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NEC

P ASOLINK

N ETWORK

M ANAGEMENT

T ERMINAL

PNMT (Java version) Operation Manual

(for PASOLINK NEO)

NEC Corporation

Table of Contents

Document Warranty

1. The information contained in this document is subject to change without prior notice.
2. The PNMS/PNMT screen figures 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 publishing; however, they may differ slightly from the actual screens on your PNMS/PNMT.
3. This manual is written on the assumption that you already understand the restrictions, limitations and precautions necessary to operate the equipment properly. Refer to the equipment manual for details.

1 Getting Started

1.1 Introduction

The PNMT is a computer-based PASOLINK Network Management Terminal system developed by NEC for management of NEC's PASOLINK wireless transmission network. The PNMT is a scaled down version of 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. Throughout this manual, "the PNMT" generally refers to the mobile laptop computer in which the NEC PNMT software package (that interfaces and controls NEC PASOLINK series short haul wireless equipment) is installed in.

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

1.2 Conventions Used in This Manual

Font	What the Font Represents	Example
Italic	For manual titles or related document names.	Please refer to *PASOLINK Operation Manual* for details.
Hostname Bold	Items on the user interface. Items on the computer display. File and directory names.	The **Overall** window
[Button]	Buttons on the user interface.	Click **[OK]** button to continue Click **[Execute]** button to send command.
Menu Items	A menu name followed by a colon (:) means that you must select the menu and then item. When the item is followed by an arrow (→), a cascading menu follows.	Select **System → Login/Logout**
<username>	A command variable where 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

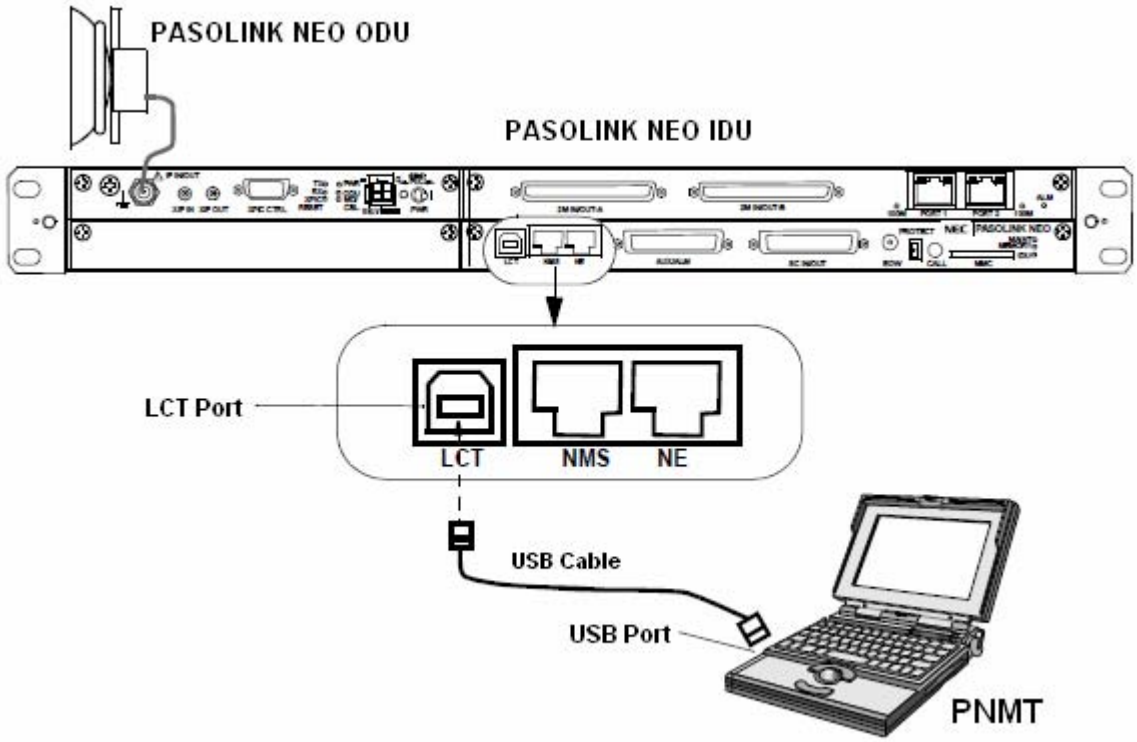
1.3.1 Communications

Communications between the PNMT and the wireless network equipment can be

- via the **LCT** port of the equipment

1.3.2 LCT Port Interface

The LCT port is located on the front of the equipment.



PNMT – IDU Connection

The PNMT and the Control (CTRL) Module mounted in the IDU must be connected using a standard USB cable (the ***Type A*** plug is fitted into the ***Type A*** socket of the PNMT computer and the ***Type B*** plug is fitted into the ***Type* B** socket of the LCT Port on the IDU Control [CTRL] Module)

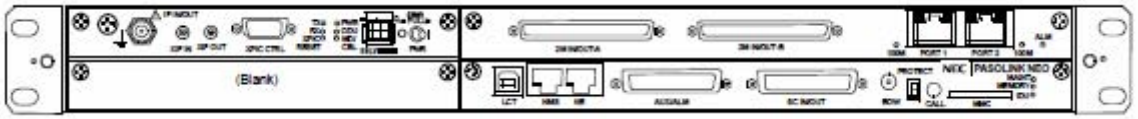
The LCT port has the following specifications:

- Connector type: USB Type B (female)
- Bit per second rate: 1200/2400/4800/9600/19200 (default 19200)
- Stop bits: 1
- Data bit length: 8
- Parity: no parity

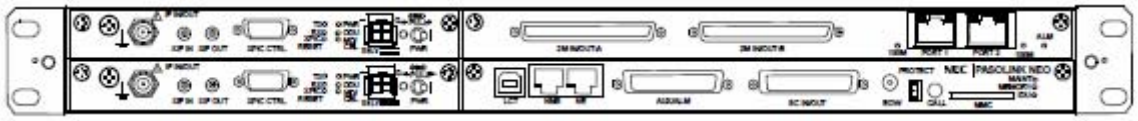
1.4 Equipment Configuration of PASOLINK NEO

PASOLINK NEO has 3 types of IDU.

- 1+0 (Terminal)
- 1+1 (Hot Stand-by)
- 1+1 (Twin Path)



1+0 (Terminal)



1+1 (Hot Stand-by), 1+1 (Twin Path)

1.5 Hardware Requirements

Recommended configuration of PNMT mobile computer.

- CPU: pentium M 1.60GHz or equivalent
- RAM: 512MB or more
- HD: 40GB or more
- Display: color LCD (1,024 × 768) or more
- FD drive
- CD-ROM drive
- USB port
- Serial port (RS-232C)
- 10/100BASE-T(X) LAN port
- USB cable with USB-B connecter
- Internal sound system with speaker

1.6 Software Requirements

- OS: Windows2000 Professional (English version) with SP4 or higher
  Windows Xp Professional (English version) with SP2 or higher
- IE6.0 with SP2 or higher
- Java Runtime Environment **v 1.4.2_11** or higher
  (**JRE v 1.5** is not currently supported.)
- Acrobat Reader
- PNMT Application software

2 System Operation & Maintenance

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

2.1 The PNMT Screen

The PNMT window comprises the following main parts (Refer to Figure 1).

- **Title Bar**

The title bar of the window is used to indicate the title of the window.

- **Common Menu Bar**

The common menu bar of the window presents the **System** and **Help** options, illustrates the commands that can be executed from the various options. The **Help** function also can display operation manual.

- **NE-specific Menu Bar**

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

- **Block Diagram**

The block diagram illustrates the equipment/part of the PASOLINK wireless system. Its main purpose in the window is to display the current summary alarm state 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/part of the NE. You can select the tab or the block of the specific equipment/part which you want to monitor in the data window.

- **Tabs**

To view the status and alarms in the specific part of the NE, click on the tab at the bottom of the Data window.

- **Command Button**

The command button is used to enter the data selected on the pop-up window into the computer.

- **Text Box**

This is a standard Windows dialog box where the user inputs the desired value.

- **Login User**

This indicates the user currently logged-in to the PNMT.

- **Background color attribute for each alarm and status**

The respective Background color of each alarm and status are as follows:
normal: Green, major alarm: Red, minor alarm: Pink,
status value: White, disabled: Gray, maintenance: Yellow

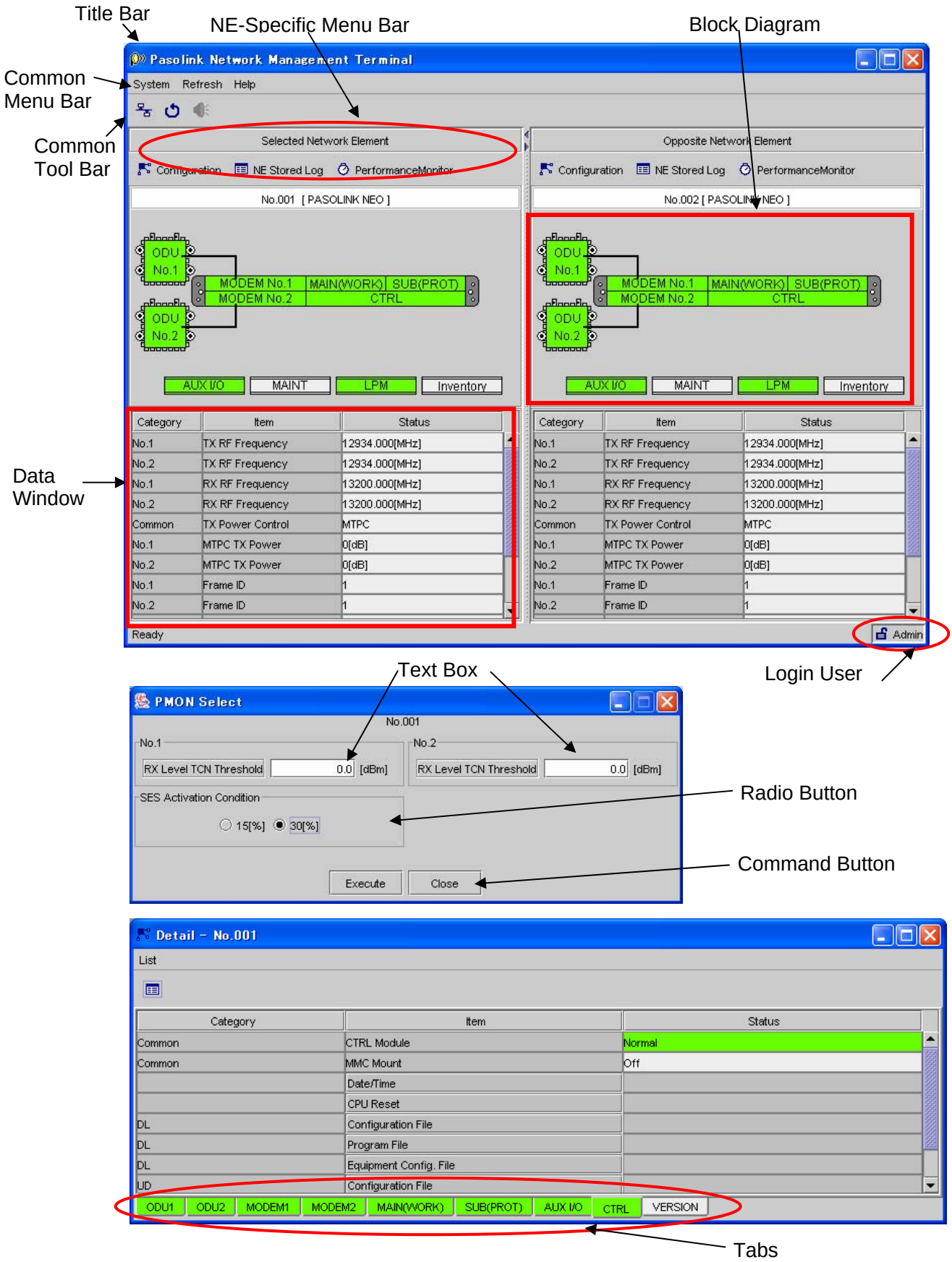


Figure 1 Common Parts of PNMT Window

2.2 Launching the PNMT Application

To start PNMT:

1. Turn ON the computer.

NOTE

Connect the PNMT cable 30 seconds after IDU's power is ON and make sure that the PNMT cable is connected between USB port of the PNMT computer and the LCT port of the IDU.

2. Login to Windows OS.
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

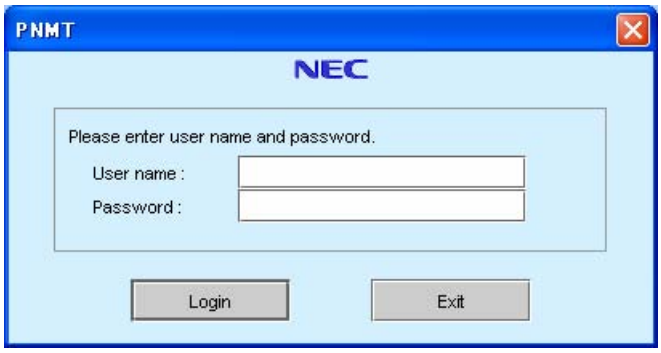
Users are registered by means of login name and password.

To protect the network and network management system from unauthorized access or unauthorized modifications, five levels (refer to the table shown in section 2.3.1 User Access Level Privilege) of users are defined with different privileges. The functions available in the window depend on the user's access level. Therefore, some of the functions may or may not be carried out.

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

To login:

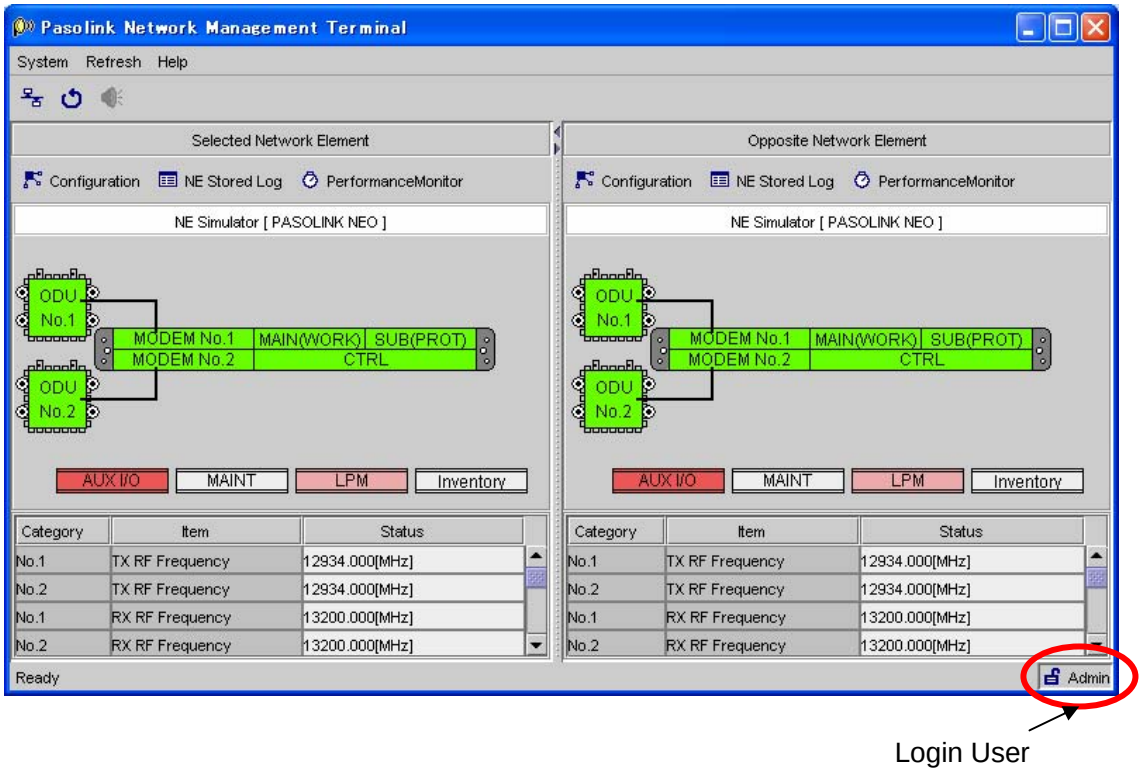
1. Start PNMT, and then Login window appears.



2. Enter the <user name>.

3. Enter the valid <password> for the specific user.

4. Click the **[OK]** button. If you wish to exit the program, click **[Exit]**.



2.3.1 User Access Level Privilege

✓: Available, -: Not available

Functions			User Name and Accessible Functions				
Category		ITEM	Monitor	User	Local	Remote	Admin
SYSTEM		ALARM BUZZER	-	✓	✓	✓	✓
		CONNECT(Remote Login)	-	-	-	✓	✓
EQUIPMENT SETUP		(Wizard Setting)	-	-	✓	✓	✓
		NE NAME	-	-	✓	✓	✓
		NOTE	-	✓	✓	✓	✓
PROVISIONING	CHANNEL SETTING	CH USAGE	-	-	✓	✓	✓
		CH USAGE ERROR REPORT	-	-	✓	✓	✓
		AIS ACTIVATION CONDITION	-	-	✓	✓	✓
		AIS GENERATED REPORT	-	-	✓	✓	✓
		AIS RECEIVED REPORT	-	-	✓	✓	✓
		AIS RECEIVED CONDITION	-	-	✓	✓	✓
		E1 PORT IMPEDANCE	-	-	✓	✓	✓
	BER THRESHOLD SETTING	HIGH BER THRESHOLD	-	-	✓	✓	✓
		LOW BER THRESHOLD	-	-	✓	✓	✓
		E-BER(DMR)	-	-	✓	✓	✓
		SD(DMR)	-	-	✓	✓	✓
		E-BER(MUX)	-	-	✓	✓	✓
		SD(MUX)	-	-	✓	✓	✓
	SC ASSIGNMENT	RS-232C-1	-	-	✓	✓	✓
		RS-232C-2	-	-	✓	✓	✓
		V11-1	-	-	✓	✓	✓
		V11-2	-	-	✓	✓	✓
		SC LAN1	-	-	✓	✓	✓
		SC LAN2	-	-	✓	✓	✓
		V11-1 DIRECTION SETTING	-	-	✓	✓	✓
		V11-2 DIRECTION SETTING	-	-	✓	✓	✓
	LAN PORT SETTING	PORTx USAGE	-	-	✓	✓	✓
		INTFC(2) PORTx USAGE	-	-	✓	✓	✓
		SWITCHING FUNCTION	-	-	✓	✓	✓
		SPEED & DUPLEX PORTx	-	-	✓	✓	✓
		INTFC(2) SPEED & DUPLEX PORTx	-	-	✓	✓	✓
		FLOW CONTROL PORTx	-	-	✓	✓	✓
		INTFC(2) FLOW CONTROL PORTx	-	-	✓	✓	✓
		COLLISION REPORT PORTx	-	-	✓	✓	✓
		INTFC(2) COLLISION REPORT PORTx	-	-	✓	✓	✓
		LINK LOSS FORWARDING PORTx	-	-	✓	✓	✓
		INTFC(2) LINK LOSS FORWARDING PORTx	-	-	✓	✓	✓
		CLOCK SOURCE SETTING	-	-	✓	✓	✓
		2M FRAMING	-	-	✓	✓	✓
	ALS	ALS FUNCTION	-	-	✓	✓	✓
		ALS INTERVAL	-	-	✓	✓	✓
	TX POWER CTRL	MTPC TX POWER	-	-	✓	✓	✓
		ATPC THRESHOLD LEVEL	-	-	✓	✓	✓
		ADDITIONAL ATT	-	-	✓	✓	✓
		ATPC RANGE(MAX)	-	-	✓	✓	✓
		ATPC RANGE(MIN)	-	-	✓	✓	✓
		ATPC POWER MODE	-	-	✓	✓	✓
	CONDITION for TX/RX SW	TX SW PRIORITY	-	-	✓	✓	✓
		RX SW PRIORITY	-	-	✓	✓	✓
		RX SW MANUAL MODE	-	-	✓	✓	✓
		RX SW CONDITION-EARLY WARNING	-	-	✓	✓	✓
		RX SW CONDITION-XPIC RESET	-	-	✓	✓	✓
	CONDITION for APS	APS MANUAL MODE	-	-	✓	✓	✓
		APS CONDITION-SF	-	-	✓	✓	✓
		APS CONDITION-SIGNAL DEGRADE	-	-	✓	✓	✓
		LOCK IN USAGE	-	-	✓	✓	✓
		LOCK IN COUNT	-	-	✓	✓	✓

✓: Available, -: Not available

Functions			User Name and Accessible Functions				
Category		ITEM	Monitor	User	Local	Remote	Admin
		LOCK IN DETECT TIME	-	-	✓	✓	✓
		LOCK IN HOLD TIME	-	-	✓	✓	✓
	RELAY	RELAY CONFIGRATION CHANGED	-	-	✓	✓	✓
	TCN THRESHOLD	TCN THRESHOLD	-	-	✓	✓	✓
	XPIC CONDITION-LOCAL FAIL	XPIC CONDITION-LOCAL FAIL	-	-	✓	✓	✓
	EOW IF TYPE	EOW2 EXTERNAL SETTING	-	-	✓	✓	✓
	PMON SELECT	RX LEV TCN THRESHOLD	-	-	✓	✓	✓
		SES ACTIVATION CONDITION	-	-	✓	✓	✓
	ALARM CORRELATION	ALARM CORRELATION CAPABILITY	-	-	✓	✓	✓
MAINTENANCE		MAINTENANCE	-	✓	✓	✓	✓
		TX SW MANUAL CONTROL	-	-	✓	✓	✓
		RX SW MANUAL CONTROL	-	-	✓	✓	✓
		ATPC MANUAL CONTROL	-	-	✓	✓	✓
		ATPC MANUAL CONTROL POWER	-	-	✓	✓	✓
		TX MUTE CONTROL	-	-	✓	✓	✓
		TX MUTE OFF CONTROL TIME	-	-	✓	✓	✓
		CW CONTROL	-	-	✓	✓	✓
		APS MANUAL CONTROL	-	-	✓	✓	✓
		IF LOOPBACK	-	-	✓	✓	✓
		MAIN CH LOOPBACH-1	-	-	✓	✓	✓
		MAIN CH LOOPBACH-2	-	-	✓	✓	✓
		MAIN LOOPBACK-1	-	-	✓	✓	✓
		MAIN LOOPBACK-2	-	-	✓	✓	✓
		DADE ADJUST	-	-	✓	✓	✓
		LAN DEVICE RESET	-	-	✓	✓	✓
		ALS RESTART	-	-	✓	✓	✓
		XPIC CONTROL	-	-	✓	✓	✓
		RF SUB BAND SELECT	-	-	✓	✓	✓
		ANTENNA ALIGNMENT MODE	-	-	✓	✓	✓
AUX I/O		INPUT	-	✓	✓	✓	✓
		OUTPUT	-	✓	✓	✓	✓
		CLUSTERx ALARM	-	✓	✓	✓	✓
PMON	PMON	PMON Threshold	-	✓	✓	✓	✓
		Save to disk	-	✓	✓	✓	✓
EVENT LOG		Save to disk	-	✓	✓	✓	✓
CTRL	CONTROL	DATE/TIME	-	-	✓	✓	✓
	DOWNLOAD	CONFIGURATION FILE	-	-	-	-	✓
		PROGRAM FILE	-	-	-	-	✓
		EQUIPMENT CONFIG. FILE	-	-	-	-	✓
	UPLOAD	CONFIGURATION FILE	-	-	-	-	✓
		EQUIPMENT CONFIG. FILE	-	-	-	-	✓
	EQUIPMENT NETWORK SETTING	NETWORK SETTING	-	-	-	-	✓
	CPU RESET	RESET	-	-	✓	✓	✓

*Admin: Enable to access to the all Network Elements.

*Remote: Enable to access to the all Network Elements.
(Disable to change network configuration and change program with downloading)

*Local: Enable to access to Local NE and Opposite NE.
(Disable to change network configuration and change program with downloading)

*User: Enable to access to items which doesn't effect to the equipment.

*Monitor: Enable to monitor only and disabled to control.

2.4 Shutting Down the PNMT

To close the PNMT application:

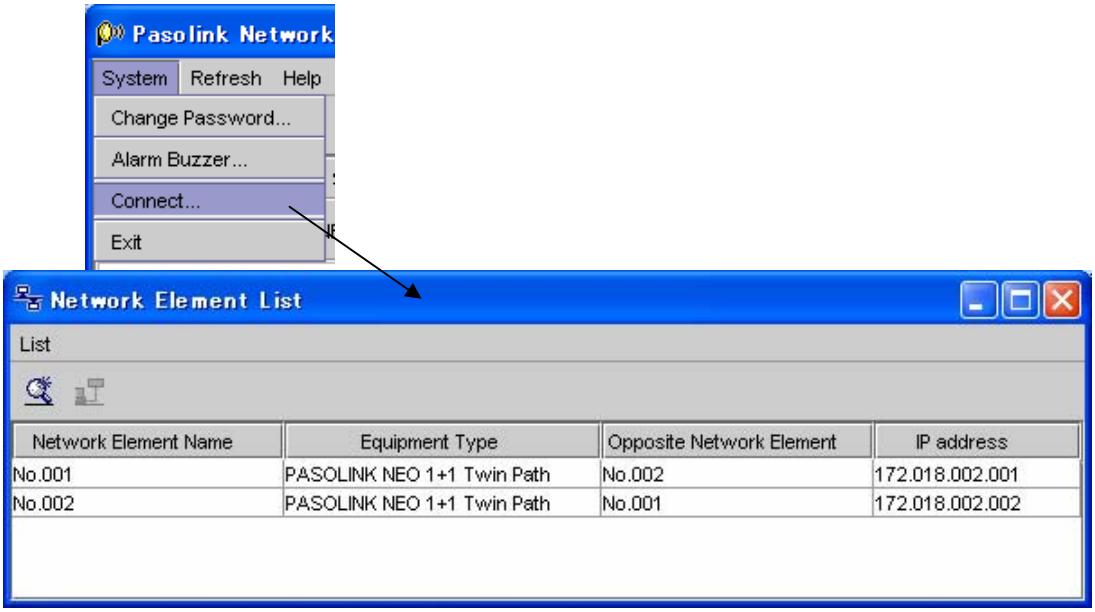
1. Click **System → Exit** in the menu bar on the PNMT main window.
2. Click **[OK]** button on the confirmation message window to close the application.

