Sequence Of Events & Process Historian Collector Package (T8013)

The sequence of events (SOE) collector program generates a time-stamped log of all *discrete* changes of state recorded by the system (e.g., faults, field trips, output actions etc.). The process historian (PH) program provides the facility to log and record *analog* variables. Time stamps come from the I/O modules themselves, not the main processor. Resolution is true 1ms, regardless of program (application) scan time. Both programs are supplied on a single disk – Part No. T8013.

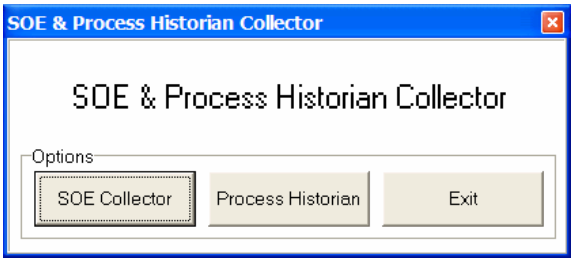


Figure 11-1: SOE/PH Launcher Dialog Box

The SOE/PH launcher dialog box, shown in Figure 11-1, will appear after the splash screen closes. Clicking the **SOE Collector** button will open the SOE window. Similarly, clicking the **Process Historian** button will open the PH log.

Multiple SOE and PH displays may be initiated to enable concurrent gathering of data from multiple Trusted systems.

The programs enable you to collect the appropriate data from the controller via the communications interface module. Communications between the engineering workstation and the system may use either the serial or Ethernet ports on the *rear* of the communications interface. (The front serial port can*not* be used for this purpose.)

Logs are scrolling and may contain up to 4,000 entries. In other words, after 4,000 entries, old data will be overwritten in the system. The processor holds the most recent 1,000 entries; the communications interface module holds 4,000. If the collector is connected and gathering data there will be no loss of data beyond the 4,000 entry limitation of the communications module.

Sequence of Events

The SOE Collector window is shown in Figure 11-2.

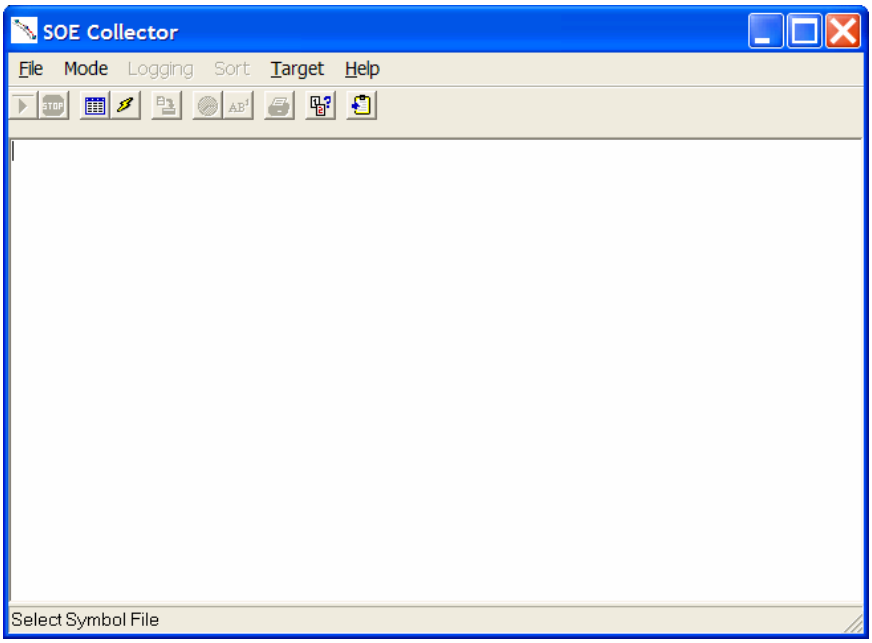


Figure 11-2: SOE Collector Window

Collecting SOE data requires performing the following steps.

