

TSMWin32
Telecom Synchronization Monitor for
Windows 95/98/NT®

User Guide

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1 Introducing TSMWin32

1.1 In This Chapter . . .

- ❑ TSMWin32 Overview
- ❑ Hardware and Software Requirements
- ❑ What's New in TSMWin32
- ❑ Installing and Running TSMWin32
- ❑ Using This User Guide
- ❑ Getting Help

1.2 TSMWin32 Overview

The Telecom Synchronization Monitor for Windows 95/98/NT® software, TSMWin32, is a Microsoft Windows® 95/98/NT® program. TSMWin32 provides synchronization performance monitoring of single or multiple local or remote Austron Model 3800 Timing Signal Generators (TSGs) running Rev. C.## or later firmware.

TSMWin32 provides serial port communications via direct connection, modem, and X.25 networks as well as Ethernet® connections to multiple TSGs, providing a communications interface for collecting phase, frequency, historical MTIE, 24 hr MTIE, TDEV, event, and alarm data from each connected TSG, and for storing the data on the hard disk of a computer.

Note: Your hardware and operating system configuration determine the maximum number of serial ports that you can use.

You perform TSMWin32 operations by choosing commands from the menus, clicking toolbar buttons, and selecting program and TSG configuration options in dialog boxes.

Menu commands allow you to perform all TSMWin32 functions, including:

- Start scanning (Paragraph 2.3.6.2) or stop scanning (Paragraph 2.3.6.3).
- Use terminal mode to communicate with connected instruments (Paragraph 2.3.6.1).
- Graph data:
 - Phase data (Paragraph 2.3.7.1).
 - 24-hour MTIE data (Paragraph 2.3.7.2).
 - TDEV data (Paragraph 2.3.7.3).

- Frequency data (Paragraph 2.3.7.4).
- Historical MTIE data (Paragraph 2.3.7.3).
- View last data gathered (Paragraph 2.3.8.1).
- View events (Paragraph 2.3.8.2).
- View incoming alarm conditions and notifications of new alarms (Paragraph 2.3.1)
- Clear alarm messages (Paragraph 2.3.8.3) or status messages (Paragraph 2.3.8.4).
- Configure TSMWin32 (Paragraph 2.3.9).
- Configure one or more TSGs (Paragraph 2.3.9.2).

TSMWin32 automatically applies and saves to the computer hard disk any changes that you make to the system configuration.

1.3 Hardware and Software Requirements

Before installing TSMWin32, verify that your system configuration meets these minimum hardware and software requirements:

- IBM PC-compatible computer with at least 16 MB of RAM.
- Operating System: Windows 95, Windows 98, or Windows NT 4.0.
- NE: TSG 3800 Revision C or Higher software
- NE Interface: TCP/IP, Modem, X.25 PAD or Direct Serial Port.

1.4 What's New in TSMWin32

TSMWin32 has these additional features:

- Direct TCP/IP connections to instruments.
- MTIE and TDEV data collection on Single Port and Three Port Input Modules.
- Improved user interface.
- Improved data base handling.
- Improved performance.

1.5 Using This *User Guide*

We have designed this *User Guide* for you to use as an installation guide, a procedural manual, and general reference to TSMWin32.

1.5.1 Where to Start

- If you are installing TSMWin32, see the installation instructions on page 2-2.
- If you are a first time user, you should read all the chapters in this *User Guide*.
- If you are an experienced TSMWin32 user, you should read "What's New in TSMWin32" on page 2-2, and "Using TSMWin32" on page 2-1.

1.5.2 How This *User Guide* is Organized

- *1: Error! Reference source not found.*: This chapter provides a general description of the software, hardware and software requirements for installing and running TSMWin32, and installation instructions.
- *2: Using TSMWin32*: This chapter describes menu commands, toolbar buttons, and dialog box options, configuring data gathering and connection settings.
- *3: Using AusGraph to View Outputs*: This chapter describes using AusGraph to configure TSMWin32 graph outputs.
- *4: Communications Ports and Modem Setup*: This chapter provides information about TSG communications port and modem settings.
- **Error! Reference source not found.**: This section provides definitions for terminology used in this *User Guide*.

1.5.3 Typestyles and Conventions Used in This *User Guide*

This *Users Guide* uses different styles of text to help identify kinds of information.

- Interface object names are italic:
The *Graph* menu . . .
The *Frequency* toolbar button . . .
- File names are italic (in roman text) or roman (in italic text) and capitals:
STARTUP.EXE
TSMWin32.CFG
01_1-1_PHAS.111
- Keyboard keys and key combinations are initial capitals and small capitals:
Press CTRL + P

1.6 Getting Help

In addition to the information found in this *User Guide*, TSMWin32 Help is available. To view the TSMWin32 *Help Contents* topic, click the *Help* toolbar button or choose *Help Topics* from the *Help* menu. For more information about using the TSMWin32 Help, see page 2-28.

1.7 Installing and Running TSMWin32

1.7.1 Installing TSMWin32

TSMWin32 is fast and easy to install. The installation media consists of two diskettes, labeled "Disk 1" and "Disk 2." The installation process makes use of an "install wizard" to automate installation procedures.

1.7.2 Important Note About Upgrading from Earlier Versions

This version of TSMWin32 is not "backward compatible" with earlier versions of TSMWin32 software. For this reason: (a) uninstall any earlier versions of the software before installing

this version of TSMWin32; (b) after uninstalling, be sure to delete the folders and files TSMWin32 uses for storing data and configuration files; (3) do *not* overwrite existing installations of TSMWin32 software with TSMWin32 files.

1.7.2.1 Uninstalling Previous Versions of TSMWin32

To uninstall previous versions of TSMWin32:

- From the Windows *Start* menu, open the Control Panel: Click *Start* > *Settings* > *Control Panel*.
- In the Control Panel, double-click the *Add/Remove Programs* icon (Figure 1- 1).

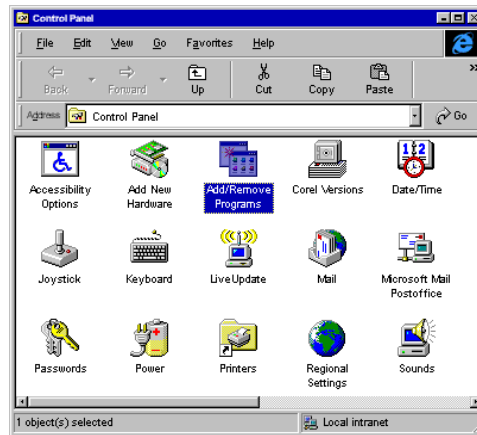


Figure 1- 1. Selecting the Add/Remove Programs icon in Control Panel

- In the *Add/Remove Programs* properties sheet:
 - Click the *Install/Uninstall* tab.
 - Select the TSMWin32 program name from the list.
 - Click *Add/Remove* to remove TSMWin32 program files. When the files have been removed, click *OK* to close the dialog box.

1.7.2.2 Removing Data and Configuration Files

To remove TSMWin32 data and configuration files created by earlier versions of TSMWin32:

- In Windows *Explorer*, navigate to the folders containing TSMWin32 data and configuration files.
- Select and delete the folders.

TSMWin32 creates new data and configuration folders and files when you run it the first time.

1.7.2.3 Installing TSMWin32

To install TSMWin32:

1. Place Disk 1 in your diskette drive (Drive A: or Drive B:).
2. Run the *SETUP* program using one of these methods:

- From the *Start* menu, click *Run* to open the *Run* dialog box (Figure 1- 2). In the *Open:* text box, type the path and filename to the *SETUP.EXE* file (or click the *Browse* button to navigate to and select the *SETUP.EXE* file).

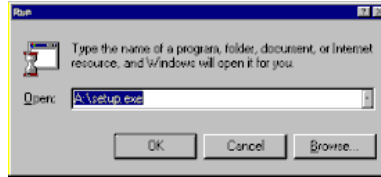


Figure 1- 2. Windows Run dialog box

- In the *Windows Explorer* window, navigate to the diskette drive. Double-click the *SETUP* executable icon to start the setup program (Figure 1- 3).

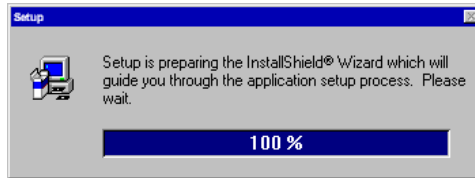


Figure 1- 3. The Setup Program

3. The setup program runs the TSMWin32 installation "wizard" (Figure 1- 4). Follow the instructions or answer the questions presented in the wizard: click the navigation buttons to navigate forward or back ward in the wizard (or click *Cancel* to close the wizard and exit the setup program).

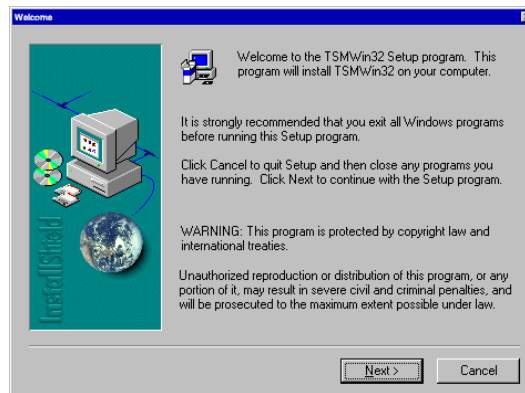


Figure 1- 4. TSMWin32 Setup Program Wizard (1)

4. The setup program creates some of the necessary folders, a program group, and an icon for TSMWin32. The setup program creates default folders in the *Program Files* folder of your file system. Alternately, you can select a different folder or create a new folder for the program files by clicking *Browse* and selecting a folder location or creating a new folder.

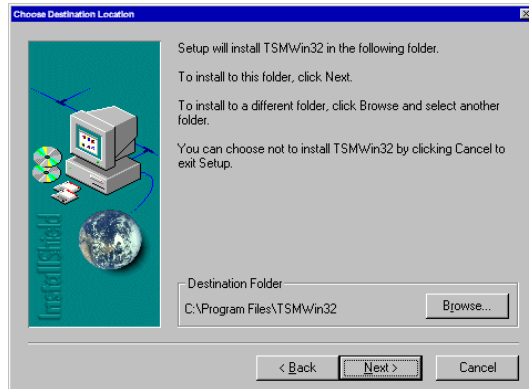


Figure 1- 5. TSMWin32 Setup Program Wizard (2)

5. TSMWin32 configuration and data folders will be created when you run the software the first time (see Paragraph 2.2).

1.7.3 Running TSMWin32

To run TSMWin32:

1. From the *Start/Programs* menu, click the TSMWin32 icon (or double-click the TSMWin32 icon in the Windows Explorer or on the desktop).
2. TSMWin32 starts, displaying the main window (Figure 1- 6).

