

FOM16TM

Universal Fiber Multiplexer

SNMP User's Manual

Version: 1.4

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FOM16 SNMP User's Manual

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1. INTRODUCTION

FOM16 provides SNMP agent managed by remote SNMP manager. FOM16 SNMP is a graphical user interface (GUI) running on Ethernet connected by PC. FOM16 features a SNMP-v1 protocol that access MIB-2, RFC1406 and RFC1407.

MIB-2 is a RFC1213 management information base on network management of TCP/IP based Internets. RFC1406 defines managed objects for DS1 and E1 interface while RFC1407 defines the managed objects for DS3 and E3 interface.

1.1. SNMP

SNMP is a request-response program used to transfer management information between entities which act in either manager or agent role. Managers are often configured as management stations and agents are often configured as managed nodes. A manager can also act as an agent in both vertical (hierarchical) and horizontal (distributed) relationships. Likewise, a physical node may be managed by multiple agents, and an agent might manage a multiple physical nodes. Hence, when we use the prototypical management station/managed node perspective for the sake of simplicity and clarity of presentation, such practice is not meant to preclude other forms of SNMP interactions.

Each management device or application contains monitoring and (possibly) control instrumentation. The agent accesses this instrumentation and represents its access to the manager via a MIB (Management Information Base), filtered by the SNMP security mechanisms. Management applications communicate with agents via SNMP to monitor and (possibly) control managed devices or applications.

2. Installation

2.1. Software/Hardware Requirements

The following hardware and software components have to be installed before the installation of FOM16 SNMP.

1. CPU: IBM Compatible, 200 MHz or Higher
2. OS: Microsoft Windows 98, NT4, NT2000.
3. RAM: 64M Minimum
4. HD: 50MB or Higher.
5. Monitor: VGA color (1024*768 Large Fonts) or Better
6. Mouse/Keypad
7. Ethernet Interface

2.2. Installation Steps

- Start Windows Operating System if it is not running.
- Exit all running Windows programs before installing FOM16 SNMP program.
- Insert the FOM16 SNMP distribution disk into CD drive.
- Execute Setup.exe
- The following window appears on the screen after double-clicking the Setup icon.

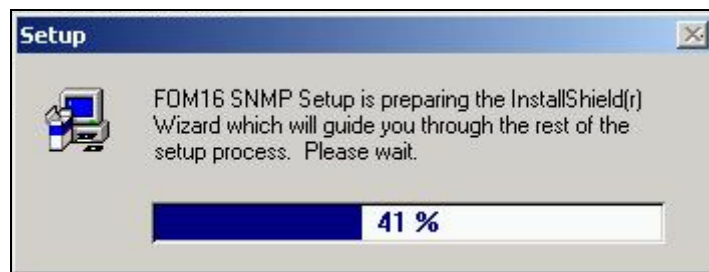


Figure 1 Preparing for Setup

- The Setup Wizard will guide user to install FOM16 SNMP step by step.
- After the setup is completed, the screen displays Figure 2. User can chose to launch the FOM16 SNMP by clicking <Yes, Launch the program file> the check box or to complete and exit the setup process by clicking <Finish> button.

