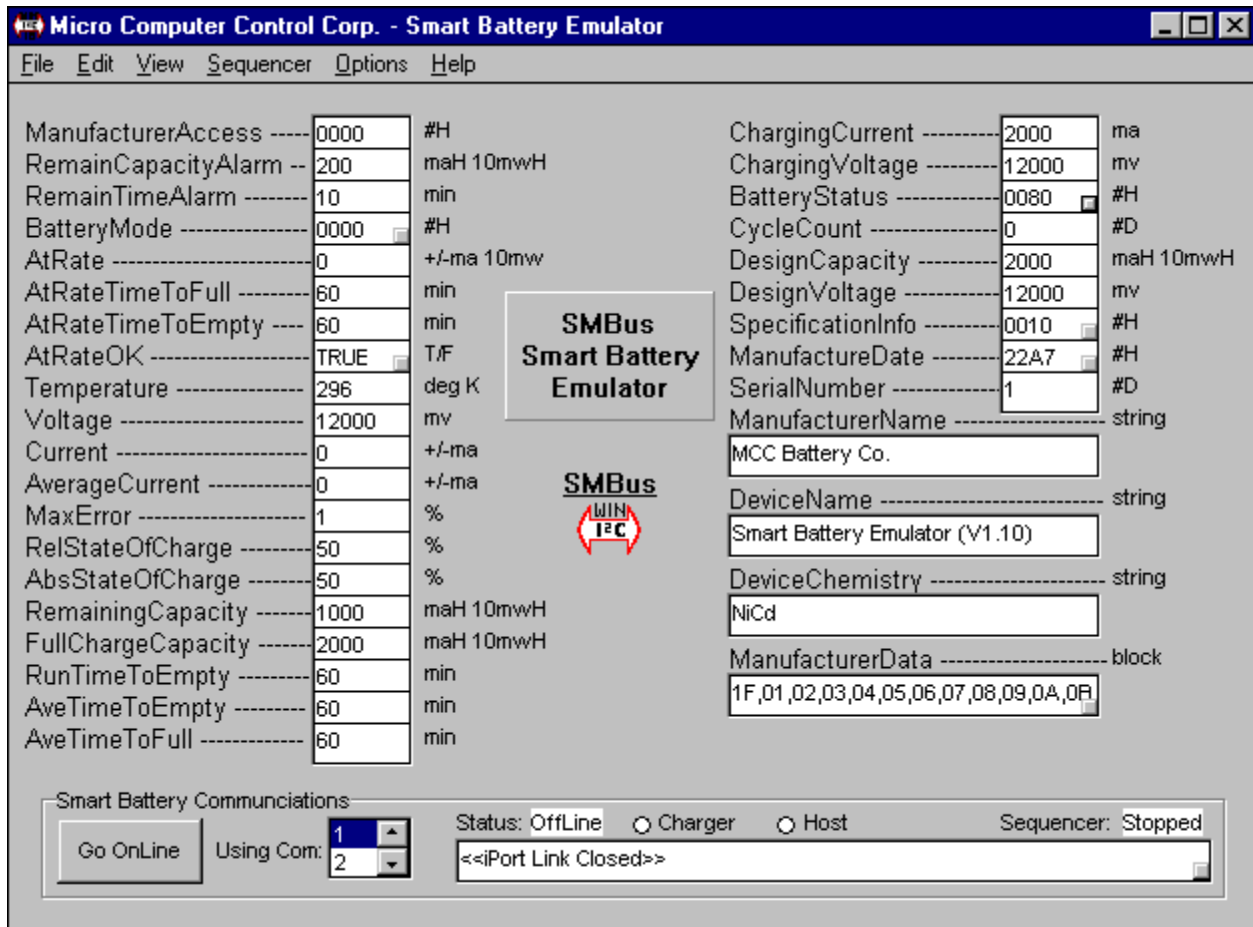


# User's Guide

## SMBus Smart Battery Emulator

### Version 2



This document contains information on the SMBus Smart Battery Emulator Software including equipment setup and use.

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**WARNING - Life Support Applications:** MCC products are not designed for use in life support appliances, devices, or systems where the malfunction of the product can reasonably be expected to result in a personal injury.

**WARNING - Radio Frequency Emissions:** This equipment can radiate levels of radio frequency energy that may cause interference to communications equipment. Operation of this equipment may cause interference with radio, television, or other communications equipment. The user is responsible for correcting such interference at the expense of the user.