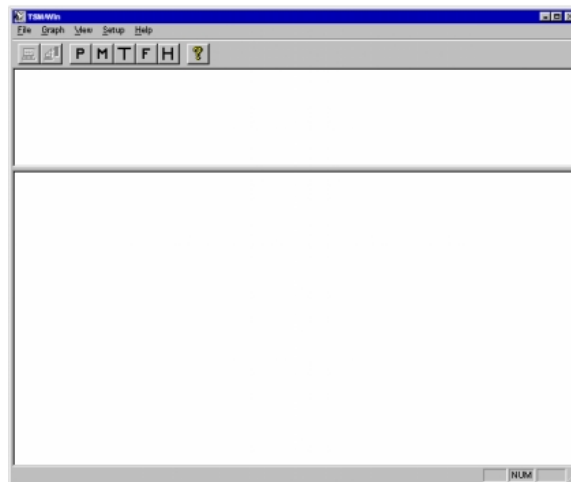


Figure 1- 6. The TSMWin32 main window

Note: The first time you run TSMWin32, the program notifies you that it must create additional folders. Select *OK* when asked if these folders (directories) should be created. For more information, see "Running TSMWin32 for the First Time" on page 2-1.

2 Using TSMWin32

2.1 In This Chapter . . .

- ❑ Running TSMWin32 for the First Time
- ❑ The TSMWin32 User Interface

2.2 Running TSMWin32 for the First Time

When you run TSMWin32 for the first time, the program offers to create a folder for the configuration file (Figure 2- 1), and an initial configuration file (Figure 2- 2) containing default values.

- To allow TSMWin32 to create the configuration folder, click *Yes* in the dialog box (Figure 2- 1).

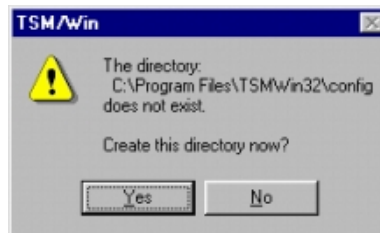


Figure 2- 1. Confirmation dialog box for creating TSMWin32 configuration folder CONFIG

- To allow TSMWin32 to create the configuration file and place it in the configuration folder, click *OK* (Figure 2- 2).



Figure 2- 2. Confirmation dialog boxes for creating TSMWin32 configuration file TSMWin32.CFG

TSMWin32 opens, displaying the main window (Figure 2- 3).

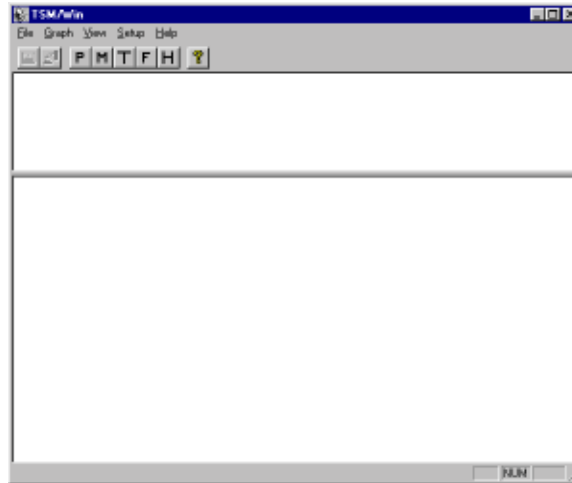


Figure 2- 3. The TSMWin32 window

2.3 The TSMWin32 User Interface

2.3.1 The TSMWin32 Window

When you start TSMWin32, you see the TSMWin32 main window (Figure 2- 3). This window consists of standard menu bar, tool bar, *Alarm Window*, *System Status Window*, and status bar.

- Click a menu title to display menu commands. Click a menu command to execute the command.
- Click a toolbar button to execute the command. The most frequently used menu commands are duplicated on the TSMWin32 toolbar.

The main window is divided into two areas:

- The top area or pane is called the *Alarm Window* and displays TSMWin32 alarm messages.
- The bottom pane is called the *System Status Window* and displays system information and data.

2.3.2 Toolbar

TSMWin32 provides one-click access to the most frequently used commands on a toolbar (Figure 2- 4).

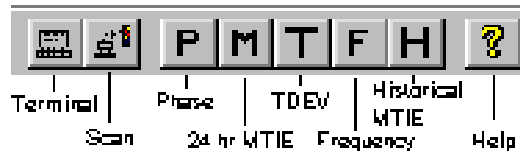


Figure 2-4. TSMWin32 toolbar

2.3.3 Menu Bar

All of the TSMWin32 commands are available on the menus. The topics that follow provide a description of each menu title and its commands.

2.3.4 General Graphing Instructions

Each *Graph* menu command opens a data selection dialog for the data type.

For each data type that you want to graph, select the TSG(s) and input(s) to be plotted, and specify the input(s) and time period (duration) to use in plotting the data.

2.3.4.1 To Select Data to Graph

To select the data to graph:

- Choose the data type from the *Graph* menu (or click the toolbar button) to open the *Select Data for . . . Graph* dialog.
- In the *Data To Graph* area: click the *TSG* list to display the list of TSGs.
- Click a TSG on the list to select it. You can graph data for any defined TSG. For more information about defining TSGs, see Paragraph 2.3.9.2.
- Click the *Input* list to display a list of the available inputs, then click an input on the list to select it. You can graph data for up to eight inputs (choosing from up to 12 available inputs) on a single graph. For more information about enabling and naming inputs, see Paragraph 2.3.9.2.

2.3.4.2 To Add or Remove Graph Inputs

To add or remove inputs from the list of inputs to graph:

- Choose the data type from the *Graph* menu (or click the toolbar button) to open the *Select Data for . . . Graph* dialog.
- Click the *Add* button (in the center of the dialog box) to add the selected data to the *Input(s) to Graph* list.
- Select an input in the *Input(s) to Graph* list; then click the *Remove* button (in the center of the dialog box) to remove the input from the list.

2.3.4.3 To Remove All Graph Inputs

To remove all graph inputs:

- Choose the data type from the *Graph* menu (or click the toolbar button) to open the *Select Data for . . . Graph* dialog.

- Click the *Remove All* button (in the center of the dialog box) to remove all inputs from the *Input(s) To Graph* list.

2.3.4.4 To Specify Graph Input Time Ranges

To specify the duration for the graph in formation:

- Choose the data type from the *Graph* menu (or click the toolbar button) to open the *Select Data for . . . Graph* dialog.
- Set *Duration* options (at the bottom of the dialog box). Enter all times in military format (02:00, 23:00, etc.).
 - *Start Date*: Enter the beginning date for the graph data.
 - *Start Time*: Enter the starting time for the graph data when graphing a portion of the data for a single day. This is useful for trouble shooting or when you are trying to zoom in on a suspected problem area.
 - *Stop Date*: Enter the ending date for the graph data.
 - *Stop Time*: Enter the *Stop Time* for the data graph. Enter the ending time for the graph data when graphing a portion of the data for a single day. This is useful for trouble shooting or when you are trying to zoom in on a suspected problem area.

2.3.4.5 To Specify Performance Mask Values

For MTIE and TDEV graphs, you can specify and configure a performance mask to be used in the graph:

- Click *Edit Mask* to open the performance mask dialog; enter the performance values; click *OK* to save the values (or click *Cancel* to close the dialog without saving the values).
- Mark the *Include Mask* check box to add performance mask values to the graph.

2.3.4.6 To Display a Graph of the Selected Inputs

To launch AusGraph and display the selected data as graph:

- Click *Graph* to graph the selected data for the specified duration (or click *Cancel* to close the dialog box without saving the graph settings).

Note: If a data file required for graphing the selected TSGs and inputs is not available, most likely because the specified data has not been scanned, one more more *File Error* messages (Figure 2- 5) describes the file(s) that cannot be found. If there is sufficient available data to compose the graph, AusGraph displays the graph.

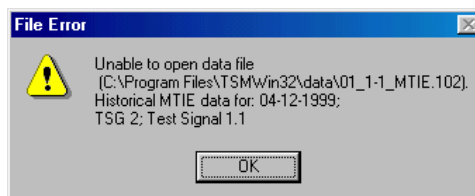


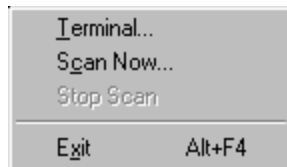
Figure 2- 5. File Error message

2.3.5 Naming Conventions

TSMWin32 uses these conventions for naming TSG, input, and data files:


- When you create a new TSG, TSMWin32 assigns a default name and the next available number: for example, TSG 2.
- Input names indicate the input card number, and a port number for that input card: for example, *Inp1.1* indicates input card 1, port 1; *Inp2.2* indicates input card 2, port 2; and so on.
- Data file names indicate the TSG number, input card/port number, and data type: for example, *02_1-1_PHAS* indicates a file containing phase data collected from TSG 2, input card 1, port #1.
- Data file type names used for naming data files are: PHAS (phase data), MTIE (Historical MTIE data), FREQ (frequency data), TDEV (TDEV data), and RLMT (24 hr [real] MTIE data).

2.3.6 File Menu



Use the commands on the *File* menu to connect via a terminal, to start or stop scanning, or to exit TSMWin32.

2.3.6.1 Terminal

Choose *Terminal* on the *File* menu (or click the *Terminal* toolbar button ) to open the *Terminal* window (Figure 2- 6). Use this window to select a TSG, connect or disconnect to a TSG via a terminal, and to configure TSG settings such as MTIE Alarm Thresholds.

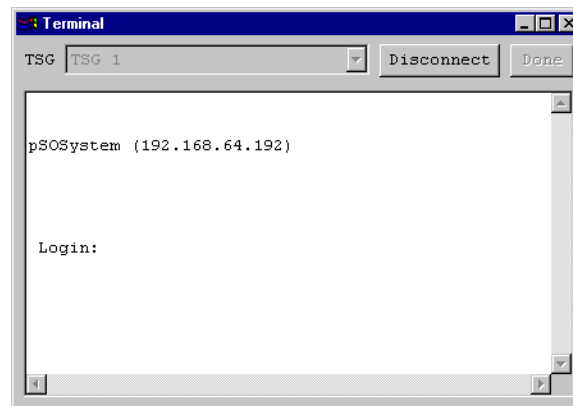


Figure 2- 6. Terminal dialog showing TCP/IP connection

To connect to a TSG using the terminal mode:

1. Click the *TSG* list and select the defined TSG to which you want to connect.
2. Click the *Connect* button to start the connection. For network connections requiring a login name and password, the network or instrument to which you are trying to connect prompts you to enter each (Figure 2- 7).

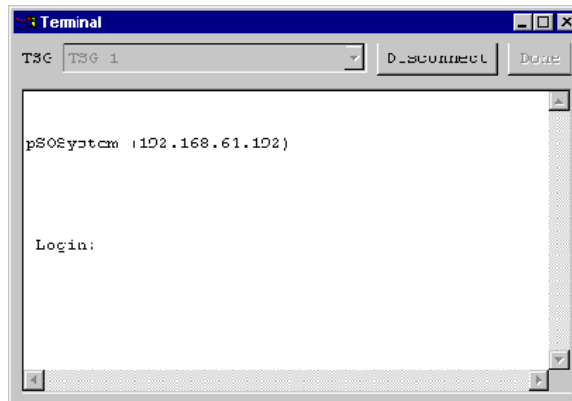



Figure 2- 7. Terminal window
example of login prompt and response

3. To end the connection, click *Disconnect*.
4. Select another TSG, if necessary.
5. When you are finished making terminal connections, click *Disconnect* to end the connection, then click *Done* to close the *Terminal* window.

