User's Manual

AE5501 TrafficTesterMini

AS-84708Y

Yokogawa Electric Corporation

AS-84708Y Rev, 2.1

[This page is intentionally left blank.]

Introduction

This manual describes the procedures for operating the AE5501 TrafficTesterMini.

This manual consists of five chapters:

Chapter 1 “Overview,” Chapter 2 “Before Getting Started,” Chapter 3 “Functions,” Chapter 4 “Operation Instructions” and Chapter 5, which includes Appendixes such as “List of Error Messages,” “List of Consumables,” and the settings to configure for directly connecting this device to a PC.

September 2007: Rev 2.1

[This page is intentionally left blank.]

Notation Conventions

In this section, the meanings and usages of the following indications are defined.

1. DANGER, WARNING, CAUTION, NOTE and FOOTNOTE
   (1) Level of Importance
   According to the meanings defined in (2) below, the level of importance is DANGER > WARNING > CAUTION > NOTE > FOOTNOTE.
   (2) Meaning
   DANGER: This indicates a direct threat to human life. Ignoring this indication and performing an operation incorrectly could result in serious injury or death.
   WARNING: This indicates a potential risk of a hazardous event. Ignoring this indication and performing an operation incorrectly could result in personal injury or property damage.
   CAUTION: This indicates a potential risk to the device. It also advises the user that operation of the device could be interrupted.
   NOTE: This indicates a supplementary explanation for exceptions, amendments and restrictions in this document and involves information that is outside the scope of DANGER, WARNING, CAUTION or FOOTNOTE.
   FOOTNOTE: This indicates a supplementary explanation for technical terms, acronyms, abbreviations and marks in the body text. Footnotes are always located at the bottom of the related page. Footnotes can be referenced by an asterisk (*) or the combination of asterisk and numbers.
2. Reference Guide
   Reference pages are indicated in the body text when applicable.

Safety Notice

About the Symbols
In this instruction manual and on the product labeling, a number of symbols are used to ensure safe use of the product and proactively prevent any personal injury or property damage. The appearance and meanings of symbols are shown below.
Be sure that you fully understand the meanings of the symbols before reading this document.

DANGER	This symbol indicates that if you do not observe the safety instructions and subsequently operate the device incorrectly, there is a risk of creating a hazardous situation that may result in serious injury or death.
WARNING	This symbol indicates that if you do not observe the safety instructions and subsequently operate the device incorrectly, there is a risk of serious injury or death.
CAUTION	This symbol indicates that if you do not observe the safety instructions and subsequently operate the device incorrectly, there is a risk of personal injury or property damage or loss.

This symbol indicates that improper operation of the device may result in injury or cause property loss or damage.

This indicates that the specific actions displayed by the symbols are prohibited and otherwise provides notification of general prohibitions.

This symbol indicates that improper operation/handling may result in a fire.

This symbol indicates that there is a risk of injuring yourself by pinching your fingers in the door, loading slot, etc.

This symbol indicates that under certain conditions the product may catch on fire from any flames that are present in the surrounding environment.

This symbol indicates that there is a risk of electric shock under certain conditions.

This symbol indicates instructions for the general user to follow.

This symbol indicates that an explosion may occur under certain conditions.

This is a prohibitive indication for a case in which there is a risk of electric shock or other risks if the user disassembles the device.

This instructs the user to unplug the power cord from the device in the case of equipment failure and/or when there is a risk of a lightning strike.

This is a prohibitive indication for a case in which injury may result if the user touches a certain part of the device under certain conditions.

This is a prohibitive indication for a case in which an electric leak may result in injury if a non-waterproofed device is used under wet conditions.

This symbol indicates that there is a risk of burn and other heat injuries under certain conditions.

Symbols concerned about the AC adapter for AE5501

AC; Alternating current

DC; Direct current

This symbol indicates polarities of electrodes of the AC adapter terminal.
Outer electrode polarity Positive, Inner electrode polarity Negative

This symbol indicates that the AC adapter is protected throughout by DOUBLE INSULATION or REINFORCED INSULATION.

Safety Concerns

For proper operation of this device, be sure that you fully understand the operation and safety instructions contained in this manual before using the product.
Carefully read this manual and the “Safety Concerns” before using this device.
Keep the documents in a location where you can readily refer to them when necessary.

1. Restrictions on Environment

Protect this device from water exposure and/or immersion.
Failure to do so may result in fire, electric shock or device failure.

2. Restrictions on Use Conditions

Do not use this device with any power supply voltages other than the designated voltage.
Doing so may result in fire, electric shock or device failure.

If you use this device with a commercial power source, connect it to an outlet for the exclusive use of the device.

Do not use an extension cable. Doing so may cause overheating of the cable and/or fire.

3. Installation

3.1 Advisory Notices for the Installer

Do not plug too many wires into a single socket.
Doing so may result in overheating of the cable and/or fire.

Securely insert the power plug into the outlet.
There is a risk of fire or electric shock if metal or other conducting material comes into contact with the power plug.

3.2 Restrictions and Prohibitions on the Installation Environment

Do not install this device in a moist and/or dusty area.
Doing so may result in electric shock or device failure.

Do not install this device on a shaky stand, slanted platform or any other unstable surface.
The device may fall off or slide down and result in injury and/or damage.

Do not install this device in an area where vibration or impact frequently occurs.
The device may fall off or slide down and result in injury and/or damage.

Do not insert or drop any metal or other foreign objects through any openings.
Doing so may result in fire, electric shock or device failure.

Keep the power cord away from any heating devices.
The coating on the cord may melt off and result in fire or electric shock.

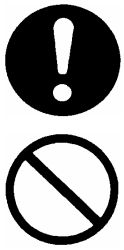
Hold the power plug and pull it gently when you disconnect the power cord.
Pulling the power cord itself may damage it and result in fire or electric shock.

Do not touch the power plug with wet hands.
Doing so may result in electric shock.

Do not use this device with any power supply other than the one stipulated.
Doing so may result in fire or electric shock.

Do not place this device in direct sunshine or in an area of high temperature.
The interior temperature of the device will rise and may result in fire.

3.3 Prohibitions to the Installation Procedure



Be sure to disconnect the power plug and all external cables and wires before you move this device.
Failure to do so may result in a damaged cable or wire, which may cause a fire or electric shock.

Be careful not to damage, break or alter the power cord.
Placing a heavy load on the power cord, applying heat to it or pulling it forcefully may result in fire or electric shock.

4. Before Getting Started

Read the instruction manual carefully to ensure that you thoroughly understand the operation procedures and safety precautions for this device.

5. Operation Instructions

Use this device in accordance with the procedures described in the instruction manual.

If any one of the warning symbols (DANGER, WARNING, or CAUTION) is indicated, follow the instructions in this manual.

Do not cause any impact to this device when you move it.
Built-in precision instruments of this device may be damaged by impact.

Use a power supply of 100 V AC / 50–60 Hz.
There is a risk of fire or device failure if you use a power supply with specifications other than those stated above.

Use the 3-prong power cord attached to this device in order to prevent physical injury, damage to the interior of the device by abnormal voltage or problems caused by ground current.
Use a 3-prong/2-prong adapter if there is no 3-prong outlet installed in your environment.

Do not place any glass or vessel of water or any small metal body on top of or near by the device.
There is a risk of fire, electric shock or device failure if water spills out from the vessel and enters the device.

If there is lightning nearby, disconnect the power plug, measuring port and remote port of the device in order to avoid the risk of equipment failure caused by a lightning strike.

Do not alter, forcefully bend, twist or pull the power cord.
Doing so may result in fire or electric shock.

Do not disassemble or modify this device.
Doing so may result in fire, electric shock or device failure.

As a safety precaution, disconnect the power plug when the device will not be used for an extended period of time.

As a safety precaution, detach the battery from the device when it will not be used for an extended period of time.

Be careful not to pinch or injure your fingertips when replacing an optional module or other accessories.

6. Maintenance and Inspection

It is highly recommended that maintenance and inspection be conducted on a regular basis. Allowing dust to accumulate inside the device may result in fire or equipment failure. Please contact the sales representative indicated at the end of this manual.

7. Troubleshooting

Call your sales representative for the replacement of a damaged power cord.
There is a risk of fire or electric shock if you continue to use this device with a damaged power cord.

Turn off the power switch, unplug the power cord and call your sales representative if any foreign object enters this device.
There is a risk of fire, electric shock or failure if you continue to use this device with a foreign object left inside.

There is a risk of fire, electric shock or failure if you continue to use this device under abnormal conditions. If the device is emitting smoke or odor, immediately turn off the switch, unplug the power cord, make sure that smoke is no longer coming out of the device and then call your sales representative for repair. It is extremely dangerous to repair this device on your own and you should never attempt to do so.

Turn off the power switch and unplug the power cord if you drop and/or damage this device.
There is a risk of fire, electric shock or failure if you continue to use a damaged device.

Turn off the power switch first, then detach the battery and call your sales representative if any foreign object enters this device.
There is a risk of fire, electric shock or failure if you continue to use this device before it is repaired.

There is a risk of fire, electric shock or failure if you continue to use this device under abnormal conditions. If the device is emitting smoke or odor, turn off the switch immediately, detach the battery, make sure that smoke is no longer coming out of the device and then call your sales representative for repair. It is extremely dangerous to repair this device on your own and you should never attempt to do so.

Turn off the power switch and detach the battery if you drop and/or damage this device.
There is a risk of fire, electric shock or failure if you continue to use this device before it is repaired.

Never try to repair this device when it malfunctions.
Doing so may result in electric shock or injury. In addition, unauthorized attempts by the user to repair the device will invalidate our warranty.

Concerns about protection impairment

If this instrument is used in a manner not specified in this manual the protection provided by this instrument may be impaired.

It is recommended strongly to read sections designated as DANGER, WARNING, and CAUTION in this manual very carefully and to obey them.

[This page is intentionally left blank.]

Table of Contents

Chapter 1 Overview

This chapter provides an outline of the specifications and configuration of the AE5501 TrafficTesterMini so that you may familiarize yourself with the product.

1.1 Features

This product is a portable low-cost tester that can be used for an Ethernet line connection test.

1 Lightweight and compact (H60 X W120 X D215 mm; Approx. 1 kg)

2 Can be operated by battery for about two hours (1.5 hours when measuring 1000BASE-T lines)

3 GBIC supported

4 Easy to operate
Primary settings can be made with PC setup software.
It is possible to remotely transfer the settings of this device.
Measurement results can be viewed using this device and a PC.

5 Settings and measurement results can be displayed on the 2.8” LCD.

WARNING

This is a tester capable of transmitting frames at a high intensity via its measuring port. Therefore, if the device is incorrectly operated, it may shut down and/or deteriorate network media and related equipment.
Pay careful attention when connecting and using this device on a network that is in actual use. We are not responsible for any problems that may occur due to incorrect operation by the user.

1.2 Specifications

This section describes the functional and electrical specifications of the AE5501 TrafficTesterMini.

1.2.1 Functional Specifications

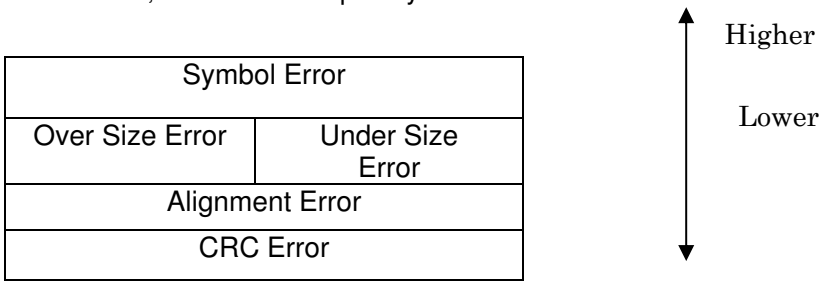
Table 1.2-1 shows the functional specifications of this device.

Table 1.2-1 Functional Specifications

Item	Subitem	Description
Transmitter function	Transmitting mode	Constant/Continue Burst/Continue
		Constant/Count Burst/Count
	Transmitting packet Length	26–9999 bytes
	Packet generation	Ethernet header edit (available for VLAN tags) MPLS label edit (available for label stack) IP header edit
Statistics function	Traffic statistics	Number of frames, bytes, frames per second, traffic rate
	Error statistics	Undersize errors, Oversize errors CRC errors, Alignment errors
	Others	Number of collisions, Number of PAUSE frames
Latency check	Delay time Idle time (jitter)	When 10 Mbps selected: Resolution = 1 μs, Maximum tolerance = 3 μs When 100/1000 Mbps selected: Resolution = 100 ns, Maximum tolerance = 300 ns
Ping test	IP address, Packet	Manual setting, Packet length setting (64 to 1,518 bytes)
	Judgment results	Response time indication (in μs)
Loop back Function	Loop back	This replaces the destination of a received frame with the MAC address of the sender and loops it back to the sender. The replacement may be selected as “MAC Address only” or “MAC Address+IP Address”.
Measurement information		Capable of registering 10 + 1 files at maximum.
Measurement results		Capable of registering 100 files at maximum. Once the maximum number is exceeded, the oldest results will be automatically deleted.
Others	Auto-negotiation	AUTO or MANUAL (10/100 M). Fixed at full duplex for 1000 M.
	Flow control	Transmission will be suspended while receiving PAUSE packets.
	Filter function	48-bit (6-byte) patterns x 2 (byte length and off-set value can be set up)
	Alarm function	Setting the threshold values for transmitting frames and receiving frames per second, and error counts.
	ARP Reply function	Processes ARP reply to the ARP request when AE5501 is working.
	DHCP / ARP function	The acquisition of address to use in the measurement port is done by DHCP and ARP.
	Remote control function	Enables remote control using Telnet.
	Macro function	Performs automatic measurement when a measurement operation is specified in advance.

NOTE

With this device, it is possible to edit some of the measurement information set by the AE5730E TrafficTesterMini Setup Software.
The error reception priorities are as follows. When the device detects more than one error at the same time, errors of lower priority will not be counted.



1.2.2 Electrical Specifications

Table 1.2-2 shows the electrical specifications of this device.

Table 1.2-2 Electrical Specifications

Item	Subitem	Description
Network interface	Measuring port	10BASE-T 100BASE-TX 1000BASE-T When equipped with a GBIC, it can run on 1000BASE-SX/LX.
	Remote port	10BASE-T HALF
Display and input interface	Display interface	2.8" LCD (320 x 240 dot matrix)
	Input interface	Exclusive key-in
	LED	POWER (Power on/off indicator) RUN (in the measuring process), LINK (L1 link up/down) TX (Transmit), RX (Receive)
Power supply	AC power supply	Use the AC adapter attached to the device. Rated voltage: 100 -240 V AC Rated frequency: 50 - 60 Hz Maximam power consumption: 90 VA AC adapter output: 9 V DC, 4A
	Battery	Ni-MH rechargeable battery, AA-size 6cells, 1.2 V, 1900mAh per cell or more Capable of continuously operating for about two hours (about 1.5 hours when measuring 1000BASE-T lines)
Dimensions and weight	Dimensions	H60 x W120 x D215 mm
	Weight	About 1 kg (main body) (about 1.2 kg with battery and GBIC equipped)
Operating environment	Temperature range	5–35℃
	Humidity range	35–85%

NOTE

Only those optional batteries, chargers and GBICs that the user has purchased from Our company may be used with this device.
Devices that are easily affected by noise may be affected by the conducted interference generated from the AC adapter cable that is connected to this product. In such case, the user is required to correct the interference.

1.3 Configuration

This section describes the configuration of the main device and optional accessories for the AE5501 TrafficTesterMini.

1.3.1 Components of the Main Device

The main device consists of the following components shown in Table 1.3-1.

Table 1.3-1 Components of the Main Device

Item no.	Name	Quantity	Remarks
1	AE5501 TrafficTesterMini	1	Main device
	Accessories		
2	AC adapter	1	
3	Power cable	1	
4	AS-84708	1	AE5501 TrafficTesterMini Instruction Manual

1.3.2 Lineup of Optional Accessories

Table 1.3-2 shows the lineup of optional accessories.

Table 1.3-2 Lineup of Optional Accessories

Item no.	Name	Quantity	Remarks
1	1000BASE-LX GBIC module for AE5501	1	Only those optional batteries, chargers and GBICs that the user has purchased from Our company can be used with this device.
2	1000BASE-SX GBIC module for AE5501	1	
3	Rechargeable battery for AE5501	1 set	
4	Battery charger for AE5501	1	
5	Soft case AZ8128	1	Shoulder bag to carry this device.

1.3.3 Optional Accessories

This section describes the optional accessories available for AE5501.

1 GBIC

Table 1.3-3 shows the manufacturers/suppliers and model names of GBICs.

Table 1.3-3 GBIC

Product name	Manufacture/supplier	Model
1000BASE-LX GBIC module for AE5501	Agilent	HFCT-5611
	JDS Uniphase	JGB-12LYAA
1000BASE-SX GBIC module for AE5501	Agilent	HFBR-5601
	JDS Uniphase	JGB-12SYAA1

NOTE

The manufacturer/supplier and models of the GBIC are subject to change without prior notice.

2 Battery and Battery Charger

Table 1.3-4 shows the manufacturers/suppliers and model names of the battery and charger.

Table 1.3-4 Battery and Battery Charger

Product name	Manufacture/supplier	Model
Rechargeable battery (Nickel hydride battery)	Matsushita Electric Industrial	HHR-3XPS
Battery charger	Matsushita Electric Industrial	BQ-390

Pay careful attention to the following cautionary statements when using batteries.

Detach the battery when the device will not be used for an extended period of time. A small amount of current continues to flow even after you switch off the power supply.
Recycle used batteries.
Newly purchased batteries must be charged prior to use.
The operating time is shortened for new batteries and batteries left unused for an extended period of time. Repeating the cycle of recharging and discharging batteries two or three times will restore the operating time.
If you repeatedly recharge batteries before they are fully discharged, the operating time will be shortened. In this case, fully discharge the batteries by using the discharge button of the battery charger. Refer to the instruction manual of your battery charger for operating the discharge button.
Clean the battery electrodes on a regular basis to avoid voltage drop.

WARNING

Do not throw a battery into a fire. There is a dangerous risk that they may explode.

Do not short-circuit battery terminals. Doing so may generate heat and/or explosion.

Do not try to disassemble a battery. Electrolytes may leak out and/or the battery may generate heat and/or explode.

Rinse your hands thoroughly with a large amount of water if battery electrolytes come into contact with your hands.

CAUTION

Use our optional battery charger only. Do not use other battery chargers.

NOTE

The manufacturers/suppliers and models of the battery and/or battery charger are subject to change without prior notice.

Chapter 2 Before Getting Started

This chapter describes unpacking and repacking of the device, acceptance testing and general cautionary notes. Read this chapter before using the device to ensure proper handling and operation.

2.1 Unpacking and Repacking

This section describes the unpacking, repacking, package contents check, mechanical check and operational check for the device.

2.1.1 Unpacking

This product was checked for mechanical and electrical integrity prior to being shipped from our factory and is guaranteed for proper operation. Immediately after receiving this product, unpack it and check for any damage that may have occurred during transport.

We recommend that you not damage the cardboard box, buffer and other inner packing materials, except consumable packing materials such as wrapping paper, and keep them for repacking in case of future transfer.

2.1.2 Checking the Package Contents

Check to see if there are no package contents (components) of the device missing, referring to Table 1.3-1.

2.1.3 Mechanical Check

Check to see if any damage or deformity of the product's appearance occurred during transport or if there is any malfunction of the device's switches or connectors.

2.1.4 Operational Check

If no defects are found during the mechanical check, conduct an operations test to check the functionality. Confirm that the product operates properly according to the specifications.

2.1.5 If Any Damage or Abnormality Is Found

Call the Our company if you find any damage or malfunction as a result of checking the product.

2.1.6 Repacking

Use the original packing materials for repacking. Repack the product in the following manner if the original materials are not available:

1 Wrap the product with durable material such as duplex asphalt paper or vinyl sheeting. Protect any protruding portions by using buffering materials.

2 Prepare a wooden or cardboard box that is larger than the product by 10 cm or so in every direction and place the product as wrapped in (1) into the box.

3 Place polyurethane foam or other buffer materials into the gap between the box and the product. Use sufficient buffer materials to prevent any damage due to vibration or impact during transport.

4 Close the box lid and if the box is cardboard, seal it firmly with adhesive tape or other sealing material.

5 Indicate the contents, destination, shipper and other necessary information on a conspicuous area of the box.

Chapter 3 Functionality

This chapter describes the names and functions of the panels and the software's functionality.

3.1 Names and Functions of the Panels

This section describes the names and functions of the panels.

3.1.1 Front Panel

Figure 3.1-1 shows the front panel of this device.

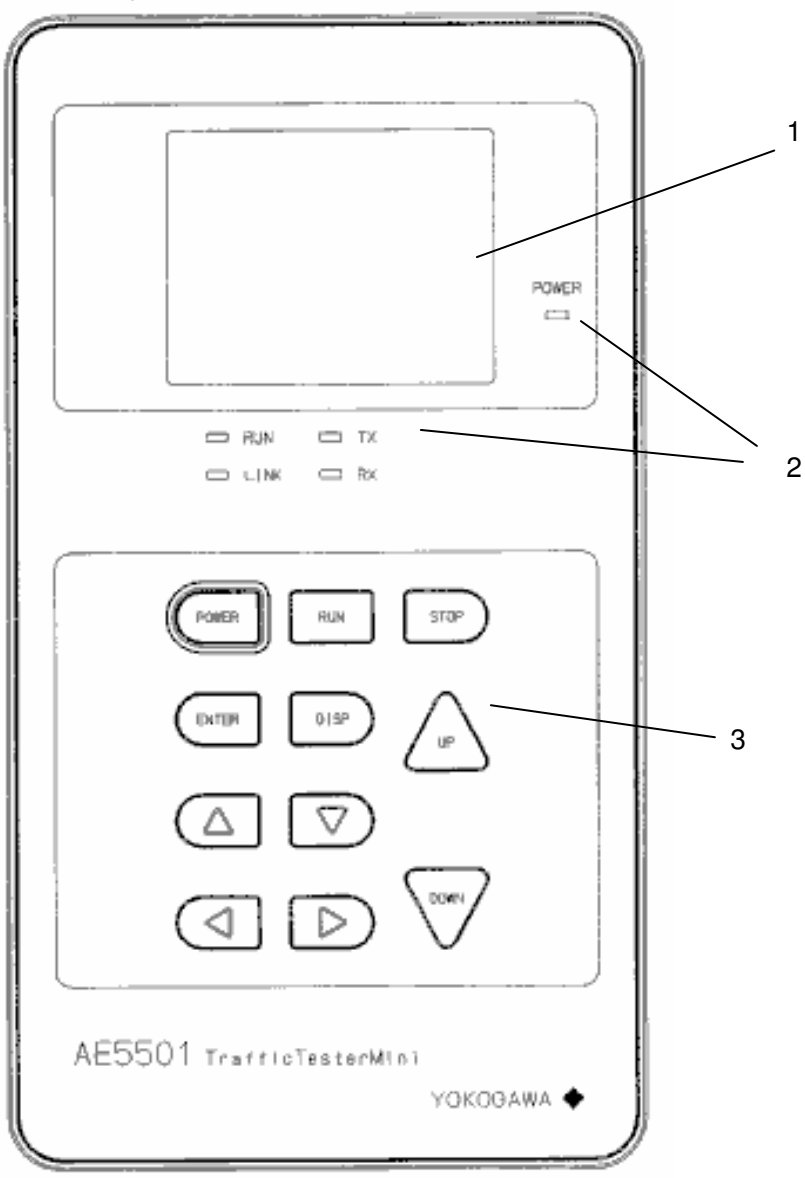


Figure 3.1-1 Front panel

1 Display

This is the LCD for displaying settings and results.

CAUTION

The display is LCD (liquid crystal display) and is vulnerable to impact. Use caution when handling the display to avoid causing any damage.

2 LED

Table 3.1-1explains the functions of LEDs.

Table 3.1-1 LED Conditions

Display	Color	Condition for displaying	Condition for disappearing
TX	Green	When transmitting frames	During idle
RX		When receiving frames	During idle
LINK		Connecting L1 link *1	Disconnecting L1 link
RUN		During measurement (during RUN process)	Waiting for measurement (during STOP process)
POWER		When the power supply is on *2	When the power supply is off

1: It lights up when FULL is selected as the communication method and blinks when HALF is selected.
2: It blinks during the boot-up process and the termination process.

3 Keyboard

Table 3.1-2 explains the functions of the keys.

Table 3.1-2 Functions of Keys

Indication	Function
POWER	To turn on/off the power supply on *1
RUN	To start measuring
STOP	To stop measuring
ENTER	To determine data, display a subitem or enter a subitem
DISP	To change the display or determine a item
UP	To choose a subitem
DOWN	
↑	To move the cursor/scroll the screen
↓	To move the cursor/scroll the screen
←	To move the cursor
→	To move the cursor

1: Press the key for one second to turn on the power supply and for two seconds to turn off the power supply.

3.1.2 Right Side Panel

Figure 3.1-2 shows the right side panel of this device.

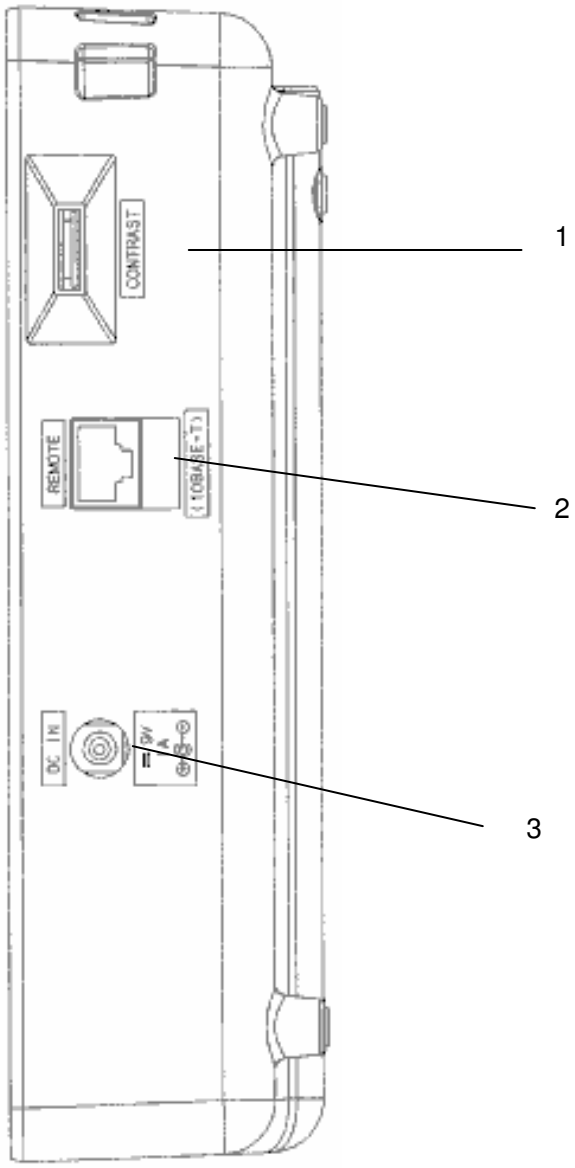


Figure 3.1-2 Right side panel

1 LCD contrast control
This button is for controlling the contrast of the LCD. Moving it upwards increases the contrast and moving it downwards decreases the contrast.

2 Remote port
This is the port for 10BASE-T HALF, which is used in the remote mode.

3 Power inlet
This is the terminal for the AC adapter attached to the device.

3.1.3 Top Side Panel

Figure 3.1-3 shows the top side panel of this device.

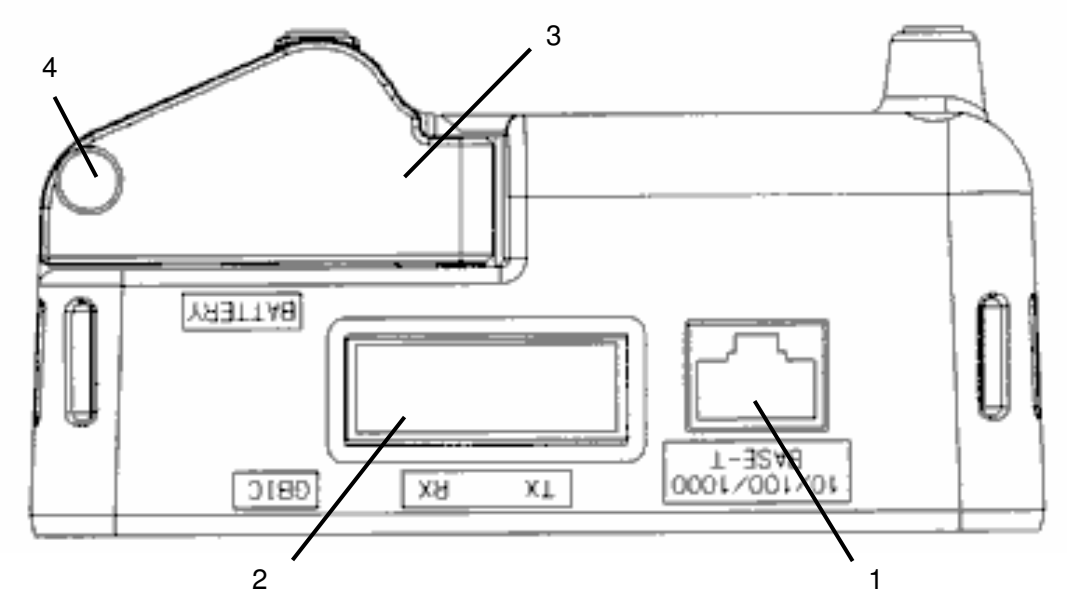


Figure 3.1-3 Top side panel

1 Measuring port for 10/100/1000BASE-T
This port is for measuring 10BASE-T, 100BASE-TX and 1000BASE-T.

2 Measuring port for 1000BASE-SX/LX
This is the GBIC slot for measuring 1000BASE-SX and 1000BASE-LX. Mount the optional GBIC module here.

3 Battery cover
This is the cover for the battery housing.

4 Battery cover setscrew
This is the screw to fix the battery cover in position.

3.2 Measuring Function

This section outlines the measuring function of the device.

3.2.1 Traffic Generate Mode

By setting the device in the traffic generate mode, it is possible to generate the desired traffic on the line to be measured. The Receiver function can be used to measure the number of frames, frame bytes, and information on various errors and information on frame intervals.
Table 3.2-1 and Table 3.2-2 provide details on the traffic generate mode.

Table 3.2-1 Traffic generate Mode 1

Item	Subitem	Description
Transmitter function	Transmission method	Constant, Burst (IFG, IDLE, Count setup) *2
	Specified number of transmissions	Continue, Count (IFG, Count setup) *2
	Transmission pattern	Capable of setting up four patterns at maximum.
		Packet length setting (26 to 9,999 bytes)
		MAC address setting
		VLAN tag setting (up to Stack 4)
		LLC header setup/SNAP header setup *1
		MPLS header setup (SIMM header Stack 4) *1
		IPv4 header/IPv4 multicast/IPv6 header setup *1
	Transmission time	Test time setup (0 to 1,440 min)
Layer 1 setting	Auto-negotiation	Auto (available for 10BASE-T and 100BASE-TX) *3
	Flow control	Transmission control when receiving PAUSE frames
	Connector specifications	To select the connector specification (CROSSOVER STATUS) of the measuring port for 10BASE-T, 100BASE-TX and 1000BASE-T.

1: In the case of IPv4, it is possible to edit SrcIP and DstIP. In the case of IPv4 Multicast, it is possible to edit SrcIP only. Editing of other fields is possible only with the AE5730E TrafficTesterMini Setup Software.
2: Setup units for IFG are μsec, nsec, %, bit and frames per second.
Setup units for IDLE are sec, msec, μsec and bit.
3: In the case of 1000BASE-T/SX/LX, the capability is fixed at 1,000 Mbps and full auto-negotiation can be used.