**WARNING - Electrostatic Discharge (ESD) Precautions:** Any damage caused by Electrostatic Discharge (ESD) through inadequate earth grounding is NOT covered under the warranty of this product. See the “Electrostatic (ESD) Precautions” section of this guide for more information.

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13-NOV-06

**Reference Specifications:****System Management Bus Specification Revision 1.0****Smart Battery Data Specification Revision 1.0****NOTICE**

This software is not intended for the validation of compliance with SMBus or Smart Battery Data Specifications.

**WARNING**  
**SMBus TIMING VIOLATIONS**

As a Windows based application, the SMBus Smart Battery Emulator Software cannot meet all message timing requirements as stated in the System Management Bus specifications.

In particular, reading SMBus Smart Battery Data from the Smart Battery Emulator software will violate the TTIMEOUT and TLOW:SEXT maximum limits of 25 milliseconds. Depending on your system configuration and concurrent processing activity, TTIMEOUT and TLOW:SEXT with the Smart Battery Emulator Software may exceed 150 milliseconds.

Use of the SMBus Smart Battery Emulator Software requires that timing requirements be suspended during message testing activities.

The SMBus Smart Battery Emulator Software is designed to emulate SMBus Smart Battery communications, enabling the user to exercise SMBus devices by easily changing Smart Battery Data, and automating sequences of such data.

The program consists of a main screen, used to display, enter and save Smart Battery Data, and a Frame Sequencer, used to automatically step the emulator through a series Smart Battery Data frames that model changing battery conditions over time.

## **System Requirements:**

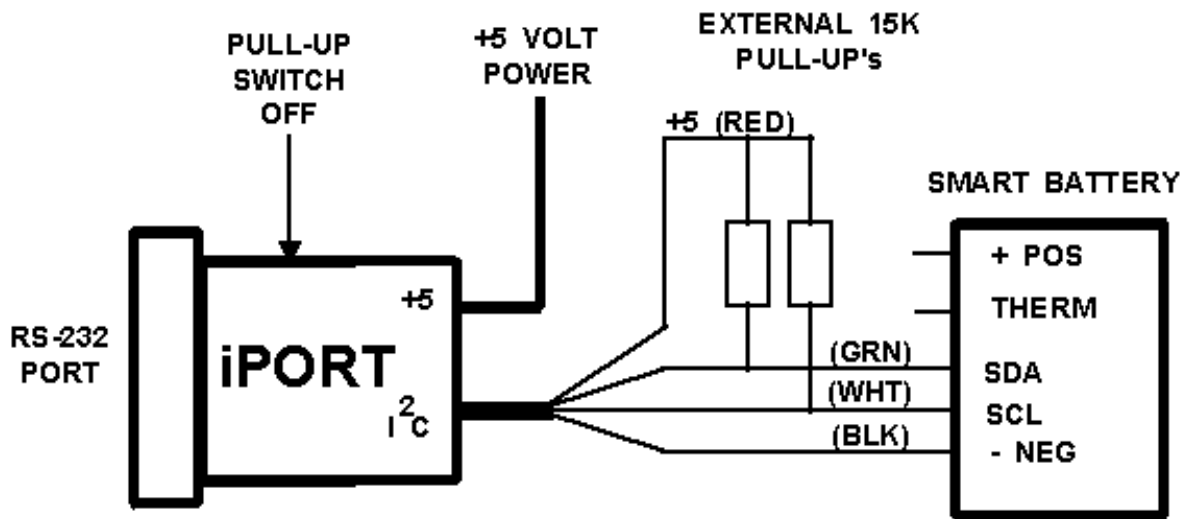
1. MCC iPort (# MIIC-201) or iPort DLL/USB (#MIIC-201D/U) Windows to I<sup>2</sup>C Bus Host Adapter.
2. SMBus Smart Battery host or charger device with interfacing cable.
3. Windows 95 or above for RS-232 support. Win2K, XP or above for USB support.
4. One serial communications port (RS-232 or USB).

## **Installation:**

1. Insert the installation CD.
2. If installation does not automatically start, run setup.exe.
3. Follow instructions on screen.