2.3.6.2 Scan Now . . .

Choose *Scan Now* on the *File* menu (or click the *Scan* toolbar button ) to establish the connection and begin data gathering ("scanning") from all defined TSGs. The *Scan* toolbar button turns scanning on when the button appears pressed, or off when the button appears unpressed.

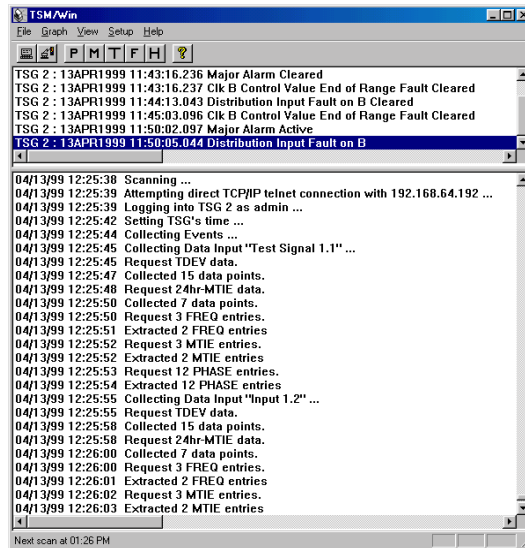


Figure 2- 8. TSMWin32 main window
showing scanning information in the System Status window (lower pane of main window)

For information about defining TSGs, see Paragraph 2.3.9.2.

After connecting to the selected TSG, TSMWin32 performs the tasks specified in the configuration file and any new settings that you have specified in the *General Setup* and *TSG Setup* dialog boxes.

2.3.6.3 Stop Scan

Choose *Stop Scan* on the *File* menu to stop data gathering from all defined TSGs. The *Scan* toolbar button "toggles" scanning: scanning is turned off when the button appears unpressed or raised.

For information about defining TSGs, see Paragraph 2.3.9.2.

2.3.6.4 Exit

Choose *Exit* from the *File* menu to stop all monitoring and data gathering and close TSMWin32.


Note: Data gathering occurs only while TSMWin32 is running.

2.3.7 Graph Menu



Use the commands on the *Graph* menu to specify the TSG and input data, starting and ending date and time, and other information to be displayed as a graph. Click *Graph* in any data selection dialog to launch AusGraph and display the selected data. AusGraph offers many options for configuring the appearance and behavior of graphs or printing graph information.

2.3.7.1 Phase

Choose *Phase* from the *Graph* menu (or click the *Phase* toolbar button ) to open the *Select data for Phase Graph* dialog box (Figure 2- 9). Use the options in this dialog to select TSGs and inputs to graph, and use the resulting phase data graph to monitor line quality throughout the user network.

- Select the phase data to graph. In the *Data To Graph* area:
 - Click the *TSG* list to display the list of TSGs. Click a TSG on the list to select it. You can graph phase data for any defined TSG. For information about defining TSGs, see Paragraph 2.3.9.2.
 - Click the *Input* list to display a list of the available inputs. Click an input on the list to select it. You can graph phase data for up to eight inputs (choosing from up to 12 available inputs) on a single graph. For information about enabling and naming inputs, see Paragraph 2.3.9.1.

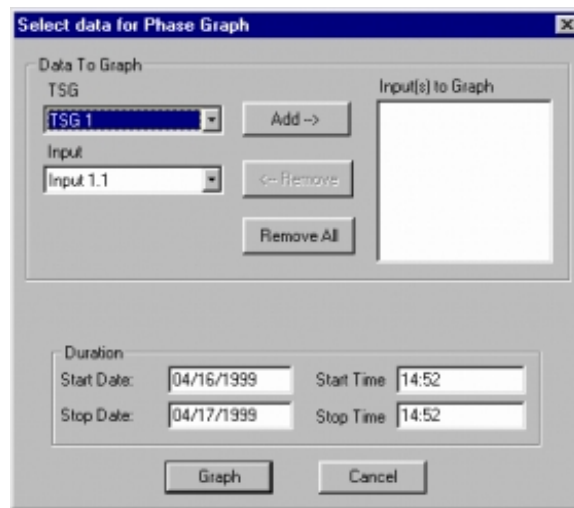


Figure 2- 9. *Select data for Phase Graph dialog box*

- To add or remove inputs:
 - Click the *Add* button (in the center of the dialog box) to add the selected phase data to the *Input(s) to Graph* list
 - Select an input in the *Input(s) to Graph* list; click the *Remove* button (in the center of the dialog box) to remove the input from the list.
 - Click the *Remove All* button (in the center of the dialog box) to remove all inputs from the *Input(s) To Graph* list.
- Set *Duration* options (at the bottom of the dialog box):

- *Start Date*: Edit the *Start Date* for phase data graph.
- *Start Time*: Edit the *Start Time* for the phase data graph.
- *Stop Date*: Edit the *Stop Date* for the phase data graph.
- *Stop Time*: Edit the *Stop Time* for the phase data graph.
- *Graph*: Click *Graph* to graph the selected data for the specified duration (or click *Cancel*) to close the dialog box without saving the phase graph settings).

The phase data graph (Figure 2- 10) displays the selected data in this format:

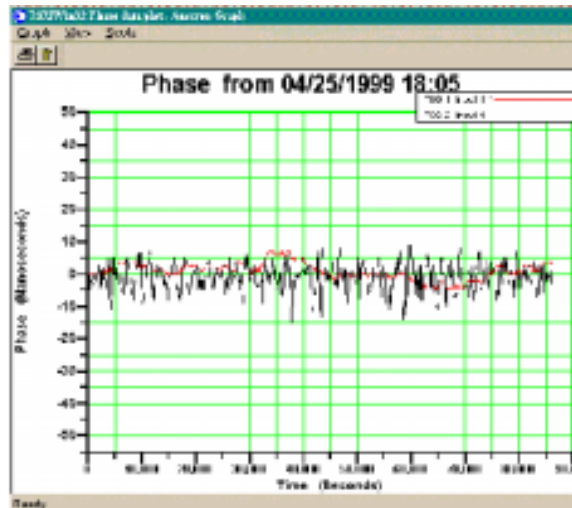



Figure 2- 10. Phase data graph

- Y-axis displays phase data, scaled in nanoseconds or unit intervals (DS1 UI = 648 nS and E1 UI = 488 nS).
- X-axis displays the time period specified.
- Legends identify each input represented on the graph.

If the requested data does not exist, TSMWin32 displays an error message.

2.3.7.2 24 hr MTIE . . .

Choose *24 hr MTIE* from the *Graph* menu (or click the *24 hr MTIE* toolbar button ) to open the *Select data for 24 hr MTIE Graph* dialog box (Figure 2- 11).

Use the options in the dialog box to specify the data constraints to be used in plotting a log/log graph of 24 hr MTIE data.

- Select the 24 hr MTIE data to graph. In the *Data To Graph* area:
 - Click the *TSG* list to display the list of TSGs. Click a TSG on the list to select it. You can graph 24 hr MTIE data for any defined TSG. For information about defining TSGs, see Paragraph 2.3.9.2.
 - Click the *Input* list to display a list of the available inputs. Click an input on the list to select it. You can graph 24 hr MTIE data for up to eight inputs

(choosing from up to 12 available inputs) on a single graph. For information about enabling and naming inputs, see Paragraph 2.3.9.1.

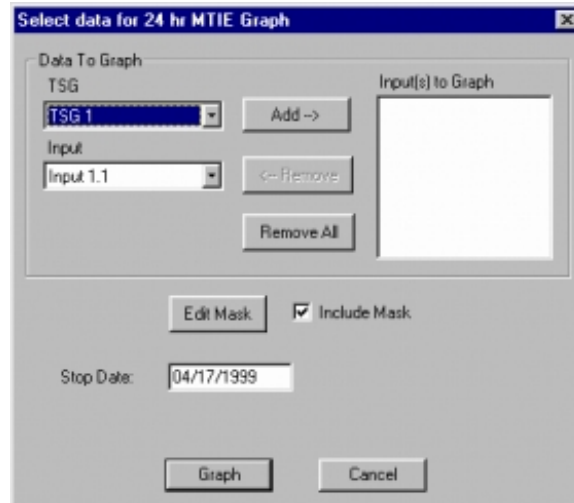


Figure 2- 11. Select data for 24 hr MTIE Graph dialog box

- To add or remove inputs:
 - Click the *Add* button (in the center of the dialog box) to add the selected 24 hr MTIE data to the *Input(s) to Graph* list.
 - Select an input in the *Input(s) to Graph* list; click the *Remove* button (in the center of the dialog box) to remove the input from the list.
 - Click the *Remove All* button (in the center of the dialog box) to remove all inputs from the *Input(s) To Graph* list.
- *Edit Mask*: To define a 24 hr MTIE performance mask, click *Edit Mask* to open the *MTIE Mask* dialog (Figure 2- 12) and specify performance mask values:
 1. Enter values for the performance mask.
 2. Mark the *Save Mask* check box to save the values as part of the TSMWin32 configuration (if you do not mark *Save Mask*, TSMWin32 applies the values when displaying the MTIE data, but does not include the mask in the TSMWin32 configuration).
 3. Click *OK* to save the performance mask values (or click *Cancel* to close the dialog without saving performance mask values).

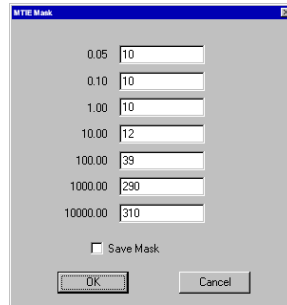


Figure 2- 12. MTIE Mask dialog box

- *Include Mask:* Mark the check box to use the performance mask in the display of the 24 hr MTIE data graph.

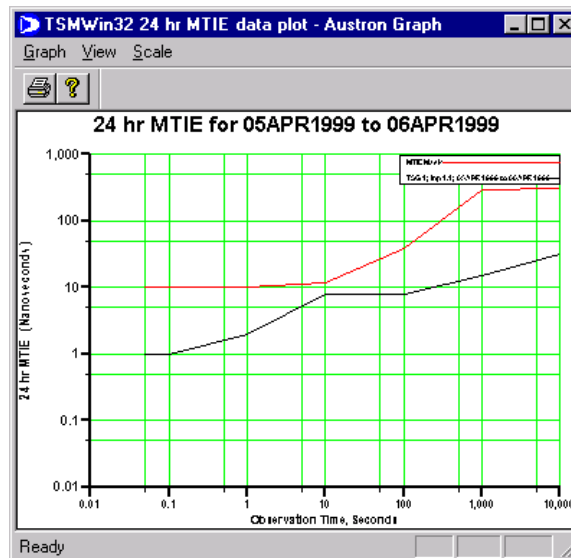


Figure 2- 13. 24 hr MTIE data plot


- *Stop Date:* Set *Stop Date* for 24 hr MTIE data.
- *Graph:* Click *Graph* to graph the selected data for the specified duration (or click *Cancel*) to close the dialog box without saving the 24 hr MTIE graph settings).