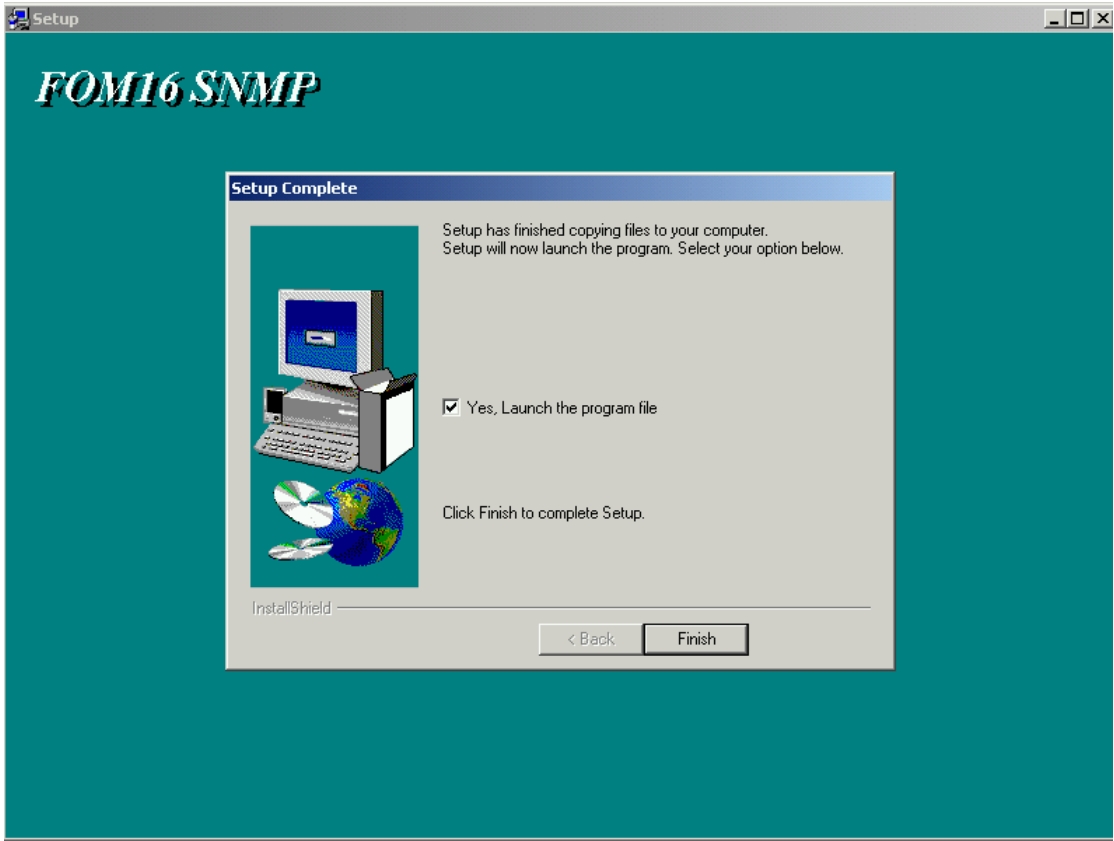


Figure 2 Setup Completed

3. Working Environment

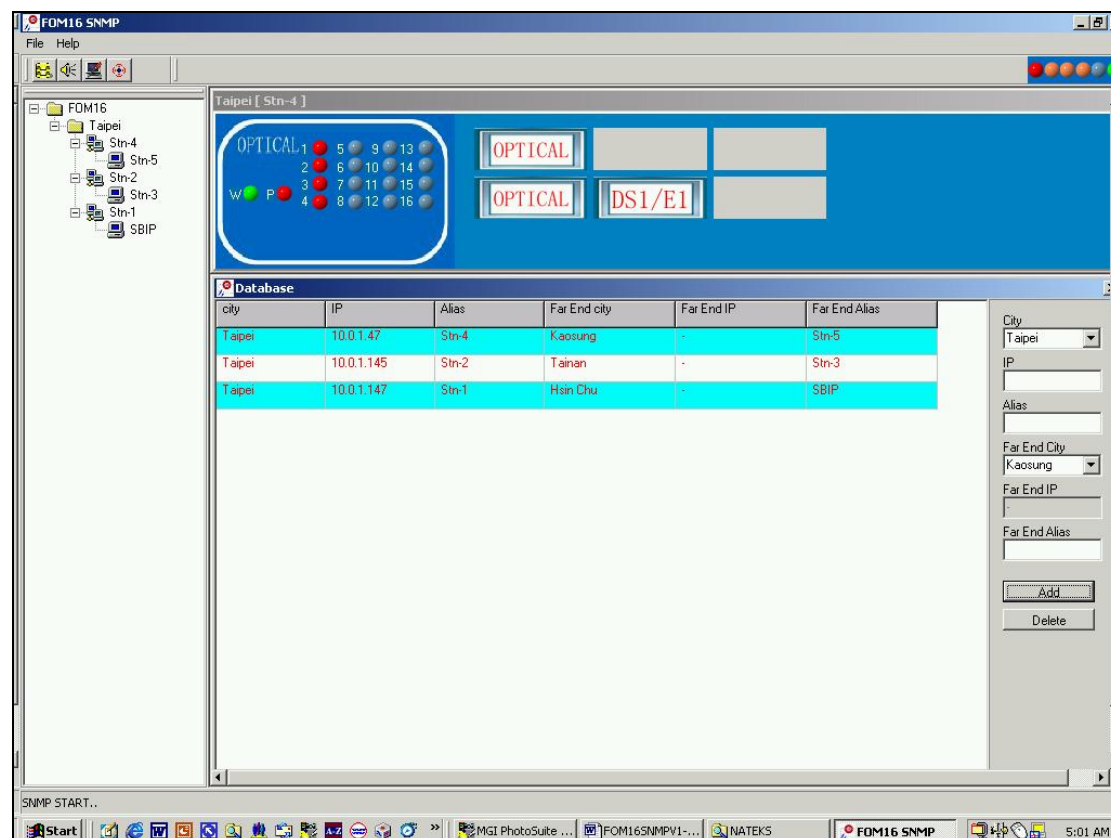


Figure 3 FOM16 Main Screen

3.1. System LEDs



Figure 4 below, illustrates the alarm LEDs of FOM16 SNMP. From left to right, it indicates major, minor, near-end, far-end alarms, abnormal loopback status and alarm cut off.



Figure 4 System LEDs

3.2. Toolbar

There are four icons shown on the toolbar:

-  Database: For details please refer to section 4.1.
-  Alarm History: Please refer to section 4.2.



System Setting: Details are listed in section 4.3.



ACO (Alarm Cut Off): This is used to turn off the Audio Alarm.

3.3. Device Tree

The device tree shows what and where the devices are available. The first level of the device tree is FOM16, the second level is the city name and the third level is the alias for FOM16. The third layer is accessible to the user by click the right button of the mouse while the cursor is on the alias to manipulate the equipment.

In the sample device tree shown in Figure 5, Taipei has one FOM16 equipment called Stn-4 which is connected to a far end FOM16 called Stn-5.

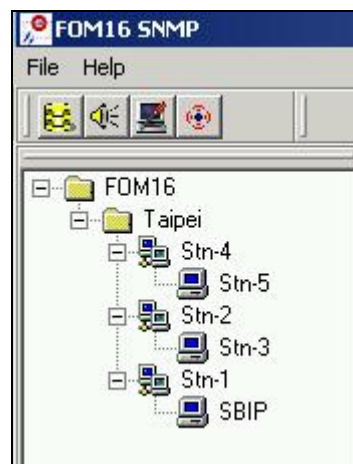


Figure 5 Device Tree

3.4. Panel

Six buttons and 18 LEDs are shown on the panel below, the 18 LEDs indicates the status of the 16 E1/T1 channels and 2 optical fibers.

By clicking OPTICAL or DS1/E1, user is able to choose object to manipulate.