2.5 Searching for Network Elements and Connecting to Selected NE

The summary description (NE Name, Equipment Type, Opposite NE, etc.) of the current NE where PNMT is connected can be displayed using this function. Summary description of the opposite NE belonging to that link is also displayed.

To search for or connect to NE in the network:

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



NOTE

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

2. Click on  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 on  icon in the tool bar or **List → Connect to Network Element** in the menu bar of the Network Element List window. The PNMT main window for both the selected, and its opposite, Network Element will be displayed.

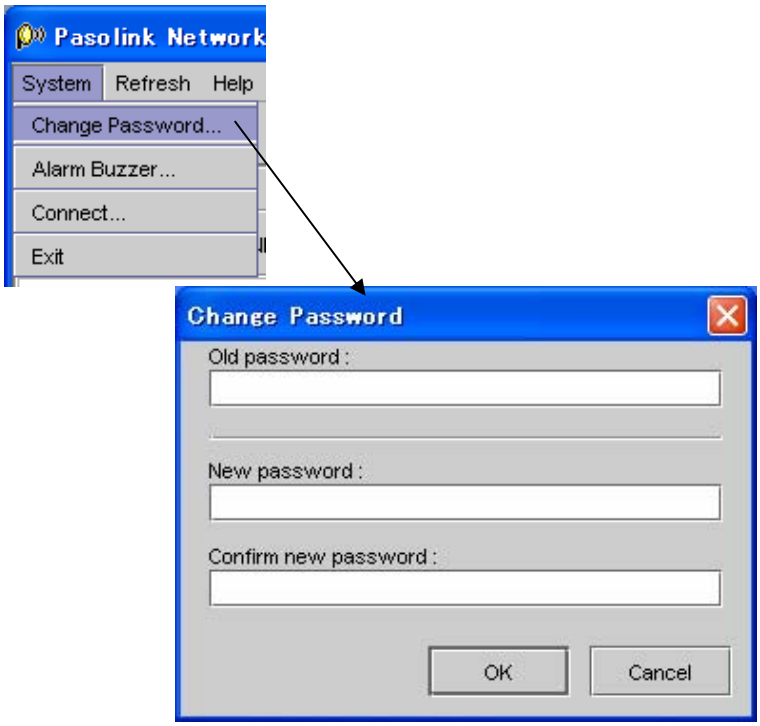
NOTE

Simultaneous connection from multiple PNMT to the same NE is possible:
1 Local connection
PNMT is directly connected to the NE
2 Opposite connection
PNMT is connected to opposite NE (of the local)
3 Remote connection
PNMT is connected to the NE by remote access.

2.6 Change Password

To change the password:

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



2. Enter the old <password>.
3. Enter new <password>.
4. Enter new <password> again on the **Confirm New Password** box to confirm.
5. Click **[OK]** button.

NOTE

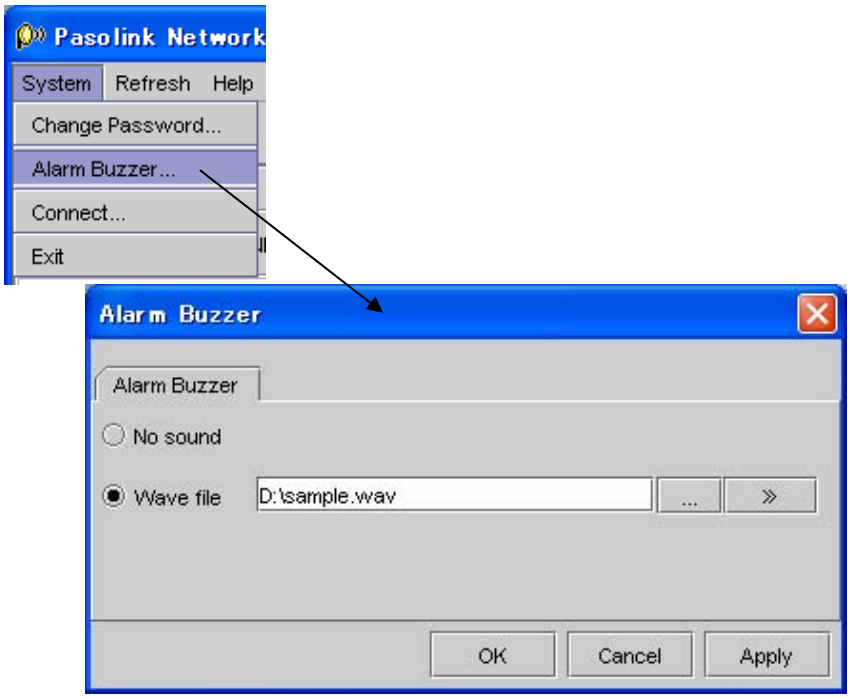
For details on initial user name and password, please refer to PNMT Installation Manual.

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 menu bar on PNMT main window.



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

2.8 Refresh

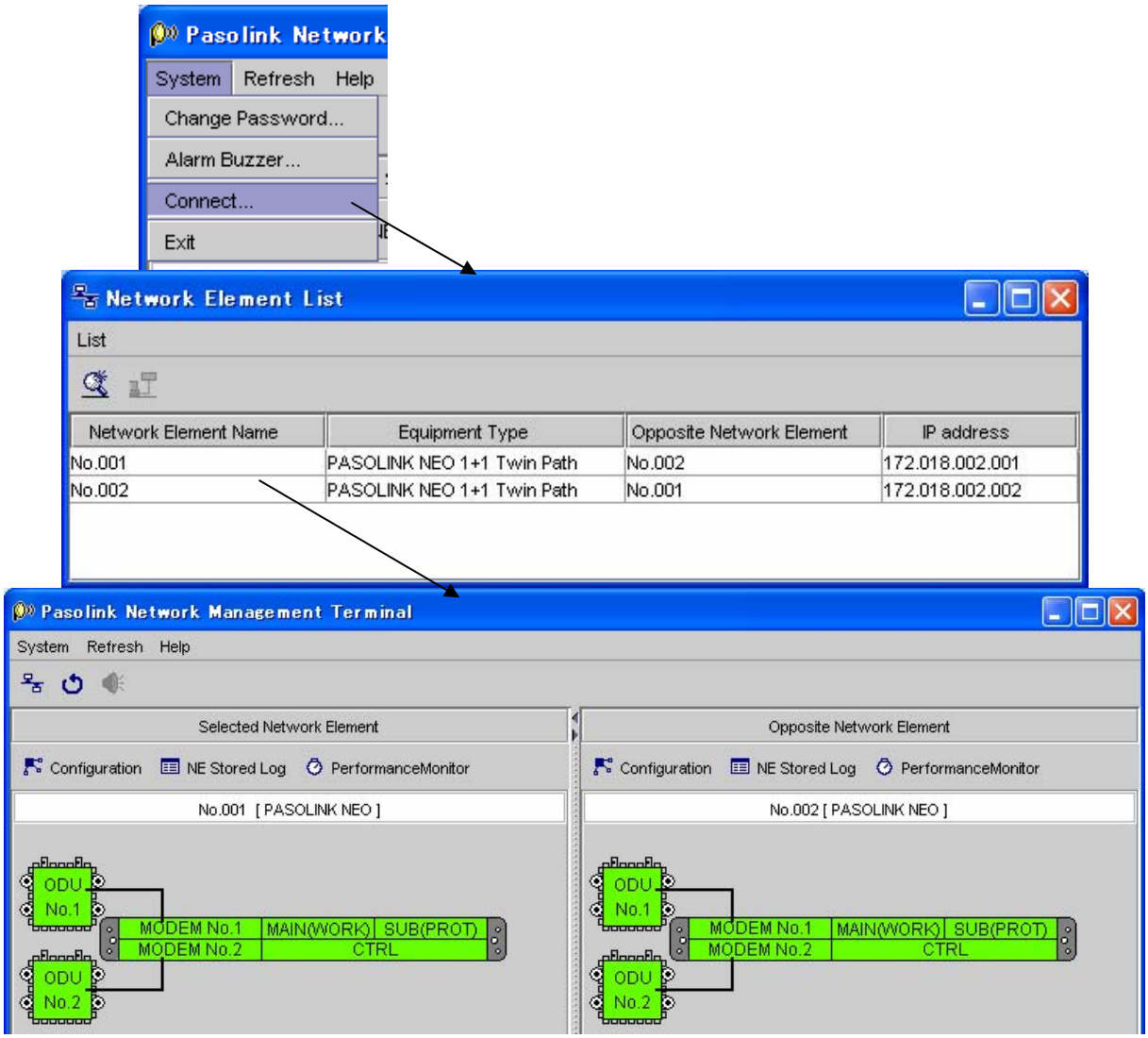
This function is supported only by PNMT. This function enables PNMT to manually obtain metering and alarm status, as well as to update equipment information.

To Refresh:

Click **Refresh** → **Refresh** in the menu bar or click on the refresh icon in the tool bar.

2.9 Remote Viewing PNMT main window

You can view a target link underlying the one Root NE in the managed network by searching the connectable NEs and then connecting to a target NE. Please refer to **Section 2.5 Searching for Network Elements and Connecting to Selected NE**. This function allows you to connect to any NE in the network remotely.



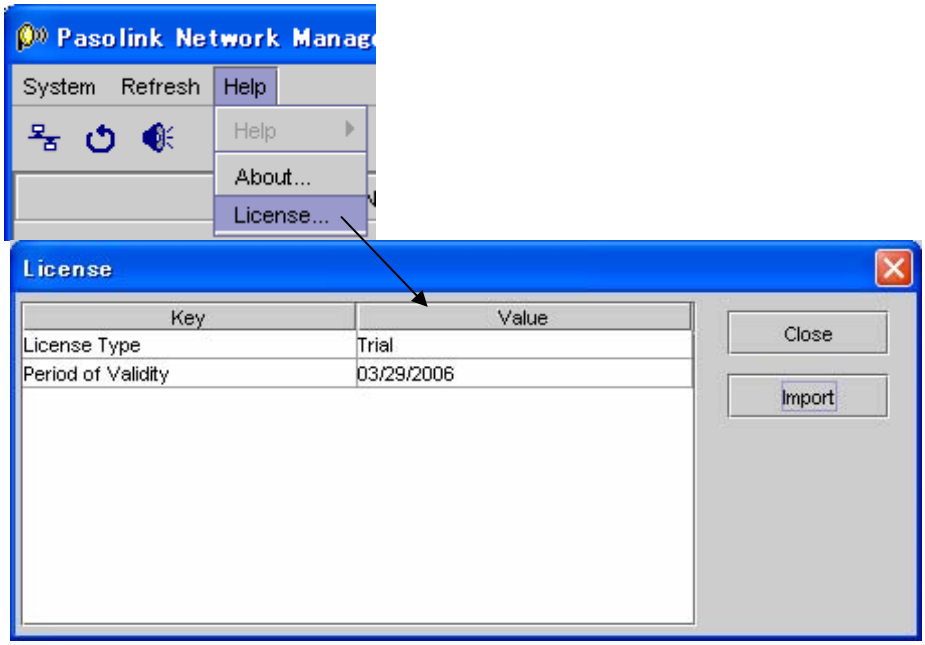
PNMT main window (1+1 configuration)

2.10 License

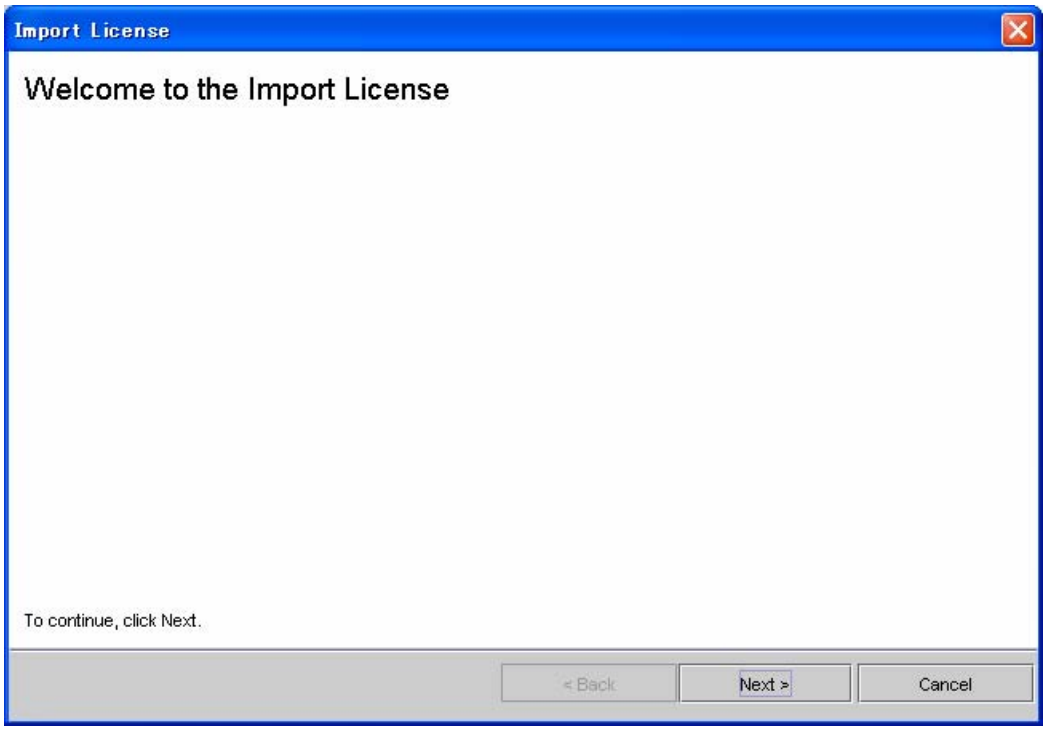
To protect PNMT functions, the PNMT application includes license files.

To display the current license status:

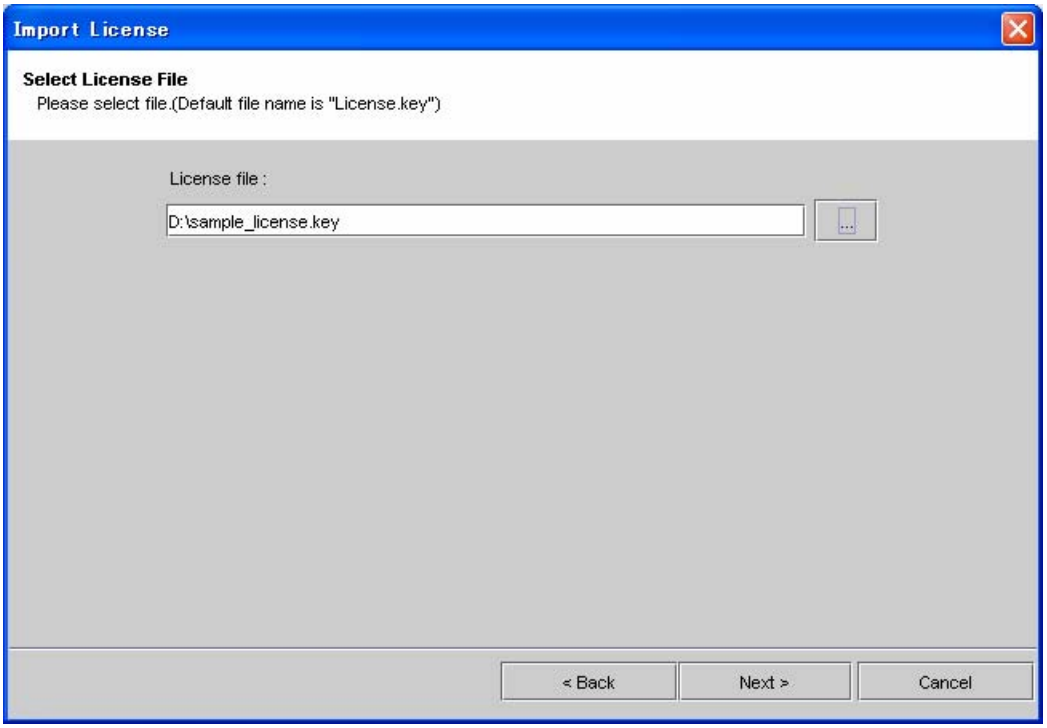
1. Click **Help → License** in the main window.



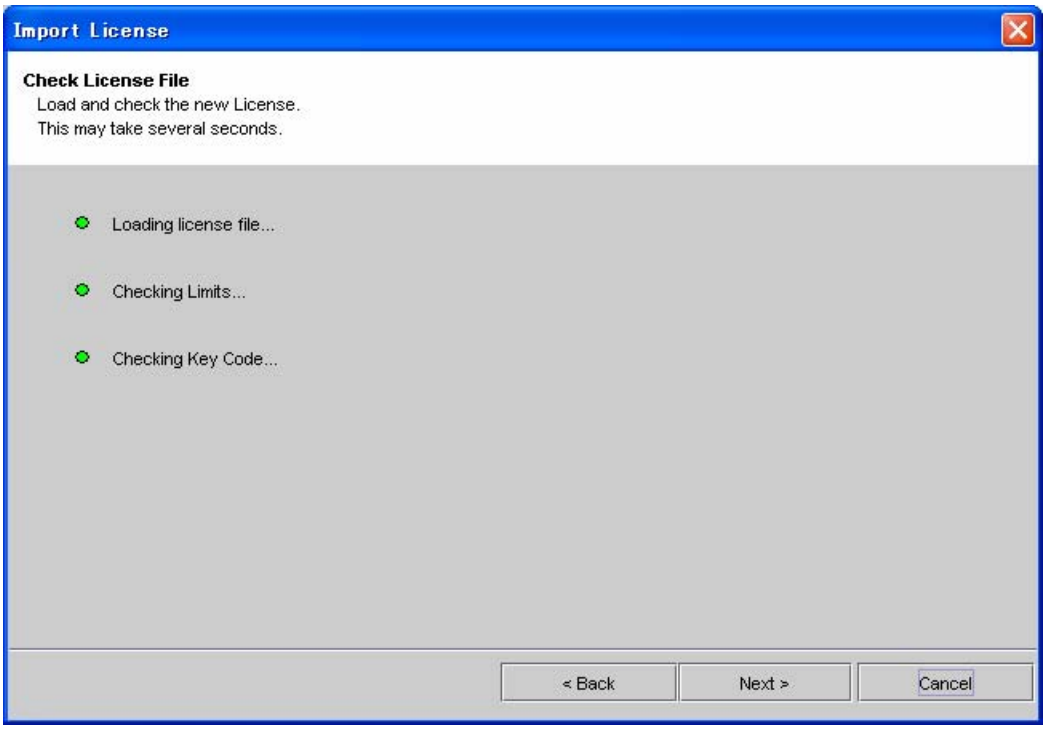
2. Click **[Close]** to shut up this screen. If you exchanging the license file, click **[Import]**, and advance the following procedure.
3. Click **[Next]** to continue.



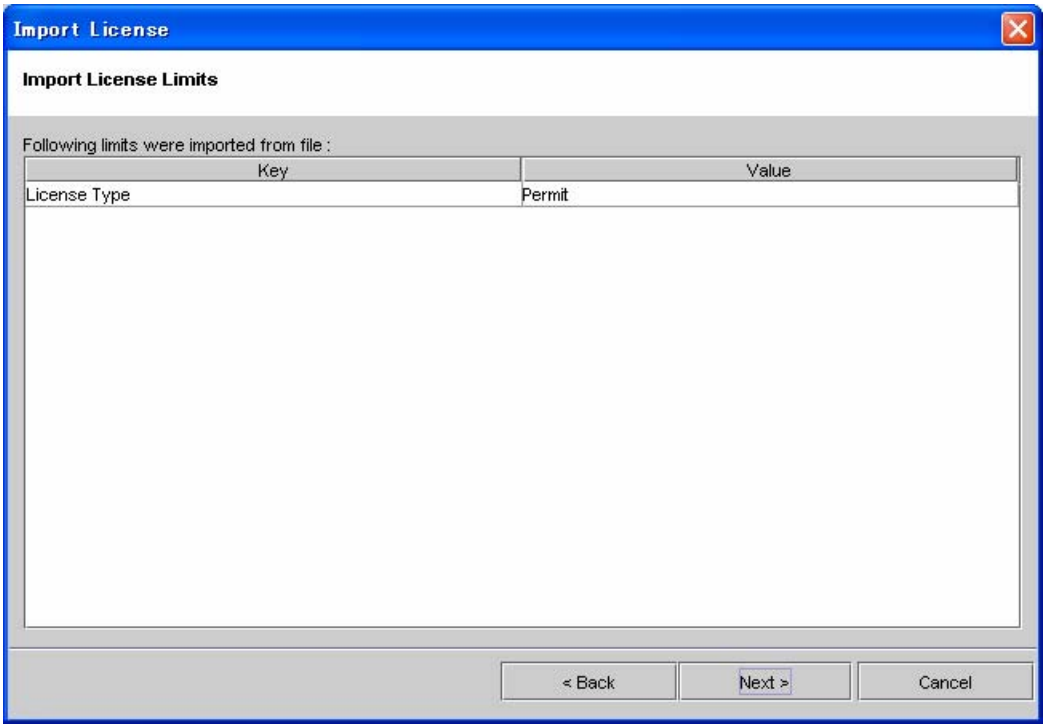
4. Specify the License.Key file if one is available. Click **[Next]**.



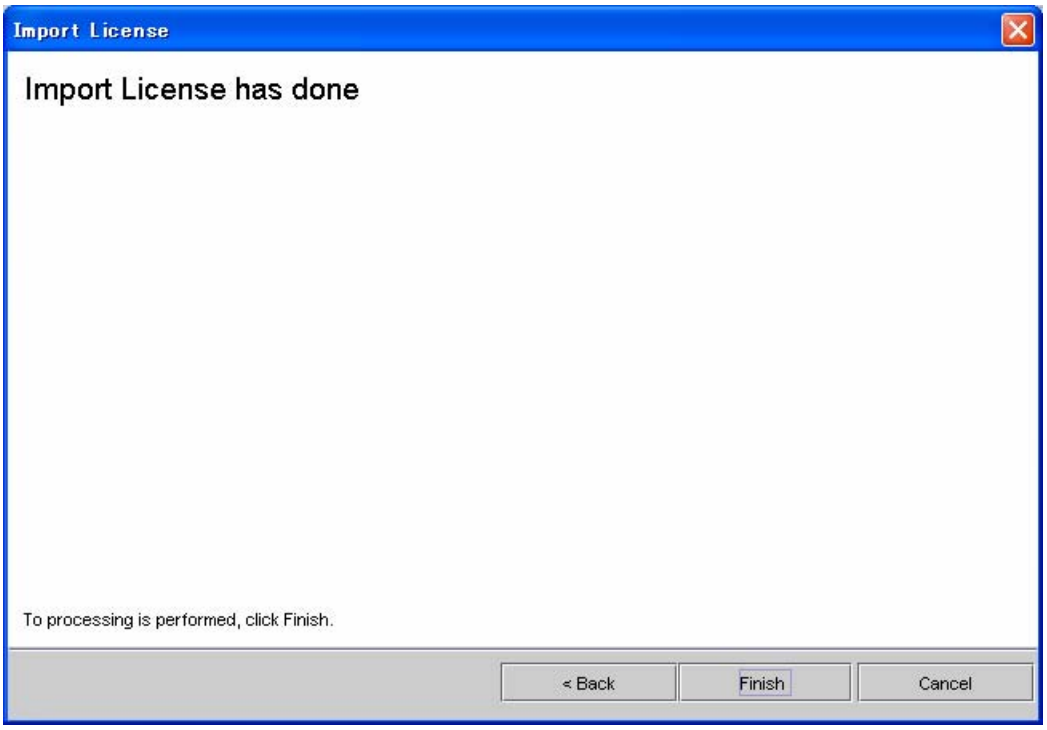
5. The progress of **Check License File** will be displayed. If no error is encountered when importing license file, click **[Next]** as soon as the button becomes available.



6. Confirm the type of license Imported, and click **[Next]**.



7. Click **[Finish]** in ensuing window to end **Import License Wizard.**



2.11 Overall Status Window (PDH and SDH)

This window is displayed on startup. The overall status window provides a snapshot of the most significant monitored items in the NE.

Overall Status Window

Category	Item	Status
Common	TX RF Frequency	14501.000[MHz]
Common	RX RF Frequency	15229.000[MHz]
Common	TX Power Control	MTPC
Common	MTPC TX Power	-20[dB]
Common	Frame ID	1
Common	XPIC Usage	Not Used
Common	Main(Work) - INTFC(1)	STM-1(Optical)
Common	SUB(PROT) - INTFC(2)	STM-1(Optical)
Common	Transmission Capacity	156[MB]
Common	Modulation Scheme	128QAM
Common	ALS Function	Disabled
Common	APS Online Status	Working
Common	TX SW Status	No.1
Common	RX SW Status	No.1

The Overall status window shows a snapshot of all important parameters/settings for the NE. This window only displays current settings; control functions cannot be performed here .

The following items are displayed in this window:

- **TX RF Frequency** – the currently used transmission frequency *[1].
- **RX RF Frequency** – the currently used receiving frequency. *[1]
- **TX Power Control** – shows the power control mode currently used by the ODU. The TX Power Control is either Automatic Transmitter Power Control (ATPC) or Manual Transmitter Power Control (MTPC).
- **MTPC TX Power** – the value (in dB) of the Manual Transmitter Power Control attenuation currently set in the ODU. The MTPC Attenuation will only have valid data if the MTPC is enabled. *[1]
- **Frame ID** – the predefined value of the NE frame ID.*[1]
- **Main (work)** – the main work interface setting.
- **SUB (PROT)** – the SUB (PROTECTION) Interface setting*[2]
- **Transmission Capacity** – the transmission capacity of the system.
- **Modulation scheme** – the currently used modulation type.
- **ALS Function** – Intermittently turns laser output on/off after designated interval from start of LOS mode being "Enabled" or "Disabled" (Only STM-1 [OPTICAL] interface)
- **APS Online Status** – indicates route when APS is available.
- **TX SW status** (for hot standby configuration only) – shows which modem-ODU configuration is currently used for transmitting signals.
- **RX SW** status (for 1+1 system only) – shows which modem-ODU configuration is currently used for receiving signals.

