DALLAS SEMICONDUCTOR

DS2436K
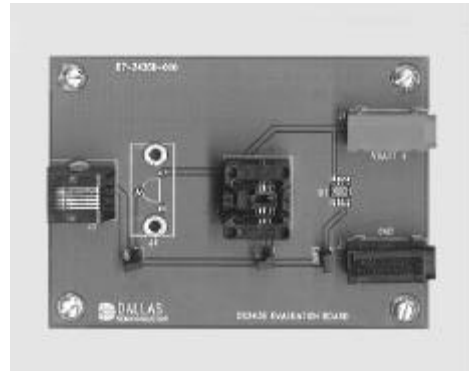# Battery ID/Monitor Evaluation Kit

FEATURES
- Demonstrates the capabilities of the DS2436 Battery ID/Monitor Chip, including:
  - Temperature Measurement
  - Voltage Measurement
  - Cycle Counter
  - Information Storage
  - Identification
- Provides small-volume DS2436 programming support
- Interfaces to the serial port of a PC running Windows 95, Windows 98, or Windows NT

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EVALUATION KIT CONTENTS
1 pc. DS2436K evaluation board
2 pc. DS2436K software diskettes (3.5" format)
1 pc. DS9123 Universal Serial Port Adapter
1 pc. RJ-11 phone cable
1 pc. DS2436K datasheet
1 pc. DS2436 datasheet

EQUIPMENT NEEDED
1. An IBM-compatible PC running Windows 95, Windows 98, or Windows NT with a 3.5" floppy drive and an available serial port
2. A battery or power supply and cabling to interface to the evaluation board

INTRODUCTION
The DS2436K Evaluation Kit provides a convenient and easy-to-use means of evaluating the performance of, developing software for, and prototyping with the DS2436 Battery ID/Monitor Chip. The board interfaces to an IBM-compatible PC through a DS9123 Universal Serial Port Adapter and RJ-11 cable connection. Two floppy disks contain the DS2436K software, which can be run under Windows 95, Windows 98, or Windows NT.

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The evaluation board comes populated with a hardwired DS2436, jumpers, and connectors. It also contains a socket that can be used for programming a DS2436 in the 8-pin SO-8 package. There is also space for a TO-92 socket (not included with this kit) which can be used for programming and evaluation of the DS2436 in a TO-92 package. The placement of the jumpers on the board will determine which DS2436 is being evaluated. When JMP3 is in place, the kit uses the hardwired DS2436. JMP2 enables a DS2436 in the SO-8 socket to be evaluated or programmed, while JMP1 enables the DS2436 in the TO-92 socket. Although multiple DS2436 devices can be connected to the same 1-Wire™ bus simultaneously, the DS2436K Evaluation Kit only supports communication with one DS2436 device at a time.

SETUP AND INSTALLATION

Note: The DS2436K software is a 32-bit application that runs only under Windows 95, Windows 98, or Windows NT. Windows 3.1 and DOS are not supported.

To install the DS2436K software, exit all programs currently running and insert Installation Disk 1. Run SETUP.EXE and the installation process is launched. Follow the prompts to complete the installation. The DS2436K software can be uninstalled in the Add/Remove Programs tool in the Control Panel.

After the installation is complete, open the DS2436K folder and run DS2436K.EXE. A splash screen containing information about the evaluation kit appears as the program is being loaded.

SELECTING THE COM PORT AND BAUD RATE

The first time the software runs the Select Preferences window appears. In this window, select the COM port to which the DS9123 is attached and then hit OK. The DS2436K software saves this COM port and baud rate selection and automatically uses the selection each time the program starts. To change the COM port or baud rate, click the Preferences/Serial Port Settings option on the menu bar and select the appropriate port and baud rate.

KIT OPERATION

The DS2436K Evaluation Kit is set up to display the basic functionality of the DS2436. Before operating the kit, connect the evaluation board to a power supply through the jacks labeled VBATT+ and GND. Also, be sure that the evaluation board is connected to the DS9123 through the RJ-11 cable and that the DS9123 is plugged into an available serial port on the computer. Finally, verify that jumpers JMP1 through JMP3 are configured as needed. At this time, the kit software can be started and the kit will begin running automatically.