## **Equipment Setup:**

1. Connect iPort Host Adapter to a ComPort or USB port.



2. Connect iPort Host Adapter to target SMBus Smart Battery host or charger device. (See suggested setup above)

**Note:**

When connected to an SMBus Smart Battery system, the Pull-Up switch on the iPort Host Adapter should be OFF, and external Pull-Up resistors (approximately 15K Ohm) should be applied to the I<sup>2</sup>C Clock and Data lines.

3. If using an RS-232 to I<sup>2</sup>C adapter, apply power to the adapter. (See iPort User's Guide)

## To Start Program:

Click Start | Programs | Smart Battery Emulator 2.0 | Smart Battery Emulator.

## To communicate with SMBus Smart Battery devices:

1. Select the COM port connected to the iPort Host Adapter.

2. Set the Smart Battery parameters by, a) enter parameters on main screen, b) load a previously saved parameter frame file, or c) configure and start the frame sequencer.
3. Click the "Go OnLine" button.

The Smart Battery Emulator is now "OnLine", ready to perform SMBus Smart Battery messaging operations.

## **Program Controls:**

### **Go OnLine/Go Offline Button**

This button controls connection of the Smart Battery Emulator to the SMBus. When "OnLine", the emulator is ready to perform SMBus Smart Battery messaging operations as provided in the Smart Battery Data Specification.

### **Using Com List**

Select the communications port connected to the iPort Host Adapter.

### **Status Display**

Indicates if the Smart Battery Emulator is ON or OFF the SMBus.

### **Charger Display**

Indicates when messages are sent or received from the SMBus Charger device.

### **Host Display**

Indicates when messages are sent or received from the SMBus Host device.

### **Sequencer Display**

Indicates if the Frame Sequencer is Stopped or Running.

## **Status Text Box**

Displays status information.

## **Smart Battery Data Text Boxes**

These text boxes contain Smart Battery Data that is:

1. Writable data received from another SMBus device.
2. Readable data reported to other SMBus devices.

This data also controls automatic emulator Alarm, Warning, and Data transmission to other SMBus devices (Refer to Smart Battery Data Specifications).

Smart Battery Data may be entered directly into a text box, or modified by clicking the View/Edit button in the lower corner of some boxes.

The current values Smart Battery Data may also be saved to a Frame File for retrieval or replay with the Frame Sequencer.

## **Menu Controls:**

### **File|New Frame**

Used to dis-associate the current Frame file.

### **File|Open Frame**

Used to load an existing Frame file.

### **File|Save Frame**

Used to update the current Frame file.

**File|Save Frame As**

Used to save current Smart Battery Data to a new Frame file.

**File|Exit**

Exit the program.

**Edit|BatteryMode****Edit|BatteryStatus****Edit|SpecificationInfo****Edit|ManufactureDate****Edit|ManufactureData**

Used to pop-up the Viewer/Editor for the specified data.

**View|Status**

Displays status information log.

**Sequencer**

Used to pop-up the Frame Sequencer.

**Options|Show Hints**

Enables/Disables display of Smart Battery parameter information.

