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NEC

PASOLINK NETWORK MANAGEMENT TERMINAL

PNMT (Java version) Operation Manual (for PASOLINK V4)

NEC Corporation

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Document Warranty

1. The information contained in this document is subject to change without prior notice.
2. The PNMS/PNMT screenshots in this manual are only examples. Screens will vary according to equipment configurations, equipment operation modes, setting parameters, PNMS/PNMT application program version, etc. Screens contained in this manual are current at the moment of publication and may differ slightly from the actual screens on your PNMS/PNMT.
3. To use this manual, you need a sound understanding of the restrictions, limitations and precautions involved in operating the equipment properly. Always refer to the equipment manual to ensure proper operation of the equipment.

1 Getting Started

1.1 Introduction

The PASOLINK Network Management Terminal (PNMT) was developed by NEC to manage its PASOLINK fixed point-to-point wireless access system networks. The PNMT is a scaled down version of the PASOLINK Network Management System (PNMS) that is designed as a maintenance tool for field engineers to locally and remotely monitor alarms, control points, generate reports, and archive data, all within a familiar graphical user interface, and all in real time. The PNMT is a Mobile laptop computer fitted with the NEC PNMT software package that interfaces and controls NEC series short haul wireless communications equipment.

This software package remotely monitors and controls the status and configuration of an entire Pasolink network with associated equipment including the performance of the actual microwave links.

1.2 Conventions Used in this Manual

Font	What the Font Represents	Example
Italics	For manual titles or related document names.	Please refer to *PASOLINK Operation Manual* for details.
Hostname **Bold (or bold italics)**	Items (phrases) in user interface. Items (phrases) in computer display. File and directory names.	The **Overall** window … XXXXXXXXXX
[Button]	Buttons on user interface.	Click **[OK]** to continue … Click **[Execute]** to send command.
Menu Items	A menu name followed by a colon (:) means that you must select menu and then a item. When the menu item is followed by an arrow (→), a cascading menu is displayed .	Select **System → Login/Logout**
<username>	A command variable for which the user must enter the appropriate value. This is also commonly used when asking for a password.	<password>
Keycap	Keyboard keys.	Press Enter key.

1.3 PNMT Communication Interfaces

1.3.1 Communications

Communications between the PNMT and the wireless communications network equipment can be

- via the **LA PORT** of the PASOLINK equipment,
- via the **DSC** to a remote PM node in the network.

a) LA Port Interface

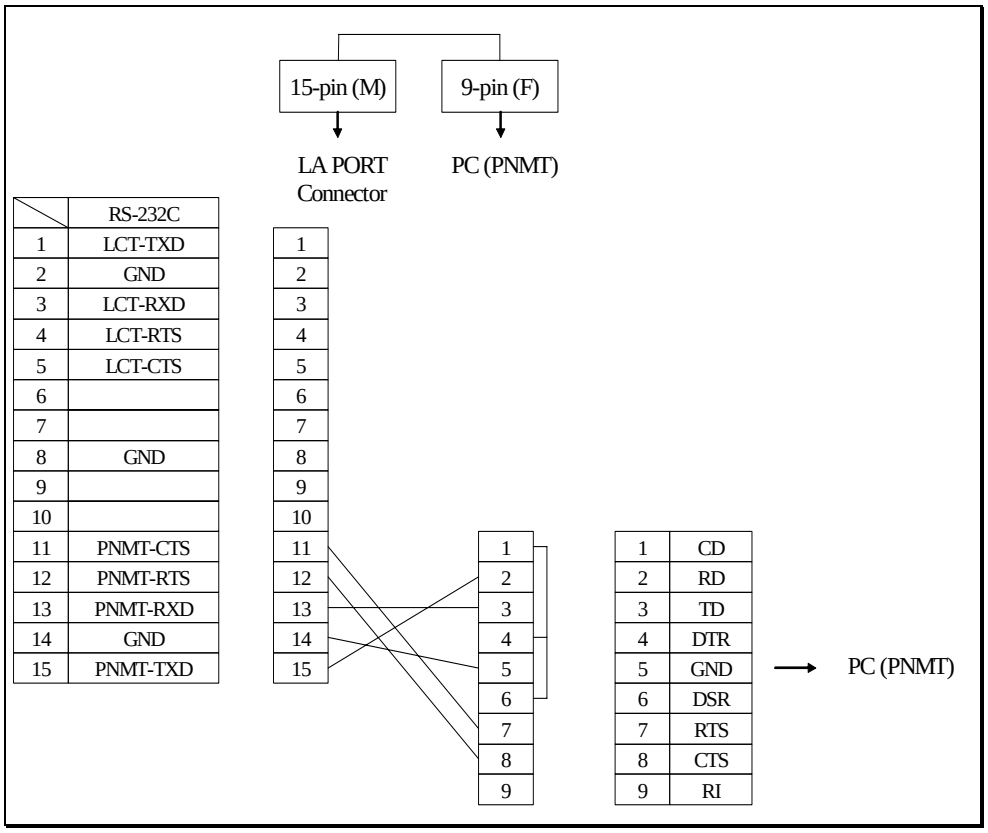
The LA Port is on the front of the Pasolink unit.

The LA Port consists of a DB15 connector that plugs into the PM installed in IDU via a serial cable which connects to the relevant communications port of the PNMT Computer.

The LA Port has the following properties:

- Port Configuration: RS-232
- Connector type: Subminiature DB15 (female)
- Bit per second rate: 1200/2400/4800/9600/19200 (default 19200)
- Stop bits: 1
- Data bit length: 8
- Parity: None

The following table shows cabling pin allocation for the connection between LA Port and the PNMT PC.



Cabling Diagram for PNMT to LA PORT connections

NOTE

When the cable between PNMT and NE is un plugged, communications will be disrupted and a message prompting reconnection will appear a few minutes later on the PNMT screen. Please wait for the message to appear before changing/reinserting the cable connection into the NE.

2 System Operation & Maintenance

This chapter explains the menu structure and procedures for operating of the PNMT. The explanation uses typical PNMT screenshots to illustrate the menu hierarchy.

2.1 The PNMT Screen

The PNMT window is composed of the following main areas (Refer to Figure 1).

- **Title bar**
  The title bar is used to indicate the title of a window.

- **Common Menu bar**
  The common menu bar of the window presents the **System, Refresh** and **Help** options, which commands that can be executed from among the various options. The Help function can also display a PDF version of this operation manual.

- **NE-specific Menu bar**
  This menu is a list of tasks that can be performed on a specific network element (NE) displayed in PNMT. Configuration, Event Log, and Link Performance Monitor functions can be executed with the NE-specific Menu bar.

- **Block Diagram**
  The block diagram shows the equipments comprising the PASOLINK wireless communication system. Its main purpose in window is to display the current summary of the alarm statuses of the equipment. You can click a specific block to display the status of equipment in the data window.

- **Data window**
  This window displays in detail the status and alarm items of a specific equipment of the NE. You can select the tab or the block of a specific part that you wish to monitor in the data window.

- **Tabs**
  To view the status and alarms in the PASOLINK radio, click tab at the bottom of the Data window.

- **Command Button**
  The command button is used to enter (on the computer) the data specified in pop-up window.

- **Selectable Field**
  The selectable field is a standard Windows input field where the user can scroll down on a list of values available for that option.

- **Login User**
  This indicates the user who is currently logged-in in to the PNMT.

- **One Touch Expandable Button / Divider**
  Initially the PNMT screen is split evenly to display the data from the two NE's with a hop by using a divider. Click this button to move the divider to the edge of the window.

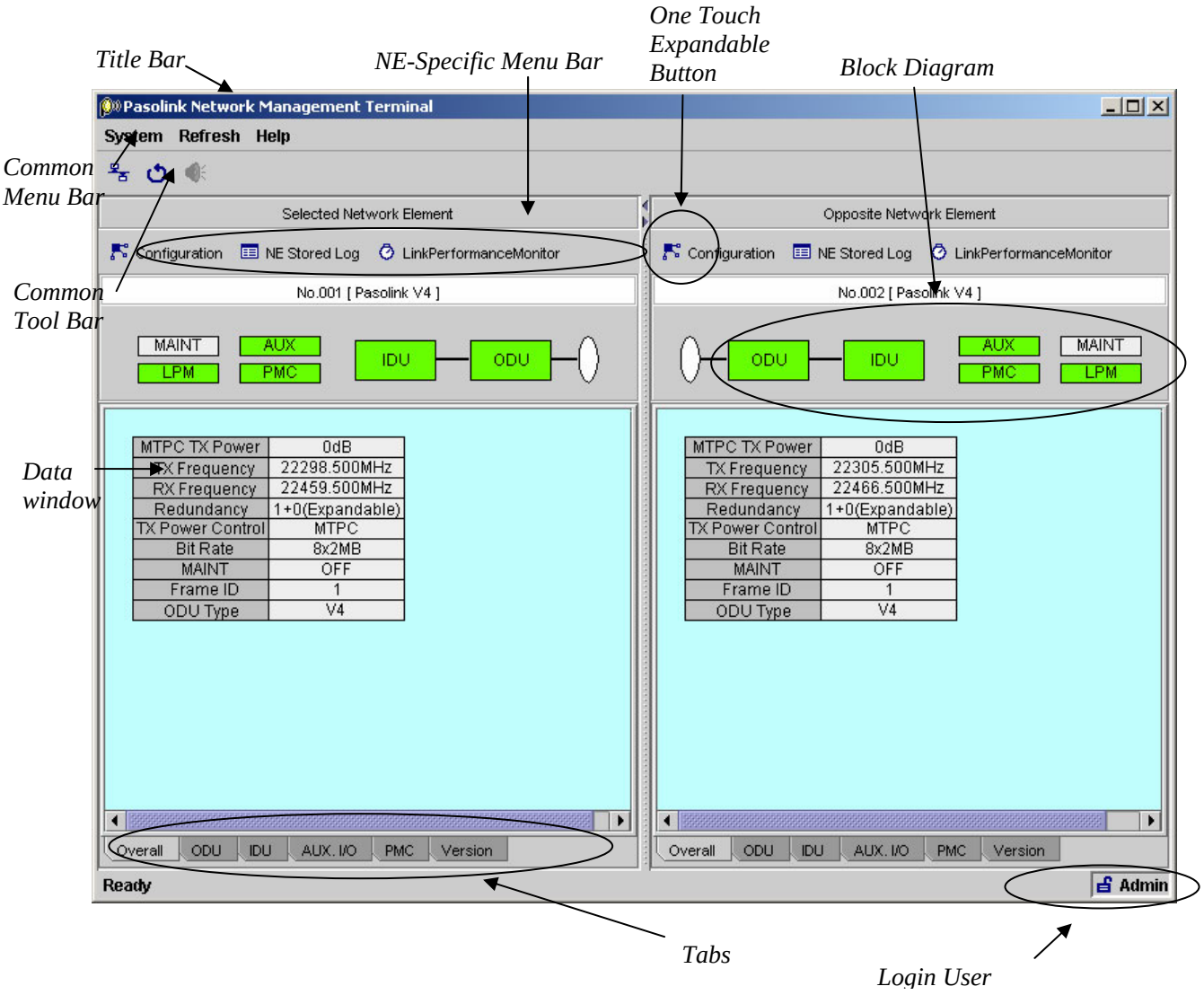


Figure 1 Standard Components of PNMT window

2.2 Launching the PNMT Application

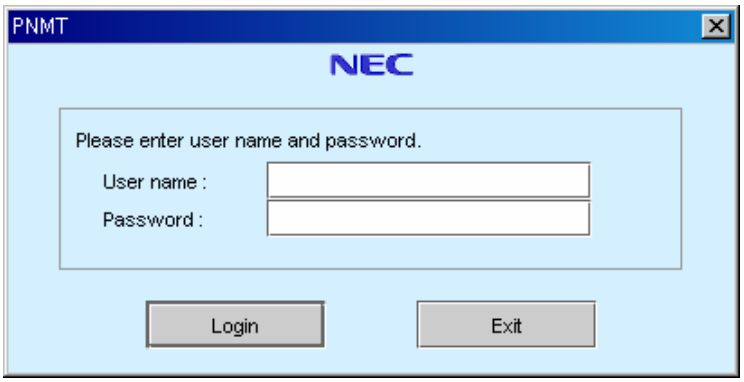
To start PNMT:

1. Turn system power ON.

NOTE

Connect the PNMT cable 30 seconds after IDU power has been turned ON and make sure that the PNMT cable is connected between Com 1 port of the PNMT PC and the PNMT port of the IDU.

2. Login to Windows.
3. Click **Start → Programs → PNMTj → Pnmt**, then continue to the login window.



NOTE

Please do not change the clock settings of your computer once PNMT has started.

2.3 Login

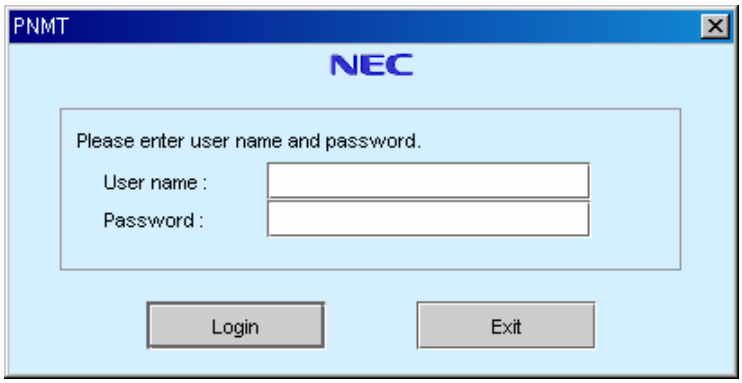
Users are registered by means of login name and password.

To protect the network and the network management system from unauthorized access or modifications, five levels of users with different access privileges are defined (refer to the table shown in section 2.3.1 **User Access Privilege Levels**). The functions that are available depend on the individual user's access level.

The highest or administrator level has full access to the network and the management system.

To login:

1. Start PNMT and the Login window appears.



Login window

2. Enter the <User name>.
3. Enter the valid <Password> for the specific user.
4. Click **[Login]**.

   If you wish to exit the program, click **[Exit]**.

2.3.1 User Access Privilege Levels

✓: Available, –: Not Available

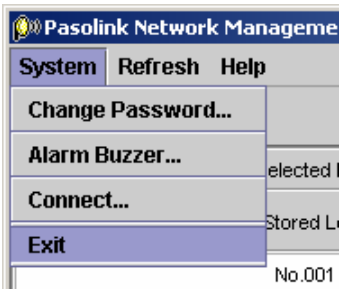
Functions			User Name and Accessible Functions				
Category		ITEM	Monitor	User	Local	Remote	Admin
Menu-System		Change Password	✓	✓	✓	✓	✓
		Alarm Buzzer	–	✓	✓	✓	✓
		Connect (Remote Login)	–	–	–	✓	✓
		Exit	✓	✓	✓	✓	✓
Menu-Refresh		Refresh	✓	✓	✓	✓	✓
Menu-Help		Help	✓	✓	✓	✓	✓
		About	✓	✓	✓	✓	✓
		License	✓	✓	✓	✓	✓
IDU	Common	AIS SEND Report	–	✓	✓	✓	✓
		WS Usage (WS option)	–	✓	✓	✓	✓
		WS AIS RCVD Report (WS option)	–	✓	✓	✓	✓
		CH (LB1)	–	–	✓	✓	✓
		CH (LB2)	–	–	✓	✓	✓
		CH (Usage)	–	✓	✓	✓	✓
		CH (AIS RCVD Report)	–	✓	✓	✓	✓
MAINT		MAINT	–	✓	✓	✓	✓
		TX Mute	–	–	✓	✓	✓
		CW	–	–	✓	✓	✓
		BER ALM >> AIS	–	✓	✓	✓	✓
		ATPC Manual	–	–	✓	✓	✓
		TX Switch (1+1)	–	–	✓	✓	✓
		RX Switch (1+1)	–	–	✓	✓	✓
Equipment Configuration	ODU	Frequency Plan (CH)	–	–	✓	✓	✓
		MTPC TX Power	–	–	✓	✓	✓
		TX Power Control	–	–	✓	✓	✓
		ATPC RX Threshold	–	–	✓	✓	✓
		ATPC MAX Power	–	–	✓	✓	✓
		ATPC MIN Power	–	–	✓	✓	✓
		ODU ALM Mode	–	–	✓	✓	✓
	IDU/Main Signal Status/Setup	BIT Rate (Bit Rate Free Type)	–	–	–	–	✓
		Redundancy	–	–	–	–	✓
		Frame ID	–	–	✓	✓	✓
		BER Threshold	–	✓	✓	✓	✓
		AIS RCVD	–	✓	✓	✓	✓
		AIS SEND	–	✓	✓	✓	✓
		Channel Usage Error	–	✓	✓	✓	✓
		MAINT on AIS Activation	–	✓	✓	✓	✓
		TX SW Priority	–	–	✓	✓	✓
	IDU/Ether Signal Status/Setup	Port Setting	–	–	✓	✓	✓
		FE Link Down	–	–	✓	✓	✓
	IDU/Sub Signal Status/Setup	SC4	–	✓	✓	✓	✓
		SC5	–	✓	✓	✓	✓
	IDU/PMC	NE Name	–	–	✓	✓	✓
		Note	–	✓	✓	✓	✓
Aux I/O		Input Name	–	✓	✓	✓	✓
		Input Condition	–	✓	✓	✓	✓
		Input Status Strings	–	✓	✓	✓	✓
		Output Name	–	✓	✓	✓	✓
		Output Control	–	✓	✓	✓	✓
PMON		PMON Threshold	–	✓	✓	✓	✓
		PMON All Data Reset	–	–	✓	✓	✓
		Save to disk	–	✓	✓	✓	✓
Logging		Save to disk	–	✓	✓	✓	✓
PMC		Date/Time	–	–	✓	✓	✓
		PMC Reset	–	–	✓	✓	✓
		Download Configuration File	–	–	–	–	✓
		Update	–	–	–	–	✓
		Download Program File	–	–	–	–	✓
		Upload Configuration File	–	–	–	–	✓
		LAN Reset	–	–	✓	✓	✓

*Admin: Enabled to access all Network Elements.
*Remote: Enabled to access all Network Elements.
(Disabled from changing network configuration and changing/downloading programs)
*Local: Enabled to access Local and Opposite NE.
(Disabled from changing network configuration and changing/downloading programs)
*User: Enabled to access items insofar as the equipment is not affected.
*Monitor: Enabled to monitor only and disabled from control functions.

2.4 Shutting Down PNMT

To exit the PNMT application:

1. Click **System → Exit** on the menu bar of the main window



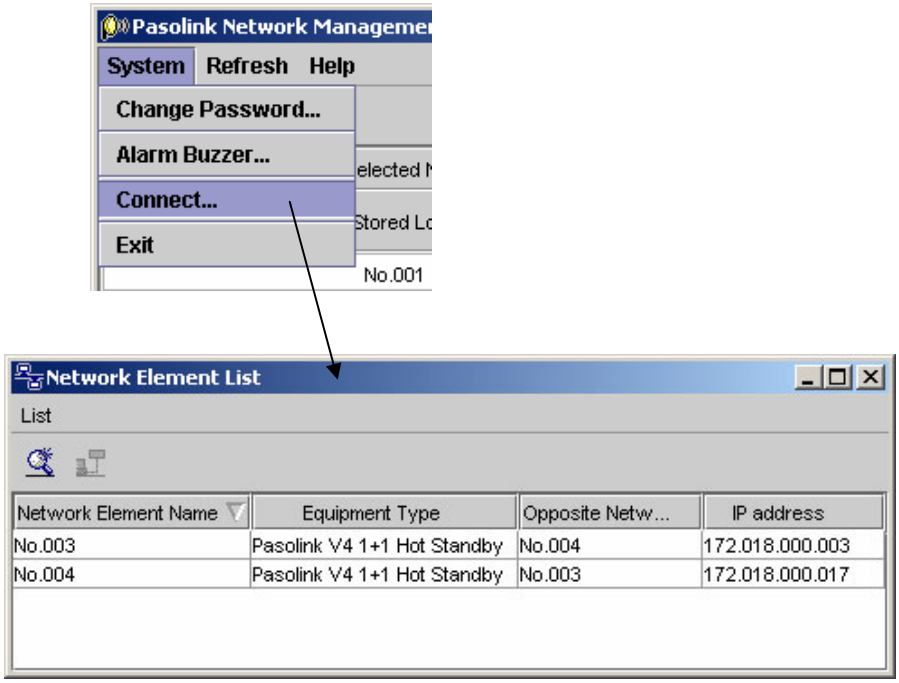
2. Click **[OK]** to confirm that you wish to exit the application.