Table 3.2-2 Traffic generate Mode 2

Receiver function	Filter function	Capable of setting up two filtering patterns of up to six bytes (in bits and “don’t care” available).
		Offset is possible (0 to 58)
	Alarm function	Sets up the threshold for frames received per second.
		Sets up the threshold for frames transmitted per second.
		Sets up the threshold for receiving error counts.
Statistics function	Traffic	Tx/Rx rate (%), Number of Tx/Rx frames, Number of Tx/Rx bytes Tx/Rx frames per second, Tx/Rx bits per second
	Errors	CRC error, Oversize error, Undersize error, Alignment error
	Idle time measurement	Measures the time interval between certain frames. When 10 Mbps selected: Resolution = 1 μs, Maximum tolerance = 3 μs When 100/1000 Mbps selected: Resolution = 100 ns, Maximum tolerance = 300 ns
	Others	Number of collisions, Number of PAUSE frames
ARP reply function		ARP reply to ARP request in Traffic Generation Test Mode.

The details of the ARP reply function is shown in the bottom.

1 The condition that ARP reply is done

An ARP reply frame is transmitted when an ARP request frame is received when a setup of an ARP reply of the measurement condition chosen at present is on.

The length of the frame is 64byte.

A count isn't done as a receiving frame though an ARP reply frame is transmitted even if it faces the ARP request frame which is applicable to the filter condition.

2 The condition that ARP isn't done.

When the following ARP request frame is received, the transmission of the ARP reply frame isn't done.

The ARP request frame which VLAN tag is added to.

The ARP request frame which MPLS label is added to.

The ARP request frame counted as an error frame.

The ARP request frame that the length of the packet is less than 63byte.

The ARP request frame that the length of the frame is beyond 1519byte.

The ARP request frame that the length of the frame is beyond the setup value of the oversize

3.2.2 Latency Check Mode

By setting the device in the latency check mode, it is possible to transmit to the line to be measured at a specified traffic rate. If you use the loop back function to receive the frame that you have transmitted, it is possible to measure the delay time of the line to be measured.
You can use the Receiver function to measure the number of frames, frame bytes, information on various errors and information on frame intervals in a manner similar to that of traffic generate mode.

Table 3.2-3 provides details on the latency check mode.

Table 3.2-3 Latency check Mode

Item	Subitem	Description
Transmitter function	Transmission method	Constant, Burst (IFG, IDLE, Count setup) *2
	Specified number of transmissions	Continue, Count (IFG, Count setup) *2
	Transmission pattern	Capable of setting up four patterns at maximum.
		Packet length setup (64 to 9,999 bytes)
		MAC address setup
		VLAN tag setup (up to Stack 4)
		LLC header setup/SNAP header setup *1
		MPLS header setup (SIMM header Stack 4) *1
		IPv4 header/IPv4 multicast/IPv6 header setup *1
	Transmission time	Test time setup (0 to 1,440 min)
Layer1 setting	Auto-negotiation	Auto (available for 10BASE-T and 100BASE-TX) *3
	Flow control	Transmission control when receiving PAUSE frames
	Connector specifications	To select the connector specification (CROSSOVER STATUS) of the measuring port for 10BASE-T, 100BASE-TX and 1000BASE-T.
Receiver function	Filter function	It is possible to set up two filtering patterns of up to six bytes (in bits and “don’t care” available).
		Offset is possible (0 to 58)
Delay time measurement	Idle time measurement	When 10 Mbps selected: Resolution = 1 μs , Maximum tolerance = 3 μs When 100/1000 Mbps selected: Resolution = 100 ns, Maximum tolerance = 300 ns
	Delay time	When 10 Mbps selected: Resolution = 1 μs, Maximum tolerance = 3 μs When 100/1000 Mbps selected: Resolution = 100 ns, Maximum tolerance = 300 ns
ARP reply function		ARP reply to ARP request in Traffic Generation Test Mode.

1: In the case of IPv4, it is possible to edit SrcIP and DstIP. In the case of IPv4 Multicast, it is possible to edit SrcIP only. Editing of other fields can be set up only with the AE5730E TrafficTesterMini Setup Software.
2: Available setup units for IFG are μsec, nsec, %, bit and frames per second.
Available setup units for IDLE are sec, msec, μsec and bit.
3: In the case of 1000BASE-T/SX/LX, the capability is fixed at 1,000 Mbps and full auto-negotiation can be used.

The details of the ARP reply function is shown in the bottom.

1 The condition that ARP reply is done

An ARP reply frame is transmitted when an ARP request frame is received when a setup of an ARP reply of the measurement condition chosen at present is on.

The length of the frame is 64byte.

A count isn't done as a receiving frame though an ARP reply frame is transmitted even if it faces the ARP request frame which is applicable to the filter condition.

2 The condition that ARP isn't done.

When the following ARP request frame is received, the transmission of the ARP reply frame isn't done.

The ARP request frame which VLAN tag is added to.

The ARP request frame which MPLS label is added to.

The ARP request frame counted as an error frame.

The ARP request frame that the length of the packet is less than 63byte.

The ARP request frame that the length of the frame is beyond 1519byte.

The ARP request frame that the length of the frame is beyond the setup value of the oversize

3.2.3 Loop Back Mode

In the loop back mode, you can loop back those frames received that have specific destination MAC addresses or IP addresses.

Table 3.2-4 provides details on the loop back mode.

Table 3.2-4 Loop Back Mode

Item	Subitem	Description
Loop back function (Transmitter function)	MAC address	This replaces the destination of a received frame with the MAC address of the sender, recalculates the CRC and then loops it back to the sender.
	MAC address IP address	This replaces the destination of a received frame with the MAC and IP address of the sender, recalculates the CRC and then loops it back to the sender.
Layer1 setting	Auto-negotiation	Auto (available for 10BASE-T and 100BASE-TX) *1
	Connector specifications	To select the connector specification (CROSSOVER STATUS) of the measuring port for 10BASE-T, 100BASE-TX and 1000BASE-T.
Receiver function	MAC address setting	MAC address setting for the measuring port
	IP address setting	IP address setting for measurement port
	Vlan setting	Setting for number of VLAN tag stacks in received frame
ARP reply function		ARP reply to ARP request in Traffic Generation Test Mode.

1: In the case of 1000BASE-T/SX/LX, the capability is fixed at 1000 Mbps and full auto-negotiation can be used.

The details of the ARP reply function is shown in the bottom.

1 The condition that ARP reply is done

An ARP reply frame is transmitted when an ARP request frame is received when a setup of an ARP reply of the measurement condition chosen at present is on.

The length of the frame is 64byte.

A count isn't done as a receiving frame though an ARP reply frame is transmitted even if it faces the ARP request frame which is applicable to the filter condition.

2 The condition that ARP isn't done.

When the following ARP request frame is received, the transmission of the ARP reply frame isn't done.

The ARP request frame which VLAN tag is added to.

The ARP request frame which MPLS label is added to.

The ARP request frame that the length of the packet is less than 63byte.

The ARP request frame that the length of the frame is beyond 1519byte.

The ARP request frame that the length of the frame is beyond the setup value of the oversize

NOTE

The following frames will not be looped back:
- Frames with a length of 63 bytes or less
- Broadcast frames
- Multicast frames

CRC error frames will be looped back as CRC error frames.

The flow control operation is not supported.

When a MAC address and an IP address are chosen as a loop back function, only the frame which has the following frame composition by the DIX format becomes a lapel object.

(a) MAC + TYPE + IPv4
(b) MAC + VLAN + TYPE + IPv4

3.2.4 Ping Test Mode

This function transmits Ping frames to specified IP addresses.
Table 3.2-5 provides details on the Ping test mode.

Table 3.2-5 Ping test Mode

Item	Subitem	Description
Address setting for the measuring port	MAC address	Manual setting or Global MAC address setting
	IP address	Manual setting or IP address setting acquired by DHCP
Transmitter function	Transmission interval	You may choose 1 second, 5 seconds or 10 seconds. *1
	Transmission pattern	Packet length setup (64 to 1,518 bytes)
		MAC address setup
		VLAN tag setup (up to Stack 4)
		IP address setup
	Number of transmitted frames	To set the number of Ping frames to be transmitted (1 to 4,294,267,295 frames)
Layer1 setting	Auto-negotiation	Auto (available for 10BASE-T and 100BASE-TX) *2
	Connector specifications	To select the connector specification (CROSSOVER STATUS) of the measuring port for 10BASE-T, 100BASE-TX and 1000BASE-T.
Reception judgment function	Response time	To determine acceptability or unacceptability and to measure the response time (in μs) To display the maximum, minimum and average response times

1: Some jitters may occur in the transmission interval time.
2: In the case of 1000BASE-T/SX/LX, the capability is fixed at 1000 Mbps and full auto-negotiation can be used.

3.2.5 Reply Mode

This mode is used to return a reply when a Ping or ARP frame is received.
Table 3.2-6 provides details on the reply mode.

Table 3.2-6 Reply Mode

Item	Subitem	Description
Address setting for the measuring port	MAC address	Manual setting/Global MAC address setting
	IP address	Manual setting/IP address setting acquired by DHCP
Transmitter function		To transmit Ping/ARP response frames VLAN supported (up to Stack 4)
Receiver function		To receive Ping/ARP request frames VLAN supported (up to Stack 4)
Layer 1 setting	Auto-negotiation	Auto (available for 10BASE-T and 100BASE-TX) *1
	Connector specifications	To select the connector specification (CROSSOVER STATUS) of the measuring port for 10BASE-T, 100BASE-TX and 1000BASE-T.
Reception judgment function	Number of responses	Ping, ARP reply

1: In the case of 1000BASE-T/SX/LX, the capability is fixed at 1,000 Mbps and full auto-negotiation can be used.

3.2.6 DHCP/ARP function

This function uses DHCP for measurement port IP address acquisition, and uses ARP for measurement target MAC address acquisition. Details pertaining to DHCP/ARP mode are presented in Table 3.2-7.

Table 3.2-7 DHCP Function Details

Item	Subitem	Description
Address setting for the measuring port	MAC address	Sets the MAC address of the measurement port.
	IP address	Sets the IP address of the measurement port. The IP address acquired using DHCP can also be set.
	Subnet mask	Sets the subnet mask of the measurement port. The subnet mask acquired using DHCP can also be set.
	Default gateway	Sets the default gateway of the measurement port. The default gateway acquired using DHCP can also be set.
Destination address setting	IP address	Sets the destination IP address manually.
	MAC address	Sets the MAC address acquired by ARP as the destination MAC address.

3.2.7 MACRO function

With this function, an operation related to measurement is specified prior to measurement, and measurement is automatically performed as specified. Details pertaining to the MACRO function are presented in Table 3.2-8.

Table 3.2-8 MACRO Function Details

Item	Subitem	Description
MACRO function commands	RUN command	Starts measurement
	STOP command	Stops measurement
	WAIT command	Sets wait time
	SEL command	Selects measurement condition
	GOTO command	Goes to specified command
	END command	Ends macro operation
	;	Command not entered

3.2.8 Telnet remote control function

This function remotely controls the AE5501 through a PC or the like via Telnet. A list of TELNET functions is presented in Table 3.2-9.

Table 3.2-9 TELNET Remote Control Functions

Function name	Overview
Super user	The authority change of the TELNET movement
Remote control stop	Stops TELNET remote control of AE5501
Measurement start	Starts measurement
Measurement stop	Stops measurement
Status check	Checks AE5501 status
Change measurement condition	Selects setting file to be used during measurement
Display measurement conditions list	Displays list of setting files to be used during measurement
Change settings	Edits settings in setting file
Setting check	Displays settings in setting file
Display measurement results	Displays measurement results
Display results file list	Displays a list of measurement results
Delete results file	Deletes measurement results
Display version	Checks the AE5501 version information
Self test	Performs AE5501 self test
Set time/date	Sets the AE5501 calendar
Display time/date	Displays the AE5501 calendar
Set all defaults	Changes all AE5501 settings to their defaults
Version upgrade	Upgrades the AE5501 version
AE5730E remote control	Sends and receives setting files and measurement result files between AE5730E and AE5501
Performs DHCP	An IP address is acquired by DHCP for the measurement port.
Performs ARP	The MAC address of the specified terminal is acquired by the ARP treatment.
Set prompt	The change of prompt indicated on the terminal screen.
Set password	The settlement of a password to use a command.
Command history list	The indication of the on history list of the character line inputted on the terminal screen
Help	TELNET command help
Register script command	Registers a script command
Display program	Displays registered script commands
Execute script	Executes a registered script command
Wait	Continues TELNET command
Repeat	Repeats TELNET command

3.2.9 Remote Setup Function

Table 3.2-10 provides details on the remote setup function.

Table 3.2-10 Remote Setup Function

Item	Subitem	Description
Remote setting	Auto	DHCP ON
	Manual	DCHP OFF, IP address, Subnet mask setting, Default gateway setting

3.2.10 Analytical Function

Table 3.2-11 provides details on the analytical function.

Table 3.2-11 Analytical Function

Item	Subitem	Description
Analytical function	Measurement results	To display measurement results.
	Setup validation	To display measurement settings.

[This page is intentionally left blank.]

Chapter 4 Operating Instructions

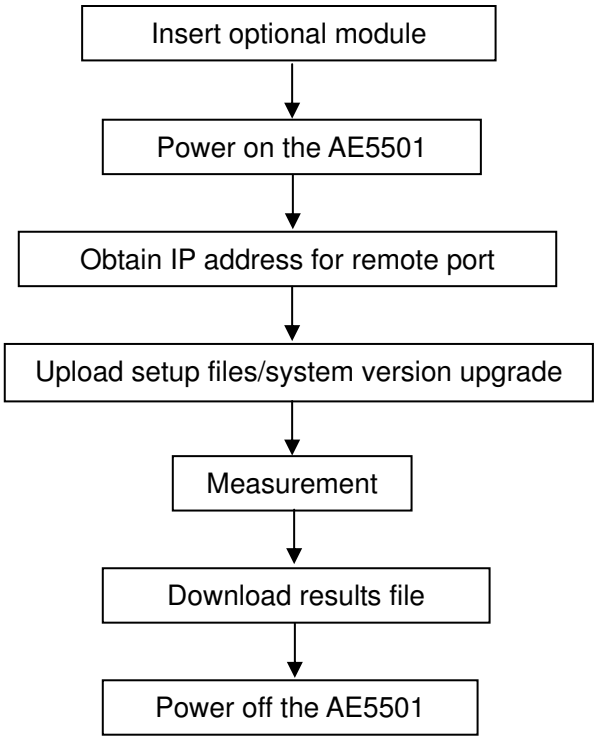
This chapter describes the operating procedures for the AE5501 TrafficTesterMini.

4.1 Preparation and Operation Check

This section describes how to turn on/off the power supply and explains the basic operating procedure for this device.

4.1.1 Flow Chart of the Operating Procedure

The flow of the fundamental operating procedure is shown below.



CAUTION

Remove the GBIC when conducting measurement in 10BASE-T or 100BASE-TX.

The battery life decreases while the GBIC is connected because it consumes more electricity.

The message “PULL OUT GBIC" will be displayed on the LCD screen if the GBIC is connected to the device when you attempt to conduct measurement in 1000BASE-T.

4.1.2 Inserting Optional Modules

This section describes the procedure for inserting the GBIC module, which is used for measurement of 1000BASE-SX/LX.

Place the device with the side shown in Figure 4.1-1 facing upward and insert the GBIC into the measuring port for 1000BASE-SX/LX.
Move the lever in the direction of the arrow to pull out the GBIC module.

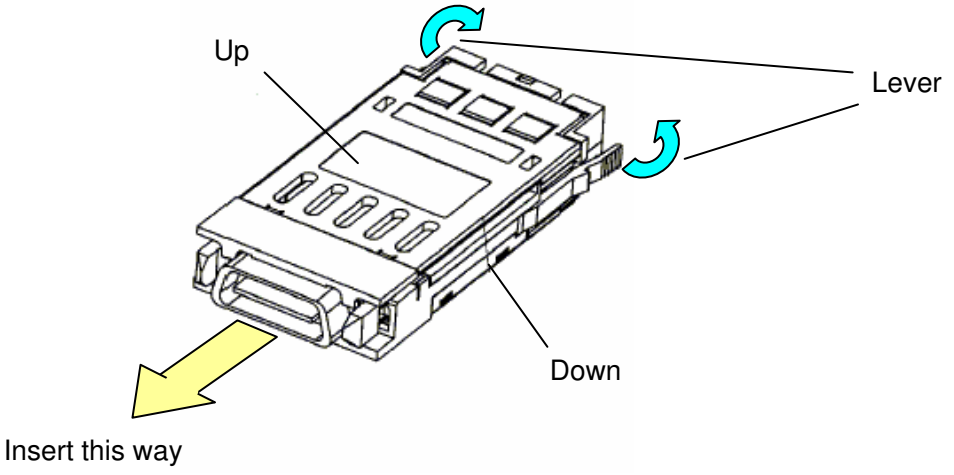


Figure 4.1-1 Agilent GBIC module

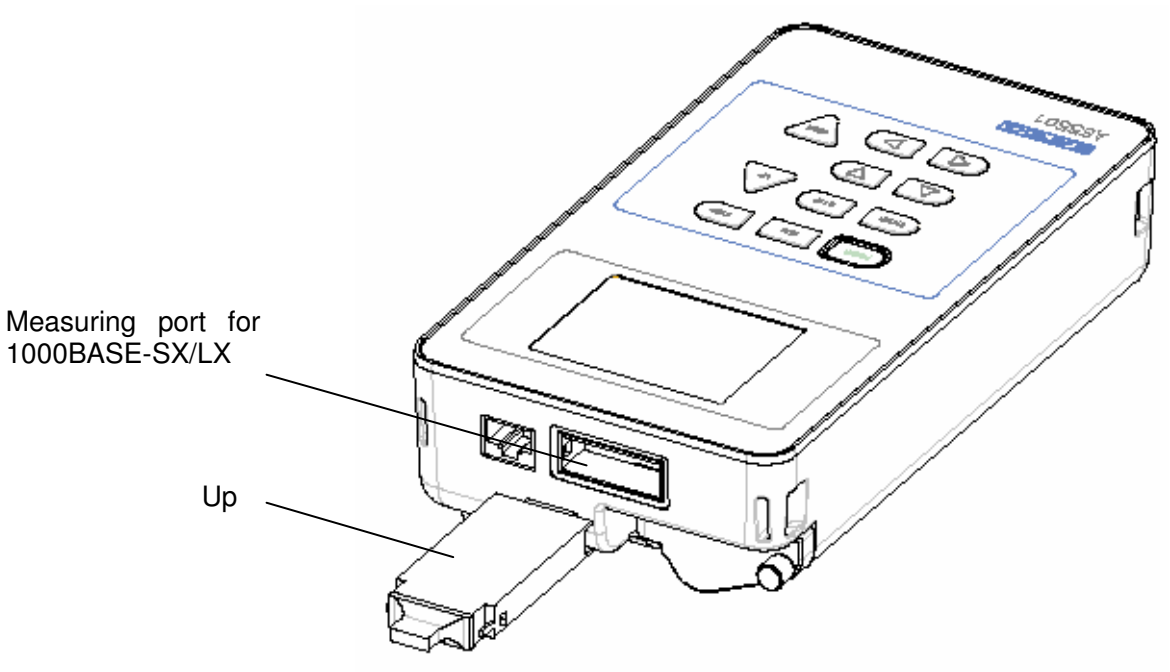


Figure 4.1-2 Inserting the GBIC module

WARNING

Do not attempt to peer into the measuring port when you mount the GBIC module. Doing so is a health hazard and may result in an injury.
When replacing an optional module, make sure that the power LED is off.

4.1.3 Preparing the Power Supply

This device may be operated with either battery or AC power. The following subsections describe the procedures for preparing the power supplies.

1 AC power supply

Before using AC power

Ensure that the AC power supply (outlet) ratings conform to the requirements of the AC Adapter for AE5501.

Ensure that the POWER LED is Not lighting before connecting the AC power.

Method of connecting AC power (shown in Figure 4.1-3)

(1) Connect **AC adapter power cord** to **AC adapter for AE5501**.
(2) Connect **AC adapter power plug** to **AC power outlet**.
(3) Connect **AC adapter terminal** to **Power inlet**.

AC power ratings

Voltage: 100-240 V AC, Voltage tolerance: 90-264 V AC
Frequency: 50-60Hz, Frequency tolerance: 48-63 Hz
Maximam power: 90 VA

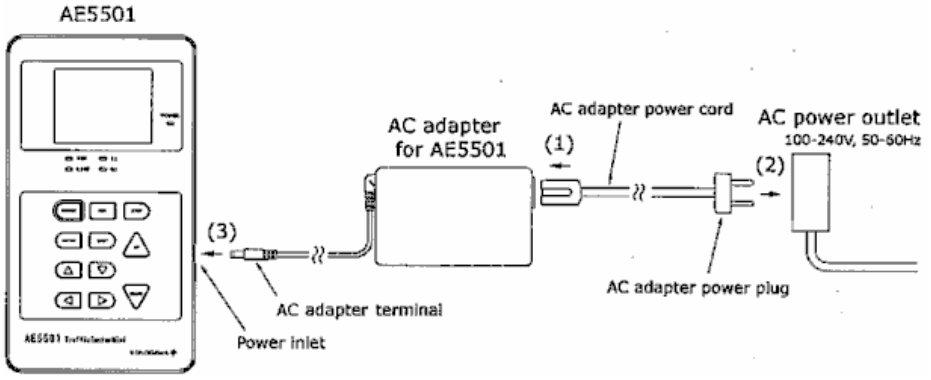


Figure 4.1-3 How to connect the AC power supply

CAUTION

Use only the AC adapter attached to the device. Using a product other than the standard adapter may cause device failure.

2 Battery

Figure 4.1-4 shows the method of inserting the batteries and matching their polarities.

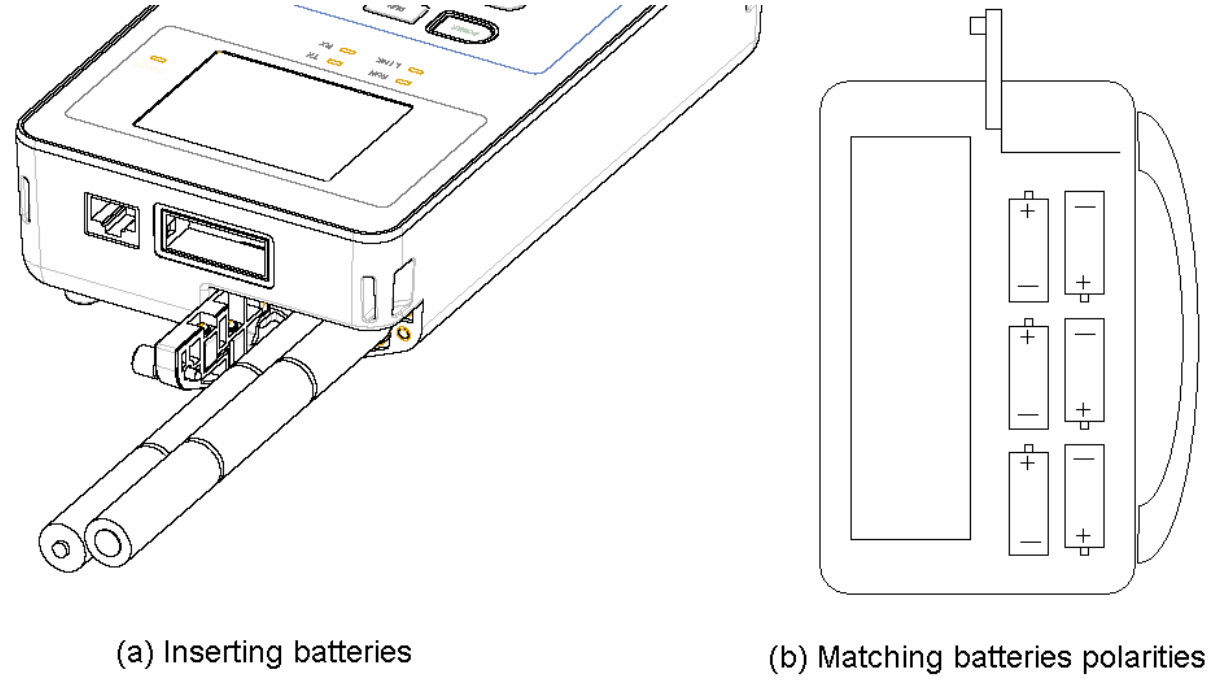


Figure 4.1-4 Inserting batteries and matching their polarities

WARNING

Be sure that the batteries are inserted in the direction indicated in Figure 4.1-4(b). Failure to do so may cause the battery to generate heat and/or fire.

Do not use a battery that is obviously damaged.

CAUTION

Inserting or detaching the battery should be done only after you disconnect the AC power supply. Ignoring this caution may result in a situation that causes device failure.

4.1.4 Turning On the Power Supply

After the preparation of the power supply is completed, press the POWER key on the front panel (for 1 second) until the power LED lights up.
One of the following two indications will be displayed on the upper left of the LCD screen when you turn on the power, depending on the type of power supply in use.

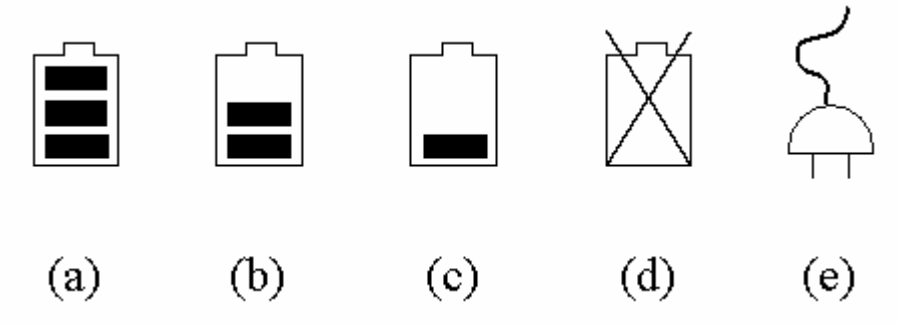


Figure 4.1-5 Power indications

The meanings of the power indications are as follows:

Indication	Description
(a)	The remaining battery capacity is 50–100%.
(b)	The remaining battery capacity is 20–50%.
(c)	The remaining battery capacity is 0–20%.
(d)	No battery is inserted or the remaining battery capacity is very low.
(e)	AC power supply is in use.

CAUTION

Make sure that the power indication is either (a) or (e) as shown in Figure 4.1-5 when you set the device in remote mode.
Wait at least 15 seconds from the time the device is powered off before attempting to restart it.
Power off and then restart the device at least 15 seconds later if the power LED is blinking and the LCD screen remains blank for more than one minute after turning on the device.
There is a possibility that a system file is corrupted if there is no change on the LCD screen but the BOOT screen logo remains on display for more than one minute after turning on the device. In this case, refer to the "System Recovery Screen" section of the instruction manual for the AE5730E TrafficTesterMini Setup Software to recover the damaged file.

NOTE

If you press the POWER key until the power LED lights up, the BOOT screen as shown in Figure 4.2-6 will be displayed about 15 seconds later. Conduct necessary operations when the Mode Select screen is subsequently displayed, as shown in Figure 4.2-7.
If (a) is not indicated even though the battery is fully charged, the battery is near the end of its life expectancy and must be replaced with a new one.
Upon receiving the device, check that the clock is set correctly. Incorrect settings may result in file handling problems.
Drop a power supply promptly, and use a battery after you charge it if a warning message is indicated.
Even if an AC adapter is used, the power is not expected to be on continuously for an extended length of time. (Operations have been verified under continuous power for approximately 72 hours.)

4.1.5 Connecting to an AE5730E-installed PC

This device is to be connected to a PC with the AE5730E TrafficTesterMini Setup Software installed. It can be connected either directly or through a LAN.
Choose a PC that is equipped with a network interface card (NIC) and TCP/IP protocol installed.

1 Connecting through a LAN
Connect the device as shown in Figure 4.1-6

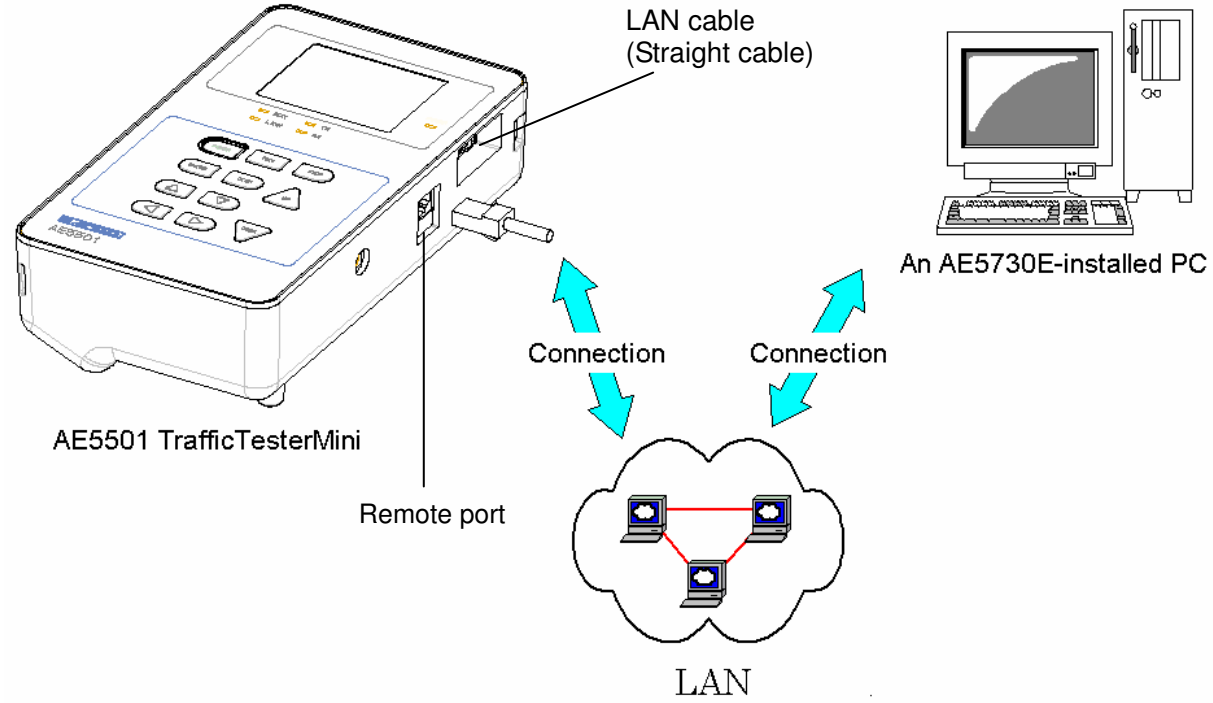


Figure 4.1-6 Connecting through a LAN

NOTE
The network setting for the remote port is as follows when shipped from the factory. IP address: 192.168.0.1 Subnet: 255.255.255.0 Gateway: 0. 0. 0. 0 The network setting for the remote port is configured as mentioned above when you power on the device. Make sure that there is no adverse effect on the remote line in use. You may alter the remote port settings by changing them on the Remote Setup screen.