***1 For Twin path configuration both respective parameters (1, 2) are shown**
***2 Applies only to SDH interface**

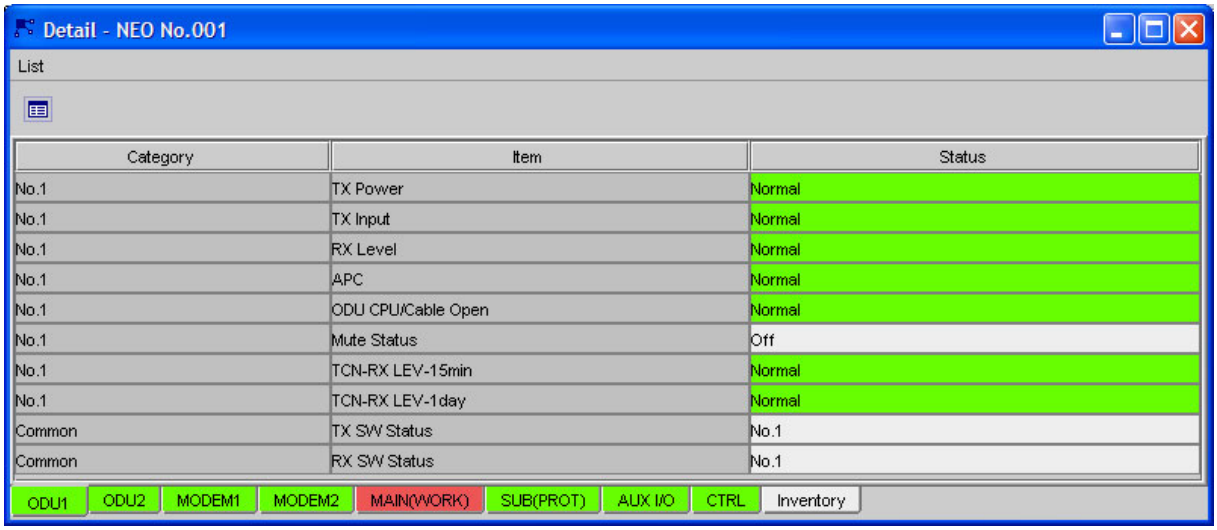
2.12 ODU Tab

The ODU tab displays the status of the monitored ODU items. This window only displays current settings and no control functions are available here.

To set the ODU parameters see the chapters on *Equipment Setup and Provisioning*.

To view the alarm/ status display of the ODU:

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



Overview and description of the Items monitored in the ODU.
(These monitored items are identical for PDH and SDH)

Item/Feature	Description	Specific conditions for it to be displayed/configured
TX Power	Indicates the status of the transmitter in the ODU; it is issued when the transmission level decreases 3 dB or more from the preset minimum ATPC level.	None
TX INPUT	Indicates the status of the ODU input signal from the IDU; it is issued when the input signal from the IDU is lost.	None
RX LEVEL	Indicates the status of the received RF signal level of the ODU; it is issued when the RF signal drops below the RX threshold.	None
APC	Indicates the status of the synthesizer in the ODU; it is issued when an anomaly occurs in the synthesizer	None
ODU CPU	Indicates the status of the CPU in the ODU; it is issued when an anomaly occurs during CPU operation	None
Mute Status	On: transmitter output is muted (off) Off: transmitter output is normal (on)	None
TCN-Rx LEV-15min	The (lower) Threshold Crossing Notice level for 15 min alarm	None
TCN-Rx LEV-1day	The (lower) Threshold Crossing Notice level for 1 day alarm	None
Tx SW Status	Indicates the modem-ODU configuration currently used for transmitting signals	(only for 1 + 1 hot standby)
Rx SW Status	Indicates the modem-ODU configuration currently used for receiving signals	(only for 1 + 1 hot)

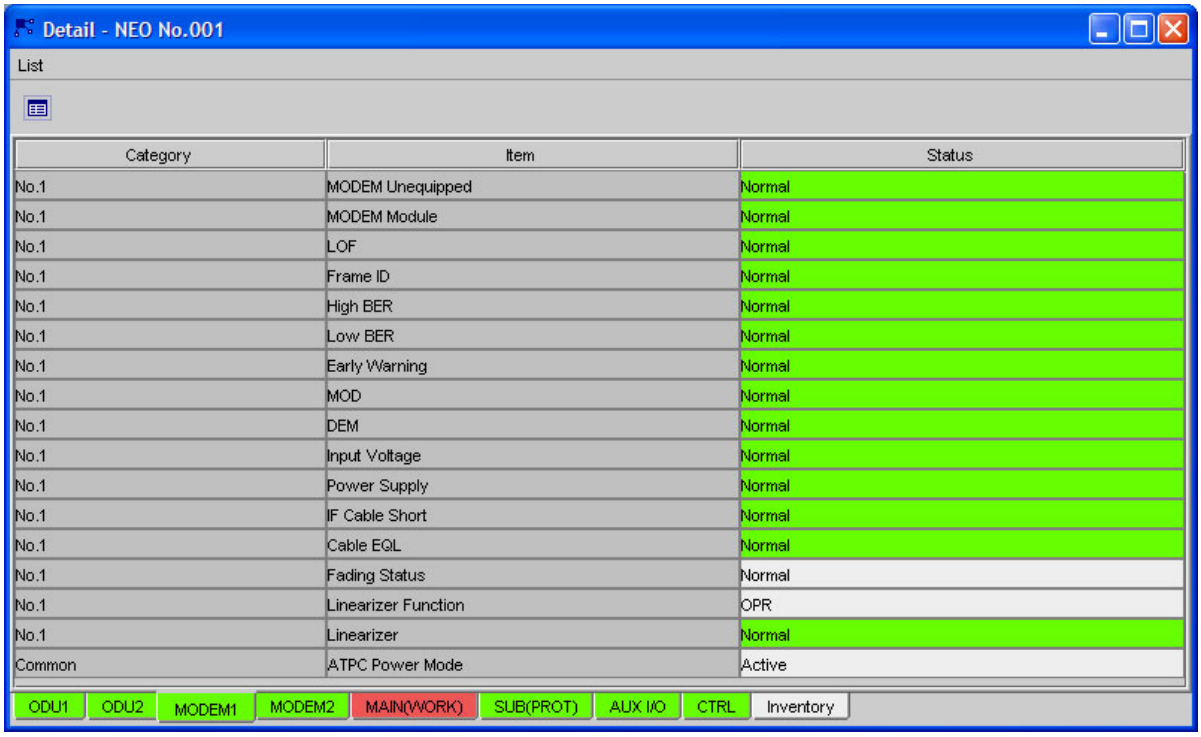
2.13 MODEM Tab

The MODEM tab displays the status of the monitored items of the modem. This window only displays current settings and no control functions are available here.

To set the modem parameters see the chapters on *Equipment Setup and Provisioning*.

To view the alarms and status of the modem:

Select the MODEM tab in the PNMT main window of the target NE.



Overview and description of the alarm and status items/features of the modem

Item/Feature	Description	Specific conditions for it to be displayed/configured
MODEM Module	Indicates the status of the modulator-demodulator. This alarm is issued when an anomaly occurs in the modulator-demodulator.	None
MODEM Unequipped	Indicates whether a MODEM is properly mounted. If the MODEM contact is unplugged or if none is mounted (in accordance with the "Equipment Setup"), this alarm is issued.	None
LOF	Indicates the frame synchronization status. If the synchronization with DMR is lost, this alarm is issued.	None
Frame ID	Indicates that the frame ID numbers of an NE and its opposite are out of sync.	None
High BER	Indicates severe quality deterioration status. If the signal deteriorates below the preset threshold level, this alarm is issued and the RX-Hitless Switch is operated. The selectable threshold levels are 1E-3, 1E-4 and 1E-5.	None
Low BER	Indicates low to moderate quality deterioration status between radio sections. When the signal deteriorates below the present threshold value, this alarm is issued and the RX-Hitless Switch is activated. The selectable threshold values are: 1E-6, 1E-7, 1E-8 and 1E-9.	None
Early Warning	Indicates quality deterioration status. If the signal deteriorates beyond the present threshold level, this alarm is issued and the RX-Hitless Switch is activated. The present threshold is a BER of 1E-9.	None
MOD	Indicates the operating status of the MOD. If any anomaly occurs in the modulator, this alarm is issued.	None
DEM	Indicates the operating status of the DEM. If any anomaly occurs in the demodulator, this alarm is issued.	None
Power Supply	Indicates the operating status of the power supply. When there is an anomaly in the power supply, this alarm is issued.	None
IF Cable Short	Indicates the status of IF cable between IDU and ODU. If a short circuit is caused between ODU and the IDU, this alarm is issued.	None
Cable EQL	Indicates the status of the IF cable equalizer. This alarm is issued when the equalizer function does not kick in.	None
Linearizer Function	Indicates the status of linearizer function. OPR: When the linearizer function is used. NO OPR: When the linearizer function is not used. In this case, TX output power decreases approx. 4 dBm from a standard value. N/A: When the ODU is used without linearizer function.	Not available in QPSK modulation Scheme
Linearizer	Indicates the linearizer operating status; this alarm is issued when the linearizer is not properly operating in the OPR state.	Not available in QPSK modulation Scheme
ATPC Power Mode	Indicates the operating status of the ATPC. If the ATPC is not properly functioning, stop the control and maintain the TX output level at HOLD /MIN (selectable).	Only when ATPC is used

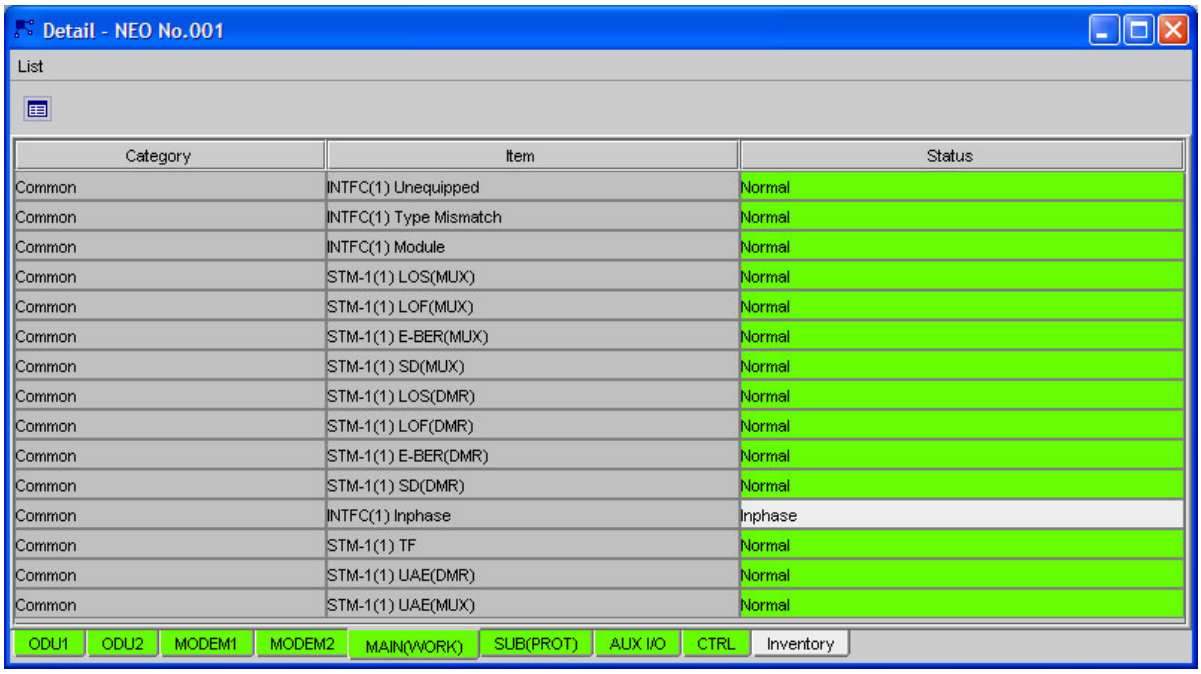
2.14 MAIN (WORK) INTERFACE Tab

The MAIN (WORK) tab displays the status of the monitored items for the main (work) interface. This window only displays current settings and no control functions are available here.

To set the main (work) interface parameters see the chapters on *Equipment Setup and Provisioning*.

To view the alarms and status of the main (work) interface:

Select the MAIN (WORK) tab in the PNMT main window of the target NE



Overview and description of the monitored items for the main (work) interface

PDH only items

Item/Feature	Description	Specific conditions for it to be displayed/configured
INTFC (1) Module	Indicates the operating status of the Main Interface. If any anomaly occurs in the INTFC(1) Module, this alarm is issued.	None
INTFC (1) Unequipped	Indicates whether there is any Main Interface. If there is no INTFC (1), this alarm is issued.	None
Input LOS CH (1 - 48)	Indicates the input status of the input E1 signal from MUX. If the input is disconnected, this alarm is issued.	Only when CH USAGE is set as "used"
AIS received CH (1 - 48)	Indicates the E1 signal transmitting status. If AIS is received from MUX, this alarm is issued.	AIS Received Report function must be enabled (set to "report") and CH USAGE is set as "used". Depending on whether the AIS Received Condition (Provisioning) is set to "Status" or "Alarm"
AIS generated CH (1 - 48)	Indicates the E1 signal receiving status. If AIS is generated in the E1 INTFC, this alarm is issued.	AIS Generated Report function must be enabled (set to "report") and CH USAGE is set as "used"
Usage Error CH (1 - 48)	Indicates the status of the E1 signal interface. When E1 signal is applied to the input interface as long as it is set to "Not Used", this alarm is generated. This parameter is indicated only when CH Usage Error Report has been selected	CH Usage Error Report function must be enabled (set to "report") and CH USAGE is set as "not used"
INTFC (1) In-phase	Indicates the DADE status of the received No.1 and No.2 signal at E1 INTFC. If the received signal delay time is out of the permissible range, an "Out-of-phase" alarm is issued	Only for 1 + 1 hot standby or twinpath
UAE (Total)	Indicates whether any UAS were monitored (in any channel)	None
LAN Link Port (1-2)	Indicates the LAN Link Port status: an alarm occurs when the link fails for the respective ports.	The respective Port Usage must be set at "used"
LAN Collision Port (1-2)	Indicates the status of any collision for the respective ports	The respective Port Collision Report function must be enabled (set to "report")
LLF Port (1-2)	Indicates the status of Link Loss Forwarding status for the respective ports	The LLF function must be "enabled"
LAN Mode Port (1-2)	Indicates the status of LAN Mode (Speed & Duplex) for the respective ports	The respective Port Usage must be set at "used"

SDH STM-1 only items

Item/Feature	Description	Specific conditions for it to be displayed/configured
INTFC (1) Module	Indicates the operating status of the MAIN INTFC. If any anomaly occurs in the MAIN INTFC, this alarm is issued.	None
INTFC (1) Unequipped	Indicates whether there is any Main Interface. If there is no INTFC (1), this alarm is issued.	None
STM-1 (1) LOS (MUX)	Indicates the input signal status of the STM-1 from MUX. If the input is disconnected this alarm is issued.	None
STM-1 (1) LOF (MUX)	Indicates the input signal status of the STM-1 from MUX. If the input signal is out of frame synchronization, this alarm is issued.	None
STM-1 (1) E-BER (MUX)	Indicates Excessive-BER of the input STM-1 signal from MUX. If the signal deteriorates below the present threshold level, this alarm is issued. The settable threshold values are 1E-3, 1E-4 and 1E-5.	None
STM-1 (1) SD (MUX)	Indicates the input signal status of the STM-1 from MUX. If the signal deteriorates below the preset threshold level, the alarm is issued. The selectable threshold values are: 1E-6, IE-7, 1E-8 and 1E-9.	None
STM-1 (1) LOS (DMR)	Indicates the signal status of the STM-1 from DMR. If the input is disconnected, this alarm is issued.	None
STM-1 (1) LOF (DMR)	Indicates the status of the input STM-1 signal from DMR. If the input signal is out of synch, this alarm is issued.	None
STM-1 (1) E-BER (DMR)	Indicates Excessive-BER of the input STM-1 signal from the DMR unit. If the signal deteriorates below the present threshold level, this alarm is issued. The settable threshold values are 1E-6, 1E-7, 1E-8 and IE-9.	None
STM-1 (1) SD (DMR)	Indicates the input signal status of the STM-1 from DMR. If the signal deteriorates beyond the preset threshold level, this alarm is issued. The selectable BER threshold values are 1E-3, 1E-4 and 1E-5.	None
INTFC (1) In-phase	Indicates the DADE status of the received No.1 and No.2 signal at E1 INTFC. If the received signal delay time is out of the permissible range, an "Out-of-phase" alarm is issued	Only for 1+1 hot standby or twinpath
STM-1 (1) TF	Indicates "alarm" when there is a defect in this interface that interrupts the STM-1 signal	None
STM-1 (1) Output Control	Indicates signal interruption status when MS-AIS Generation is set to "Disable". Indicates UNDER EXECUTION, when there is no STM-1 output signal from STM-1 INTERFACE	Only when APS Function is available and MS-AIS Generation is "disabled
STM-1 (1) UAE (DMR)	Indicates whether UAS were monitored (in DMR)	None
STM-1 (1) UAE (MUX)	indicates whether UAS were monitored (in MUX)	None
STM(1) TF(for SDH)	Indicates the signal interruption status. When the MS-AIS Generation is set to "Disable". When STM-1 output signal of STM-1 INTFC is stopped, "Under Execution" is indicated.	None

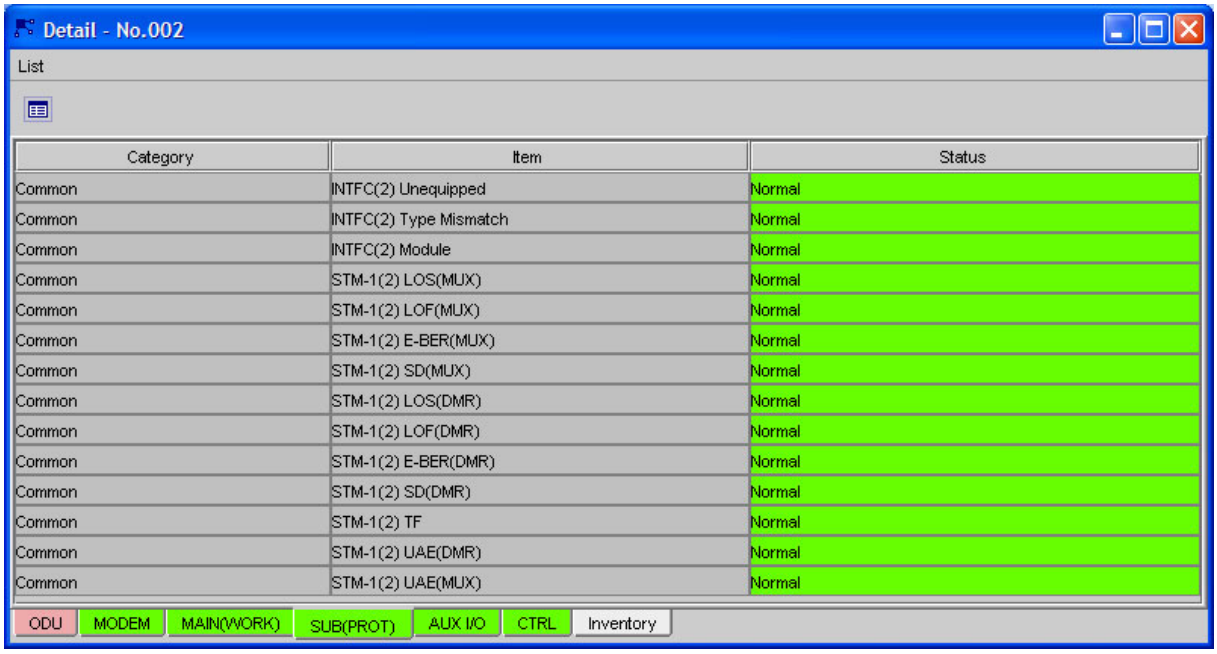
2.15 SUB (PROT) Interface Tab

The SUB (PROT) Interface tab displays the status of the monitored items for the SUB (PROT) interface. This window only displays current settings and no control functions are available here.

To set the SUB (PROT) interface parameters see the chapters on *Equipment Setup and Provisioning*.

To view the alarms and status of the SUB (PROT) interface:

Select the SUB (PROT) tab in the PNMT main window of the target NE



SDH STM-1 only items

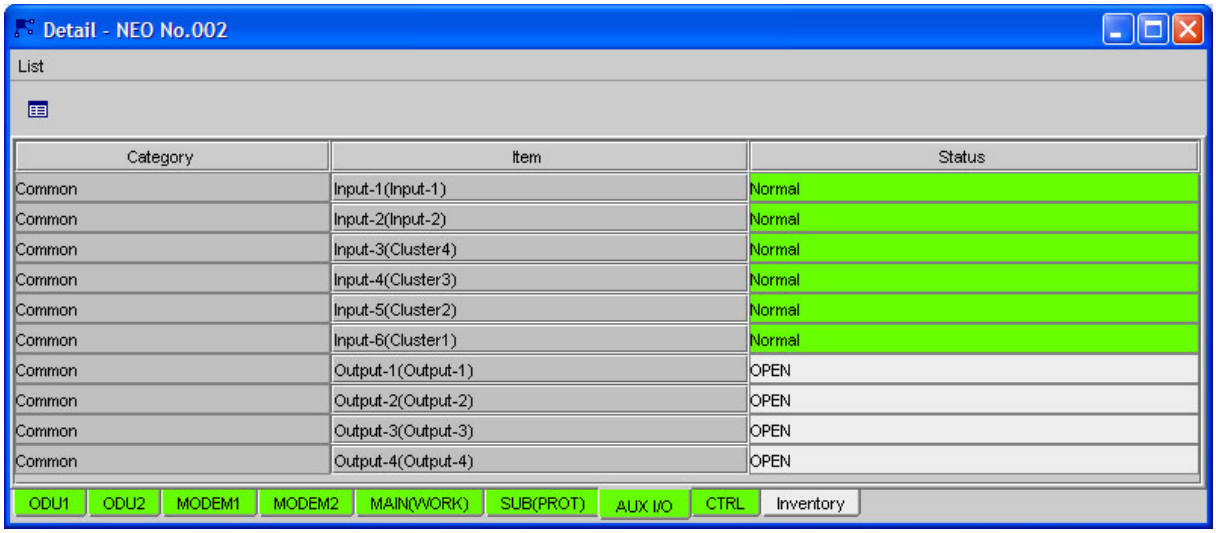
Item/Feature	Description	Specific conditions for it to be displayed/configured
INTFC (1) Module	Indicates the operating status of the MAIN INTFC. If any anomaly occurs in the MAIN INTFC, this alarm is issued.	Only when APS Function is available
INTFC (1) Unequipped	Indicates whether there is any Main Interface. If there is no INTFC (1), this alarm is issued.	Only when APS Function is available
STM-1 (1) LOS (MUX)	Indicates the input signal status of the STM-1 from MUX. If the input is disconnected this alarm is issued.	Only when APS Function is available
STM-1 (1) LOF (MUX)	Indicates the input signal status of the STM-1 from MUX.If the input signal is out of frame synchronization, this alarm is issued.	Only when APS Function is available
STM-1 (1) E-BER (MUX)	Indicates Excessive-BER of the input STM-1 signal from MUX. If the signal deteriorates below the present threshold level, this alarm is issued. The settable threshold values are 1E-3, 1E-4 and 1E-5.	Only when APS Function is available
STM-1 (1) SD (MUX)	Indicates the input signal status of the STM-1 from MUX. If the signal deteriorates below the preset threshold level, the alarm is issued. The selectable threshold values are: 1E-6, IE-7, 1E-8 and 1E-9.	Only when APS Function is available
STM-1 (1) LOS (DMR)	Indicates the signal status of the STM-1 from DMR. If the input is disconnected, this alarm is issued.	Only when APS Function is available
STM-1 (1) LOF (DMR)	Indicates the status of the input STM-1 signal from DMR. If the input signal is out of synch, this alarm is issued.	Only when APS Function is available
STM-1 (1) E-BER (DMR)	Indicates Excessive-BER of the input STM-1 signal from the DMR unit. If the signal deteriorates below the present threshold level, this alarm is issued. The settable threshold values are 1E-6, 1E-7, 1E-8 and IE-9.	Only when APS Function is available
STM-1 (1) SD (DMR)	Indicates the input signal status of the STM-1 from DMR. If the signal deteriorates beyond the preset threshold level, this alarm is issued. The selectable BER threshold values are 1E-3, 1E-4 and 1E-5.	Only when APS Function is available
INTFC (1) In-phase	Indicates the DADE status of the received No.1 and No.2 signal at E1 INTFC. If the received signal delay time is out of the permissible range, an "Out-of-phase" alarm is issued	Only when APS Function is available and only for 1+1 hot standby or twinpath
STM-1 (1) TF	Indicates "alarm" when there is a defect in this interface that interrupts the STM-1 signal	Only when APS Function is available
STM-1 (1) Output Control	Indicates signal interruption status when MS-AIS Generation is set to "Disable". Indicates UNDER EXECUTION, when there is no STM-1 output signal from STM-1 INTERFACE	Only when APS Function is available and MS-AIS Generation is "disabled
STM-1 (1) UAE (DMR)	Indicates whether UAS were monitored (in DMR)	Only when APS Function is available
STM-1 (1) UAE (MUX)	indicates whether UAS were monitored (in MUX)	Only when APS Function is available
STM(1) TF(for SDH)	Indicates the signal interruption status. When the MS-AIS Generation is set to "Disable". When STM-1 output signal of STM-1 INTFC is stopped, "Under Execution" is indicated.	Only when APS Function is available

2.16 Auxiliary I/O Tab

6 photocoupler input and 4-relay output settings can be selected in the IDU for external control and monitoring of alarms. The setting for each of the relay output/photocoupler inputs is available by clicking on the respective device in the Auxiliary I/O monitor window.

To monitor and set the Auxiliary I/O:

1. Select the AUX I/O tab in the PNMT main window



Aux. I/O window

2.16.1 Monitored Items

The following items are monitored via this tab:

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

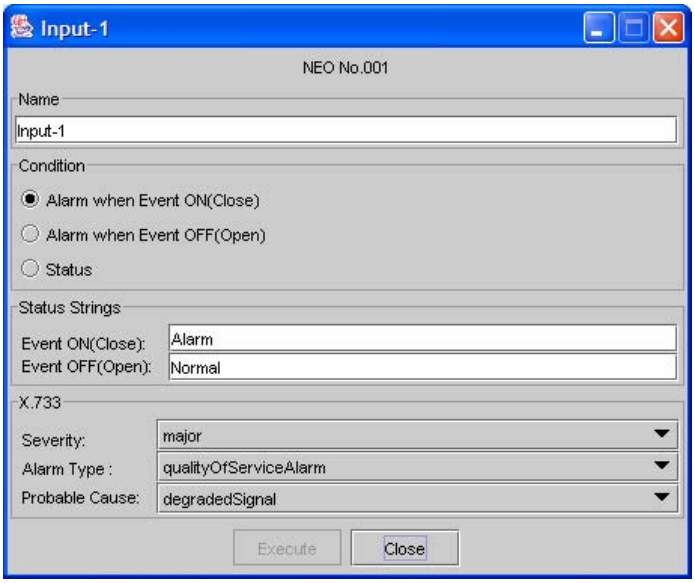
When Cluster ALM Setting (Input) is enabled, the following Input items can be used as Cluster ALM.