The 24 hr MTIE data graph (Figure 2- 13) displays the selected data in this format:

- Y-axis displays MTIE data, scaled in nanoseconds.
- X-axis displays the time period specified.
- Legends identify each input represented on the graph.

If the requested data does not exist, TSMWin32 displays an error message.

2.3.7.3 TDEV

Choose *TDEV* from the *Graph* menu (or click the *TDEV* toolbar button ) to open the *Select data for TDEV Graph* dialog box (Figure 2- 14).

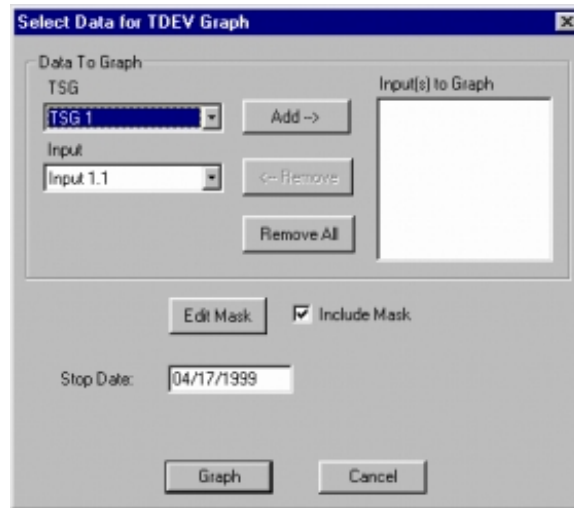


Figure 2- 14. *Select data for TDEV Graph dialog box*

Use the options in the dialog box to specify the data constraints to be used in plotting a log/log graph of TDEV data.

- Select the TDEV data to graph. In the *Data To Graph* area:
 - Click the *TSG* list to display the list of TSGs. Click a TSG on the list to select it. You can graph TDEV data for any defined TSG. For information about defining TSGs, see Paragraph 2.3.9.2.
 - Click the *Input* list to display a list of the available inputs. Click an input on the list to select it. You can graph TDEV data for up to eight inputs (choosing from up to 12 inputs) on a single graph. For information about enabling and naming inputs, see Paragraph 2.3.9.1.
- To add or remove inputs:
 - Click the *Add* button (in the center of the dialog box) to add the selected TDEV data to the *Input(s) to Graph* list.
 - Select an input in the *Input(s) to Graph* list; click the *Remove* button (in the center of the dialog box) to remove the input from the list.
 - Click the *Remove All* button (in the center of the dialog box) to remove all inputs from the *Input(s) To Graph* list.
- *Edit Mask*: To define a TDEV performance mask, click *Edit Mask* to open the *TDEV Mask* dialog (Figure 2- 12) and specify performance mask values:

0.05	11
0.10	10
0.25	6.2
0.50	4.5
1.00	3.1
2.00	2.2
4.00	2
8.00	2
16.00	2
32.00	2
64.00	2.4
128.00	3.5
256.00	5
512.00	7
1024.00	7.5

Save Mask

OK Cancel

Figure 2- 15. TDEV Mask dialog box

1. Enter values for the performance mask.
 2. Mark the *Save Mask* check box to save the values as part of the TSMWin32 configuration (if you do not mark *Save Mask*, TSMWin32 applies the values when displaying the TDEV data, but does not include the mask in the TSMWin32 configuration).
 3. Click *OK* to save the performance mask values (or click *Cancel* to close the dialog without saving performance mask values).
- *Include Mask*: Mark the check box to use the performance mask in the display of the TDEV data graph.
 - *Stop Data*: Set *Stop Date* for TDEV data.
 - *Graph*: Click *Graph* to graph the selected data for the specified duration (or click *Cancel*) to close the dialog box without saving the TDEV graph settings).

The TDEV data graph (Figure 2- 16) displays the selected data in this format:

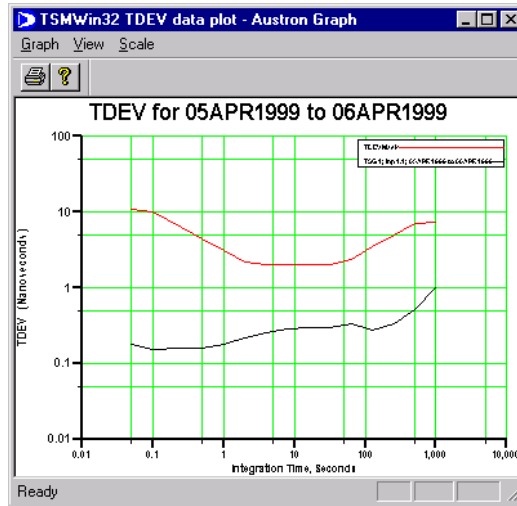



Figure 2- 16. TDEV data plot

- Y-axis displays TDEV data, scaled in nanoseconds.
- X-axis displays the time period specified.
- Legends identify each input represented on the graph.

If the requested data does not exist, TSMWin32 displays an error message.

2.3.7.4 Frequency

Choose *Frequency* from the *Graph* menu (or click the *Frequency* toolbar button ) to open the *Select data for Frequency Graph* dialog box (Figure 2- 18).

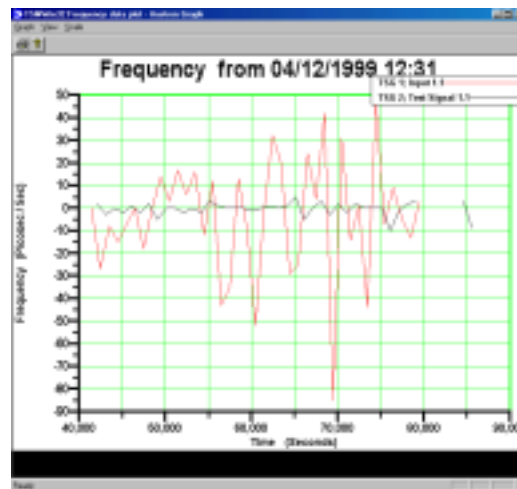


Figure 2- 17. Frequency data plot

Use the options in the dialog box to specify the data constraints to be used in plotting a linear graph of frequency data.

- Select the data to graph. In the *Data To Graph* area:
 - Click the *TSG* list to display the list of TSGs. Click a TSG on the list to select it. You can graph frequency data for any defined TSG. For information about defining TSGs, see Paragraph 2.3.9.2.
 - Click the *Input* list to display a list of the available inputs. Click an input on the list to select it. You can graph frequency data for up to eight inputs (choosing from up to 12 available inputs) on a single graph. For information about enabling and naming inputs, see Paragraph 2.3.9.1.
- To add or remove inputs:
 - Click the *Add* button (in the center of the dialog box) to add the selected data to the *Input(s) to Graph* list.
 - Select an input in the *Input(s) to Graph* list; click the *Remove* button (in the center of the dialog box) to remove the input from the list.
 - Click the *Remove All* button (in the center of the dialog box) to remove all inputs from the *Input(s) To Graph* list.

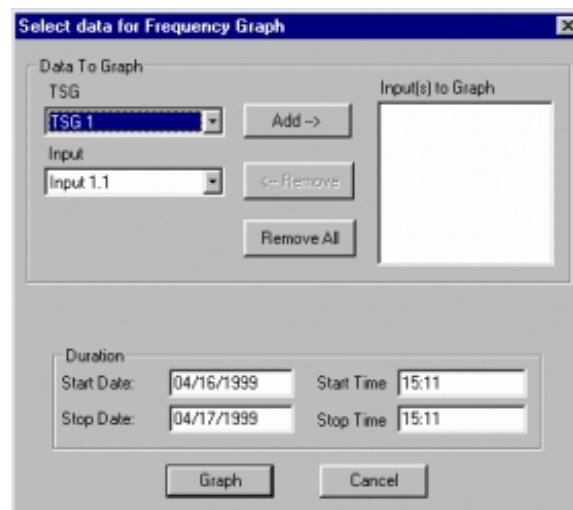


Figure 2- 18. Select data for Frequency Graph dialog box

- Set *Duration* options (at the bottom of the dialog box):
 - *Start Date*: Edit the *Start Date* for frequency data graph.
 - *Start Time*: Edit the *Start Time* for the frequency data graph.
 - *Stop Date*: Edit the *Stop Date* for the frequency data graph.
 - *Stop Time*: Edit the *Stop Time* for the frequency data graph.
- *Graph*: Click *Graph* to graph the selected data for the specified duration (or click *Cancel*) to close the dialog box without saving the frequency graph settings).

The frequency data graph Figure 2- 17) displays the selected data in this format:

- Y-axis displays the delta F/F data presented in picoseconds per second or nanoseconds per second.
- X-axis displays the time period specified.
- Legends identify each input represented on the graph.

If the requested data does not exist, TSMWin32 displays an error message.

2.3.7.5 Historical MTIE

Choose *Historical MTIE* from the *Graph* menu (or click the *Historical MTIE* toolbar

button ) to open the *Select data for Historical MTIE Graph* dialog box (Figure 2- 19).

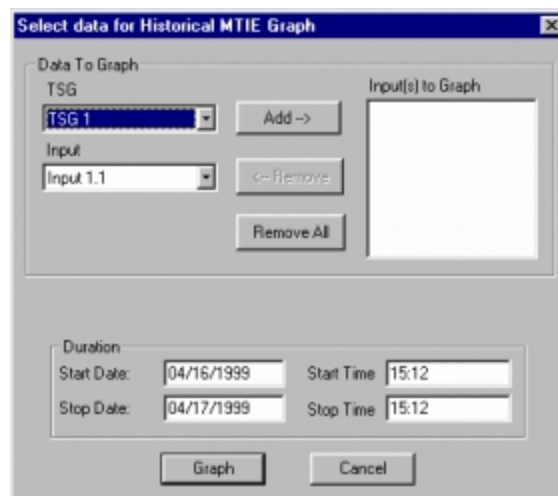


Figure 2- 19. Select data for *historical MTIE* Graph dialog box

Use the options in the dialog box to specify the data constraints to be used in plotting a linear graph of historical MTIE data.

- Select the data to graph. In the *Data To Graph* area:
 - Click the *TSG* list to display the list of TSGs. Click a TSG on the list to select it. You can graph historical MTIE data for any defined TSG. For information about defining TSGs, see Paragraph 2.3.9.2.
 - Click the *Input* list to display a list of the available inputs. Click an input on the list to select it. You can graph historical MTIE data for up to eight inputs (choosing from up to 12 available inputs) on a single graph. For information about enabling and naming inputs, see Paragraph 2.3.9.1.
- To add or remove inputs:
 - Click the *Add* button (in the center of the dialog box) to add the selected data to the *Input(s) to Graph* list.
 - Select an input in the *Input(s) to Graph* list; click the *Remove* button (in the center of the dialog box) to remove the input from the list.