2 Direct connection
Connect the device as shown in Figure 4.1-7

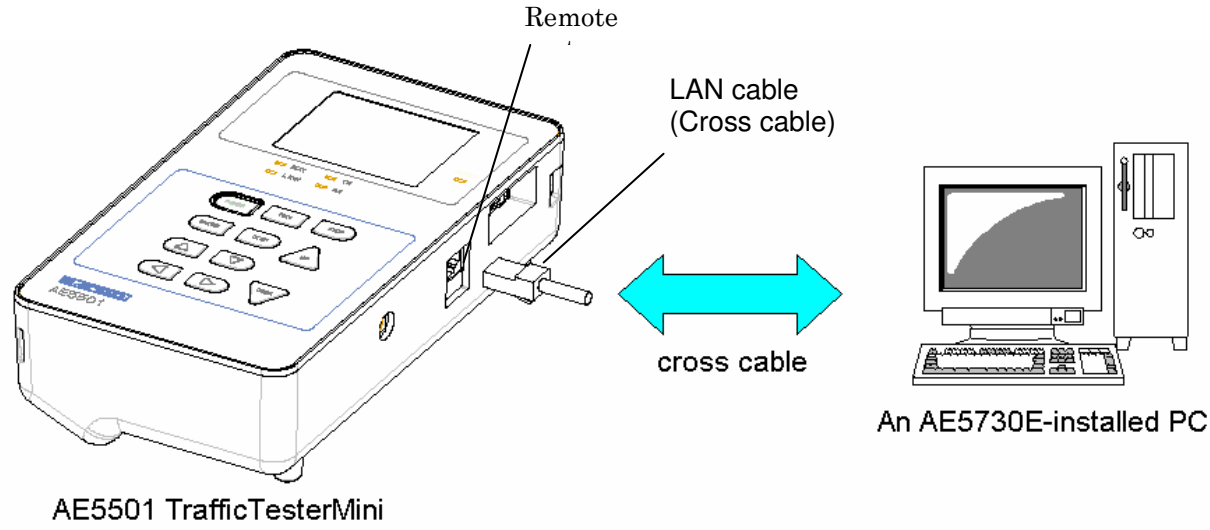


Figure 4.1-7 Direct connection

When you use a cross cable to connect the AE5501 TrafficTesterMini to a PC with the AE5730E TrafficTesterMini Setup Software installed, you must set up the PC as described below in (a) through (d). An AE5730E-installed PC with Microsoft® Windows® 2000 operating system is used as an example in this section. The setting methods for PCs with other OSs installed are explained in Section “5.5Connection Configuration for AE5730E-installed PC”.

(a) On the Windows Start menu, select [Settings] → [Control Panel]. The dialog shown in Figure 4.1-8 will be displayed. Double-click [Network and Dial-up Connections].

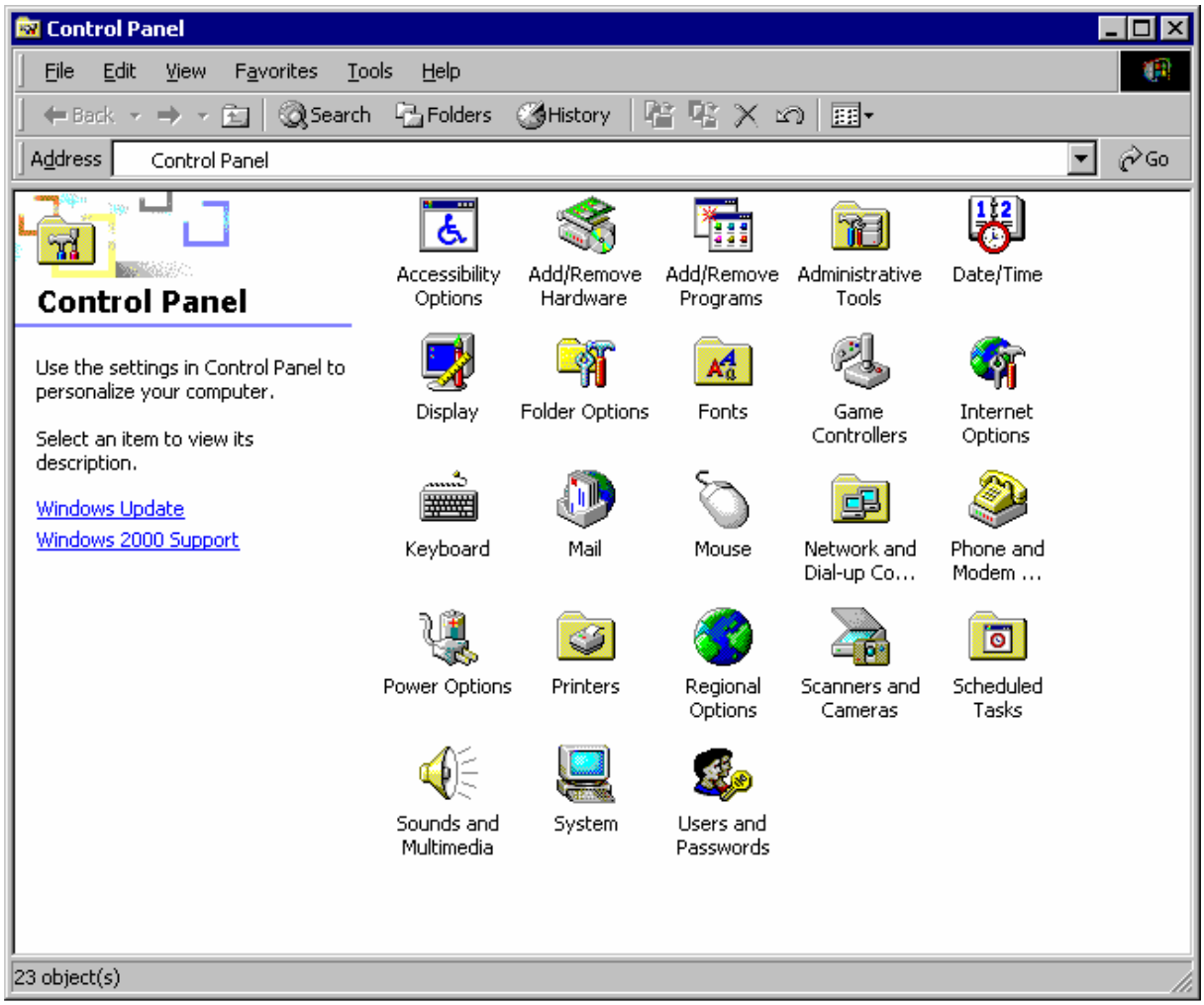


Figure 4.1-8 [Control Panel] dialog

(b) After completing the operation in (a), the dialog shown in Figure 4.1-9will be displayed. Double-click [Local Area Connection].

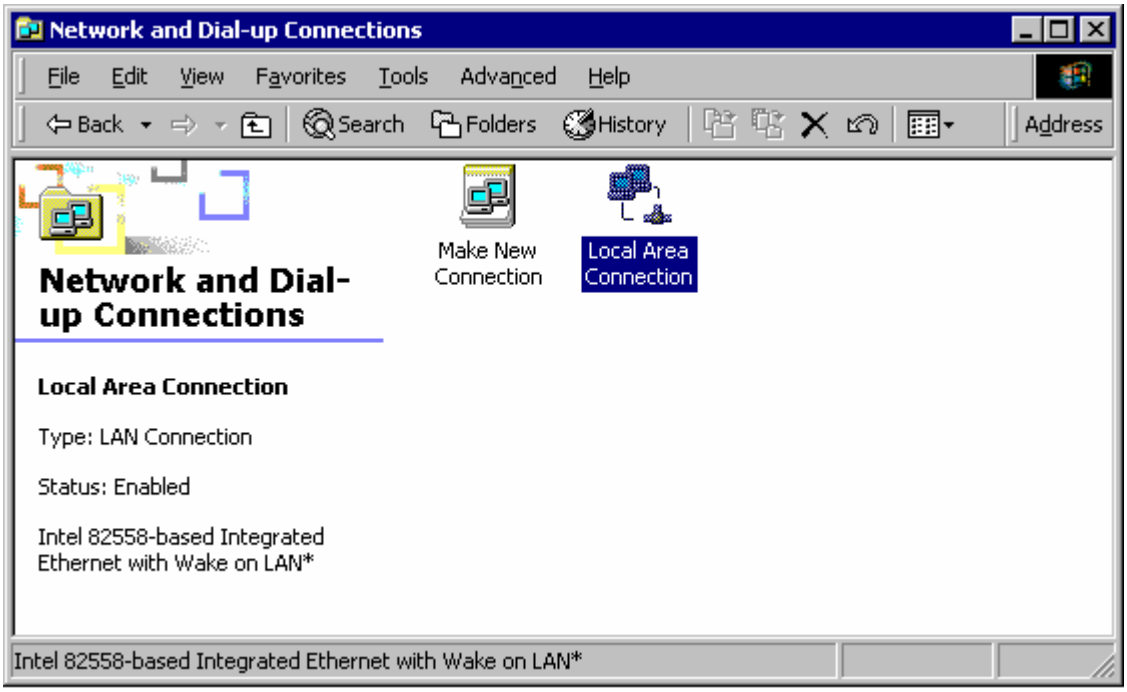


Figure 4.1-9 [Network and Dial-up Connections] dialog

(c) Double-clicking [Local Area Connections] on the dialog shown in Figure 4.1-9 displays a new dialog (Figure 4.1-10). Click [Properties].

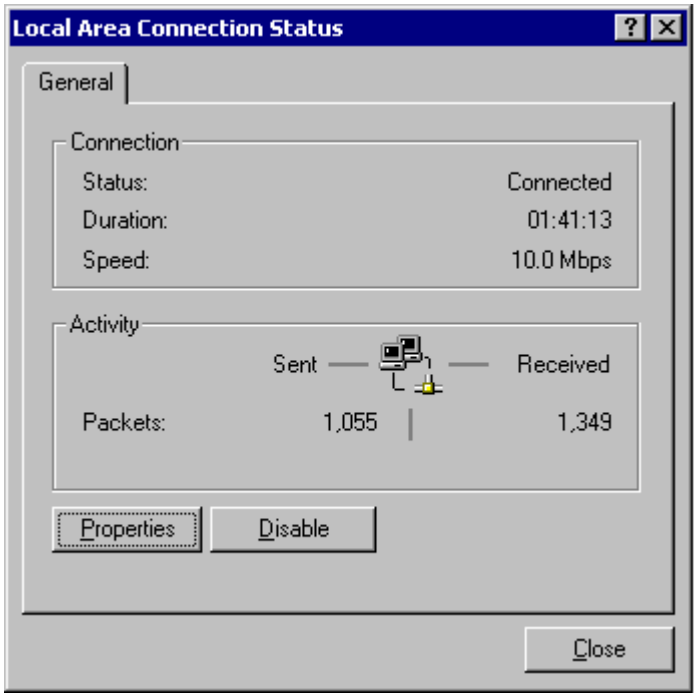


Figure 4.1-10 [Local Area Connection Status] dialog

(d) When the dialog shown in Figure 4.1-11 appears, select [Internet Protocol (TCP/IP)] and click [Properties].

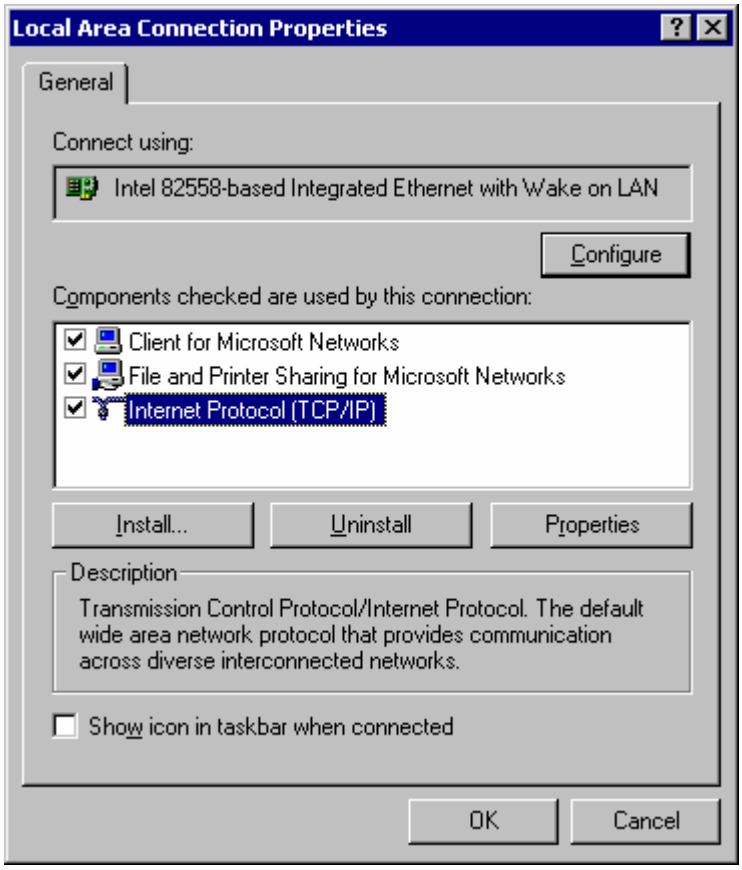


Figure 4.1-11 [Local Area Connection Properties] dialog

NOTE
You should keep a copy of the network settings for your PC with the AE5730E TrafficTesterMini Setup Software installed in order to recover it if required.

(e) After you complete the operation described in (d), the [Internet Protocol (TCP/IP) Properties] dialog will appear. Set up the [Internet Protocol (TCP/IP) Properties] as shown in Figure 4.1-12 and click [Advanced]. The chart below shows sample values of the [IP Address] and [Subnet Mask]. If any values have been set up previously, it is not necessary to change them.

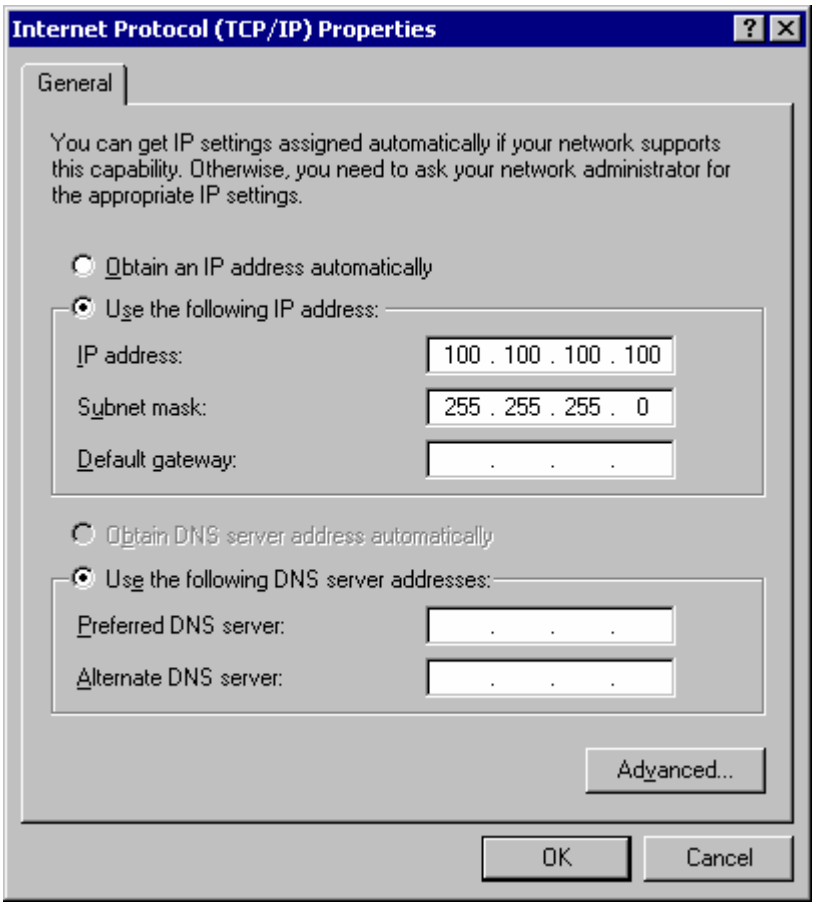


Figure 4.1-12 [Internet Protocol (TCP/IP) Properties] dialog

(f) When the [Advanced TCP/IP Settings] dialog appears, set it up as follows. Set [IP Settings] as follows.

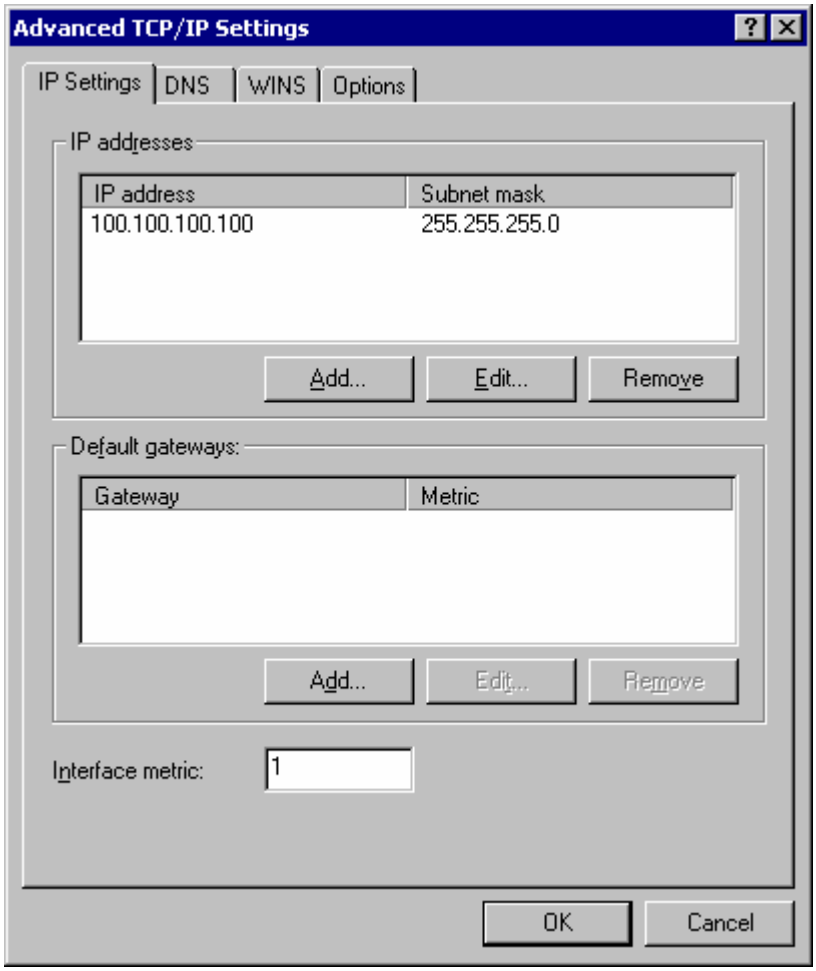


Figure 4.1-13 Advanced TCP/IP Settings

Set [DNS] as follows.

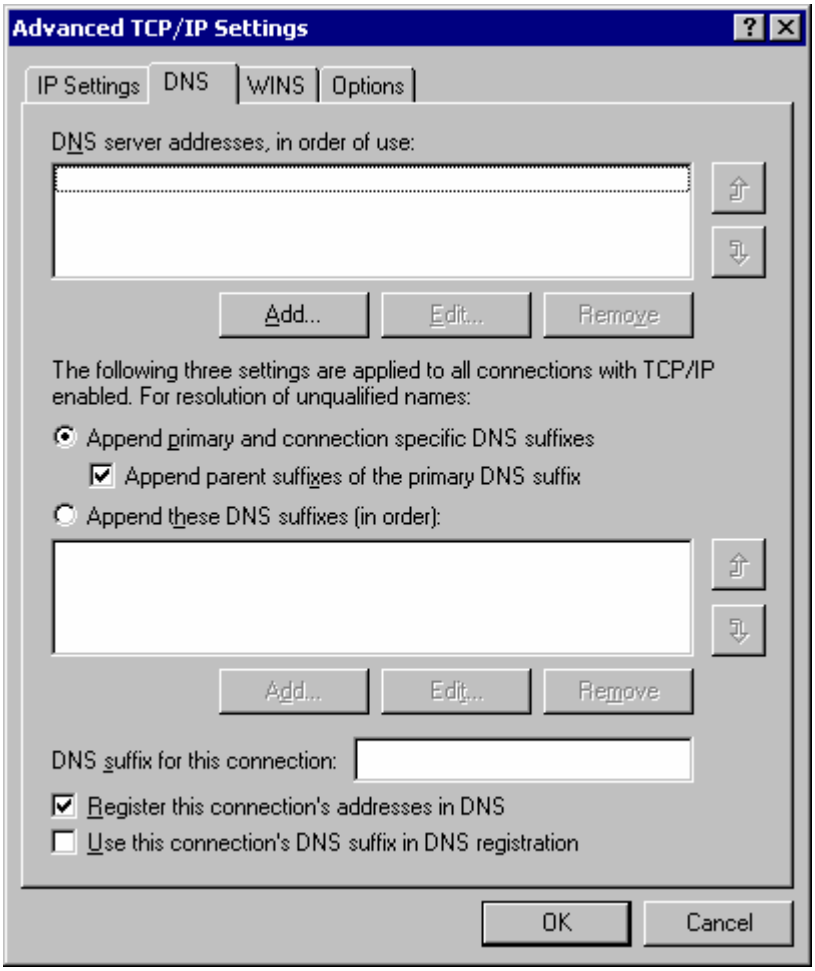


Figure 4.1-14 DNS Setup

Set up [WINS] as shown in the following chart and then click [OK].

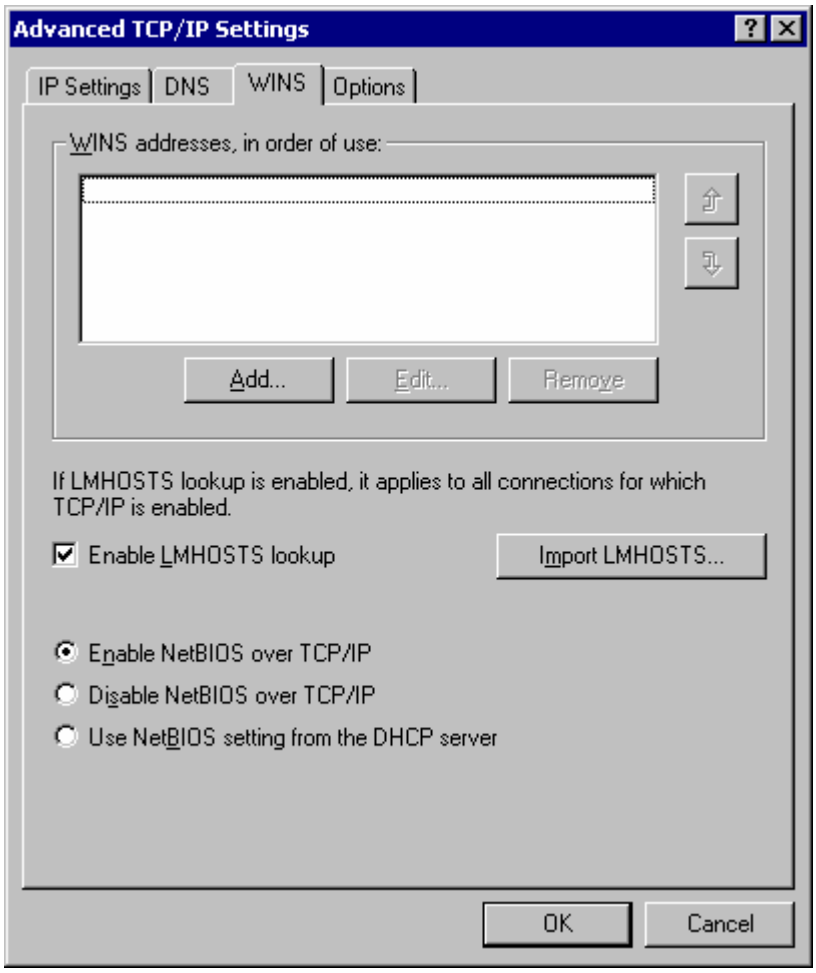


Figure 4.1-15 WINS Setup

(g) Clicking [OK] on the dialog shown in Figure 4.1-15 displays a new dialog (Figure 4.1-12).

(h) Click [OK] on the dialog shown inFigure 4.1-12. The dialog shown in Figure 4.1-11 will be displayed.

(i) Clicking [OK] on the dialog shown in Figure 4.1-11 displays a new dialog (Figure 4.1-10). Clicking [OK] completes the setup procedure.

NOTE

Use a cross cable if you want to make a direct connection.
When connecting directly to a PC with the AE5730E TrafficTesterMini Setup Software installed, the device may not be able to communicate with the PC if it is left with the cross cable disconnected for an extended period of time. In this case, reboot the PC.
Terminate all applications and resident programs that are running on other networks except the AE5730E and do not enable them if you are using the AE5730E TrafficTesterMini Setup Software.
Both the IP address for the remote port to be set using this device and the address to be set using the Network dialog, shown in Figure 4.1-9, in the PC with the AE5730E TrafficTesterMini Setup Software installed, must have the same network address number specified by the subnet mask.

Example

AE5501 TrafficTesterMini	AE5730E TrafficTesterMini
IP ADDR SET 192.168.0.1	Setup Software
SUBNET MASK	IP address 192.168.0.2
	Subnet mask 255.255.255.0

CAUTION

Use the measuring port for 10BASE-T, 100BASE-TX and 1000BASE-T separately from the remote port. If the two ports are used at the same time, the network lines may be adversely affected.
The remote port is fixed for 10BASE-T half duplex.

4.1.6 Setting Up the Remote IP Address

Set up the IP address for the remote port. Refer to"4.2.16 Remote Setup Screen" for the detailed setup procedure.

4.1.7 Uploading the Setting

1 Upload standby

Pressing the OK button as shown in Figure 4.1-16(a) enables data communication with the PC with the AE5730E TrafficTesterMini Setup Software installed.

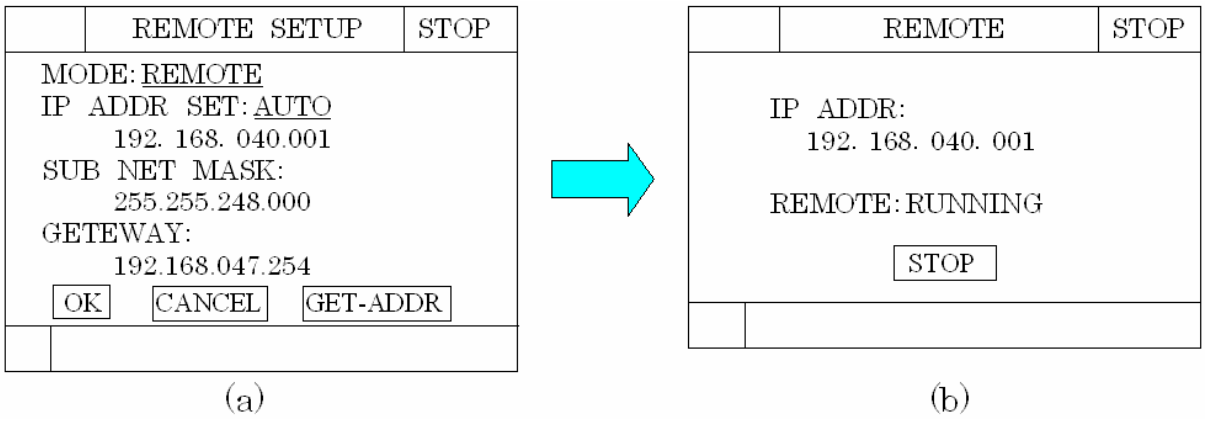


Figure 4.1-16 Upload standby mode

2 Uploading the settings

Upload the setup data by using the PC with AE5730E TrafficTesterMini Setup Software installed. For the uploading procedure, refer to the instruction manual for the AE5730E TrafficTesterMini Setup Software. Press the STOP button shown in Figure 4.1-16(b) when the setup data has completed uploading.

4.1.8 How to Use the Measuring Port

Use port (1) shown in Figure 3.1-3 to measure 10BASE-T, 100BASE-TX and 1000BASE-T lines.
Use port (2) in Figure 3.1-3 to measure 1000BASE-SX/LX line.
To mount the GBIC module, refer to"4.1.2 Inserting Optional Modules."
Different types of connecting cables are required for 10BASE-T, 100BASE-TX and 1000BASE-T lines, respectively, depending on their crossover setup.
Use straight or cross cables to connect the TrafficTesterMini to a DTE (PC or hub). Choose either of the two cables according to the connector specifications of the device being connected.
The TrafficTesterMini accommodates connection to MDI, MDIX and AUTO and thus can flexibly connect to a variety of devices.

The following charts show sample connection configurations of each crossover setup and explain the difference between MDI and MDIX. The default crossover setup is MDI.

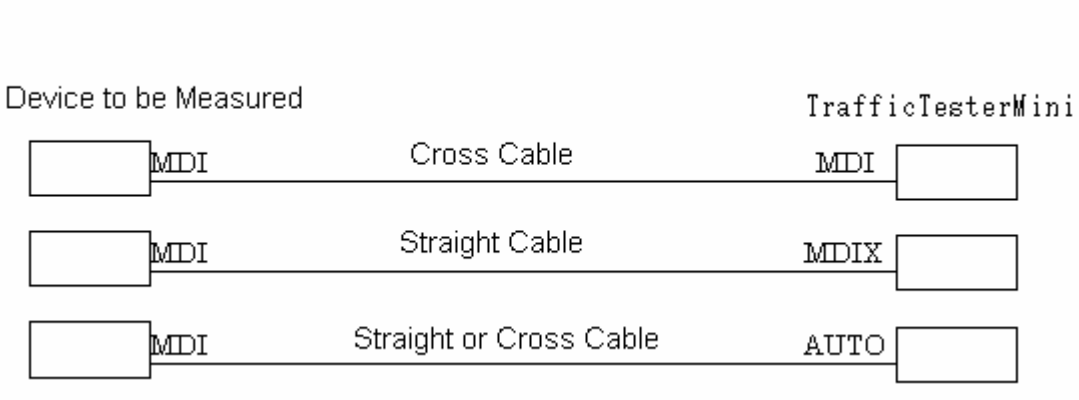


Figure 4.1-17 Relationship between connecting cable types and crossover setups

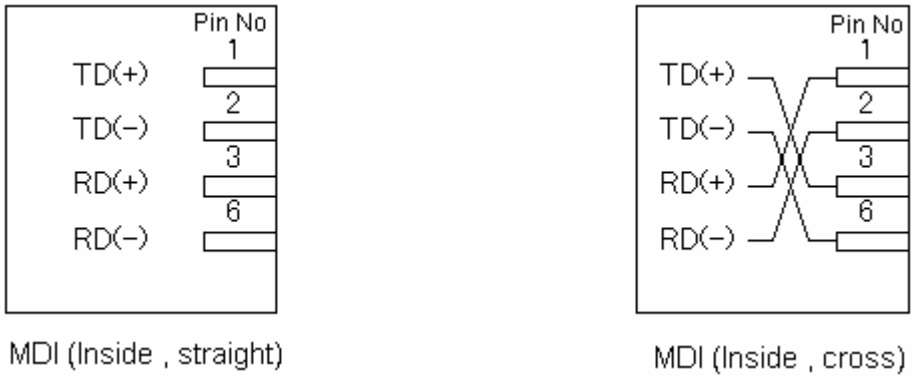


Figure 4.1-18 Measuring port interface

4.1.9 Measurement

Conduct measurement using the following procedure.

1 Starting measurement

Connect to the measuring port and the line to be measured, enter the settings on each screen, and press the RUN key on the front panel to start measurement. You can press the RUN key on any of the screens for Mode Select, Setup Select or Setup.

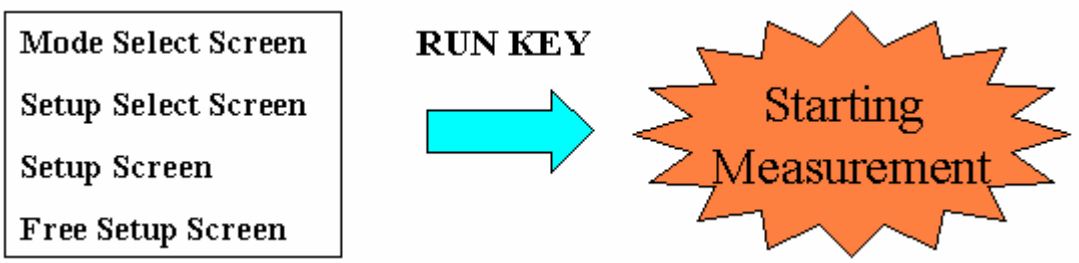


Figure 4.1-19 Starting measurement

2 Terminating measurement

Press the STOP key on the front panel to terminate measurement.