1. When Cluster1 Input is enabled, Input-6 item is used as Cluster ALM1.
2. When Cluster2 Input is enabled, Input-5 item is used as Cluster ALM2.
3. When Cluster3 Input is enabled, Input-4 item is used as Cluster ALM3.
4. When Cluster4 Input is enabled, Input-3 item is used as Cluster ALM4.

2.16.2 Photocoupler Input Setting

To set the photocoupler input:

1. Click the selected **[Input-*n*]** button in **Aux. I/O** window.
2. The input properties will be displayed in the ensuing window.

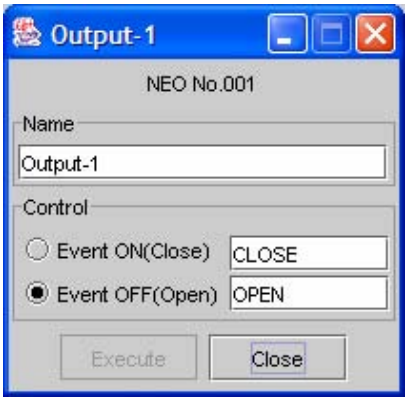


2.16.2.1 Setting the Selected Input to Alarm or Status

1. Enter the desired name of the selected input in the **Name** field. A maximum of 32 characters can be used.
2. Select the desired input condition in the **Condition** section. You can select from the following three (3) choices such as “the alarm is reported when **Event ON** (the selected input terminal is closed loop condition)” or “the alarm is reported when **Event OFF** (the selected input terminal is open condition)” or “the just **Status** information is reported instead of the alarm”.
3. 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.
4. The alarm input severity is defined in the ITU-T X.733 Recommendation. Select the description of the **Severity**, **Alarm Type** and **Probable Cause** fields in the **X.733** section by clicking the pull-down arrow (▼) on the right-hand side of the selection field.
5. Click **[Execute]** button to save the selected settings of the device.
6. Click **[Close]** button when finished.

2.16.3 Relay Output Setting

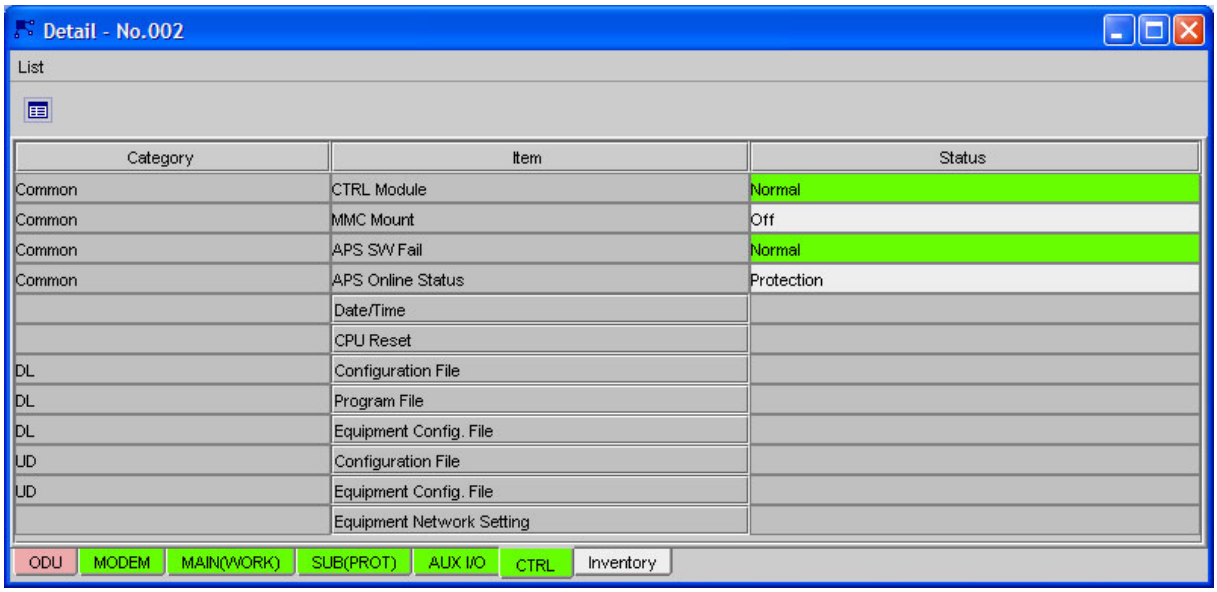
To set the relay output:



1. Click **[Output-*n*]** button in Aux. I/O window.
2. Enter the desired name of the selected output in the **Name** field. A maximum of 32 characters can be used.
3. To select the desired output condition of the selected relay output, select the **Event ON** (the output terminal will be in closed loop condition) or **Event OFF** button (the output terminal will be open) in the **Control** section.
4. Enter the desired status strings for the selected relay output in the appropriate **Event ON** (the output terminal will be in closed loop condition) and **Event OFF** fields (the output terminal will be open) with the **Control** section. A maximum of 32 characters can be used.
5. Click **[Execute]** button to implement the command.
6. Click **[Close]** button when finished.

2.17 Control (CTRL) Tab

Various control parameters can be set via the CTRL tab.



2.17.1 Control Module

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

The following items can be monitored and controlled in the **CTRL window**:

- CTRL Module Alarm
- MMC Mounted (Yes = On / No = Off)
- APS SW Fail (when APS is available)
- APS Online Status (indicates route when APS is available)
- APS Lock-in Status (when APS is available and Lock-in Usage is selected as “Used”)
- Date/Time
- CPU Reset
- Download: Configuration File
- Download: Program File
- Download: Equipment Configuration File
- Upload: Configuration File
- Upload: Equipment Configuration File
- Equipment Network Setting

2.17.2 Setting the Date/Time

The Date and Time stored in Control module can be displayed and adjusted using this function.

To set the Date/Time:

1. Click the **[Date/Time]** button in the **CTRL** window.

NOTE

To synchronize the Date and Time field values with those of the PNMT computer, click the Display PC Time box (placing a checkmark in it).

2. To check the Date and Time Settings of the Control module:
   1) Select **Get Date/Time** in the Date/Time window.
   2) Click **[Execute]** button.
   3) The current date and time in the Control module will be displayed in the **Date** and **Time** field.
3. To set the Date and Time on the Control module:
   1) Select **Set Date/Time** in the Date/Time window.
   2) Click **[Execute]** button.
   3) Click **[Close]** button when done.

2.17.3 CPU Reset

The Control module can be reset using this function

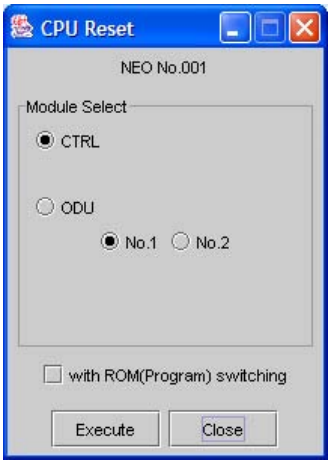
*The CPU Reset window is not available when MAINT is OFF.

NOTE

Resetting the Control module will not affect traffic. The connection to the selected NE will be lost for a few minutes but, will be automatically restored.

To reset the Control module:

1. Click the **[CPU Reset]** button in **CTRL** window.
2. You can select the "**with ROM (Program) Switching"** option if you want to switch to a newly downloaded Control module Program file.
3. Click **[Execute]** button to continue the Control module reset operation.



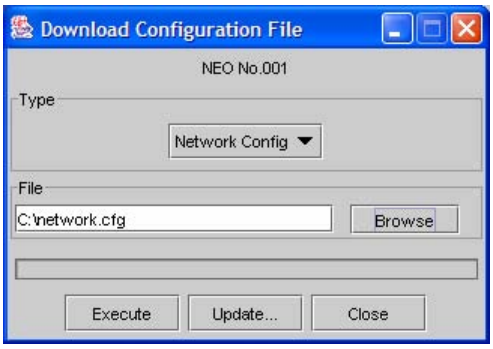
2.17.4 Downloading the Configuration Files to the Control Module

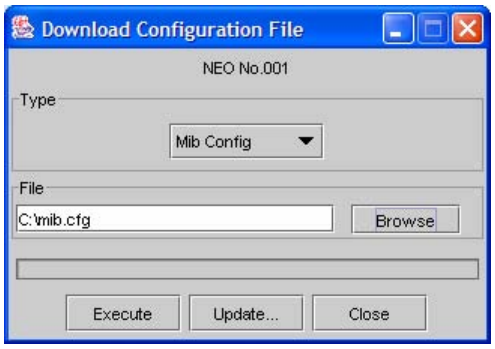
This function is used to download the network configuration files from the PNMT to the Control module. The network configuration file – **pp_network.cfg**, contains the IP address of the target NE as well as the IP address of the opposite NE and the information about the network where the target NE is located. The **pp_mib.cfg** file contains relevant information about the equipment (i.e. name, pm type, etc.) and housekeeping (Aux. I/O).

*This window is not available when MAINT is OFF.

To download the new configuration file to the CTRL:

1. Click **[DL Configuration File]** button in **CTRL** window.





2. Select the type of file to be downloaded in the **Type** list.

3. Enter the location of the configuration file in the **File** field, or click **[Browse]** to locate the file on the local hard disk or diskette.

WARNING!!!

Make sure that the correct configuration file is downloaded to the correct Control module. An incorrect configuration file may lead to Control module or network malfunction/failure.

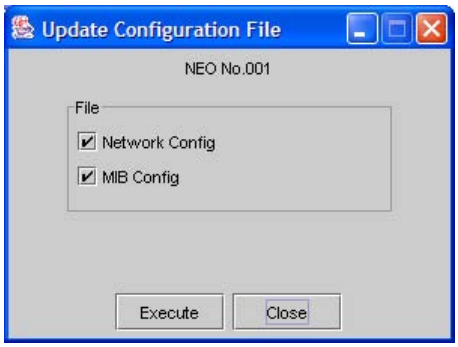
4. Click the **[Execute]** button to start the operation.

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 executing *Update*. Otherwise the Control module will switch to an empty ROM that may cause Control module malfunction/failure.

6. Click the **[Update]** button to activate and save the new configuration file(s).



7. Select the appropriate box for the type of configuration file that is to be updated. One or more configuration file(s) can be updated by checking the selection box of the configuration file name. Click **[Execute]** to start the operation. The "**with ROM (CTRL Program) Switching**" box is for switching to the ROM with the new CTRL Program and has the same function that was previously described in section *2.16.5 Downloading a new Program file to the Control Module*.

NOTE

When updating the pp_network.cfg file, NE-to-NE communication will be lost when the Control module re-initialises to the new system configuration. This WILL NOT affect the wireless link. During this time PNMT connection to the NE will be lost but will automatically be restored after the Control module is reset.

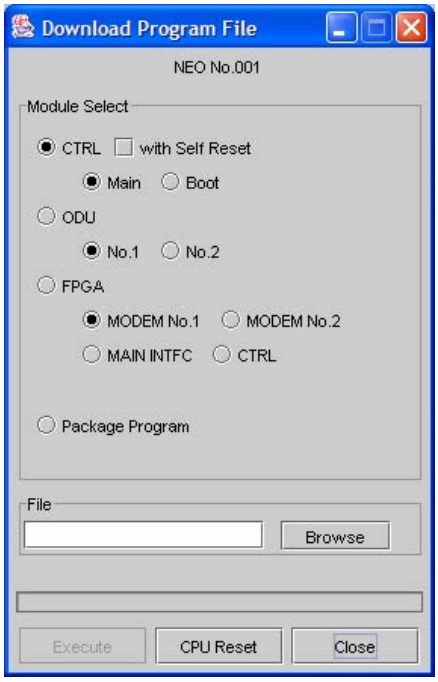
8. Click the **[Close]** button when done.

2.17.5 Downloading a new Program File to the Control Module

This function is used to update the application program on the Control module. This operation only affects the NMS communication but not the wireless link, and will not disrupt communication.

*This window is not available when MAINT is OFF.

To download the program file to Control module:



1. Click the **[DL Program File]** button in **CTRL** window.
2. Select the module select button of CTRL. If you tick the "**with Self Reset**" the Control module will be reset automatically after program file download is completed. In this case, steps 5 thru 8 are not necessary.
3. Enter the appropriate location of the program file (*.out) in the **File** field. Otherwise, click **[Browse]** to locate the file.

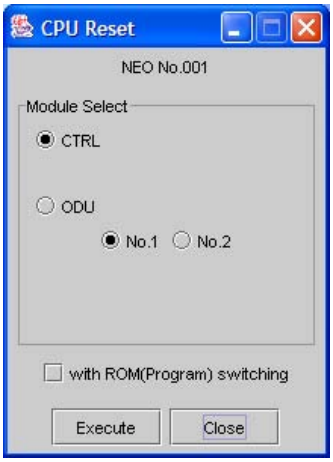
WARNING!!!

Make sure that the correct program file is downloaded to the Control module. Incorrect program files are likely to cause malfunction

4. Click the **[Execute]** button to start the operation.
5. A message window will appear displaying the status of the operation. The message window will close automatically once the download is completed.

NOTE

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



6. Click the **[CPU Reset]** button to switch to the new program file.
7. Check the **with ROM (Program) Switching** box.
8. Click the **[OK]** button to complete the switch to the new program file.

NOTE

The connection to the selected NE will be lost for a few minutes, but will be automatically restored shortly.

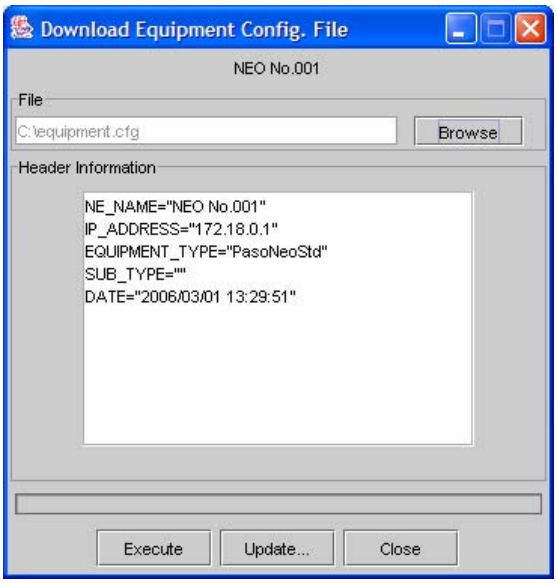
2.17.6 Downloading the Equipment Configuration Files to the Control Module

This function is used to download equipment configuration files from the PNMT to the Control module. The equipment configuration file contains the wireless configuration data (i.e. frequency, main interface) and provisioning data (i.e. BER alarm threshold).

*This window is not available when MAINT is OFF.

To download new configuration file to the NE:

1. Click the **[DL Equipment Config. File]** button in CTRL window.
2. Click the **[Browse]** button to locate the file on the local hard disk or diskette.



WARNING!!!

Make sure that the correct equipment configuration file is downloaded to the correct Control module. Incorrect configuration file is liable to cause Control module or network malfunction/failure.

3. Click the **[Execute]** button to start the operation.
4. 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 executing Update. Otherwise the Control module will switch to an empty ROM that is liable to cause Control module malfunction/failure.

5. Click the **[Update]** button to activate the new equipment configuration file. Click the **[Execute]** button to start the ***update*** operation.

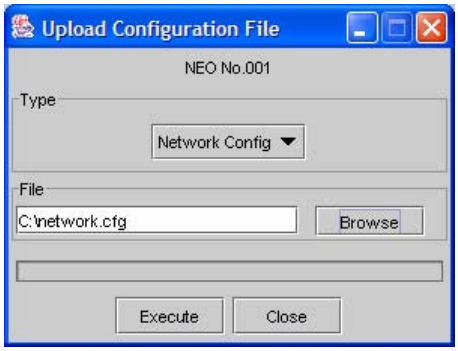
6. Click the **[Close]** button when done.

2.17.7 Uploading Configuration File to PNMT PC

This function is used to upload the configuration file from the Control module of the selected NE to the PNMT PC.

To upload the configuration file from the Control module to the PNMT:

1. Click the **[UD Configuration File]** button in **CTRL** window.



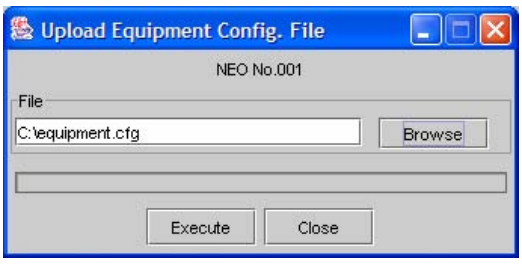
2. Select the type of file to be uploaded on the **Type** field.
3. Enter the desired file name for the uploaded file. And select and the directory where the uploaded file is to be saved.
4. Click the **[Execute]** button to start the operation.
5. A message window indicating the status of the operation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

2.17.8 Uploading Equipment Configuration File to PNMT PC

This feature is used to upload the equipment configuration file from the Control module of the selected NE to the PNMT PC.

To upload the equipment configuration file from the Control module to the PNMT:

1. Click the **[UD Equipment Config. File]** button in CTRL window.
2. Click the **[Execute]** button to start the operation.
3. Enter the desired name for the uploaded file and select the directory where the uploaded file is to be saved.

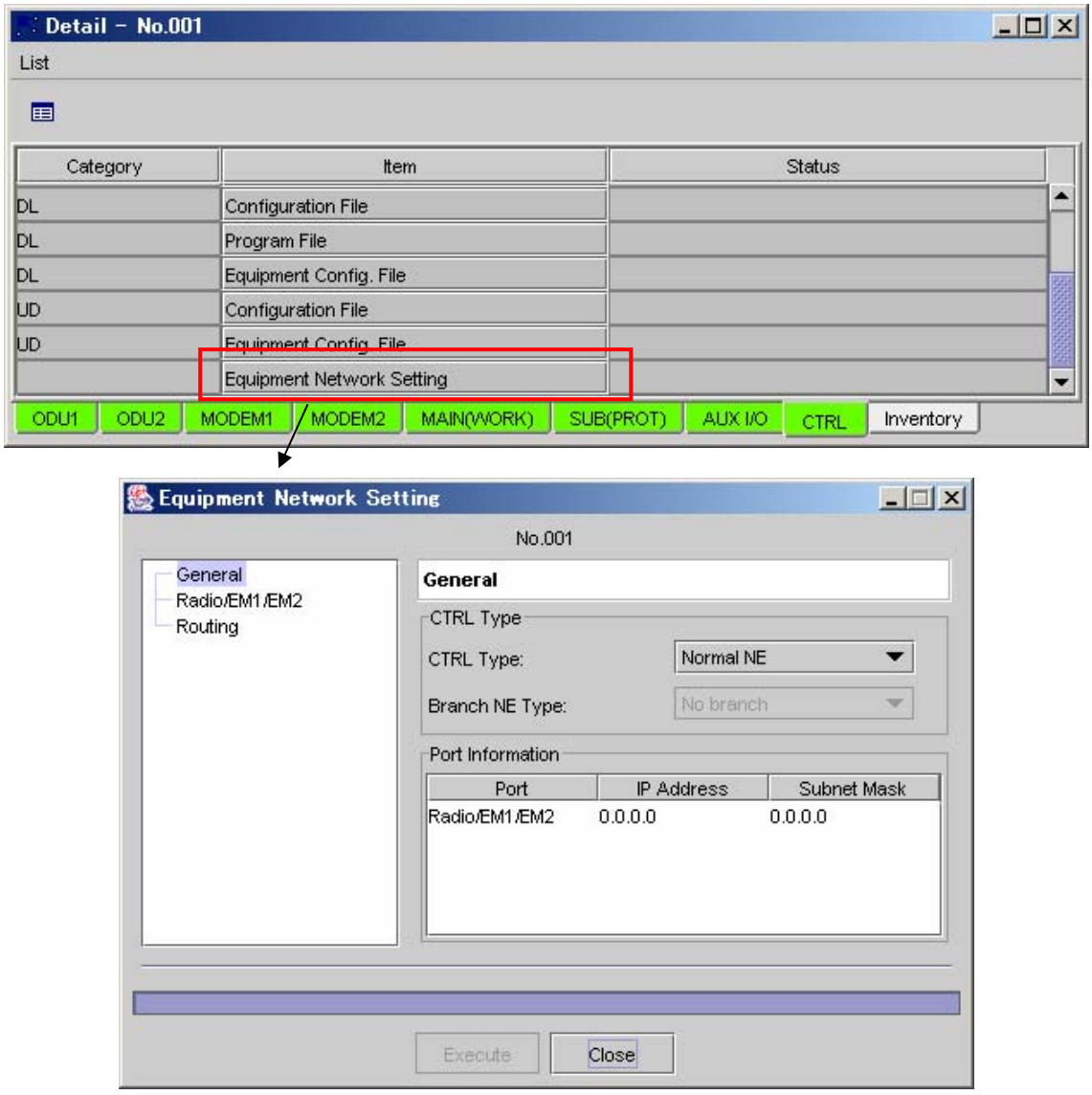


4. A message window indicating the status of the operation will appear. It will close automatically once the operation is completed.
5. After the upload is finished, click the **[Close]** button.
6. Verify that the file was uploaded on the specified directory.

2.17.9 Configuring the Equipment Network Settings

In order to operate *Auto Discovery* and Network function respectively to PNMS and PNMT it is necessary in advance, connect PNMT to each equipment to set Network information

This function is used to configure the equipment network settings (i.e. IP and routing addresses, subnet masks) using the tags in the lefthand field of the Equipment Network Settings window of the selected NE for the PNMT PC.



For detail refer to **Appendix A**.

2.18 Maintenance

There are several maintenance control items that can be set during *Maintenance Mode*.

The function of each control is as follows. (These windows are not available when MAINT is OFF. “Switch to Maintenance mode first” is displayed).

Common to PDH / SDH

Maintenance:	To switch Maintenance mode to ON
TX SW Manual Control:	To control the TX switch manually (Only during hot-standby)
RX SW Manual Control:	To control the RX switch manually (Only for 1 + 1 systems)
ATPC Manual Control:	Allows optional transmitting power when ATPC is in operation
TX Mute Control*1:	To set TX Mute Control
CW Control*1:	To turn on the Carrier Wave for measurements
IF Loopback*1:	To pinpoint faulty sections causing signal interruption
DADE Adjust	Select the DADE for Hot-Standby / Twinpath configuration to bring INTFC status back in phase
LAN Device Reset:	Resets LAN INTFC ports (when LAN Port set ting is “used”)
Linearizer Control:	To manually disable the linearizer function
RF Setting*1	To change the ODU sub band for the wireless link according to the RF frequency allocation
Antenna Alignment Mode1:	To turn on Antenna Alignment Mode (only available for specific ODU type)

***1 - Only possible for NE directly connected to PNMT**

Only for PDH

Main CH Loopback-1 (CH01-48)	Allows the pinpointing of faulty sections causing signal interruption
Main CH Loopback-2 (CH01-48)	Same as above

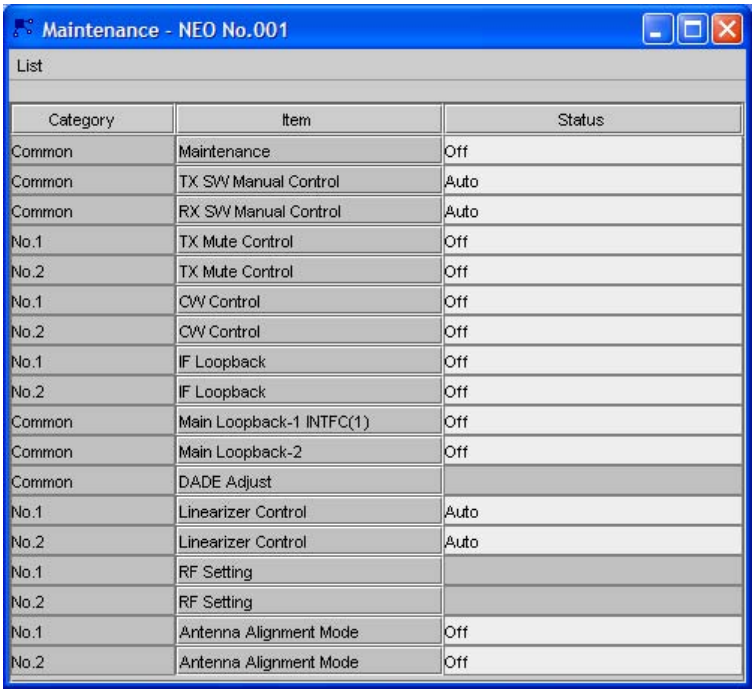
Only for SDH

APS Manual Control	Allows APS to be manually controlled (when APS is available)
Main Loopback-1 INTFC (1)	Allows the pinpointing of signal interruption faults
Main Loopback-1 INTFC (2)	Same as above (when APS is available)
Main Loopback-2	Same as above
ALS Restart	For optical interfaces, the duration of laser emittance during ALS manual restart (for testing)

2.18.1 Selecting Maintenance

To open the Maintenance window:

1. Select **Configuration → Maintenance** in the NE-specific menu bar.



This window contains the setup information for MAINT and several maintenance control items that need to be set during *Maintenance Mode*. The **Maintenance** window is shown below.

2.18.2 Mode

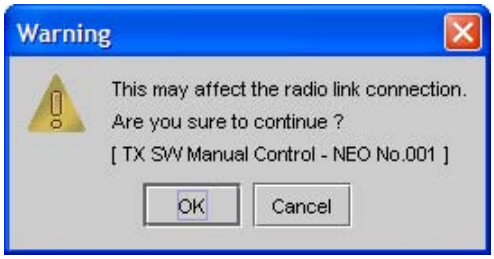
To switch the NE to maintenance mode:

1. Click **[MAINT]** button in **Maintenance** window.
2. Select on **ON/OFF** depending on desired state.
3. Click the **[Execute]** to implement the command.
4. Click the **[Close]** button when finished.