1. Tag variables
2. Configure the SOE communications port
3. Select the appropriate SOE symbol file
4. Select the SOE target ID
5. Select the sort mode (time or tag)
6. Select the SOE log file
7. Start collecting SOE data

1 Tag Variables

The SOE collector can log two types of variable; Boolean variables which have only two states and channel state changes.

Note: All SOE variables must either be defined as input or output. Internal application variables can be assigned for SOE collection using the SOE board (in the I/O configuration editor), however internal SOE variables must be declared as *outputs* in the dictionary.

Boolean SOE Variables

To select Boolean variables for collection by the SOE, first open the **dictionary**, as shown in Figure 11-3.

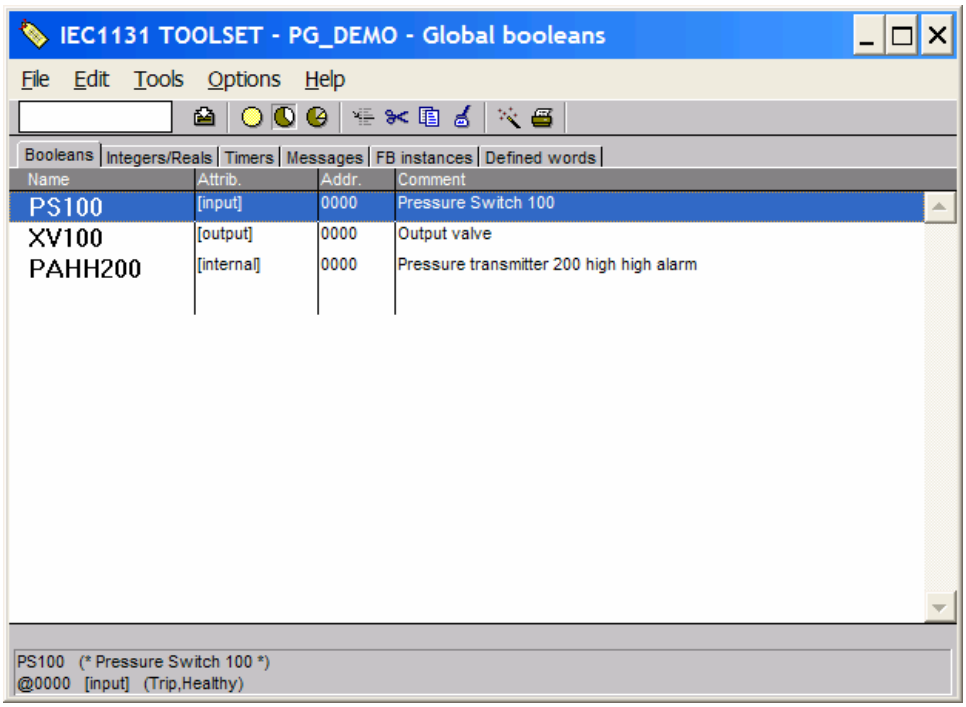


Figure 11-3: Dictionary

Select the variable to be included in the SOE log (e.g. by double clicking it) to open the Boolean Variable dialog box, as shown in Figure 11-4.

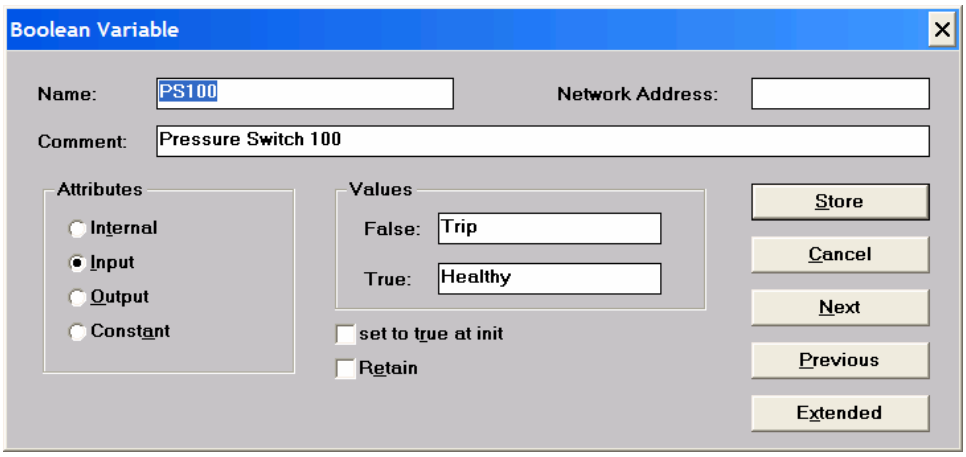


Figure 11-4: Boolean Variable Dialog Box

Click the **Extended** button to open the **Extended Attributes** dialog box, as shown in Figure 11-5.