NOTE
Don't do plugging in and out of the cable being connected to the measurement port during the transmission of the frame and the reception because it has the possibility that the transmission of the frame and reception can't be done properly any more.

4.1.10 Downloading Measurement Results

Download the measurement results using the AE5730E TrafficTesterMini Setup Software after checking the running condition on the Remote screen in the same manner as when uploading the setup. Press the STOP button on the Remote screen after the download is completed.

NOTE
When you download measurement results, the results file saved in the AE5501 main body is deleted. When you upload the setup file, the results file is not deleted.

4.1.11 Disconnecting the Power Supply

Disconnect the power supply using the following procedure only after ensuring that the device is not conducting measurement or operating by remote mode.

1 AC power supply
Press the POWER button on the front panel for 2 seconds. The power LED starts blinking. The power LED turns off when the power supply is disconnected. Pull out the power cable from the power inlet of the device.

2 Battery
Press the POWER button on the front panel for 2 seconds. The power LED starts blinking. The power LED turns off when the power supply is disconnected.

CAUTION

Disconnect the power supply after ensuring that the device is not conducting measurement or operating by remote mode. Check that the message “Please Wait” is not displayed. Failure to check these items may result in device failure during the power-off procedure.

4.2 Details on Functions

This section describes the screens. Section 4.2.2 shows a schematic diagram of the correlation among the device screens and also outlines each screen. The subsequent sections provide details on the functions and options of each screen.

4.2.1 Common Screen Elements

All screens shown on the device's LCD panel have the following elements in common.

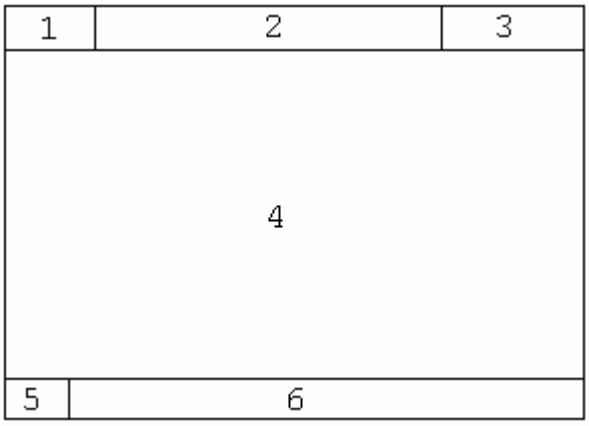


Figure 4.2-1 Common screen elements

The meanings of the elements shown in Figure 4.2-1 are as follows.

1 Power indicator
An icon indicating the remaining battery capacity or AC power connection is displayed here.

2 Mode window
The name of the screen is indicated here.

3 Status window
The status of the measuring operation (running, stopped or remotely running) is indicated here.

4 Item window
Various display items are indicated here.

5 Scroll window
When you scroll through the display items, an arrow indicates the scroll direction.

6 Message bar
Messages are displayed here.

NOTE

When the device is running on battery power and the battery indicator displays only one bar, the following changes will occur on all screens other than the Online screen:

(a)The battery indicator will be highlighted.
(b)A warning message will be displayed.
(c)The power LED will light up in orange.

If any of the above-mentioned status changes takes place, immediately press the POWER key for the time required to turn off the power.
Fully recharge the battery before reusing it.

When the battery indicator displays only one bar on the Online screen, a warning message will appear in the message bar.

4.2.2 Schematic Diagram of Screens

The following pages outline the correlation among screens displayed on the AE5501 LCD. Table 4.2-1 provides a description of each screen and the location where they are displayed.

Table 4.2-1 Brief Description of Screens

Screen	Brief description	Item no.
Boot	Shows the boot status	4.2.3
Mode Select	Screen for selecting modes (the initial screen after the device is booted)	4.2.4
Setup Select	Screen for choosing setup items	4.2.5
OnLine	This screen is displayed while the device is running in a measuring mode	4.2.6
Off Select	Screen for selecting Offline	4.2.7
File Select	Screen for listing results files and performing edit operations	4.2.8
OffLine	Screen for showing the measurement results of all measuring modes	4.2.9
Setup	Screen for editing setups	4.2.10
Free Setup	Screen for setting up Ping/Reply/Loop Back modes	4.2.11
DHCP	The screen which does the setup of DHCP and practice	4.2.12
ARP	The screen which does the setup of ARP and practice	4.2.13
MACRO	The screen which does the setup of MACRO	4.2.14
MACRO function working	A screen during the MACRO movement	4.2.14.5
LOG VIEW	This screen is used to check the macro command operation history after macro operations are performed.	4.2.15
Remote	Screen for remote-mode operations	4.2.16.1
VerUp	Screen for operating in the system version upgrade mode	4.2.16.2
TELNET	The preparation screen of the remote control by TELNET	4.3
SelfTest	Screen for self-test operations	4.2.17
TimeSet	Screen for setting the time of AE5501	4.2.18
ALL DEFAULT	Screen for conducting the CompactFlash check function	0

CAUTION

Do not power off the device while the message “Please Wait” is being displayed. Doing so may result in device failure.

NOTE

In this manual, “button” refers to the options on the LCD panel and “key” represents the controls on the front panel of the main body.

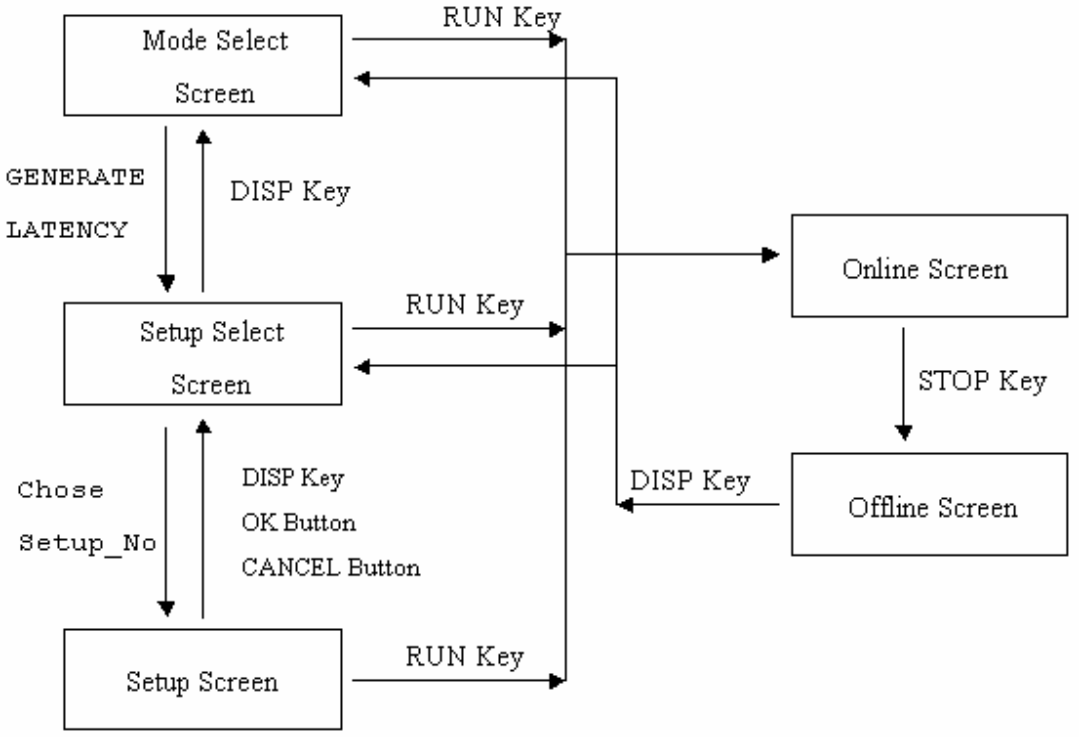


Figure 4.2-2 Screen transition 1

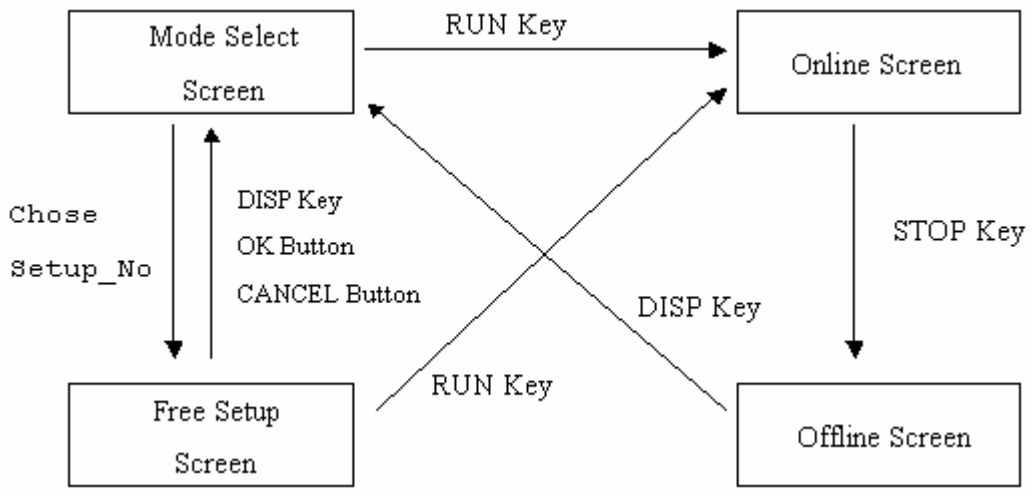


Figure 4.2-3 Screen transition 2

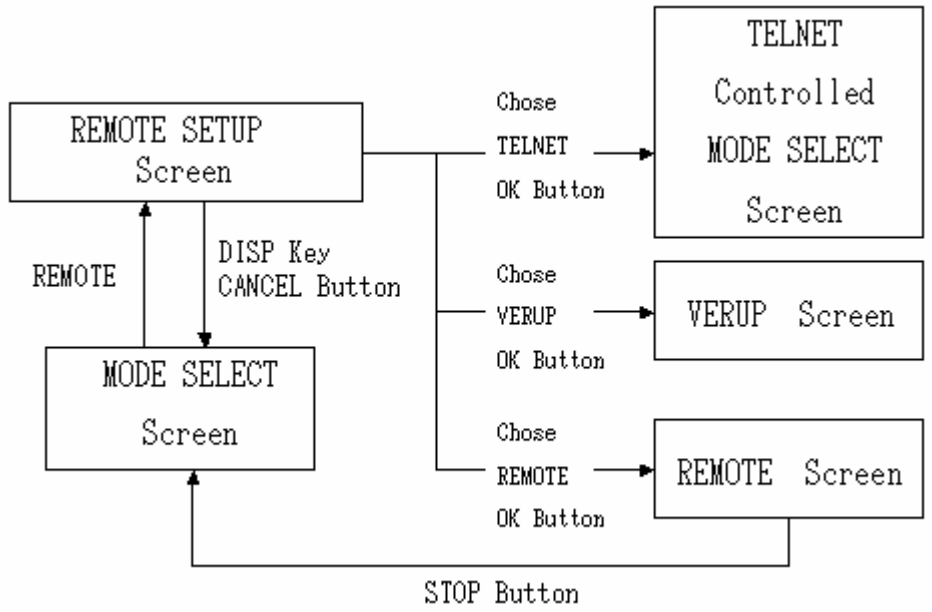


Figure 4.2-4 Screen transition 3

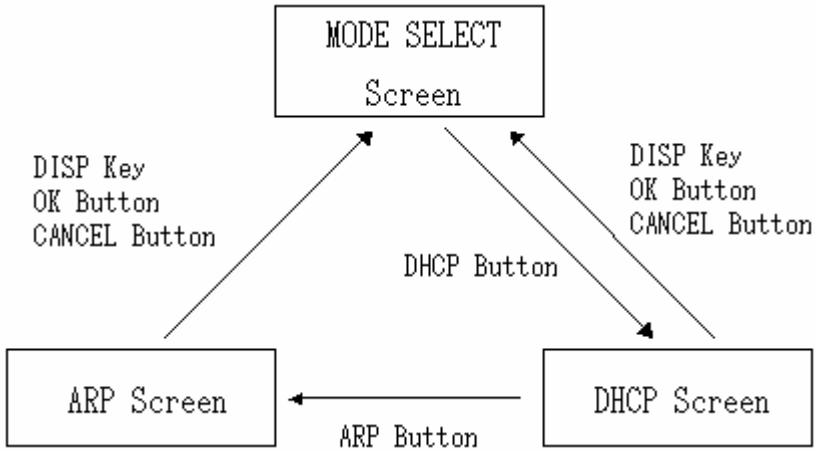


Figure 4.2-5 Screen transition 4

4.2.3 Boot Screen

This screen displays the boot status. Figure 4.2-6 shows the Boot screen.

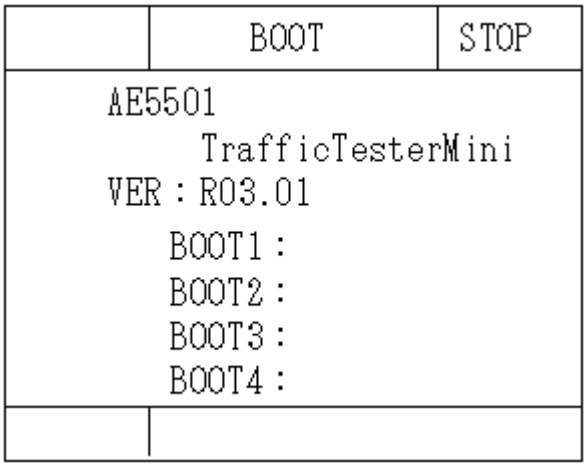


Figure 4.2-6 Boot screen

An error message is displayed when an error occurs during the boot process.

CAUTION

If the Remote and VerUP operations fail, check the network information on the System screen and retry the Remote and VerUP operations.
The Link settings are as follows at the time of device boot-up:

- I/F.TX
- Speed.100M
- Duplex.FULL
- Flow Ctrl.ON
- Negotiation.AUTO

NOTE

If an error occurs during the boot-up process, an error message will be displayed and any input other than that from the POWER key will not be accepted. If the device enters this status, reboot and check it.
Pressing the DISP key while the Boot screen is displayed enables access to the manual recovery mode. For further details, refer to the AE5730E TrafficTesterMini Setup Software Instruction Manual or Section 5.5.2 “About the Recovery Mode” of this manual.

4.2.4 Mode Select Screen

This screen is used for selecting modes (the initial screen). Figure 4.2-7 shows the Mode Select screen and Table 4.2-2 describes the functions of the keys.

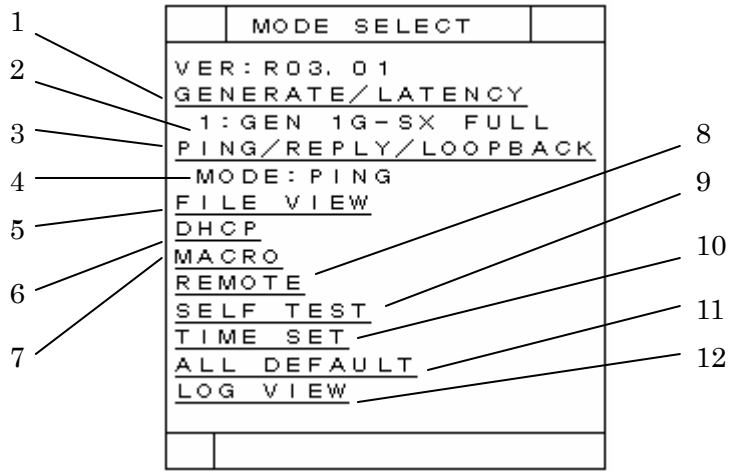


Figure 4.2-7 Mode Select screen

Table 4.2-2 Key Functions (Mode Select screen)

Key	Function
POWER	Power On/Off
↑	To move the cursor
↓	To move the cursor
←	NA
→	NA
RUN	Only (1) and (3) are available (to change to the Online screen)
STOP	NA
DISP	NA
ENTER	To change the screen mode
UP	NA
DOWN	NA

1 Pressing the ENTER key changes any screen to the Setup Select screen while in the Generate/Latency mode.

2 Items chosen on the Setup Select screen will be displayed.

3 Pressing the ENTER key displays a Free Setup screen.

4 Mode (Ping, Reply and Loop Back) chosen on the Free Setup screen will be displayed.

5 Pressing the ENTER key displays a measurement results selection screen (Off Select screen).

6 Pressing the ENTER key display the DHCP screen.

7 Pressing the ENTER key display the MACRO screen.

8 Pressing the ENTER key displays the Remote screen.

9 Pressing the ENTER key displays the Self Test screen.

10 Pressing the ENTER key displays the Time Set screen.

11 Pressing the ENTER key displays the All Default screen.

12 Pressing the ENTER key display the Log View screen.

4.2.5 Setup Select Screen

This screen is used for selecting setup items. Selecting [GENERATE/LATENCY] on the Mode Select screen displays this screen.
Select the desired item and press the RUN key to start measuring. To edit the setup contents, select the desired item and press the ENTER key to change to the Setup screen. Figure 4.2-8 shows the Setup Select screen and Table 4.2-3 describes the functions of the keys.

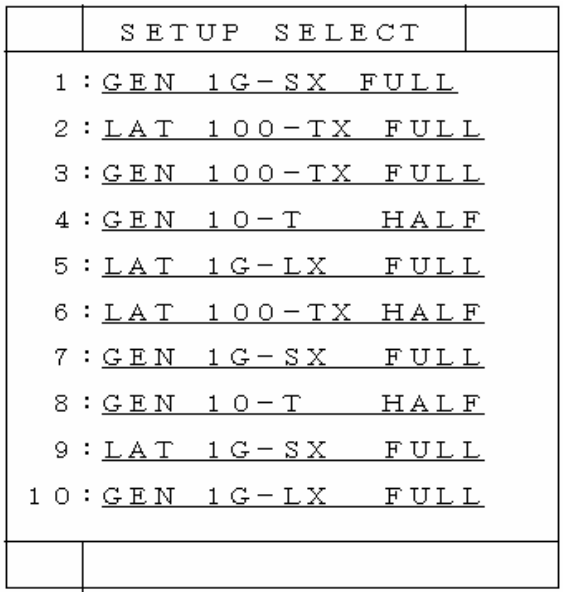


Figure 4.2-8 Setup Select screen

Table 4.2-3 Key Functions (Setup Select screen)

Key	Function
POWER	Power On/Off
↑	To move the cursor
↓	To move the cursor
←	NA
→	NA
RUN	To change to the Online screen
STOP	NA
DISP	To return to the Mode Select screen
ENTER	To change to the Setup screen
UP	NA
DOWN	NA

NOTE

Strings shown in Figure 4.2-8 are specified for the AE5730E. These strings cannot be edited on the AE5501.

4.2.6 ONLINE Screen

This screen is displayed while the measurement operation is running. Figure 4.2-9, Figure 4.2-10, Figure 4.2-11 and Figure 4.2-12 show examples of the Online screen. For the location where the items are displayed, refer to Table 4.2-4. For the functions of the keys, refer to Table 4.2-9.

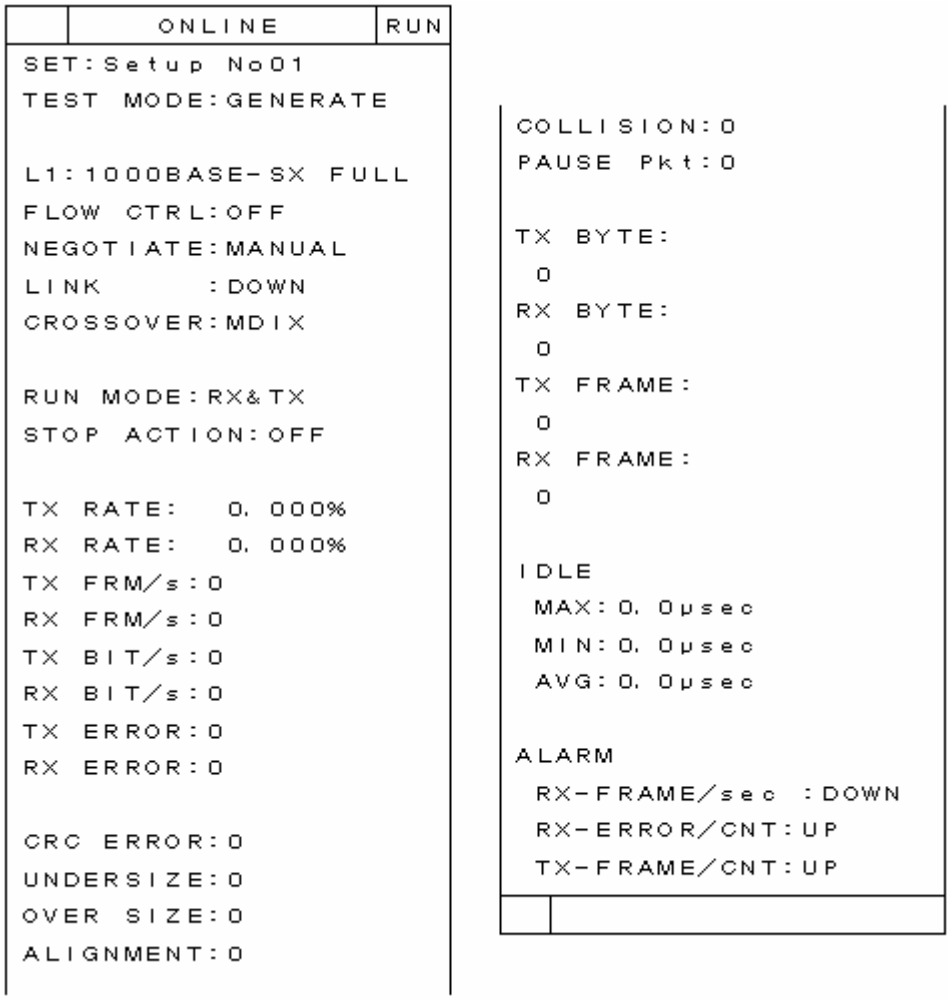


Figure 4.2-9 Online screen 1 (Generate mode)

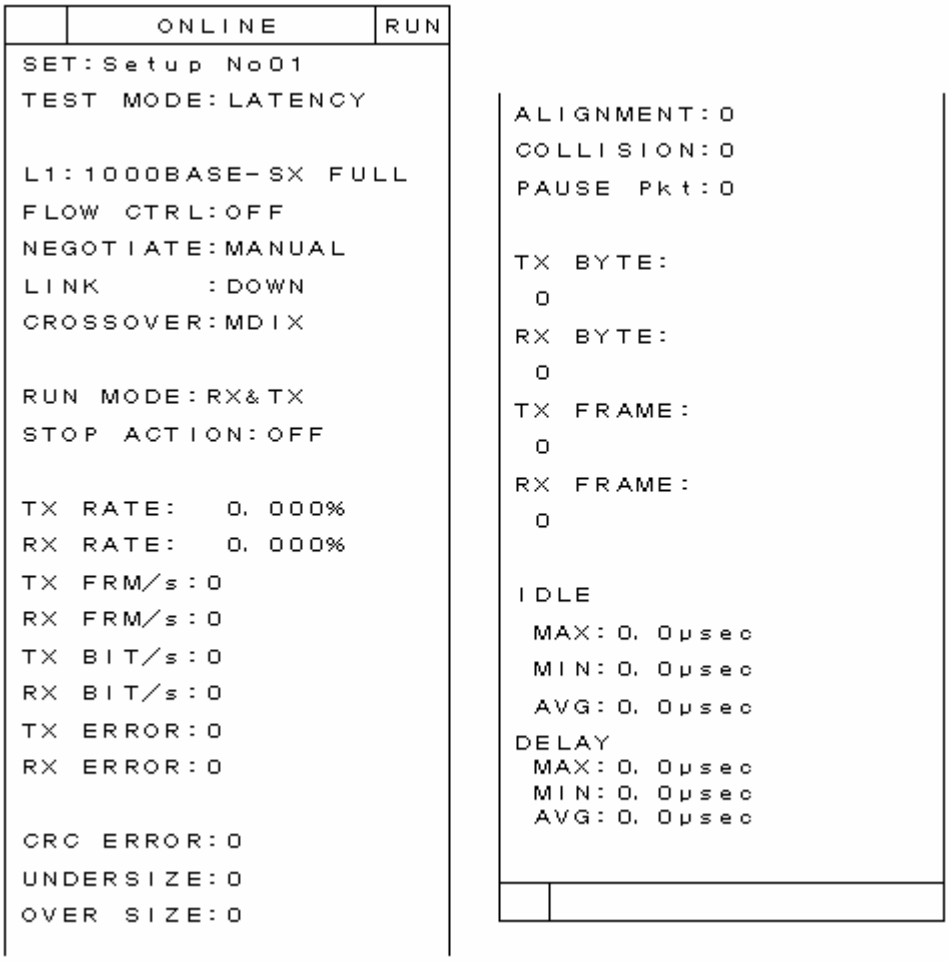


Figure 4.2-10 Online screen 2 (Latency mode)

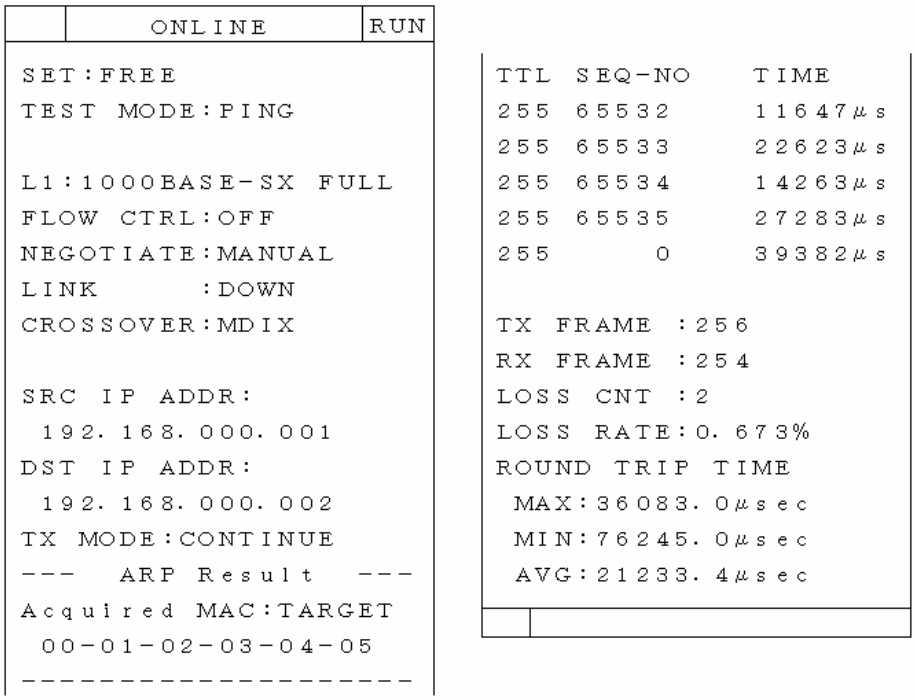
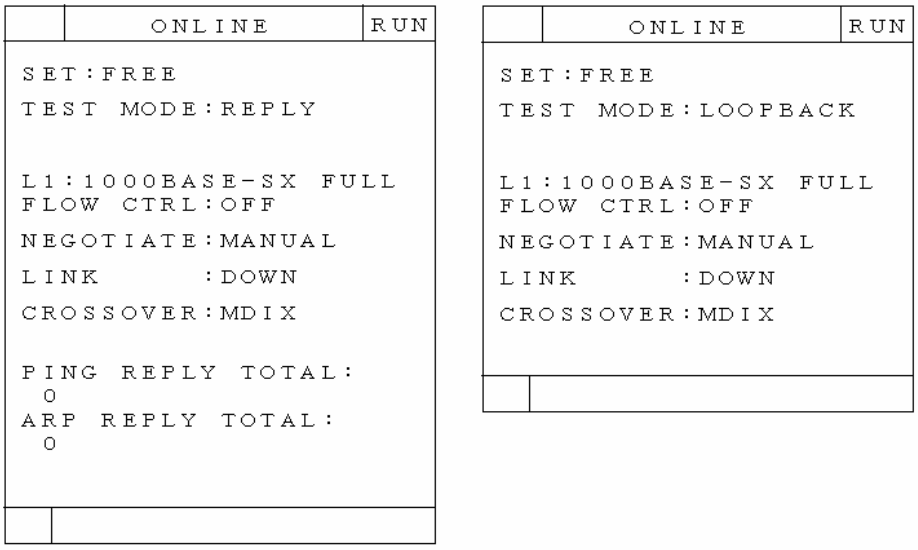


Figure 4.2-11 Online screen 3 (Ping mode)



(a) Reply mode (b) Loop Back mode

Figure 4.2-12 Online screen 4 (Reply or Loop Back mode)

Table 4.2-4 Item Display Location

Item	Display location
Items common to all modes	Table 4.2-5
Items common to the Generate and Latency modes	Table 4.2-6
Ping mode item	Table 4.2-7
Reply mode item	Table 4.2-8

Table 4.2-5 Display Contents Common to All Modes

Display	Description
SET	Setup name used for measurement
TEST MODE	Test mode during measurement
L1	Line type during measurement
FLOW CTRL	Transmission control on/off when receiving PAUSE frames
NEGOTIATE	Auto-negotiation on/off
LINK	Link status of Layer 1 during measurement
CROSSOVER	Indicates the current connector specification (CROSSOVER STATUS) of the measuring port for 10BASE-T, 100BASE-TX and 1000BASE-T as MDI (straight cable), MDIX (cross cable) and AUTO (auto-detect). For further details, see Section ***.

NOTE

When the auto-negotiation operation is performed, FLOW CTRL is judged as follows.
10M/100M
FLOW CTRL support is determined only if the BaseLCW PAUSE bit is set to ON at either the local or remote end.
1000M
FLOW CTRL support is determined when the AE5501 judgment is “Symmetric” or “Asymmetric>Loac Device” as a result of negotiations.

Table 4.2-6 Items Common to the Generate and Latency Modes

Display	Description
STOP ACTION	To indicate on/off of the test time setting
TX RATE	Transmitter's traffic rate per second
RX RATE	Receiver's traffic rate per second
TX FRM/S	Number of transmitted frames per second
RX FRM/S	Number of received frames per second
TX BIT/S	Number of transmitted bits per second
RX BIT/S	Number of received bits per second
TX ERROR	Total number of transmission errors
RX ERROR	Total number of reception errors
CRC ERROR	Number of received CRC errors
UNDERSIZE	Number of received undersize errors
OVERSIZE	Number of received oversize errors
ALIGNMENT	Number of received alignment errors Number of received symbol errors
COLLISION	Total number of collisions
PAUSE Pkt	Total number of received PAUSE packets
TX BYTE	Total number of transmitted bytes
RX BYTE	Total number of received bytes
TX FRAME	Total number of transmitted frames
RX FRAME	Total number of received frames
IDLE	Maximum/Minimum/Average idle time
ALARM	Alarm setting at the following values (applicable to Generate mode only) Received frames per second Number of transmitted frames Number of received error packets
DELAY	Delay time (applicable to Latency mode only)

NOTE

A count isn't done as a receiving frame though an ARP reply frame is transmitted even if it faces the ARP request frame which is applicable to the filter condition.
Don't do plugging in and out of the cable being connected to the measurement port during the transmission of the frame and the reception because it has the possibility that the transmission of the frame and reception can't be done properly any more.