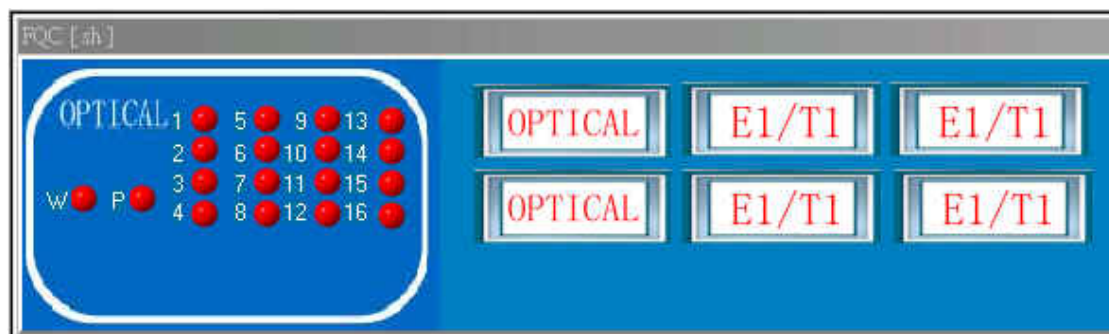


Figure 6 Panel

3.5. Pull Down Menu

FOM16 SNMP pull down menu has two items locate on the top left of the screen (just above the toolbar).

File

Exit is under **File** pull down menu. User can terminate the system by choosing **File/Exit**.

Help

About is under **Help** pull down menu. **About** item shows the copyright information of FOM16.

4. Toolbar Commands

Before Executing

Please make sure that the computer is connected to Local Access Network before executing FOM16 SNMP to avoid damage to the computer.

4.1. Database

To Add a Device

Before remote controlling the FOM16 devices, user has to create data in the database. If user wishes to add a new data, fill in the City, IP, Alias, Far End City and Far End Alias columns in the right of Main Screen (Figure 3) then press **Add** button (see Figure 7). Detail information of the device will appear on the table in the middle of the screen.

To Delete a Device

To delete information about of a device, click on any columns of the site information (see Figure 8) then click **Delete** button.



City	Hsinchu
IP	203.67.125.46
Alias	Test
Far End City	Taipei
Far End IP	
Far End Alias	Test1
<input type="button" value="Add"/>	
<input type="button" value="Delete"/>	

Figure 7 Add a Site to the Database

Database					
city	IP	Alias	Far End city	Far End IP	Far End Alias
Hsinchu	203.67.125.46	Test	Taipei	-	test1

Figure 8 Sample Database Table

4.2. Alarm History

FOM16 SNMP provides Alarm History Report function. To execute this function, select a FOM16 device from the device tree. FOM16 is capable to store up to 30 alarm records.

Get Button

Click on the **Get** button to allow the system to get the data from FOM16 device.

Clear Button

Clear button allows user to clear the Alarm History database.

Exit Button

Click on the Exit button to go back to the database screen.

Alarm History Report

The Alarm History Report consists of five folders: Optical, Channel 1-4, Channel 5-8, Channel 9-12 and Channel 13-16.

Information contained in the **Optical** folder is the alarm messages of optical channels 1 and 2, status of alarm messages (near and far ends, major or minor), and the time the alarm occurred.

Each Channel folder contains information for four channels. Alarm message and the time occurred are listed in the table.

Alarm History

Optical	Channel 1-4	Channel 5-8	Channel 9-12	Channel 13-16
Optical-1	Optical-2	SYSTEM	TIME	
1	LOS	-	NE.MJ.	2002/10/21 PM 06:08:03

Figure 9 Sample Alarm History Report

4.3. System Setting

System Setting provides five functions to allow user to check and change FOM16 device time and date, set target IP for the device to send out trap message, amend the protection mode, set Gateway IP and set Subnet Mask IP.

Time\Date

This function allows user to check and change the device's date and time to the current Time\Date of the PC.

User has to click on the **Get** button first to allow the system to attain the current Time\Date for the PC and for the FOM16 device. Press **Set** button to set the device's time and date to the PC's time and date.

After the setting, user can check the device's current time\date by pressing the **Get** button.



System	
Time\Date	
Now Time \ Date	4/30/2003 3:39:54 AM
Device's Time\ Date	yyyy.mm.dd AM 00:00:00
<input type="button" value="Set"/> <input type="button" value="Get"/>	

Figure 10 Tim\Date Page

Protection

FOM16 provides three types of protection modes: Auto, Manual to Work and Manual to Protect.