2.5 Searching for and Connecting to Selected Network Elements

The summary description of the current network element (Network Element Name, Equipment Type, Opposite Network Element, etc.), where PNMT is connected, is displayed with this function. Summary description of the opposite network element belonging to that link is also displayed.

To search for, or connect to, a Network Element in the network:

1. Click **System → Connect…** on menu bar of **PNMT** main window.



NOTE

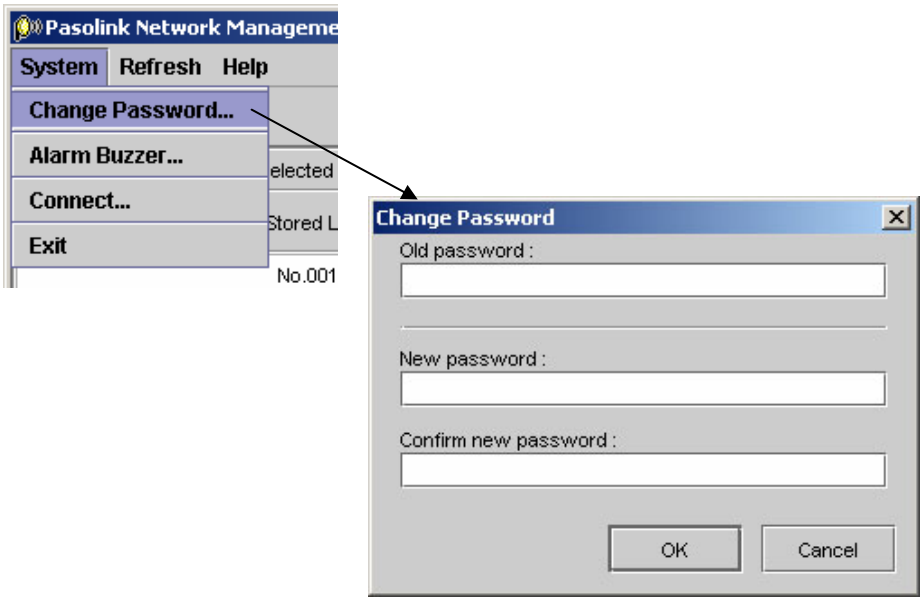
Initially, only the current NE physically connected to the PNMT and its opposite NE counterpart will be shown on the Network Element List.

2. Click icon in the tool bar or **List → Search for Network Element** in the menu bar on the Network Element List window to display all connectable Network Elements in the network.
3. Select and highlight the network element to be viewed.
4. Click icon in the tool bar or **List → Connect to Network Element** in the menu bar on the network element List window. The PNMT main window of the selected network element and its opposite NE counterpart will be displayed.

2.6 Change Password

To change the password:

1. Click **System → Change Password** on the menu bar on main window.



2. Enter the **Old password**.
3. Enter **New Password**
4. Enter new password in the **Confirm New Password** field to confirm.
5. Click **[OK]**.

NOTE

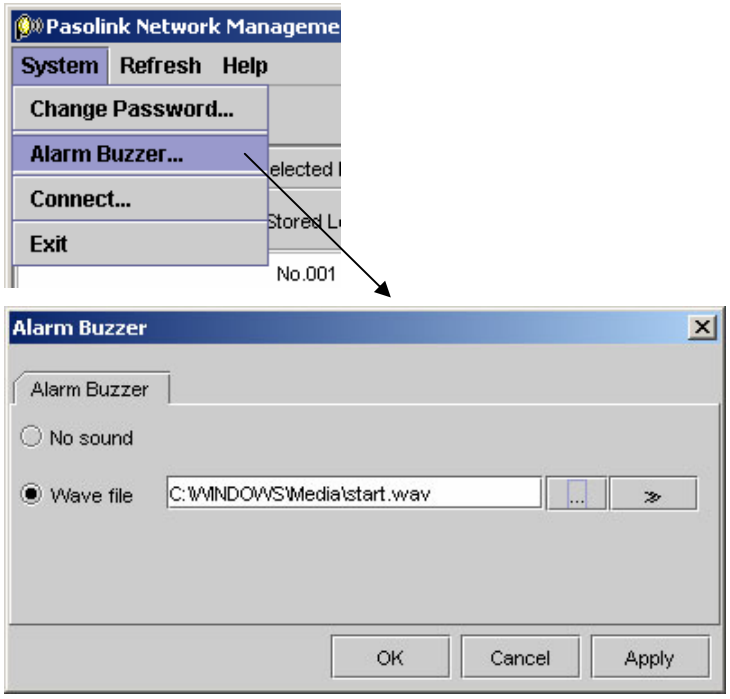
For details on initial user name and password, please refer to PNMT Installation manual.

2.7 Alarm Buzzer Setting

This function is used to activate and set the Alarm Buzzer. The desired sound scheme can also be set using this function.

To set the Alarm Buzzer:

1. Click **System → Alarm Buzzer** in the main window.



2. Select the **Wave file** box to activate the buzzer. **No sound** is the initial factory setting of the PNMT.
3. Enter the location of the sound file (*.wav) Otherwise; click **[…]** to locate the desired file. You can also preview the *.wav file by clicking on the arrow next to the browse button.
4. Click **[OK]** or **[Apply]** to activate the new setting.

NOTE

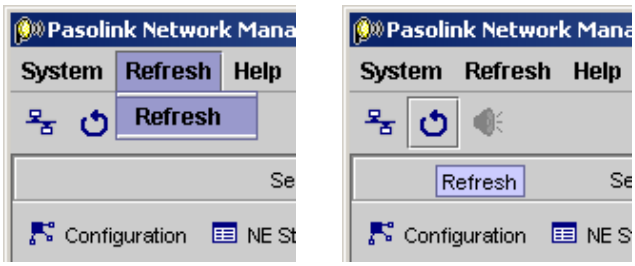
When the text column is a blank, it is possible to set it. In this case, the buzzer sound does not ring even though the buzzer stop function is enabled.

2.8 Refresh

This function is supported only by PNMT. This function enables PNMT to acquire all status data manually and to update equipment information

To Refresh:

1. Click **Refresh → Refresh** in the main window or click on the refresh icon in the tool bar.



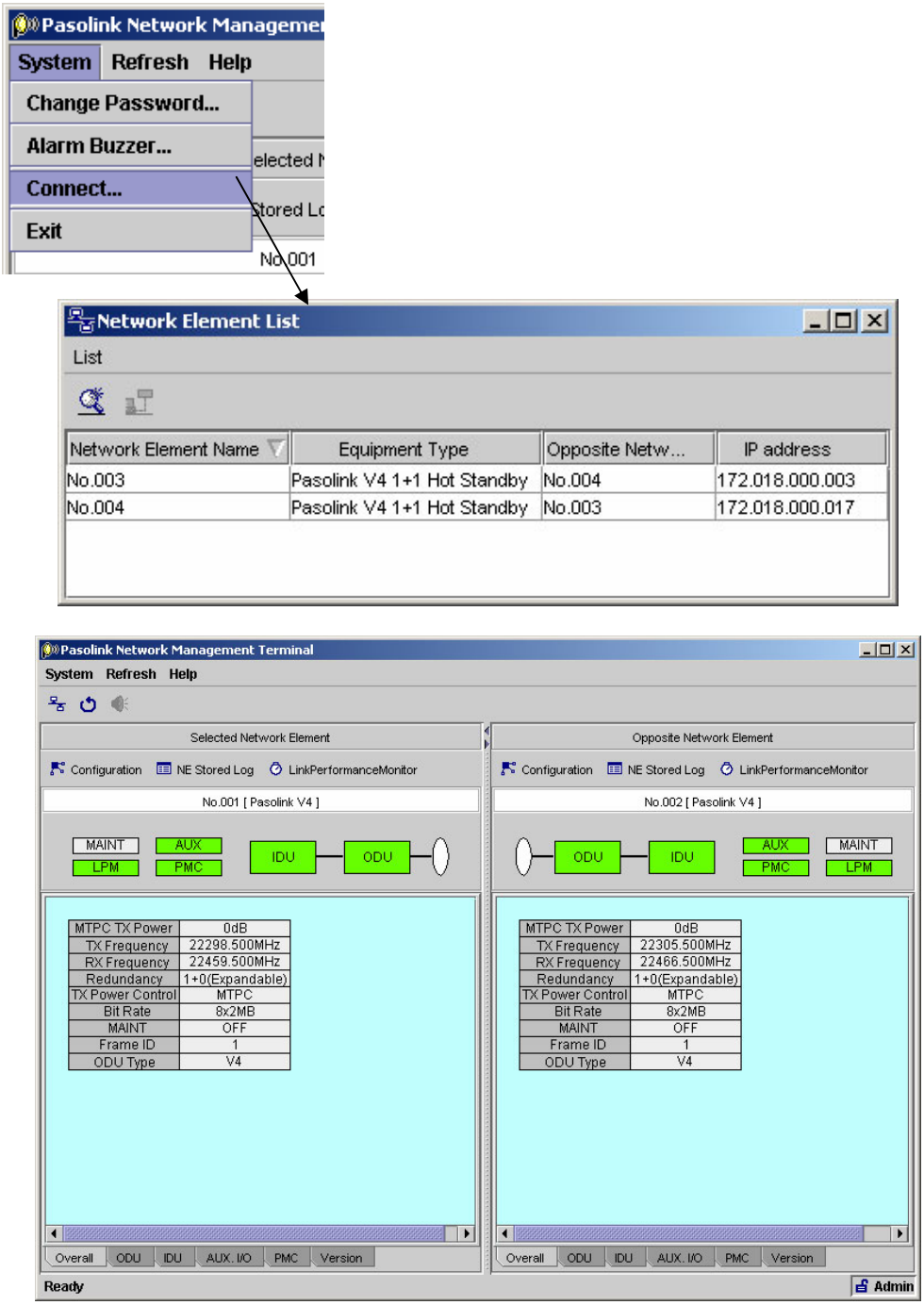
NOTE

Metered items such as TX power, RX level, power supply and BER are automatically refreshed every 15 seconds. This function is used when the immediate refresh of these metered items is necessary or when immediate confirmation of all current status information is required.

2.9 Remote Viewing PNMT main window

You can view a target link within one CPMC cluster of the Pasolink network by searching through the connected NE's and then connecting to a target NE. Please refer to **Section 2.5 Searching for and Connecting to Selected Network Elements**. This function allows remote connection to any NE in the network.

NOTE: For multi-CPMC network, you can only connect to NE's that are being polled by the same CPMC as the local NE to which you are directly connected – via the PNMT cable.



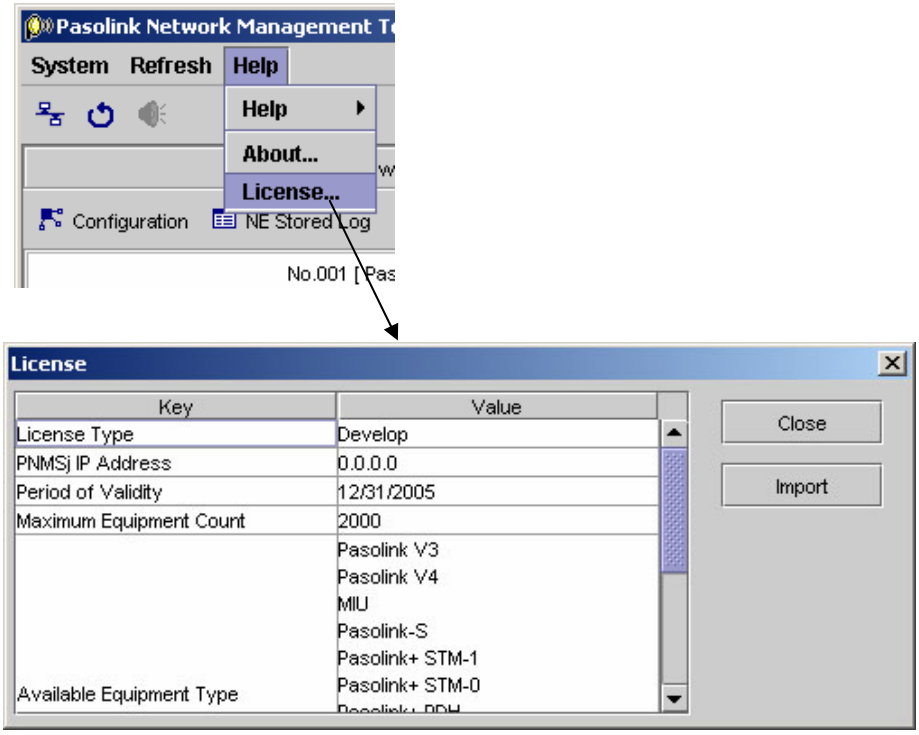
PNMT Main window (1+0 configuration)

2.10 License

To protect PNMT functions, the PNMT application includes license files.

To display the current license status,

1. Click **Help → License…** in the main window.



When changing the license file, click **[Import]**.

2.11 Overall Tab

This tab is displayed at startup. The overall tab provides an overall snapshot of the most significant monitored items of the NE.

MTPC TX Power	0dB
TX Frequency	7198.000MHz
RX Frequency	7359.000MHz
Redundancy	1+0
TX Power Control	MTPC
Bit Rate	16x2MB
MAINT	OFF
Frame ID	1
ODU Type	V4

1+0 Overall window

MTPC TX Power	-19dB
TX Frequency	17772.500MHz
RX Frequency	18782.500MHz
Redundancy	1+0 Expandable
TX Power Control	MTPC
Bit Rate	16x2MB
MAINT	OFF
Frame ID	7
ODU Type	V4

1+0 (Expandable) Overall window

MTPC TX Power	-19dB
TX Frequency	17772.500MHz
RX Frequency	18782.500MHz
Redundancy	1+1 Hot standby
TX Power Control	MTPC
Bit Rate	16x2MB
MAINT	OFF
Selected TX	No.1
Selected RX	No.1
Frame ID	7
ODU Type	V4

1+1 (Hot Standby) Overall window

	No.1	No.2
MTPC TX Power	-19dB	-19dB
TX Frequency	17772.500MHz	18027.500MHz
RX Frequency	18782.500MHz	19037.500MHz
TX Power Control	MTPC	MTPC
ODU Type	V4	V4

Redundancy	1+1 Twinpath
Bit Rate	16x2MB
MAINT	OFF
Selected RX	No.1
Frame ID	7

1+1 (Twin Path) Overall window

The following items are displayed with this tab:

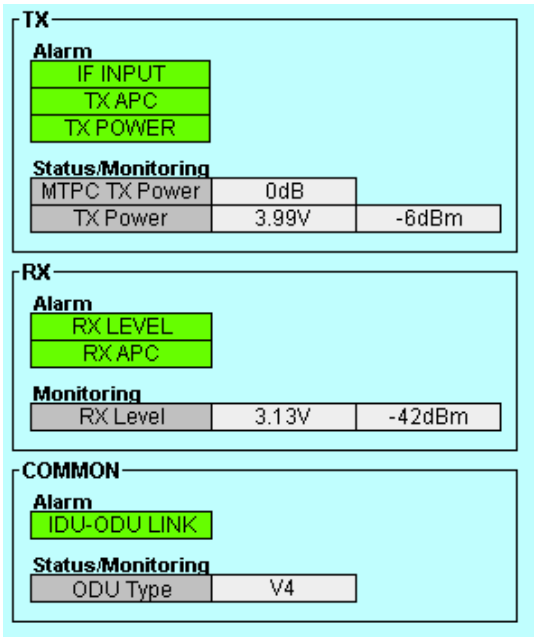
- MTPC TX Power – the current value (in dB) of the internal attenuation set in ODU.
- TX Frequency – the currently used transmission frequency.
- RX Frequency – the currently used reception frequency.
- Redundancy – this function is available for 1+1 system only or 1+0 (expandable) system.
- TX Power Control – method used by the ODU for power control functions.
- Bit Rate – the current bit rate setting of the IDU.
- MAINT – the current Maintenance status.
- Frame ID – the set frame ID of the NE.
- Selected TX (for 1+1 HS system only) – shows the currently used signal transmission system
- Selected RX (for 1+1 system only) – shows the currently used signal reception. system
- ODU Type – the type of ODU connecting with the equipment.

2.12 ODU Tab

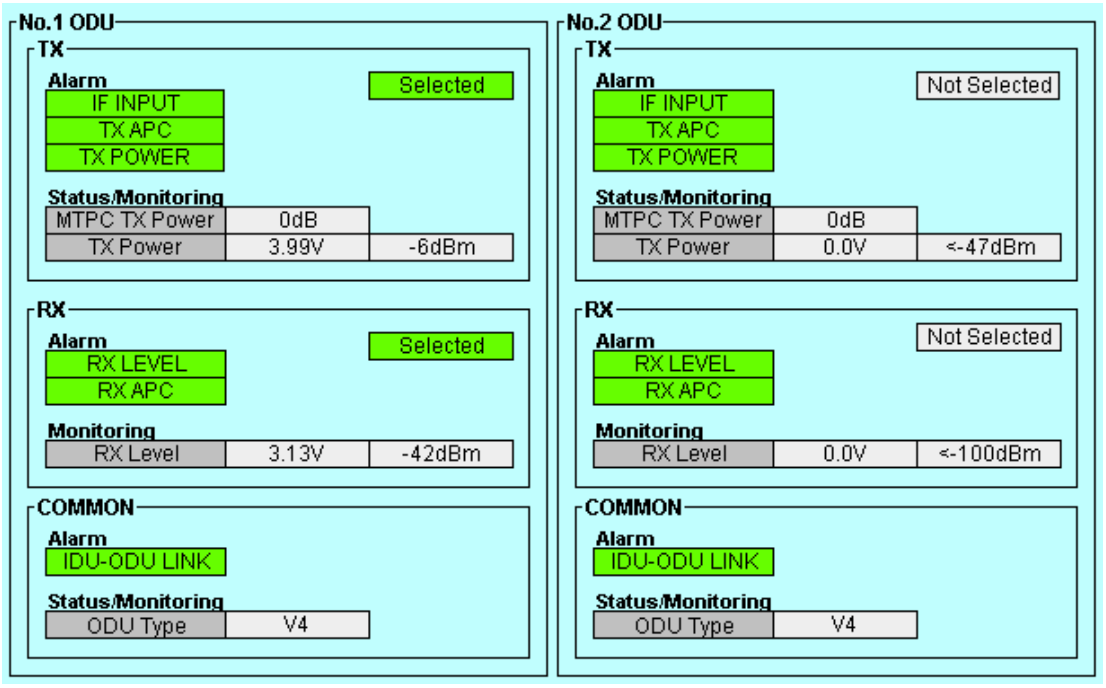
This function is used to display the values and status of the monitored items of the ODU.

