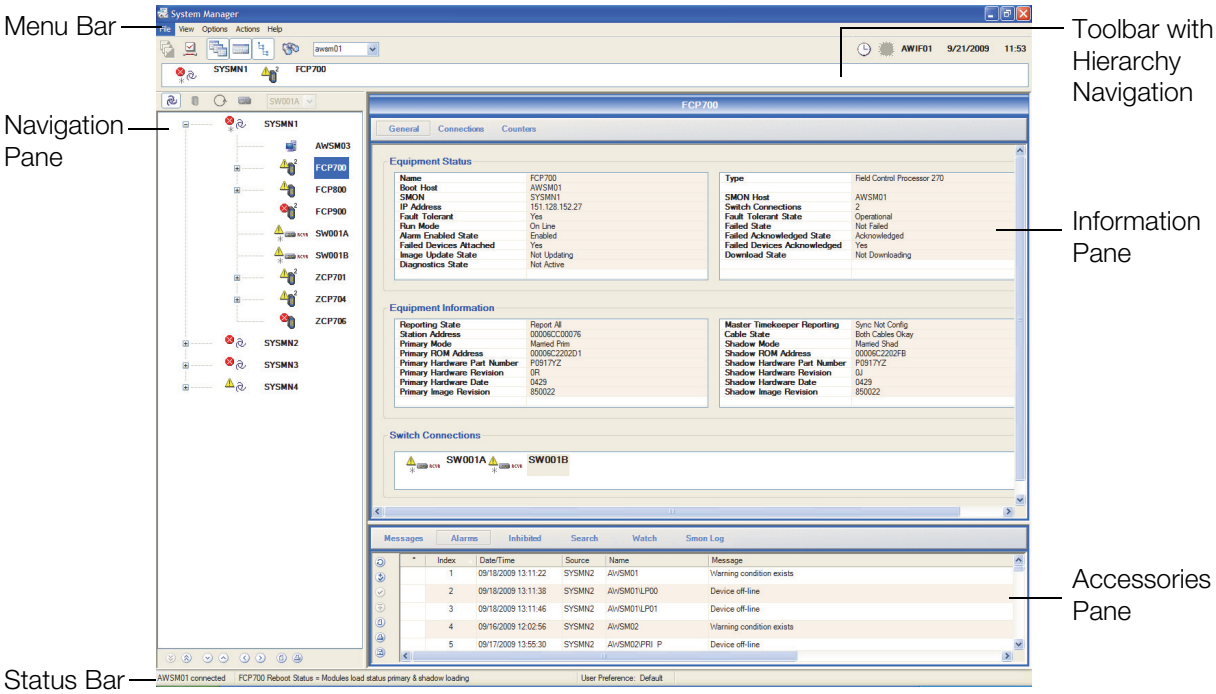
Foxboro Evo™ Process Automation System

Product Specifications

Foxboro by Schneider Electric

PSS 31S-10B1 B3

System Manager Software



The System Manager (part of Foxboro Evo Control Core Services) displays polled or on-demand status information in an intuitive manner to provide Control Core Services system users with the ability to monitor system health and performance as well as perform operational changes, checkpoint control stations and execute diagnostics.

FEATURES

The System Manager software provides:

- Comprehensive system monitoring
- Intuitive, easy to navigate display structure
- Updated equipment information for all components
- Communication status and performance counters
- Capability to print or save displayed information
- Equipment change actions and logging
- System alarm and event summaries
- Configurable Watch List
- On-line Help facility.

OVERVIEW

The System Manager provides a comprehensive display subsystem for monitoring the status of all system components including control processors, 100 Series and 200 Series Fieldbus modules,

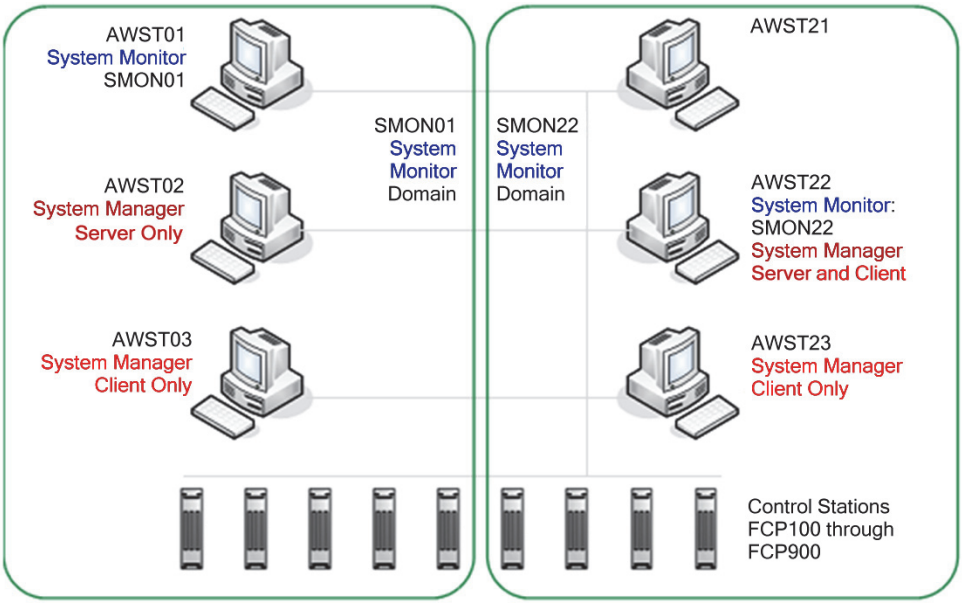
Fieldbus Communications Modules, network hardware and cables, workstations, peripherals, and field instrumentation. System Manager software is designed for ease of navigation in providing both static and dynamic system status information. It consists of three major display areas or panes to convey appropriate information quickly and efficiently. These panes are:

- Navigation Pane
- Information Pane
- Accessories Pane.