2.18.3 TX SW Manual Control (for Hot Stand-by system only)

To control the TX switch manually:

1. Click **[TX SW Manual Control]** button in Maintenance window.
2. Select the TX system that you want to use. The default setting is Auto
3. Click the **[Execute]** button to switch to the selected TX system.



CAUTION:

When TX SW Manual Control is changed from the default setting (Auto) to either No.1 or No.2, the confirmation message appears.

If the TX SW Manual Control has been manually switched to either No.1 or No.2, the confirmation message will NOT appear. However, this operation still may affect the radio link.

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

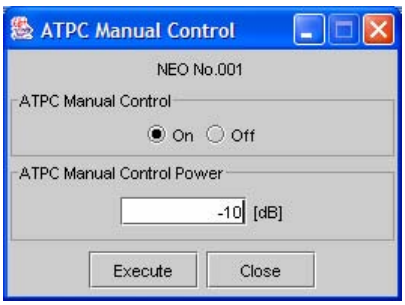
2.18.4 RX SW Manual Control for 1+1 system only)

To control the RX switch manually:

1. Click the **[RX SW Manual Control]** button in Maintenance window.
2. Select the desired RX wireless system. The default setting is Auto.
3. Click the **[Execute]** button to switch to the RX selected system.
4. Click the **[Close]** button when finished.

2.18.5 ATPC Manual Control

Use when an optional transmitting power is required during ATPC operation.
To set the ATPC Manual:



1. Click **[ATPC Manual]** button in **Maintenance** window.
2. Select whether to manually turn ON (or OFF) ATPC manual power and the desired decibel value.
3. Click the **[Execute]** button to activate the new setting.
4. Click the **[Close]** button when finished.

2.18.6 TX Mute Control

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. Click **[TX Mute]** button in **Maintenance** window.
2. Select **ON/OFF** depending on the desired state.
3. When setting the opposite NE, also select **TX Release Time** in the **TX Mute Release Time** list.
4. Click the **[Execute]** button to implement the command.
5. Click the **[Close]** button when finished.

2.18.7 CW Control

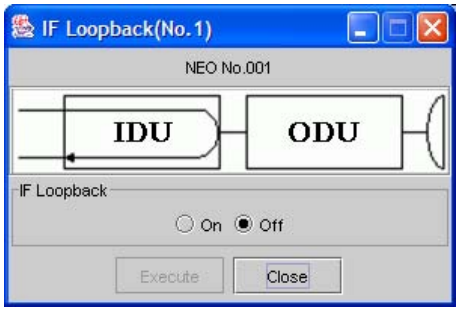
When doing frequency measurements, the CW should be turned ON to have an un-modulated signal. During normal operations this status should be OFF.

To change the CW (MOD Carrier) status:

1. Click **[CW Control]** button in Maintenance window.
2. Click **ON/OFF** button depending on desired state.
3. Click the **[Execute]** button to implement the operation.
4. Click the **[Close]** button when finished.

2.18.8 IF Loopback

ODU or IDU faults can be pinpointed by looping back the MUX signal at the IF.



1. Click the **[IF LoopBack]** button in the Maintenance window.
2. Select ON to activate the loopback.
3. Click the **[Execute]** button to activate the loopback.
4. Click **[Close]** button when finished.

2.18.9 DADE Adjust

DADE adjustment is necessary when the IF cable is to be replaced. (At initial start-up the offset memory can be used to minimize the delay, but it may interrupt traffic when the delay is substantial).

To conduct DADE adjustment:

1. Click **[DADE Adjust]** button in Maintenance window.
2. Select (click) the desired state: “DADE, “Offset DADE”, or “DADE off”
3. Click the **[Execute]** button to activate the command.
4. Click the **[Close]** button when finished.

2.18.10 LAN Device Reset

To reset Ports of LAN INTFC interface:

1. Click [LAN Device Reset] button in Maintenance window.
2. Select the port that you want to reset.
3. Click the **[Execute]** button to reset LAN ports.
4. Click the **[Close]** button when finished.

2.18.11 Linearizer Control

The Linearizer function is used to remove the distortion from the main amplifier in the ODU. This feature is set to “Auto” by default. If you need to turn it off during maintenance:

1. Click **[Linearizer Control]** button in **Maintenance** window.
2. Click Forced Reset.
3. Click the **[Execute]** button to activate this command.
4. Click the **[Close]** button when finished

2.18.12 RF Setting

Sub Band of ODU can be selected

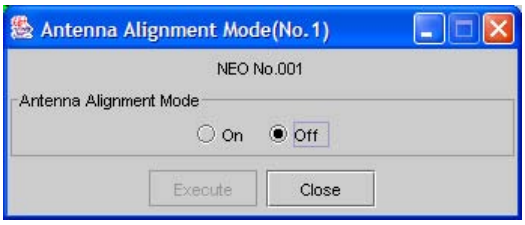
To select Sub Band:

1. Click **[Sub Band]** button in **Maintenance** window.
2. Select the type of Sub Band in the Sub Band list.
3. Click the **[Execute]** button to implement the command.
4. Click the **[Close]** button when finished.

2.18.13 Antenna Alignment Mode (only available for specific ODU type)

The Antenna Alignment Mode is used for extending the dynamic range of the RX LEVEL MONITOR (ODU). This function is only available for a specific ODU type.

To set Antenna Alignment Mode:

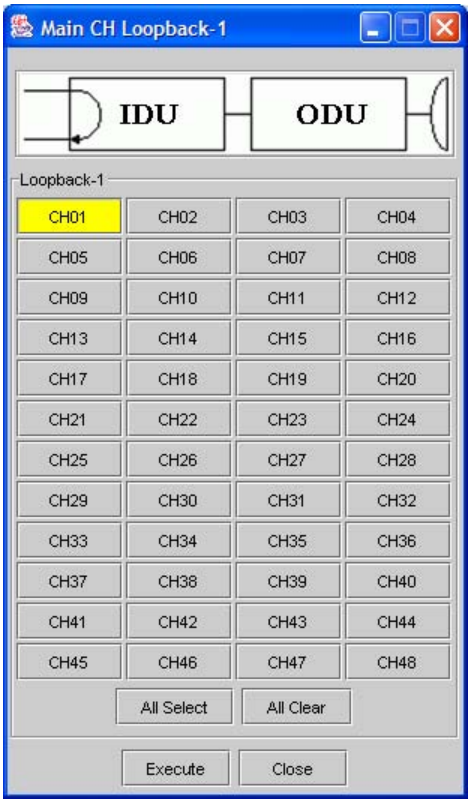


1. Click **[Antenna Alignment Mode]** button in Maintenance window.
2. Select ON/OFF**.**
3. Click the **[Execute]** button to activate the new setting.
4. Click the **[Close]** button when finished.

2.18.14 Main CH Loopback-1 (CH01- 48)

This allows the signal sent from your selected NE to be looped back (to that NE) via the INTFC.

To set the loopback:



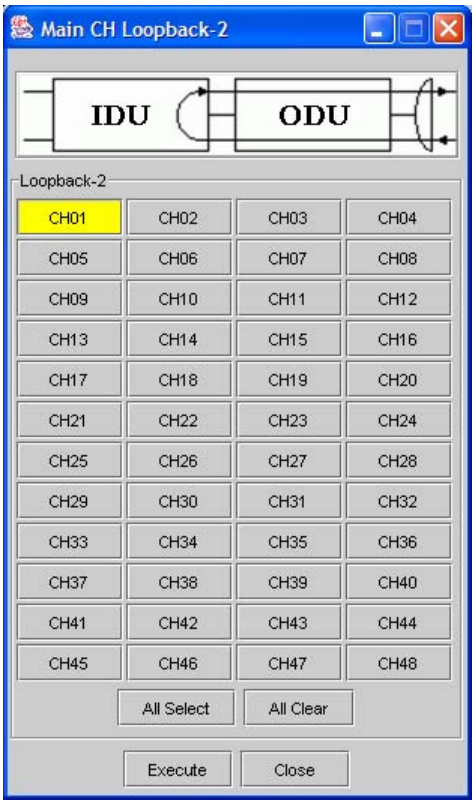
1. Click the **[Main CH Loopback-1]** button in the Maintenance window.
2. Select the channel (01 – 48).
3. Click the **[Execute]** button to apply the loopback.
4. Click the **[Close]** button when finished.

2.18.15 Main CH Loopback-2 (CH01- 48)

This allows the signal sent from the opposite NE to be looped back (to that NE) from your selected NE via the INTFC.

To set the loopback:

1. Click the **[Main CH Loopback-2]** button in the Maintenance window.
2. Select the channel (01 – 48).
3. Click the **[Execute]** button to apply the loopback.
4. Click the **[Close]** button when finished.



2.18.16 APS Manual Control

To control the APS manually:

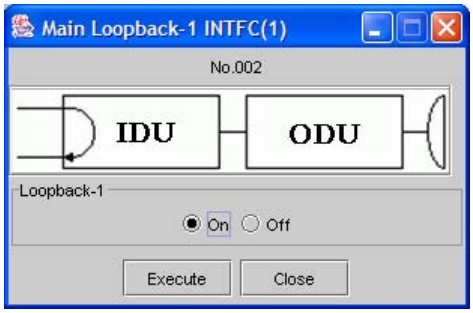
1. Click **[APS Manual Control]** button in Maintenance window.
2. Select the route you want to manually control: “Working”, “Auto” or “Protection”. (The default setting is Auto)
3. Click the **[Execute]** button to switch to the manual control of APS.
4. Click the **[Close]** button when finished.

2.18.17 Main Loopback-1 INTFC (1)

This type of loopback is created at the 150MB INFTC of the selected NE – where you are currently connected.

To set the STM-1 near-end loopback:

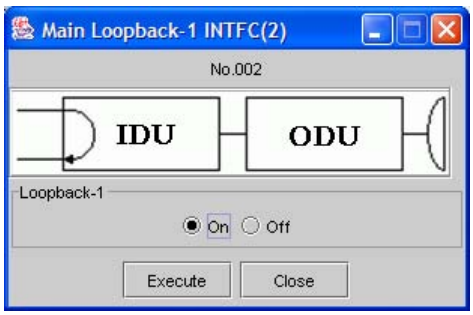
1. Click the **[Main Signal Loopback-1**] button in the Maintenance window.
2. Select **ON** to activate the loopback.
3. Click the **[Execute]** button to apply the loopback.
4. Click the **[Close]** button when finished.



2.18.18 Main Loopback-1 INTFC (2)

This type of loopback is created at the 150MB INFTC/OPT INTFC of the opposite NE.

To set the STM-1 near-end loopback:



1. Click the **[Main Signal Loopback-2]** button in the **Maintenance** window.
2. Select **ON** to activate the loopback.
3. Click the **[Execute]** button to apply the loopback.
4. Click the **[Close]** button when finished.

2.18.19 ALS Restart

This feature is used to set the time of manual restart of the Automatic Laser Shutdown (ALS). When the optical input signal is lost, the IDU will emit a laser signal from *STM-1 OUT* at a preset value (2 sec or 90 sec), at this point, if the fault has been rectified then the ALS will be released and operation will return to normal. Otherwise, the laser emission will end immediately.

To set the ALS restart:

1. Click the **[ALS Restart]** button in the Maintenance window.
2. Select the timing in seconds of the laser emission for manual restart.
3. Click the **[Execute]** button to apply the timing of the manual restart.
4. Click the **[Close]** button when finished.

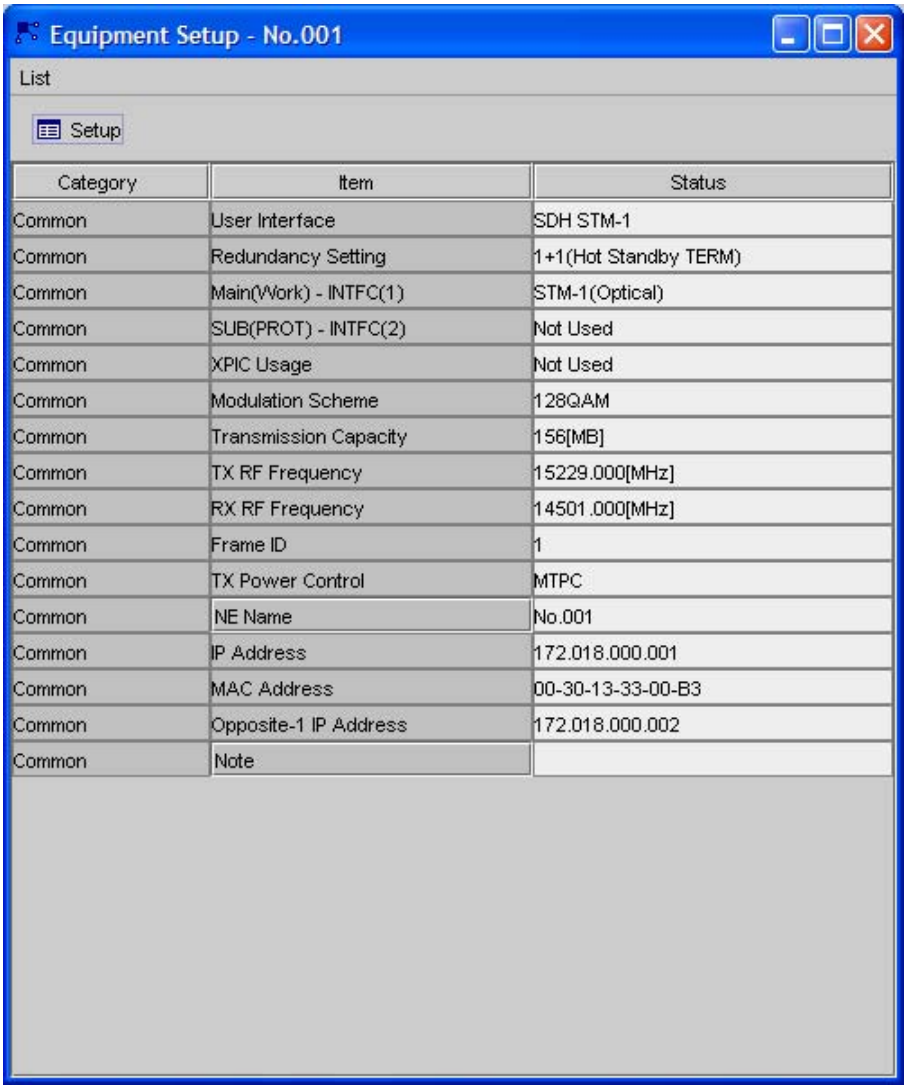
2.19 Equipment Setup

Main and Service signal, ODU and CTRL settings can be monitored as well as controlled via this window.

2.19.1 Equipment Configuration window

To open the Equipment Configuration Monitor:

1. Select **Configuration → Equipment Setup** in the NE-specific menu bar.
2. This window contains the setup information and control parameters for the ODU and the IDU. The **Equipment Setup** window is shown below.

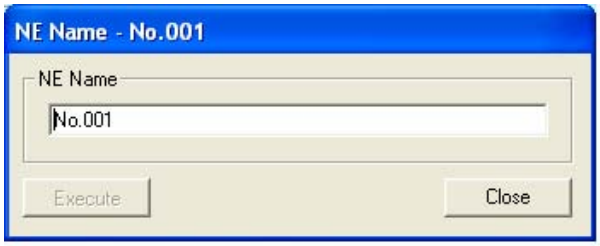


Category	Item	Status
Common	User Interface	SDH STM-1
Common	Redundancy Setting	1+1(Hot Standby TERM)
Common	Main(Work) - INTFC(1)	STM-1(Optical)
Common	SUB(PROT) - INTFC(2)	Not Used
Common	XPIC Usage	Not Used
Common	Modulation Scheme	128QAM
Common	Transmission Capacity	156[MB]
Common	TX RF Frequency	15229.000[MHz]
Common	RX RF Frequency	14501.000[MHz]
Common	Frame ID	1
Common	TX Power Control	MTPC
Common	NE Name	No.001
Common	IP Address	172.018.000.001
Common	MAC Address	00-30-13-33-00-B3
Common	Opposite-1 IP Address	172.018.000.002
Common	Note	

Equipment Setup window (example shows SDH STM-1 1+1 Hot Stand-by Configuration)

To edit the NE name:

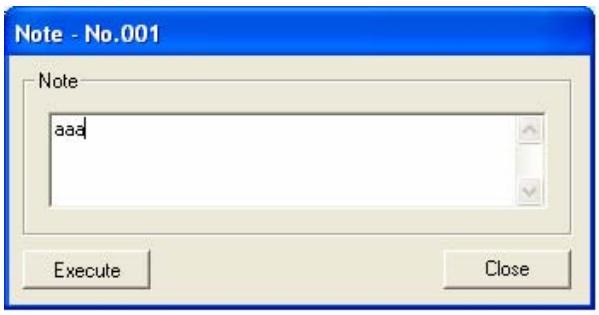
3. Click **[NE Name]** button in **Equipment Setup** window.
4. Enter new NE name in the **NE Name** dialog box. A maximum of 32 characters can be used.
5. Click the **[Execute]** button to change to new name.
6. Click the **[Close]** button when finished.



2.19.2 Editing the Note for CTRL

To put an optional description on the current NE:

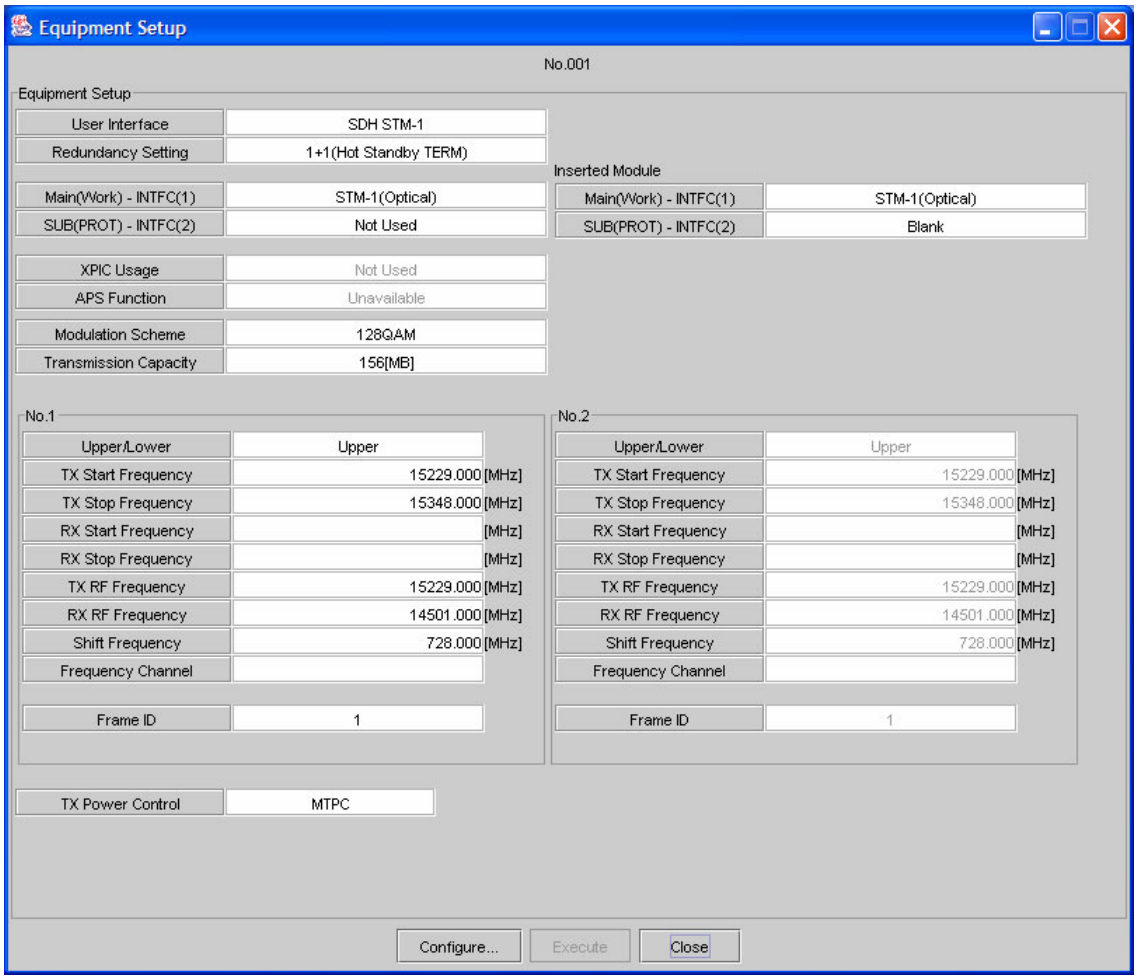
1. Click **[Note]** button in **Equipment Setup** window.
2. Enter the optional description for the specific NE in the **Note** dialog box. A maximum of 100 characters can be used in this field
3. Click the **[Execute]** button when finished.
4. Click the **[Close]** button when finished.



2.19.3 Setup

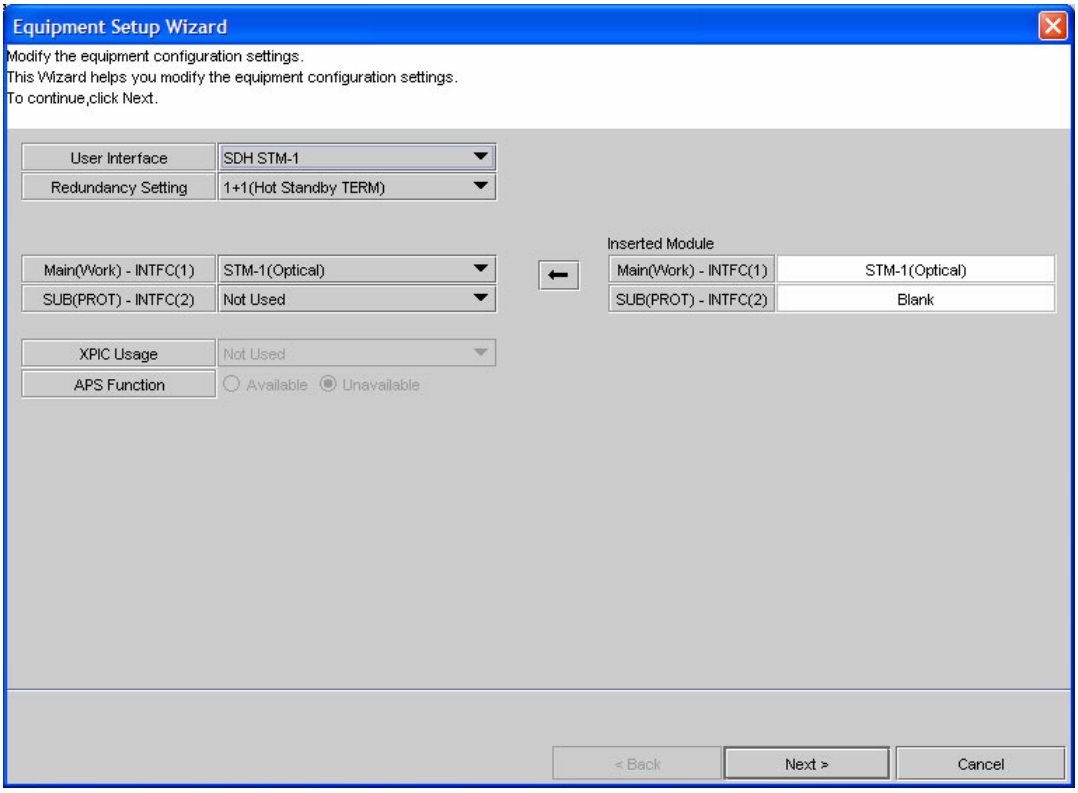
Setting the ODU and IDU parameters:

1. Click the **[Setup]** button in the **Equipment Setup** window and another **Equipment Setup** window (for verifying the settings) opens.



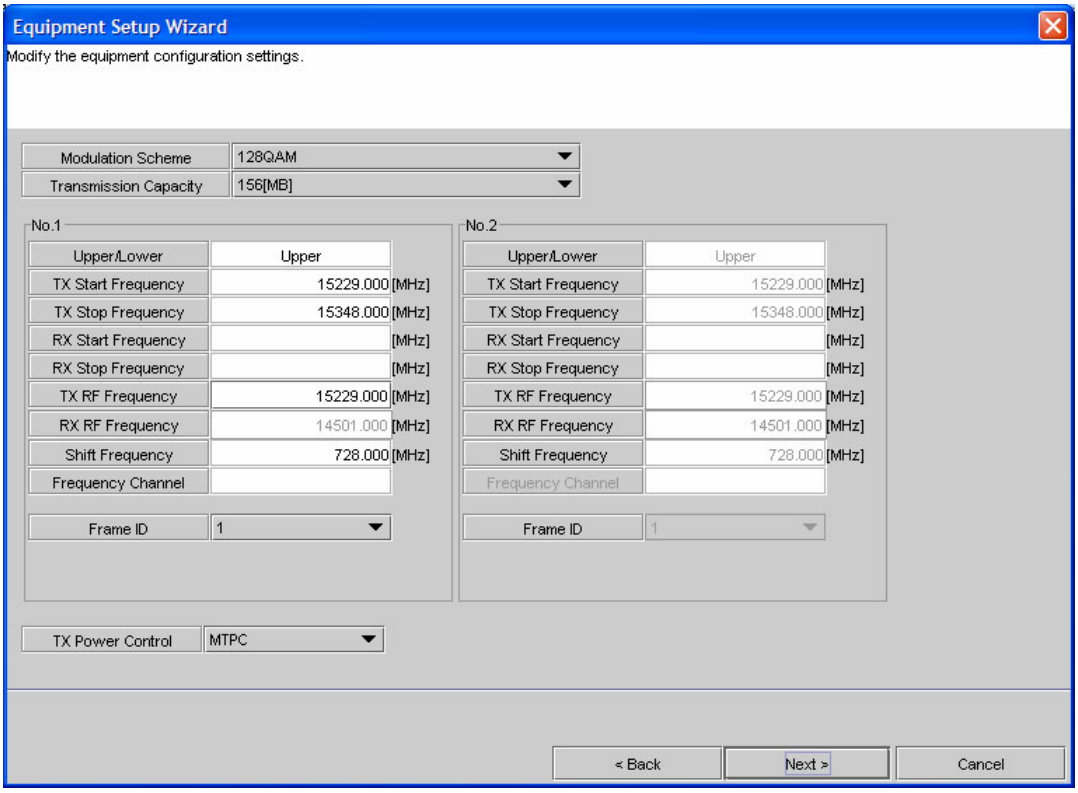
Equipment Setup Window (to verify settings)

2. Clicking **Configure** opens the **Setup Wizard**.



Setup Wizard

3. The settings in the window can be configured. To continue click **[Next]**.



4. To complete the configuration procedureclick **[Next]** and in the ensuing window click **[Finish]**.
5. This will take you back to the **Equipment Setup** window (for verifying the settings). Carefully confirm that the settings are correct and click **[Execute]** to activate them.