- Click the *Remove All* button (in the center of the dialog box) to remove all inputs from the *Input(s) To Graph* list.
- Set *Duration* options (at the bottom of the dialog box):
 - *Start Date*: Edit the *Start Date* for historical MTIE data graph.
 - *Start Time*: Edit the *Start Time* for the historical MTIE data graph.
 - *Stop Date*: Edit the *Stop Date* for the historical MTIE data graph.
 - *Stop Time*: Edit the *Stop Time* for the historical MTIE data graph.
- *Graph*: Click *Graph* to graph the selected data for the specified duration (or click *Cancel*) to close the dialog box without saving the historical MTIE graph settings).

The historical MTIE data graph (Figure 2- 20) displays the selected data in this format:

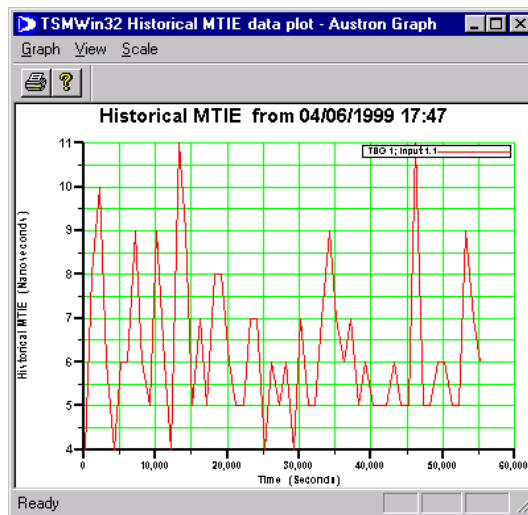


Figure 2- 20. Historical MTIE data plot

- Y-axis displays MTIE data presented in nanoseconds.
- X-axis displays the time period specified.
- Legends identify each input represented on the graph.

If the requested data does not exist, TSMWin32 displays an error message.

2.3.8 View Menu



Use the commands on the *View* menu to control the display of data in the main window.

2.3.8.1 Last Data Gathered

Choose *Last Data Gathered* from the *View* menu to display *Data Viewer* window (Figure 2-21). Choose a TSG from the *TSG* list to display the last measurements for phase, MTIE, and frequency data for each enabled input.

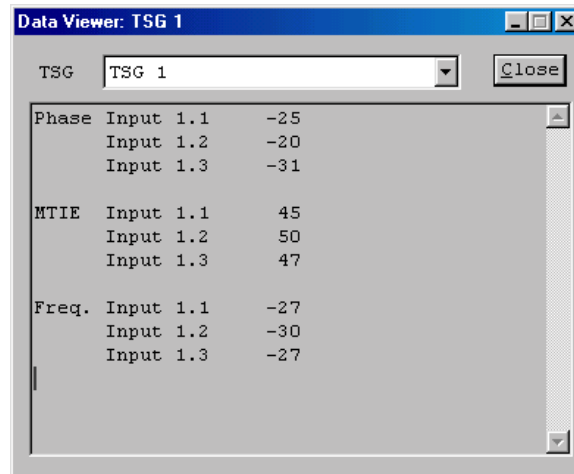


Figure 2-21. *Data Viewer* window showing last data gathered for each input for the selected TSG

2.3.8.2 View Events

Choose *View Event* from the *View* menu to display the *Event Viewer* window (Figure 2-22) containing historical event data for the selected TSG.

TSMWin32 creates and stores an event file for each TSG connected to the system.

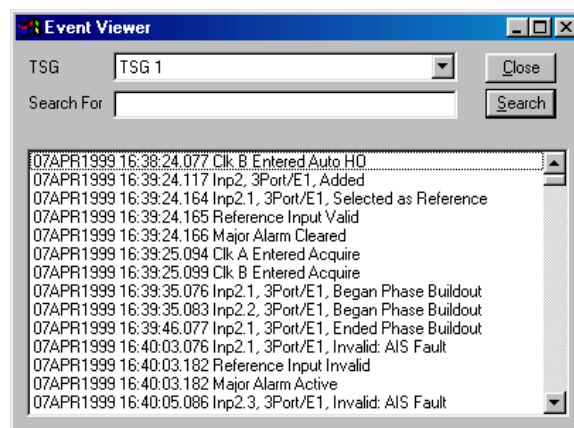


Figure 2-22. *Event Viewer* window showing history of events for the selected TSG

To filter event information, enter a search string in the *Search For* box, then click *Search*.

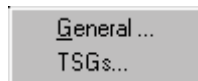
2.3.8.3 Clear Alarm Messages

Choose *Clear Alarm Messages* from the *View* menu to remove all alarm and event messages from the *Alarm Window*.

2.3.8.4 Clear Status Messages

Choose *Clear Status Messages* from the *View* menu to remove all connection status messages from the *System Status Window*.

2.3.9 Setup Menu



Use commands on the *Setup* menu to configure TSMWin32 settings:

- *General . . .* : Choose this command to view or set general system scanning, repository, and terminal connection settings.
- *TSGs . . .* : Choose this command to view or set TSG general, input, and connection settings.

TSMWin32 stores all changes made to the *General Setup* and *TSG Setup* dialog box tab options in memory while you are working in the program. When you exit TSMWin32, any changes that you have made are automatically stored in the system configuration file. These are the settings that are in effect when you restart TSMWin32.

2.3.9.1 General . . .

Choose *General . . .* on the *Setup* menu to open the *General Setup* dialog box (Figure 2- 23). The tabs in this dialog box present options for defining how TSMWin32 scans connected TSGs, where and for how long TSMWin32 saves scanned data, and how TSMWin32 connects to attached TSGs.

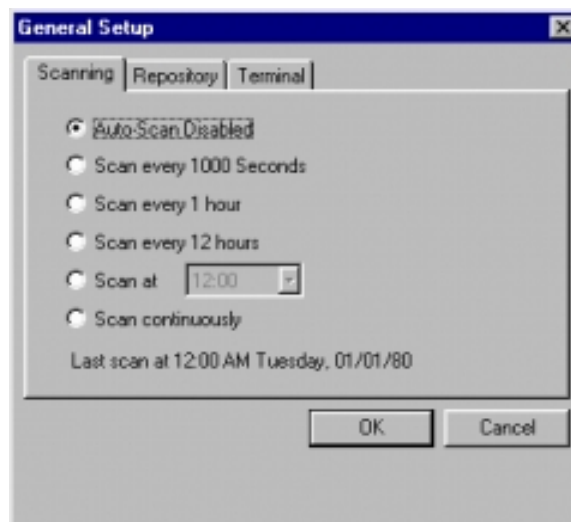


Figure 2- 23. General Setup dialog box
Scanning tab

Click the tab title to bring the tab to the front of the dialog box.

To specify settings in the *General Setup* dialog box tabs:

- *Scanning*: Click options on the *Scanning* tab of the *General Setup* dialog box (Figure 2- 23) to configure TSMWin32 scanning or view last scan time:
 - *Auto-Scan Disabled*: Select this option to disable the TSMWin32 Auto-Scan feature and stop gathering data.
 - *Scan every 1000 Seconds*: Select this option to scan all connected TSGs every 1000 seconds.
 - *Scan every 1 hour*: Select this option to scan all connected TSGs every hour.
 - *Scan every 12 hours*: Select this option to scan all connected TSGs every 12 hours. The scan time is based on the last scan time.
 - *Scan at (time)*: Select this option and select a time for scanning all connected TSGs. TSMWin32 scans twice a day on this hour. For example, enter 6:00 to scan at 6:00 a.m. and 6:00 p.m.
 - *Scan continuously*: Select this option to scan all connected TSGs continuously, i.e., automatically begin a new scan sequence immediately upon completion of the current scan sequence. When you set continuous scanning with this option, you must select *Auto-Scan Disabled* during the pause between scans to disable the next scan.
 - *Last scan at (time)*: TSMWin32 displays the time and date of the last scan.

Note: There are several considerations that can help determine how often the system should be set to collect data.

1. The number of TSGs connected to the system: For systems with more than 20 TSGs connected to the system, we suggest setting a *12 Hour* or *Scan at [hour]* rate. This allows for data gathering from all TSGs.
 2. Importance of Event\Alarm messages: If Event\Alarm messages are important and must be reviewed as soon as possible, set scanning to *1 hour* or *Scan continuously*.
-

- *Repository*: Use the options in *Repository* tab of the *General Setup* dialog box (Figure 2- 24) to configure the TSMWin32 storage management system. You can specify or create the repository drive, path, and folder name, the maximum number of days for which to store data, and the minimum amount of free space to maintain.

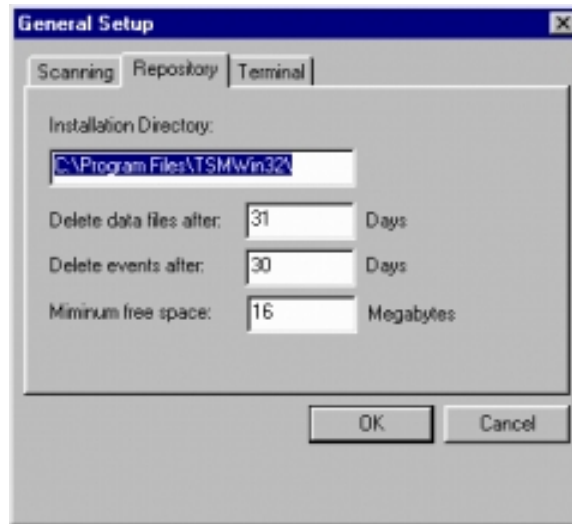


Figure 2- 24. General Setup dialog box
Repository tab

- *Installation Directory:* Enter the drive, path, and folder name in which to store TSMWin32 repository information. Enter an existing folder path and name, or create a new folder by typing a new folder name. If you enter the name of a folder that does not exist, TSMWin32 asks you if you want to create a new folder of that name (**Error! Reference source not found.**). Click *Yes* to create the folder or click *No* to close the dialog box and enter another folder name.



Figure 2- 25. Create directory confirmation message

- *Delete data files after (n) Days:* Enter the maximum number of days for TSMWin32 to store phase, 24 hr MTIE, TDEV, frequency, and historical MTIE data.
- *Delete events after (n) Days:* Enter the maximum number of days for TSMWin32 to store event history data.
- *Minimum free space:* TSMWin32 stores the data gathered by scanning up to a maximum number of days or until a minimum amount of hard drive space is reached. When storage management constraints are reached, TSMWin32 removed data using First-In-First-Out methods, i.e., the oldest data is

removed to make room for currently gathered data. Enter the minimum number of megabytes of free hard drive space to reserve on the hard disk, i.e., the minimum amount of free space on the drive to maintain. When this threshold is reached, TSMWin32 begins deleting data.

- *Terminal*: In the *Terminal* tab of the *General Setup* dialog box (Figure 2- 26), set the terminal timeout time, the amount of time for which a terminal connection may remain inactive before TSMWin32 terminates the connection. Enter the timeout amount in the format *H:MM*. The default timeout is 5 minutes, specified as 5:00.