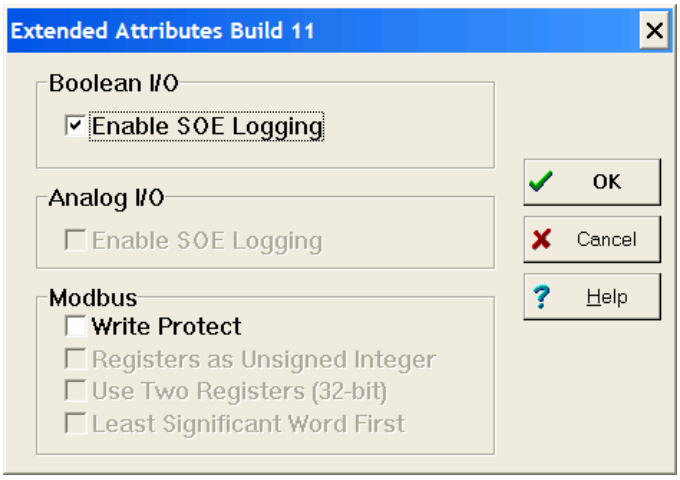


Figure 11-5: Extended Attributes Dialog Box

Enable the **Boolean I/O | Enable SOE logging** option to provide the variable with SOE attributes.

This variable must then be attached to an I/O board within the project. Unattached variables may be assigned to the appropriate board in the I/O connection editor, as shown in Figure 11-6.