Table 4.2-7 Ping Mode Items

Display	Description
SRC IP	IP address of the measuring port
DST IP	Transmitter IP address
SRC MAC	MAC address of the measuring port
TX MODE	Measurement termination condition
ARP RESULT	Displays the result of ARP processing
PING	Displays the latest 5 responses to Ping request
TX FRAME	Total number of transmitted frames
RX FRAME	Total number of received frames
LOSS CNT	Number of counts when there is no response to requests
LOSS RATE	LOSS CNT occurrence rate for the number of transmitted frames

Table 4.2-8 Reply Mode Items

Display	Description
PING REPLY TOTAL	Number of Ping responses
ARP REPLY TOTAL	Number of ARP responses

Table 4.2-9 Key Functions (Online screen)

Key	Description
POWER	Power on/off
↑	Screen scrolling
↓	
←	Jump to the previous blank line
→	Jump to the next blank line
RUN	NA
STOP	Display the Offline screen
DISP	NA
ENTER	Pause and restart
UP	NA
DOWN	NA

NOTE

The upper left display of the screen (shown as (3) in Figure 4.2-1) differs depending on the RUN modes. In the receive-only mode, “RUN” appears as a normal image and in the transmitting/receiving mode, “RUN” appears as a reversed image (light and shade are reversed).
When “RX->TX” is specified in the RUN mode, the chronological order of operations is as shown in the following chart:
R: Input by the RUN key
S: Input by the STOP key

```
                                  ---R-----R---------S-------R------S------------S-----
Reception and statistics    +-----------------------------------------+
Transmission                          +---------+         +------+
```

NOTE

OFFLINE statistical values of TX/RX RATE, FRM/S and BIT/S are as follows.

Operation before R03.10
When the measurement ends, the TX/RX Rate is registered. When the user operates PAUSE function while measuring, AE5501 registers the TX/RX Rate of that point in time.

1 When RUN and STOP occur within 1 second:

```
+----------+--R----S--+----------+----------+----------+-----
```

All statistical values will be displayed as 0.

2 When there is one 1-second boundary between RUN and STOP:

```
+----------+--R-------+----S-----+----------+----------+-----
           (1)         (2)
```

All statistics will be registered with the values in (2).

3 When there is more than one 1-second boundary between RUN and STOP:

```
+----------+--R-------+----------+----------+------S---+-----
           (1)         (2)         (3)         (4)
```

All statistics will be registered with the values in (4).
*TX/RX Rate, FRM/S, BIT/S are statistics of the same measurement interval.

Operation after R03.12
The peak TX/RX Rate while measuring are registered automatically.

As in the figure, when rate change, TX Rate, TX FRM/S, TX BIT/S are registered at the interval of 80%, RX Rate, RX FRM/S, RX BIT/S are registered at the interval of 70%.

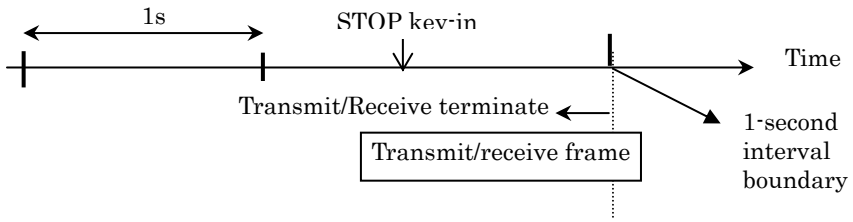
Other operating conditions are as follows.

1. When link-speed is changed while measuring, the peak TX/RX rate which were registered are cleard. TX/RX rate which were registered by PAUSE function also cleared.
2. When Link-Down occured while measuring, if link-speed is not changed after the Link-Up, the peak TX/RX rate which were registered are not cleared.

NOTE

Statistical data is added and displayed at 1-second intervals in the Generate and Latency modes.

If measurement is terminated using the STOP key, transmission/reception will end at the boundary of the next 1-second interval after keying in STOP. If a frame is not completely transmitted/received, transmission will be completed and measurement will end in the case of a transmission operation. The frame will be abandoned in the case of a receiving operation.



Transmission may start if the measurement operation is run before a link is fully established. Establish the link first and then run the measurement.

If the time exceeds that defined in TIME, an alarm will be generated and measurement will be automatically terminated.

If the number of counts is defined in the Ping mode, an alarm will be generated and measurement will be automatically terminated after the defined numbers of counts are transmitted and the time specified in INTERVAL TIME elapses.

If UP is selected in the alarm conditions, the alarm shall be effected at the point where the statistical value in question exceeds the threshold by ***. If DOWN is selected in the alarm conditions, the alarm shall be effected at the point where the statistical value in question falls below the threshold by ***.

Loop Back mode operations are based on the assumption that they are being used on full duplex lines.

NOTE

If a link is not established before you open the Online screen (or start measuring), the following message will be displayed. If you press OK, the measurement operation will begin without an established link.

Now Link Down
Continue?

CANCEL OK

If there are already 100 measurement results files at the time you open the Online screen (or start measuring), a delete confirmation screen will be displayed for the oldest file. If you press OK, the oldest file will be deleted and the measurement operation will begin.

File Count 100
Delete OK?

CANCEL OK

If measurement is completed within 1 second after starting, a new measurement results file will not be generated.
Measurement results will be saved as files at the time of measurement termination. Files will be named after the measurement termination time. (For example, if the measurement terminates at 12:34’ 56” on June 30, 2002, the file name will be 020630123456.re).

NOTE

The ARP RESULT items shown on the PING screen are as follows.

Acquired MAC	TARGET	Applies to equipment with IP address specified in DST IP
	GATEWAY	Applies to equipment with IP address specified in GATEWAY
MAC		MAC address acquired by ARP process

4.2.7 Off Select Screen

Choosing [FILE VIEW] on the Mode Select screen displays the Off Select screen. Up to 100 result files can be saved. Figure 4.2-13 shows the Off Select screen and Table 4.2-10 describes the functions of the keys.

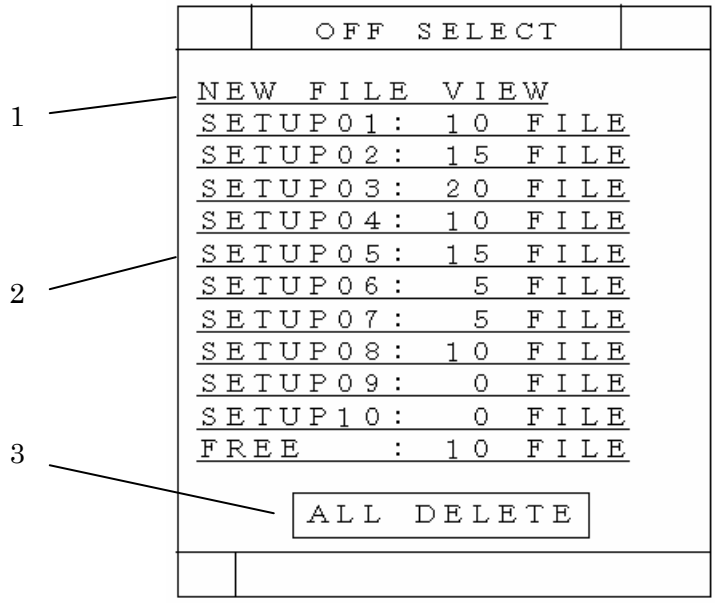


Figure 4.2-13 Off Select screen

Table 4.2-10 Key Functions (Off Select Screen)

Key	Description
POWER	Power on/off
↑	To move the cursor
↓	To move the cursor
←	NA
→	NA
RUN	NA
STOP	NA
DISP	To return to the Mode Select screen
ENTER	To change to the Setup screen
UP	NA
DOWN	NA

1 Select [NEW FILE VIEW] and press the ENTER key to change to the Offline screen and display the latest results files.

2 Select FREE on Setup 01 and press the ENTER key to change to the File Select screen corresponding to the specified setup.

3 Press the ENTER key on [ALL DELETE] to delete all results files.

4.2.8 File Select Screen

This screen displays the results that have been measured under Setup Nos. 1–10 and the FREE settings. Figure 4.2.13 shows the File Select screen and Table 4.2-11 describes the functions of the keys.

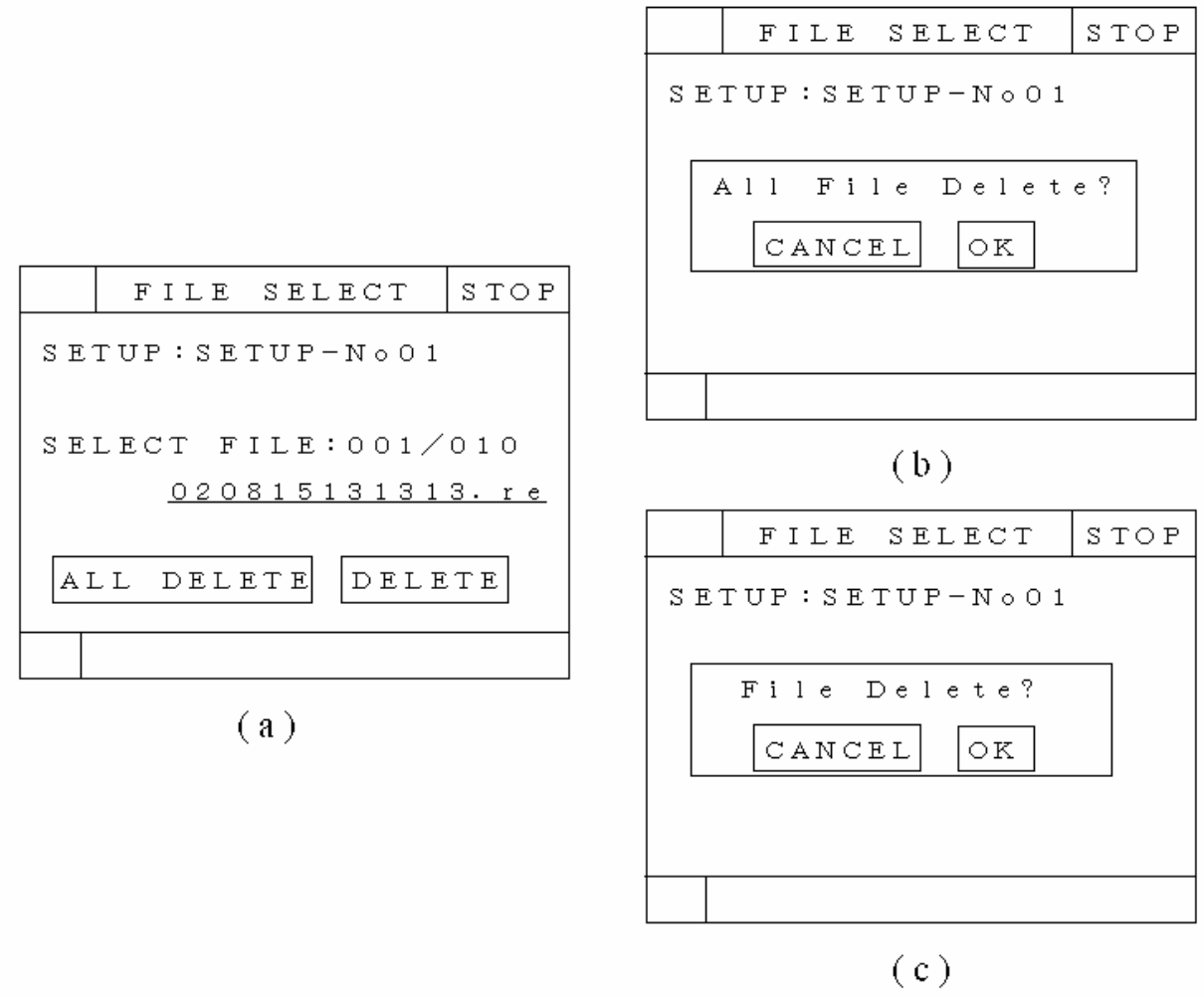


Figure 4.2-14 File Select screen

(a) This is the File Select initial screen.
(b) This screen appears when you select [ALL DELETE] on (a).
(c) This screen appears when you select [DELETE] on (a).

Table 4.2-11 Key functions (File Select screen)

Key	Description
POWER	Power on/off
↑	To move the cursor
↓	To move the cursor
←	To move the cursor
→	To move the cursor
RUN	NA
STOP	NA
DISP	To return to the Off Select screen
ENTER	Pressing this key on a file name displays the Offline screen. Pressing this key on [ALL DELETE] or [DELETE] displays the respective screen.
UP	To change a display item.
DOWN	

The following provides a description of the screen elements.

2 SETUP FILE
The name of the setup file is indicated. Any one of Setup Nos. 1–10 and the FREE settings will be displayed.

3 Number of files
The number of files of measurement results that were performed under a specified setup file name will be displayed in the form of “Current number of files/Total number of files.”

4 File name
The name of the results file will be displayed in the form of “Year (last 2 digits) / Month / Day / Hour / Minute / Second” when measurement is completed.

5 ALL DELETE button
Pressing this button will delete all results files generated under a specified setting.

6 DELETE button
Pressing this button will delete the currently specified results file.

4.2.9 OFFLINE Screen

This screen displays measurement results. Figure 4.2-15, Figure 4.2-16, Figure 4.2-17 and Figure 4.2-18 show examples of the Offline screen. For details of the display items, see Table 4.2-12. The functions of the keys are explained in Table 4.2-17.

An example of the Offline screen in the Generate mode is shown below.

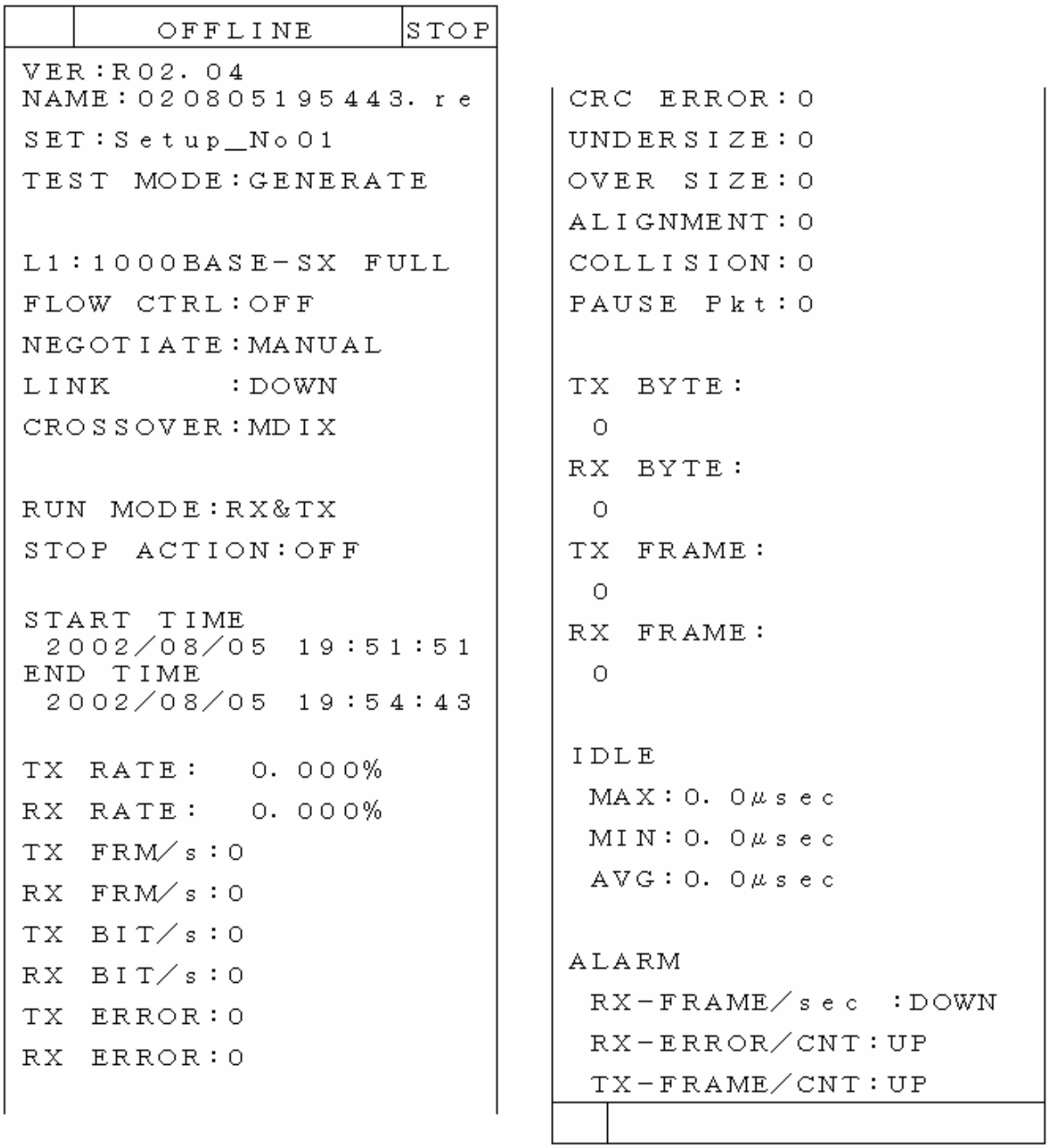


Figure 4.2-15 Offline screen 1 (Generate mode)

An example of the Offline screen in the Latency mode is shown below.

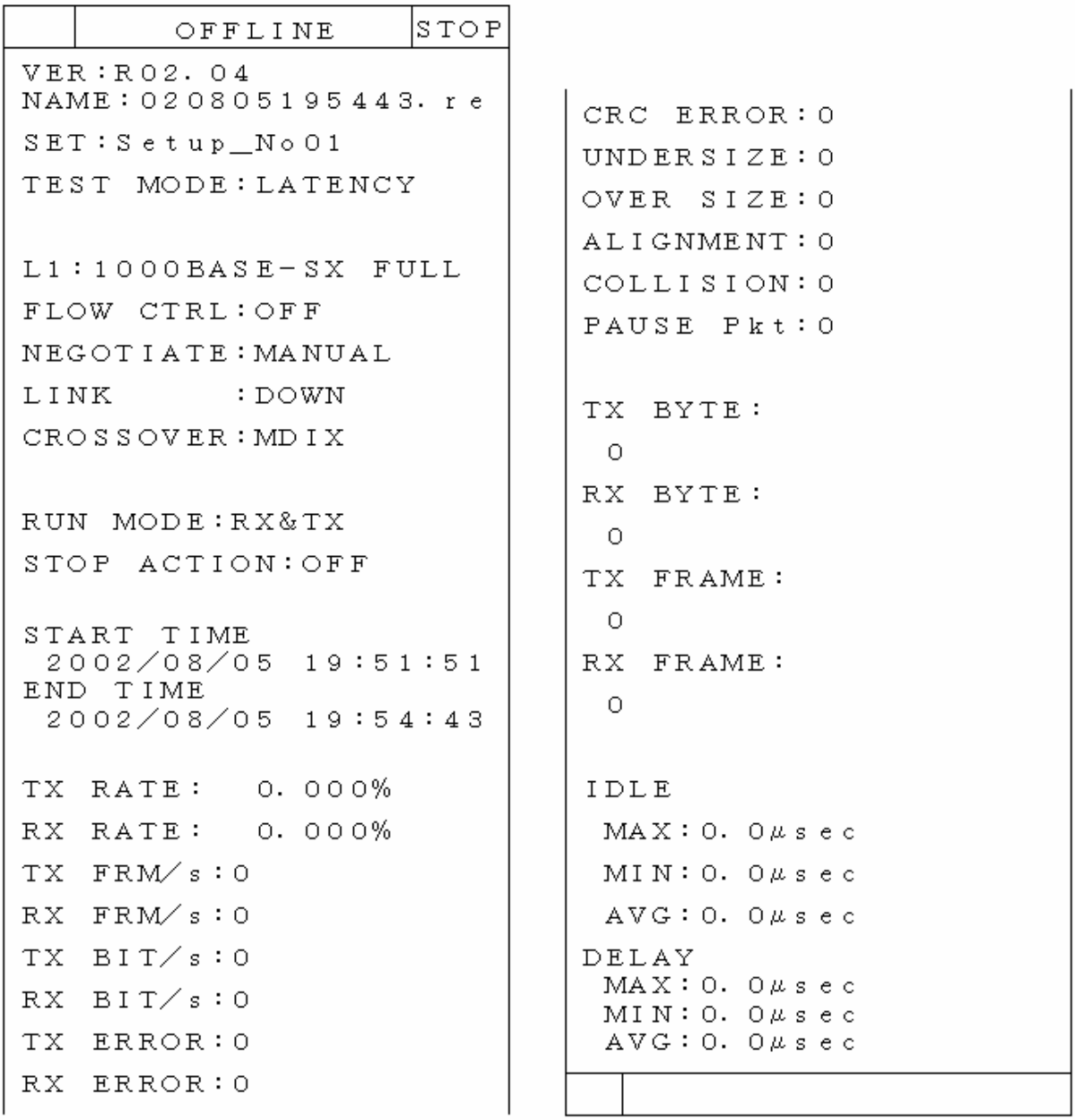


Figure 4.2-16 Offline screen 2 (Latency mode)

An example of the Offline screen in the Ping mode is shown below.

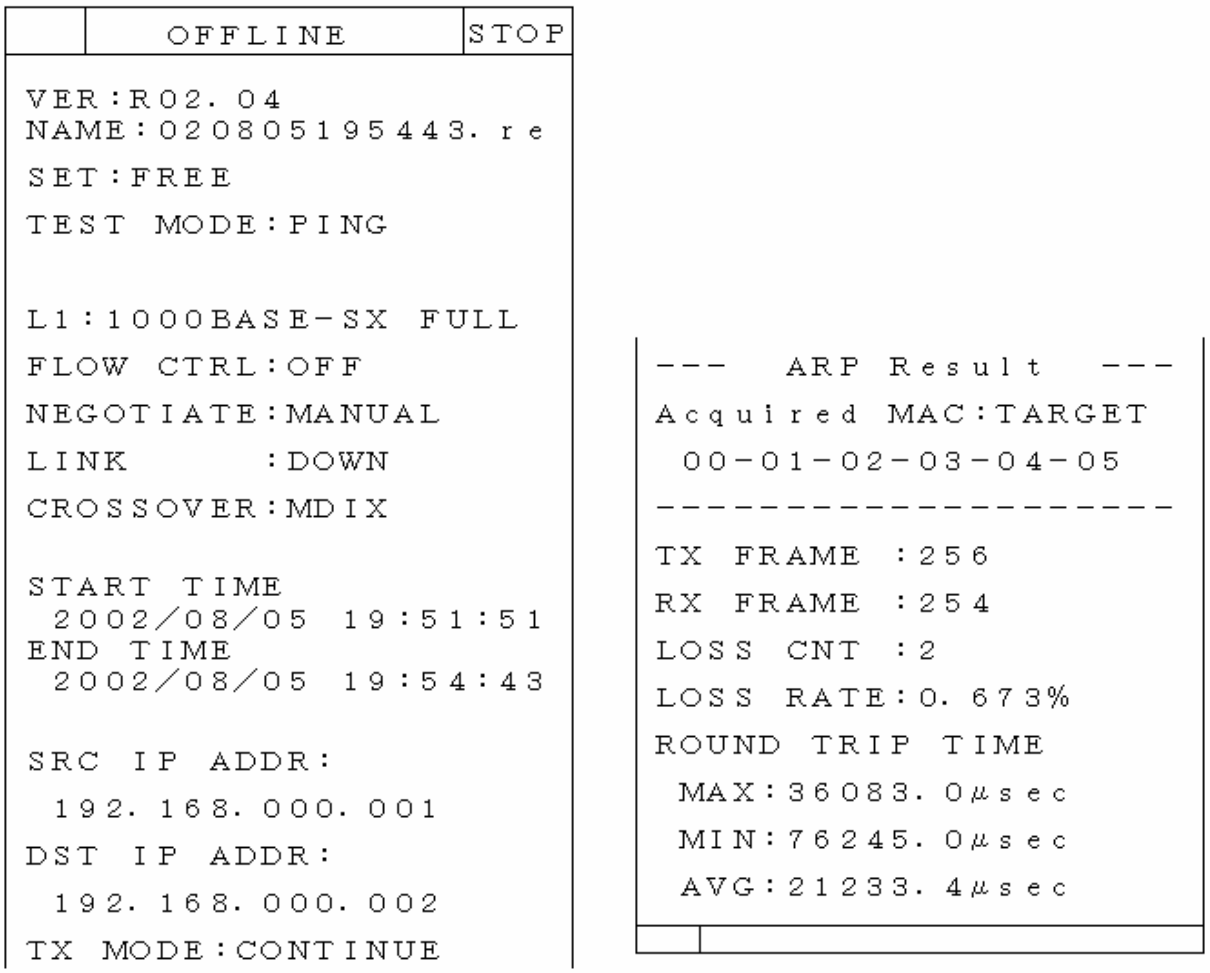
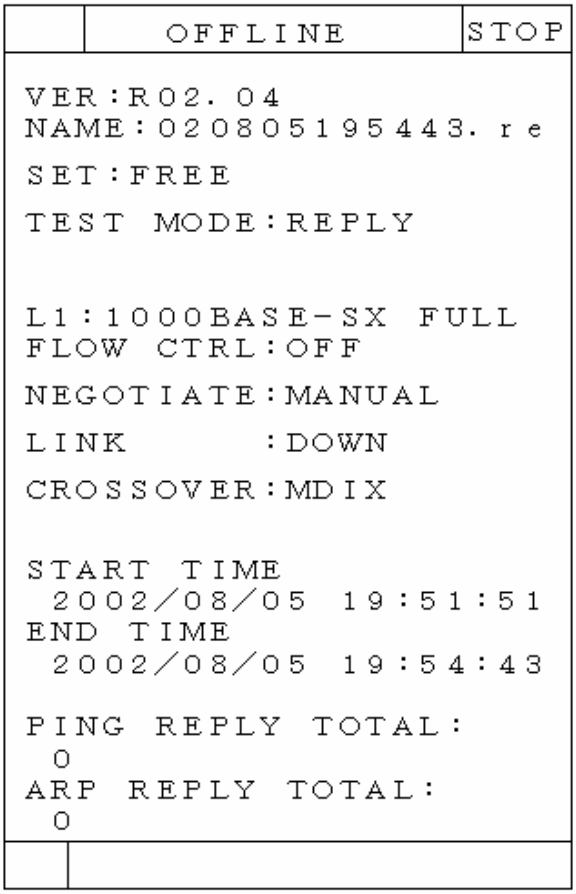
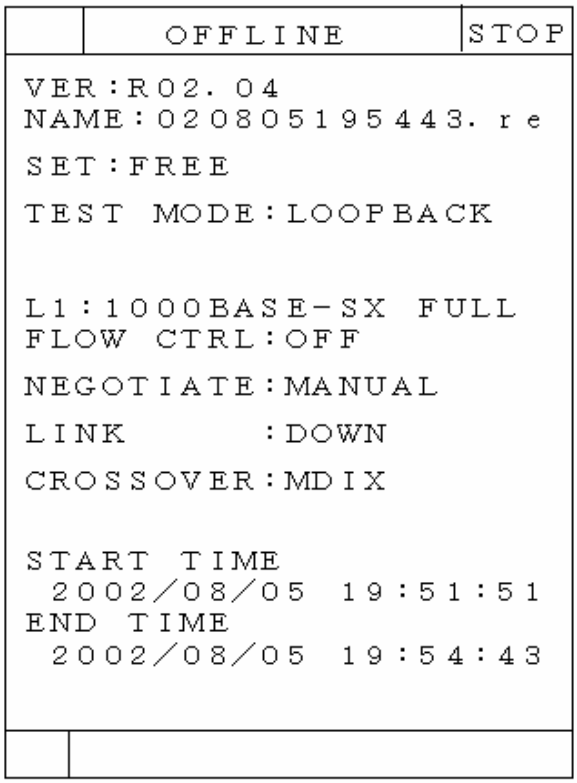


Figure 4.2-17 Offline screen 3 (Ping mode)

Examples of the Offline screen in the Reply and Loop Back modes are shown below.



Reply mode



Loop Back mode

Figure 4.2-18 Offline screen 4 (Reply and Loop Back modes)

Table 4.2-12 Item Display Location

Description	Display location
Items common to all modes	Table 4.2-13
Items common to the Generate and Latency modes	Table 4.2-14
Ping mode items	Table 4.2-15
Reply mode item	Table 4.2-16

Table 4.2-13 Display Items Common to All Modes

Display	Description
VER	Current version information
NAME	Results file name
SET	Name of the setup used for measurement
TEST MODE	Test mode at the time of measurement
L1	Line type when measurement ends (when the STOP key is pressed)
FLOW CTRL	Transmission control on/off when receiving PAUSE frames
NEGOTIATE	Auto-negotiation on/off
LINK	Status of Layer 1 link when measurement ends (when the STOP key is pressed)
CROSSOVER	Displays the connector specification (CROSSOVER STATUS) of the measuring port for 10BASE-T, 100BASE-TX and 1000BASE-T when measurement ends.
START TIME	Start time of measurement displayed in the form YY/MM/DD/HH/MM/SS.
END TIME	End time of measurement displayed in the form YY/MM/DD/HH/MM/SS.

Table 4.2-14 Display Items Common to the Generate and Latency Modes

Display	Description
STOP ACTION	To indicate on/off of the test time setting
TX RATE	Transmitter's traffic rate value at the time when measurement ends *1
RX RATE	Receiver's traffic rate value at the time when measurement ends *1
TX FRM/S	Number of transmitted frames at the time when measurement ends *1
RX FRM/S	Number of received frames at the time when measurement ends *1
TX BIT/S	Number of transmitted bits at the time when measurement ends *1
RX BIT/S	Number of received bits at the time when measurement ends *1
TX ERROR	Total number of transmission errors
RX ERROR	Total number of reception errors
CRC ERROR	Number of received CRC errors
UNDERSIZE	Number of received undersize errors
OVERSIZE	Number of received oversize errors
ALIGNMENT	Number of received alignment errors Number of received symbol errors
COLLISION	Total number of collisions
PAUSE Pkt	Total number of received PAUSE packets
TX BYTE	Total number of transmitted bytes
RX BYTE	Total number of received bytes
TX FRAME	Total number of transmitted frames
RX FRAME	Total number of received frames
IDLE	Maximum/Minimum/Average idle time
ALARM	Alarm setting at the following values (applicable to the Generate mode only) (1) Frames per second (2) Number of transmitted frames (3) Number of received error packets
DELAY	Delay time (applicable to the Latency mode only)

1: As an exception, however, statistical values at the time of PAUSE will be displayed if the PAUSE operation is run (input by ENTER key) while online.

NOTE
A count isn't done as a receiving frame though an ARP reply frame is transmitted even if it faces the ARP request frame which is applicable to the filter condition.

Table 4.2-15 Ping Mode Display Items

Display	Description
SRC IP	IP address of the measuring port
DST IP	Transmitter IP address
SRC MAC	MAC address of the measuring port
TX MODE	Measurement termination condition
TX FRAME	Total number of transmitted frames
RX FRAME	Total number of received frames
LOSS CNT	Number of counts when there is no response to requests
LOSS RATE	LOSS CNT occurrence rate for the number of transmitted frames

Table 4.2-16 Reply Mode Display Items

Display	Description
PING REPLY TOTAL	Number of Ping responses
ARP REPLY TOTAL	Number of ARP responses

Table 4.2-17 Key Functions (Offline screen)

Key	Description
POWER	Power on/off
↑	Screen scrolling
↓	
←	To jump to the previous blank line
→	To jump to the next blank line
RUN	NA *
STOP	NA
DISP	To return to the File Select screen
ENTER	NA
UP	NA
DOWN	NA

*If measurement is terminated, the Offline screen will be displayed. The RUN key is effective only on this particular Offline screen and measurement can be rerun immediately.

NOTE

OFFLINE statistical values of TX/RX RATE, FRM/S and BIT/S are as follows.

Operation before version R03.10

When the measurement ends, rate information is stored.When the user operated the PAUSE function while measuring, AE5501 store the rate information of that point in time.

1 When RUN and STOP occur within 1 second:

```
+----------+--R----S--+----------+----------+----------+-----
```

All statistical values will be displayed as 0.

2 When there is one 1-second boundary between RUN and STOP:

```
+----------+--R-------+----S-----+----------+----------+-----
      (1)      (2)
```

All statistics will be registered with the values in (2).

3 When there is more than one 1-second boundary between RUN and STOP:

```
+----------+--R-------+----------+----------+------S---+-----
      (1)      (2)      (3)     (4)
```

All statistics will be registered with the values in (4).