To view the alarm and status display of the ODU:

1. Click **ODU** tab in **PNMT** main window of the target NE.



ODU window (1+0 configuration)



ODU window (1+1 configuration)

Monitored Items

TX PORTION

Alarm

IF INPUT - Monitor IF signal Input. Item/Status area is shown with transparent letters and gray background in case of CPU Alarm or IDU-ODU LINK Alarm.

TX POWER - Monitor TX Power. Item/Status area is shown with transparent letters and gray background in case of CPU Alarm or IDU-ODU LINK Alarm.

TX APC - Monitors the Automatic Phase Control unit. Item/Status area is shown with transparent letters and gray background in case of CPU Alarm or IDU-ODU LINK Alarm.

Status/Monitoring

MTPC TX Power - the current value (in dB) of the internal attenuation set in ODU. Item and status areas are shown and item area uses black font and status indicates no information in case of TX Power Control is ATPC or CPU Alarm or IDU-ODU LINK Alarm.

TX Power – the transmitting power of the ODU in volt and dBm. Item and status area are shown and item area uses black font and status indicates no information in case of CPU Alarm or IDU-ODU LINK Alarm.

RX PORTION

Alarm

RX LEVEL - Monitor RX Level. Item/Status area is shown with transparent letters and gray background in case of CPU Alarm or IDU-ODU **LINK Alarm**.

RX APC - Monitors the Automatic Phase Control unit. Item/Status field is shown with transparent letters and gray background in case of CPU Alarm or IDU-ODU LINK Alarm.

Monitoring

RX Level - Display RX Level value in volt and dBm. Item and status fields are shown and item field uses black fonts and status indicates no information in case of CPU Alarm or IDU-ODU LINK Alarm.

COMMON PORTION

Alarm

IDU-ODU LINK – the failure of connection between IDU and ODU. Item/Status fields is shown with transparent letters and gray background in case of CPU Alarm.

Status/Monitoring

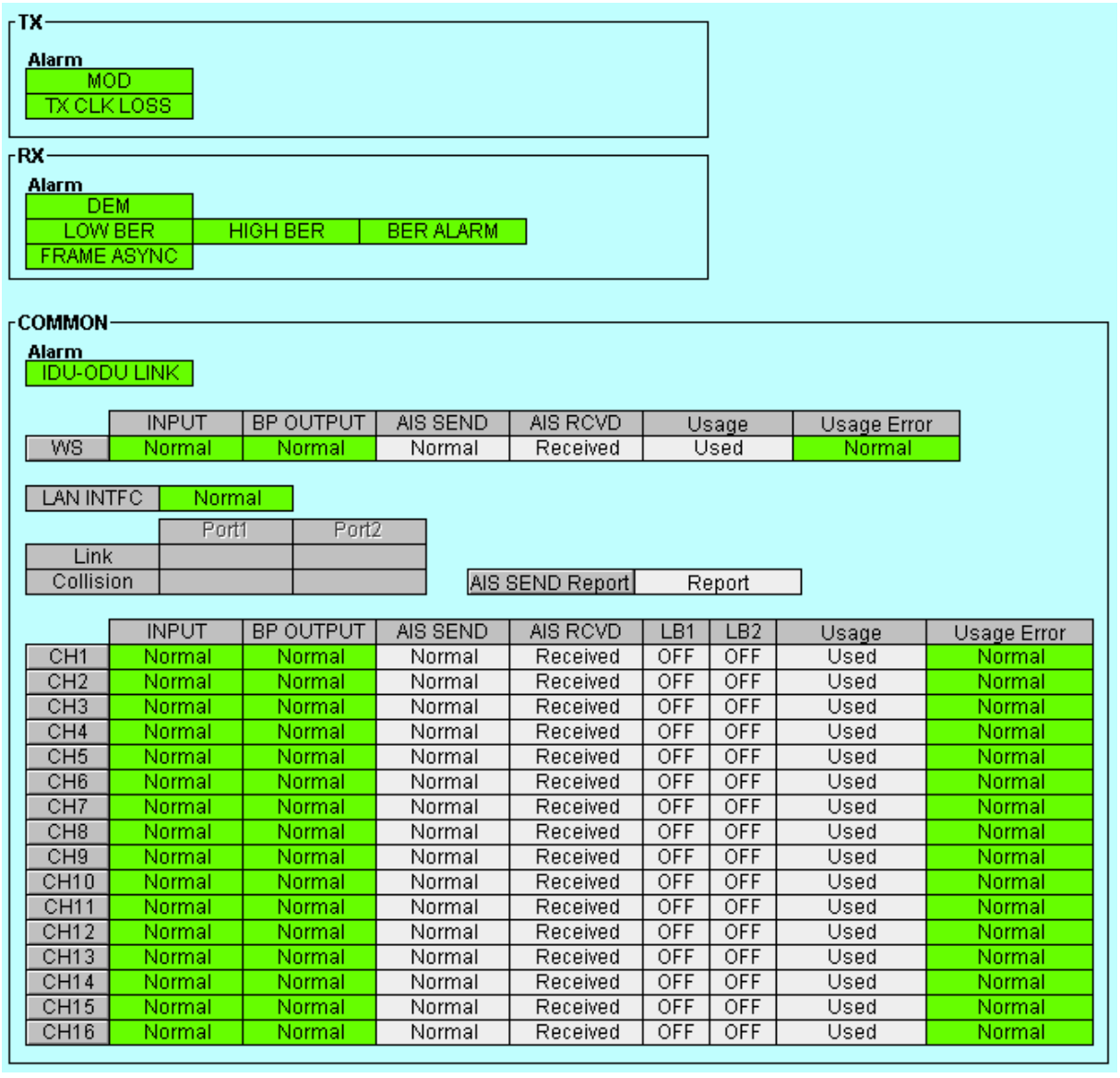
ODU Type - the type of ODU connecting with the equipment. Item and status fields are shown and item field uses black fonts and status indicates no information in case of CPU Alarm or IDU-ODU LINK Alarm.

2.13 IDU Tab

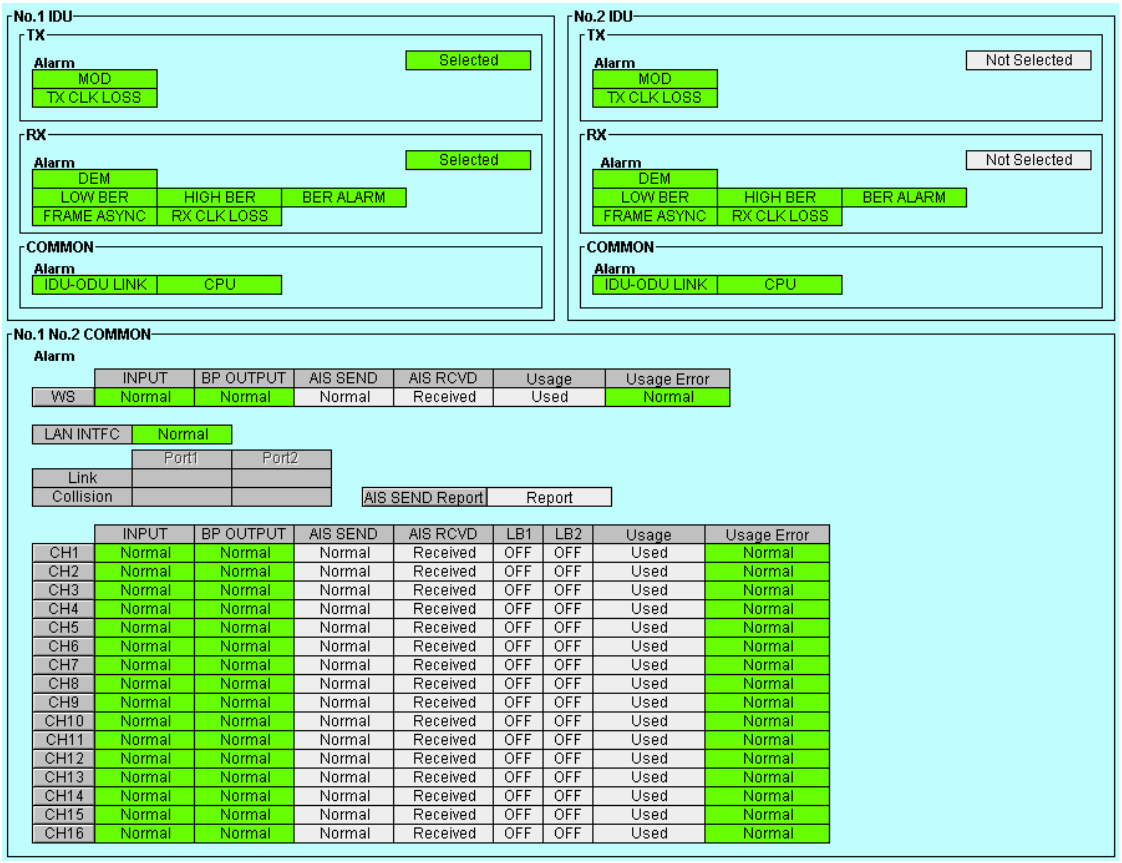
2.13.1 IDU Tab

To view the alarm and status of the IDU:

1. Select the **IDU** tab in **PNMT** window of the target NE.



IDU window (1+0 configuration)



IDU window (1+1 configuration)

Monitored Items

TX PORTION

Alarm

MOD: Monitor Modulator portion. Item/Status field is shown with transparent letters and gray background in case of CPU Alarm.

TX CLK LOSS: Item/Status field is shown with transparent letters and gray background in case of CPU Alarm.

RX PORTION

Alarm

DEM : Monitor Demodulator. Item/Status field is shown with transparent letters and gray background in case of CPU Alarm.

LOW BER: Item/Status field is shown with transparent letters and gray background in case of CPU Alarm.

HIGH BER: Item/Status field is shown with transparent letters and gray background in case of CPU Alarm.

BER ALARM: Item/Status field is shown with transparent letters and gray background in case of CPU Alarm.

FRAME ASYNC: Item/Status field is shown with transparent letters and gray

WS Interface

Alarm

INPUT: Item and status fields are not displayed when system has no WS Interface.

BP OUTPUT: Item and status fields are not displayed when system has no WS Interface.

Usage Error: Item and status fields are not displayed when system has no WS Interface. Status has no information in case Channel Usage Error shows *Report*.

Status

AIS SEND: Item and status fields are not displayed when system has no WS Interface i.

AIS RCVD: Item and status fields are not displayed when system has no WS Interface. Status indicates no information in case WS AIS RCVD shows Not Report.

Usage: Alarm inhibit state of the WS.

Channels (CH)

Alarm

INPUT: Status indicates no information in case Main LAN utilizes this band.

BP OUTPUT: Status is no information in case Main LAN uses this band.

background in case of CPU Alarm.
RX CLK LOSS: Item/Status field is shown with transparent letters and gray background in case of CPU Alarm.

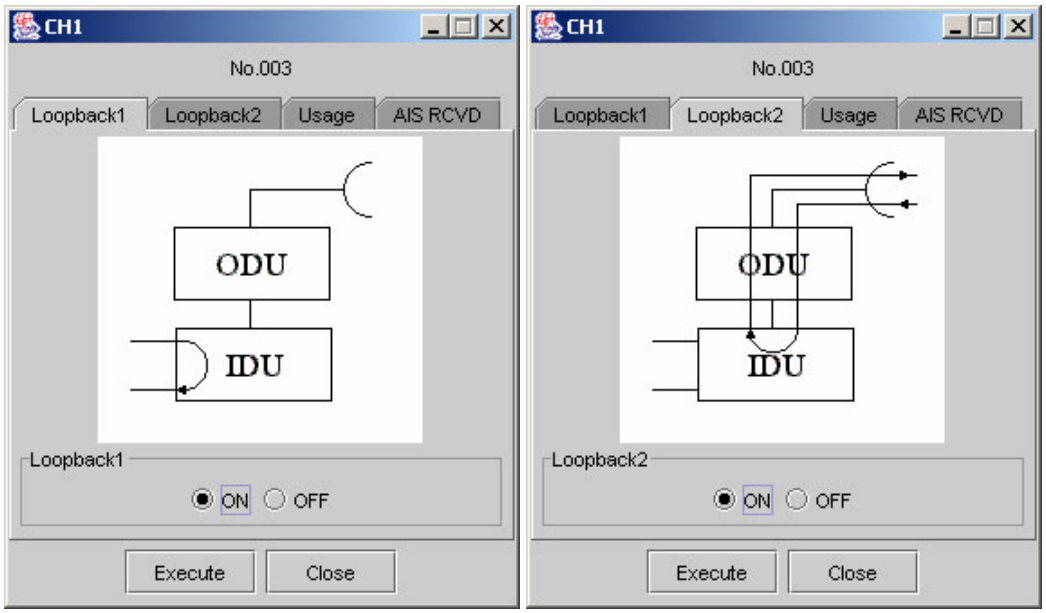
COMMON PORTION
Alarm
IDU-ODU LINK: Item/Status field is shown with transparent letters and gray background in case of CPU Alarm.
CPU:

No.1 No.2 COMMON
Alarm
LAN INTFC: Item and status fields are shown and item field uses black font and status indicates no information when the system has no Main LAN Interface.
Link (Port1/Port2): Item and status fields are shown and item field uses black font and status indicates no information when the system has no Main LAN Interface.
Collision (Port1/Port2) : Item and status fields are shown and item field uses black font and status indicates no information when the system has no Main LAN Interface or when Collision shows Not Report for Port Setting where a Main LAN Interface is available.
Status
AIS SEND Report
Usage Error: Status is no information in case Channel Usage Error is Report.
Status
AIS SEND: Status indicates no information in case Main LAN uses this band.
AIS RCVD: Status indicates no information in case Main LAN uses this band or AIS RCVD shows Not Report.
LB1: Near-end Loopback status: Status indicates no information in case Main LAN uses this band.
LB2: Custom Loopback status: Status has no information in case Main LAN uses this band.
Usage: Alarm inhibit state of the channel. Status indicates no information in case Main LAN uses this band.

2.13.2 Loopback

To set the loopback:

1. Click the target channel in IDU window.
2. Select **LB1** or **LB2** Tab in ensuing window.



3. These are available when **Usage** is enabled on the channel. Select **ON** to activate the loopback or **OFF** to remove the loopback.

NOTE

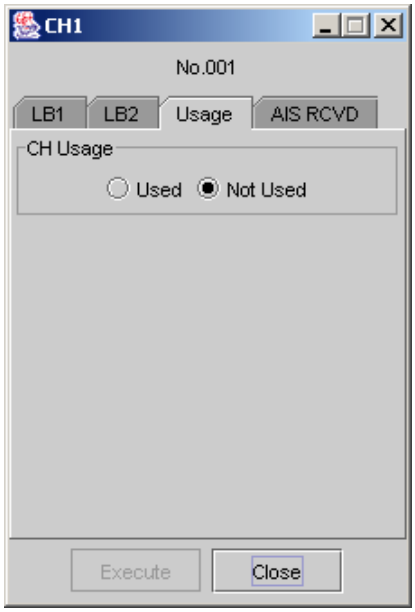
First, switch ON maintenance mode before executing the loopback.

4. Click **[Execute]** to activate.
5. Click **[Close]** when finished.

2.13.3 Channel Usage

(a) Traffic channel

1. Click CH for the selected channel in IDU window
2. Select the **Usage** tab window.
3. Select ***Not Used*** to activate **Channel Usage error** alarm. The **Channel Usage Error** is an alarm that is sent to the PNMT when traffic/signals are detected in a channel that is tagged or set as ***Not Used***. Note: the ***Not Used*** setting is only for masking input alarms on the channel. The 2M channel is still active and can be used to carry traffic even if set as ***Not Used***.
4. Click **[Execute]** to activate
5. Click **[Close]** when finished.



(b) Wayside channel (option)

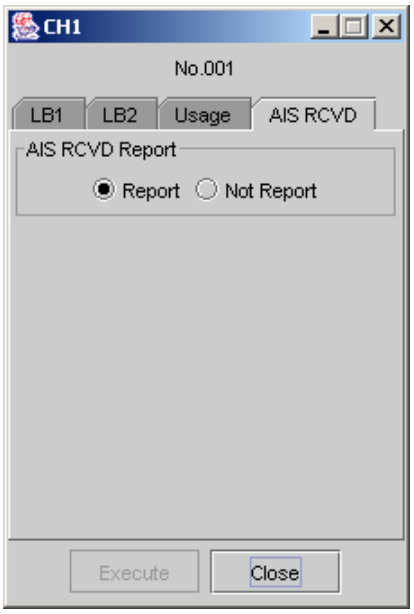
1. WS Usage setting is enabled when a WS Interface is available. Click **[WS]** in IDU window.

   Select ***Not Used*** to activate WS Usage error alarm. The "Channel Usage error" is an alarm that is sent to the PNMT if traffic/signal is detected in a channel that is tagged or set as "Not Used". Note: the "Not Used" setting is only for masking input alarms from the channel in question. The WS channel is still active and can be used to carry traffic even if set as Not Used
2. Click **[Execute]** to activate
3. Click **[Close]** when finished.

2.13.4 AIS RCVD Report

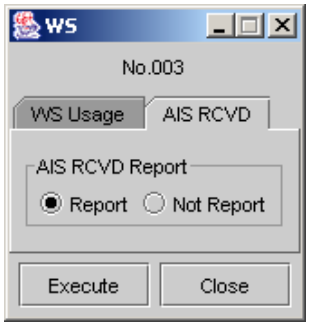
(a) For Traffic channel

1. This function is available for each channel. Click CH for the selected channel in IDU window.
2. Select **AIS RCVD** Tab window.
3. Select **Report** to generate the alarm for AIS RCVD of the channel. Or set it **Not Report** to inhibit the AIS RCVD alarm.
4. Click **[Execute]** to activate.
5. Click **[Close]** when finished.



(b) Wayside channel (option)

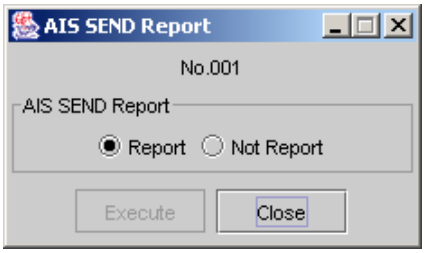
1. WS AIS RCVD setting is enabled when a WS Interface is available. Click **[WS]** in IDU window.
2. Select **Report** to generate alarms for AIS RCVD of the WS. Or set it as **Not Report** to inhibit the WS AIS RCVD alarm
3. Click **[Execute]** to activate.
4. Click **[Close]** when finished.



2.13.5 AIS SEND Report

Set the 2M traffic and wayside channel (option) to send **AIS SEND Report**.

1. Click **[AIS SEND Report]** in IDU window.
2. Select **Report** to generate alarm for AIS SEND on the 2M and WS channel. Channel and WS AIS SEND alarm generated by Remote Defect Indication can be controlled by selecting **Report** or **Not Report**, but AIS SEND due to other causes can not.
3. Click **[Execute]** to activate.
4. Click **[Close]** when finished.