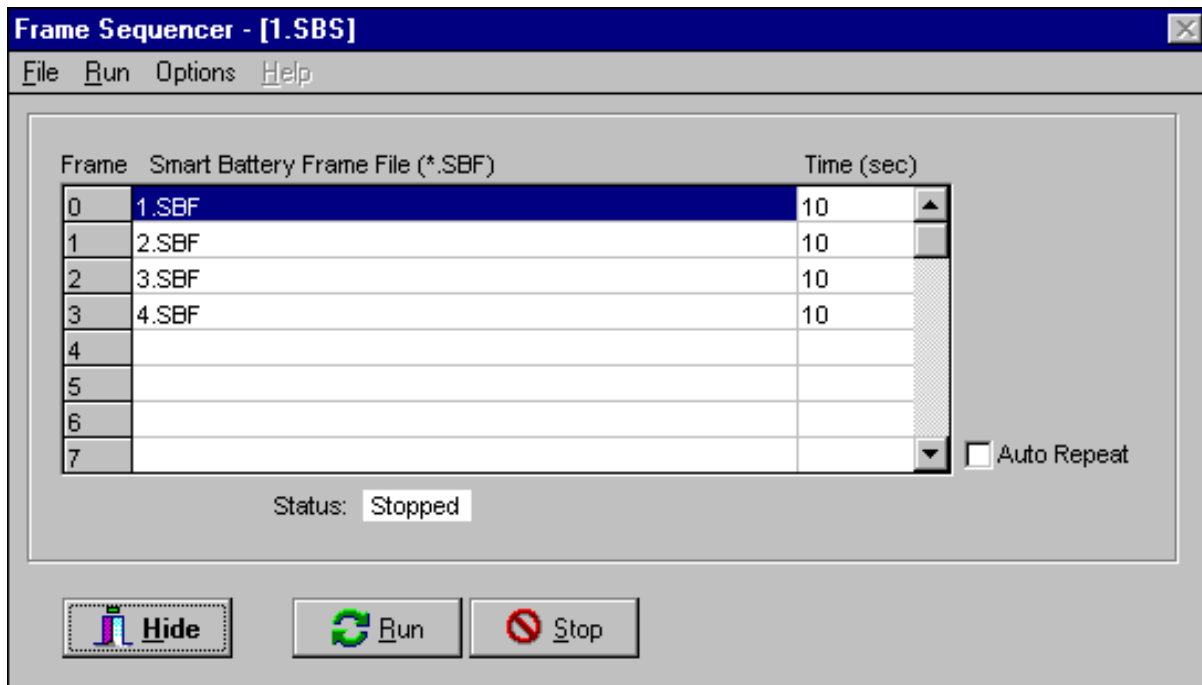
**Options|Fast Message Mode**

Enables rapid transmission of Alarm, Warning, and Data to other SMBus devices. Normally, when CHARGER\_MODE is enabled, the Smart Battery Emulator transmits messages at 10 second intervals. Fast Message Mode causes the emulator to send these messages at approximately 2 second intervals. This feature can be used to reduce testing time, and to stress other system devices.



# Frame Sequencer

The Frame Sequencer provides a way to automate Smart Battery Emulator operations by playing a sequence pre-recorded Smart Battery Data Frames.



A Smart Battery Data Frame consists of set of Smart Battery Data values displayed on the emulator's main screen. These data values can be saved to a Frame file using the File|Save Frame menu on the main screen.

Typically, multiple Frame files are created. Each Frame represents one step in a battery's condition over a period of time. The Frame Sequencer automates the replay of a series of Frame files over time.

## Frame Sequencer Controls:

### Frame Grid Control

This spreadsheet-like control is used to display and enter Frame File sequences and timing parameters.

Each row of the Frame Grid Control identifies a Smart Battery Data Frame File saved from the main program screen, and specifies the amount of time the Frame will be active.

To enter or change a Frame File, double click of a Frame File cell to pop-up the file selection dialog box. Once a Frame file is selected, the Time Adjust control can be used to set the frame active time.

### **Time Adjust Control**

This control is used to adjust the amount of time the currently selected Frame File is active. When the Frame active time is completed, the Frame Sequencer moves to the next Frame.

### **Time Remaining Control**

When the Frame Sequencer is running, this control display the remaining active time for the current Frame.

### **Auto Repeat Check Box**

This control directs the Frame Sequencer to restart the sequence upon completion of the current sequence.

### **Hide Button**

Hides the Frame Sequencer from view.

### **Run Button**

Starts or resumes the current Frame sequence.

### **Stop Button**

Stops the current Frame sequence.

## **Menu Controls:**

### **File|New Sequence**

Used to clear the Frame Sequencer.

### **File|Open Sequence**

Loads a previously stored sequence into the Frame Sequencer.

### **File|Save Sequence**

Updates the current Frame Sequence file

### **File Save Sequence As**

Creates a new Frame Sequence file.

### **File|Hide Sequencer**

Hides the Frame Sequencer from view.

### **Run|Run Sequencer**

Starts or resumes the current Frame sequence.

### **Run|Stop Sequencer**

Stops the current Frame sequence.