To amend the protection mode, user has to press the **Get** button to retrieve the current protection mode. Then select a protection type from the pull down menu bar. Press **Set** button after the selection. Finally, press Get button again to check the amendment.



Figure 11 Protection Page

Subnet Mask

This function sets Subnet Mask address. Press **Get** button to retrieve current subnet mask address.

If user wishes to amend subnet mask address, enter new address in the **New Subnet Mask** column then press **Set** button to perform the amendment.

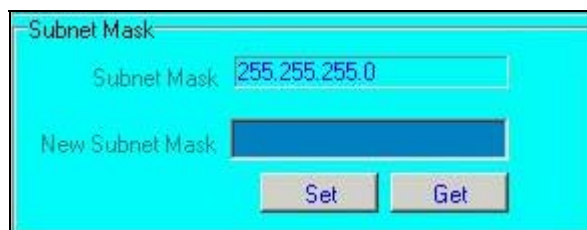


Figure 12 Subnet Mask Page

Trap Target IP

When events predefined by the system occur, the device that happen the event will send out trap message to the manager (as assigned by the Trap Target IP in the System Setting Section). The device tree will shows an exclamation mark in front of the city name and alias where the event occurs.

To amend the Trap Target IP, user has to click on the **Get** button to retrieve the current Trap Target IP set. If user desires to change the Trap Target IP, key in the new Trap Target IP in the second column. Finally click **Set** button to set the new Trap Target IP. After the setting, user can press **Get** button again to check the new Trap Target IP.



Figure 13 Trap Target IP

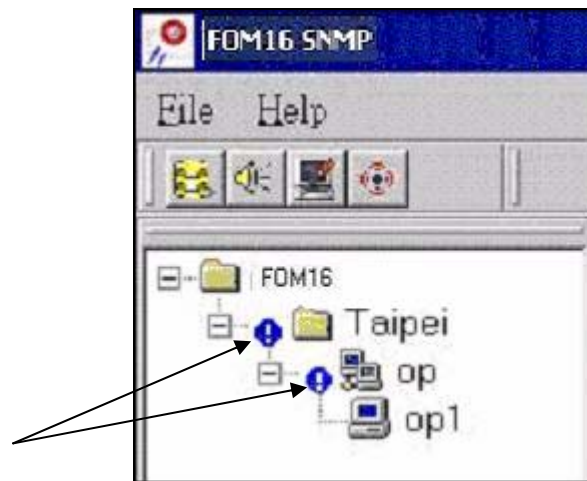


Figure 14 Trap Exclamation Mark

Gateway

This function sets Gateway address. Press **Get** button to retrieve current Gateway address.

If user wishes to amend Gateway address, enter new address in the **New Gateway** column then press **Set** button to perform the amendment.



A screenshot of a web-based configuration window titled "Gateway". The window has a light blue background and a thin border. It contains two text input fields. The first field is labeled "Gateway" and contains the IP address "255.255.255.255". The second field is labeled "New Gateway" and is currently empty. Below these fields are two buttons: "Set" and "Get", both with a light blue background and a thin border.

Figure 15 Gateway Page

5. Connection

Double click the alias in device tree to build up session via SNMP. The visual panel indicates when equipment/signal failures are detected. The different alarm severity levels are provided for all possible events and conditions.

The visual panel provides individual LED indication for local alarm, remote alarm, loopback, aggregate LOS and each T1/E1 channel LOS as well.