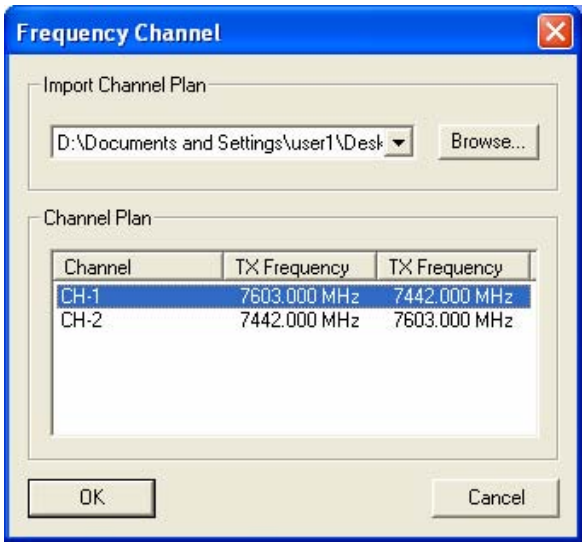
The following is an overview of the configurable items/parameters:

User Interface:	To select the desired user interface manually
Redundancy setting:	To select the desired redundancy setting
Main (Work)-INTFC (1):	To select the desired work interface (the available options depend on the selected User Interface)
SUB (PROT) - INTFC (2):	To select the desired protection interface (the available options depend on the selected User Interface and Main [Work] interface)
XPIC Usage:	To select the XPIC Usage (where supported)
APS Function:	APS function can only be set when both Main (WORK) and SUB(PROT) interfaces are STM-1 (optical)
Inserted module:	This function is only enabled when the interface setting and the actually inserted module do not match. It allows the setting to be updated to match the inserted module
Modulation scheme:	The type of modulation is set here.
Transmission capacity:	This value denotes the transmission capacity (in MB) of the selected interface and modulation type
TX RF Frequency:	The transmission frequency can be set within the range designated by the **TX Start** and **TX Stop** frequencies
Frequency Channel:	Enables the TX and RX frequencies for the channels to be set (as described below).
Frame ID:	Identification code for the transmission frames
TX Power Control:	The type of power control is set here.

2.19.4 Frequency Channel

1. Click the **[Browse]** to locate the Channel plan file on the local hard disk.
2. Select Channel and click **[OK]**, then TX and RX frequency corresponding to the channel will be set.

Frequency channel file format is **csv**, including channel name, TX frequency and RX frequency.
Examples
CH-1, 7442.000, 7603.000
CH-2, 7603.000, 7442.000



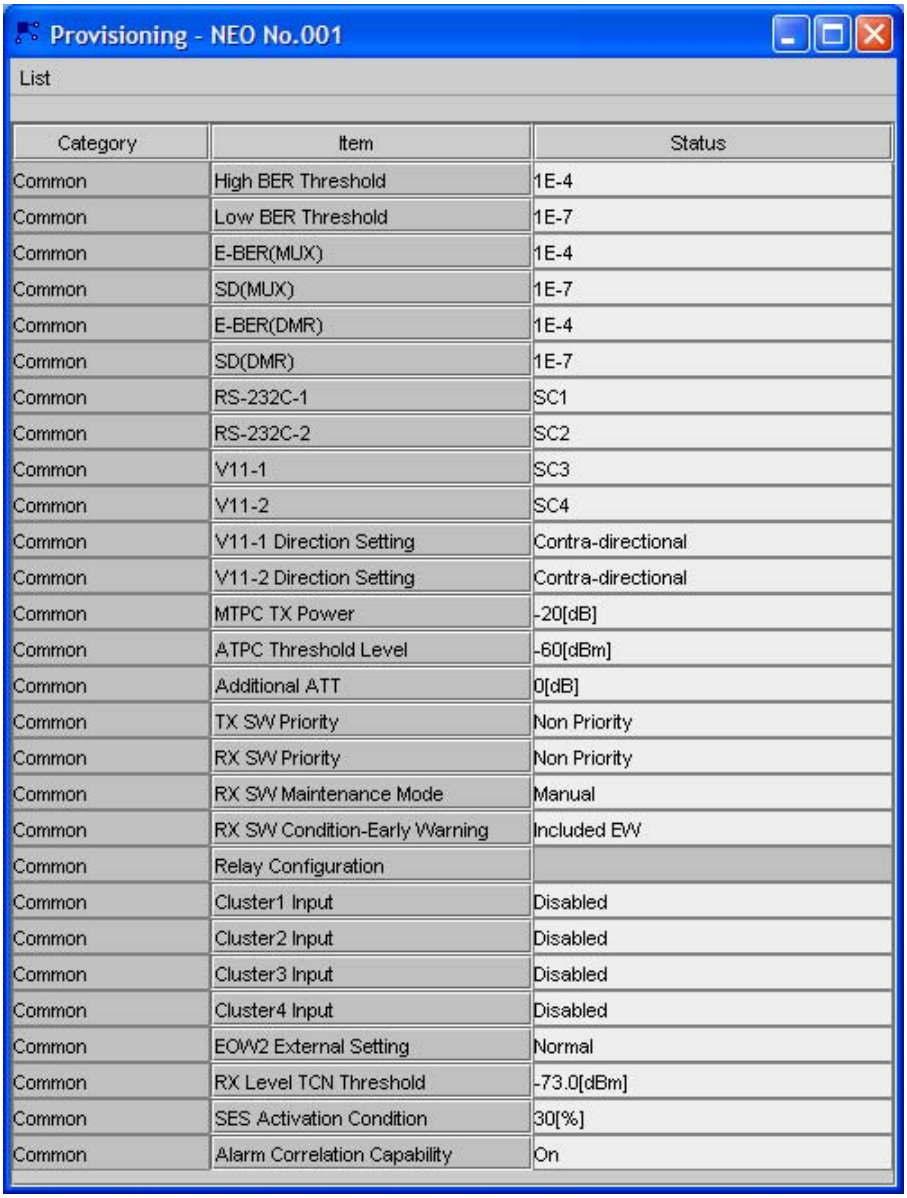
2.20 Provisioning

This window enables the main interface (MAIN INTFC), SC Assignment, MTPC / ATPC parameters, as well as error rate and other thresholds to be set.

Provisioning window

To open the Equipment Configuration Monitor:

1. Select **Configuration → Provisioning** in the NE-specific menu bar.
2. This window contains the setup information of the MTPC, ATPC, BER Alarm Threshold, Cluster ALM Setting (Input), AIS Activation, Main Channel Setting, SC and Assignment. The **Provisioning** window is shown below.



Category	Item	Status
Common	High BER Threshold	1E-4
Common	Low BER Threshold	1E-7
Common	E-BER(MUX)	1E-4
Common	SD(MUX)	1E-7
Common	E-BER(DMR)	1E-4
Common	SD(DMR)	1E-7
Common	RS-232C-1	SC1
Common	RS-232C-2	SC2
Common	V11-1	SC3
Common	V11-2	SC4
Common	V11-1 Direction Setting	Contra-directional
Common	V11-2 Direction Setting	Contra-directional
Common	MTPC TX Power	-20[dB]
Common	ATPC Threshold Level	-60[dBm]
Common	Additional ATT	0[dB]
Common	TX SW Priority	Non Priority
Common	RX SW Priority	Non Priority
Common	RX SW Maintenance Mode	Manual
Common	RX SW Condition-Early Warning	Included EW
Common	Relay Configuration	
Common	Cluster1 Input	Disabled
Common	Cluster2 Input	Disabled
Common	Cluster3 Input	Disabled
Common	Cluster4 Input	Disabled
Common	EOW2 External Setting	Normal
Common	RX Level TCN Threshold	-73.0[dBm]
Common	SES Activation Condition	30[%]
Common	Alarm Correlation Capability	On

Provisioning window

Common items

Item/feature	Description	Specific conditions for it to be displayed/configured
High/Low BER Threshold	Allows the setting of the BER value that is to trigger the alarm	None
RS-232C-1 / 2, V-11-1 / V-11-2	Assigns the respective SC to an interface	None
V-11-1 / V-11-2 Direction Setting	Enables the V-11-1 / V-11-2 service channel clocking to be set (i.e. co-directional or contra-directional)	Only if SC have been assigned (without SC assignment it is inactive)
MTPC TX Power	Allows the transmission power (dB) to be set for MTPC operation.	Only when MTPC is used
ATPC Threshold Level	Allows the transmission power (dB) thresholds to be set for ATPC operation.	None
Additional ATT	For setting the additional attenuation parameters (dB)	Not available if Modulation Scheme = QPSK
ATPC Range (Max / Min)	For setting the minimum and maximum ATPC transmission power (dB).	Only when ATPC is used
ATPC Power Mode	For setting the power mode (Hold: maintaining present status, MIN: minimum level).	Only when ATPC is used
TX / RX SW Priority	Enables the respective priority to be set (pre-alarm TX / RX route or No. 1)	Only for 1+1 hot standby
RX SW Maintenance Mode	Has two settings: "manual" for disabling the RX switch and "forced" for overriding the disabled switch.	Only for 1+1 hot standby / twinpath
RX SW Condition-Early Warning	For setting whether the EW (Early Warning) feature is to be included in the parameters.	Only for 1+1 hot standby / twinpath
Relay Configuration	The six relays in the IDU are each associated with a parallel alarm. Four can be configured and the other two (RL01 and RL02) have fixed alarms.	None
Cluster 1 - 4 Input	Allows the cluster alarm input to be enabled/ disabled.	None
EOW2 External Setting	Enables appropriate EOW2 calling system signal polarity to be set: "normal" when the NEO IDU is connected to another NEO IDU or a PASOLINK IDU; "invert(ed)" when connected to PASOLINK+ IDU or Mx IDU	None
RX Level TCN Threshold	For setting the threshold at which the TCN is displayed	None
SES Activation Condition	Enables setting of the low threshold (%) that activates SES	None
Alarm Correlation Capability	Allows the suppression of secondary (downstream) alarms to be turned on/off	None

PDH-only items

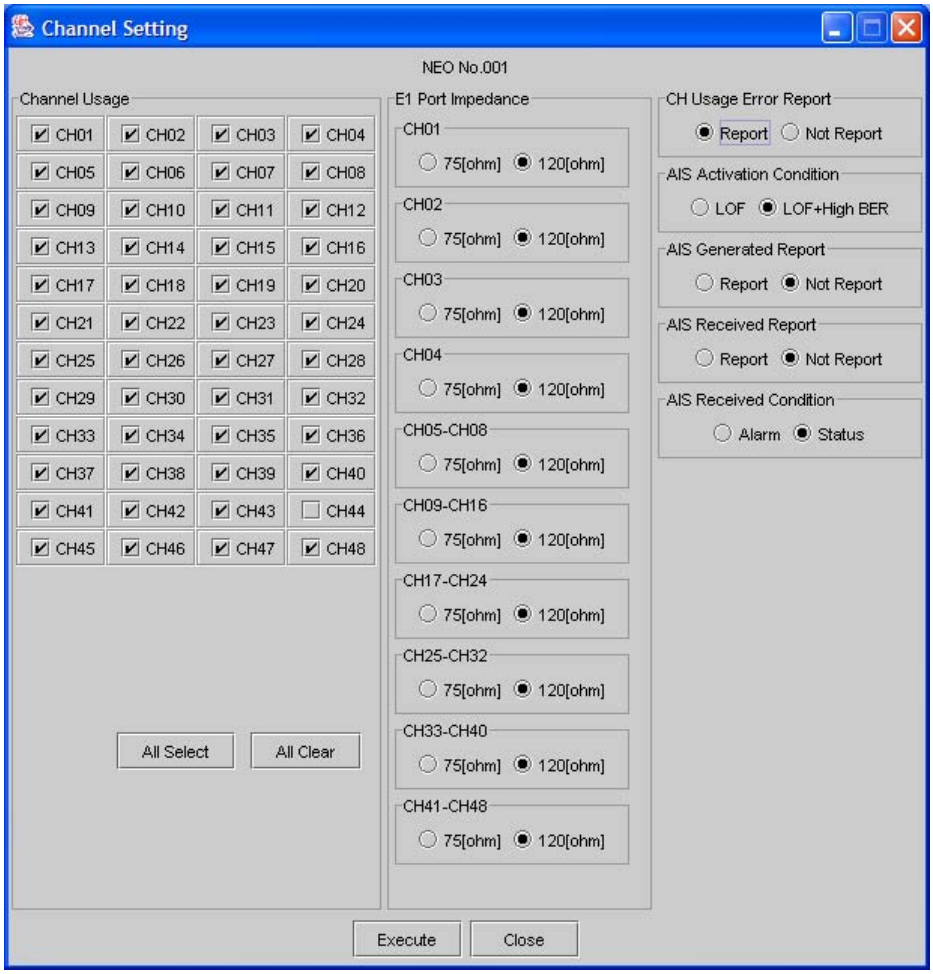
Item/feature	Description	Specific conditions for it to be displayed/configured
CH Usage (CH01-CH48)	For setting the respective usage of the 48 available channels	None
AIS Activation Condition	For setting whether the AIS signal is activated by LOF, High BER or both alarm parameters	At least one channel (CH01-CH48) must have been selected for use
AIS Generated Report	For enabling/disabling the **AIS Generated Report**	At least one channel (CH01-CH48) must have been selected for use
AIS Received Report	For enabling/disabling the **AIS Received Report**	At least one channel (CH01-CH48) must have been selected for use
AIS Received Condition	For setting the type of **AIS Received Condition** parameters	At least one channel (CH01-CH48) must have been selected for use
E1 Port Impedance	For setting the impedance of the E1 interface port	The designated channel(s) must have been selected for use
LAN Port 1 -2 Usage	For setting the usage of the LAN interface ports (1, 2)	Only for ***PDH with LAN*** interface
LAN Switching Function	Allows the port switching function to be "enabled" / "disabled"	When 2-Port LAN interface is used in the flwng. configuration: Port1-2 Shared/1 Port Only (Main), or Port1-2 Shared/1 Port Only (SC)
LAN Speed & Duplex Port 1-2	For setting the speed and duplex parameters of the LAN interface ports (1, 2)	When LAN Port1 (or 2) has been selected for use
LAN Flow Control Port 1-2	For setting the flow control parameters of the LAN interface ports (1, 2)	When LAN Port1 (or 2) has been selected for use
LAN Collision Report Port 1-2	For setting whether collision status is reported (or not) for the interface ports (1, 2)	Only when **Speed & Duplex Port 1-2** = *AUTONEG* or *HALF-DUPLEX*
LAN Link Loss Forwarding Port 1-2	For enabling/disabling the **Link Loss Forwarding** function for LAN interface ports (1, 2)	Only when LAN Port1 (or 2) has been selected for use. Not available when LAN Switching Function is "enabled"
LAN 2M Framing	For setting the type of 2M framing of the LAN interface ports (1, 2)	Only during the following conditions: 2-Port LAN >> Radio Mapping = Port1-2 Shared / 1 Port Only (Main) and 2Port LAN = 2Mbps in Equipment Setup window

SDH STM-1 only items

Item/feature	Description	Specific conditions for it to be displayed/configured
E-BER(MUX)	Sets the E-BER threshold for the multiplexer (MUX)	None
E-BER(DMR)	Sets the E-BER threshold for the digital microwave radio (DMR)	None
SD(DMR)	Sets the **Signal Degrade** threshold for the DMR	None
SD(MUX)	Sets the Signal Degrade threshold for the multiplexer (MUX)	None
ALS Function	The Automatic Laser Shutdown (ALS) that intermittently turns the laser output on/off after a designated interval from the start of LOS mode is "Enabled" or "Disabled")	Only when MAIN(WORK) = STM-1 (OPTICAL) interface
ALS Interval	For setting the interval (from the start of LOS) until APS Function is to be executed.	Only when ALS Function is enabled
APS Maintenance Mode	Has two settings: "manual" for disabling APS and "forced" for overriding the disabled APS.	Only when ALS Function is enabled
APS Condition-SF	For setting whether **Signal Fail** is to be included in the parameters.	Only when ALS Function is enabled
APS Condition-Signal Degrade	For setting whether **Signal Degrade** is to be included in the parameters.	Only when ALS Function is enabled
Lock-in Usage	Allows the **Lock-in** function to be "enabled" or disabled"	Only when ALS Function is enabled
Lock-in Count	For setting the number ("count") of oscillations (within the preset "**Detect**[ion] **Time**") that will activate the **Lock-in**	Only when **Lock-in** function is "enabled"
Lock-in Detect Time	For setting the length of the time interval within which the **Lock-in Count** is conducted.	Only when **Lock-in** function is "enabled"
Lock-in Hold Time	Sets the duration for maintaining ("holding") the **Lock-in function**	Only when **Lock-in** function is "enabled"

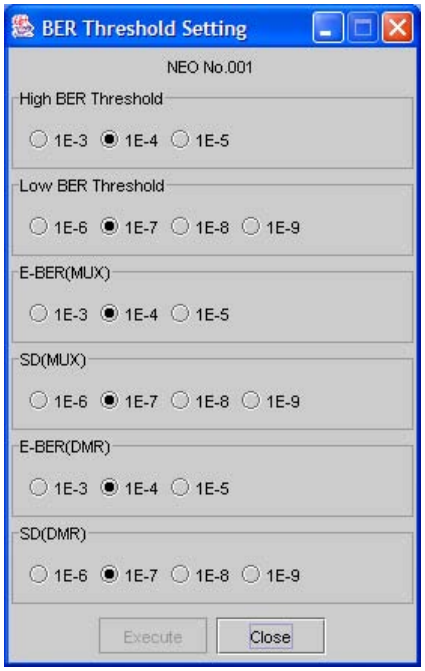
2.20.1 Channel Setting

To set the necessary channels (for the above parameters) simply click anywhere on the Provisioning window to open the following window in which you can then select/activate the various channels.



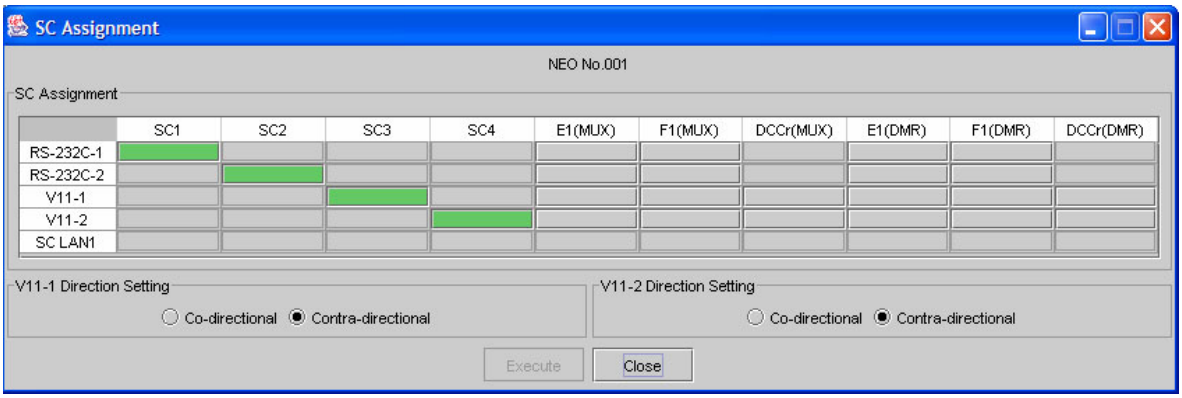
2.20.2 BER Threshold Setting

The BER in the system can be set in the window.



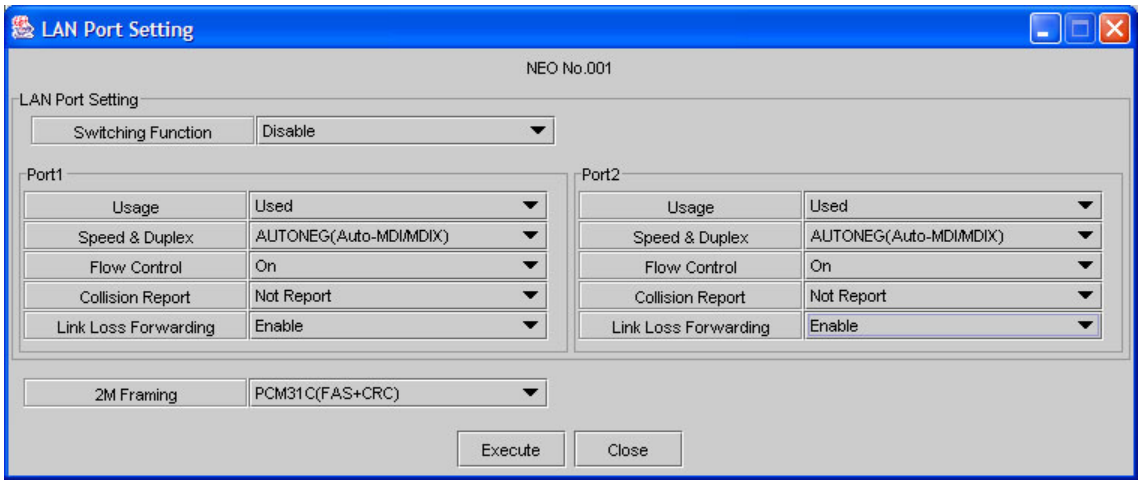
2.20.3 SC Assignment

This feature displays the assigned interface type (e.g. LAN, RS-232C, V11) that is available for user channels (DSC), and sets the type of directional interface for SC3 and SC4.



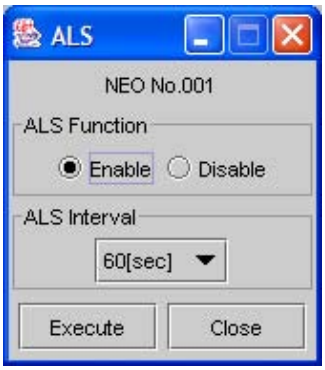
2.20.4 LAN Port Setting

Allows the LAN Port settings to be input or changed.



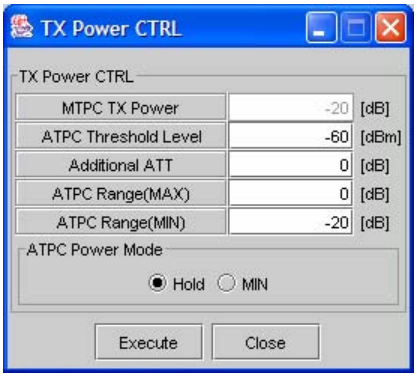
2.20.5 ALS (Automatic Laser Shutdown)

When the ALS is enabled, the laser emission will be cut off after a certain period has elapsed after the IDU has issued an STM-1 LOS. If the ALS is disabled, the laser emission will be continuously outputted.



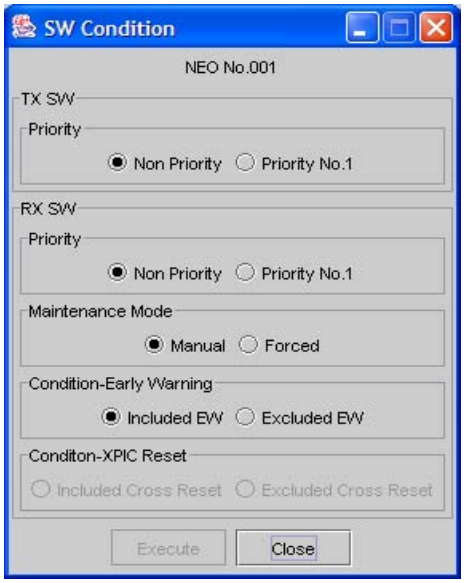
2.20.6 TX Power CTRL

The MTPC TX Power, ATPC Threshold Level, Additional ATT, ATPC Range as well as Power mode can be set in this window.



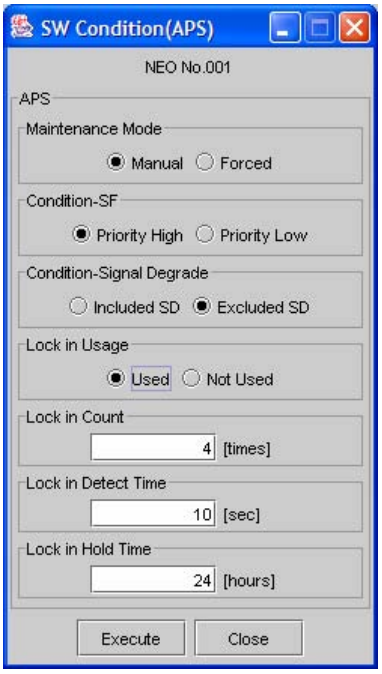
2.20.7 SW Condition

In this window, the switching (SW) parameters can be set.



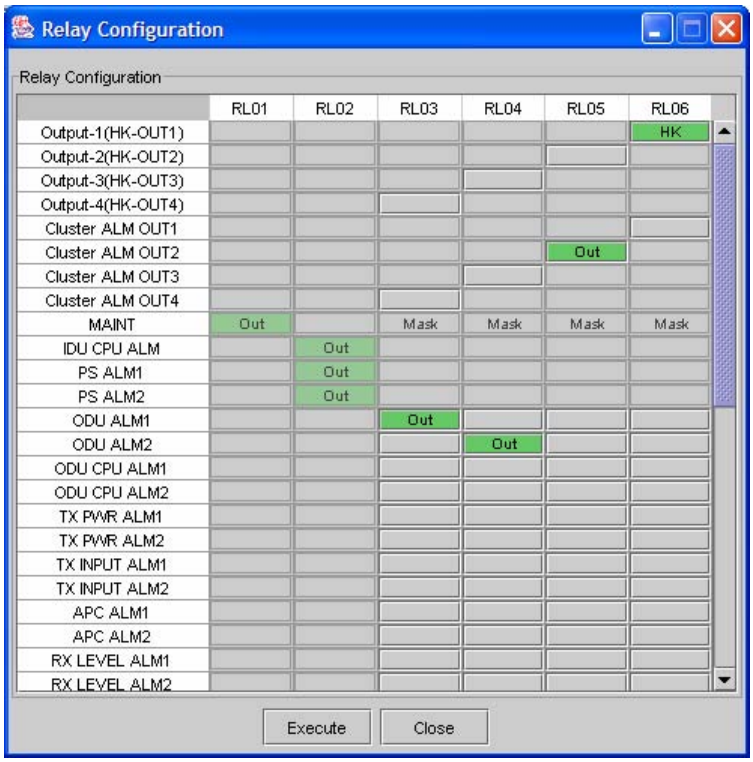
2.20.8 SW Condition (APS)

Allows the various switching (SW) parameters for APS to be set.