CLIENT/SERVER ARCHITECTURE

The System Manager application is a client/server architecture that enables multiple System Manager clients hosted by AW workstations to access several System Manager servers that each gather information from multiple System Monitor Domains.

This client/server architecture is depicted in Figure 1. In this example client software is installed on three workstations: AWST03, AWST22, and AWST23. Each of these can connect to System Manager services running on either AWST02 or AWST22 servers. The connected service interacts with the two configured system monitors: SMON01 and SMON22. The system monitors in turn provide information about the stations and connected equipment in their respective domains. Note that the System Manager clients can access any service instance on the network and that the service can reside on a workstation that hosts a system monitor or on one that does not.



NOTE: The System Manager Server is also known as the System Manager Service as it runs as a service on Windows platforms.

Figure 1. Client/Server Architecture

NAVIGATION PANE

The Navigation Pane provides a hierarchy of system equipment that is presented in one of four views:

- System Monitor domains
- ATS modules
- LAN Interface modules
- MESH Network Switches.

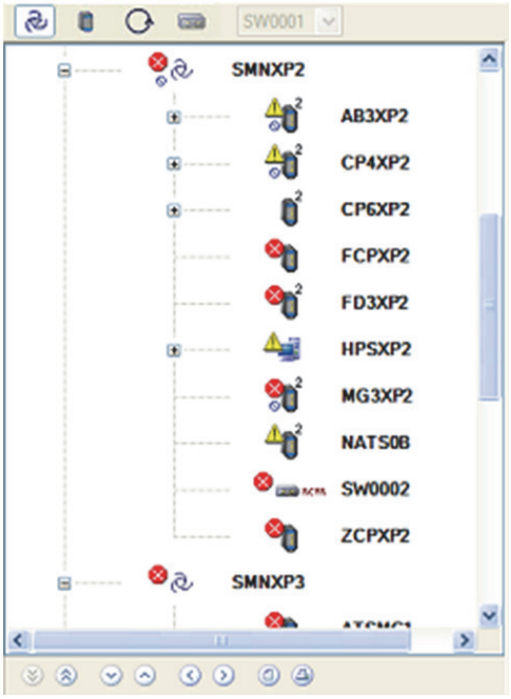
In the System Monitor view (Figure 2), you can expand each system monitor in the Navigation pane to display the stations and switches in its domain. The next level reveals all the stations. The third level shows the equipment attached to that station.

The ATS view (Figure 2) displays all configured ATS modules configured in 'LI' mode. The next level reveals all the stations. The third level shows the equipment attached to that station.

The LAN Interface (LI) View (Figure 3) displays all configured LAN Interface modules. At the next level, LI view reveals all the stations residing in a particular node. When no LIs are configured on the IA network, the LI button on the navigation tool bar and LI view will be disabled.

The Switch view (Figure 3) shows the selected switch and all the stations and switches connected to it. The next level shows the equipment attached to that station.