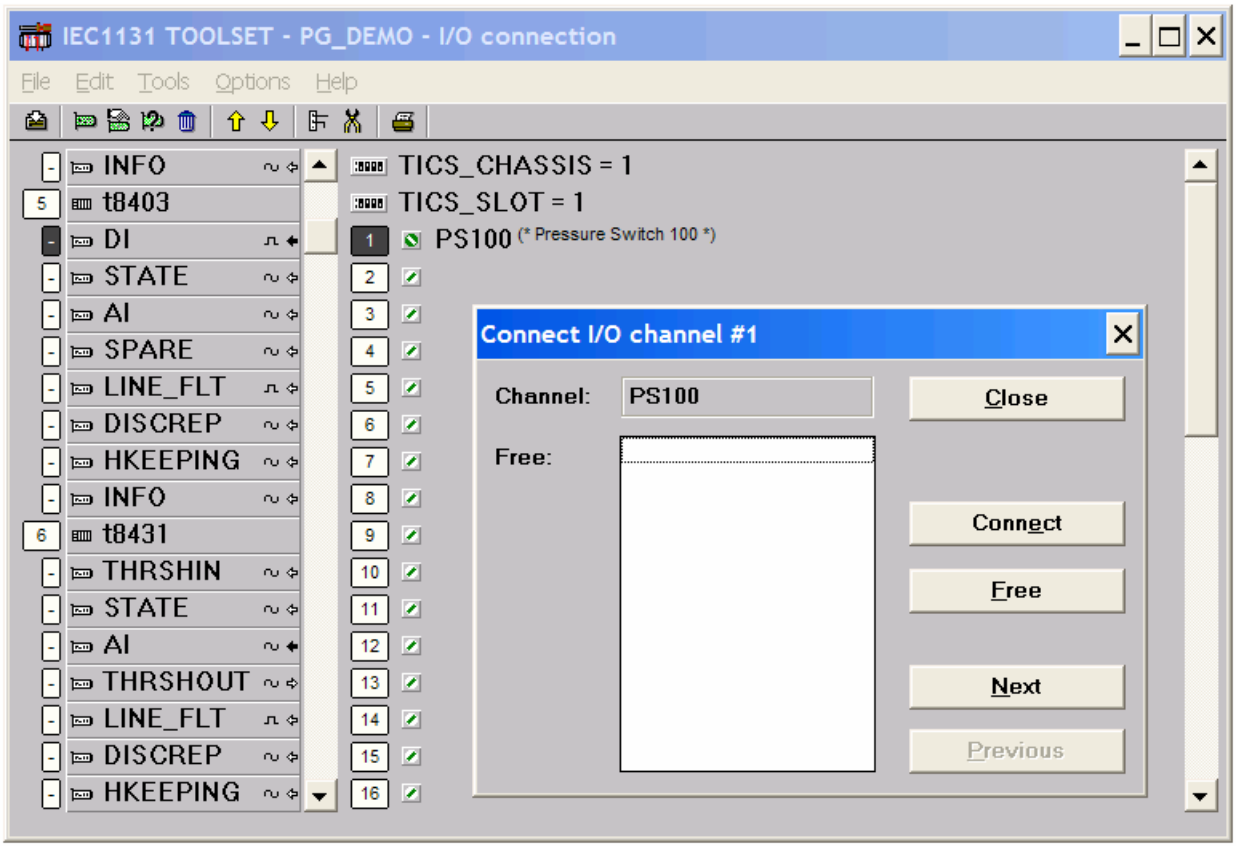


Figure 11-6: I/O Connection Editor and Connect I/O Channel Dialog Box

Internal variables (declared as outputs in the dictionary) may be collected by declaring an SOE board from the board library within the I/O connection editor window and assigning tag names, as shown in Figure 11-7.