*TX/RX Rate, FRM/S, BIT/S are become information of the same interval.

Operation sinse version R03.12

The peak rate information of TX and RX in while measuring is stored automatically.

As in the figure, when rate change, TX rate information is stored information at the time of 80%, RX rate information is stored information at the time of 70%.

Other operating conditions are as follows.

3. When curcuit-speed is changed while measuring, AE5501 clears the peak rate information which was stored. AE5501 clears alse the rate infromation which was stored by PAUSE function.
4. When Link-Down occured while measuring, if circuit-speed after the Link-Up and ciruit-speed before the Link-Down are same, AE5501 don't clear the peak rate information which is stored.

4.2.10 Setup Screen

This screen is used for editing the setup contents of the Generate and Latency modes. Press the ENTER key on an item that you want to edit on the Setup Select screen and the screen will be displayed. On this screen, you can edit items set up by the AE5730E TrafficTesterMini Setup Software.
Figure 4.2-19 shows a sample screen in the Generate mode and Figure 4.2-20 shows a sample screen in the Latency mode.

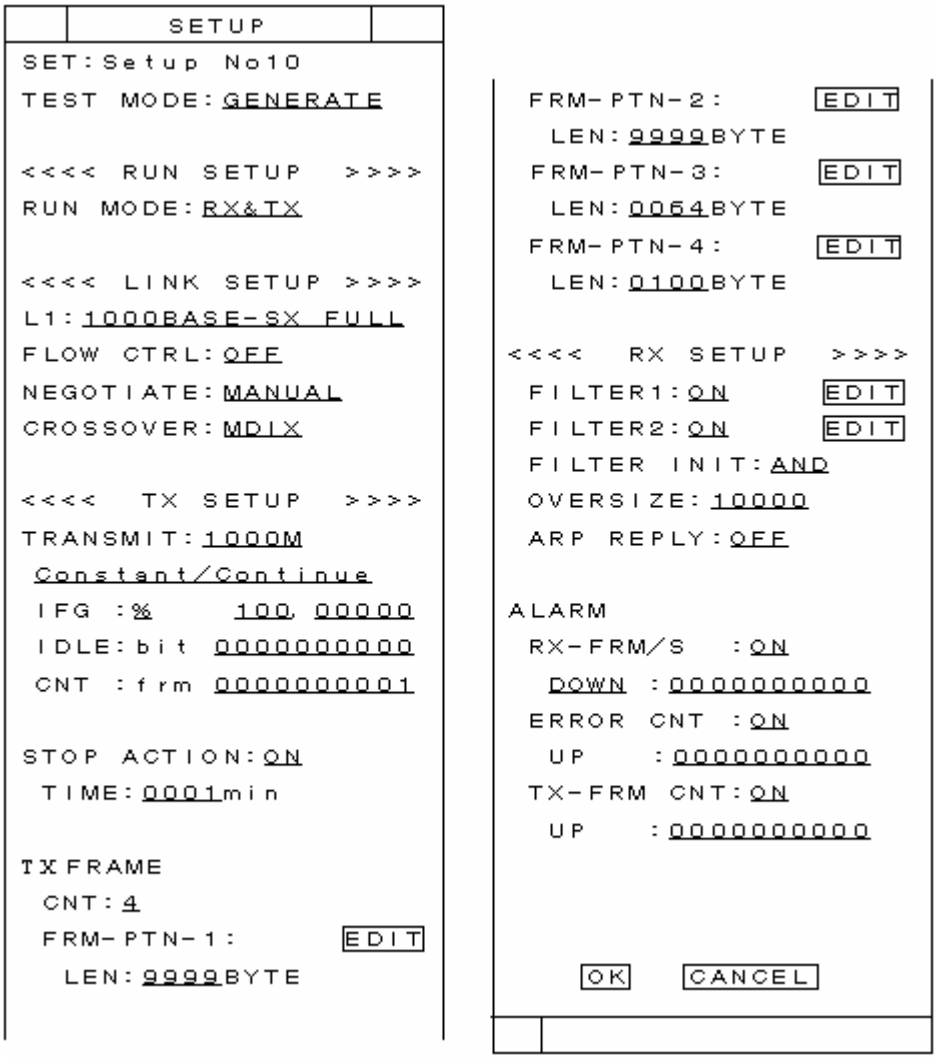


Figure 4.2-19 Setup screen in the Generate mode

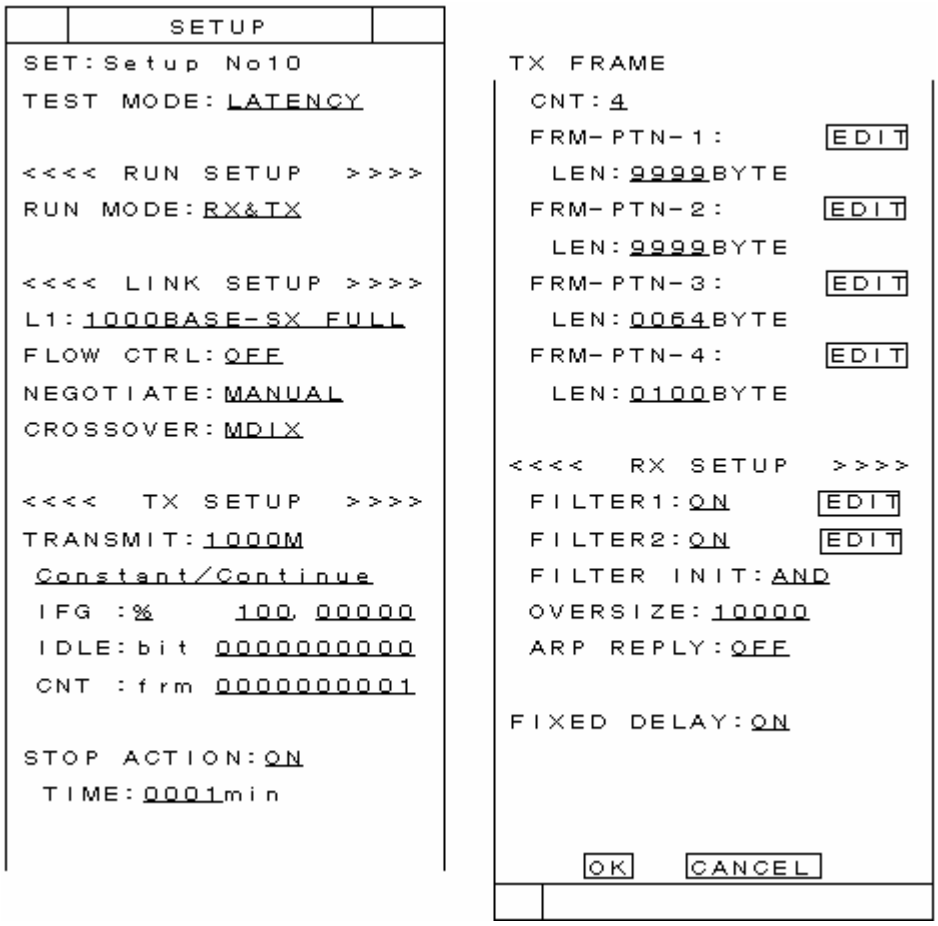


Figure 4.2-20 Setup screen in the Latency mode

The following provides a description of the screen elements.

1 RUN SETUP

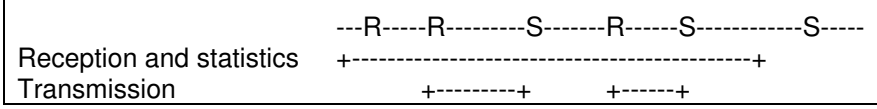
Select RX&TX or RX→TX as a measuring method when running the operation. Table 4.2-18 explains the display items and setup details. The upper left display of the screen (shown as (3) in Figure 4.2-1) differs depending on what mode it is running in. In the receive-only mode, “RUN” is displayed as a normal image and in the transmitting/receiving mode, “RUN” is displayed as a reversed image (light and shade are reversed).

Table 4.2-18 RUN Setting

Display element	Description
RUN MODE	Select RX&TX or RX->TX. RX&TX. When the RUN button is pressed, transmission and reception will start at the same time and when the STOP button is pressed, both will be terminated. RX→TX. When the RUN button is pressed once, only reception will start. When the button is pressed again, transmission will start also. When the STOP button is pressed once, transmission will end and when the button is pressed again, reception will terminate also.

NOTE

When [RX→TX] is selected for the RUN mode, the chronological order of operations is as shown in the following chart:
R: Input by the RUN key
S: Input by the STOP key



2 LINK SETUP

This screen is used for setting up links. Table 4.2-19 explains the display items and setup details.

Table 4.2-19 Layer 1 Settings

Display element	Description
SET	Name of the setup used for measurement
TEST MODE	Indicates that it is in the test mode (the test mode cannot be changed)
L1	Select the setup for line speed, communication method and interface from the following: 10BASE-T HALF, 10BASE-T FULL 100BASE-TX HALF, 100BASE-TX FULL 1000BASE-T/SX/LX FULL
FLOW CTRL	To select on/off of the flow control
NEGOTIATE	To select manual- or auto-negotiation
CROSSOVER	You can choose the connector specification (CROSSOVER STATUS) of the measuring port for 10BASE-T, 100BASE-TX and 1000BASE-T from MDI (straight cable), DIX (cross cable) and AUTO (auto-detect). For further details, see Section ***.

CAUTION

If AUTO is selected, the line speed and duplex type you select will have the capability settings of auto-negotiation.For example, if you select AUTO for 100BASE-TX half duplex, the device will have three types of auto-negotiation capability such as 100BASE-TX half duplex, 10BASE-T half duplex and full duplex.

Interfaces to which you can switch from the auto-negotiation are as follows:

100BASE-TX.Full
100BASE-TX.Half
10BASE-T.Full
10BASE-T.Half

* Only 1,000 Mbps full duplex is available for all three 1000BASE-T, 1000BASE-SX and 1000BASE-LX.

If AUTO is selected for CROSSOVER, the connector specification (CROSSOVER STATUS) of the current measuring port for 10BASE-T, 100BASE-TX and 1000BASE-T will be displayed on the Setup DISP screen or Online screen.

Don't do plugging in and out of the cable being connected to the measurement port during the transmission of the frame and the reception because it has the possibility that the transmission of the frame and reception can't be done properly any more.

NOTE

If the following status is specified for L1 setting, you cannot save the setting. Check the currently implemented interface and settings.

<L1 setting>	GBIC
1 1000BASE-T	GBIC is implemented (SX or LX).
2 1000BASE-SX	GBIC is not implemented or GBIC for LX is implemented.
3 1000BASE-LX	GBIC is not implemented or GBIC for SX is implemented.

<Messages to be displayed>
When 1 is effected: “Pull out GBIC module.”
When 2 or 3 is effected: “I/F mismatch”

NOTE

Settings are made as follows when auto-negotiation=ON and FLOW CTRL=ON.
10M/100M electric interface
BaseLCW D10 is set to “1”.
1000M electric interface
BaseLCW D10 and D11 are set to “1”.
10M/100M optical interface (GBIC)
BasePage D7 and D8 are set to “1”.

3 TX SETUP

This setting is the traffic condition (load factor) for the lines to be measured. The setup value will determine the load factor. For setup edits on the AE5501, IFG can be set up in bits and percentages and IDLE can be set up in bits only.

This is the setup for transmitting frames. Display items and setup details are as follows.

Table 4.2-20 Transmission Setup

Display example	Description	
TRANSMIT	To define the line speed for calculating IFG. Choose from 10 M, 100 M or 1000 M.	
Constant.Count	Choose the transmission method and the number of frames to transmit from the following:	
	Constant/Continue	This is a continuous transmission mode. Only the IFG setting is valid.
	Constant/Count	This is a continuous count transmission mode. Only IFG and Count settings are valid.
	Burst/Continue	This is a burst continuous transmission mode. Only IFG and IDLE settings are valid.
	Burst/Count	This is a burst count transmission mode. IFG, IDLE and Count settings are all valid.
IFG	To set up the value between frames. The setup range for IFG differs depending on the value of the line speed as shown below. In the case of 10 Mbps: 32 bits at minimum, 9999424 bits at maximum, the rate of change = 4 In the case of 100 Mbps: 32 bits at minimum, 99999424 bits at maximum, the rate of change = 4 In the case of 1000 Mbps: 32 bits at minimum, 999999424 bits at maximum, the rate of change = 32	
IDLE	To set up the IDLE time. The setup range for IDLE differs depending on the value of the line speed as shown below. In the case of 10 Mbps: 32 bits at minimum, 2500000000 bits at maximum, the rate of change = 4 In the case of 100 Mbps: 32 bits at minimum, 2500000000 bits at maximum, the rate of change = 4 In the case of 1000 Mbps: 32 bits at minimum, 3125000000 bits at maximum, the rate of change = 32	
CNT	The number of frames for transmission can be specified in the range from 1 to 4294967295 in decimal numbers.	

NOTE

The receiver capability of this device cannot operate properly when the IFG value is specified below the following values:

10BASE-T.32 bits
100BASE-TX.48 bits
1000BASE-T.64 bits
1000BASE-LX/SX.32 bits

There are two kinds of IFG units: bit and percentage. The conversion formula between bit and percentage is as follows:

% = (96 + 64 + Average frame length (in bits)/(IFG (in bits) + 64 + Average frame length (in bits)) x 100

The average frame length is defined as the average value of the number of registered frames.

4 STOP ACTION

This sets up the test time for the Generate and Latency modes. The setup items and details are as follows.

Display item	Description
STOP ACTION	To select on/off of the test time setting
TIME	The test time can be specified in the range from 0001 to 1440 in decimal numbers. The unit is a “minute.”

5 TX FRAME

This sets up the frames to be transmitted. If you select the EDIT button displayed on the right of [FRM-PTN-1–4], the following screen will appear:

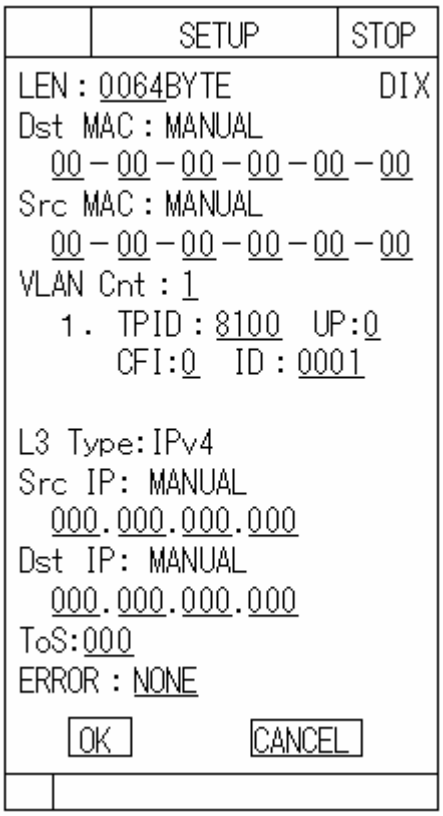


Figure 4.2-21 Frame Transmission Setup screen

The setup items and details are as follows.

Figure 4.2-22 TX FRAME SETUP 1

Item	Subitem	Description
LEN		To set up the frame length. This can be specified in the range from 26 to 9999 bytes.
Dst MAC	Address	Sets the address resolution results from the ARP process on the ARP screen. If the address is not resolved, “00-00-00-00-00-01” is set.
	MANUAL	This can be specified in the range from 0 to f in hexadecimal numbers.
	ARP	An address acquisition result by ARP on the ARP screen is established.
Src MAC	Address	To define the source MAC address.
	MANUAL	This can be specified in the range from 0 to f in hexadecimal numbers.
	GLOBAL	If GLOBAL is selected, a global MAC address that is specific to this device will be selected.
	DHCP	The SRC MAC value set on the DHCP screen is set.
VLAN Cnt		Shows the number of stacks in VLAN tags.
TPID		Shows the tag protocol ID in 4 hexadecimal numbers at maximum.
UP		You can specify the user priority of each frame here. This can be specified in the range from 0 to 7 in decimal numbers.
CFI		You can choose on/off of frame CFI.
ID		You can specify the VLAN ID of each frame here. This can be specified in the range from 0 to 4095 in decimal numbers.

Figure 4.2-23 TX FRAME SETUP 2

Item	Subitem	Description
Type		The kind of layer 3 protocol of the frame can be specified. It can be chosen only when it is made the one without MPLS and the one with IPHeader on the Frame builder of AE5730E. When a L3 protocol isn't established, it is indicated with "NONE", and it can't be chosen.
Src IP	Address	To define the source IP address. It can be edited only when the Type is IPv4 or IPv4 Multicast.
	MANUAL	This can be specified in the range from 0 to 10 in decimal numbers.
	DHCP	The SRC IP value set on the DHCP screen is set. If the address is not acquired by DHCP, 192.168.0.1 is set.
Dst IP	Address	This is the destination IP address. It can be edited only when the Type is IPv4. It will be fixed at “224.0.0.1” in the case of IPv4 Multicast.
	MANUAL	This can be specified in the range from 0 to 10 in decimal numbers.
	ARP	The Dst IP value set on the ARP screen is set.
ToS		This is the ToS Field in IPv4 Headder. It can be edited only when the Type is IPv4 or IPv4 Multicast.
ERROR		You can select on/off of the CRC error addition.
OK		Pressing OK saves the setup details and returns the display to the Setup initial screen (previous screen).
CANCEL		Pressing CANCEL cancels the setup and returns the display to the Setup initial screen (previous screen).

NOTE

Type indicates the type of L3 field (IP v4, IP v4-MC or IP v6) when there is an L3 field in the specified frame. However, "NONE” will be displayed in the following cases:

When there is no L3 field in the frame configuration even though IP v4, IP v4-MC or IP v6 is specified in the TYPE field (if the Auto Build is invalid).
For example, in the Frame Builder screen of the AE5730E shown as follows:
Frame Format. DIX
Auto Build. Invalid
TYPE. IPv4

It is indicated as follows though it can't be chosen when MPLS is specified with TYPE.
IPv4(MPLS)
IPv4-MC(MPLS)
IPv6(MPLS)
USER(MPLS)

6 RX SETUP

This is the field for setting received frames. Only those frames with a filter pattern defined here will be measured.

This is the field for setting the filter. Table 4.2-21 explains the display items and setting details.

Table 4.2-21 Filter Settings

Display item	Description
FILTER1	You can turn the setting of Filter 1 on or off. If you select ON, the EDIT button will appear to allow you to set the filter.
FILTER2	You can turn the setting of Filter 2 on or off. If you select ON, the EDIT button will appear to allow you to set the filter.
FILTER INIT	You can select the operating condition for Filters 1 and 2 from AND or OR.

If you select the EDIT button that appears when you choose ON for Filter 1 or 2, you can set the filter on the screen as shown in Figure 4.2-24.

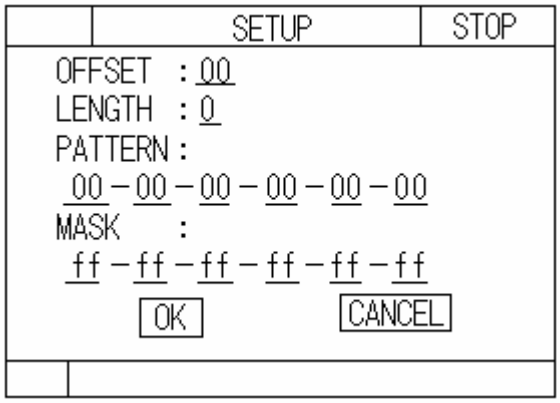


Figure 4.2-24 Filter Setup screen

The meanings of the display items shown in Figure 4.2-24 are as follows.

Table 4.2-22 Filter Setting Details

Display item	Description
OFFSET	The offset value can be specified in the range from 0 to 58 in decimal numbers.
LENGTH	The filter length can be specified in the range from 0 to 6.
PATTERN	Each digit of the filter pattern can be specified in the range from 0 to f in hexadecimal numbers.
MASK	Each digit of the mask pattern can be specified in the range from 0 to f in hexadecimal numbers.
OK	Pressing OK saves the setting details and returns the display to the Setup initial screen (previous screen).
CANCEL	Pressing CANCEL cancels the setting details and returns the display to the Setup initial screen (previous screen).

7 OVER SIZE

This is the threshold value by which it is determined whether or not a received frame is oversized. Any received frame with a length exceeding the preset value will be determined as being oversized.

The threshold value can be specified in the range from 65 to 10000.

8 ARP REPLY

Selects ON/OFF for the ARP reply function. When an ARP request is received from a router or the like while the ONLINE screen is displayed, this function sends an ARP response without canceling measurement. The settings on the DHCP screen are used for the source MAC address and IP address required in the ARP response.

NOTE

A count isn't done as a receiving frame though an ARP reply frame is transmitted even if it faces the ARP request frame which is applicable to the filter condition.

When the following ARP request frame is received, the transmission of the ARP reply frame isn't done.

- The ARP request frame which VLAN tag is added to.
- The ARP request frame which MPLS label is added to.
- The ARP request frame counted as an error frame.
- The ARP request frame that length corresponds to either less than 63byte or beyond 1519byte,the setup value of the overcoat size.

9 ALARM (Generate mode only)

By defining the alarm condition for transmitted/received frames, you will be notified when a frame is transmitted and received by both a buzzer and screen display.

Conditions can be set for a specified threshold regarding the items described in Table 4.2-23. Settings can also be made for the alarm. Display items and setup details are shown below.

Table 4.2-23 Alarm settings

Item	Threshold	Conditions
RX-FRM/S	The number of received frames per second can be specified in the range from 0 to 4294967295 (frames/s) in decimal numbers.	UP. Higher than the threshold DOWN. Lower than the threshold
ERROR CNT	The total number threshold of error counts in received frames can be specified in the range from 0 to 4294967295 in decimal numbers.	UP. Higher than the threshold *1
TX-FRM CNT	The number of transmitted frames can be specified in the range from 0 to 4294967295 in decimal numbers.	UP. Higher than the threshold *1

1: Only UP can be specified.

10 FIXED DELAY

When AE5501 of the Latency mode and AE5501 of the Loop back mode are made to stand opposite to each other and an examination is done, it is set up whether the fixed delay time when Loop back treatment takes it is substructed from delay statistics value on the AE5501 of the Latency mode and indicated.

OFF: The delay value indicated becomes value including the treatment time of Loop back.

ON: The delay value indicated becomes value except for the treatment time of Loop back.

4.2.11 Free Setup Screen

Press the ENTER key at PING, REPLY or LOOPBACK on the Mode Select screen to display the Free Setup screen. You can choose any one of Ping, Reply or Loop Back modes and make the settings for the selected mode.

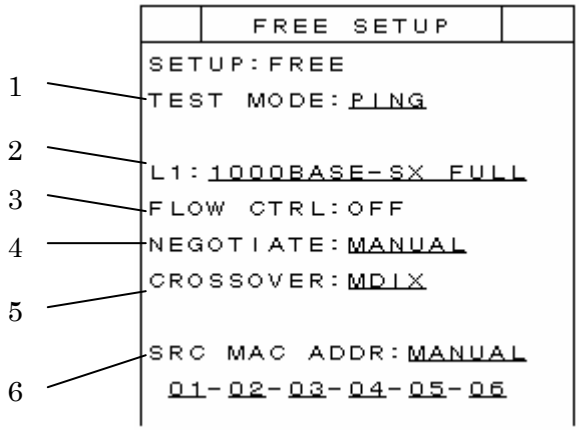


Figure 4.2-25 Common Free Setup screens

The common items of the screens are shown below.

1 TEST MODE
Select a mode from PING, REPLY and LOOPBACK. When test mode is selected, the setting items for the respective test modes will be displayed.

2 L1
Select 10BASE-T, 100BASE-TX or 1000BASE-T/SX/LX and choose half duplex or full duplex. If you select 1000BASE-T/SX/LX as the interface, only full duplex can be used.

3 FLOW CTRL
Select On/Off for the flow control. The flow control is fixed to “OFF” in the Ping, Reply and Loop Back modes.

4 NEGOTIATE
Select manual- or auto-negotiation.

5 CROSSOVER
Select the connector specification (CROSSOVER STATUS) of the measuring port for 10BASE-T, 100BASE-TX and 1000BASE-T from MDI (straight cable), DIX (cross cable) and AUTO (auto-detect). For further details, see Section ***.

6 SRC MAC ADDR
Select GLOBAL or MANUAL for the MAC address of the measuring port.
If you select GLOBAL, a global MAC address that is specific to this device will be selected.
If you select MANUAL, each digit of the MAC address can be input from 0 to F in hexadecimal numbers.
If you select ALL, it copes with all MAC addresses. it can be chosen only at the time of the LOOPBACK mode.
If you select DHCP, the settings on the DHCP screen are applied.

CAUTION

If AUTO is selected, the line speed and duplex type you select will have the capability settings of auto-negotiation.

For example, if you select AUTO for 100BASE-TX half duplex, the device will have three types of auto-negotiation capability such as 100BASE-TX half duplex, 10BASE-T half duplex and full duplex.

Interfaces to which you can switch from the auto-negotiation are as follows:

100BASE-TX.Full
100BASE-TX.Half
10BASE-T.Full
10BASE-T.Half

* Only 1000 Mbps full duplex can be specified for all three 1000BASE-T, 1000BASE-SX and 1000BASE-LX.

NOTE

If the following status is specified for L1 setting, you cannot save the setting. Check the currently implemented interface and settings.

<L1 setting>	GBIC
1 1000BASE-T	GBIC is implemented (SX or LX).
2 1000BASE-SX	GBIC is not implemented or GBIC for LX is implemented.
3 1000BASE-LX	GBIC is not implemented or GBIC for SX is implemented.

<Messages to be displayed>
When 1 is effected: “Pull out GBIC module.”
When 2 or 3 is effected: “I/F mismatch”

4.2.11.1 When the TEST MODE is Ping

This function transmits Ping frames to specified IP addresses. This screen is used for specifying the settings of the Ping mode. Figure 4.2-26 shows the PING screen and Table 4.2-24 describes the functions of the keys.

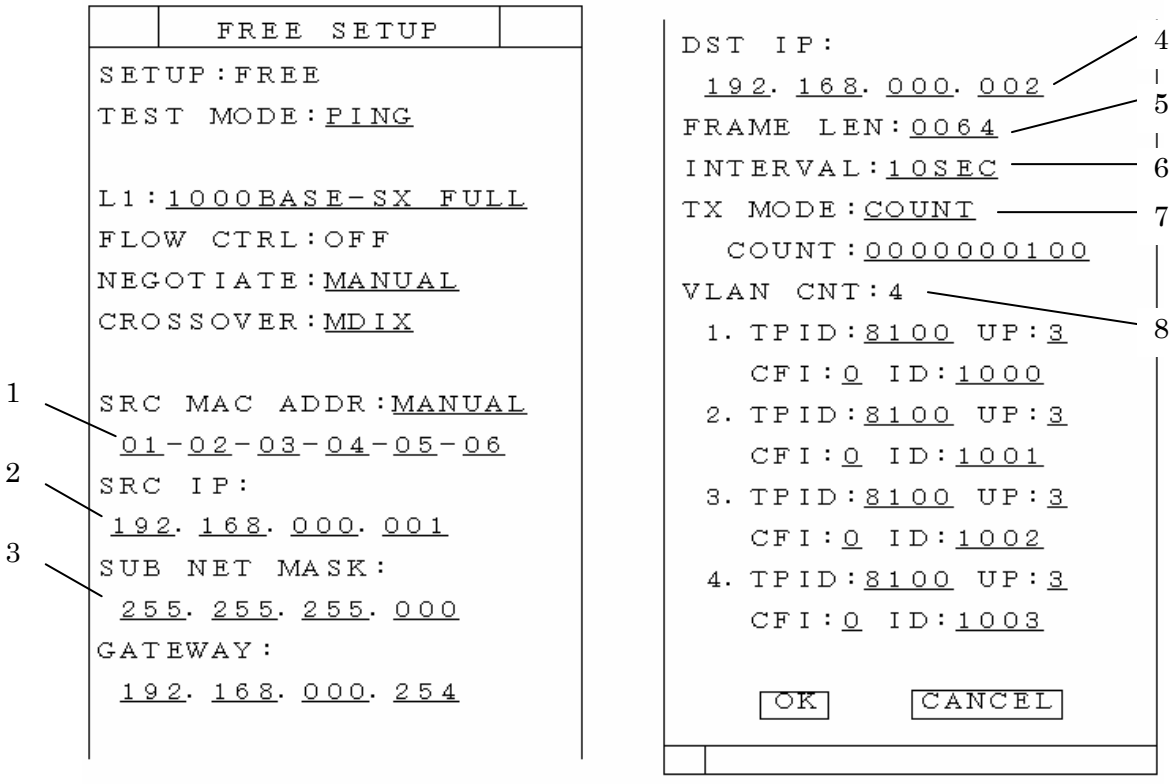


Figure 4.2-26 PING screen

Table 4.2-24 Key Functions (PING screen)

Key	Description
POWER	Power on/off
↑	To move the cursor
↓	To move the cursor
←	To move the cursor
→	To move the cursor
RUN	To change to the Online screen
STOP	NA
DISP	To return to the Mode Select screen
ENTER	1 Displays the Mode Select screen when the cursor is pointing to [OK]. 2 Displays the Mode Select screen when the cursor is pointing to [CANCEL]. 3 With the exception of the above-mentioned two cases, it jumps to [OK].
UP	To change numerical values and display items.
DOWN	

The following provides a description of the screen elements.

1 SRC IP
Selects MANUAL or DHCP for the measurement port IP address.
When MANUAL is selected, the measurement port IP address can be set with each digit in decimal notation in the range of 0 to 255.
When DHCP is selected, the value set on the DHCP screen is displayed. If the IP address has not been acquired by DHCP, the display appears as follows.

SRC IP	192.168. 0. 1
SUBNET	255.255.255. 0
GATEWAY	192.168. 0.254

2 SUBNET MASK
The measurement port subnet mask is displayed.
When MANUAL is selected for SRC IP, the subnet mask can be set with each digit in decimal notation in the range of 0 to 255.
When DHCP is selected for SRC IP, the value set on the DHCP screen is displayed. In this case, manual entry is not allowed.

3 GATEWAY
The measurement port gateway is displayed.
When MANUAL is selected for SRC IP, the gateway can be set with each digit in decimal notation in the range of 0 to 255.
When DHCP is selected for SRC IP, the value set on the DHCP screen is displayed. In this case, manual entry is not allowed.

4 DST IP
Each digit of the destination IP address can be specified in the range from 0 to 255 in decimal numbers.

5 FRAME LEN
The frame length can be specified in the range from 64 to 1518 (bytes) in decimal numbers. (The frame length can be specified up to 1534 bytes depending on the number of stacks of VLAN tags.)

6 INTERVAL
The transmission interval of pings can be specified at 1, 5 or 10 seconds.

7 TX MODE
Select Continue or Count for the transmission pattern of Ping signals. If you select Continue, Ping signals will be continuously transmitted. If you select Count, the number of transmitted Ping frames can be specified in the range from 1 to 4294967295. If the number of transmitted Ping frames reaches the specified value, measurement will be automatically terminated when the time specified at INTERVAL TIME elapses.

8 VLAN CNT
This indicates the number of stacks in VLAN tags. It can be specified between 0 and 4 and the VLAN setting increases or decreases depending on the value. TPID can be 0x0000 to 0x9999 in hexadecimal numbers, UP (User Priority) can be 0 to 7 in decimal numbers, CFI (Canonical Format Indicator) can be either 0 or 1 and ID (VLAN ID) can be 0 to 4095 in decimal numbers.

NOTE

IPv4 frames of DIX standards can be used in the Ping mode.
As shown below, the timeout value will be defined depending on the specified transmission interval of Ping frames. Jitter may occur in the transmission interval.
1 second: 800 msec
5 seconds: 4000 msec
10 seconds: 9000 msec
Fragmented ping and reply frames cannot be properly received.