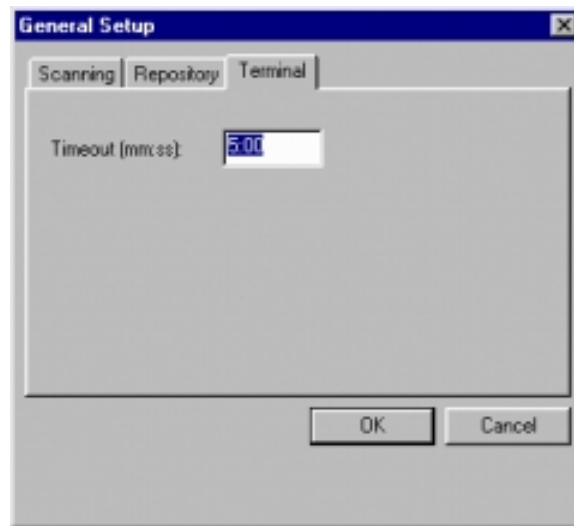


Figure 2- 26. General Setup dialog box
Terminal tab

Note: The terminal mode allows you to perform TSG configuration, such as setting MTIE Alarm Limits. However, keep in mind that scanning does not gather data for a TSG connected in terminal mode. The terminal timeout settings default to five minutes before timing out, to ensure that the terminal connection is not inadvertently left open.

2.3.9.2 TSGs . . .

Choose *TSGs . . .* on the *Setup* menu to open the *TSG Setup* dialog box (Figure 2- 27). The tabs in this dialog box present options for defining and configuring any number of TSGs, inputs, and connection settings.

Click the tab title to bring the tab to the front of the dialog box.

The options in the tabs apply to the TSG named in the *TSG* list box at the top of the dialog box.

To modify a defined TSG:

- Select a TSG from the *TSG* list.
- Click a tab title to display the tab and make the desired changes.

- Click *OK* or *Apply* to apply the changes (or click *Cancel* to close the dialog box without making changes).

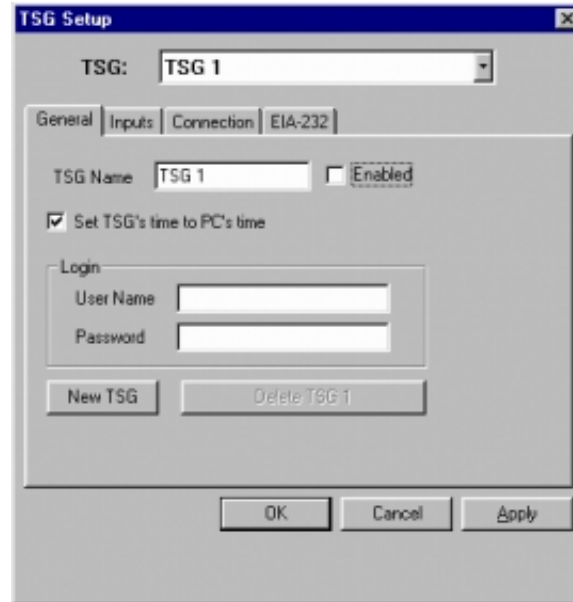


Figure 2- 27. TSG Setup dialog box
General tab

To define a new TSG:

- In the *General* tab, enter a new TSG name.
- Click *Apply*. TSMW in32 adds the new TSG name to the list.

To configure a defined TSG.

- Select the TSG to configure. Click the *TSG* list to display the available TSGs.
- Click on the *General* tab and specify the general settings (below).

To enter information in the *TSG Setup* dialog box tabs:

- *General*: Use the options on the *General* tab of the *TSG Setup* dialog box to specify general TSG settings:
 - *TSG Name*: Enter a new TSG name. The default name for a new TSG is TSG###, where ### is a number between 1 and 999. You may change this name to a more meaningful name, perhaps describing the location of the TSG, for example, AustinTX TSG. After you enter a new name, click *Apply* to change the TSG name in the top of the dialog box to the one just entered.
 - *Enabled*: Mark this checkbox to enable data gathering for the TSG. If a TSG is taken offline or does not require data gathering, unmark the check box to stop data gathering for the selected TSG.
 - *Set TSG's time to PC's time*: Click the check box to use the computer time setting to set the TSG time, allowing TSGs a common time stamp.

Remember that since data is time stamped using TSG time, setting all connected TSGs to the same time ensures proper data correlation.

- *User Name*: Enter an ADMIN user name. If users have been created for the TSG, TSMWin32 must log into the TSG at the ADMIN level using the ADMIN user name and password. If no users have been assigned to the TSG, the *User Name* and *Password* fields may be left empty.
- *Password*: Enter an ADMIN password. If users have been created for the TSG, TSMWin32 must log into the TSG at the ADMIN level using the ADMIN user name and password. If no users have been assigned to the TSG, the *User Name* and *Password* field may be left empty.
- *New TSG*: Click the *New TSG* button to create a new TSG name when a new TSG is added to the system. TSMWin32 assigns a new TSG name in the form of TSG ###, where ### is the next available TSG number between 1 and 999, and adds the TSG to the list of configurable TSGs.
- *Delete TSG*: Click the *Delete TSG* button to delete the selected TSG name from the TSG list.
- *Inputs*: Use the options in the *Inputs* tab of the *TSG Setup* dialog box (Figure 2- 28) to define which inputs to use and to assign meaningful names to each; use the scrollbar to scroll from *Input 1.1* to *Input 4.3*. For each input, specify:

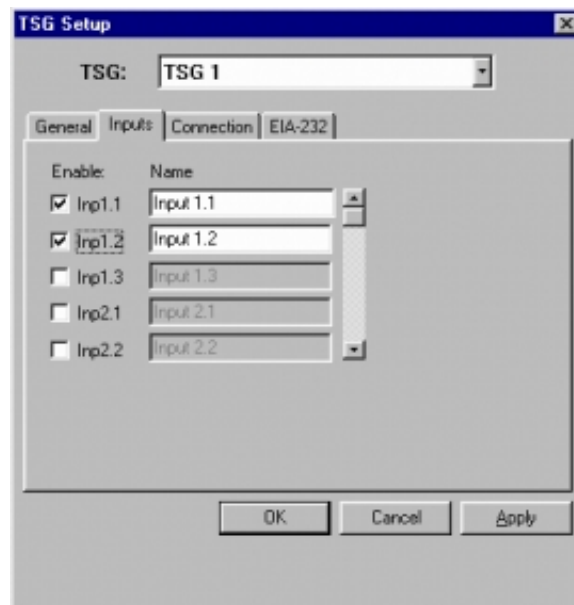


Figure 2- 28. TSG Setup dialog box
Input tab

- *Enabled*: Enable an input by placing a check mark beside the input. Each input can be individually enabled for data gathering. This is similar to the *TSG Enable* check box, except that data gathering is done on an Input-by-Input basis. All inputs are disabled by default.

- *Name*: Enter an optional name for the input. To enter a name, enable the input (above). When you enable an input, the name field is activated, giving you with the option to assign a meaningful name to the input (for example, the source of that input, such as *Dallas PRR10 #1*).

Click *Apply* or *OK* to save the changes (or click *Cancel* to close the dialog box without saving changes).

TSMWin32 supports the two styles of input module available for each TSG:

- Single port input modules (both 1 nS and 54 nS).
- Three port modules.
- *Connection*: Use the options in the *Connection* tab of the *TSG Setup* dialog box (Figure 2- 29) to define which communications port to connect to the selected TSG. Specify the a connection type, port, IP address, phone number, and modem initialization string for the selected TSG.

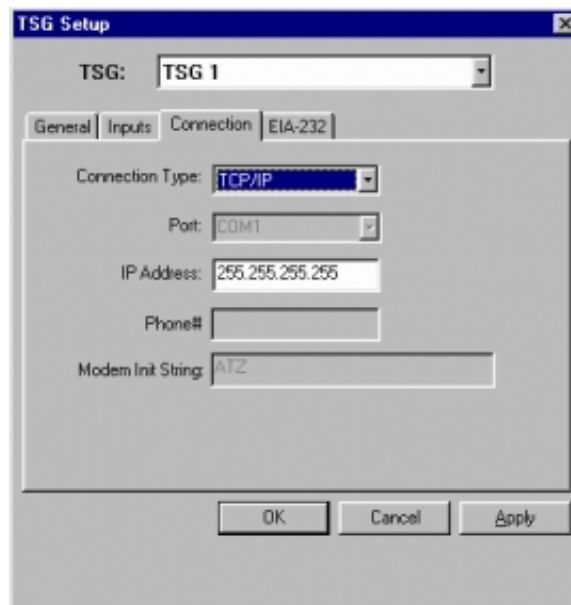


Figure 2- 29. TSG Setup dialog box
Connection tab

You can connect up to 999 TSGs to a single communications port that has been defined by the operating system. TSMWin32 can use one or more communications ports to "talk" to multiple TSGs. As an example, using a 16-port EIA-232 card, you can configure the system with direct connections to co-located TSGs, modem connections to remote TSGs, and X.25 connections to still other remote TSGs. All the connections can be made using a single computer (assuming that all the hardware uses Windows 95/98/NT-compatible device drivers).

- *Connection Type*: Select the connection type from the list: *Direct Serial*, *Modem*, *X.25 PAD*, *TCP/IP*. For *Modem* or *X.25 PAD* connections, you

must specify a *Phone#* or PAD ID to allow the modem or PAD to make the connection; for *TCP/IP* connections, you must specify an *IP Address*.

- *Port*: Select the communications port that TSMWin32 will use to connect to the selected TSG. You may use a single port to connect to many TSGs.
- *IP Address*: Enter the IP address.
- *Phone#*: Enter the phone number or (for X.25 network connections) the PAD ID required to make the connection.
- *Modem Init String*: Enter the modem initialization string. Some modems require additional setup (initialization) strings to be sent to them for proper operation. TSMWin32 automatically re-initializes modems before attempting to make the connection.

Note: Only connection options appropriate to the connection type are active.

- *EIA-232*: Use the options on the *EIA-232* tab of the *TSG Setup* dialog box (Figure 2-30) to configure communications parameters for a computer with an EIA-232 serial card. To do this, you must know the communications settings for each TSG before starting.

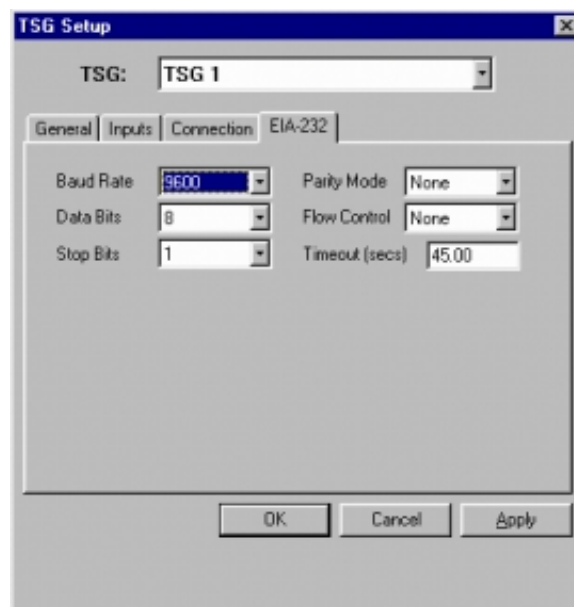



Figure 2-30. TSG Setup dialog box
EIA-232 tab

TSMWin32 connects directly to a TSG setup using factory default settings unless you specify other communications settings in this tab. The suggested parameters are 9600-8-N-1 (baud = 9600, Data bits = 8, parity mode = None, Stop bits = 1).