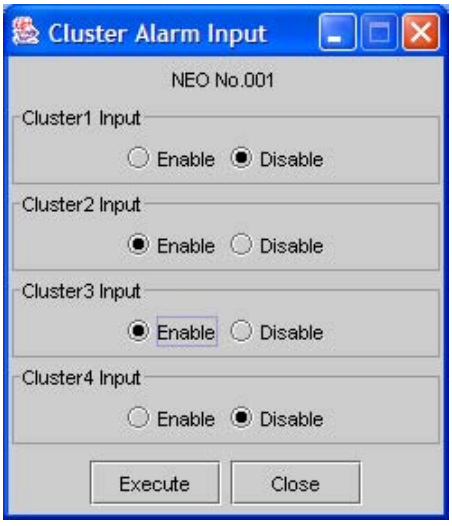
2.20.9 Relay Configuration

This window shows the six relays in the IDU (that are each associated with a parallel alarm). Four can be configured and the other two (RL01 and RL02) have fixed alarms.



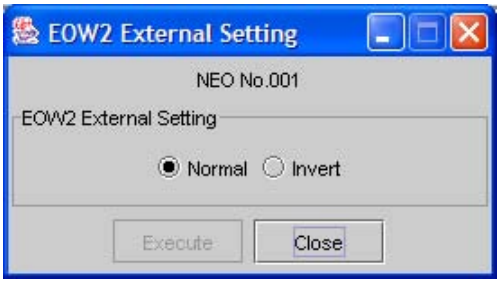
2.20.10 Cluster Alarm Input

Cluster alarms can be enabled/disabled with this window.



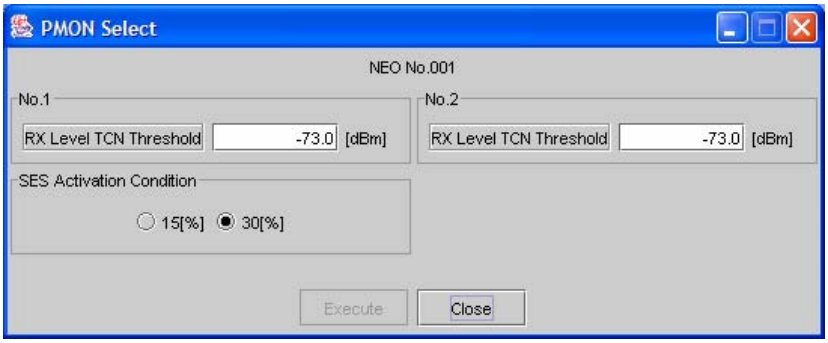
2.20.11 EOW2 External Setting

The EOW2 calling system signal polarity can be set here: "normal" when the NEO IDU is connected to another NEO IDU or a PASOLINK IDU; "invert(ed)" when connected to PASOLINK+ IDU or Mx IDU



2.20.12 PMON Select

The RX Level TCN Threshold and SES Activation percentage can be set.



2.20.13 Alarm Correlation Capability

In this window the suppression of secondary (downstream) alarms can be turned
on/off

2.21 Link Performance Monitor

The following performance items can be monitored according to G.826 recommendation:

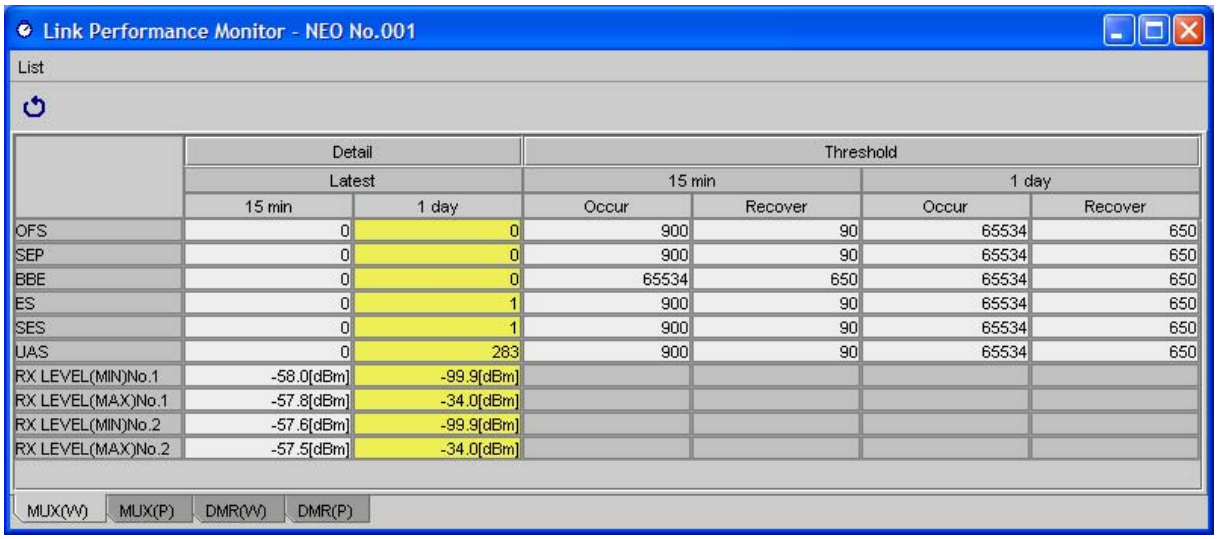
- **Out of Frame Second (OFS)** – the total number of seconds the "out of frame" condition is generated in 15 minute-blocks.(OFS is applied to the Total only)"
- **Severely Errored Period (SEP)** – the cumulative time in which the BER of a one-second period exceeded 10E-3.
- **Background Block Error (BBE)** - the sum of the B1 background block error
- **Errored Second (ES)** – the cumulative time in which more than one B1 error pulse per second was detected
- **Severely Errored Second (SES)** – the cumulative time in which the BER of a one-second period exceeded a set percentage (15% or 30%).
- **Unavailable Second (UAS)** –the cumulative time in which the unit remained inoperative
- **RX Level monitors** –the minimum and maximum reception level (when there are two routes it does so for No. 1 and 2 respectively

Pink color in Performance Monitor window indicates that threshold value have been exceeded. The threshold values can be set in Threshold window. The detailed daily performance data for the last seven days can be viewed by clicking the **[Detail]** button.

2.21.1 Viewing Summary Link Performance Monitor

To view Summary Link Performance Monitor:

Click **Performance Monitor → Link Performance Monitor** in the **NE-specific** menu bar of the target NE that you intend to monitor (or alternatively **PNMT window→ LPM)**.



Summary Link Performance Monitor window

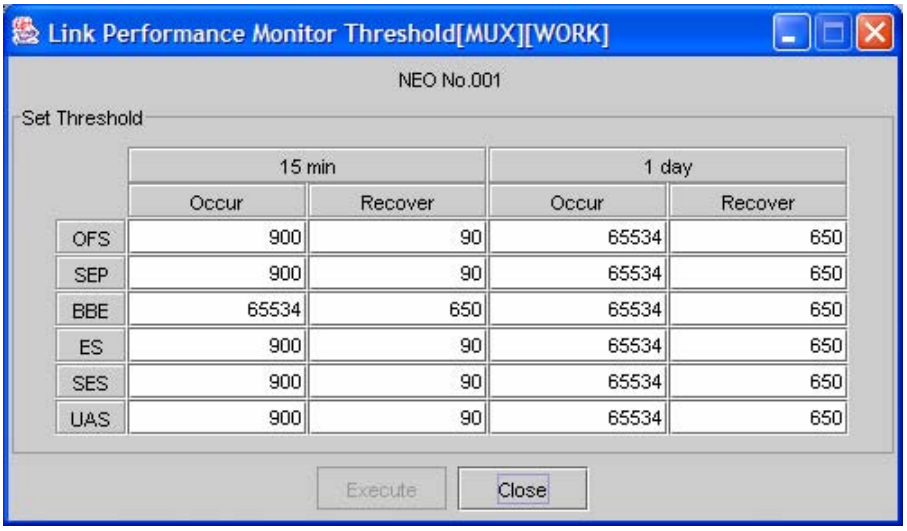
In the case of SDH STM-1 with APS, the tabs on the bottom of the **LPM** window, allow ***MUX(W), MUX(P), DMR(W), DMR(P)*** to be selected, without APS, ***MUX*** and ***DMR*** can be selected.

For PDH E1 only one ***Total*** tab is available.

2.21.2 Threshold Setting

To set the threshold values:

1. Click **[Threshold]** button in the Summary Link Performance Monitor window



Summary Link Performance Monitor Threshold

2. Select the performance item that is to be configured on the table shown above. The G.826 measure becomes available for setting when selected.
3. Set the monitoring values (the alarm **Occur** and **Recover**) in the appropriate field. The alarm status will be monitored when it reaches the ***alarm occur*** value and issue an ***alarm clear status*** when the ***recover value*** set in the threshold table is reached.
4. Click **[Execute]** button to activate the new settings.
5. Click **[Close]** button when finished.

2.21.3 Link Performance Monitor (1day / 15 min. Data) window

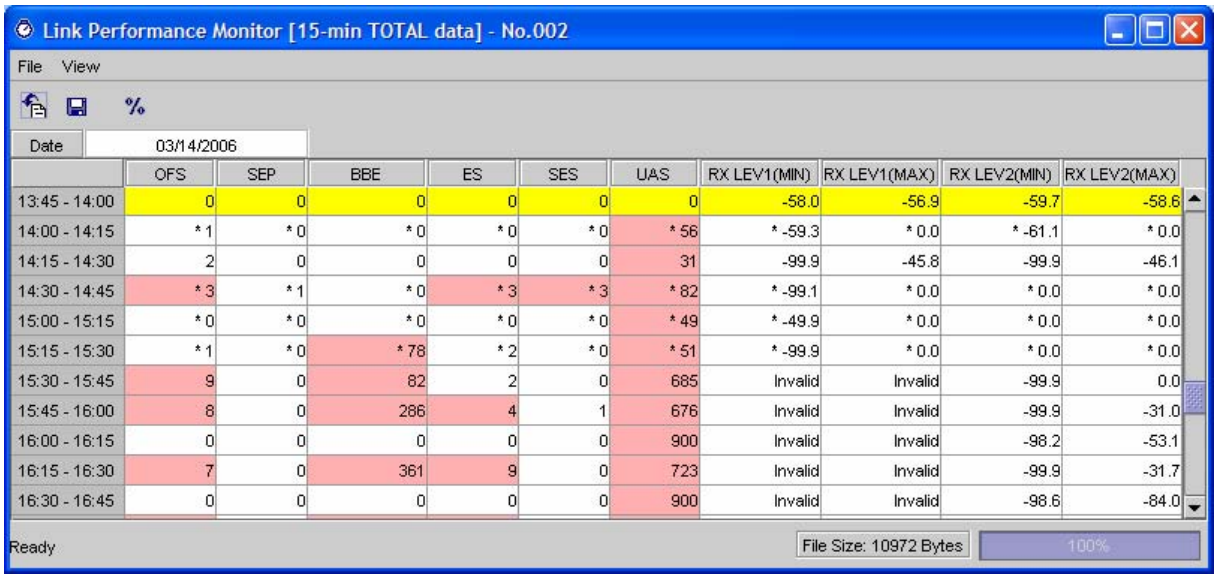
To view the 1day Data:

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

Link Performance Monitor (1 day Data) window

To view the 15-min. Data:

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



Link Performance Monitor (15-min. Data) window

2. The data can be saved in text format by clicking on the save icon. Or it can be refreshed by clicking on the reload (refresh) icon.

2.22 Remote Network Monitoring (RMON)

Remote Network Monitoring (RMON) function can monitor the signal through the LAN port, both LINE-side (the port on the NE) and DMR side. RMON can count the number of received or transmitted packets and packets errors. These items are then displayed in the PNMT.

The following RMON items can be monitored:

RMON	**RX Unicast Pkts** – the total number of unicast packets received. This item measures from 64 octets to 1536 octets.
	RX Broadcast Pkts – the total number of packets received that were directed to the broadcast address. This item measures from 64 to 1536 octets in length.
	RX Multicast Pkts – the total number of packets received that were directed to a multicast address. This item measures from 64 to 1536 octets in length.
	RX Pause Pkts – the total number of packets received that were paused.
	RX CRC Errors – the total number of packets received that detected FCS error. This item measures from 64 to 1536 octets in length.
	RX Align Errors – the total number of packets received that detected Alignment error. This item measures from 64 to 1536 octets in length.
	RX Symbol Errors – the total number of packets received that detected Symbol error. This item measures from 64 to 1536 octets in length.
	RX Undersize Pkts – the total number of good packets received that were less than 64 octets in length.
	RX Fragments – the total number of packets (Including bad packets) received that were less than 64 octets in length.
	RX Pkts 64 – the total number of packets (Including bad packets) received that were 64 octets in length.
	RX Pkts 65-127 – the total number of packets (Including bad packets) received that were between 65 and 127 octets in length.
	RX Pkts 128-255 – the total number of packets (Including bad packets) received that were between 128 and 255 octets in length.
	RX Pkts 256-511 – the total number of packets (Including bad packets) received that were between 256 and 511 octets in length.
	RX Pkts 512-1023 – the total number of packets (Including bad packets) received that were between 512 and 1023 octets in length.
	RX Pkts 1024-1536 – the total number of packets (Including bad packets) received that were between 1024 and 1536 octets in length.
	RX Pkts 1537-MAX – the total number of good packets received that were between 1537 and 1916 octets in length.
	RX Jabbers – the total number of packets received (Including bad packets) that were longer than 1537 octets.
	TX Unicast Pkts – the total number of unicast packets transmitted. This item measures from 64 to 1916 octets in length.
	TX Broadcast Pkts – the total number of packets transmitted that were directed to the broadcast address. This item measures from 64 to 1916 octets in length.
	TX Multicast Pkts – the total number of packets transmitted that were directed to a multicast address. This item measures from 64 to 1916 octets in length.
	TX Pause Pkts – the total number of packets transmitted that were paused.
	TX Total Collisions – the total number of collisions when it is transmitting.

NOTE:

If an item causes overflow,"+" will be shown in front of the number.

If an item is invalid, "*" will be shown in front of the number. When the total number is incomplete, it will be shown as invalid.

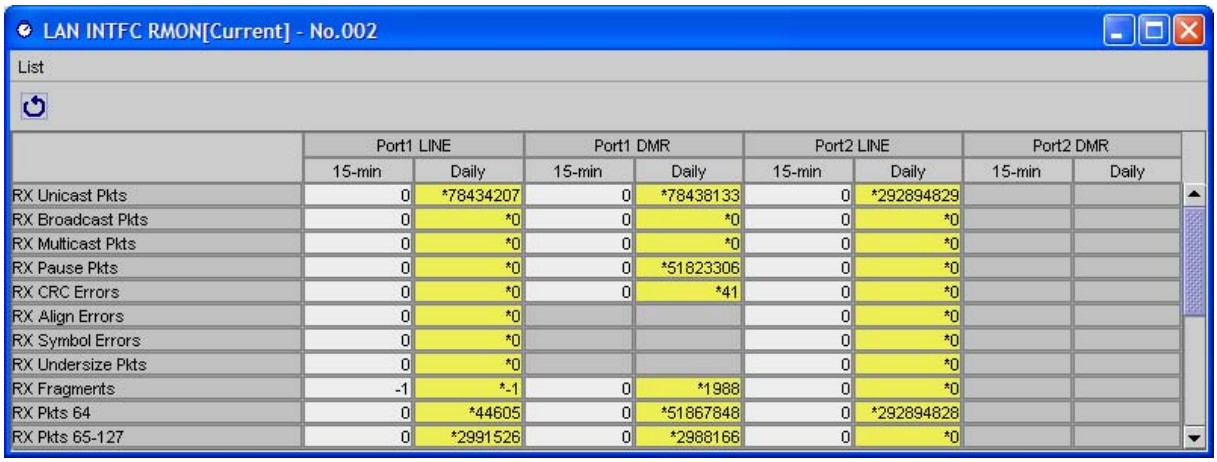
During maintenance mode, an item will be highlighted in the maintenance color (yellow as default).

2.22.1 Viewing LAN INTFC RMON [Current]

This window contains the latest 15-minute data (15-min) and to the current day's total data (Daily) for all RMON items.

To view RMON LAN INNTFC-S[Current] Monitor:

Select **Performance Monitor → LAN INTFC RMON [Current]** in the **NE-specific** menu bar of the target NE that you intend to monitor.



	Port1 LINE		Port1 DMR		Port2 LINE		Port2 DMR	
	15-min	Daily	15-min	Daily	15-min	Daily	15-min	Daily
RX Unicast Pkts	0	*78434207	0	*78438133	0	*292894829		
RX Broadcast Pkts	0	*0	0	*0	0	*0		
RX Multicast Pkts	0	*0	0	*0	0	*0		
RX Pause Pkts	0	*0	0	*51823306	0	*0		
RX CRC Errors	0	*0	0	*41	0	*0		
RX Align Errors	0	*0			0	*0		
RX Symbol Errors	0	*0			0	*0		
RX Undersize Pkts	0	*0			0	*0		
RX Fragments	-1	*-1	0	*1988	0	*0		
RX Pkts 64	0	*44605	0	*51867848	0	*292894828		
RX Pkts 65-127	0	*2991526	0	*2988166	0	*0		

LAN INTFC RMON [Current] window

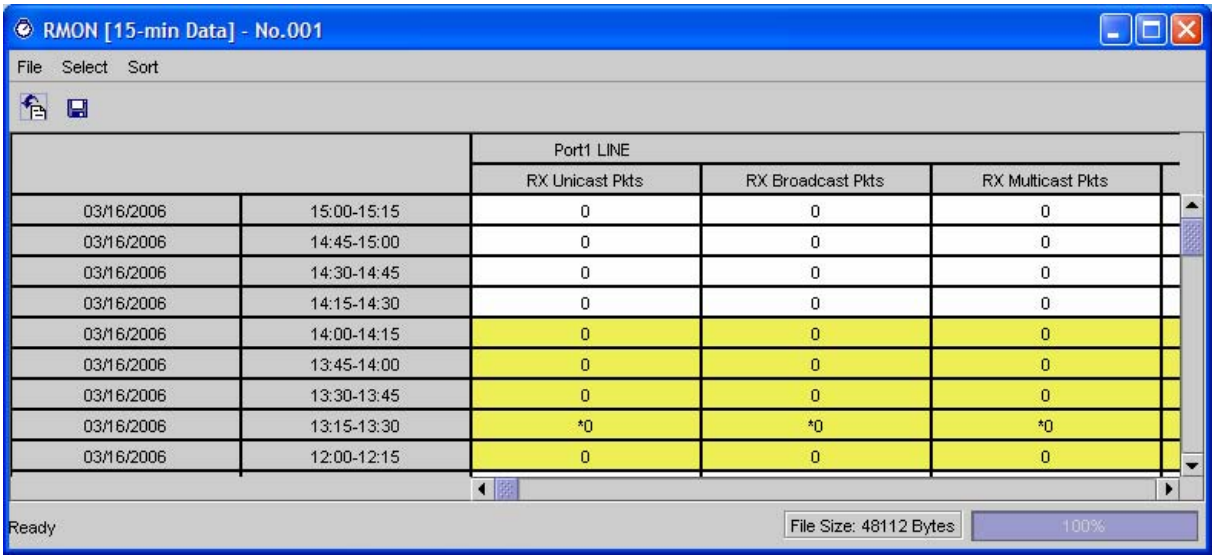
This data can be refreshed by selecting **List → Refresh** menu or clicking on Refresh icon.

2.22.2 Viewing LAN INTFC RMON [15-min]

This window contains the total 15-minute data (for 24 hours) for all RMON items.

To view LAN INTFC RMON [15-min] Monitor:

1. Select **Performance Monitor → LAN INTFC RMON [15-min]** in the **NE-specific** menu bar of the target NE that you intend to monitor.



LAN INTFC RMON [15-min] window

2. This data can be saved by selecting **File → Save All Data** menu or clicking on Save All Data icon. The default file name that it will be saved to is **"15min.rmon"**.
3. This data can be refreshed by selecting **File → Reload** menu or clicking on Reload icon.
4. This data can be sorted by port or Item by selecting **Sort → Port Sort** or **Item Sort** menu.
5. The viewing RMON items can be selected with the Select window.

To view the Select window:

1. Choose **Select** → **Select** menu.

LAN INTFC RMON [15-min] Select window

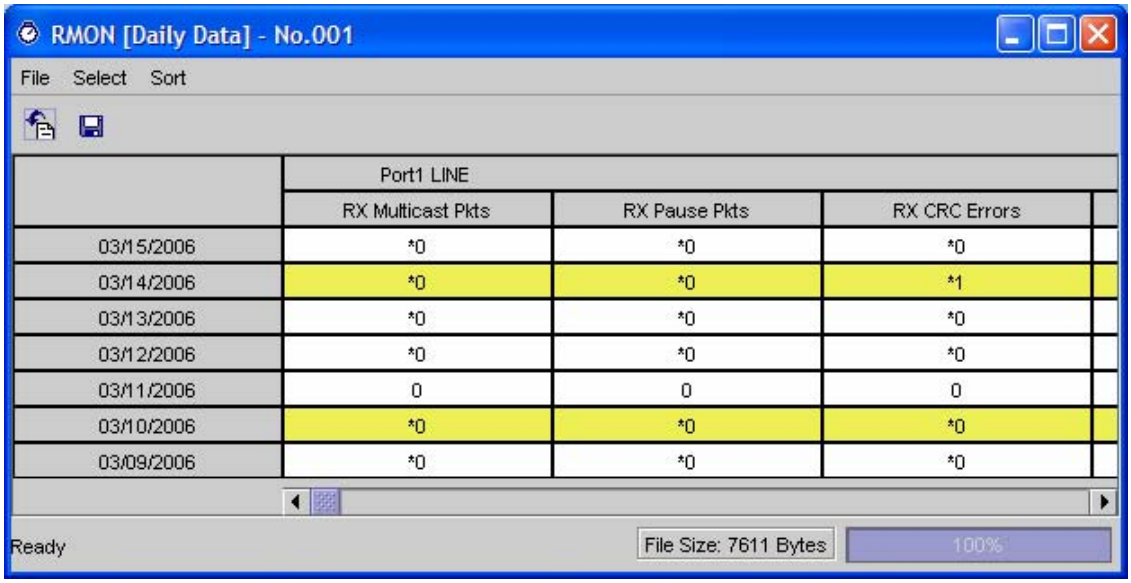
You can select/deselect the items that you wish to view by clicking the list [▼] icon and selecting from the pull down menu {Select All / Clear All}, Package control for all item(s) can be carried done for the individual Port.

2.22.3 Viewing LAN INTFC RMON [Daily]

This window contains the daily data in 7 days for all RMON items.

To view RMON LAN INNTFC-S [Daily] Monitor:

1. Select **Performance Monitor → LAN INTFC RMON [Daily]** in the **NE-specific** menu bar of the target NE that you intend to monitor.



LAN INTFC RMON [Daily] window

2. This data can be saved for all items by selecting **File → Save All Data** menu or clicking on **Save All Data** icon. The default file name is **"daily.rmon"**.
3. This data can be refreshed by selecting **File → Reload** menu or clicking on Reload icon.
4. This data can be sorted by port or Item by selecting **Sort → Port Sort** or **Item Sort** menu.
5. The viewing RMON items can be selected with the Select window.

To view the Select window:

Go to **Select → Select** menu.

LAN INTFC RMON [Daily] Select window

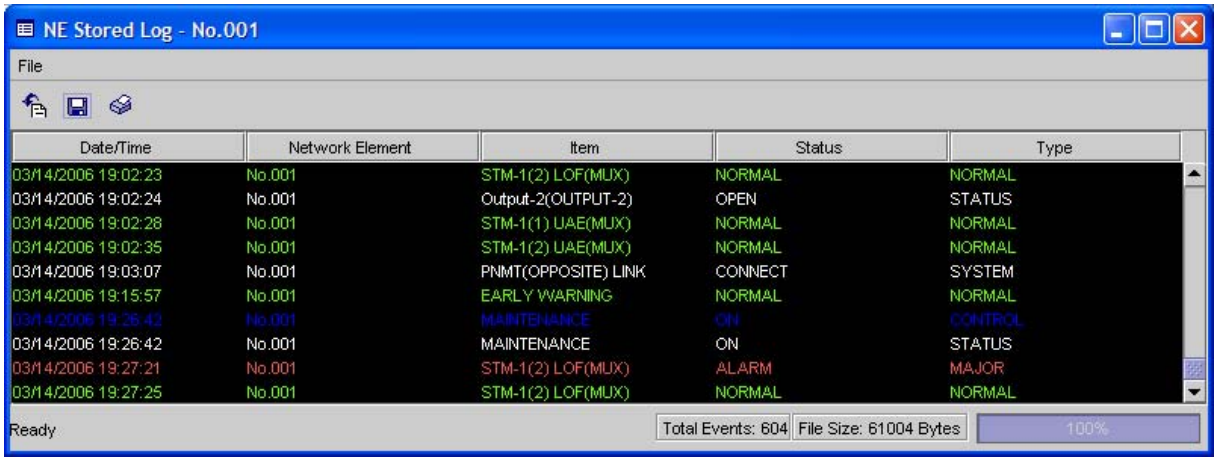
You can select/deselect the items that you want to be shown by clicking on the list [▼] button and selecting from the pull-down menu {Select All / Clear All}. Package control of all the item(s) can be carried out for individual Port.

2.23 Event Log

The Event Log window displays the date/time when the event data was received, item, and status.

2.23.1 Event Log monitor

1. Click **[Event Log]** in the **NE-specific** menu bar of the target NE that you intend to monitor.
2. A message window showing the progress of the uploading of the Event Log data will appear on the screen. Wait until the PNMT finishes the uploading of the data. The progress window will automatically close once the uploading is completed.
3. The **Event Log View** will be displayed. The event log is presented in a table form showing the date of the event, the item that triggered the event and the status change.
4. Sorting is possible for every column in the Event Log window.
5. The date shown in the Event Log window will be in the format of the OS.
6. The data can be refreshed by clicking on the upload (refresh) icon.