4.2.11.2 When the TEST MODE is Reply

This screen is used for specifying the settings of the Reply mode. Figure 4.2-27 shows the Reply screen and Table 4.2-25 describes the functions of the keys.

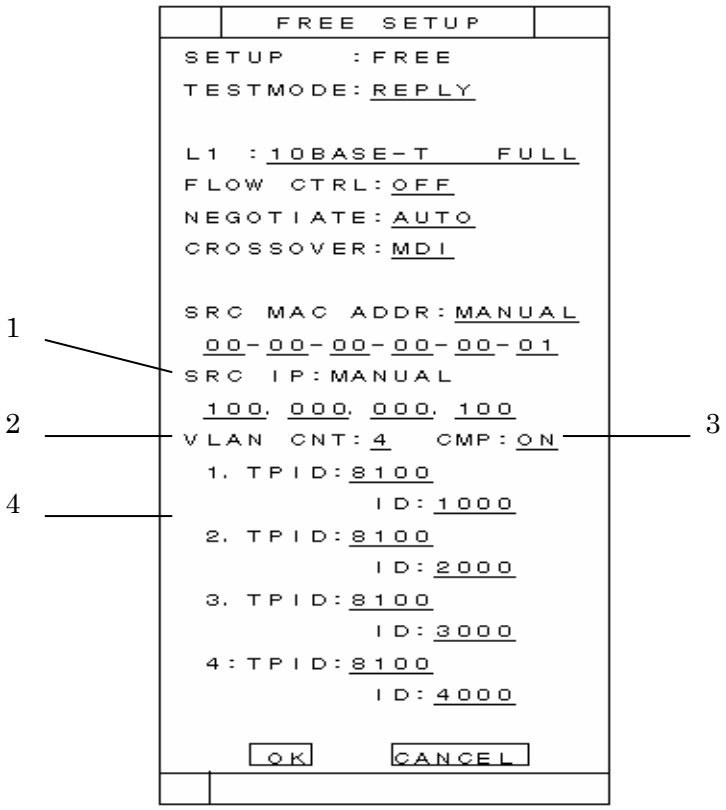


Figure 4.2-27 Reply screen

Table 4.2-25 Key Functions (Reply screen)

Key	Description
POWER	Power on/off
↑	To move the cursor
↓	To move the cursor
←	To move the cursor
→	To move the cursor
RUN	To return to the Online screen
STOP	NA
DISP	To change to the Mode Select screen
ENTER	1 Displays the Mode Select screen when the cursor is pointing to [OK]. 2 Displays the Mode Select screen when the cursor is pointing to [CANCEL]. 3 With the exception of the above-mentioned two cases, it jumps to [OK].
UP	To change numerical values and display items.
DOWN	

The following provides a description of the screen elements.

1 SRC IP
Selects MANUAL or DHCP for the measurement port IP address.
If MANUAL is selected, the measurement port IP address can be set in the range of 0 to 255, with each digit in decimal notation.
If DHCP is selected, the settings on the DHCP screen are displayed. If an IP address has not been acquired using DHCP, “192.168.0.1” is displayed.

2 VLAN CNT
Specifies the number of VLAN stacks in the received PING. The maximum setting is four stacks.

3 CMP
Select the function of comparing of patterns of the VLAN tag field.
ON:comparison setting is enable.
OFF:comparison setting is disable.

4 VLAN Field
TPID can be 0x0000 to 0x9999 in hexadecimal numbers, and ID (VLAN ID) can be 0 to 4095 in decimal numbers.

NOTE
Only ARP and IPv4 frames of DIX standards can be handled in the Reply mode. Ping frames for which the IP optional field is set as effective cannot be handled in the Reply mode. It is not possible to correctly reply to fragmented Ping frames. UP(UserPriority) and CFI(Canonical Format Indicator) is not included in the judgment condition to reply ping. The reply process takes 10 to 60 msec.

4.2.11.3 When the TEST MODE is Loop Back

This screen is used to specify the settings for the Loop Back mode. Figure 4.2-28 shows the Loop Back screen and Table 4.2-26 describes the functions of the keys.

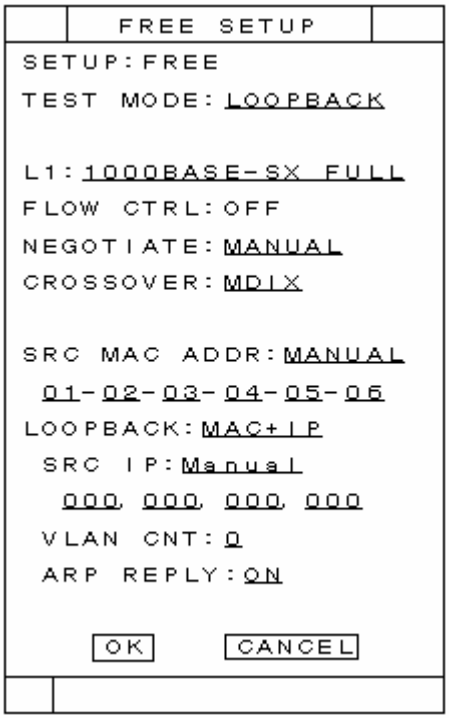


Figure 4.2-28 Loop Back screen

Table 4.2-26 Key Functions (Loop Back screen)

Key	Description
POWER	Power on/off
↑	To move the cursor
↓	To move the cursor
←	To move the cursor
→	To move the cursor
RUN	To change to the Online screen
STOP	NA
DISP	To return to the Mode Select screen
ENTER	1 Displays the Mode Select screen when the cursor is pointing to [OK]. 2 Displays the Mode Select screen when the cursor is pointing to [CANCEL]. 3 With the exception of the above-mentioned two cases, it jumps to [OK].
UP	To change numerical values and display items.
DOWN	

The screen contents are presented below.

1 LOOPBACK
Sets whether the received frame loopback operation is to check just the MAC address, or check both the MAC address and IP address. MAC or MAC+IP is selected. When MAC or MAC+IP is selected, “SRC IP”, “VLAN CNT”, and “ARP REPLY” are displayed.

NOTE

The following frames are not subject to the loop back function.
- Frames with a length of 63 bytes or less
- Broadcast frames
- Multicast frames

CRC error frames will be looped back as CRC error frames.

2 SRC IP
MANUAL or DHCP is selected. Details of both are presented below.
When MANUAL is set, the IP address is set in the range of 0 to 255 for each digit. If the destination IP address in the received frame matches this setting, the received frame is looped back.
When DHCP is set, the information set in the DHCP screen is displayed. If an IP address has not been acquired using DHCP, then “192.168.0.1” is displayed.

3 VLAN CNT
The number of VLAN tag stacks in the received frame is set in the range of 1 to 4.

4 ARP REPLY
The operating condition for an ARP REPLY to an ARP request in LOOPBACK mode is selected as ON or OFF.

NOTE

A count isn't done as a receiving frame though an ARP reply frame is transmitted even if it faces the ARP request frame which is applicable to the filter condition.
When the following ARP request frame is received, the transmission of the ARP reply frame isn't done.
- The ARP request frame which VLAN tag is added to.
- The ARP request frame which MPLS label is added to.
- The ARP request frame that length corresponds to either less than 63byte or beyond 1519byte,the setup value of the overcoat size.

4.2.12 DHCP Screen

This screen is used to enter settings required to acquire a measurement port IP address using DHCP. The screen is shown in Figure 4.2-29, and the key operations are shown in Table 4.2-29.

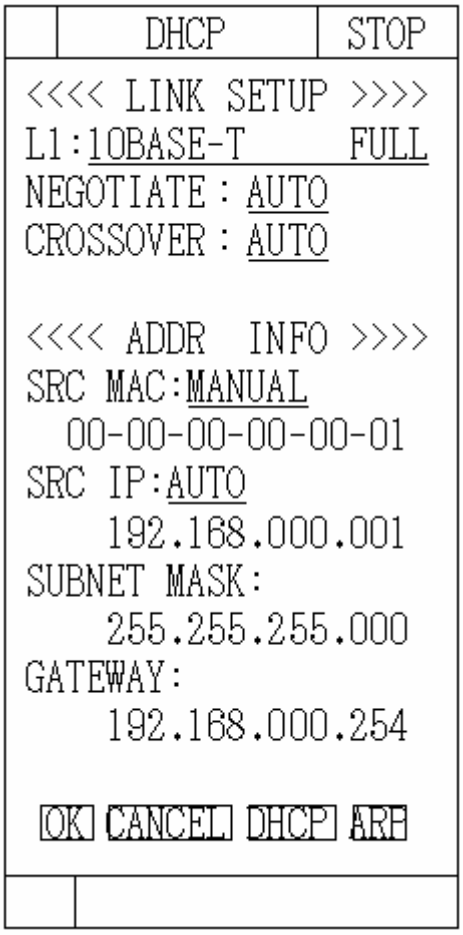


Figure 4.2-29 DHCP Screen

The following provides a description of the screen elements.

1 LINK SETUP

Table 4.2-27 DHCP Screen Settings 1

Display element	Description
L1	Select the setup for line speed, communication method and interface from the following: 10BASE-T HALF, 10BASE-T FULL 100BASE-TX HALF, 100BASE-TX FULL 1000BASE-T/SX/LX FULL
NEGOTIATE	To select manual- or auto-negotiation
CROSSOVER	You can choose the connector specification (CROSSOVER STATUS) of the measuring port for 10BASE-T, 100BASE-TX and 1000BASE-T from MDI (straight cable), DIX (cross cable) and AUTO (auto-detect).

2 ADDR INFO Settings

Table 4.2-28 DHCP Screen Settings2

Display	Display description
SRC MAC	Global or Manual is selected. If Global is selected, the Global MAC address unique to the measurement port on this instrument's side is set. If Manual is selected, the value can be set with each digit in HEX notation in the range of 00 to ff.
SRC IP	Manual or Auto is selected. If Manual is selected, the value can be set with each digit in decimal notation in the range of 0 to 255. If Auto is selected, the value acquired by DHCP is displayed. If no value has been acquired by DHCP, then "" is displayed.
SUBNET MASK	When MANUAL is selected for SRC IP, the value can be set with each digit in decimal notation in the range of 0 to 255. When Auto is selected for SRC IP, the value acquired by DHCP is displayed. If no value has been acquired by DHCP, then "*" is displayed.
GATEWAY	When MANUAL is selected for SRC IP, the value can be set with each digit in decimal notation in the range of 0 to 255. When Auto is selected for SRC IP, the value acquired by DHCP is displayed. If no value has been acquired by DHCP, then "*" is displayed.

Table 4.2-29 Key Functions (DHCP Screen)

Key	Description
POWER	Power on/off
↑	To move the cursor
↓	To move the cursor
←	To move the cursor
→	To move the cursor
RUN	NA
STOP	NA
DISP	Applies the changes to the ADDR INFO settings and returns to the Mode Select screen.
ENTER	If the cursor is over [OK], pressing ENTER applies the changes to the ADDR INFO settings and displays the Mode Select screen. If the cursor is over [CANCEL], pressing ENTER cancels the changes to the ADDR INFO settings and displays the Mode Select screen. If the cursor is over [DHCP], the measurement port address is acquired using DHCP. If the cursor is over [ARP], the changes to the ADDR INFO settings are applied and the ARP screen is displayed.
UP	To change numerical values and display items.
DOWN	

NOTE

When IP address acquisition is performed using DHCP, the lease limit is not monitored. Requests from the DHCP server are not responded to except during DHCP protocol processing. Note that if an IP frame containing an IP address with an expired lease limit is sent to the network, a network failure may occur.
If “DHCP” is selected in the address settings on the SETUP screen or FREE screen without address acquisition by DHCP being completed on the DHCP screen, the following addresses will be selected.

SRC IP	192.168. 0. 1
SUBNET	255.255.255. 0
GATEWAY	192.168. 0.254

The ARP button is displayed and can be selected under the following conditions:
(a) When SRC IP is MANUAL
(b) When SRC IP is AUTO and DHCP address acquisition is completed
If “ARP REPLY=ON” is set in the GENERATE/LATENCY mode measurement condition settings, the “SrcMAC” and “SrcIP” set on the DHCP screen will be used.

4.2.13 ARP Screen

This screen is used to enter settings for acquiring measurement target MAC addresses using ARP. It is shown in Figure 4.2-30.

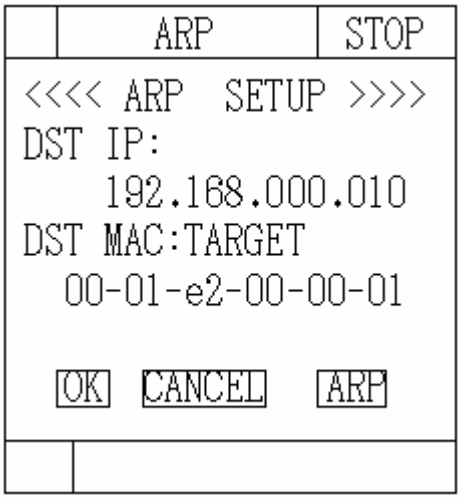


Figure 4.2-30 ARP Screen

The following provides a description of the screen elements.

1 ARP SETUP

Table 4.2-30 ARP Screen Settings 1

Display	Displayed item	Display description
DST IP	Address	This is the location for setting the IP address of the target device whose MAC address is to be acquired. The value can be set in the range of 0 to 255, with each digit in decimal notation.
DST MAC	Address	The MAC address acquired using ARP is displayed. “*” is displayed prior to acquisition of the MAC address of the target device.
	TARGET	Indicates that ARP resolution to the target device has been performed in the same network.
	GATEWAY	Indicates that ARP resolution to the gateway has been performed because it was determined that the target device was not present in the same network. The displayed DSTMAC address is the gateway MAC address.

Table 4.2-31 Key Function(ARP Screen)

Key	Description
POWER	Power on/off
↑	To move the cursor
↓	To move the cursor
←	To move the cursor
→	To move the cursor
RUN	NA
STOP	NA
DISP	Applies the changes to the ARP Screen and returns to the Mode Select screen.
ENTER	If the cursor is over [OK], pressing ENTER applies the ARP screen value and displays the Mode Select screen. If the cursor is over [CANCEL], pressing ENTER cancels the ARP screen value and displays the Mode Select screen. If the cursor is over [ARP], MAC address acquisition for the measurement target is performed using ARP.
UP	To change numerical values and display items.
DOWN	

NOTE

ARP operations are performed in the following sequence. Each broadcast is repeated three times. If there is no correct reply, the next process is performed.

Broadcast (destination IP is target terminal)

Broadcast (destination IP is gateway)

Time-out (ARP resolution failure)

4.2.14 MACRO Screen

4.2.14.1 Outline

With this function, a measurement operation is specified with a special command (macro command) prior to measurement, and measurement is performed automatically. The MACRO screen can be displayed by selecting [MACRO] on the MODE SELECT screen.

Figure 4.2-31 shows a sample screen.

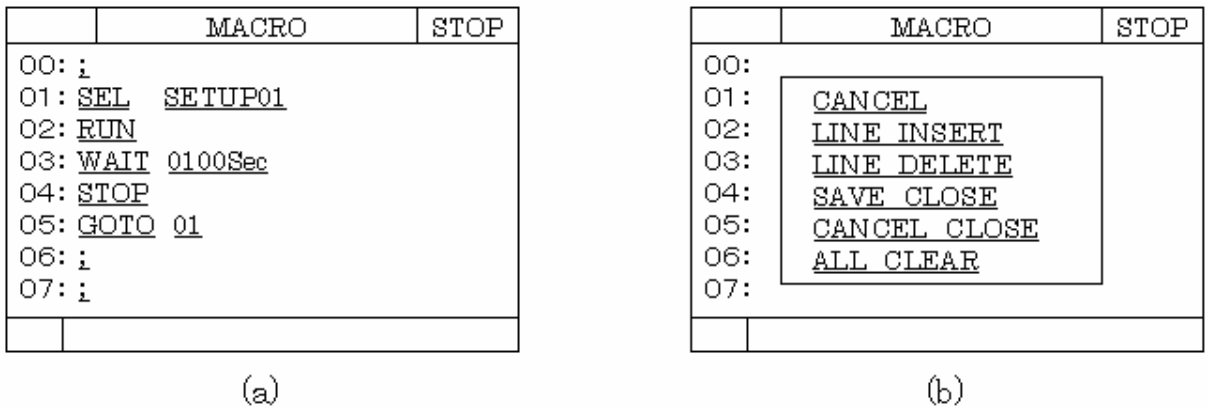


Figure 4.2-31 MACRO Screen

Table 4.2-32 Key Function(MACRO Screen)

Key	Description
POWER	Power on/off
↑	To move the cursor
↓	To move the cursor
←	To move the cursor
→	To move the cursor
RUN	NA
STOP	NA
DISP	Applies the changes to the MACRO Screen and returns to the Mode Select screen.
ENTER	Displays utility box
UP	Switches macro command and subparameters (numerical values and items)
DOWN	

A macro command overview list is presented below.

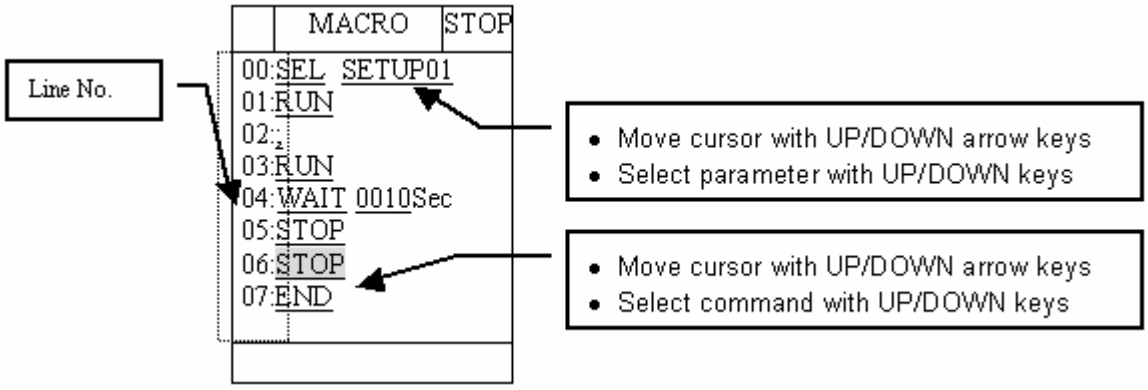
Table 4.2-33 MACRO Function Commands

Command	Command overview
RUN	Equivalent to RUN key function.
STOP	Equivalent to STOP key function.
WAIT	Continues the command-preceding WAIT for the specified length of time. The value can be set in the range of 0001 and 3600 seconds.
SEL	Specifies the measurement condition file. SETUP01 through SETUP10 and FREE can be selected.
GOTO	Executes the command at the specified line. The value is set in the range of 00 to 49.
END	Ends the macro operation.
;	Displays command non-entry status. Under the default setting, all command lines are set to semicolons.

4.2.14.2 Macro command edit function

A macro command is entered by moving the cursor to the desired line with the UP/DOWN arrow keys, then selecting the required command with the UP/DOWN keys.

A maximum of 50 lines (0 to 49) can be entered. It is not always necessary for macro commands to be adjacent to each other.

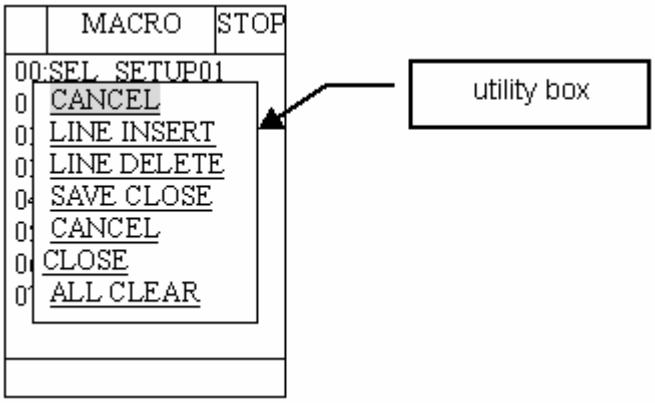


In addition, some macro commands require sub-parameters. When sub-parameters are displayed, move the cursor and use the UP/DOWN keys to select an item or value.

4.2.14.3 Utility box operations

Utility operations can be selected on the MACRO screen.

The utility box is displayed when the ENTER key is pressed on the MACRO screen.



The utility box functions are presented below.

1 CANCEL
Cancels the utility box operation and returns to the MACRO screen.

2 LINE INSERT
Inserts a blank line at the line where the cursor is located. When this is done, all commands registered on the cursor line and following lines are moved downward. However, if the 49th line contains a macro command other than a semicolon, an error message (“Disable Insert”) is displayed and the line is not inserted.
In addition, inserting a blank line updates the go-to line which is a sub-parameter of the GOTO command.

3 LINE DELETE
Deletes the line where the cursor is located. When this is done, all commands registered on the cursor line and following lines are moved upward. In addition, a semicolon is set on the 49th line.
In addition, inserting a blank line updates the go-to line which is a sub-parameter of the GOTO command.

4 SAVE CLOSE
Saves all the currently edited macro commands (lines 0 through 49) and goes to the MODE SELECT screen.
This function is equivalent to the DISP key on the MACRO screen.

5 CANCEL CLOSE
Cancels all the currently edited macro commands (lines 0 through 49) and goes to the MODE SELECT screen.

6 ALL CLEAR
Clears all the currently edited macro commands (lines 0 through 49).

4.2.14.4 Executing macro operations

There are two methods for executing operations registered on the MACRO screen:
Input the RUN key on the MACRO screen.
Move the cursor to “MACRO” on the MODE SELECT screen and input the RUN key.

Immediately prior to operation execution, a WAIT command sub-parameter check is performed. If a value is out of range, calibration is performed automatically and the macro is executed.
Calibration is performed as follows:

If the sub-parameter is set to 0, then it is calibrated to 1.
If the sub-parameter exceeds 3600, then it is calibrated to 3600.

4.2.14.5 During macro operations

1 Screen Transition

During macro operations, the screen changes according to the MACRO command which is being executed.
The relationship between screen changes and MACRO commands during macro operations is shown below.

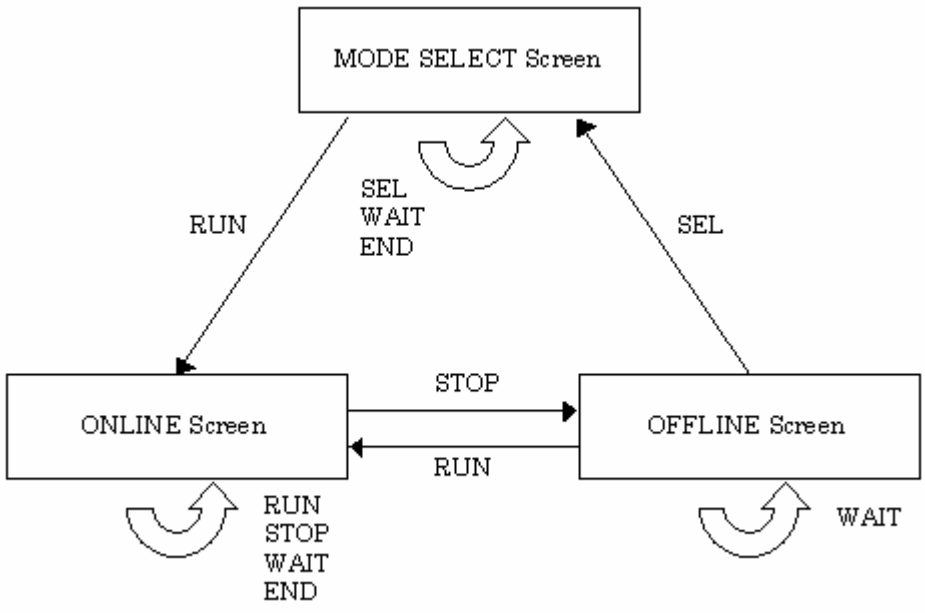


Figure 4.2-32 Screen changes during MACRO operations

2 Display

During macro operations, an icon indicating that a macro operation is being executed is displayed. The following figure shows the MODE SELECT screen during macro operations.

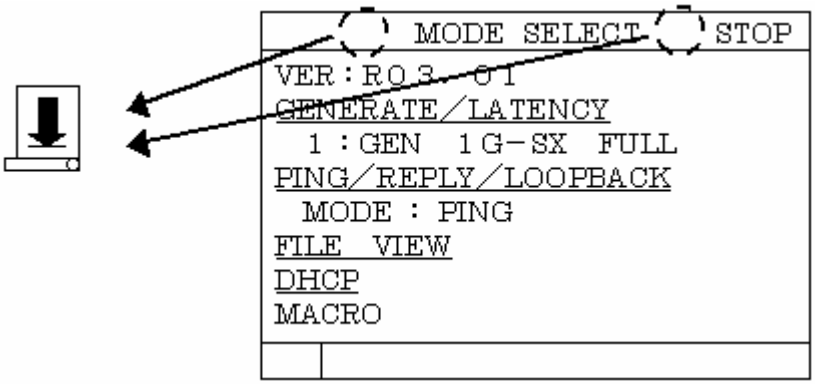
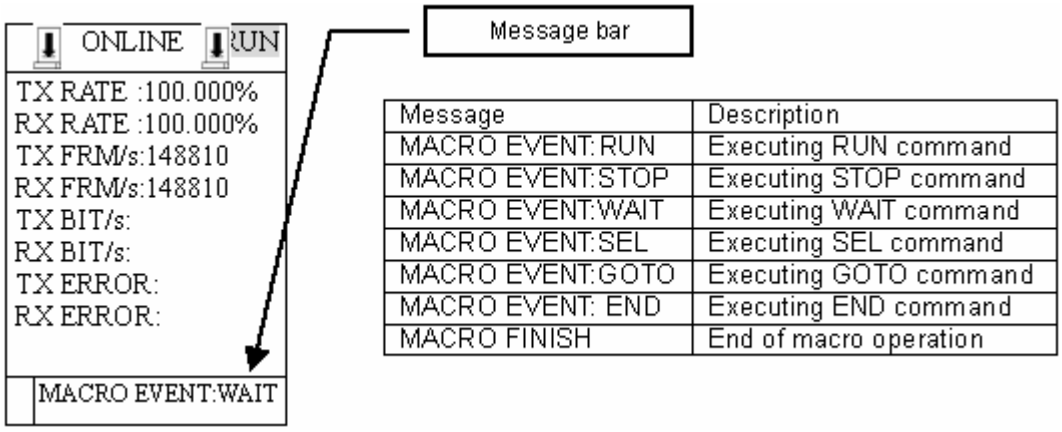


Figure 4.2-33 During MACRO operations

During macro execution, the macro command which is being executed is shown on the message bar. In addition, a MACRO FINISH message is displayed on the message bar when macro execution ends.



Message	Description
MACRO EVENT:RUN	Executing RUN command
MACRO EVENT:STOP	Executing STOP command
MACRO EVENT:WAIT	Executing WAIT command
MACRO EVENT:SEL	Executing SEL command
MACRO EVENT:GOTO	Executing GOTO command
MACRO EVENT: END	Executing END command
MACRO FINISH	End of macro operation

3 Key Functions

The function of the key during macro operations screen is shown in the following.

Table 4.2-34 Key Function(during MACRO operations)

Key	Description
POWER	NA
↑↓← →	To move the cursor
RUN	NA
STOP	Aborts the macro operation.
DISP	NA
ENTER	
UP	
DOWN	

4.2.14.6 End of macro operations

Macro command operations end under the following conditions.

When the END command is executed.

When the STOP key is input during a macro operation.

When an I/F mismatch occurs at the start of measurement with the RUN command.

When macro operations end, a macro operation log can be viewed.
For details, see 4.2.15.

4.2.14.7 MACRO commands details

Macro command details are presented below.

1 RUN command

(a)Function

Performs an operation equivalent to inputting the RUN key.

(b)Format

RUN

There are no sub-parameters.

(c)Description of operation

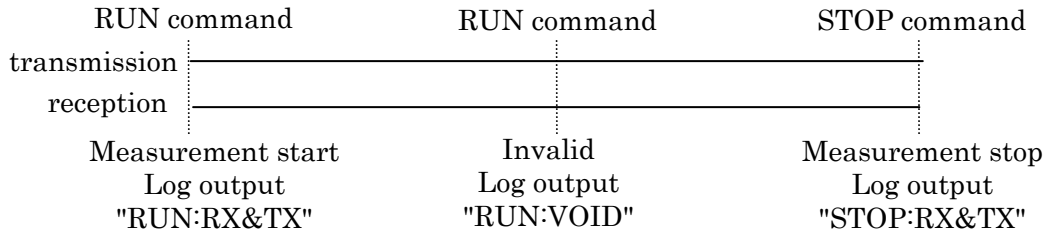
The operation varies as shown below, depending on the current screen and RUN MODE.

Screen	RX&TX	RX->TX Reception in progress	RX->TX Sending/reception in progress
ONLINE screen	Not valid	Starts sending	Not valid
MODE SELECT screen	Starts measurement		
OFFLINE screen	Starts measurement		

For information on RUN MODE, see 4.2.101.

When RUN MODE is RX&TX

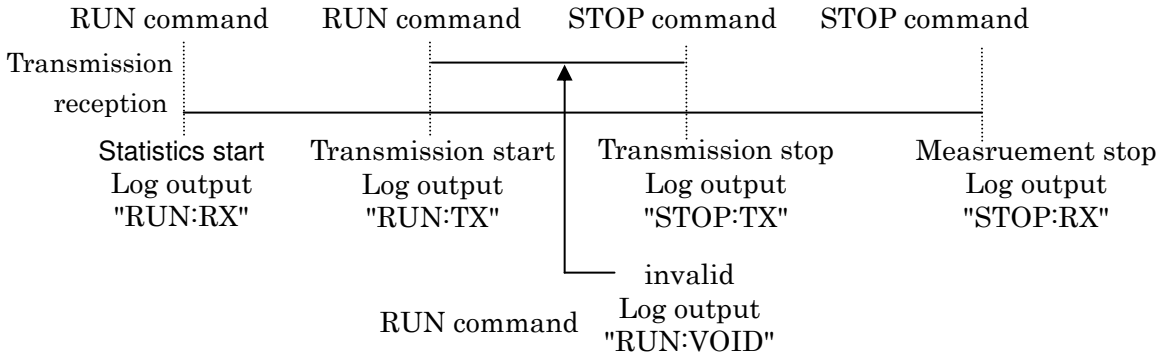
When a RUN command is accepted while measurement is stopped, measurement is started.
When a RUN command is accepted during measurement, it is disabled and the command at the next line is executed.
The relationship between command acceptance and log message output is shown below.



When RUN MODE is RX→TX

When a RUN command is accepted while measurement is stopped, the statistics operation is started. When another RUN command is accepted during the statistics operation, the sending operation is started. When a RUN command is accepted during the sending operation, it is disabled and the command at the next line is executed.

The relationship between command acceptance and log message output is shown below.



At the start of measurement, the following check is performed. If there is a mismatch, the user is notified by a popup message. However, during macro operations the user is not notified; if a mismatch occurs, processes are performed automatically and a log of the results is output.

The automatic processes performed when a mismatch occurs are shown below.

I/F check

If an I/F which cannot be executed is set, the macro operation is cancelled.

The following combinations cannot be executed.

L1 setting	I/F status
1000BASE-SX	1000BASE-SX GBIC not installed
1000BASE-LX	1000BASE-LX GBIC not installed
1000BASE-T	GBIC installed

The log output is “@I/F-NG”.

Result file count check

If there are already 100 result files, the oldest file is deleted and the RUN process is continued.

The log output is “@100FILE”.

Link status check

Even if the link is down in the link status check, the RUN process is continued.

The log output when a link is down is “@LINK-DOWN”. The log output when a link is up is “@LINK-UP”.