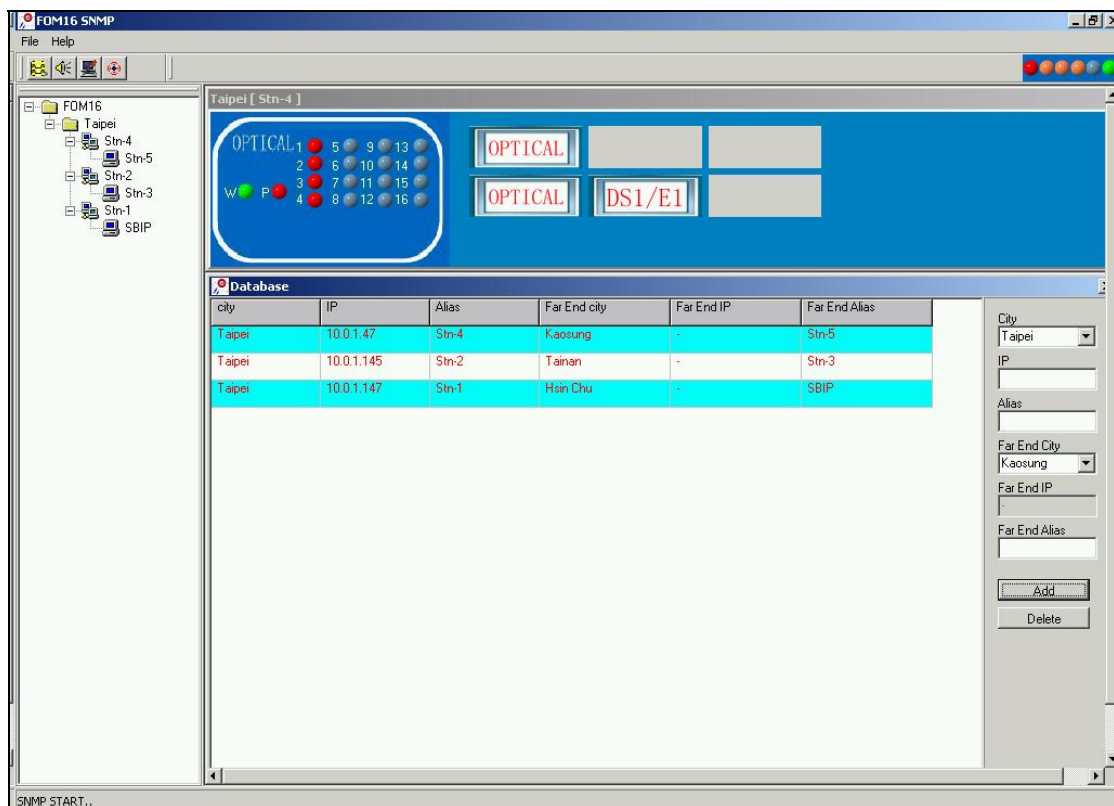


Figure 16 Built-up Connection

6. Summary Report

Click any of the six buttons on the panel to access the channel information.

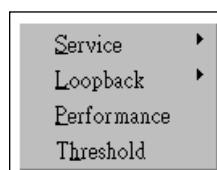
The Control button displays a summary report of channel. The summary information lists following parameters for each channel.

a. Optical Channel



- Optical menu

There are sub-menus under Service and Loopback menu, please refer to the Service section under b. E1 Channel Menu sections described below.



Performance: Please refer to section 7.

Threshold: Please refer to section 8

b. E1 Channel Menu

Service

Service of each channel can be set to In Service or Out of Service.

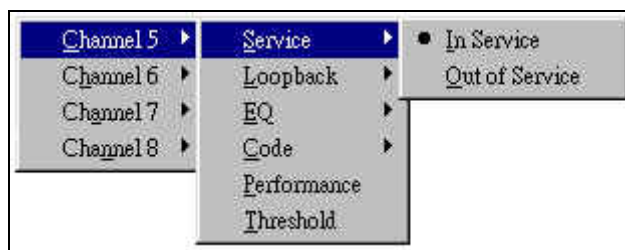


Figure 17 Service status

Loopback

User is able to turn on local loopback (**Local**), remote loopback (**Remote**) or turn off a loopback (**N/A**).