System Monitor View



ATS View

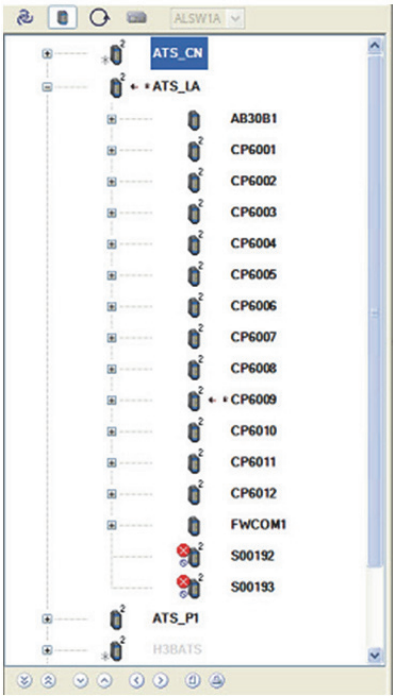


Figure 2. Navigation Pane - System Monitor View and ATS View

LAN Interface View

Switch View

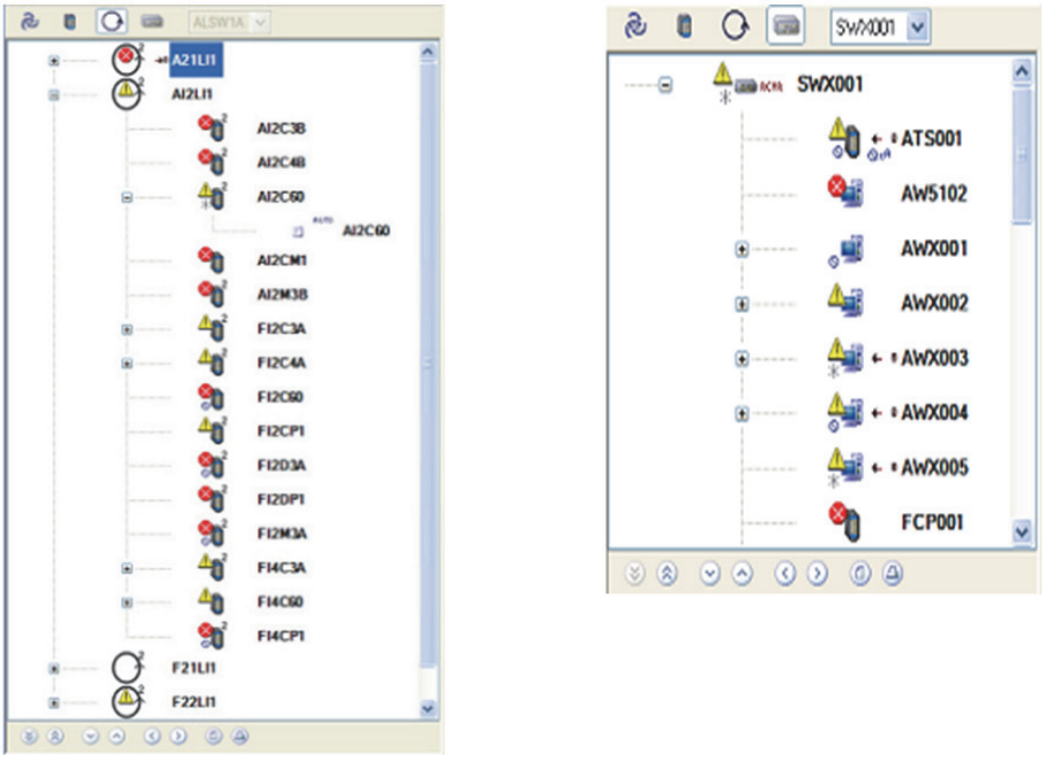


Figure 3. Navigation Pane - LAN Interface (LI) View and Switch View

The Controller hierarchy in the Navigation tree is shown in Figure 4.

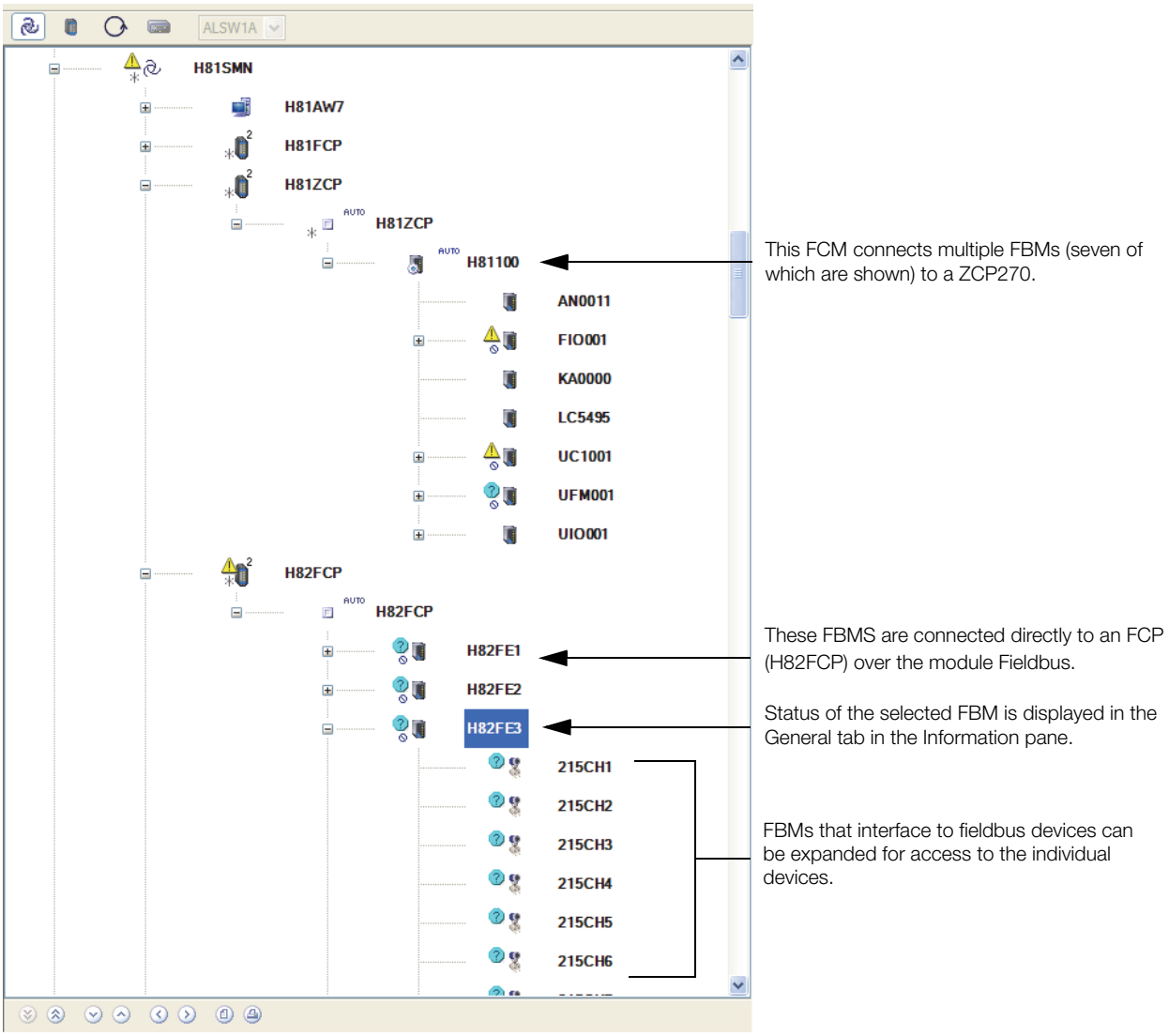


Figure 4. Control Processor Hierarchy in Navigation Tree

Control processors are depicted in the Navigation pane by the icon displayed on the second level of the View. When the station is a fault-tolerant control processor, redundant Address Translation Station (ATS) or fault-tolerant LAN Interface module, a “2” is attached to the upper right corner of the icon.