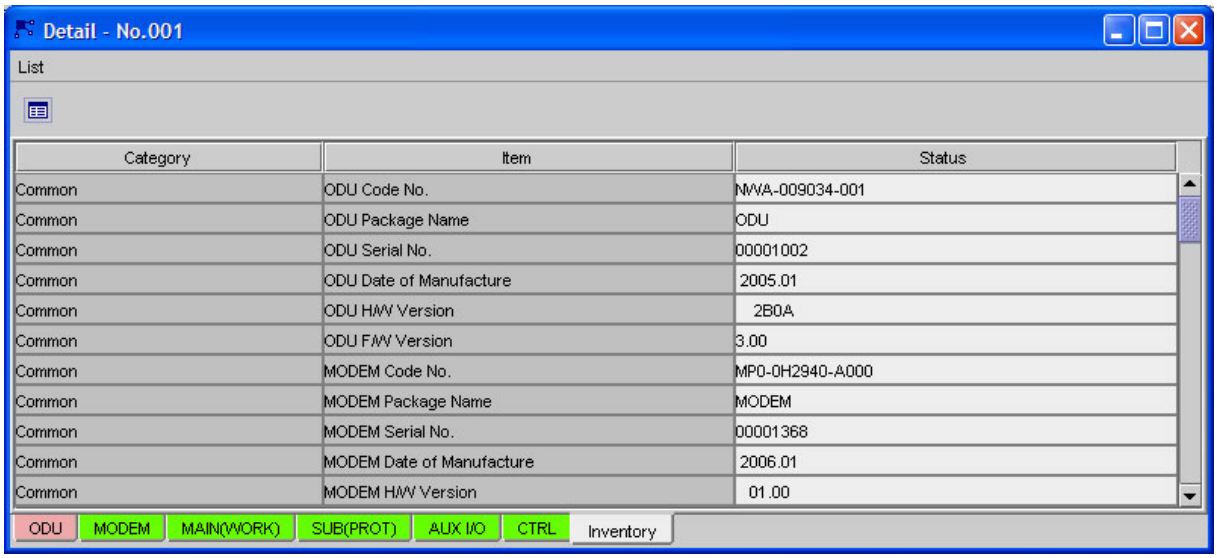
2.24 Inventory Tab

The relevant inventory information for the equipment can be viewed using this function.

2.24.1 Inventory Monitor

To display the equipment version:

1. Select the **Inventory** tab in the **PNMT main window**.
2. The Inventory window shows the Code No., Date of Manufacture, Serial No., Hardware Type and Software Version of the equipment.



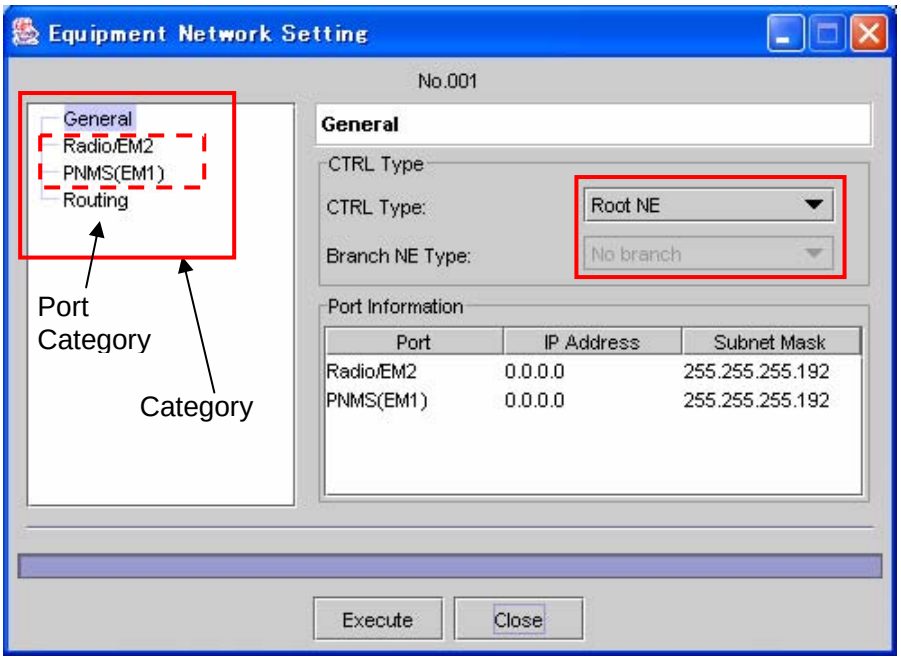
Appendix A: Equipment Network Settings

In *Equipment Network Setting*, the set item of each NE is different. A set item of each NE is depend on selecting CTRL Type (CTRL Type and Branch NE Type).

CTRL Type (General)		Category	Input Item
CTRL Type	**Branch NE Type**		
Root NE	Not selectable	General	CTRL Type
			Branch NE Type
		Radio/EM2	IP Address
			Subnet Mask
		PNMS(EM1)	IP Address
			Subnet Mask
		Routing	Default Gateway
			Static Routing Table
Branch NE	No Branch (Not used)	General	CTRL Type
			Branch NE Type
		Radio/EM1/EM2	IP Address
			Subnet Mask
		Routing	Default Gateway
			Static Routing Table
	2 Branch	General	CTRL Type
			Branch NE Type
		Radio	IP Address
			Subnet Mask
		EM1/EM2	IP Address
			Subnet Mask
		Routing	Default Gateway
			Static Routing Table
	3 Branch	General	CTRL Type
			Branch NE Type
		Radio	IP Address
			Subnet Mask
		EM1	IP Address
			Subnet Mask
		EM2	IP Address
			Subnet Mask
		Routing	Default Gateway
			Static Routing Table
Normal NE	Not selectable	General	CTRL Type
			Branch NE Type
		Radio/EM1/EM2	IP Address
			Subnet Mask
		Routing	Default Gateway
			Static Routing Table

Note: Here **EM1** / **EM2** indicate IDUs front interface **NMS/ NE** ports respectively

1. In *Category* → **General** and select there **CTRL Type** (**CTRL Type** and **Branch NE Type**)



The NE will appear as follows according to configuration.

- Root NE

  The nearest NE to PNMS configure as Root NE

- Branch NE (No Branch)

  Not used

- Branch NE (2 Branch)

  Subnet diverges in two ways

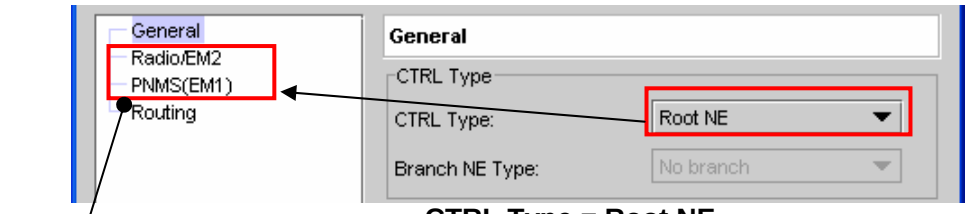
- Branch NE (3 Branch)

  Subnet diverges in three ways

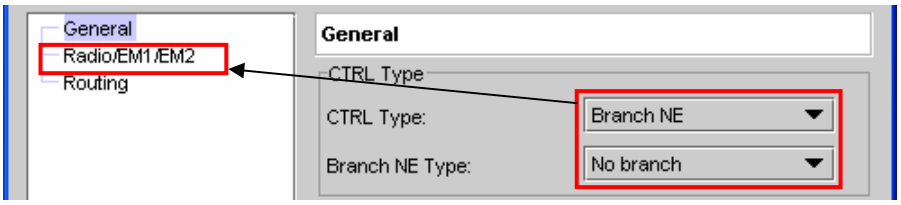
- Normal NE

  The rest of all NE (except above mentioned) is Normal NE .

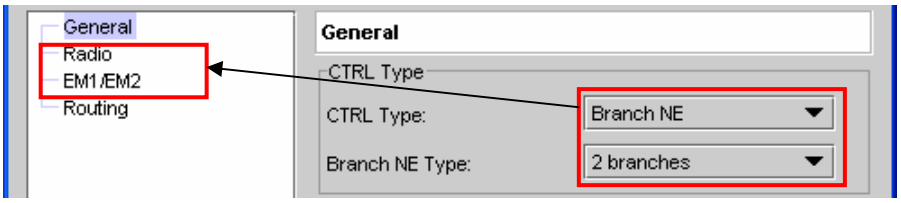
2. The **Port Category** item changes according to **CTRL Type** (**CTRL Type** and **Banch NE Type**).



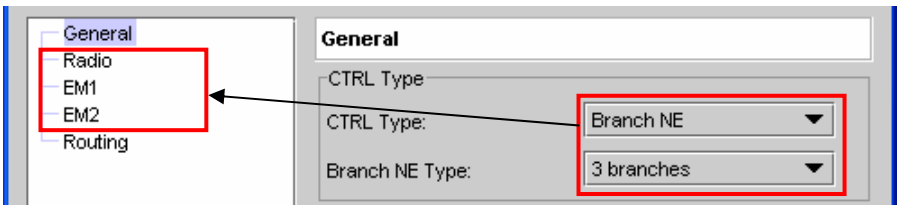
CTRL Type = Root NE



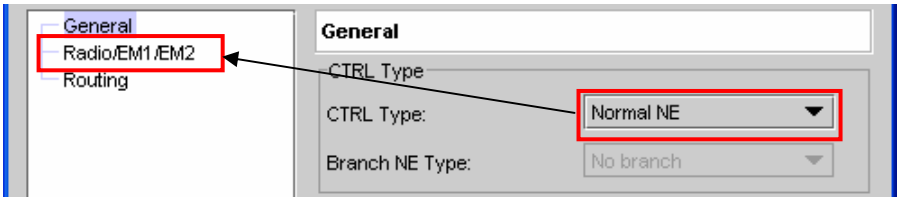
CTRL Type = Branch No Branch (Not Used)



CTRL Type = Branch NE or Branch NE Type = 2 Braches



CTRL Type = Branch NE or Branch NE Type = 3 Branches



CTRL Type = Normal NE

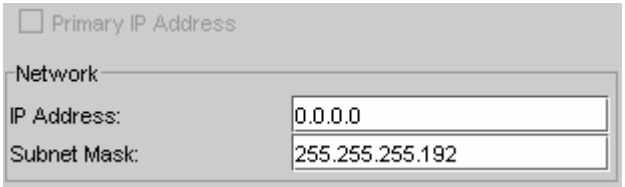
3. Set and select **Port category** and **Routing**. The right hand screen will change according to the selected item in **Category**.

- Primary IP Address

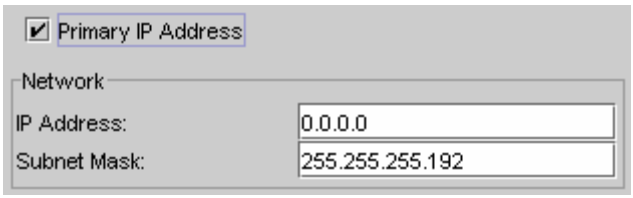
  PNMS identify a NE with using the IP address in NE. The check can be applied only to 1**port category** of several **Port categories** that exists in **CTRL Type** when **Branch NE** is selected.

- IP Address & Subnet Mask

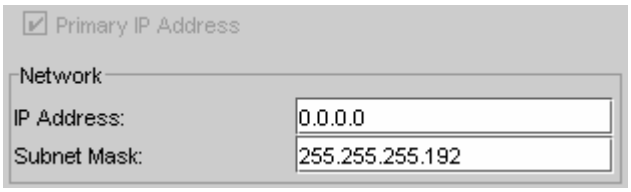
  The following items are set to each Port



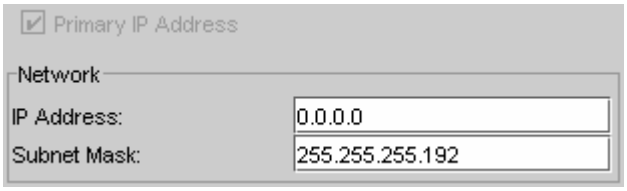
PNMS(E1)



Radio or EM1 or EM2 or EM1/EM2



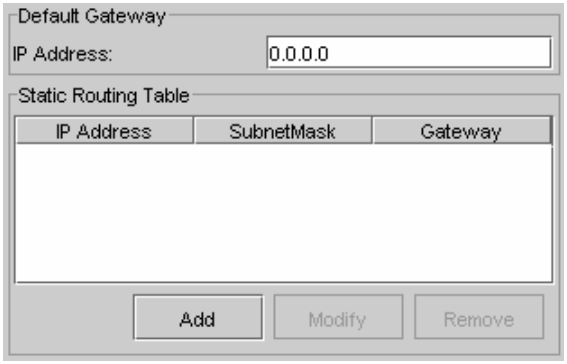
Radio/EM2



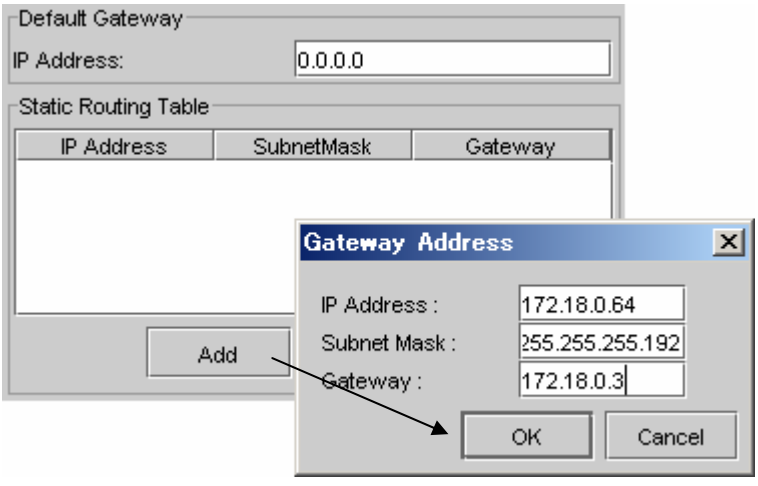
Radio/EM1/EM2

4. Select and set **Routing**.

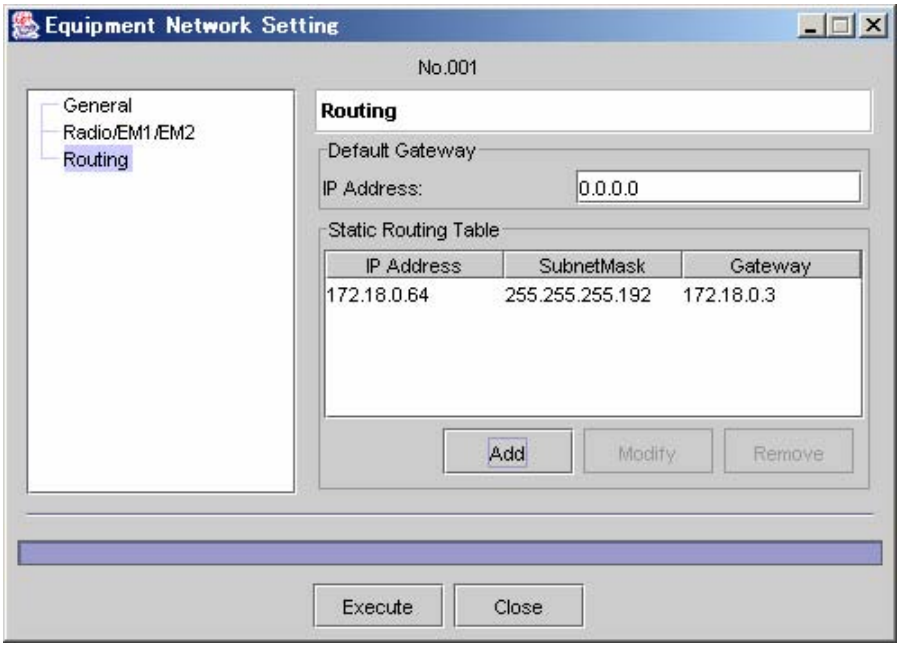
4-1 If there is not subnet in the network, **Static Routing table** will not show any entries.



4-2 In case of several subnet in the Network click **[add]** to entry the required value in **Static Routing Table**



5. Click [OK] button to activate the address setting.



[Modify] is clicked to correct the registered value in **Static Routing table.**

[Remove] is clicked to delete the registered value in **Static Routing table.**

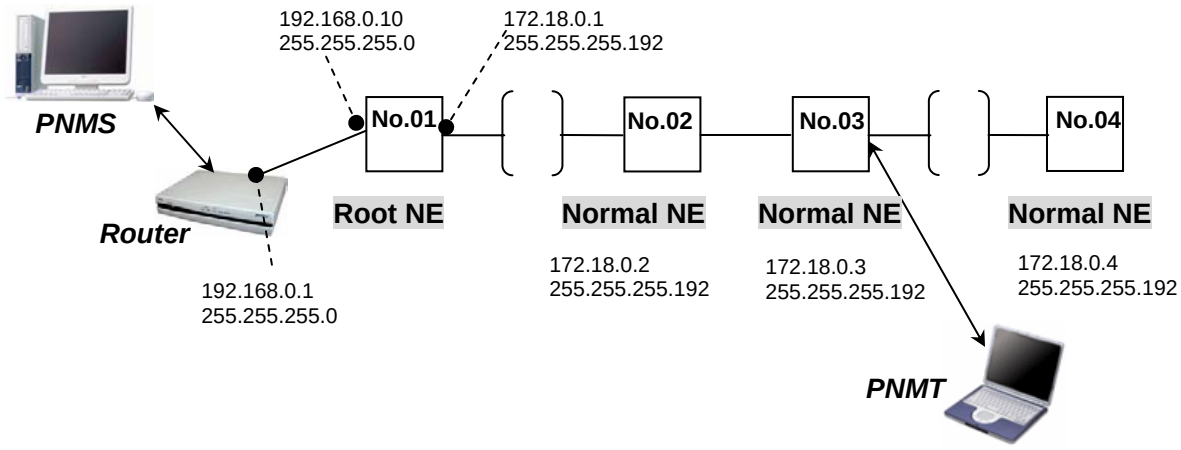
6. Click **[Execute]** button to activate the Equipment Networking setting.

NOTE:

When executing Equipment Network Setting communication will be lost when the Control module re-initialises to the new system configuration. This WILL NOT affect the wireless link. During this time PNMT connection to the NE will be lost but will automatically be reconnected after the Control module resets.

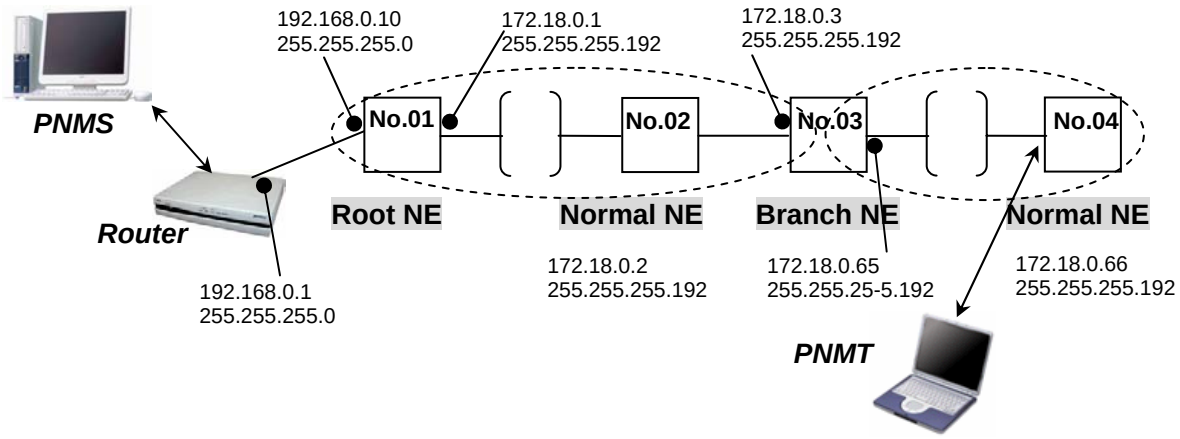
< Sample Network Configuration >

1. The Network Configuration when subnet is connected.



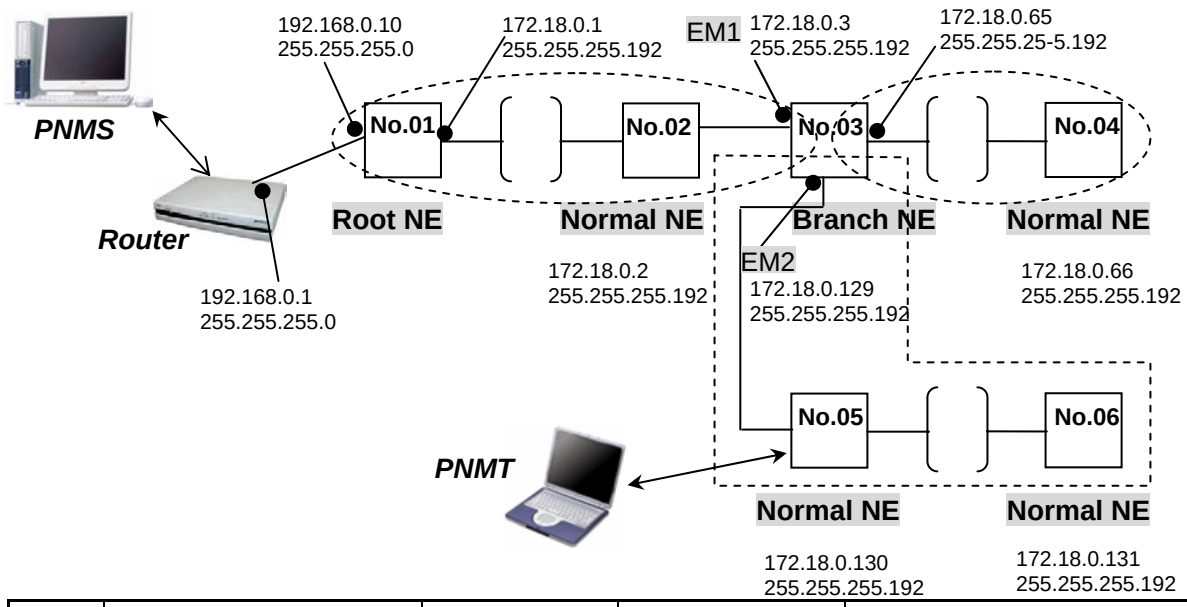
NE	General (Category)		Category	Item Name	Input data
	CTRL Type	Branch NE Type			
No.01	Root NE	Not selectable	Radio/EM2	IP Address	172.18.0.1
				Subnet Mask	255.255.255.192
			PNMS(EM1)	IP Address	192.168.0.10
				Subnet Mask	255.255.255.0
			Routing	Default Gateway	192.168.0.1
				Static Routing Table	-
No.02	Normal NE	Not selectable	Radio/EM1/EM2	IP Address	172.18.0.2
				Subnet Mask	255.255.255.192
			Routing	Default Gateway	192.168.0.1
				Static Routing Table	-
No.03	Normal NE	Not selectable	Radio/EM1/EM2	IP Address	172.18.0.3
				Subnet Mask	255.255.255.192
			Routing	Default Gateway	172.18.0.1
				Static Routing Table	-
No.04	Normal NE	Not selectable	Radio/EM1/EM2	IP Address	172.18.0.4
				Subnet Mask	255.255.255.192
			Routing	Default Gateway	172.18.0.1
				Static Routing Table	-

2. The Network configuration in case of several subnets
(**Branch NE Type** = **2 Branches**)



NE	General (Category)		Category	Item Name	Input data
	CTRL Type	Branch NE Type			
No.01	Root NE	Not selectable	Radio/EM2	IP Address	172.18.0.1
				Subnet Mask	255.255.255.192
			PNMS(EM1)	IP Address	192.168.0.10
				Subnet Mask	255.255.255.0
			Routing	Default Gateway	192.168.0.1
				Static Routing Table	IP Address 172.18.0.64 Subnet Mask 255.255.255.192 Default Gateway 172.18.0.3
No.02	Normal NE	Not selectable	Radio/EM1/EM2	IP Address	172.18.0.2
				Subnet Mask	255.255.255.192
			Routing	Default Gateway	192.168.0.1
				Static Routing Table	-
No.03	Branch NE	2 Branches	Radio	IP Address	172.18.0.65
				Subnet Mask	255.255.255.192
			EM1/EM2	IP Address	172.18.0.3
				Subnet Mask	255.255.255.192
			Routing	Default Gateway	172.18.0.1
				Static Routing Table	-
No.04	Normal NE	Not selectable	Radio/EM1/EM2	IP Address	172.18.0.66
				Subnet Mask	255.255.255.192
			Routing	Default Gateway	172.18.0.1
				Static Routing Table	-

3. The Network configuration in case of several subnets
(**Branch NE Type** = **3 Branches**)



NE	General (Category)		Category	Item Name	Input data
	CTRL Type	Branch NE Type			
No.01	Root NE	Not selectable	Radio/EM2	IP Address	172.18.0.1
				Subnet Mask	255.255.255.192
			PNMS(EM1)	IP Address	192.168.0.10
				Subnet Mask	255.255.255.0
			Routing	Default Gateway	192.168.0.1
				Static Routing Table	IP Address 172.18.0.64 Subnet Mask 255.255.255.192 Default Gateway 172.18.0.3
					IP Address 172.18.0.128 Subnet Mask 255.255.255.192 Default Gateway 172.18.0.3
No.02	Normal NE	Not selectable	Radio/EM1/EM2	IP Address	172.18.0.2
				Subnet Mask	255.255.255.192
			Routing	Default Gateway	192.168.0.1
				Static Routing Table	-
No.03	Branch NE	3 Branches	Radio	IP Address	172.18.0.65
				Subnet Mask	255.255.255.192
			EM1	IP Address	172.18.0.3
				Subnet Mask	255.255.255.192
			EM2	IP Address	172.18.0.129
				Subnet Mask	255.255.255.192
			Routing	Default Gateway	172.18.0.1
				Static Routing Table	-
No.04	Normal NE	Not selectable	Radio/EM1/EM2	IP Address	172.18.0.66
				Subnet Mask	255.255.255.192
			Routing	Default Gateway	172.18.0.1
				Static Routing Table	-

No.05	Normal NE	Not selectable	Radio/EM1/EM2	IP Address	172.18.0.130
				Subnet Mask	255.255.255.192
			Routing	Default Gateway	172.18.0.1
				Static Routing Table	-
No.06	Normal NE	Not selectable	Radio/EM1/EM2	IP Address	172.18.0.131
				Subnet Mask	255.255.255.192
			Routing	Default Gateway	172.18.0.1
				Static Routing Table	-