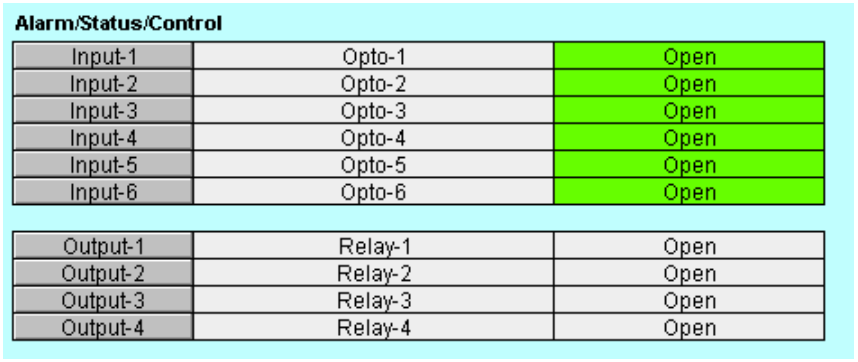


2.14 Auxiliary I/O Tab

4-relay outputs and 6 photocoupler inputs are provided in IDU for external control and alarms. The setting for each relay output/photocoupler input is enabled by clicking on selected device in Auxiliary I/O Monitor window.

To monitor and set the Auxiliary I/O:

1. Select the **Aux. I/O** tab in **PNMT** window



AUX. I/O window

Monitored Item

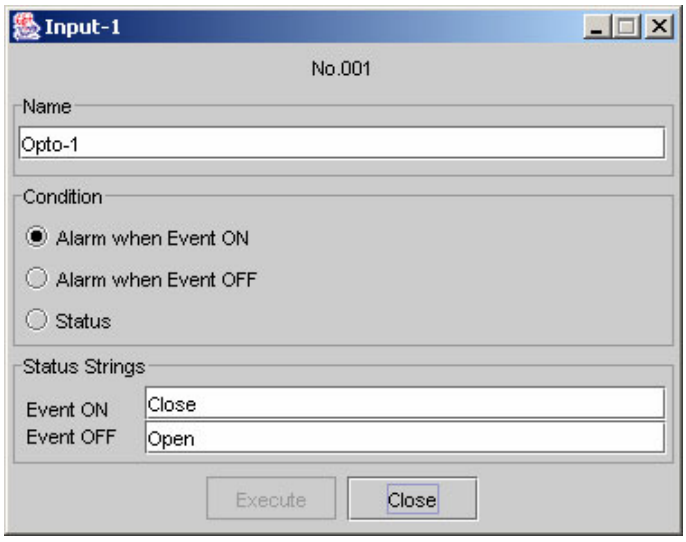
Following items are monitored.

- Six (6) photocoupler inputs (Input-1 - Input-6)
- Four (4) relay outputs (Output-1 - Output-4)

2.14.1 Photocoupler Input Setting

To set the Photocoupler input:

1. Click the selected **[Input-*n*]** in **Aux. I/O** tab.



2. Enter the designation of the selected input in the **Name** field. A maximum of 32 characters can be used.

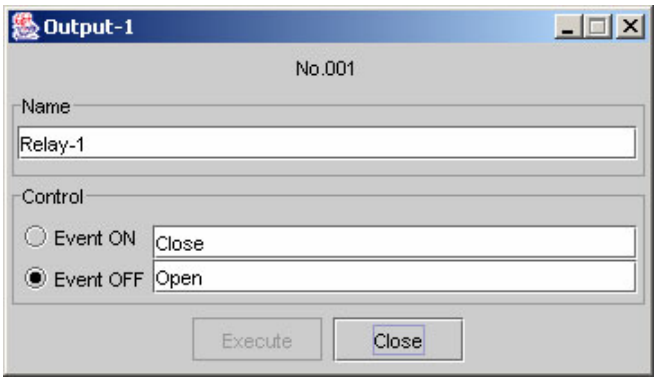
3. Select the desired input condition in the **Condition** section. You can select from the following three (3) choices: the alarm is reported when **Event ON** (closed loop for selected input terminal) or the alarm is reported when **Event OFF** (the selected input terminal is open) or the just **Status** information is reported instead of the alarm.

4. Enter the status strings corresponding to the input condition in the **Event ON** and **Event OFF** field in the **Status Strings** section. A maximum of 32 characters can be used.
5. Click **[Execute]** to activate the selected state of the device.
6. Click **[Close]** when finished.

2.14.2 Relay Output Setting

To set the relay output:

1. Click **[Output-*n*]** in Aux. I/O window.



2. Enter the desired designation (name) of the selected output in the **Name** field. A maximum of 32 characters can be used.
3. To select the desired output condition for the selected relay output, select the **Event ON** (closed loop for output terminal) or **Event OFF** (the output terminal will be open) buttons in the **Control** section.
4. Enter the desired status strings for the selected relay output in the appropriate **Event ON** (closed loop for output terminal) and **Event OFF** (the output terminal will be open) fields on the **Control** section. A maximum of 32 characters can be entered.
5. Click **[Execute]** to carry out the command.
6. Click **[Close]** when finished.

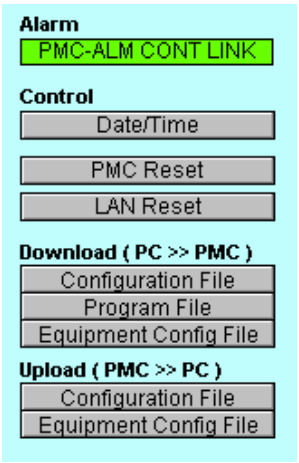
2.15 PM CARD Monitor

2.15.1 PM CARD Monitor

Select the **PMC** tab in **PNMT** main window of the target NE.

The following items can be monitored and controlled in PMC tab:

- PMC-ALM CONT LINK: The alarm indicates the communication state between PM CARD and IDU.
- Date/Time
- PMC Reset
- LAN Reset
- Download Configuration File
- Download Program File
- Download Equipment Configuration File
- Upload Configuration File
- Upload Equipment Configuration File

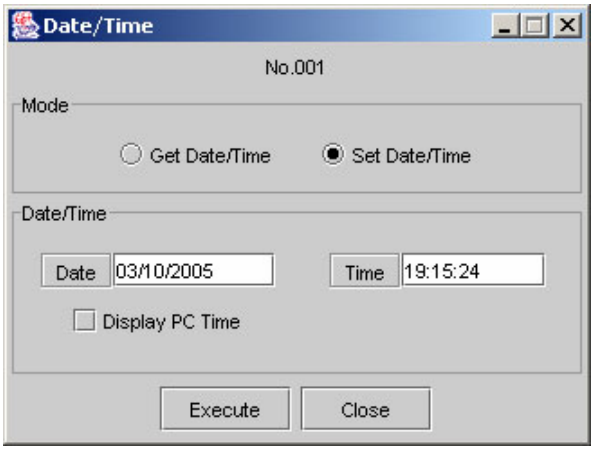


2.15.2 Setting the Date/Time

The Date and Time stored in the PM card can be displayed and adjusted using this function.

To set the Date/Time:

1. Click **[Date/Time]** in **PMC** tab.



NOTE

To set the values of the Date and Time fields to the same value as the PNMT computer, check the Display PC Time box.

1-1) To check the Date and Time on PM Card:

1) Select **Get Date/Time** in Date/Time window.

2) Click **[Execute]**.

3) The current date and time in PMC will be displayed in **Date** and **Time** field.

1-2) To set the Date and Time on PM Card:

1) Select **Set Date/Time** in Date/Time window.

2) Click **[Execute]**.

3) Click **[Close]** when finished.

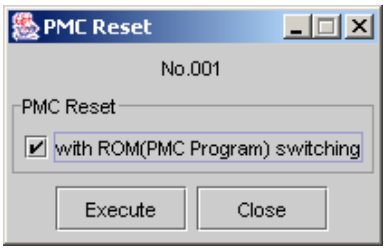
2.15.3 PM Card Reset

The PM card can be reset using this function

NOTE

Resetting the PMC will not affect the traffic. The connection to the selected NE will be disrupted for a few minutes but will automatically be restored.

To reset the PM Card:



1. Click **[PMC Reset]** in PMC tab.
2. You can select the **with ROM (PMC Program) Switching** option if you want to switch to a newly downloaded PMC Program file.
3. Click **[Execute]** to continue the PMC reset operation.

NOTE

First switch maintenance mode ON before executing PMC Reset.

4. Click **[Close]** when finished.

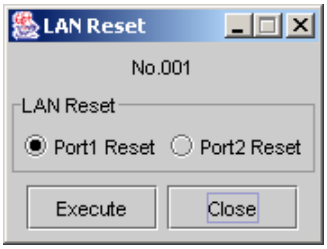
2.15.4 LAN Reset

The LAN Card can be reset using this function

NOTE

Resetting the LAN will affect the traffic. The connection to the selected NE will be disrupted for a few minutes but will be automatically restored.

To reset the Main Interface LAN Port:



1. LAN Reset function is enabled where a Main LAN Interface is available. Click **[LAN Reset]** in PMC tab.
2. Select the port (Port1 or Port2), which needs to be reset.
3. Click **[Execute]** to continue the LAN reset operation.

NOTE

Switch ON maintenance mode first before executing LAN Reset.

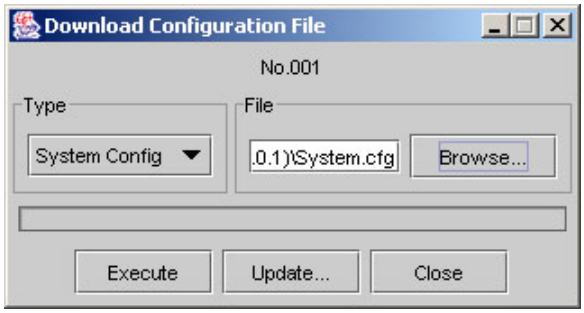
4. Click **[Close]** when finished.

2.15.5 Downloading the Configuration Files to the PMC

This function is for download configuration files from the PNMT to the PM card. The configuration file - system.cfg, contains the IP addresses of the PM card as well as the opposite station. A network.cfg file contains information about the PASOLINK network where the PM card is located.

To download new configuration file to the PM card:

1. Click **[Configuration File]** in **PMC** tab's **Download (PC>>PMC)** section.



2. Select the type of file to be downloaded in **Type** list.
3. Enter the location of the configuration file in **File** field, or click **[Browse]** to locate the file on local hard disk or diskette.

WARNING!!!

Make sure that the correct configuration file is downloaded to the correct PM card. Incorrect configuration files can cause PM card or network failure.

4. Click **[Execute]** to start the operation.

NOTE

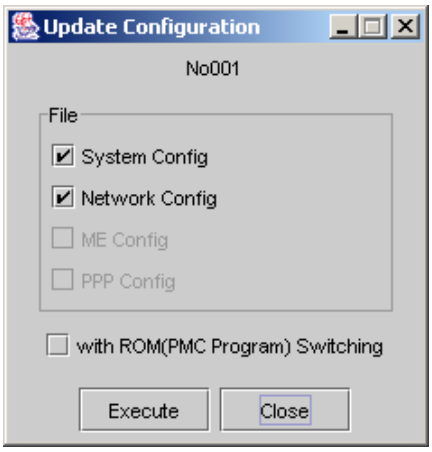
Switch ON maintenance mode first then execute the Download Configuration File.

5. A message window indicating the status of the operation will appear. It will close automatically once the operation is finished.

WARNING!!!

Make sure that you have successfully downloaded the configuration file before attempting an Update. Otherwise the PM Card will switch to an empty ROM that may cause PM Card failure.

6. Click **[Update]** to activate the new configuration file(s).
7. Select the appropriate box for the type of configuration file that will be updated. One or more configuration file can be updated by checking the box opposite to the configuration file name. Click **[Execute]** to start the operation. The "**with ROM (PMC Program) Switching**" box is for switching to the ROM with the new PMC Program and has the same function that will be discussed in next section.



NOTE

When updating system.cfg file, PMC to PMC communication will be lost when the PMC re-initializes to the new system configuration. This WILL NOT affect the radio link. During this time PNMT connection to the PASOLINK will be disrupted but it will automatically be restored after the PMC resets.

NOTE

Updating the PMC will not affect the traffic. PNMT to the selected Pasolink connection will be disrupted for a few minutes but will be automatically re-stored.

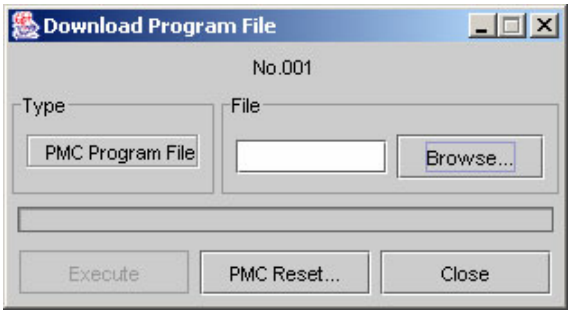
8. Click **[Close]** when done

2.15.6 Downloading a New Program File for the PMC

This function is used to update the application program on the PM card. This operation affects only the PMC to PMC communication but not the wireless link, and will not disrupt communication.

To download the program file to PM Cards:

1. Click **[Program File]** in **PMC** tab's **Download (PC>>PMC)** section.



2. Enter the appropriate location of the program file (*.pof) in **File** field. Otherwise, click **[Browse]** to locate the file.

WARNING!!!

Make sure that the correct program file is downloaded to the PM card. Incorrect program files may cause PM card failure.

3. Click **[Execute]** to start the operation.

NOTE

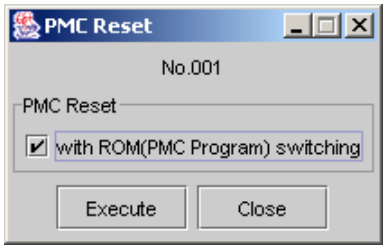
Switch ON maintenance mode first before executing Download Program File.

4. A message window will appear displaying the status of the operation; it will close automatically once the download is completed.

NOTE

This operation may take several minutes depending on the program file size.

5. Click **[PMC Reset]** to switch to the new program file.



6. Check the **with ROM (PMC Program) Switching** box.
7. Click **[Execute]** to complete the switch to the new program file.

NOTE

The connection from the PNMT to the selected Pasolink will be disrupted a few minutes but will automatically be restored.

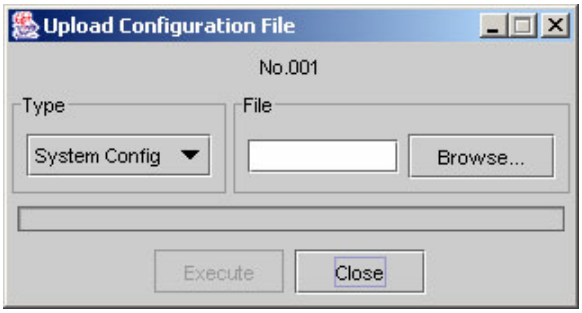
8. Click **[Close]** when done.

2.15.7 Uploading PMC Configuration File to PNMS/PNMT PC

This function is used to upload the configuration file from the PM card of the selected PASOLINK to the PNMS/PNMT PC.

To upload configuration file from the PM Card to PNMS/PNMT:

1. Click **[Configuration File]** in **PMC** tab's **Upload (PMC>>PC)** section.



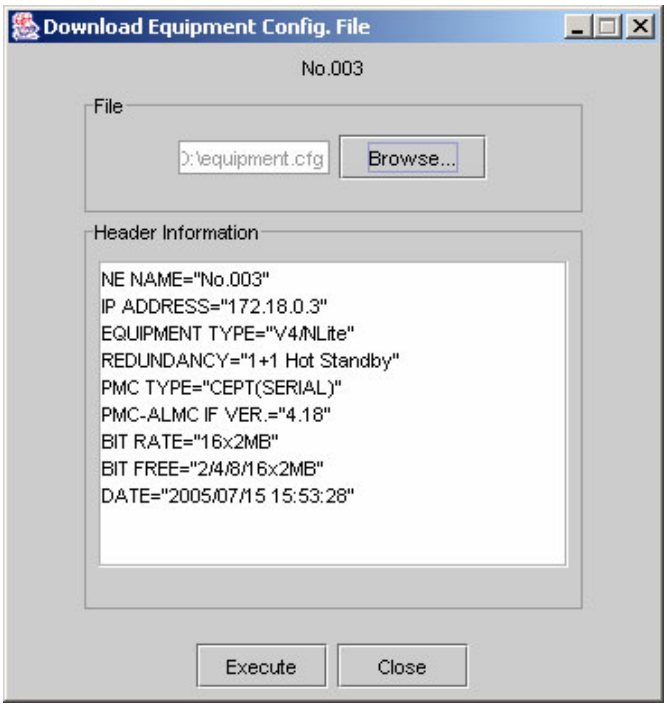
2. Select the type of file to be uploaded in the **Type** field.
3. Click **[Execute]** to start..
4. Enter the desired name for the uploaded file. Then, select and the directory where the file is to be uploaded will be saved.
5. A message window indicating the status of the operation will appear. It will close automatically once the operation is completed.
6. After the upload is finished click **[Close]**.
7. Verify that the file was uploaded to the specified directory.

2.15.8 Downloading Equipment Configuration Files to the Equipment

This function is used to download equipment configuration files from PNMS/PNMT to PMC. An equipment configuration file contains radio configuration data (i.e. frequency, main interface).

To download new equipment configuration file to equipment:

1. Click **[Equipment Config File]** in **PMC** tab's **Download (PC>>PMC)** section.



2. Click **[Browse]** to locate a file on local hard disk or floppy disk

WARNING!!!

Make sure that the correct configuration file is downloaded to PMC. Incorrect configuration file may lead to PMC failure or traffic disconnection.

3. Click **[Execute]** to start operation.
4. A message window indicating warning will appear. To confirm click on **[OK]** button.
5. Click **[Close]**.

2.15.9 Uploading Equipment Configuration File to PNMS/PNMT PC

This function is used to upload equipment configuration file from PMC to PNMS/PNMT PCPASOLINK.

To upload configuration file from equipment:

1. Click **[Equipment Config File]** in **PMC** tab's **Upload (PMC>>PC)** section.

2. Click **[Execute]** to start operation.
3. Enter desired file name for the uploaded file. And select the directory where the uploaded file will be saved.
4. Click **[Close]** when done.
5. Verify that the file was on specified directory.

2.16 Maintenance

There are ten maintenance control items that can be executed with the maintenance menu. The function of each control is as follows.

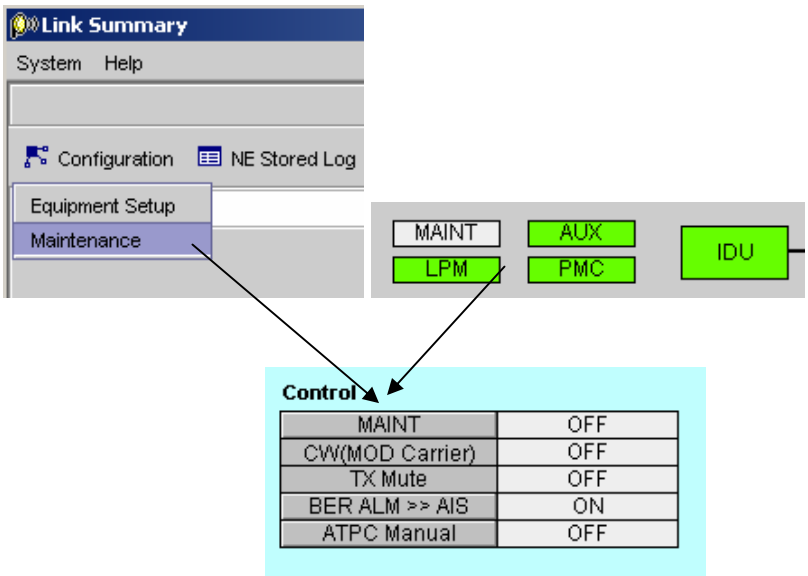
MAINT:	To switch Maintenance mode ON
TX Mute:	To turn off TX power
CW (MOD Carrier):	To turn on Continuous Wave for measurements
BER ALM >> AIS:	Bit Error Rate Alarm Indication Signal
ATPC Manual:	To enable the optional setting of the manual transmitting power when the ATPC is in operation.
TX Switch:	To switch the current system you want to use for signal transmission manually.
RX Switch:	To switch the current system you want to use for signal reception.