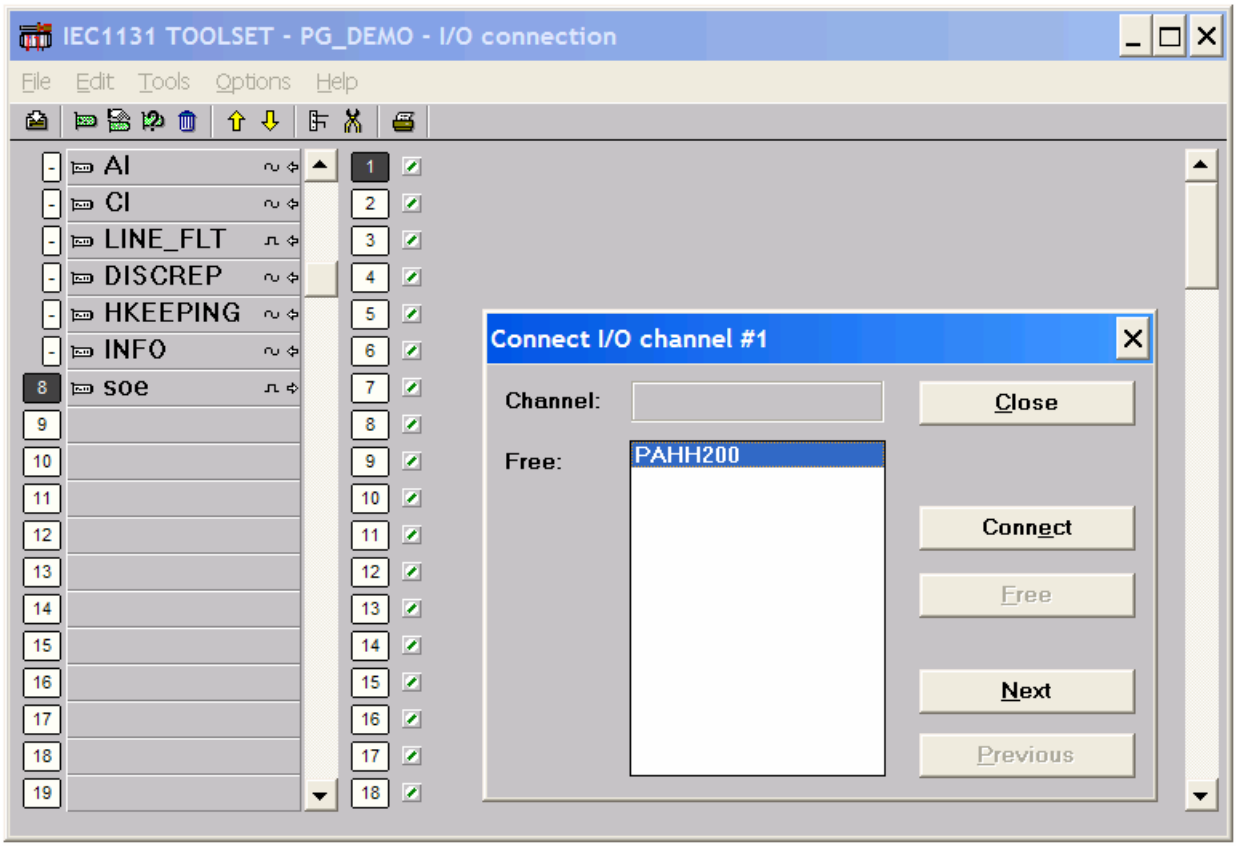


Figure 11-7: I/O Connection Editor and Connect I/O Channel Dialog Box (for SOE)

2) Configure the SOE Communications Port

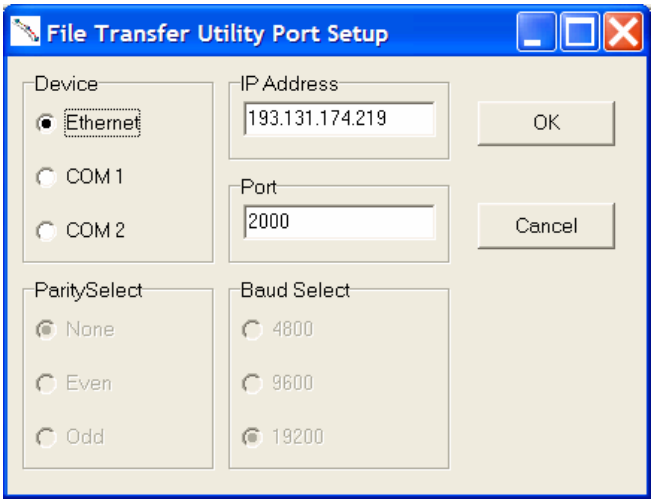


Figure 11-8: File Transfer Utility Port Setup Dialog Box

The ports on the communications interface module may be configured to allow SOE data collection using either serial communications or Ethernet. Configuring the PC port for SOE communications is done using the **Configure Port** button, or the **File | Configure Port** menu selection. Figure 11-8 shows the Port Setup dialog box. When selecting Ethernet, enter the target system IP address. The port number should be left at 2000.

3) Select the Appropriate SOE Symbol File

The workbench creates tag, true/false state information and description text as part of the program creation/compilation process. The file that contains the bulk of the information is named **appli.tst** and is generally found in your project directory.

The appli.tst symbol file is selected in the SOE Collector window using the **Configure Files** button, or the **File | Select Symbol File** menu selection, as shown in Figure 11-9.