FBMs are shown directly under the FCP270, FCM100E/Et (for the ZCP270), and earlier control processors in the Navigation pane, as these control processors connect to only one (redundant) HDLC fieldbus (PIO channel). Their software “driver” for this fieldbus/channel is called the Primary Equipment

Control Block (ECBP or ECB11). It resides in the control processor and manages communications with the Fieldbus Modules (FBMs).

However, the Field Control Processor 280 (FCP280) can connect directly to four HDLC fieldbuses (PIO channels) without the use of an FEM100. Its compound has a Primary ECB for each of the four PIO channels (a total of four Primary ECBPs).

When you expand an FCP280 in the Navigation pane, the next level shows the FCP280's four Primary ECBs (see Figure 5).

The Primary ECBs can be selected to view additional information about the control processor and perform equipment change actions that affect the FBMs and the Fieldbus communications on the HDLC fieldbus (PIO channel) for which each Primary ECB is responsible.

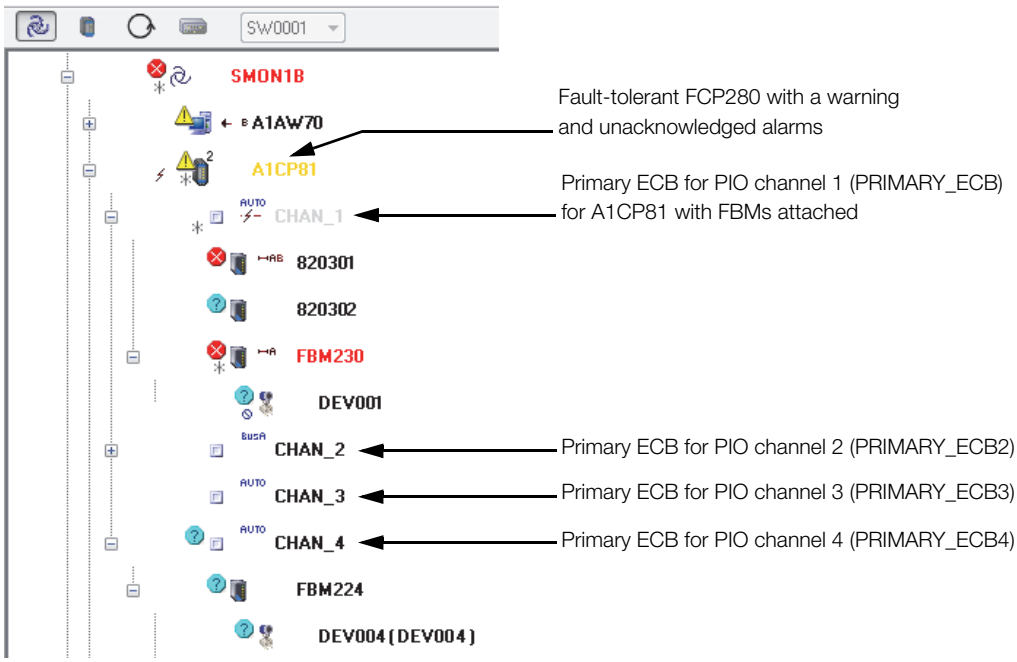


Figure 5. FCP280 and Primary Equipment Control Blocks (ECB) in Navigation Tree

For 200 Series FBMs, when a ZCP/CP60 control processor is used, the Fieldbus Control Module or FCM is depicted in the Navigation pane by the icon attached to the hosting ZCP270/CP60. The single icon is used to represent both redundant FCM pairs and a single non-redundant module. (For 100 Series FBMs under the CP60, the FBI10E or DCM10E/Efs are used.)

Fieldbus Modules or FBMs are depicted in the Navigation pane by the icon attached either to the Primary ECB (Primary FBM) of a control station or to an FCM. The same icon is used for both redundant and non-redundant FBMs.

Certain FBMs can be expanded in the Navigation pane to show a second level of the attached intelligent field devices, represented by the icon. These FBMs include modules that support various fieldbus standards such as HART™, PROFIBUS-DP™, and FOUNDATION™ fieldbus. The second-level items can be selected to view device status and equipment information, and to perform equipment change actions.

Field Device System Integrator (FDSI) type FBM modules integrate Tricon™, Trident™, and Triconex® General Purpose (Tri-GP) safety devices using the Triconex System Access Application (TSAA) protocol.

If Triconex Enhanced Diagnostic Monitor (EnDM) software is installed, System Manager is able to directly launch Triconex EnDM to the specific node as configured. Triconex EnDM is an application to monitor Tricon,Trident, and Tri-GP safety devices. Otherwise, System Manager provides views of the status and information for a Triconex device attached to an FDSI FBM by launching the TRICON Main Chassis Diagnostics Display in the FoxView™ user interface. System Manager also provides status and information on other smart devices interfaced through FBMs including FoxGuard ACM, SCADA RTUs and various third Party PLC subsystems.

The Navigation Tree enables FOUNDATION fieldbus devices, HART devices and devices attached to the FBM247 to be labeled with up to twelve character names.

System Manager considers serial, parallel, and USB printers as peripherals. However, the network printers are considered as separate objects on the same hierarchical level as workstations.

Status Indicators

The System Manager indicates equipment status by placing symbols next to the related equipment icon. This is used in the Navigation pane and in the Accessories pane's Search Tab.

See the following table for examples.