*These windows are not available when MAINT is OFF. (***Switch to Maintenance mode first*** message is displayed.)

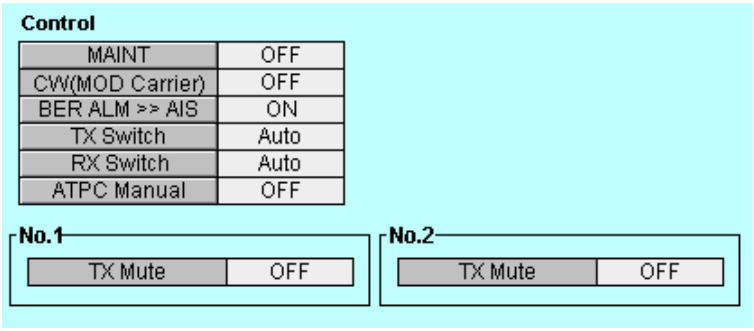
2.16.1 Maintenance Menu

To go to maintenance window:

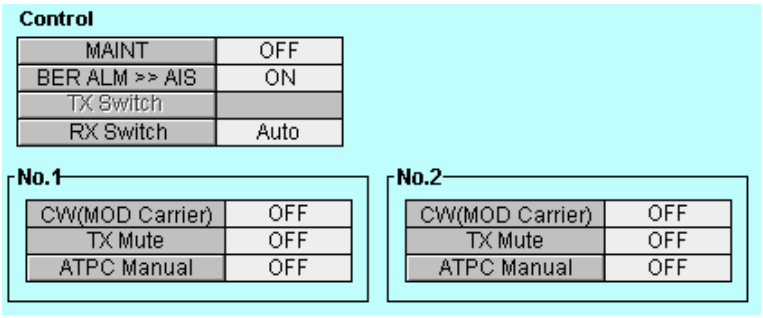
1. Select **Configuration → Maintenance** in the **NE-specific** menu bar, or click **MAINT** in the **Block Diagram**. The contents of the Maintenance window will depend on the type of IDU used. The following screenshots show some possible content of the Maintenance window which differs according to IDU type.



Maintenance window (1+0/1+0 Expandable Configuration)



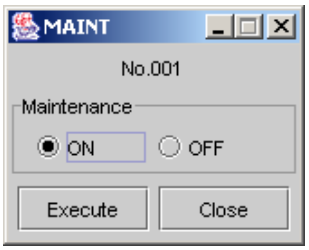
1+1 (Hot Standby) Maintenance window



1+1 (Twin Path) Maintenance window

2.16.2 Selecting Maintenance Mode

To switch the PASOLINK to maintenance mode:



1. Click **[MAINT]** in **Maintenance** window.
2. Select **ON/OFF** depending on desired state. When the Maintenance mode is ON, the status column covered with yellow color.
3. Click **[Execute]** to carry out the command.
4. Click **[Close]** when finished.

NOTE

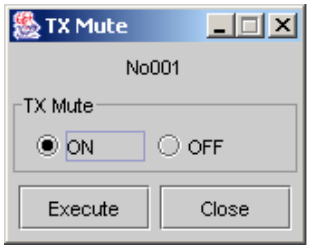
When the Maintenance mode is to be turned OFF, make sure that all items/functions controlled in maintenance mode i are turned OFF first. Otherwise, it is not possible to turn OFF the maintenance mode.

2.16.3 Selecting TX Mute Status

TX power of the ODU is switched off when TX Mute is **ON**. This should be **OFF** in normal operation.

To change the TX Mute status:

1. TX Mute function is available for any directly connected via cable with the PNMT. The control screen does not open; moreover, control functions are not available for any NE that are wireless opposite counterparts or connected remotely by search. Click **[TX Mute]** in **Maintenance** window.



NOTE

Switch ON maintenance mode first before executing TX Mute.

2. Select **ON/OFF** depending on the desired state. When TX Mute status is ON, the status column covered with yellow color.
3. Click **[Execute]** to carry out the command.

CAUTION

A message will appear, indicating that when TX mute is ON, the wireless link connection will be affected. The connection to the opposite Pasolink will be disrupted for a few minutes.

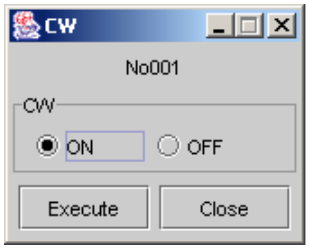
4. Click **[Close]** when finished.

2.16.4 Selecting Carrier Wave Status

When doing frequency measurements, the CW should be turned ON to have an unmodulated signal. During normal operation this status should be OFF.

To change the CW (MOD Carrier) status:

1. CW function is available for any NE with connected directly to the PNMT via cable. The control screen does not open; moreover control functions are not available for any NE that are wireless opposite counterparts or connected remotely by search. Click **[CW (MOD Carrier)]** in **Maintenance** window.



NOTE

Switch ON maintenance mode first before executing CW.

2. Select **ON/OFF** button depending on desired. When CW status is ON, the status column appears in yellow.
3. Click **[Execute]** to carry out command.

CAUTION

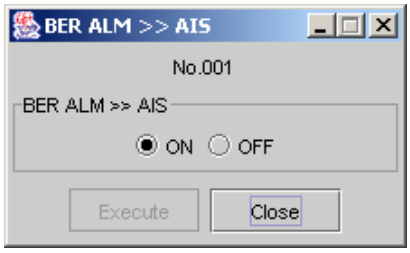
A message will appear, warning that when CW is turned ON the wireless link connection will be affected. The connection to the opposite Pasolink will be disrupted for a few minutes.

4. Click **[Close]** when finished.

2.16.5 Selecting BER ALM >> AIS

To change the BER ALM >> AIS status:

1. Click **[BER AIS]** in **Maintenance** window



NOTE

Switch ON maintenance mode first before executing BER ALM >> AIS. It is available to set this function regardless of the Maintenance status when MAINT on AIS Activation status is disabled.

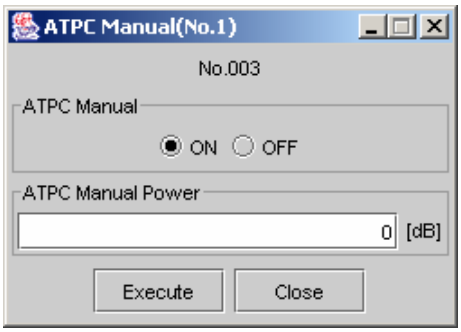
2. Select **ON/OFF** button depending on the desired state. When BER ALM >> AIS status is OFF, the status column is displayed in yellow.
3. Click **[Execute]** to carry out command.
4. Click **[Close]** when finished.

2.16.6 Selecting and Setting ATPC Manual Status

Used when an optional transmitting power is required when the ATPC is in operation.

To set the ATPC Manual:

1. ATPC Manual function is available when TX Power Control is ATPC. Item and status fields on are shown and item field filled with transparency letters, status indicates no information in case TX Power Control is MTPC. Click **[ATPC Manual]** in **Maintenance** window



NOTE

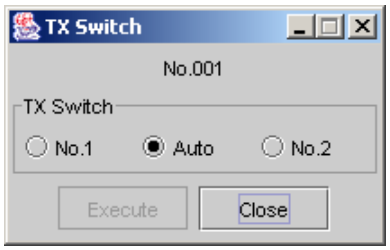
Switch ON maintenance mode first before executing ATPC Manual.

2. Select manually turning ON or OFF the ATPC manual and the ATPC manual power that will be transmitted in dB. When ATPC Manual status is ON, the status column appears in yellow.
3. Click **[Execute]** to activate the new setting.
4. Click **[Close]** when finished.

2.16.7 TX Switch (For 1+1 Hot Standby system only)

To switchover to the other system in 1+1 configuration:

1. TX Switch function is only available when 1+1 Hot Standby system. There is no field displayed in case 1+0 or 1+0 Expandable. Item and status fields are shown and the item field uses transparent letters, status indicates no information in case of 1+1 Twin Path. Click **[TX Switch]** in **Maintenance** window



NOTE

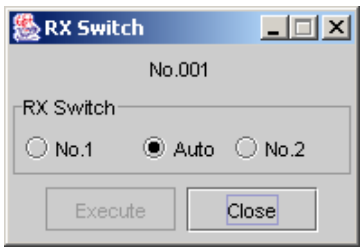
Switch ON maintenance mode first before executing TX Switch.

2. Select either manually TX to No. 1 or No.2 or allow the PASOLINK to Auto TX Switch. The TX Switch is normally set on Auto. When TX Switch status is No.1 or No.2 (except Auto), the status column appears in yellow.
3. Click **[Execute]** to activate the new setting.
4. Click **[Close]** when finished.

2.16.8 RX Switch (For 1+1 system only)

To switchover to the other system in 1+1 configuration:

1. RX Switch function is only available when 1+1 Hot Standby and 1+1 Twin Path system. There is no field displayed in case 1+0 or 1+0 Expandable. Click **[RX Switch]** in **Maintenance** window



NOTE

Switch ON maintenance mode first before executing RX Switch.

2. Select either manual switching of RX to No. 1 or No.2 or allow the PASOLINK to Auto RX Switch to be executed. The RX Switch is normally set on Auto. When TX Switch status is No.1 or No.2 (except Auto), the status column appears in yellow.
3. Click **[Execute]** to activate the new setting.
4. Click **[Close]** when finished.

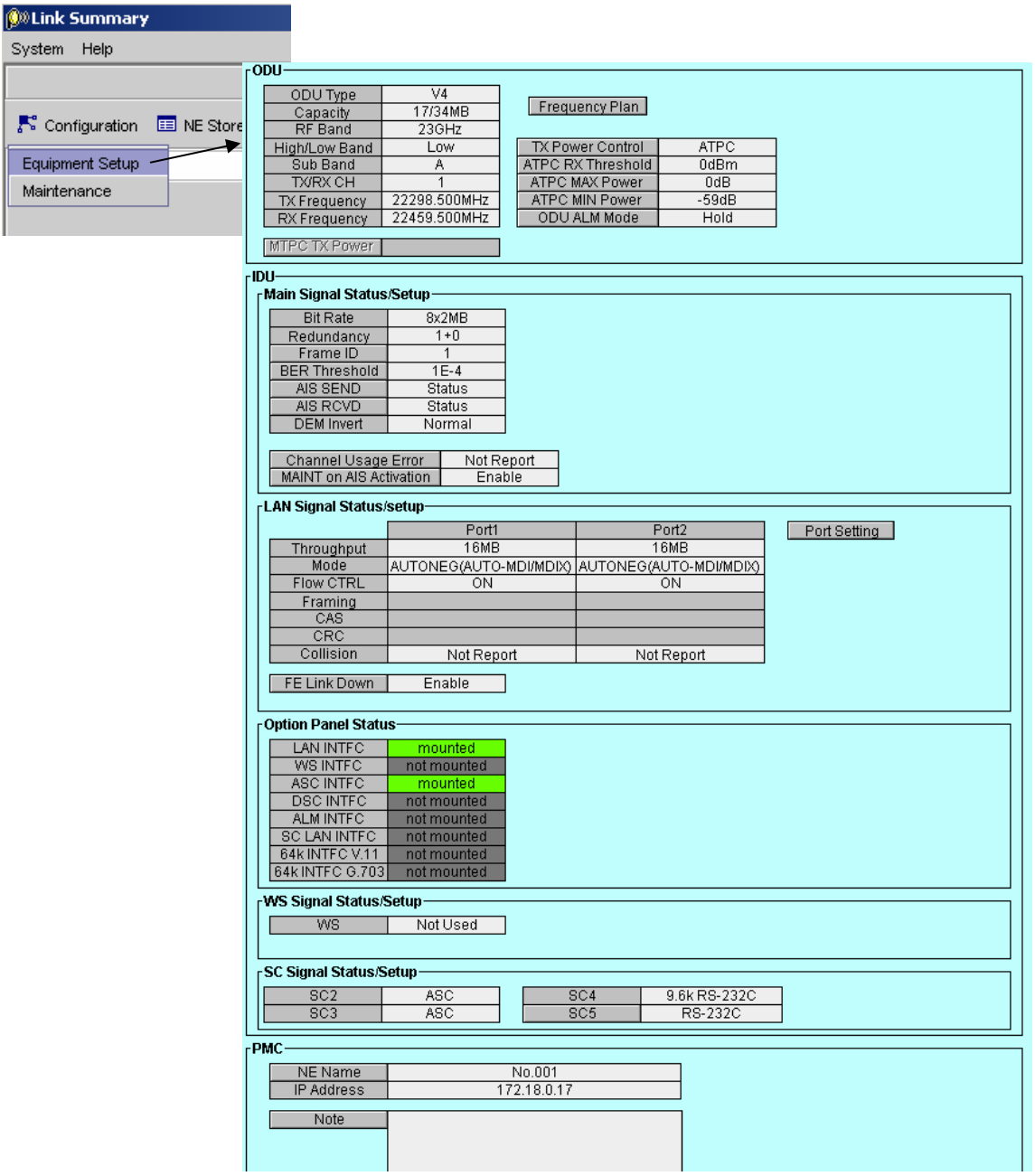
2.17 Equipment Setup

Main signal, Wayside signal, Service signal, ODU and PM card portion can be monitored and controlled in this window.

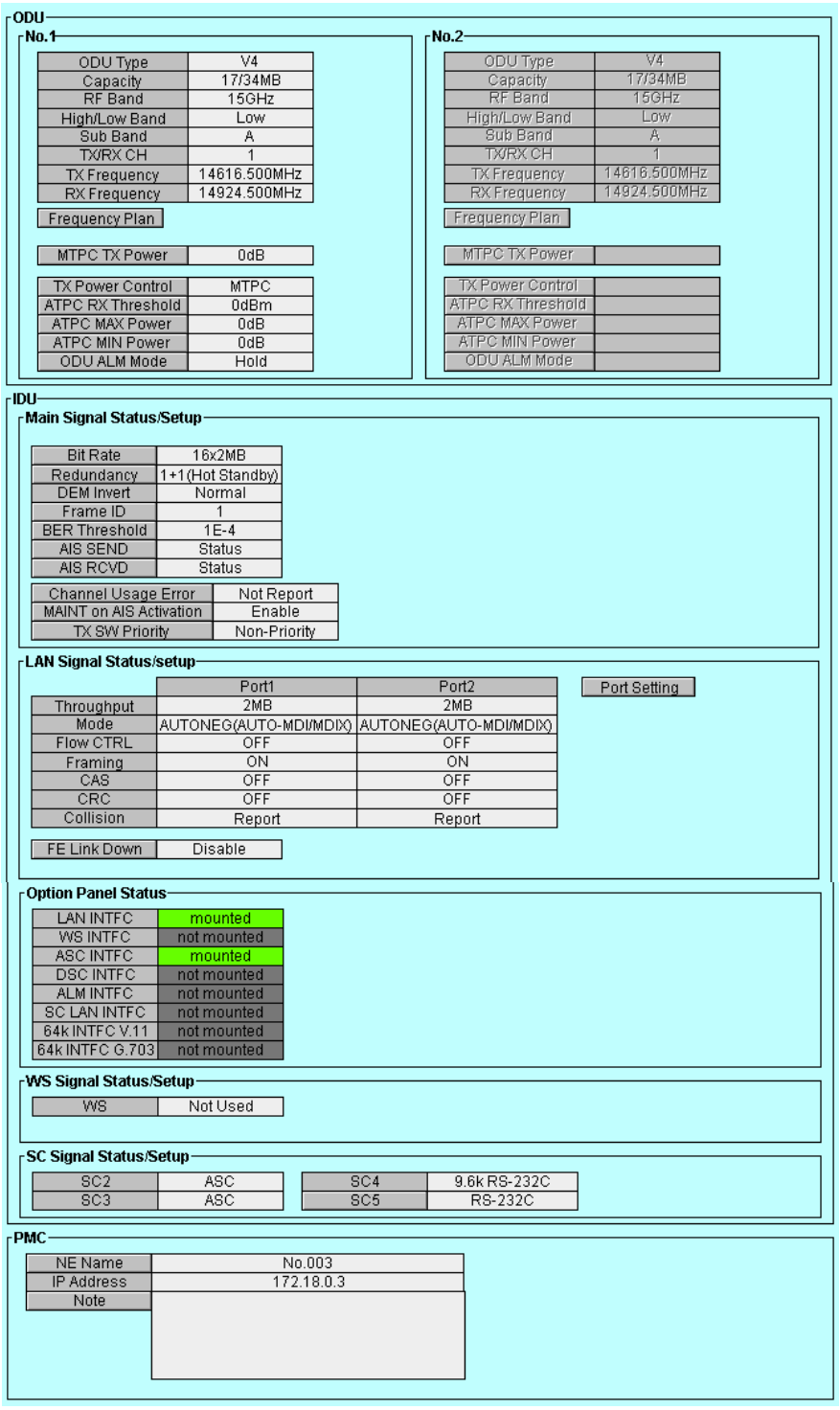
2.17.1 Equipment Configuration Monitor

To open the Equipment Configuration Monitor:

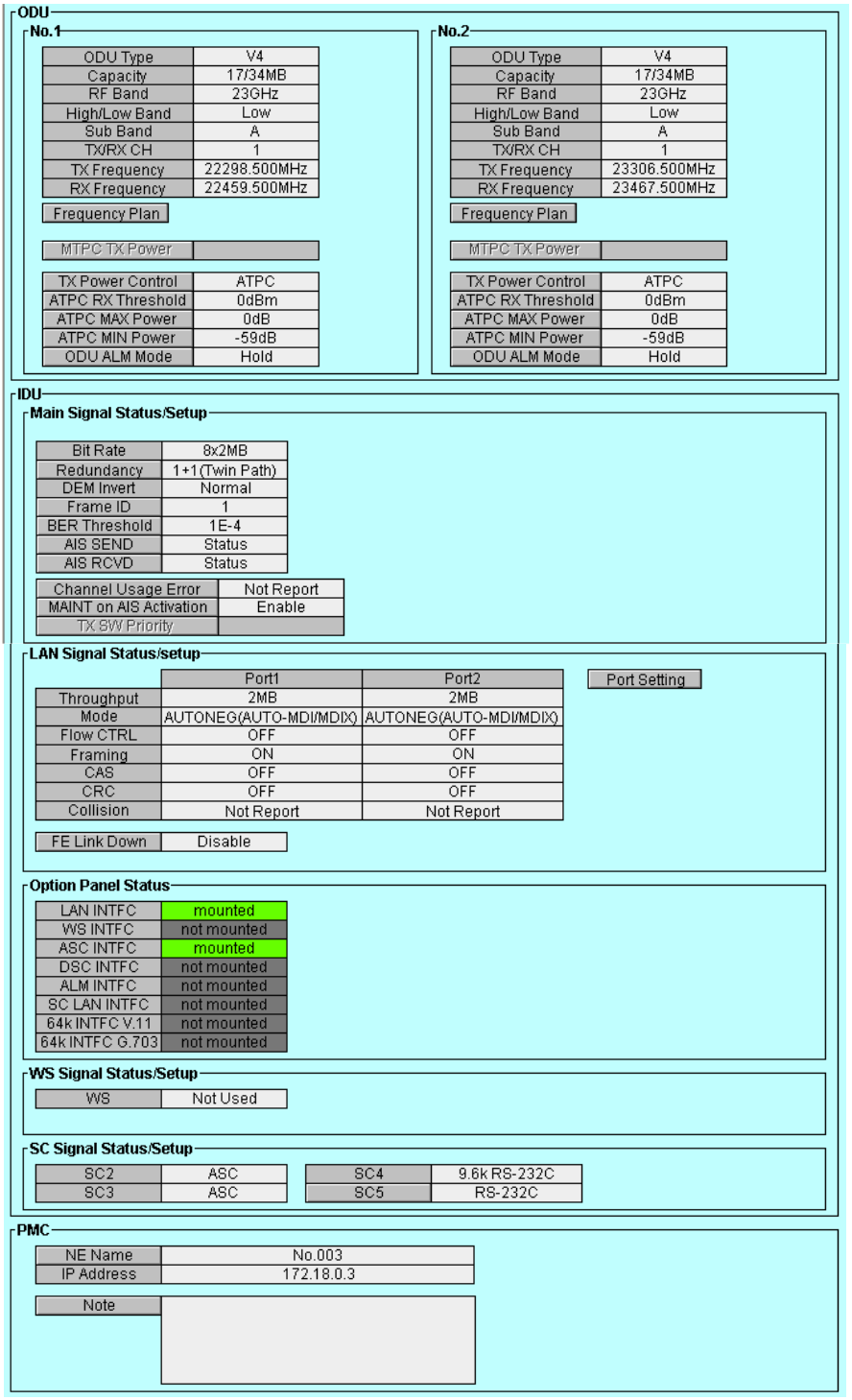
1. Select **Configuration → Equipment Setup** in **NE-specific** menu bar.
2. This window contains the setup information and control for the IDU and the ODU. The **Equipment Setup** window is shown below. LAN Signal Status /setup field is only displayed when there is a Main LAN Interface. Item and status fields are shown and item field filled with transparency letters, status indicates no information and title LAN Signal Status/setup uses black fonts when the system has no Main LAN Interface.