- *Baud Rate*: Select the baud rate from the list. The default setting is 9600. If a large number of TSGs are connected to a single system, we suggest setting all TSGs and TSMWin32 to communicate at 19200 baud.
- *Parity Mode*: Select the parity mode from the list. The default setting is *None*. We recommend setting parity mode for very limited data validation.
- *Data Bits*: Select the number of data bits (data word length) from the list. The default setting is 8.
- *Flow Control*: Select the flow control method from the list. The default setting is *Off*.
- *Stop Bits*: Select the number of stop bits from the list. The default setting is 1.
- *Timeout (secs)*: Enter a timeout setting in the format SS.00 where SS is the number of seconds, and 00 is hundredths of seconds that can elapse before a timeout occurs. When TSMWin32 sends a message and does not receive a response within the amount of time specified, TSMWin32 closes the connection.

After making the configuration changes and applying them to all the TSGs, you are ready to verify the connection to a selected TSG:

1. Choose *Terminal* from the *File* menu (or press the *Terminal* toolbar button ) to open the *Terminal* window (Figure 2- 31).

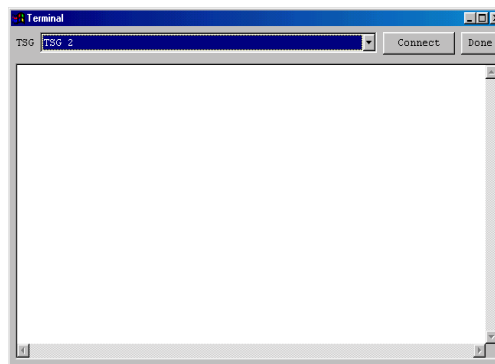
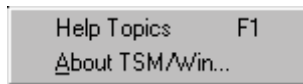


Figure 2- 31. Terminal dialog box


2. Click the *TSG* list to display the available TSGs. Click the TSG to which to connect.
3. Click *Connect* to begin the connection.
4. The TSG may respond with a login prompt. Enter the login and password if prompted to complete the connection.
5. Click *Disconnect* to disconnect from the selected TSG. Repeat these steps for each TSG to which you wish to connect.
6. When you are finished making connections, click *Disconnect* to break the connection, then click *Done* to close the *Terminal* window.

Note: If no activity is detected for the TSG, the *Terminal* window disconnects automatically after the specified terminal timeout period. For more information about specifying the timeout period, see Paragraphs 2.3.9.1 and 2.3.9.2.

2.3.10 Help Menu



2.3.10.1 Help Topics . . .

Choose *Help Topics . . .* from the *Help* menu (or click the *Help* toolbar button ) to open the Help Topics (Figure 2- 32) and view a table of contents to an indexed, searchable database of Help topics.

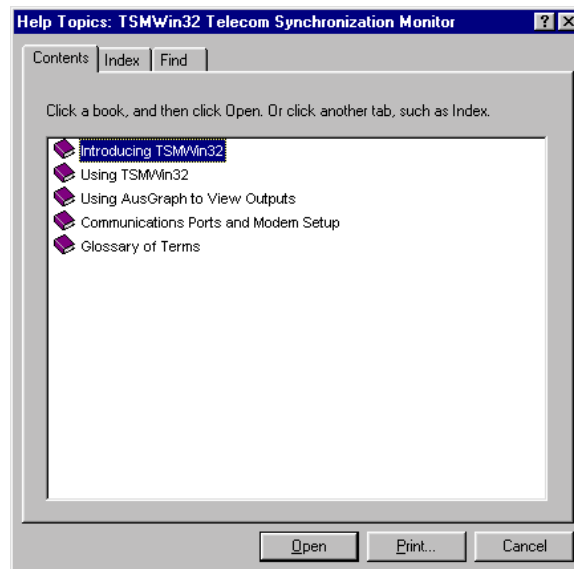


Figure 2- 32. TSMWin32 Help Contents Page

To view a Help topic (Figure 2- 33), double-click on the book icon to display a list of the available topics. Double click on the topic (or click *Display*).

Use the Help menu commands open, print, copy, annotate, bookmark, customize, or exit Help:

- *File*: Use the commands on the *File* menu to open a Help file, print the active topic, or exit the Help window.
- *Edit*: Use the commands on the *Edit* menu to copy the contents of the Help window or open the *Annotate* dialog box and enter text.
- *Bookmark*: Use the commands on the *Bookmark* menu to define a Help bookmark.

- *Options*: Use the commands on the *Options* menu to customize the appearance and behavior of Help windows. You can set options to:
 - *Keep Help on Top*: Select behavior for the Help window. Choose *Default*, *On Top*, or *Not on Top*.
 - *Display History Window . . .*: Display the *Windows Help History* window, and select a recent Help topic to open.
 - *Font*: Select the font size to use for displaying Help topics. Choose *Small*, *Normal*, or *Large*.
 - *Use System Colors*: Select this option to change the colors used by the Help windows to those specified in your system settings.
- *Help*: View the Windows Help Viewer version number and the TSMWin32 Help copyright information.

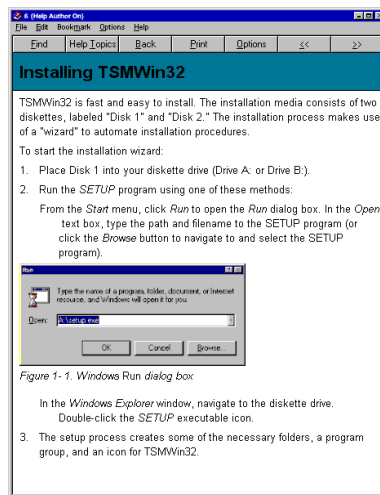


Figure 2- 33. Help topic

To navigate in Help, use the buttons at the top of the Help topic window:

- *Find*: Open the *Find* tab of the *Help Topics* window.
- *Help Topics*: Open the *Help Topics* window (Figure 2- 32).
- *Back*: Open the last topic visited.
- *Print*: Print the current topic.
- *Options*: Set Help appearance and behavior options.
- *>> (Next topic)*: Go to the next topic in the sequence.
- *<< (Previous topic)*: Go to the previous topic in the sequence.

To search the Help topics database:

1. Click the *Find* tab in the *Help Topics* window (Figure 2- 32).
2. Enter a search string in the text box labeled *Type the word(s) you want to find*.

3. To further limit your search (i.e., to reduce the number of topics displayed), make a selection from the list labeled *Select some matching words to narrow your search*.
4. To display a topic, double-click a topic in the list (or click on a topic, then click *Display*).

2.3.10.2 About TSMWin32 . . .

Choose *About TSMWin32 . . .* from the *Help* menu to display the TSMWin32 *About* dialog box and view the product name, version number, firmware version, and copyright information.

3 Using AusGraph to View Outputs

3.1 In This Chapter . . .

- ❑ Overview of AusGraph and TSMWin32 Outputs
- ❑ AusGraph Menus

3.2 Overview of AusGraph and TSMWin32 Outputs

TSMWin32 features an embedded graphics application, AusGraph, for presenting graphical data. AusGraph allows you to configure the display of data and to print the results. For example, the figure below, shows a Phase graph with two inputs, with the *View* menu options *Color*, *Title*, *Grid*, *Y Axis*, *X Axis*, and *Legend* selected.

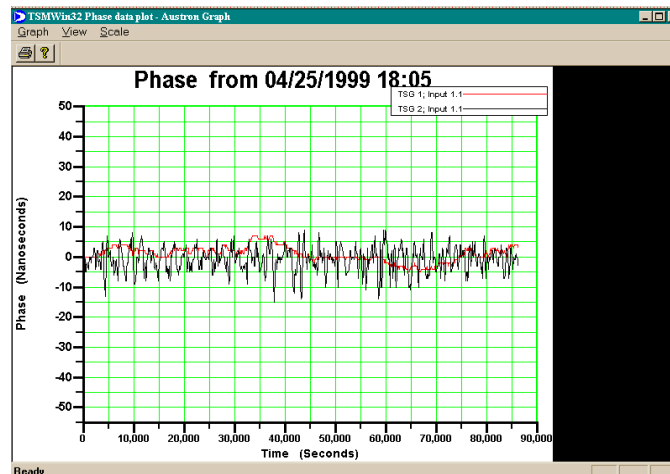


Figure 3- 1. Phase data graph

3.2.1 Launching Aus Graph

When you choose any option on the TSMWin32 *Graph* menu, the dialog box features options for selecting and configuring the input data to graph. Click the *Graph* button to launch AusGraph and display the data.

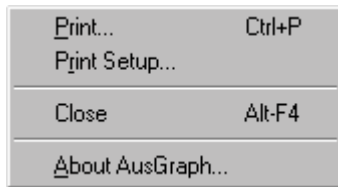
For example, to launch AusGraph and display the phase data graph:

1. Click *Phase* on the *Graph* menu.
2. In the *Select data for Phase Graph* dialog box:
 - Choose a TSG from the list (click on the *TSG* list to display the available TSGs).
 - Chose an input from the list (click on the *Input* list to display the available inputs).
 - Enter the duration for the data to be graphed: enter a *Start Date*, *Start Time*, *Stop Date*, and *Stop Time*.
3. Click the *Graph* button to launch AusGraph and display the data as a plot.

3.3 AusGraph Menus

Use the commands on the AusGraph menus to configure the display and scale of TSMWin32 data plots and graphs, and to print graphs.

3.3.1 Graph Menu



3.3.1.1 Print . . .

Choose *Print* from the *Graph* menu (or press CTRL + P) to open the *Print* dialog box for your printer and set standard Windows printer options to use in printing the graph.

For best printing of graphs, select *Landscape* in the printer properties *Orientation* options. The location of this option varies according to the printer selected.

3.3.1.2 Print Setup . . .

Choose *Print Setup* from the *Graph* menu to open the *Print Setup* dialog box for your printer and choose standard Windows printer setup options for printing the graph.

3.3.1.3 Close

Choose *Close* from the *Graph* menu (or press ALT + F4) to exit AusGraph.

Note: Closing AusGraph does not close TSMWin32.

3.3.1.4 About AusGraph . . .

Choose *About* from the *Graph* menu to open the *AusGraph About* dialog box (Figure 3- 2) and view AusGraph version and copyright information.

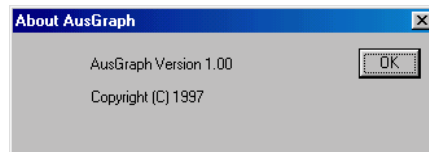


Figure 3- 2. About AusGraph dialog box

3.3.2 View Menu



Use the commands on the *View* menu to customize the appearance of the graph and to select an input.