### **Run|Reset Sequencer**

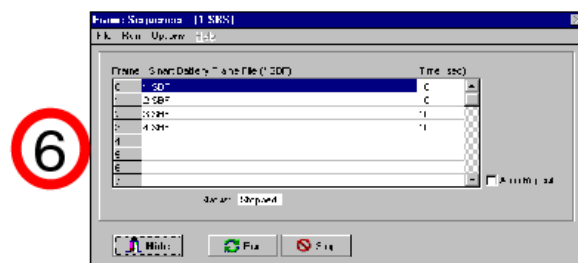
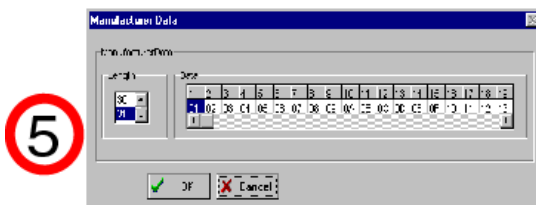
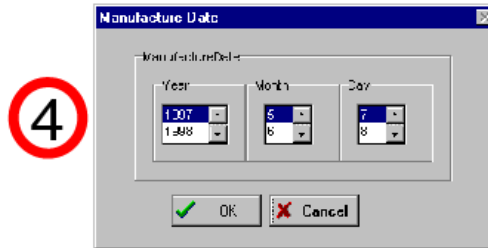
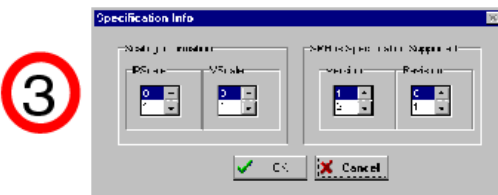
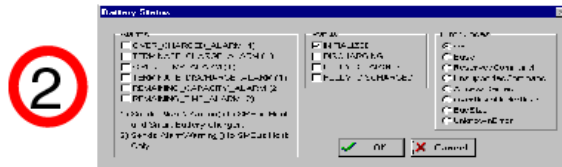
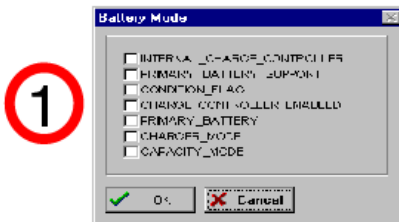
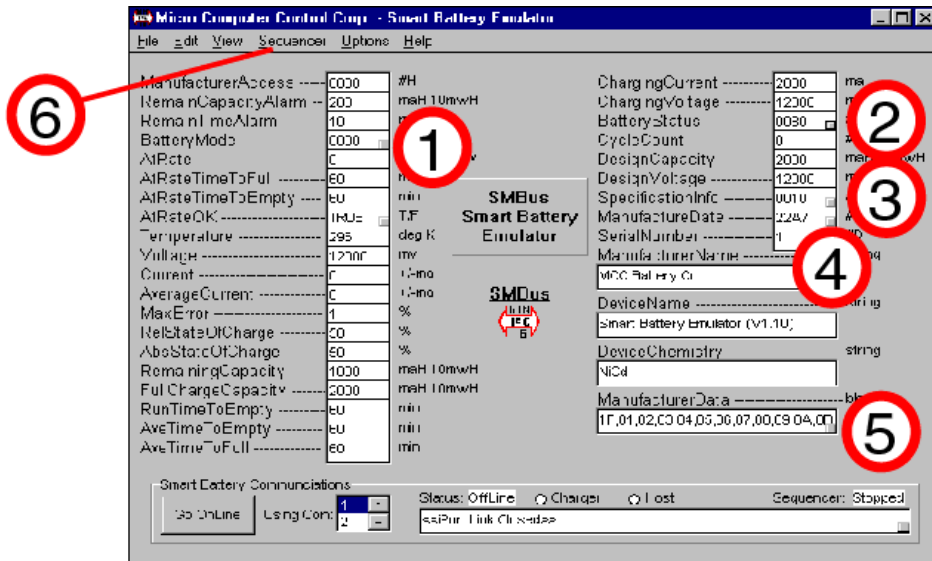
Resets the Sequencer to the first frame in the sequence.