Equipment Setup 1+0 / 1+0 Expandable window



Equipment Setup 1+1 Hot Standby window



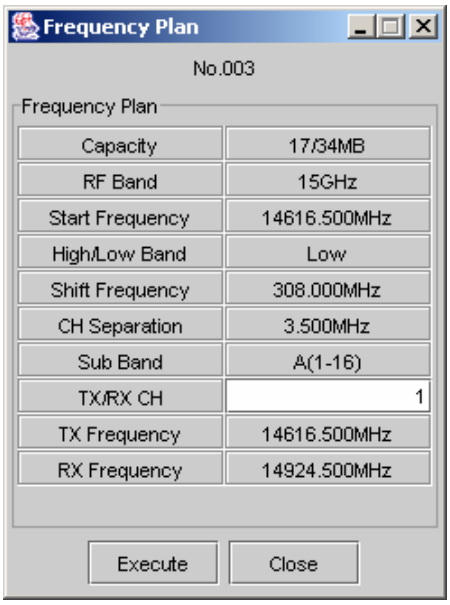
Equipment Setup 1+1 Twin Path window

2.17.2 Setting the Frequency Plan

To setup the frequency plan:

1. Click **[Frequency Plan]** in **Equipment Setup** window.
2. On **Frequency Plan** window, only the **TX/RX CH** is configurable. The rest of the items appear shaded in gray on the screen and are automatically set according to the allocated channel in **TX/RX CH**.

   NOTE: These parameter columns except TX/RX CH black fonts against a colored background
3. According to the allocated channel in **TX/RX CH**.
4. Click **[Execute]** to activate the new set of values.



CAUTION

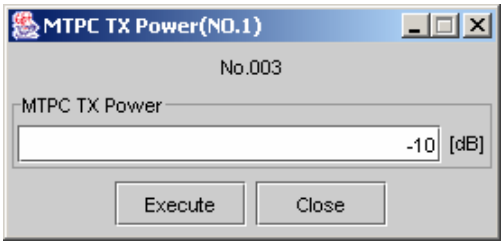
A message will appear, warning that changing the TX channel will affect the wireless link connection.

5. Click **[Close]** when finished.

2.17.3 Setting the MTPC TX Power

To set the TX attenuation:

1. MTPC TX Power function is available when TX Power Control is MTPC. Item and status fields are shown and item field filled with transparency letters, status indicates no information in case TX Power Control is ATPC. Click **[MTPC TX Power]** in **Equipment Setup** window.
2. Select the value of the MTPC TX Power with the pulldown menu. The MTPC TX Power is set in dB. The control range depends on the ODU type.
3. Click **[Execute]** to activate the new MTPC TX Power on ODU.
4. Click **[Close]** when finished.



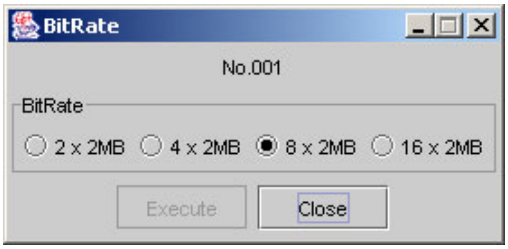
2.17.4 Setting the Bit Rate

NOTE:

- Bit Rate can be selected only for **Bit Rate Free**-type PASOLINK.
- In this window the operating bit-rate of the System is set.. The inventory operating mode or the ODU Capacity is shown in the ODU block of the Equipment setup window. The total operating bit-rate is always within the ODU transmission capacity.
- Changing the Bit Rate of the opposite wireless counterpart may have an effect on Custom Loop back (LB2) status of the local wireless network element. In case this occurs, cancel (turn off) the state of LB2 manually. The procedure for LB2 is shown in section 2.13.2.

To set the Bit Rate value:

1. Click **[Bit Rate]** in **Equipment Setup** window.



2. Select the bit rate value by clicking on appropriate bit rate button displayed in **Bit Rate** window.

NOTE

Some bit rate buttons may not be selectable -depending on the type of IDU used.

3. Click **[Execute]** to set the bit rate to the new value.

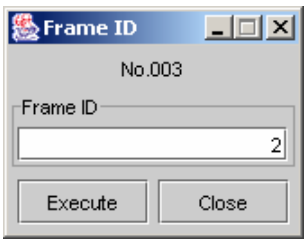
CAUTION

A message will appear, warning that changing the Bit Rate will affect the wireless link connection.

4. Click **[Close]** when finished.

2.17.5 Setting the Frame ID

To set the Frame ID:

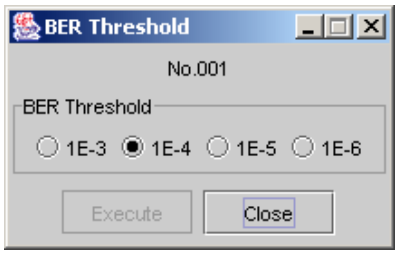


1. Click **[Frame ID]** in **Equipment Setup** window.
2. Select the desired value of the Frame ID from the pull-down menu. The Frame ID can be set from 0 to 7. Make sure that both NE's in hop are using the same Frame ID.
3. Click **[Execute]** to activate the new Frame ID.
4. Click **[Close]** when finished.

2.17.6 Setting the BER Threshold

To set the BER Threshold:

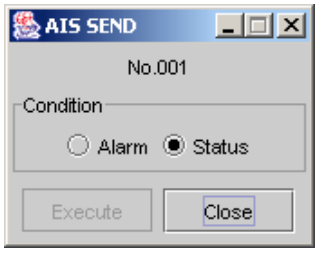
1. Click **[BER Threshold]** in Equipment Setup window.
2. Select the desired value of the BER Threshold.
3. Click **[Execute]** to activate the new setting.
4. Click **[Close]** when finished.



2.17.7 Setting the AIS SEND

To set the AIS SEND:

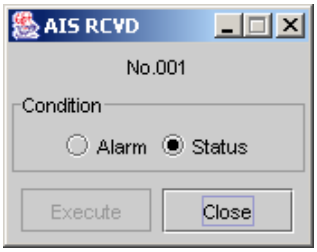
1. Click **[AIS SEND]** in **Equipment Setup** window.
2. Select whether you want the AIS SEND to send an Alarm to the upper system when activated or just Status – just as an entry in Event Log.
3. Click **[Execute]** to activate the new setting.
4. Click **[Close]** when finished.



2.17.8 Setting the AIS RCVD

To set the AIS RCVD:

1. Click **[AIS RCVD]** in **Equipment Setup** window.
2. Select whether you want the AIS RCVD to send an Alarm to the upper system when activated or just Status – just as an entry in Event Log.
3. Click **[Execute]** to activate the new setting.
4. Click **[Close]** when finished.



2.17.9 Setting the TX Power Control

To set the TX Power Control:

1. TX Power Control function is available for ODU Version 4. Item and status fields are shown and the item field uses transparent letters, status indicates no information in case of ODU Version 3. Click **[TX Power Control]** in **Equipment Setup** window.
2. Select whether the equipment is to be set to ATPC or MTPC.
3. Click **[Execute]** to activate the new setting.
4. Click **[Close]** when finished.

2.17.10 Setting the ATPC RX Threshold

To set ATPC RX Threshold:

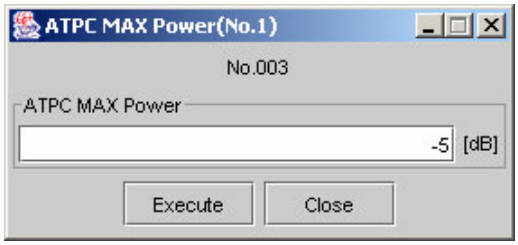
1. ATPC RX Threshold function is available for ODU Version 4. Item and status fields are shown and the item field uses transparent letters, status indicates no information in case of ODU Version 3. Click **[ATPC RX Threshold]** in **Equipment Setup** window.

2. Set the RX Threshold value from -80dB to -30dB when using the ATPC system.
3. Click **[Execute]** to activate the new setting.
4. Click **[Close]** when finished.

2.17.11 Setting the ATPC MAX Power

To set ATPC MAX Power:

1. ATPC MAX Power function is available for ODU Version 4. Item and status fields are shown and the item field uses transparent letters, status indicates no information in case ODU Version 3. Click **[ATPC MAX Power]** in **Equipment Setup** window.

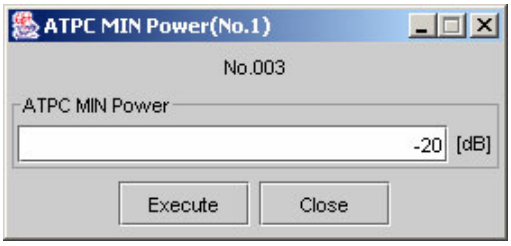


2. Set the ATPC MAX Power value from MIN Power to 0dB when using the ATPC system.
3. Click **[Execute]** to activate the new setting.
4. Click **[Close]** when finished.

2.17.12 Setting the ATPC MIN Power

To set ATPC MIN Power:

1. ATPC MIN Power function is available for ODU Version 4. Item and status fields are shown and the item field uses transparent letters, status indicates no information in case ODU Version 3. Click **[ATPC MIN Power]** in **Equipment Setup** window.

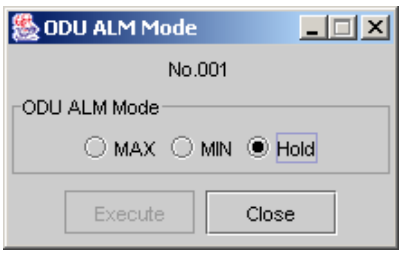


2. Set ATPC MIN Power value from -30dB to MAX Power when using the ATPC system.
3. Click **[Execute]** to activate the new setting.
4. Click **[Close]** when finished.

2.17.13 Setting the ODU ALM Mode

This function controls ATPC power to set value (MAX/MIN/Hold) when max power control is continued for more than 90 seconds or Frame ASYNC alarm occurrs and continues for more than 90 seconds.

To set ODU ALM Mode Status:

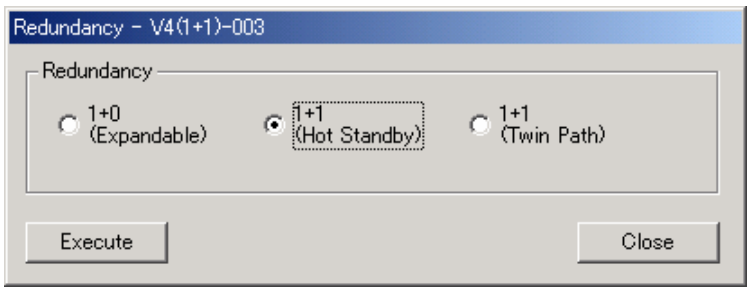


1. ODU ALM Mode function is available for ODU Version 4. Item and status fields are shown and the item field uses transparent letters, status indicates no information in case ODU Version 3. Click **[ODU ALM Mode]** in **Equipment Setup** window.
2. Set the ODU ALM Mode Status when using the ATPC system.
3. Click **[Execute]** to activate the new setting.
4. Click **[Close]** when finished.

2.17.14 Setting the Redundancy Status

To set the Redundancy Status:

1. Click **[Redundancy]** in **Equipment Setup** window.

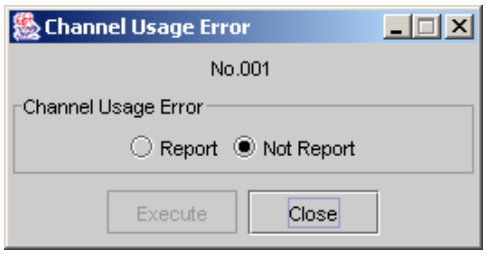


2. Select the desired status of the Redundancy system.
3. Click **[Execute]** to activate the new setting.
4. Click **[Close]** when finished.

2.17.15 Setting the Channel Usage Error Status

To set the Channel Usage Error Status:

1. Click **[Channel Usage Error]** in **Equipment Setup** window.



2. Select the desired setting for the Channel Usage Error. ***Report*** means an alarm will be generated when a signal is detected on a channel set as ***Not Used***. ***Not Report*** on the other hand, inhibits an alarm from being sent to the PNMT/S.
3. Click **[Execute]** to activate the new setting.
4. Click **[Close]** when finished.

2.17.16 Setting the MAINT on AIS Activation Status

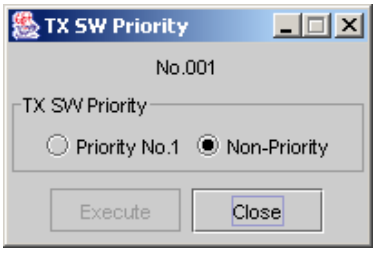
To set the MAINT on AIS Activation Status:

1. Click **[MAINT on AIS Activation]** in **Equipment Setup** window.
2. Select the desired status of the MAINT on AIS Activation.
3. Click **[Execute]** to activate the new setting.
4. Click **[Close]** when finished.

2.17.17 Setting the TX Switch Priority Status

This function defines, from a TX viewpoint, that the utilization priority of No.1 unit is higher than No.2 or that they have the same priority. In case the switch in the front panel of IDU has mandatory control of No.1 or No.2, the utilization follows the switch, and this function becomes meaningless. When the TX switch mode is controlled to No.1 or No.2 manually from PNMT, this function doesn't mean any longer either. It is available when both IDU and PNMT are an auto TX switch mode. **Priority No.1** makes TX switch turn to No.1 when TX switch mode is changed to auto from manual even if TX switch is selected No.1 or No.2 before switch mode changing. **Non-Priority** makes TX switch no-change when TX switch mode is changed to auto from manual even if TX switch is selected No.1 or No.2 before switch mode changing.

To set the TX Switch Priority Status:



1. TX SW Priority function is available when 1+1 Hot Standby and 1+0 Expandable system. For the 1+0 case, no field is displayed. Item and status fields are shown and the item field uses transparent letters, status indicates no information in case 1+1 Twin Path. Click **[TX SW Priority]** in **Equipment Setup** window.
2. Select the desired status of the TX Switch Priority.
3. Click **[Execute]** to activate the new setting.
4. Click **[Close]** when finished.

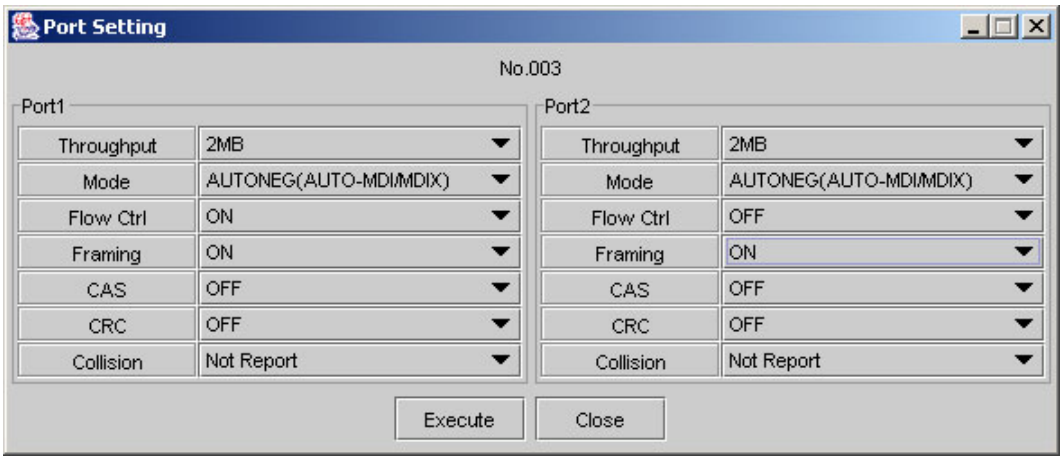
2.17.18 Setting the MAIN LAN INTFC

This function enables you to set the 10BASE-T or 2M and its properties. When the 10BASE-T is available, you can select bandwidth for Port1 and Port2 wherein the sum of bandwidth of Port1 and Port2 is equal to or less than the bit rate (Port1+Port2 ≦ Bit Rate). Port 2 cannot be set to a larger throughput than Port 1.

CAUTION

Port1 and Port2 settings have to be reset if the Bit Rate is changed.

To enable the Port Setting:



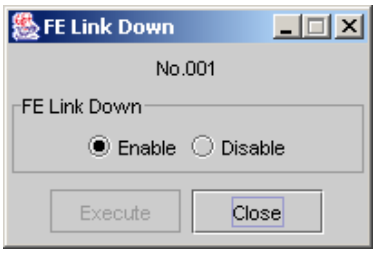
There are seven items that can be executed for each port in Port Setting menu. The function of each control is as follows.

Throughput:	This function selects bandwidth for Port1 and Port2. Sum of the bandwidth of Port1 and Port2 should be less than or equal to the bit rate (Port1+Port2 <= Bit Rate).
Mode:	This function corresponds to the LAN interface signal speed and mode.
Flow CTRL:	This function is used to restrict the quantity of the packet sent to Switching Hub so as not to cause buffer overflow hat will lead to dropped packets.
Framing:	This function is used to frame the signal in G.704 E1 format. This means that signal will be framed in 64Kbps timeslots.
CAS:	Channel Associated Signaling. If set to ON (1), the LAN signal is multiplexed to the data channel excluding CAS channel field. This means that there will be a dedicated in-band signaling channel. If set to OFF (0), the LAN signal will be multiplexed to the data signal, including the CAS channel field. In other words, there will be no dedicated channel for in-band signaling. This function is available if framing is set to ON.
CRC:	Cyclic Redundancy Check: The method used to detect the error of received by adding a CRC-bit to the packet frame. The CRC-bit is then checked at the receiving side.
Collision:	If the LAN is set in half-duplex mode, collision is normally reported (as event) to the NMS. Collision is not considered an alarm so it is just a status report. In case, that the collision report is not to be forwarded to the NMS, this can be masked by setting it to Not Report. This function is available if framing is set to ON.