Symbol	Example	Condition
		The question mark on a blue background indicates the equipment is off-line or not ready.
		The warning symbol indicates that there is at least one failed peripheral attached to the workstation module.
		The X on a red background indicates that the workstation has failed.
		The question mark on a gray background indicates that the status of the workstation is unknown. There is no status response from the System Monitor.
		The workstation is operating normally when there are no symbols attached to the equipment icon.

INFORMATION PANE

The Information Pane provides detailed information about a single hardware component of the system. Due to the large amounts of both static and dynamic data for some components, the information is grouped in tabs that make it easier to locate key information for the problem at hand. The primary tabs consist of the General Tab containing configuration and equipment information, the communication Counters Tab containing communications counter data and the Connections Tab which depicts the network switch's station connections. Information displays are tailored to the selected system component.

General Tab

The General Tab view, shown in Figure 6, provides status, configuration details, performance and diagnostic data for the selected equipment. At one glance, users can determine key information on a station or device allowing for quick action if necessary.

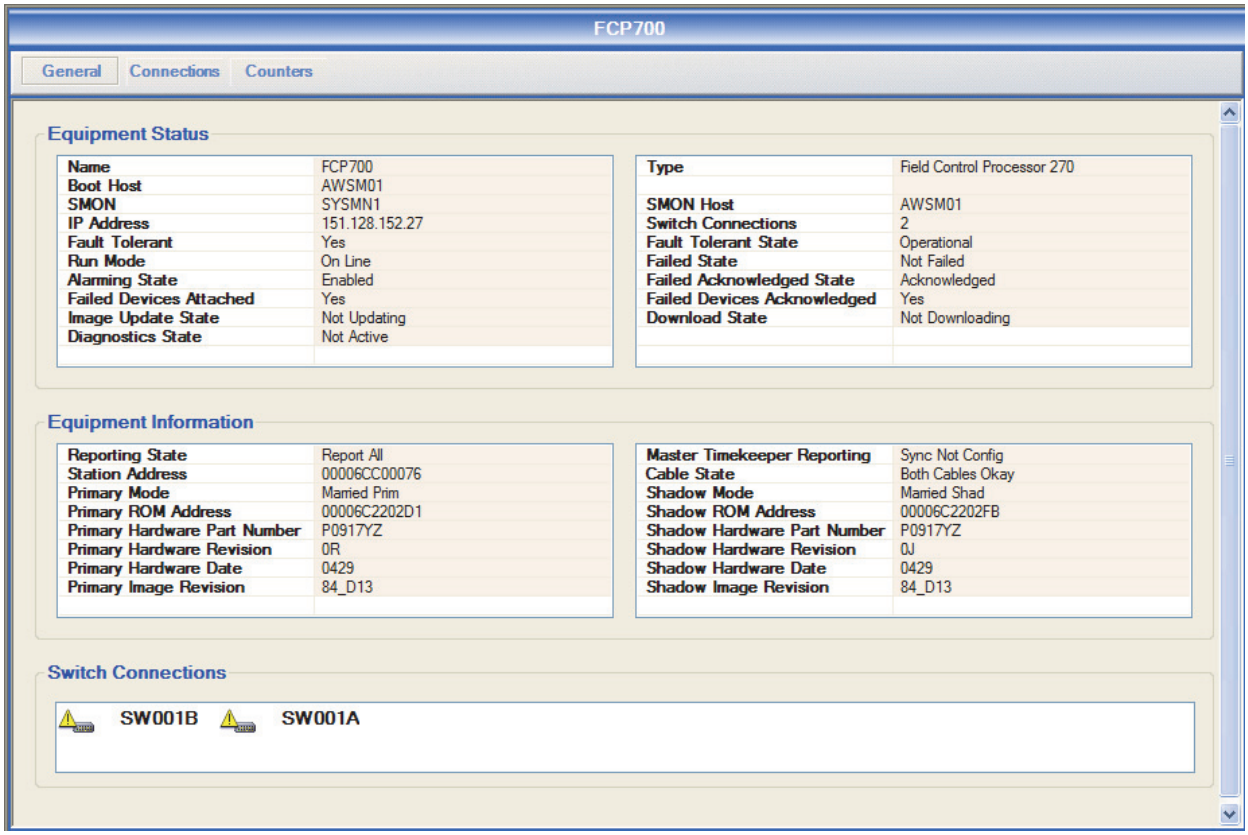
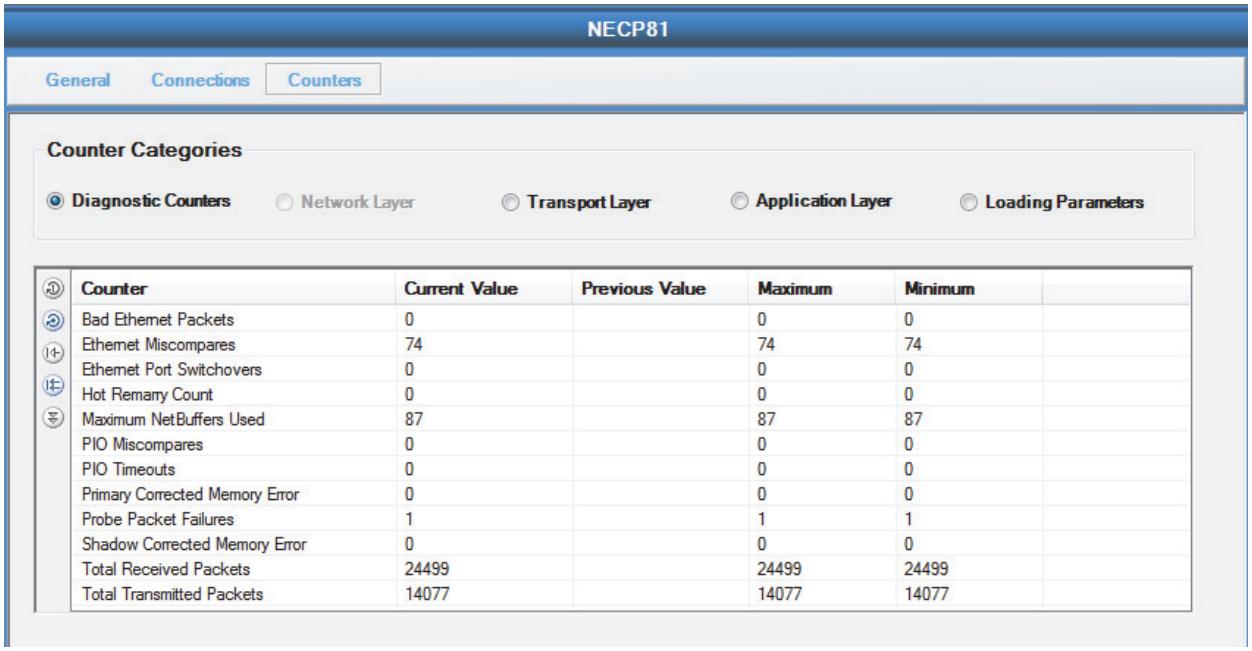