The kit displays three windows that can be accessed as needed at any time while running. The Graphs Screen displays a real-time graphical view of the voltage and temperature measurements being taken by the DS2436. The graphs display the last 100 real-time measurements, as illustrated in Figure 1. The Clear button erases all the data in the graphs and resets all values to 0. The Stop Reading button allows the user to stop the flow of real-time data.

GRAPHS SCREEN Figure 1
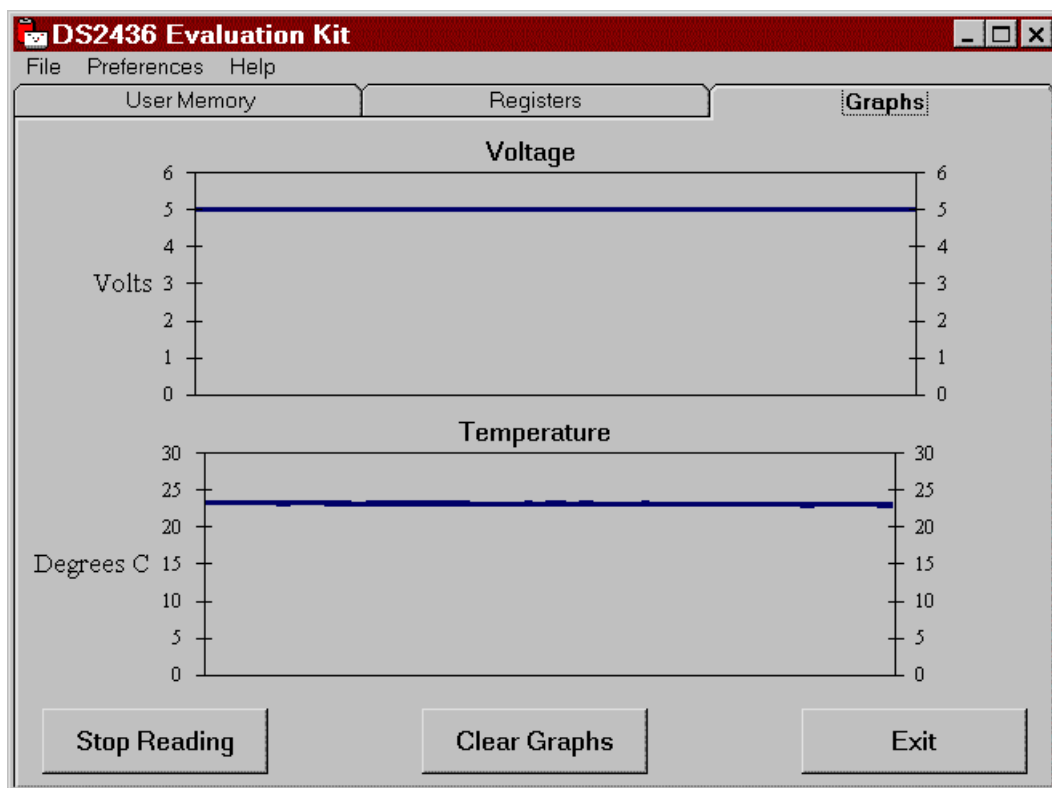
The Registers Screen displays the latest real-time measurements of voltage and temperature with both analog meter readouts and digital values. Also displayed on the Registers Screen are the ROM ID and the manufacturing ID of the DS2436 under evaluation. Another feature displayed on the Registers Screen is the Cycle Counter. The user is allowed to view the value of the Cycle Counter as well as increment and reset the counter. Finally, the values of the ADB (A/D Converter Busy Flag), LOCK (Memory Lock Flag), NVB (Nonvolatile Memory Busy Flag), and TB (Temperature Busy Flag) bits in the Status Register are reported to the user on this screen as well. The Registers Screen is shown in Figure 2.