2.17.19 Setting the FE Link Down Status

When Link fault information is received from an opposite site, release the LAN connection from the interface. When a Link fault is detected, it sends Link fault information to the opposite site and also releases the LAN connection. Disable means that Far End Link Down control is not available

To set the FE Link Down status:

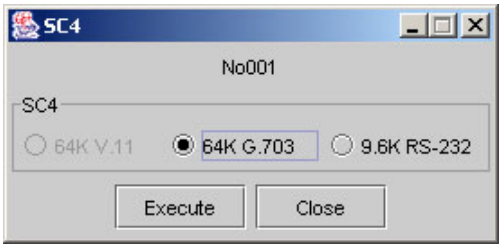


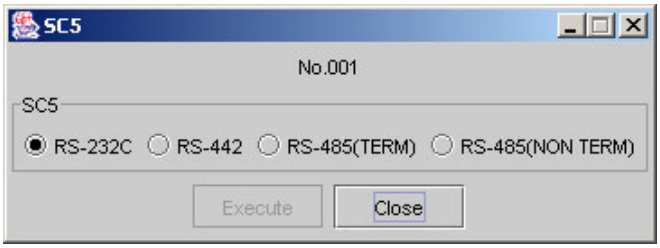
1. Click **[FE Link Down]** in **Equipment Setup** window.
2. Select the desired status of the FE Link Down window.
3. Click **[Execute]** to activate the new setting.
4. Click **[Close]** when finished.

2.17.20 Setting the Service Channels (SC4/SC5)

To set the Service Channels – SC4 and SC5:

1. Click either **[SC4]** or **[SC5]**.

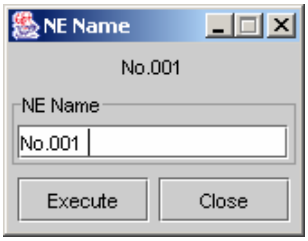




2. Select desired speed and interface to be associated with the service channel.
3. Click **[Execute]** to activate the new setting
4. Click **[Close]** when finished.

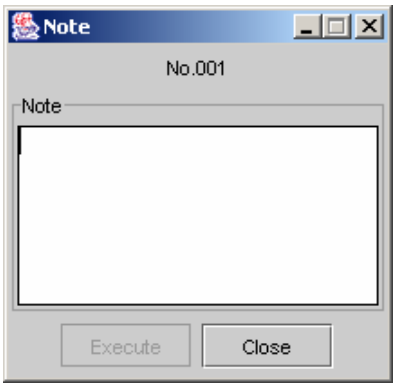
2.17.21 Editing the NE Name

To edit the NE name:



1. Click **[NE Name]** in **Equipment Setup** window.
2. Enter new NE name in **NE Name** dialog box. A maximum of 32 characters can be used.
3. Click **[Execute]** to change to new name.
4. Click **[Close]** when finished.

2.17.22 Editing the Note for NE



To put an optional description on current NE:

1. Click **[Note]** in **Equipment Setup** window.
2. Enter the optional description for the specific NE in **Note** dialog box. A maximum of 100 characters can be used in this field.
3. Click **[Execute]** when finished.
4. Click **[Close]** when finished.

2.18 Link Performance Monitor

The following performance items can be monitored according to the parameters expressed in the G.826 recommendation:

ES: Errored seconds

SES: Severely errored second

UAS: Unavailable Seconds

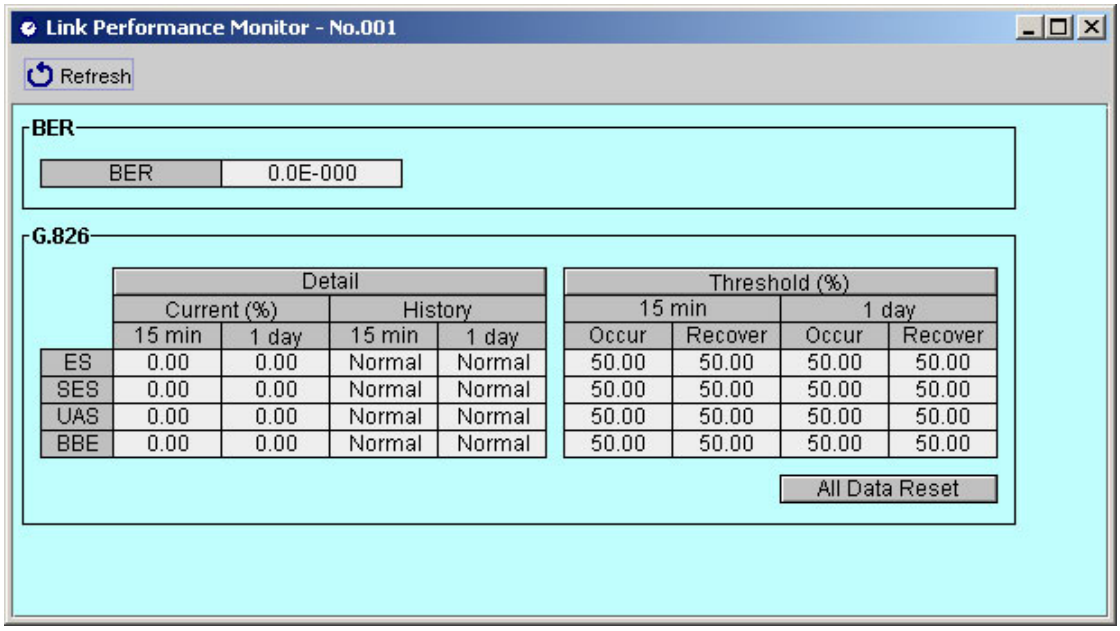
BBE: Background Block Error

This window displays each performance item's value in two kinds of measurement periods: a 15-minute interval (15 min) and a 24-hour interval (Day). The current (%) value of 15 min and Day in the left table means the value of counts of ES, SES, UAS and BBE every 15 minutes and per day (24 hours) as a percentage respectively. Each value is calculated based on the following method. The background color of each value is the result of the threshold value setting. That is, if measurement data value exceeds an alarm occurence level, the background color will turn pink, and will revert to white once the measurement data value is less than the alarm resolution level. The threshold values can be set in the Threshold window. Moreover, all data can be reset using the **[All Data Reset]** button. Detailed daily performance data can be seen by clicking **[Detail]**.

2.18.1 Viewing Summary Link Performance Monitor

To view Summary Link Performance Monitor:

1. Click **Link Performance Monitor** in **NE-specific** menu bar of the target PASOLINK – the PASOLINK that you intend to monitor.



Summary Link Performance Monitor window

Current (%)

ES, SES, UAS (15 min)

The number (A) of counts for 15 minutes is divided by 900 seconds, which is multiplied with 100 and the result is displayed as a percentage.

$$Value = \frac{A}{900} \times 100$$

BBE (15 min)

The blocks number times 900 seconds, which is multiplied with 100 divide the number (A) of counts for 15 minutes and the result is displayed as a percentage. The value of blocks depends on the bit rate. Refers to the following table of the relation of blocks value and bit rate.

$$Value = \frac{A}{900 \times blocks} \times 100$$

ES, SES, UAS (Day)

The number (A) of counts through fixed 15 minutes period from 00:00 to 23:45 is divided by total number of seconds (B) where B is 900 seconds * number of 15 minutes blocks. The value is multiplied with 100 and the result is displayed as a percentage.

$$Value = \frac{A}{B} \times 100$$

Note) the maximum B value is 86400(=900*96) seconds.

BBE (Day)

The number (A) of counts through fixed 15 minutes period from 00:00 to 23:45 is divided by total number of seconds (B) times blocks value where B is 900 seconds * number of 15 minutes blocks. The value is multiplied with 100 and the result is displayed as a percentage. The value of blocks depends on the bit rate. Refers to the following table of the relation of blocks value and bit rate.

$$Value = \frac{A}{B \times blocks} \times 100$$

Note) the maximum B value is 86400(=900*96) seconds.

The current status color

If the threshold alarm occurs in a certain measurement period, the background color of the value of corresponding performance item changes from white to pink and changes back from pink to white only after the value of performance item no longer exceeds the threshold recovery level once during the next measurement period,

History 15 min status

The status of each performance item on 15 min of History in table means the existence of threshold alarm occurrence. The Alarm string in field indicates an occurrence of the performance items exceeding the threshold alarm occurence level at least in the 15-minute interval data for the past seven days. In order to change from **Alarm** to **Normal**, it is required for the past seven days for each 15-minute interval data not to exceed a threshold alarm recover level.

History Day status

The status for each performance item on Day of History in the table means the existence of threshold alarm occurrence. The Alarm string in field indicates an occurrence of performance items exceeding the threshold alarm occurance level at least in the 24-hour interval data for the past seven days. In order to change from ***Alarm*** to ***Normal***, it is required for the past seven days for each 24-hour interval data to not exceed the threshold alarm resolution level.

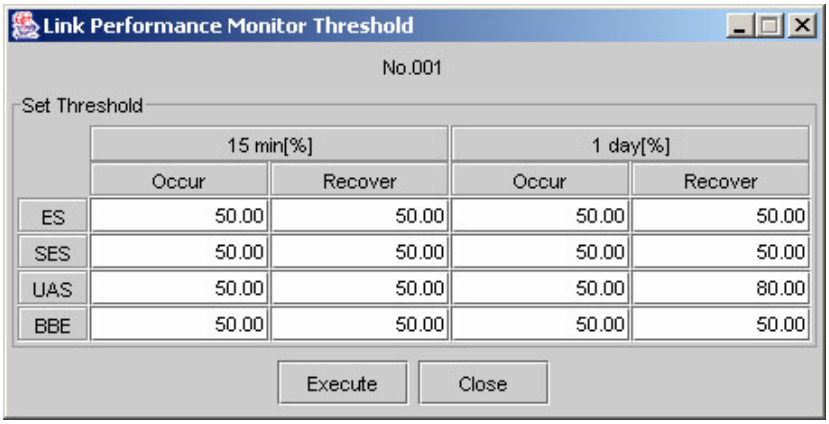
	Bit Rate	Blocks per second (blocks)
1	2*2 MB	341
2	4*2 MB	1338
3	8*2 MB	1338
4	16*2 MB	1338
5	1*8 MB	559
6	1*34 MB	2166
7	4*1.5 MB	603
8	8*1.5 MB	603
9	1*45 MB	2427
10	16*1.5 MB	603

The relation of blocks value and bit rate

2.18.2 Threshold Setting

To set the threshold values:

1. Click **[Threshold (%)]**in **Summary Link Performance Monitor** window



2. Select the performance item that is to be configured in the table shown above. The G.826 measuring parameters become available for setting when selected. The arrow buttons on the left-hand side of the field indicates this.
3. Set the value when the alarm **ocurred *(Occur)*** and when the alarm **was resolved (*Recover)*** in the appropriate field. The measuring parameter will initiate an alarm status indication when it reaches the alarm occurence ***(occur)*** value or an alarm clear status when it reaches the resolution (recover) value set in threshold table.
4. Click **[Execute]** to activate the new settings.
5. Click **[Close]** when finished.

The threshold value used in this table is expressed as a percentage. The ***alarm recover*** level must have a value lower than the ***alarm occur***" level. In case the threshold value you wish to use is in count form (as shown in the below table), please convert it into percentage first according to the explanation in the preceding chapter.

	Performance Item	Threshold (count) (A)	Expression	Threshold (%) (B)
15min	ES,SES,UAS	90	A/900*100=B	10.00
	BBE (BitRate=2*2MB)	3069	A/(900*blocks)*100 (Blocks=341)	10.00
1Day	ES,SES,UAS	8640	A/86400*100=B	10.00
	BBE (BitRate=2*2MB)	2946240	A/(86400*blocks)*100 (Blocks=341)	10.00

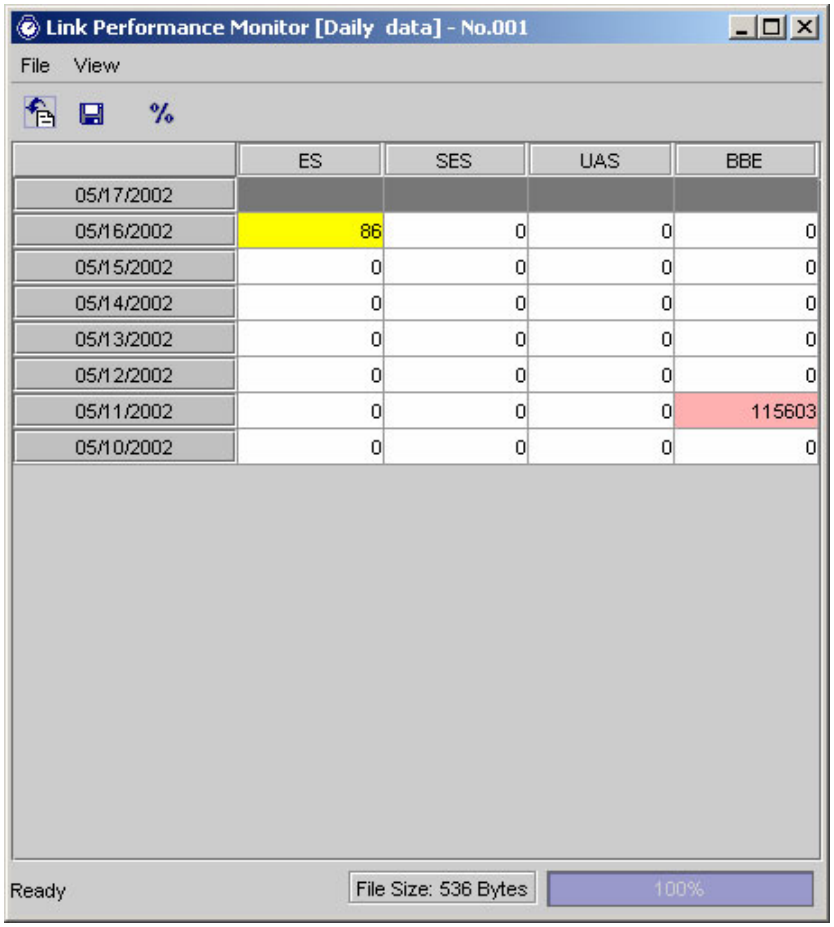
Threshold value Conversion

2.18.3 Link Performance Monitor (Daily Data) window

This window contains the 24-hour performance data for the current 8 days.

To view the Link Performance Monitor (Daily Data) window:

1. Click **[Detail]** in **Link Performance Monitor** window.



Link Performance Monitor (Daily Data) window

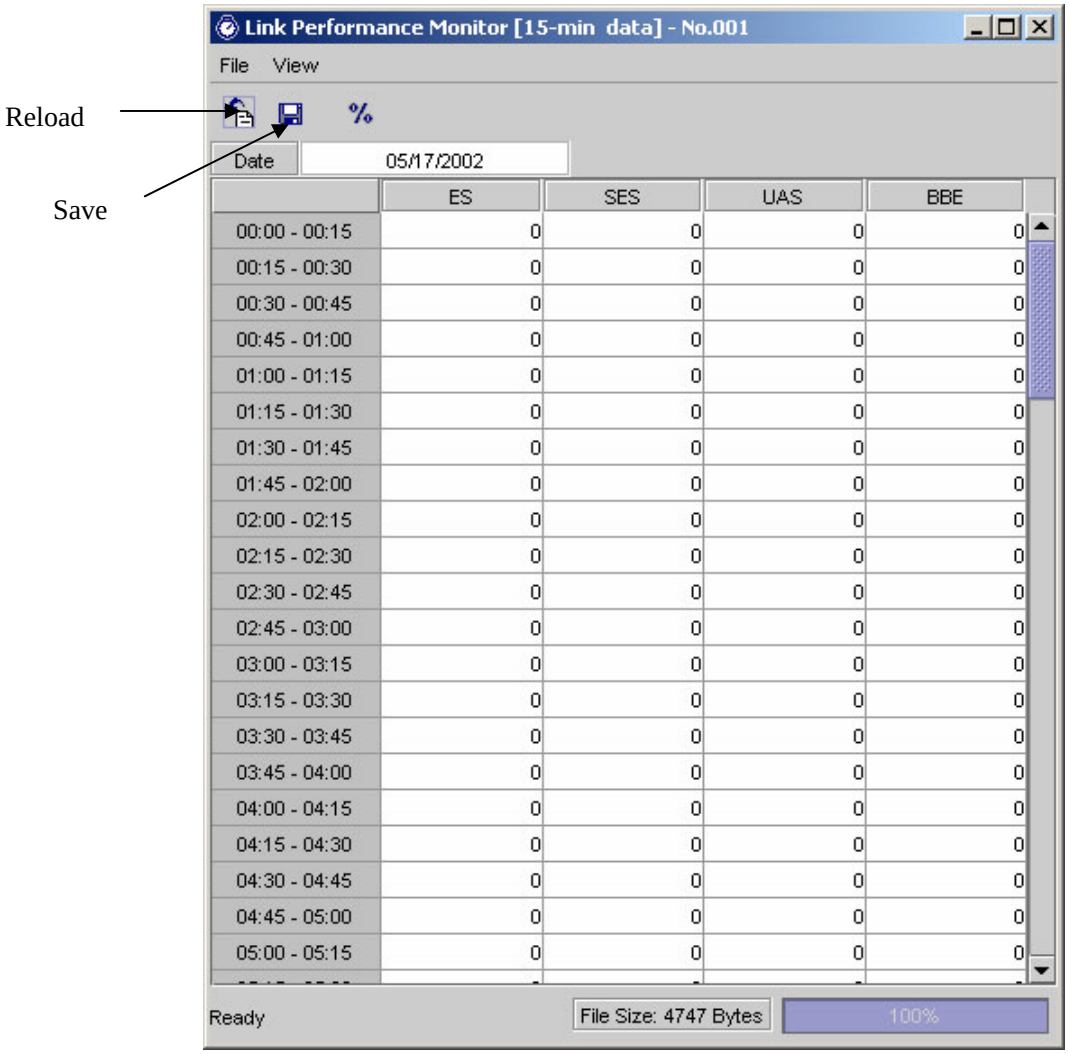
2. On this window a table presents the available data in PMC. The table is presented as G.826 measuring parameters versus the Date. The date buttons on the right-hand side of the table are selectable. Moreover, the buttons reflect the summary alarm for that specific date.

3. Click date to display the detailed 15-min data for that date.

2.18.4 Link Performance Monitor (15-min Data) window

To view the 15-min data of the desired date:

1. Click of the target date in Link Performance Monitor (15-min Data) window to display the detailed 15-min performance data.

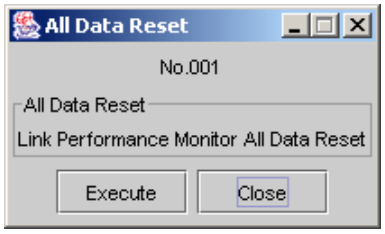


Link Performance Monitor (15-min Data) window

2. The data can be saved in text format by clicking then **save** icon. It can be refreshed by clicking the **refresh** button.

2.18.5 All Data Reset

1. Click **[All Data Reset]** in Summary **Link Performance Monitor** window.



WARNING!!!

Make sure that the current data has been saved. This operation will delete all the performance data of the current week.