Figure 6. Information Pane - General Tab

Counters Tab

The Counters View (Figure 7 and Figure 8) contains the network counter categories for the selected station. The counters are organized by communications layer and allow the user to analyze overall communications activity for a station. In addition, this display supports user actions on counters such as read, reset and add to Watch List.



Counter	Current Value	Previous Value	Maximum	Minimum
Bad Ethernet Packets	0		0	0
Ethernet Miscompares	74		74	74
Ethernet Port Switchovers	0		0	0
Hot Remarry Count	0		0	0
Maximum NetBuffers Used	87		87	87
PIO Miscompares	0		0	0
PIO Timeouts	0		0	0
Primary Corrected Memory Error	0		0	0
Probe Packet Failures	1		1	1
Shadow Corrected Memory Error	0		0	0
Total Received Packets	24499		24499	24499
Total Transmitted Packets	14077		14077	14077

Figure 7. Information Pane - Counters Tab - for FCP280 Control Processors

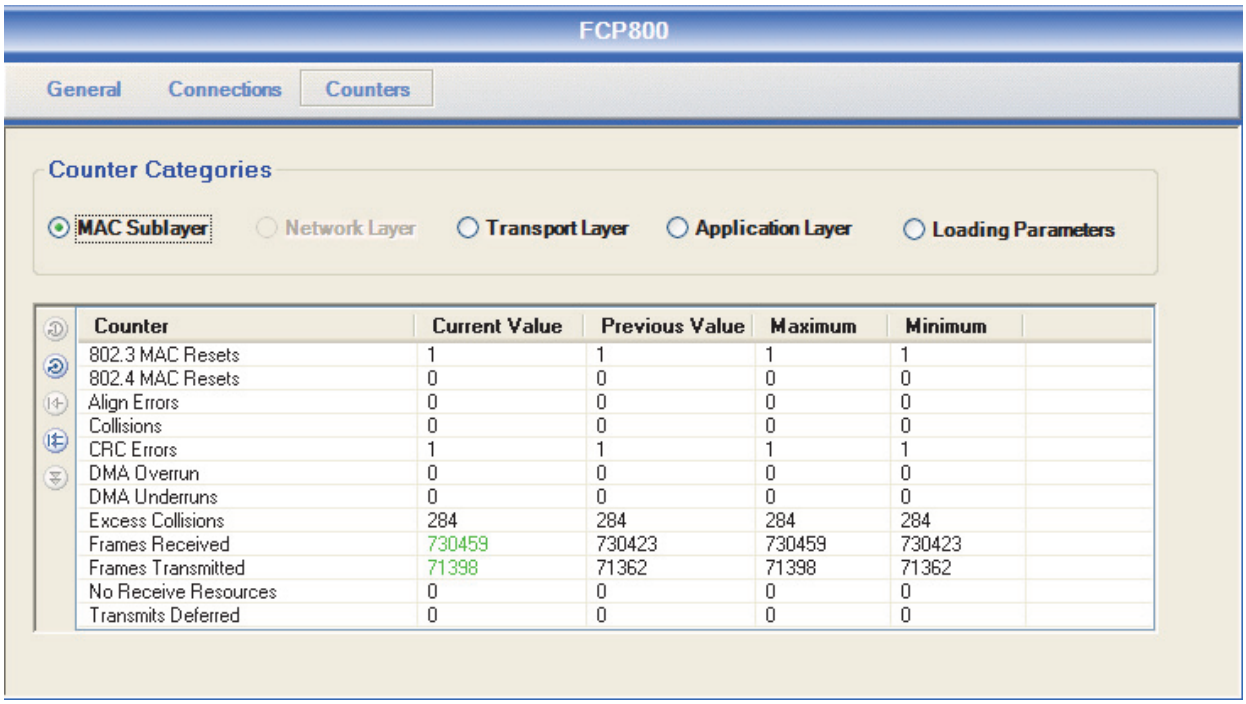


Figure 8. Information Pane - Counters Tab - for FCP270/ZCP270 and Earlier Control Processors