### **Options|Use Full Pathnames**

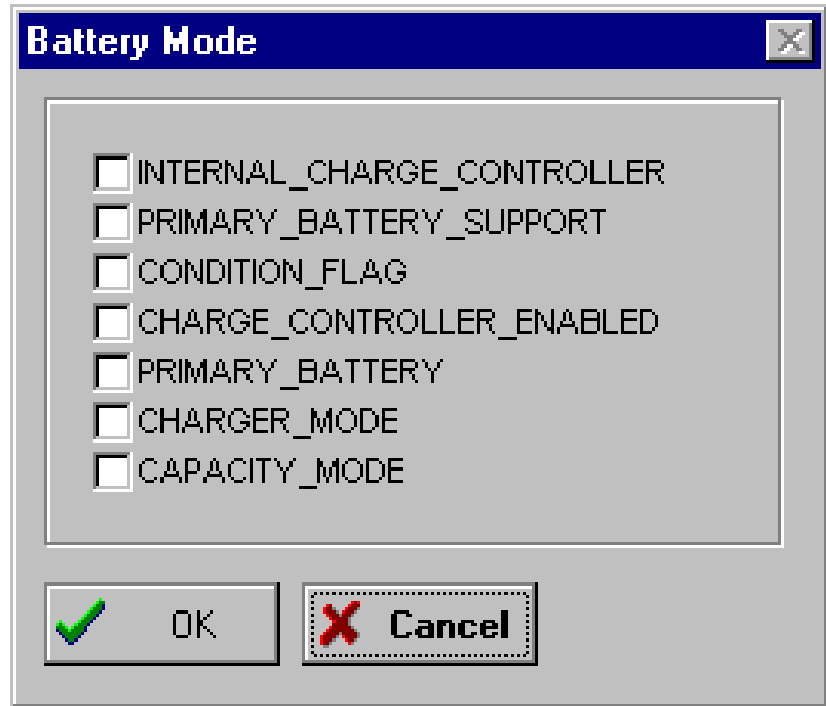
Instructs the Frame File selector to use full pathnames for Frame Files. When off, the Frame Files must be in the current sub-directory/folder, making it easier to move Frame and Sequence files to another system.

# Edit/View Battery Data

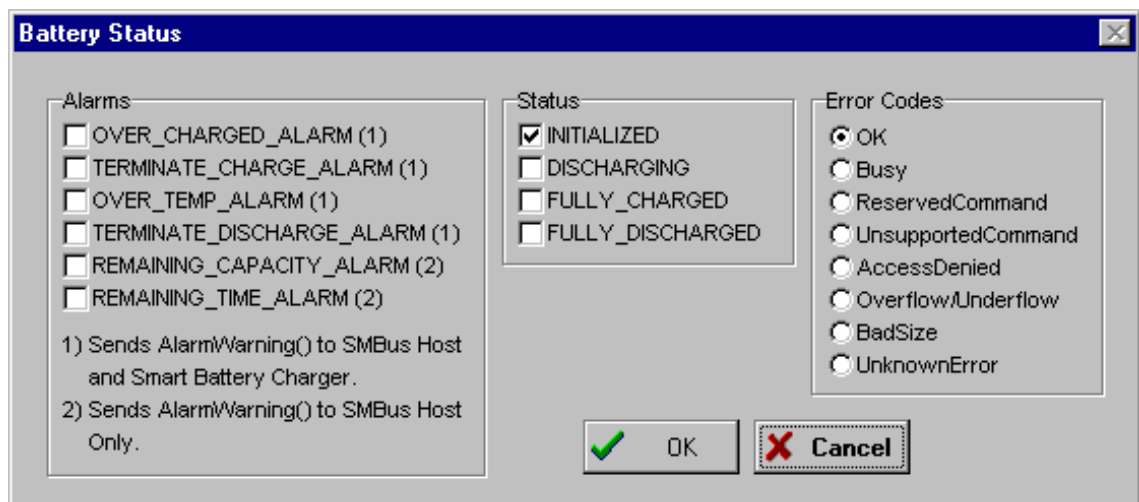
You can edit/view the battery data on the main screen, or by clicking on the small buttons you can edit/view selected data in more specific Smart Battery language.