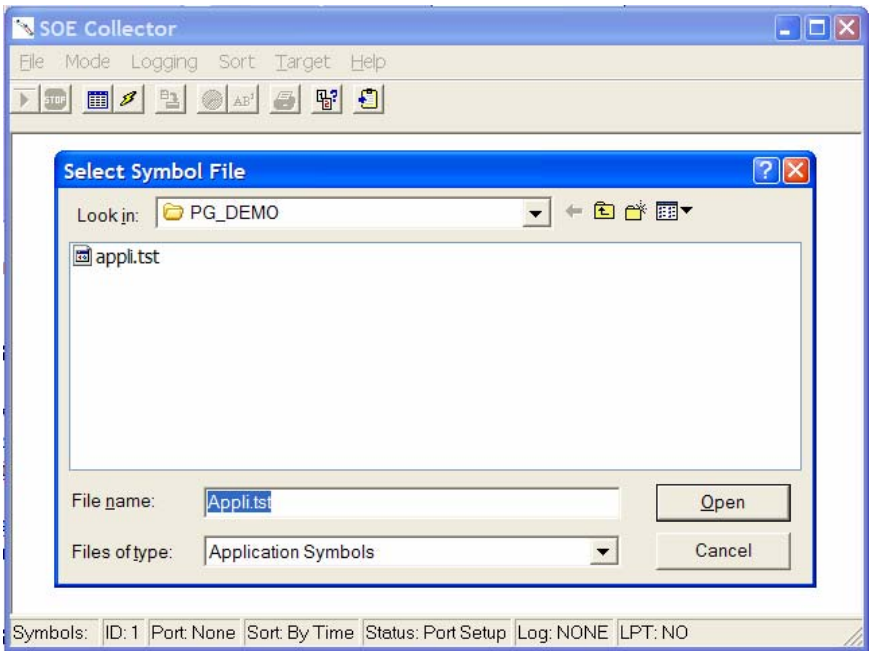


Figure 11-9: Selecting the appli.tst File

4) Select the SOE Target ID

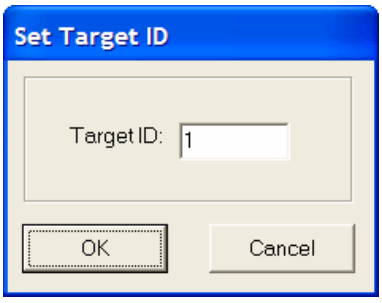
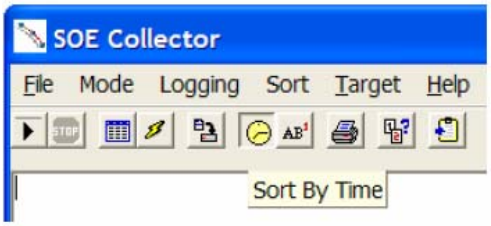


Figure 11-10: Set Target ID Dialog Box

Each Trusted controller is allocated a Target (slave) ID. The Target ID is selected using the **Target ID** button, or the **Target | Set ID** menu selection, as shown in Figure 11-10.

5) Select the Sort Mode (Time or Tag)



You may select **Sort By Time** or **Sort By Tag** using the **Sort** menu or the appropriate buttons on the button bar prior to starting the collection process, as shown in Figure 11-11.

Figure 11-11: Selecting the Sort Mode

6) Select the SOE Log File

SOE entries may be logged to a file on the engineering workstation using the **Log To File** button or the **Logging | Log File…** menu selection, as shown in Figure 11-12. The file can be added to the project folder using the Browse button and given an extension of .txt (although it is not necessary). The file can then be viewed using Notepad. Entries are appended to the end of the file as they are collected.

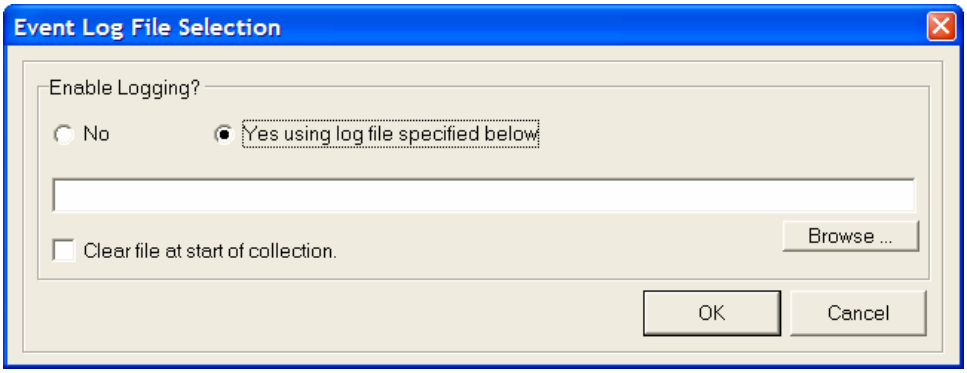


Figure 11-12: Event Log File Selection

7) Start Collecting SOE Data

You may start the collection process once the above steps have been completed. Any events currently buffered in the Trusted TMR communications interface module will be collected and added to the SOE display. Once the SOE collector has retrieved all buffered events, it will regularly poll for new events. All new events will be added to the display.