The commands on the *View* menu act as switches, changing the settings to their "on" (marked) or "off" (unmarked) states. For example, when there is a check mark beside the *Title* command, the AusGraph displays the graph title. To display the graph without the graph title, click the *Title* command again to remove the check mark.

3.3.2.1 Color

Choose *Color* from the *View* menu to display graph inputs in color.

3.3.2.2 Black & White

Choose *Black & White* from the *View* menu to display the graph in monochrome format, with each input displayed as a different line style.

3.3.2.3 Title

Choose *Title* from the *View* menu to toggle graph titles on or off

3.3.2.4 Grid

Choose *Grid* from the *View* menu to toggle the graph grid on or off

3.3.2.5 Y Axis

Choose *Y Axis* from the *View* menu to toggle the Y Axis of the graph on or off

3.3.2.6 X Axis

Choose *X Axis* from the *View* menu to toggle the X Axis of the graph on or off.

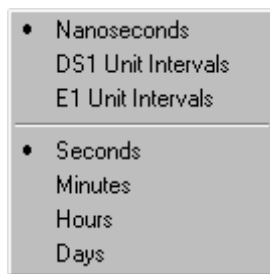
3.3.2.7 Legend

Choose *Legend* from the *View* menu to toggle graph legends on or off. You can select the legend and move it on the graph display so that all data is visible.

3.3.2.8 Input Plot List

AusGraph displays the selected inputs shown on the selected graph at the bottom of the *View* menu. Click an input name to toggle the display of that input.

3.3.3 Scale Menu



Use the commands on the *Scale* menu to select the scaling units for the graph. The contents of the *Scale* menu:

- Change according to the type of data displayed. For example, if the graph displays frequency data, the scale options include *Picosec/Sec* and *Nanosec/Sec*; if the graph displays TDEV data, the only scale option offered is *Nanoseconds*.
- Act as interdependent option buttons, allowing you to choose only one option at a time from the group.

To view graphed data using more than one scaling unit, create a new graph for each new scaling unit.

3.3.3.1 Picosec/Sec

Choose *Picosec/Sec* from the *Scale* menu to set the Y Axis scale to be displayed in picoseconds or seconds.

3.3.3.2 Nanosec/Sec

Choose *Nanosec/Sec* from the *Scale* menu to set the Y Axis scale to be displayed in nanoseconds or seconds.

3.3.3.3 Nanoseconds

Choose *Nanoseconds* from the *Scale* menu to set the Y Axis scale to be displayed in nanoseconds.

3.3.3.4 DS1 Unit Intervals

Choose *DS1 Unit Intervals* from the *Scale* menu to set the Y Axis scale to be displayed in fractional DS1 unit intervals. 648 nS is one unit interval.

3.3.3.5 E1 Unit Intervals

Choose *E1 Unit Intervals* on the *Scale* menu to set the Y Axis scale to be displayed in fractional E1 unit intervals. 488 nS is one unit interval.

3.3.3.6 Seconds

Choose *Seconds* from the *Scale* menu to set the X Axis scale to be displayed in seconds.

3.3.3.7 Minutes

Choose *Minutes* from the *Scale* menu to set the X Axis scale to be displayed in minutes.

3.3.3.8 Hours

Choose *Hours* from the *Scale* menu to set the X Axis scale to be displayed in hours.

3.3.3.9 Days

Choose *Days* from the *Scale* menu to set the X Axis scale to be displayed in hours

4 Communications Ports and Modem Setup

4.1 In This Chapter . . .

- ❑ Setting Up TSG Communications Ports
- ❑ Setting Up Modems

4.2 Setting Up TSG Communications Ports

The communications port of a connected TSG can be set up in any of several ways.

In determining the communications port setup method, consider the type of connection being used to get information from the TSG. TSMWin32 allows you to specify Direct Serial, Modem, X.25 PAD, or TCP/IP connections.

TSGs arrive from the factory with both serial ports ready for direct connections. Before connecting, however, perform the following steps:

- Verify the TSG jumper settings: remove the CPU card from the TSG and compare the settings to those listed in Table 4- 1. TSG Communications Ports Setup.

Table 4- 1. TSG Communications Ports Setup

Direct Connection				Modem Connection			
Comm A		Comm B		Comm A		Comm B	
W11	1-2, 3-4, 5-6	W9	1-2, 3-4, 5-6	W11	1-2, 3-4, 5-6	W9	1-2, 3-4, 5-6
W7	1-2	W8	1-2	W7	3-4	W8	3-4
W13	2-4	W16	2-4	W13	1-2	W16	1-2
W14	1-2, 3-4	W15	1-2, 3-4	W14	1-3, 2-4	W15	1-3, 2-4

- You must also connect to the TSG and issue the COM commands to set the following (the options allow four possible combinations):
 - Set the communications port to A or B.

- Set the baud rate to 9600 or 19200. Although TSMWin32 is configured by default to use the 9600 baud rate, the program can communicate to each TSG at 9600 or 19200 baud.

Example: COM B BAUD 19200

4.3 Setting Up Modems

Modems must use these settings to connect to a TSG. The modem must also be able to save the settings to the NVRAM of the modem.

1. Turn off the echo (E0).
2. Turn off the modem responses (Q1).
3. Set Auto Answer to 1 (S0=1).
4. Set the modem to TSG connection speed at 9600 (S37=9 and N0 on some modems).
5. Store these settings in NVRAM in case of power loss.

Note: Because modem standards vary greatly, for best performance, Austron urges you to use only Hayes-compatible modems. In fact, if you wish, Austron can provide you with a "plug-and-play" modem that is set up and ready to connect.

4.4 Estimating Hard Disk Space for 30 days of Data

The amount of hard disk space required for 30 days of TSG monitoring is of course dependent upon the TSG configuration, and the number of TSGs that are connected to the system.

Here are some guidelines for estimating the required storage space for your configuration:

- Every TSG (shelf) defined requires 2K bytes per day of data storage space.
- Every input (channel) defined requires 10K bytes per day of data storage space.
- If there are three TSGs, the first having four inputs, the second having two inputs, and the third having one input, you can calculate the required hard disk space for 30 days of data storage thus:
$$(3*2k + ((4*10K) + (2*10K) + (1*10k))) * 30 = 2.28 \text{ MB of total hard disk space.}$$

5 Glossary of Terms

alarm messages

Incoming alarm conditions and notifications of new alarms are displayed in the *Alarm* window. Alarm information is parsed from the event data gathered from each TSG. Each alarm consists of (1) the TSG unit ID, (2) the alarm timestamp, and (3) the alarm description (including description of alarm severity level, whether critical, major, or minor).

Aus Graph

Embedded graphics application for presenting and configuring the display of graphical data in TSMWin32.

Auto-Scan

TSMWin32 setting which scans all connected TSGs continuously, i.e., automatically beginning a new scan sequence at the preset time interval. When continuous scanning is set with this option, *Auto-Scan Disabled* must be selected to stop the scan.

baud rate

Speed at which telecommunicated data is transmitted, measured in data interval time slots per second. Elementary coding provides one bit per baud, and higher level coding enables multiple bits to be transmitted per baud.

carrier

The frequency exchanged by modems used to transmit and receive data.

channel

In a communications system, the part that connects a data source to a data sink.

disconnect

To "hang up" or break the connection.

DS1 unit intervals

One baud time slot at the DS1 rate of 1.5444 megabaud per second = 648 ns.

E1 unit intervals

One baud time slot at the E1 rate of 2.048 megabaud per second = 488 ns.

EIA-232

Another name for the RS-232C interface, a standard interface between peripherals and microcomputers, and between modems and terminals.

error correction

Communications protocol which allows errors to be corrected by the receiver once the receiver determines that an error exists.

error detection

Communications protocol which allows the receiver to determine that the received data bits contain one or more errors.

Ethernet

Network access method developed by Digital Equipment Corporation, Intel, and Xerox in the early 1970s; the most widely used local-area network technology.

firmware

Software that has been copied to integrated circuits.

First In - First Out

Method of storing and retrieving items from a list, table, or stack, so that the first element stored is the first one retrieved. TSMWin32 utilizes this method for removing data from the TSMWin32 repository, removing oldest data first, as required, to make space for new data.

frequency

Frequency data (fractional frequency offset) is presented as Delta F/F data graphed as a function of a selected duration, scaled in picoseconds per second or nanoseconds per second.

input

In a channel, a point that accepts data.

IP address

Internet Protocol address. 32-bit number that identifies each sender or receiver of information that is sent in packets across the Internet.

Internet Protocol (IP)

The primary network layer protocol for TCP/IP protocol suite; the most widely used network protocol.

legends

The graph legend box provides information which describes or identifies the graphed data.

modem

MOdulator-DEModulator. A device which provides communications capabilities between computer equipment over common telephone facilities.

modem initialization string

Initializes the modem by sending to it a series or "string" of commands, typically Hayes commands, which configure the modem's options for error correction, data compression, flow control, and other parameters.

MTIE

Maximum Time Interval Error. For more information, refer to ANSI T1.101.

nanoseconds

One-billionth of a second (also called a millimicrosecond).

network element (NE)

In integrated services digital networks, a network element (NE) or piece of telecommunications equipment used in the signal path of a telecommunications system, that provides support or services to the user, for example, a SONET add-drop multiplexer.

PAD ID

Packet assembler/disassembler (PAD), a functional unit that enables data terminal equipment not equipped for packet switching to access a packet-switched network.

parity

An error-detection scheme which uses an extra "checking bit," also called the parity bit, to allow the receiver to check the received data for errors. The value of the parity bit is set so that the sum of the data bits and the parity bit is always either even (for even parity) or odd (for odd parity).

parity mode

Modem setting which allows for automatic error detection by using checking bits added to a byte, character, or word to ensure that there is always either an even number or odd number of bits, according to the logic of the system. If hardware failure causes a bit to be lost in transmission, its loss can be detected by checking the parity.

PC time

The time-of-day and date setting for the operating system of the computer.

performance mask

An array of performance values for the data type.

repository

The portion of the file system designated as the storage location for TSMWin32 data and configuration data.

scanning

Monitoring one or more connected TSGs for transmission information.

serial card (EIA-232)

Interface card used between peripherals and microcomputers, modems, and terminals.

serial port

A common connection on a personal computer used to attach devices such as modems and other peripherals, and through which data are transmitted and received one bit at a time.

TCP/IP

Transmission Control Protocol/Internet Protocol, a networking protocol with ability to connect disparate hosts.

TDEV

Time Deviation. For more information, see ANSI T1.101.

terminal mode

TSMWin32 mode in which information can be sent and received over a communications channel.

timeout

Amount of time for which a terminal connection may remain inactive before TSMWin32 terminates the connection.

TSG

Timing Signal Generator.

TSMWin32.CFG

The TSMWin32 configuration file, containing the stored configuration values for making connections, gathering data: data storage and retrieval, TSGs, inputs, duration, etc.

user name

The user name required for logging in to a network connection.

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