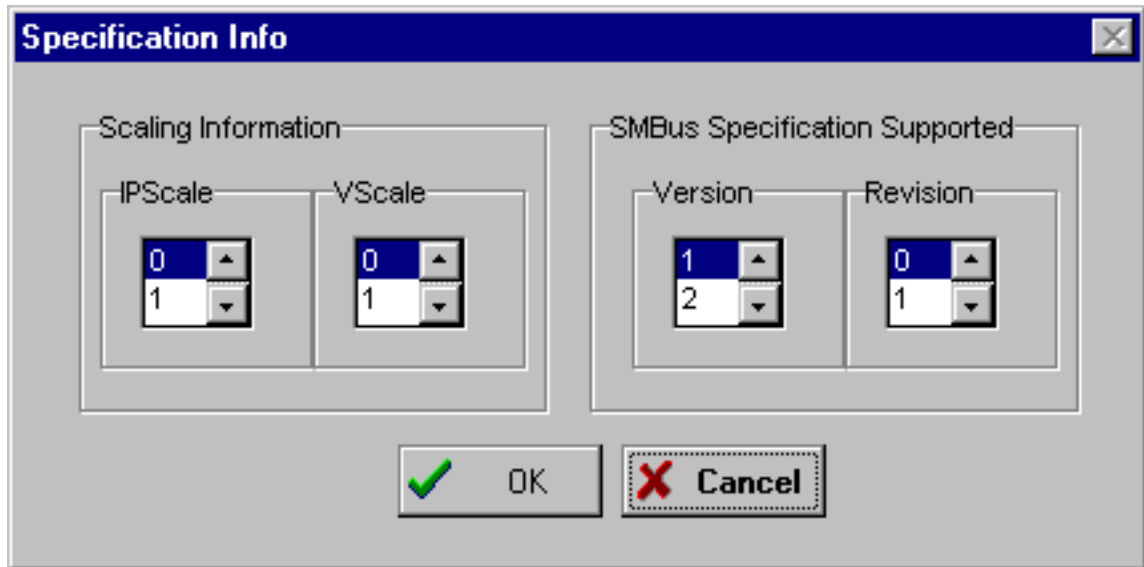
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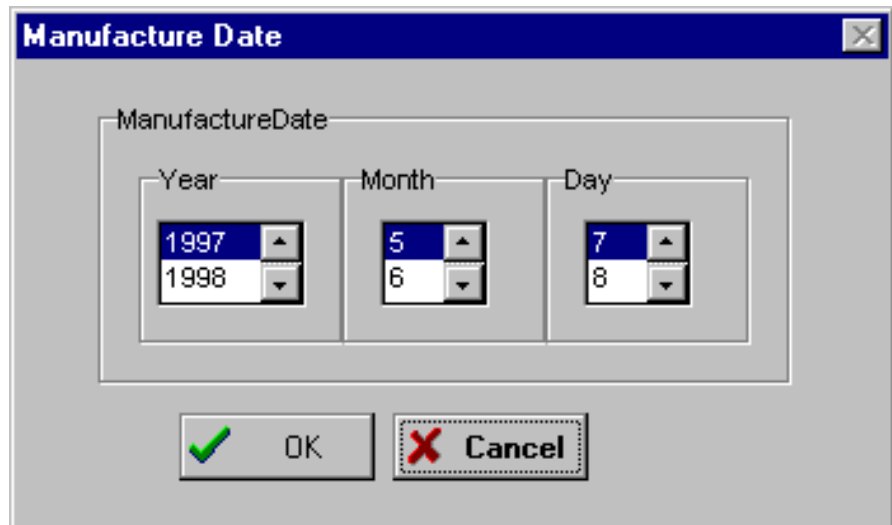


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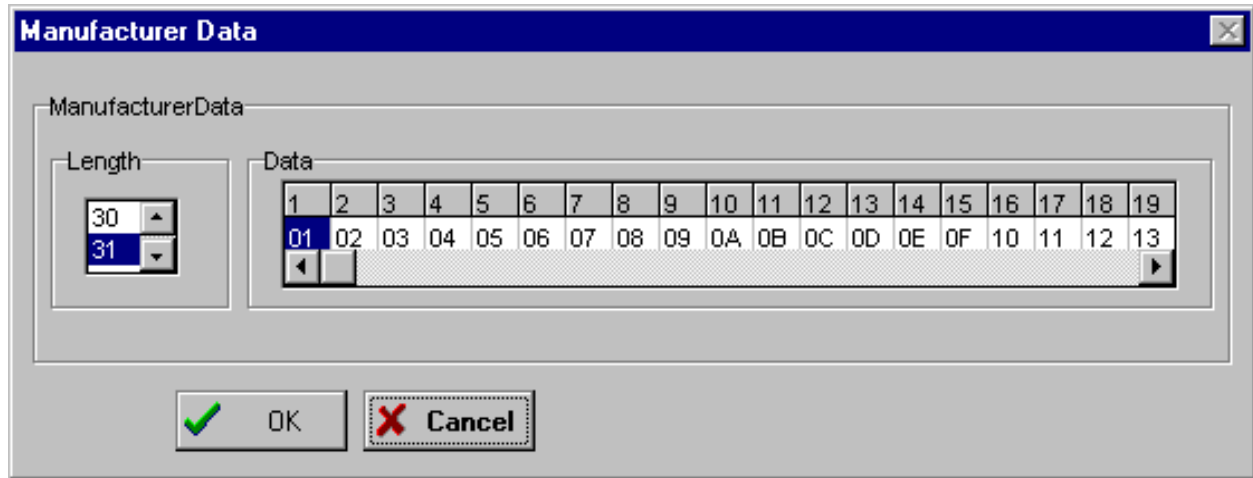
The **Specification Info** dialog box contains two main sections: **Scaling Information** and **SMBus Specification Supported**. The **Scaling Information** section includes **IPScale** and **VScale**, each with a spinner control showing 0 and 1. The **SMBus Specification Supported** section includes **Version** (showing 1 and 2) and **Revision** (showing 0 and 1). At the bottom are **OK** and **Cancel** buttons.