You may initiate the collection process using either the **File | Start Collecting** menu selection or the **Start** button in the button bar. Stopping collection is accomplished in a similar manner. An example SOE Collector window is shown in Figure 11-13.

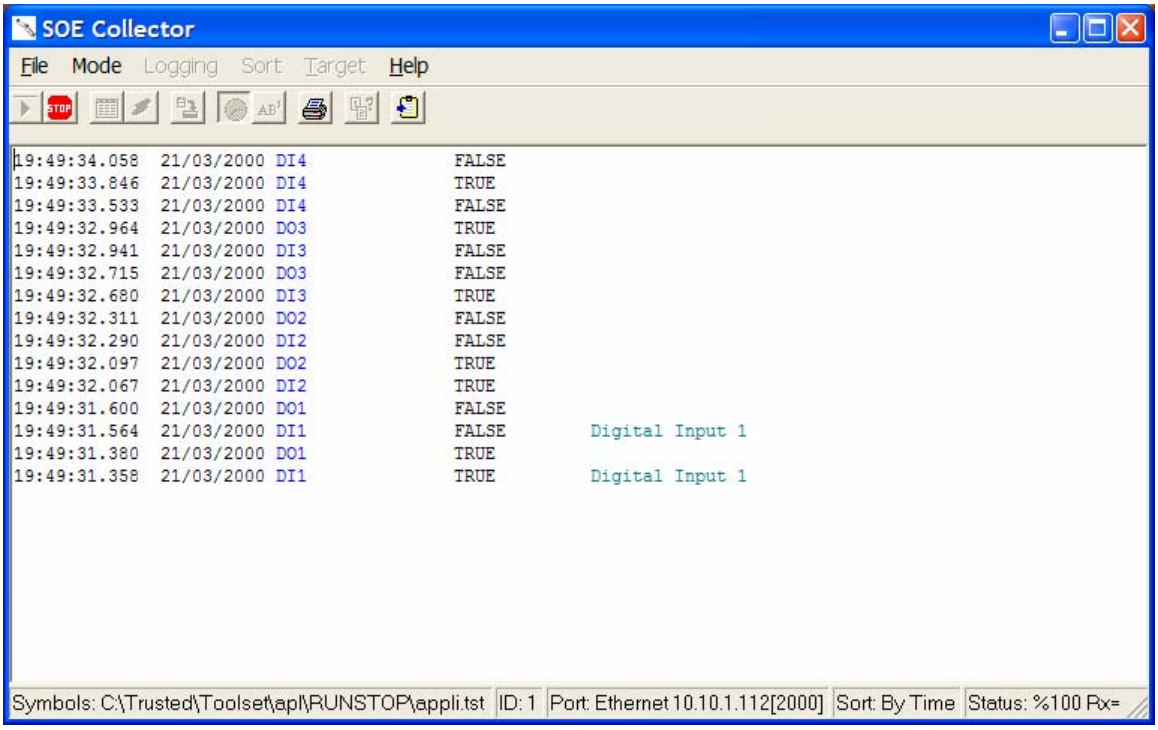


Figure 11-13: SOE Collector Window

Changing Colors

Different colors are used to display point status. This is achieved by appending a color specifier to the True/False strings declared for the point in the dictionary.

Available specifiers are:

_r	=	Red	_l	=	Lime
_g	=	Green	_p	=	Purple
_y	=	Yellow	_o	=	Olive
_b	=	Blue	_s	=	Silver
_w	=	White	_t	=	Teal
_m	=	Maroon			

For example, to make TRUE appear in green the True text would be set to TRUE_g.

Deleting the Log File

The log file can be cleared in the controller (although this is not necessary since the file scrolls over old data) using the command line prompt “s c”. See the Troubleshooting / Microprocessor Log section of this manual for further details on issuing command line prompts.

