarizes the development tool offering from Microchip to support the PS8XX family. Please refer to the Microchip web site for ordering information and design documentation (including schematics) at www.microchip.com.

TABLE 5-1: MICROCHIP DEVELOPMENT TOOL SUMMARY

Development Tool	Use
PowerInfo™ 2 hardware with PowerTool™ 800 software (PS051)	Read and write memory and test
PowerCal™ 2 hardware with PowerTool™ 800 software (PS052)	Read and write memory, calibration and test

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Fax: 86-24-2334-2393

China - Shenzhen
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Fax: 86-755-8203-1760

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