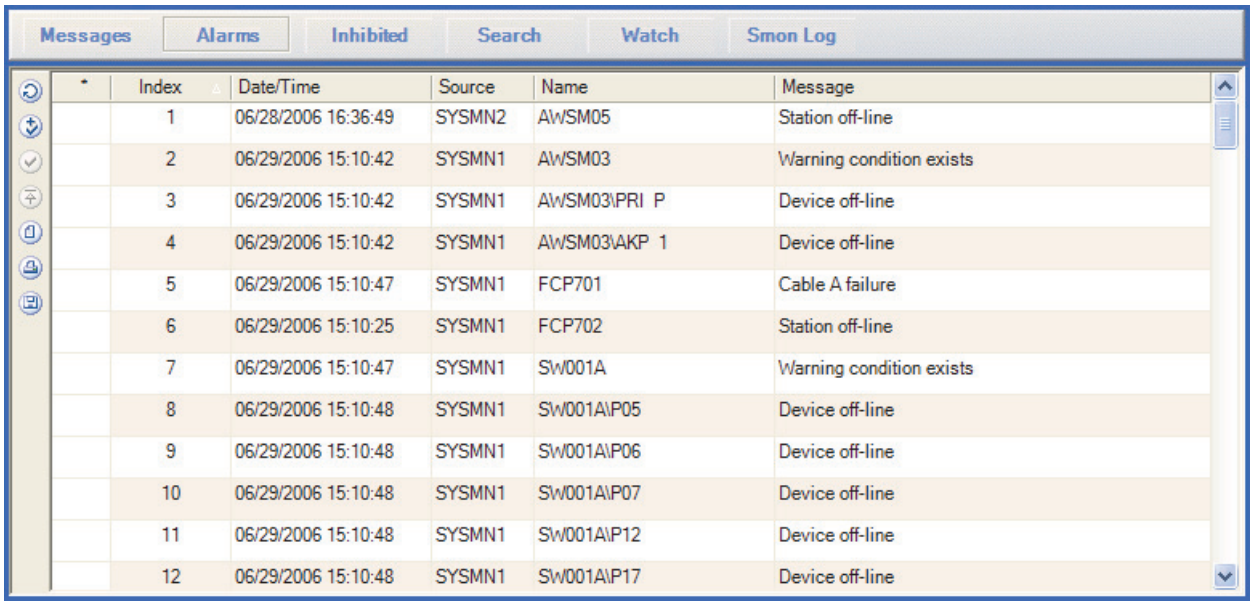
ACCESSORIES PANE

The Accessories Pane can be accessed by the user to quickly display specific system information that assists in identifying the current system status. Types of information include:

- System Equipment Messages/Events
- System Equipment Alarms
- Equipment with Alarms Inhibited
- Search for specific type of equipment
- Watch List to group selected counters for monitoring and review

User actions are also available to acknowledge alarms, inhibit, refresh message panes and print or save to a file.

The Alarms tab in the Accessories Pane is shown in Figure 9.



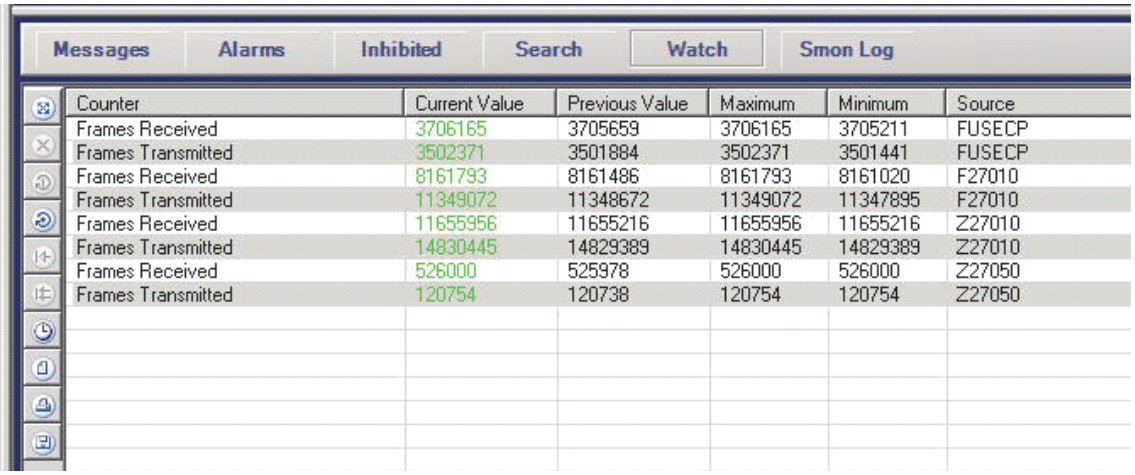
Index	Date/Time	Source	Name	Message
1	06/28/2006 16:36:49	SYSMN2	AWSM05	Station off-line
2	06/29/2006 15:10:42	SYSMN1	AWSM03	Warning condition exists
3	06/29/2006 15:10:42	SYSMN1	AWSM03\PRI P	Device off-line
4	06/29/2006 15:10:42	SYSMN1	AWSM03\AKP 1	Device off-line
5	06/29/2006 15:10:47	SYSMN1	FCP701	Cable A failure
6	06/29/2006 15:10:25	SYSMN1	FCP702	Station off-line
7	06/29/2006 15:10:47	SYSMN1	SW001A	Warning condition exists
8	06/29/2006 15:10:48	SYSMN1	SW001A\P05	Device off-line
9	06/29/2006 15:10:48	SYSMN1	SW001A\P06	Device off-line
10	06/29/2006 15:10:48	SYSMN1	SW001A\P07	Device off-line
11	06/29/2006 15:10:48	SYSMN1	SW001A\P12	Device off-line
12	06/29/2006 15:10:48	SYSMN1	SW001A\P17	Device off-line

Figure 9. Accessories Pane - Alarms Page

Watch Tab

The Watch tab in the Accessories Pane allows users to monitor up to 25 counters for different types of equipment. The counters are selected from the Counters tabs for the equipment to be monitored.