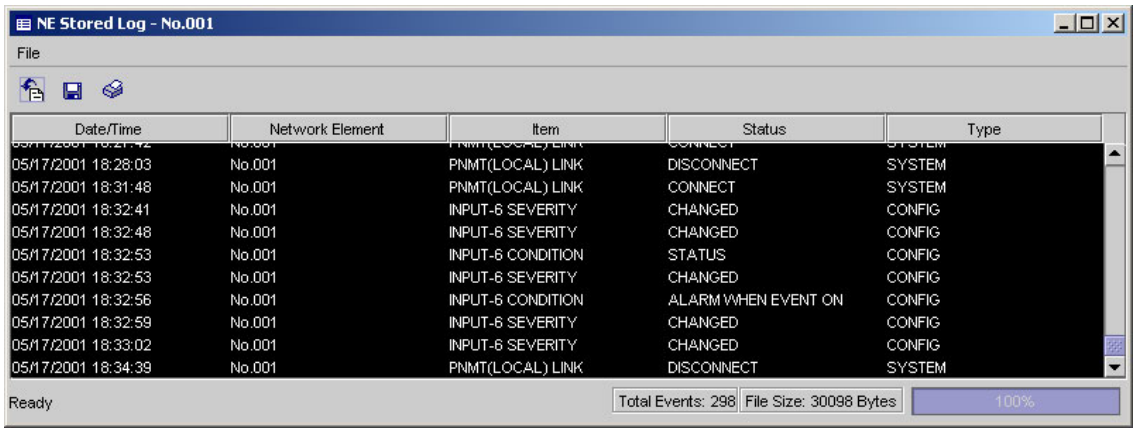
2. Click **[Execute]** to reset all the data.
3. Click **[Close]** when finished.

2.19 NE Stored Log

The NE Stored Log window displays the date when the event or command was received, the equipment, item, and status.

2.19.1 NE Stored Log Monitor

1. Click **NE Stored Log** in **NE-specific** menu bar of the target PASOLINK – the PASOLINK that you intend to monitor.
2. A message window showing the progress of the uploading of the NE Stored Log data will appear on screen. Wait until the PNMT finishes uploading the data. The progress window will automatically close once the uploading is completed.
3. The **NE Stored Log View** will be displayed. The NE Stored Log is presented in a table format showing the date of the event, the item that triggered the event and the status change.



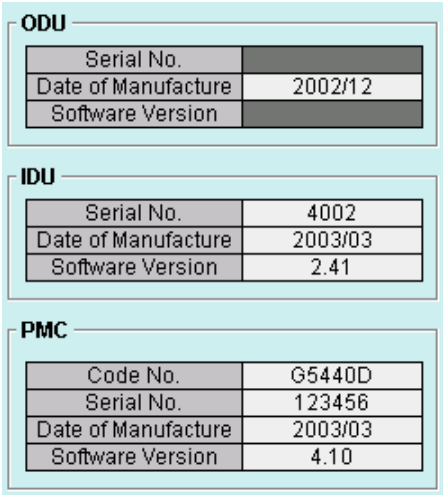
2.20 Version Tab

The inventory information of the PM card, ODU and IDU can be viewed using this function.

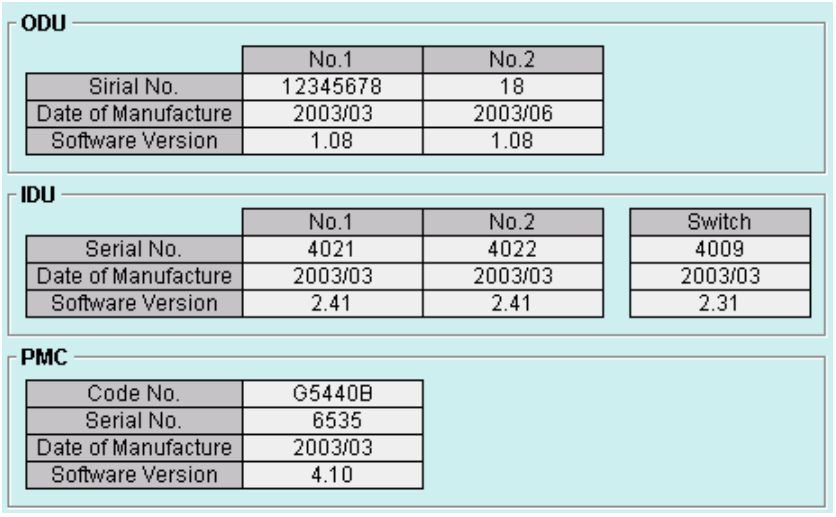
2.20.1 Version Monitor

To display version of ODU, IDU and PMC

1. Select the **Version tab** in **PNMT** main window.
2. The version tab shows the Date of Manufacture, Software Version, Serial No. and Code No. of the ODU, IDU and PMC. ODU Serial No. and ODU Software Version fields are shown and the item field uses black fonts, status indicates no information in case of ODU Version 3.



Version window for (1+0)



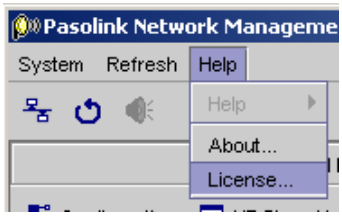
Version window for (1+1)

2.21 License import

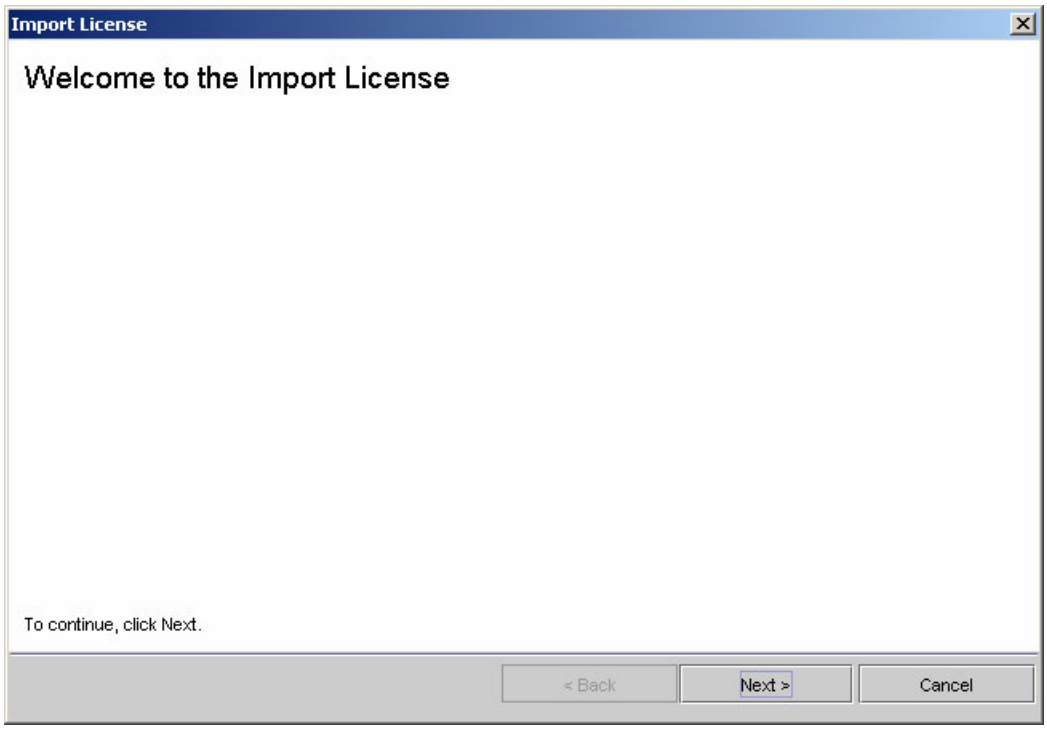
2.21.1 License import

To update the license file:

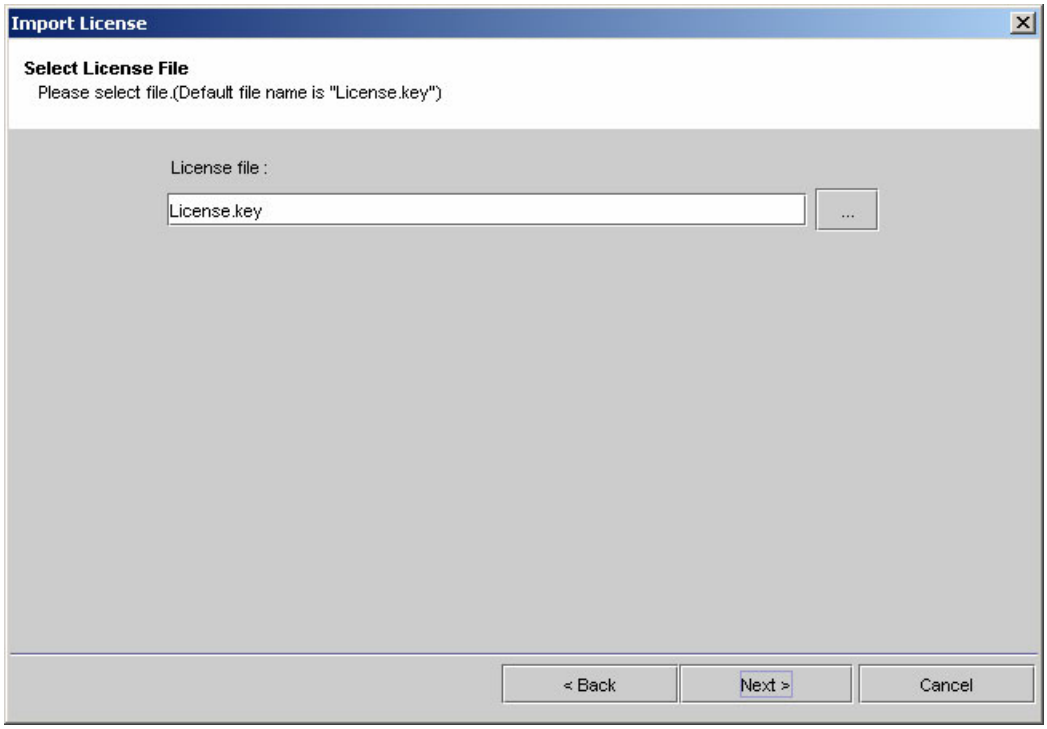
1. Go to **Help → License** in the menu bar on PNMT main window.



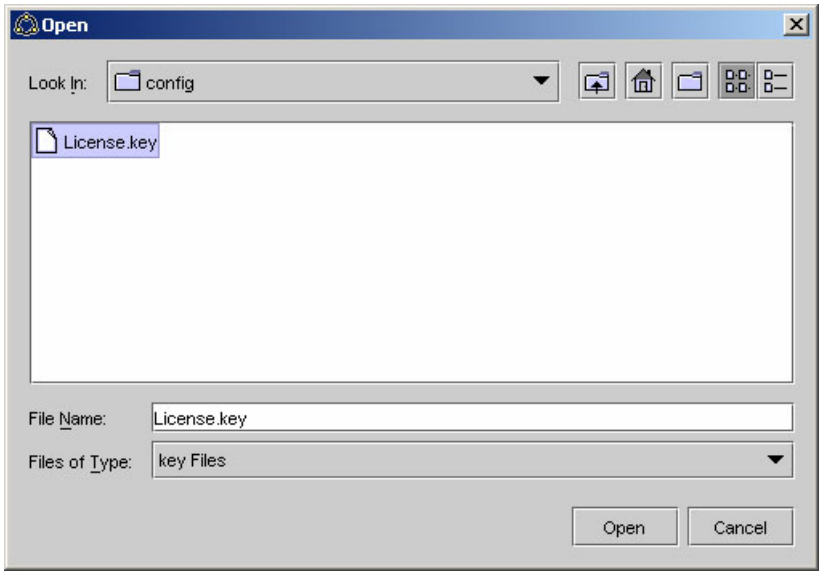
2. **Import License Wizard** will appear on screen. Click **[Next]** to continue.



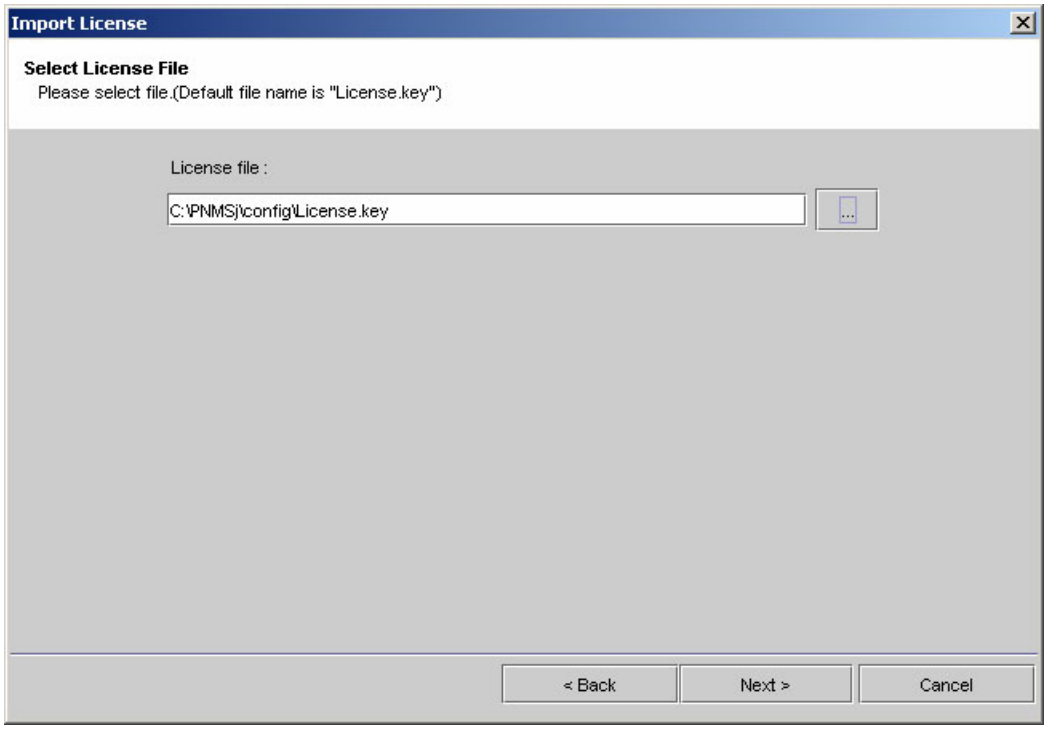
3. Click **[…]** to locate the new license key file.



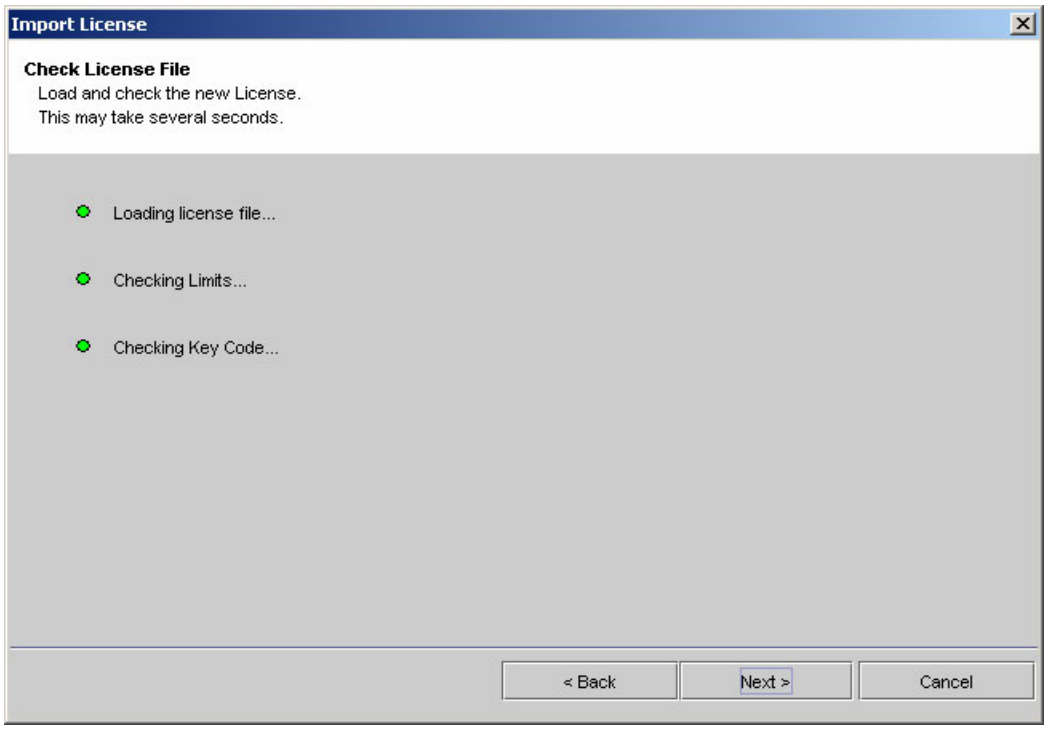
4. Indicate the License key file (i.e. License.key) for the PNMT. Select the License key file and click **[Open]** to continue.



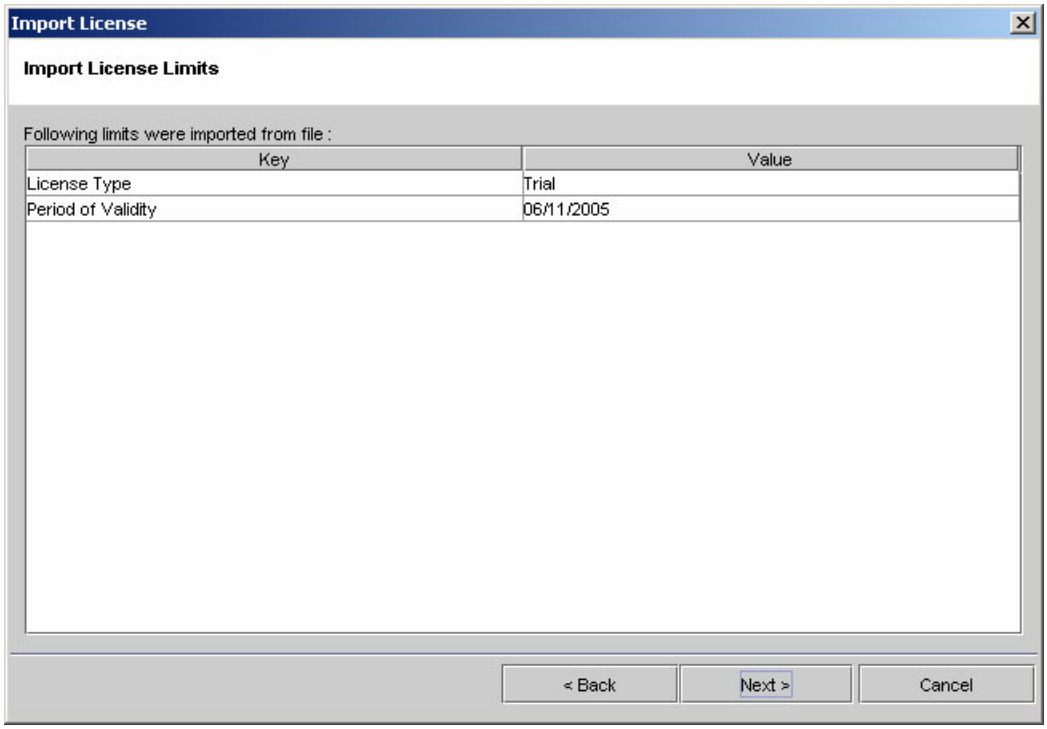
5. After verifying that the path to License key file is correct, click **[Next]** to proceed.



6. The progress of checking the license file will be displayed. If no error is encountered during checking the license file, click **[Next]** when the button becomes available.



7. Verify the contents of the license you are applying for.



8. Click **[Finish]** in ensuing window to complete the license application.