4

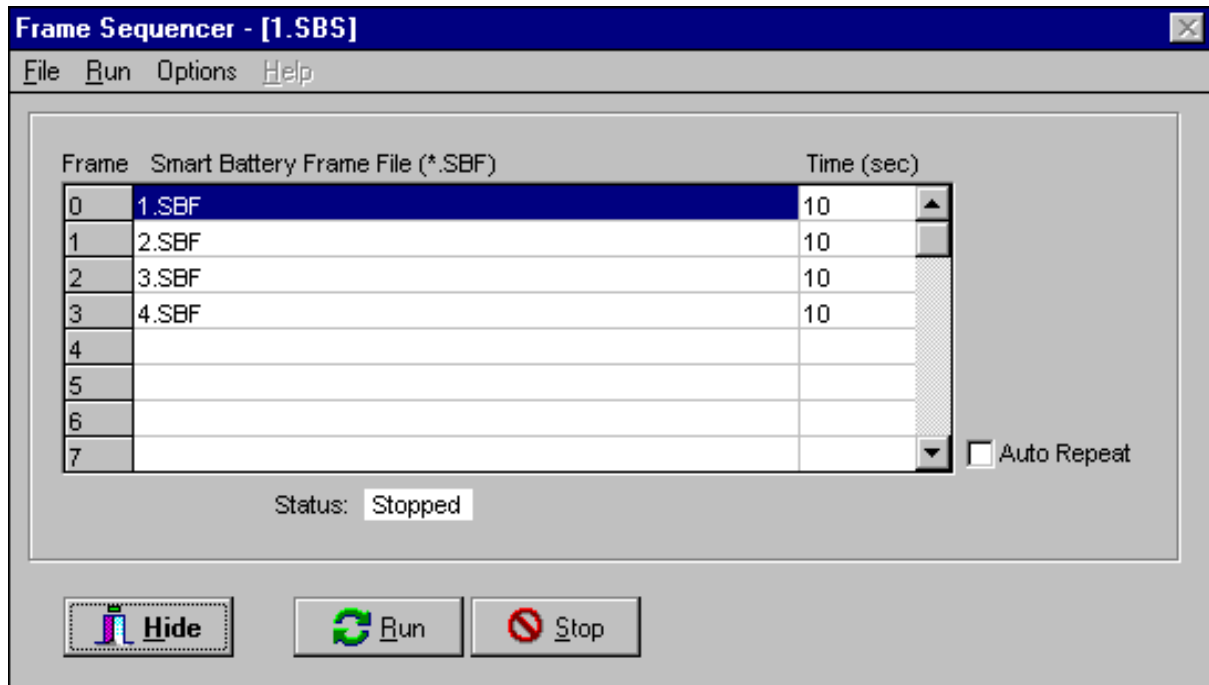


The **Manufacture Date** dialog box features a **ManufactureDate** section with three spinner controls: **Year** (showing 1997 and 1998), **Month** (showing 5 and 6), and **Day** (showing 7 and 8). At the bottom are **OK** and **Cancel** buttons.

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Revision Report:

<u>Date</u>	<u>Description</u>
10-NOV-06	Release SBEMMY V2.0.0
10-NOV-06	Add ComPort discovery.
09-NOV-06	Convert to Win32 to support USB-based adapters.
29-NOV-97	Release SBEMMY V1.10

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**Direct Comments/Feedback to:**

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