The Watch tab is shown in Figure 10.



Counter	Current Value	Previous Value	Maximum	Minimum	Source
Frames Received	3706165	3705659	3706165	3705211	FUSECP
Frames Transmitted	3502371	3501884	3502371	3501441	FUSECP
Frames Received	8161793	8161486	8161793	8161020	F27010
Frames Transmitted	11349072	11348672	11349072	11347895	F27010
Frames Received	11655956	11655216	11655956	11655216	Z27010
Frames Transmitted	14830445	14829389	14830445	14829389	Z27010
Frames Received	526000	525978	526000	526000	Z27050
Frames Transmitted	120754	120738	120754	120754	Z27050

Figure 10. Accessories Pane - Watch Tab

ON-LINE HELP

An on-line help feature is available which explains all functionality within the System Manager in detail. The help is context-sensitive, depending on what section of the System Manager is currently selected.

In addition, a “tool tips” feature appears when the cursor hovers over a selection field.

A Legend key is provided to identify the equipment icons and the status symbols, as shown in Figure 11.

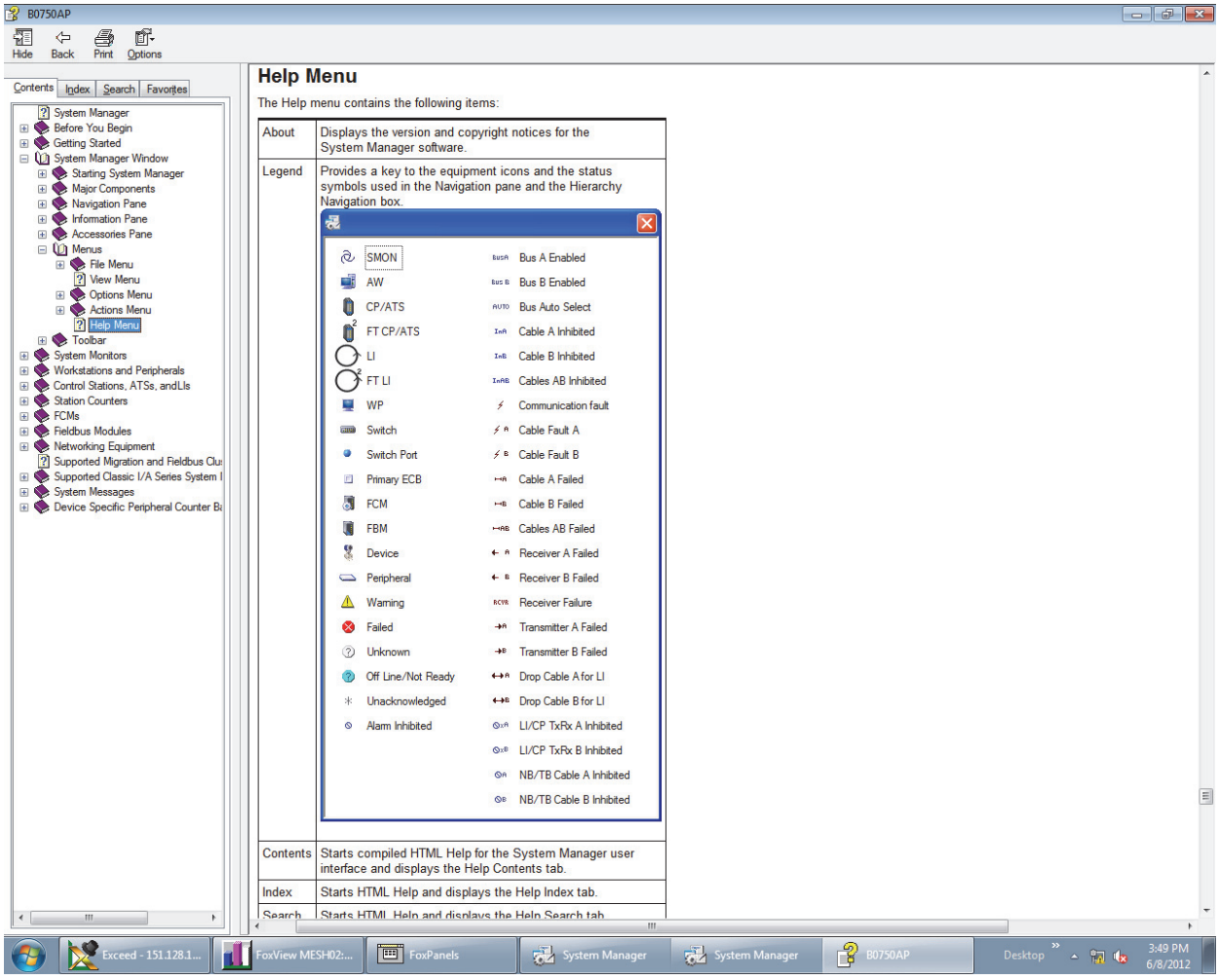


Figure 11. On-Line Help - Legend Page

SPECIFICATIONS

The System Manager runs on the following platforms as part of I/A Series® software v8.8 or Foxboro Evo™ Control Core Services v9.0 or later:

- Windows Server® 2008 R2 Standard
- Windows 7®

The System Manager runs on the following platforms as part of I/A Series software v8.4.4 to v8.7:

- Windows Server® 2003
- Windows® XP

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