REGISTERS SCREEN Figure 2
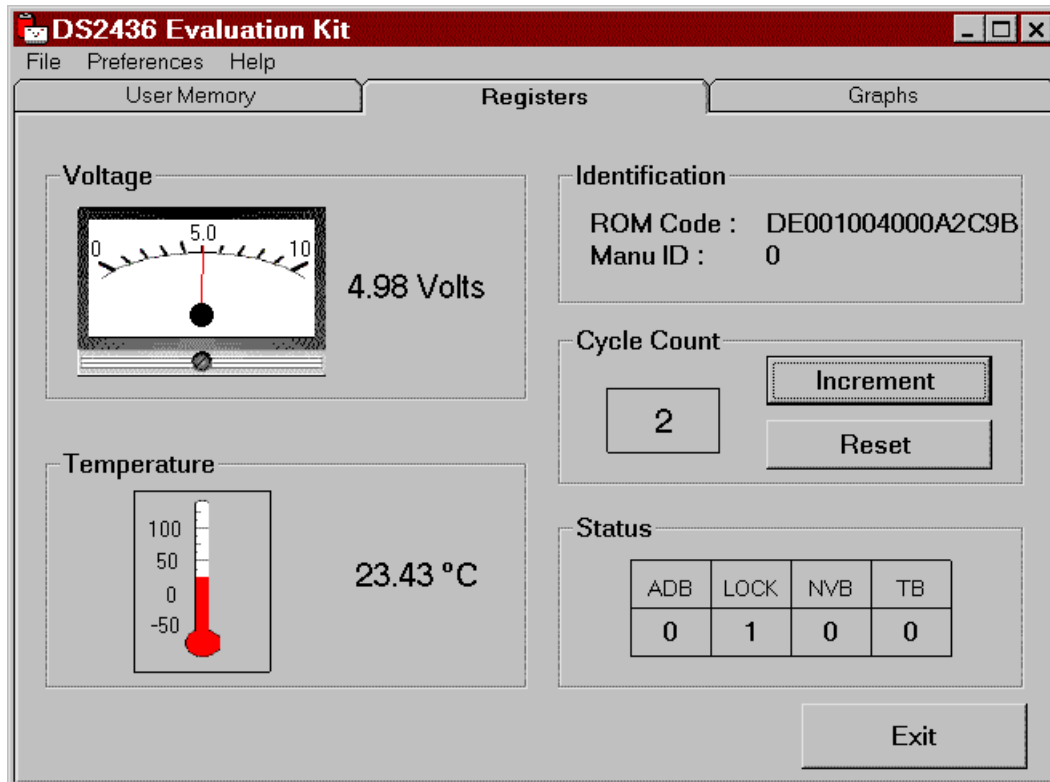
The DS2436K Evaluation Kit can be used to evaluate DS2436 memory functions or program the hardwired device or any number of DS2436 devices placed into either the SO-8 socket or the TO-92 socket. Memory evaluation and programming can be done while accessing the User Memory Screen. The User Memory Screen is divided into 3 pages that correspond to the three pages of DS2436 memory which have user memory bytes available. There are 24 bytes on Page 1, 8 bytes on Page 2, and 8 bytes on Page 3. The user is able to write the desired values in hex format to each memory location. By pressing the appropriate button, the user can then copy the contents into scratchpad and nonvolatile memory. (Note that before the nonvolatile memory on Page 1 can be written, the page must be unlocked by pressing the Unlock button. It can then be locked gain by pressing the Lock button.) Data on all pages can be read by pressing the Copy NVx to SPx button and then the Read SPx button.

Saving and Opening Configurations. To save a particular configuration of entered data to a file for future use, such as programming other devices with the same data, click File in the menu bar, select Save, and specify a file name. To load a configuration from a file, click File in the menu bar, select Open, and select the file. This loads all of the memory data fields with the values stored in the file. The User Memory Screen is shown in Figure 3.

USER MEMORY SCREEN Figure 3