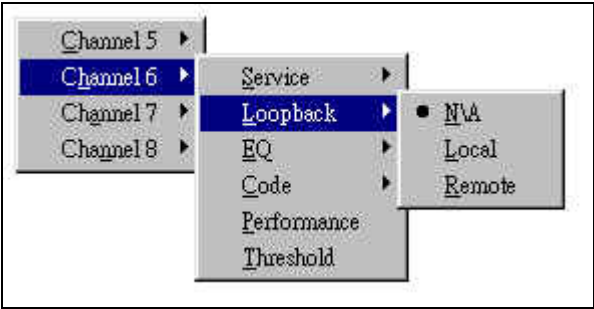


Figure 18 Loopback

EQ

Complies with G.703 standard.



Code

Two line codes are available: AM1 and HDB3.

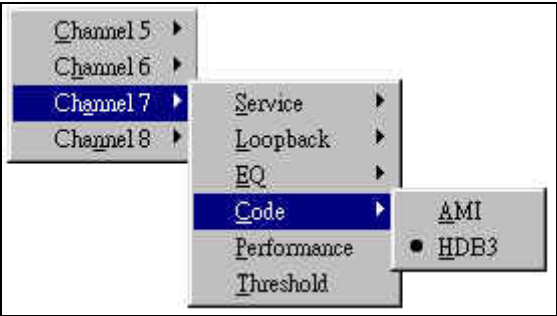


Figure 19 Line code

7. Performance

FOM16 SNMP provides performance data collection function. To access this function, click on the **OPTICAL** or **DS1/E1** button on the panel. The performance parameters provided are as following:

(a) For T1/E1 Input port:

	T1 Tributary	E1 Tributary
Near-End	CV, ES	CV, ES
Far-End	CV, ES	CV, ES

(b) For Aggregate:

	Aggregate of FOM16
Near-End	CV, ES, SES, UAS
Far-End	CV, ES, SES, UAS

The historical performance data include 15-minute interval for the latest 24 hours, total 24-hour interval for the latest 7 days.

Click on the buttons displayed on Figure 20 to get the desired data.

Clear button reset the displayed button.

Press **Exit** button to go back to the previous performed function and terminate performance function.



Figure 20 Edit
Performance Button

Performance [Optical-1]									
*	Near ES	Near SES	Near UAS	Near CV	*	Near ES	Near SES	Near UAS	Near CV
1	0	0	0	0	2	0	0	0	0
3	0	0	0	0	4	0	0	0	0
5	0	0	0	0	6	0	0	0	0
7	0	0	0	0	8	0	0	0	0
9	0	0	0	0	10	0	0	0	0
11	0	0	0	0	12	0	0	0	0
13	0	0	0	0	14	0	0	0	0
15	0	0	0	0	16	0	0	0	0
17	0	0	0	0	18	0	0	0	0
19	0	0	0	0	20	0	0	0	0
21	0	0	0	0	22	0	0	0	0
23	0	0	0	0	24	0	0	0	0
25	0	0	0	0	26	0	0	0	0
27	0	0	0	0	28	0	0	0	0
29	0	0	0	0	30	0	0	0	0
31	0	0	0	0	32	0	0	0	0
33	0	0	0	0	34	0	0	0	0
35	0	0	0	0	36	0	0	0	0

Figure 21 Sample Performance Report

8. Threshold

To access this function, click on the **OPTICAL** or **DS1/E1** button on the panel.

Click on the **Get** button to retrieve current threshold settings.

To amend the threshold settings, place the cursor of the mouse on the **Items** column that user wishes to change. The type of threshold will be listed on the first column of Figure 22 and the threshold value is listed in the second column. User can amend the value in the second column. Press **Set** button to change the value of selected Performance Item to the new value entered by user.

Figure 22 Edit
Threshold Buttons

Or press Set/All to amend the value of all Performance Items to the new value entered in the second column.

15 min 1 hr 1 day		
Item	Value	
Near CV	20	
Near ES	20	
Far CV	20	
Far ES	20	

Figure 23 Sample Threshold Report