Process Historian

Collecting process historian (PH) data is accomplished in a manner similar to SOE:

1. Configure the PH communications port
2. Tag variables
3. Select the appropriate PH symbol file
4. Select the PH target ID
5. Select the PH log file
6. Start collecting PH data

Points to be logged by the historian must have their tag name end with '_PH' in the dictionary. Analog I/O are then assigned to I/O boards in the I/O configuration editor. Points that are not physical I/O must be defined in the dictionary as *outputs* with their tag name ending with '_PH'. They may then be written to in your application programs. These points must then be connected to a process historian board in the I/O configuration editor.

The same symbol file (**appli.tst**) is used for PH. A Process Historian Collector window is shown in Figure 11-14. Points to be logged are selected from the list on the right side of the window.

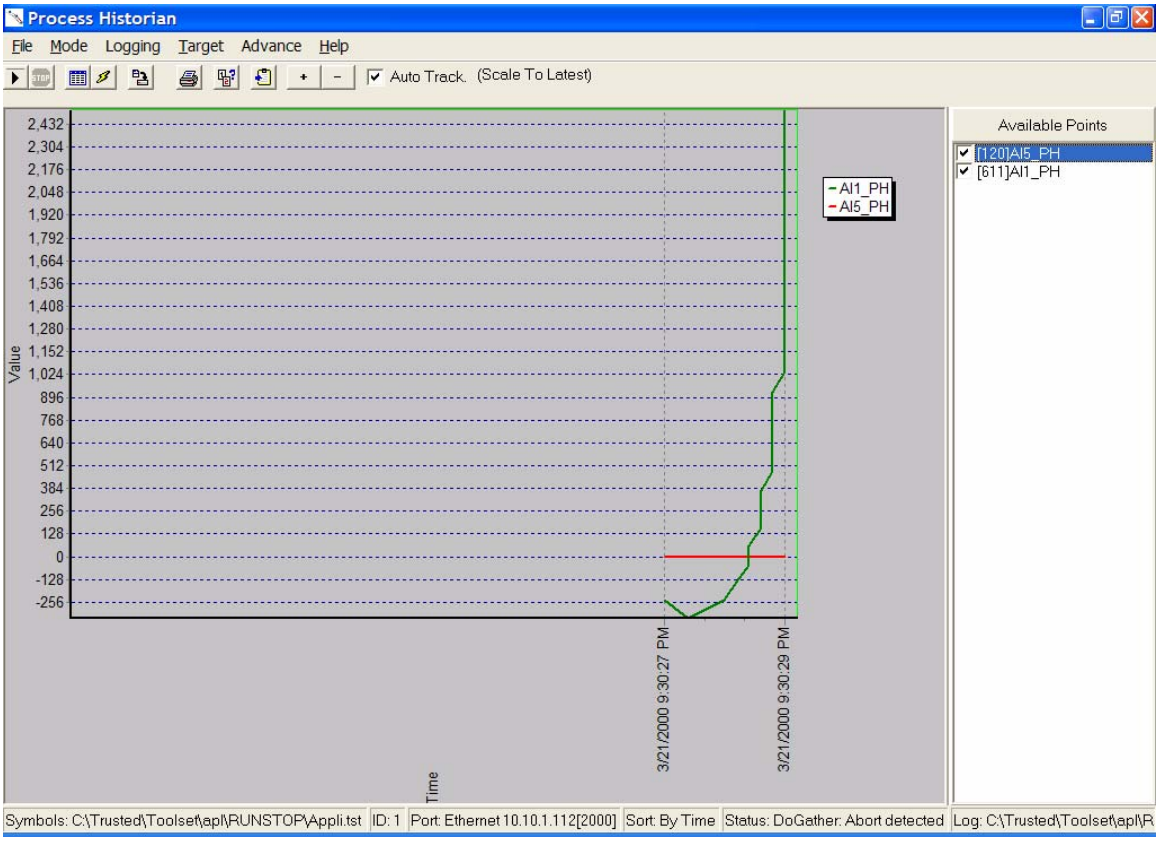


Figure 11-14: Process Historian Collector Window