(d)Screen display

If the RUN command is executed while measurement is stopped (MODE SELECT/OFFLINE screen), the screen changes to the ONLINE screen. If the ONLINE screen is already displayed, it remains displayed

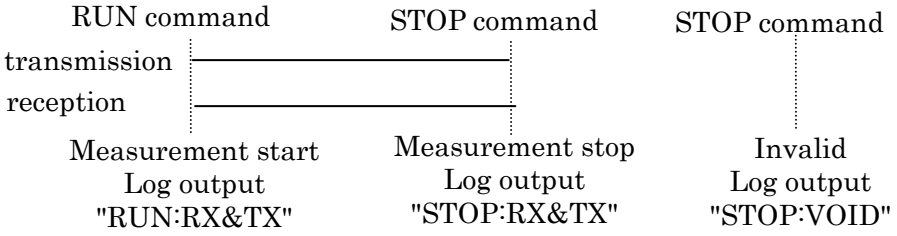
2 Stop command

(a)Function
Performs an operation equivalent to inputting the STOP key.
(b)Format
STOP
There are no sub-parameters.
(c)Description of operation
The operation varies as shown below, depending on the current screen and RUN MODE.

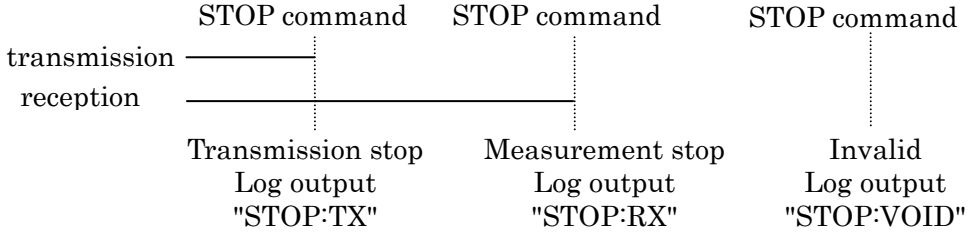
Screen	RX&TX	RX->TX Reception in progress	RX->TX Sending/reception in progress
ONLINE screen	Stops measurement	Stops measurement	Stops sending
MODE SELECT screen	Not valid		
OFFLINE screen	Not valid		

For information on RUN MODE, see 4.2.101.

When RUN MODE is RX&TX
When a STOP command is accepted while measurement is in progress, measurement is stopped. When a STOP command is accepted while measurement is stopped, it is disabled and the next command is executed.
The relationship between command acceptance and log message output is shown below.



When RUN MODE is RX→TX
When a STOP command is accepted during frame transmission, the transmission operation is stopped. When another STOP command is accepted while only the statistics operation is performed, measurement is stopped. When a STOP command is accepted while measurement is stopped, it is disabled and the next command is executed.
The relationship between command acceptance and log message output is shown below.



(d)Screen display
If the STOP command is executed while measurement is stopped (MODE SELECT/OFFLINE screen), the operation is not valid, so the screen does not change. If the ONLINE screen is displayed, it remains displayed when transmission is stopped, and changes to the OFFLINE screen when measurement is stopped.

3 WAIT command
(a)Function
Performs the wait process in increments of seconds.
(b)Format
WAITXXXX
XXXX takes a value in the range of 1 to 3600.
(c)Description of operation
Performs a wait process between macro commands.
The setting range is 1 to 3600 seconds.
A log is output when the WAIT command is executed.
The log message is “WAIT:XXXX” (where XXXX is a value equivalent to the setting).
Note that the maximum error for a setting of 3600 seconds is approximately ±10 seconds.
(d)Screen display
The screen does not change even when the WAIT command is executed.

4 SEL command

(a)Function
Loads the specified setting.

(b)Format
SEL XXXX
XXXX is as follows.

Selection	Description	Selection	Description
SETUP01	SETUP No. 1 setting	SETUP07	SETUP No. 7 setting
SETUP02	SETUP No. 2 setting	SETUP08	SETUP No. 8 setting
SETUP03	SETUP No. 3 setting	SETUP09	SETUP No. 9 setting
SETUP04	SETUP No. 4 setting	SETUP10	SETUP No. 10 setting
SETUP05	SETUP No. 5 setting	FREE	PING/REPLY/LOOPBACK setting
SETUP06	SETUP No. 6 setting		

SETUP Nos. 1 through 10 are setups in which GENERATE mode or LATENCY mode can be selected.
FREE is a setup in which PING mode, REPLY mode, or LOOPBACK mode can be selected.

(c)Description of operation
This command is specified before the RUN command to select measurement conditions.
A log is output when the SEL command is executed.
The log message is “SEL:XX” (where XX is a value equivalent to the setting).
Note that the SEL command is not valid in ONLINE. In such cases, the log message is “SEL:VOID”.

(d)Screen display
The screen changes to the MODE SELECT screen only when the SEL command is executed on the OFFLINE screen. The screen does not change when the command is executed on other screens.

5 GOTO command

(a) Function

Jumps to the specified line.

(b) Format

GOTO XX

XX takes the range of 0 to 49.

(c) Description of operation

Moves the execution position to the specified line.

The range is 0 to 49.

A log is output when the GOTO command is executed.

The log message is “GOTO:XX” (where XX is a value equivalent to the setting).

(d) Screen display

The screen does not change even when the GOTO command is executed.

6 END command

(a) Function

Ends the macro operation.

(b) Format

END

There are no sub-parameters.

(c) Description of operation

Ends the macro execution.

The macro operation ends when the END command is executed, even if another command is registered subsequent to the END command.

If there is no END command on the macro registration screen, the macro operation is ended when the 49th line ends. (This applies only in cases where the 49th line is not a GOTO command.)

A log is output when the GOTO command is executed.

The log message is “END”. In addition, “MACRO FINISH” is displayed on the message bar, indicating that the macro operation has ended.

(d) Screen display

The screen does not change even when the END command is executed.

7 ; command (NOP command)

(a) Function

None

(b) Format

;

(c) Description of operation

The line is blank. The program advances to the next line.

(d) Screen display

The screen does not change.

4.2.15 LOG VIEW Screen

4.2.15.1 Outline

This screen is used to check the macro command operation history after macro operations are performed. The currently saved log information is overwritten each time a macro operation is executed.
The LOG VIEW screen can be displayed by selecting [LOG VIEW] on the MODE SELECT screen. If there is no macro operation log, this screen cannot be displayed.

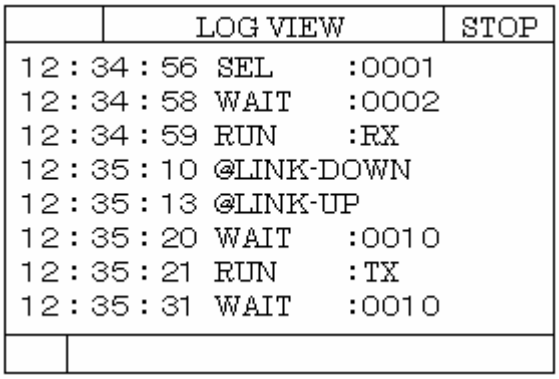


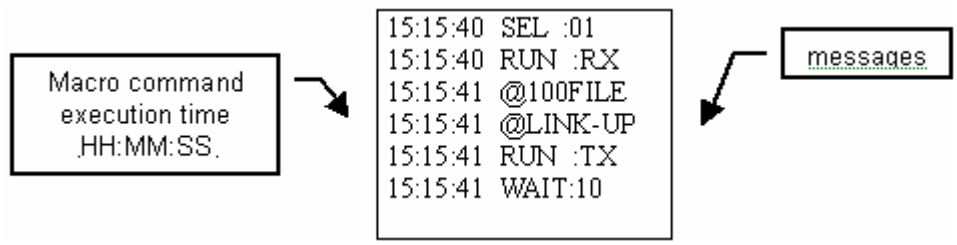
Figure 4.2-34 LOG VIEW Screen

Table 4.2-35 Key Function(LOG VIEW Screen)

Key	Description
POWER	Power on/off
↑↓	To move the cursor
← →	NA
RUN	
STOP	
DISP	To return to the Mode Select screen
ENTER	NA
UP	
DOWN	

4.2.15.2 Display

A description of the LOG VIEW screen display is presented below.
A single event corresponds to a single line. Individual events are divided into a macro command start time and a message.
The macro command execution time is the time at which macro command execution starts.
Messages may be a log based on a macro command or another type of log. See the next section for details.



4.2.15.3 Message types

1 A message toward the MACRO commands
An END command message is always displayed at the end of a log if there is no END command on the macro screen, or if the macro operation is aborted using the STOP key.

Macro command	LOG output message	Output condition
RUN	RUN:RX	Reception operation is started under the measurement condition RUN MODE = RX->TX.
	RUN:TX	Sending operation is started under the measurement condition RUN MODE = RX->TX.
	RUN:RX&TX	RUN command is executed under the measurement condition RUN MODE = RX&TX.
	RUN:VOID	Additional RUN command is executed while sending or reception is already under way.
STOP	STOP:RX	Reception operation is stopped under the measurement condition RUN MODE = RX->TX.
	STOP:TX	Sending operation is stopped under the measurement condition RUN MODE = RX->TX.
	STOP:RX&TX	Measurement is stopped under the measurement condition RUN MODE = RX&TX.
	STOP:VOID	STOP command is executed in state other than ONLINE.
WAIT	WAIT:XXXX	WAIT command is executed. XXXX is the setting (decimal notation).
SEL	SEL:XXXX	SEL command is executed. XXXX is 0001 to 0010 or FREE.
	SEL:VOID	SEL command is executed during ONLINE.
GOTO	GOTO:XX	GOTO command is executed. XX is 00 to 49.
END	END	END command is executed.

2 Other messages

In addition to the above messages corresponding to macro commands, the following system messages represent measurement operations.

System messages always start with an at sign (@).

Table 4.2-36 System messages

LOG output message	Output condition
@CNT-TXEND	Completion of transmission of the specified number of frames with the transmission mode for GENERATE/LATENCY measurement set to [Constant/Count] or [Burst/Count].
@LINK-DOWN	Link failure during ONLINE.
@LINK-UP	Link recovery during ONLINE.
@ARP-MISS	ARP processing during PING measurement not completed.
@I/F-NG	RUN command is executed with respect to a setting file that cannot be executed. Example: An attempt to execute a setting file in which “1000BASE-SX FULL” is set in “L1” without a GBIC inserted.
@100FILE	Measurement is executed using the RUN command while there are 100 result files. Indicates that the oldest result file has been deleted.
@LOAD ERR	Setting file loading error has occurred.
@STOP ACT	Completion of STOP ACTION operation during GENERATE/LATENCY measurement.
@ABORT END	Macro operation is manually aborted using STOP key.

4.2.16 Remote Setup Screen

There are three different modes, depending on the usage objective:
Use in exchanging settings and measurement results with AE5730E →See 4.2.16.1
Use in upgrading the AE5501 system files →See 4.2.16.2
Remote control of AE5501 from PC using TELNET →See 4.2.16.3

The function of the key in the Setup screen is as mentioned in the following table.

Key	Description
POWER	Power on/off
↑↓← →	To move the cursor
RUN	NA
STOP	
DISP	Applies the changes and returns to the Mode Select screen.
ENTER	Pressing this key on a OK displays the Remote screen. Pressing CANCEL cancels the setup and returns the display to the Mode Select screen. Pressing this key on a GET ADDR, an IP address, a subnet mask, a gateway are acquired.
UP	To change numerical values and display items.
DOWN	

4.2.16.1 Remote Screen

Press the OK button after selecting REMOTE for MODE and complete all settings. The device will be able to communicate data to the AE5730E-installed PC. Pressing the STOP button after completion of the remote operation returns the display to the Mode Select screen. Figure 4.2-35 shows an example of the Reply screen.

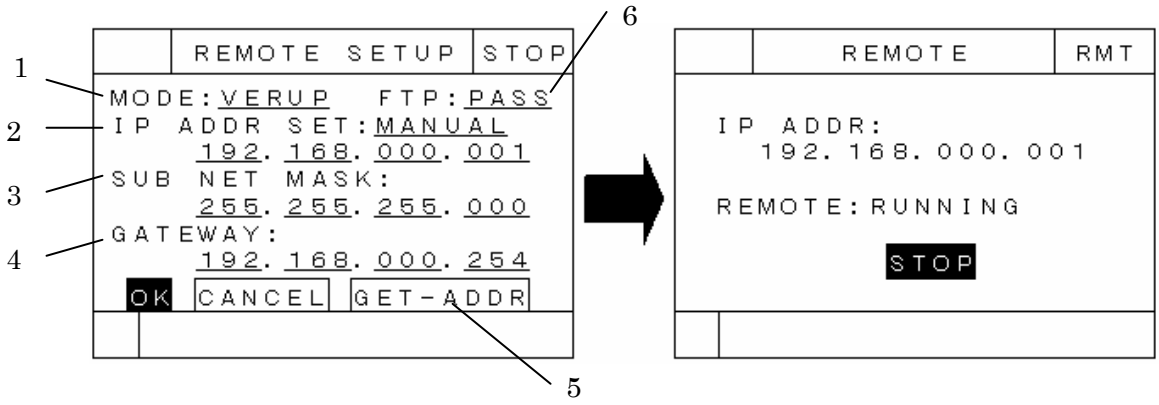


Figure 4.2-35 Remote screen

1 MODE
You can select the operation mode on the screen.
REMOTE: This mode is used for transferring setup files or measurement results files.
VERUP: This mode is used for upgrading the system version.

2 IP ADDR SET
This sets the IP address of the device's remote port as MANUAL or AUTO. You can specify the IP address yourself by choosing MANUAL. If AUTO is selected, (5) will appear.

3 SUBNET MASK
You can set each digit of the subnet mask value of the device's remote port in the range from 0 to 255 in decimal numbers by choosing MANUAL in (2). You cannot set the subnet mask if you select AUTO in (2).

4 GATEWAY
You can set each digit of the gateway value of the device's remote port in the range from 0 to 255 in decimal numbers by choosing MANUAL in (2).

5 GET ADDR
This will appear if you select AUTO in (2). Pressing the GET ADDR button while the device's remote port is connected to a LAN with its DHCP server running automatically sets up the IP address, subnet mask and gateway.

6 FTP
It is selection of the FTP data transmission port by the side of a FTP server (AE5501 side). "PASS" serves as a port number higher than 1024, and "ACT" performs FTP data transmission by No. 20 fixation.

NOTE

If an L1 link of the remote port cannot be established when the Remote screen is displayed, the following message will appear.
Specify the network settings after selecting OK. If AUTO is selected for IP ADDR SET, the request will be sent to the DHCP server immediately. Depending on the DHCP server setups, the IP address displayed on the Remote Setup screen may differ from that displayed on the Remote or VerUP screen. In this case, remotely connect to the IP address displayed on the Remote or VerUP screen.
It becomes 0.0.0.0 when GATEWAY address value can't reflect in the system.
Pressing the ENTER key on the following screen returns the display to the Remote Setup screen. Be sure to try displaying the Remote screen again when you have connected the cable to the remote port and the L1 link is established.

Set Remote Cable
[ENTER] & Retry
OK

4.2.16.2 VerUP Screen

MODE is made VERUP, and it becomes the condition that version upgrading is accepted by pushing OK button. Confirm that the following screen was indicated, and do upgrade work from AE5730E TrafficTesterMini Setup Software.

Be careful of the upgrade standing by screen because it varies in the version of the system.
And, the one except for "POWER key" doesn't work with the key of the AE5501 TrafficTesterMini in the upgrade screen. Start AE5501 TrafficTesterMini in the following method again after you finish an upgrade.

(a) A POWER key is pushed for more than one second, and (in the case of R02.01) PowerLED pushes a POWER key after it turns off the lights.
(b) A POWER key is pushed after an AC adapter is plugged in and out once.
(c) A POWER key is pushed in the case of the battery drive after it opens and closes a battery cover behind AE5501 once.

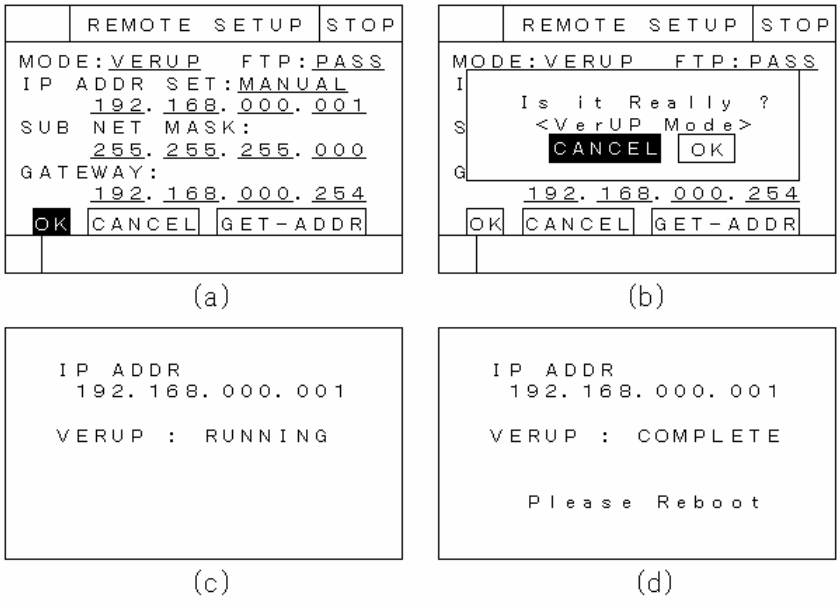


Figure 4.2-36 VerUP screen of R02.01 or earlier releases

(a)This selection screen is used to run the device in the remote mode. Specify version-upgrade-related settings on this screen. Pressing the OK button displays (b). For setup details, see Section 4.2.12 “Remote Screen”.

(b)This screen is used to confirm the version upgrade. Pressing the CANCEL button returns the display to screen (a) and pressing the OK button changes the display to screen (c).

(c)This screen is used to wait for the version upgrade. Version upgrading is possible only while this screen is displayed.

(d)This screen is displayed when version upgrading is completed. When this screen appears, press the POWER key for the required time to power off the device.

2 VerUP screen of R02.04 or later releases

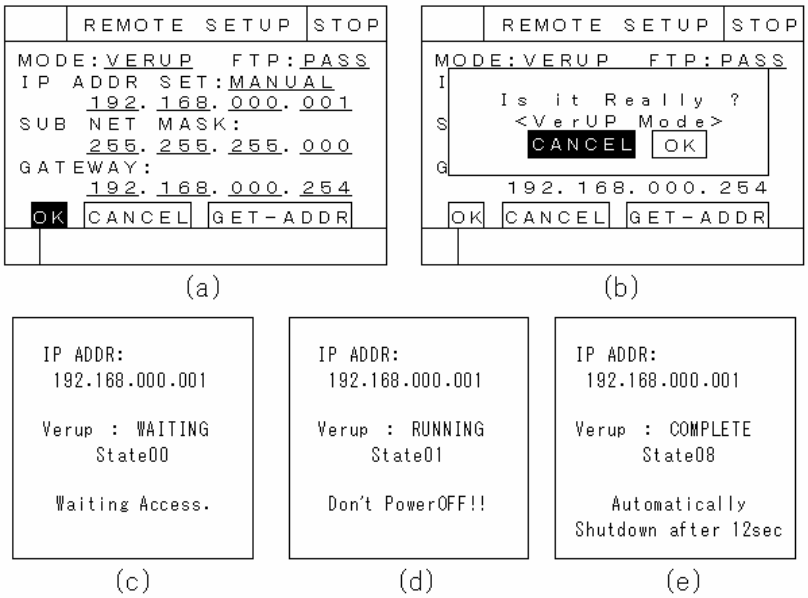


Figure 4.2-37 VerUP screen of R02.04 or later releases

(a)This selection screen is used to run the device in the remote mode. Specify version-upgrade-related settings on this screen. Pressing the OK button displays (b). For setup details, see Section 4.2.12 “Remote Screen”.

(b)This screen is used to confirm the version upgrade. Pressing the CANCEL button returns the display to screen (a) and pressing the OK button changes the display to screen (c).

(c)This screen is used to wait for the version upgrade. Version upgrading is possible only while this screen is displayed. Make sure that this screen is displayed and then upgrade the version of AE5730E TrafficTesterMini Setup Software.

(d)This screen is used to confirm the progress of version upgrading. Do not attempt to turn off the power while this screen is displayed.

(e)This screen is used to indicate that the version upgrade is completed. The system will automatically shut down about 12 seconds after this screen appears. When the shutdown procedure is completed, the Power LED will light up and the LCD will turn off. To reboot the device, unplug the AC adapter and then plug it in again if it is powered by AC supply. Open and close the battery housing cover on the reverse side of the main body if the power is supply by battery.

NOTE

When the screen shown in Figure 4.2-36(d) appears after completion of the version upgrade, power off the device and then power it on again.
If an L1 link of the remote port cannot be established when the Remote screen is displayed, the following message will appear.
Pressing the ENTER key on the following screen returns to the Remote Setup screen.
Be sure to try displaying the Remote screen again after you have connected the cable to the remote port and the L1 link is established.

Set Remote Cable
[ENTER] & Retry
OK

NOTE

If an error occurs during version upgrading of R02.04 or later releases, an error message will be displayed for 5 seconds and the display will return to (c) of the VerUP screen as shown in Figure 4.2-37. After confirming that this screen is displayed, retry the version upgrading procedure.
It is possible for the procedure to take the maximum 5 minutes at State 06 during version upgrading of R02.04 or later releases. Do not turn off the power.

4.2.16.3 TELNET Screen

Set the MODE to TELNET and press the OK button after entering the individual settings. The MODE SELECT screen will be displayed and operations can be controlled through TELNET. This section only describes operations on the AE5501 side. For details on TELNET remote control operations on the PC side, see 4.3TELNET remote control.
When TELNET is chosen with MODE, the setup of PROMPT and PASSWD DELETE becomes possible.
A screen example is shown in Figure 4.2-38.

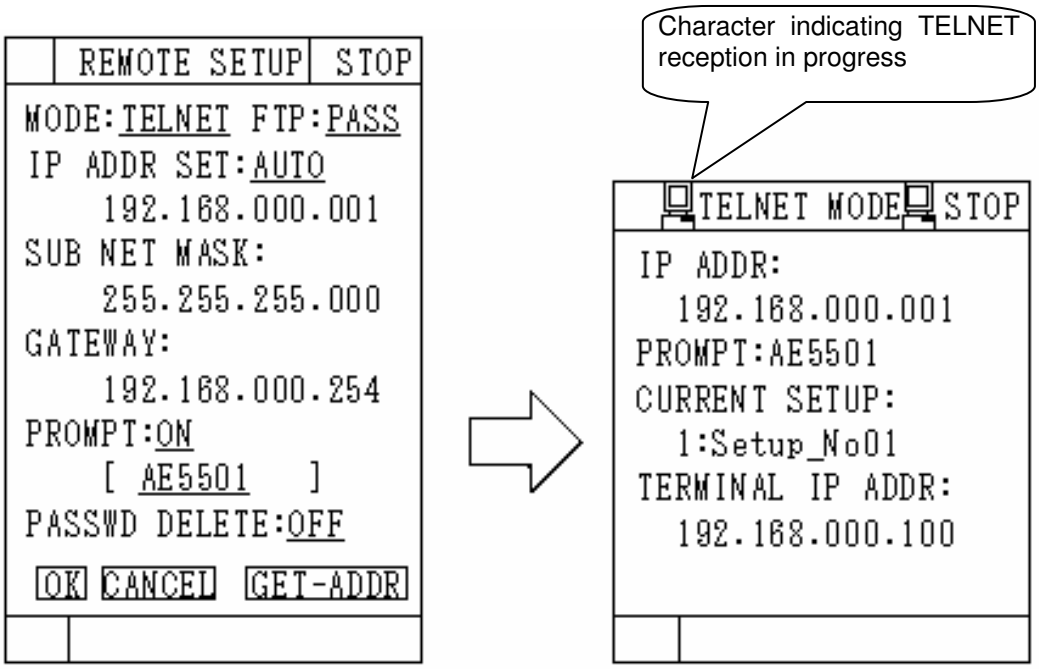


Figure 4.2-38 The condition that it waits for the control

1 PROMPT
When TELENET control is done from the outside terminal, it becomes the designation of PROMPT indicated in the terminal. When it is specified for off, PROMPT becomes only ">".
The length of the character line which can be specified as PROMPT is to eight characters.
Each character can use an English letter except for the space and a number. (A character from 0x21 of ASCII code to 0x7E.)
It can't be set up when the space is specified in PROMPT character line.
But, specify the space in the right end when you make the number of characters less than seven characters.

2 PASSWD DELETE
It is the function which erases the password which is necessary for the SU command of TELNET.
(The settlement of the password uses a passwd command.)
It is usually a setup of off. Turn it on, and choose an "OK" button only when you forget a password.

4.2.17 Self Test Screen

This screen is used to set up operation validation testing of the device. Figure 4.2-39shows the Self Test screen and Table 4.2-37 describes the functions of the keys.

This device's self-testing function consists of the following three stages:
TEST1: Read/write check of the CompactFlash
TEST2: Transmitting memory check
TEST3: PHY operations check

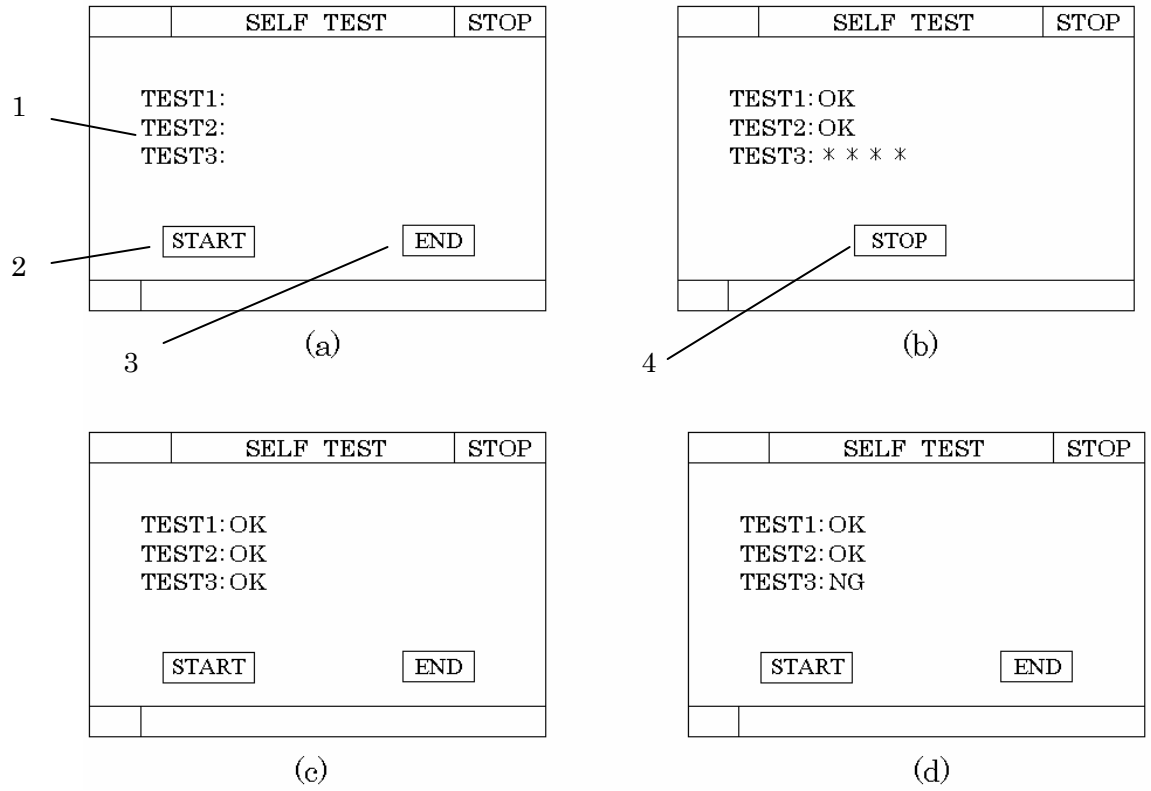


Figure 4.2-39 Self Test screen

Each screen shown in Figure 4.2-39 is outlined below.

(a) This is the Self Test standby screen.
(b) This screen is displayed while the self-test is running.
(c) This screen shows the results.
(d) This screen shows the results.

Table 4.2-37 Key Functions (Self Test screen)

Key	Description
POWER	Power on/off
↑	NA
↓	NA
←	To change items
→	To change items
RUN	NA
STOP	NA
DISP	To return to the Mode Select screen.
ENTER	1 Runs self-testing when the cursor is pointing to [START]. 2 Displays the Mode Select screen when the cursor is pointing to [END].
UP	NA
DOWN	NA

The following provides a description of the screen elements.

2 Test result
The self-test results of the device will be shown here.

3 START button
This button is used to start the self-testing.

4 END button
This button is used to display the Mode Select screen.

5 STOP button
This is button is used to stop the self-testing.

NOTE

All LEDs blink while the self-test is running.

CAUTION

Ensure that the device is disconnected from any lines to be measured (or that no cables are connected to the measuring port) when you run self-testing. Failure to follow this caution may result in adverse affects to the lines to be measured.

4.2.18 Time Set Screen

The timer can be set on the Time Set screen. Figure 4.2-40 shows the Time Set screen and Table 4.2-38 describes the functions of the keys.

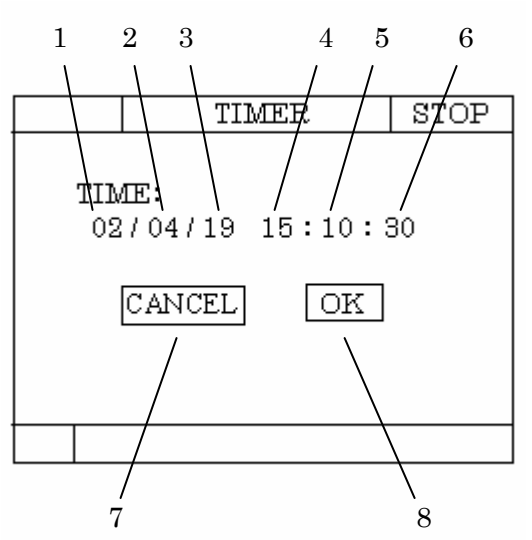


Figure 4.2-40 Time Set screen

Table 4.2-38 Key Functions (Time Set screen)

Key	Description
POWER	Power on/off
↑	To move the cursor
↓	To move the cursor
←	To move the cursor
→	To move the cursor
RUN	NA
STOP	NA
DISP	Settings will be established and the display will return to the Mode Select screen.
ENTER	1 Changes to the Mode Select screen after saving the setup details when the cursor is pointing to [OK]. 2 Changes to the Mode Select screen after canceling the setup details when the cursor is pointing to [CANCEL].
UP	To change numerical values.
DOWN	

The following provides a description of the screen elements.

1 Year
Input the last two digits of the year in decimal numbers. Table 4.2-39 shows the setting range.

2 Month
Input the month in decimal numbers. Table 4.2-39 shows the setting range.

3 Day
Input the day in decimal numbers. Table 4.2-39 shows the setting range.

4 Hour
Input the hour in decimal numbers. Table 4.2-39 shows the setting range.

5 Minute
Input the minute in decimal numbers. Table 4.2-39 shows the setting range.

6 Second
Input the second in decimal numbers. Table 4.2-39shows the setting range.

Table 4.2-39 Setting Range

Item	Range
Year	00–19
Month	01–12
Day	01–31
Hour	00–23
Minute	00–59
Second	00–59

7 CANCEL button
Cancels the settings and changes the display to the Mode Select screen.

8 OK button
Establishes the settings and changes the display to the Mode Select screen.

NOTE

The Time Set items are retained by a built-in battery, which would be impossible to achieve if the battery is dead. When the battery life expires, call our Customer Service Division regarding replacement service, the cost of which is charged to the user. To replace the internal battery, the device itself must be sent to the division.

4.2.19 ALL DEFAULT Screen

This screen is used to check the disk for the CompactFlash built into the AE5501. After checking the disk, the setup files will be initialized and all result files will be deleted. Use this function if system errors frequently occur.

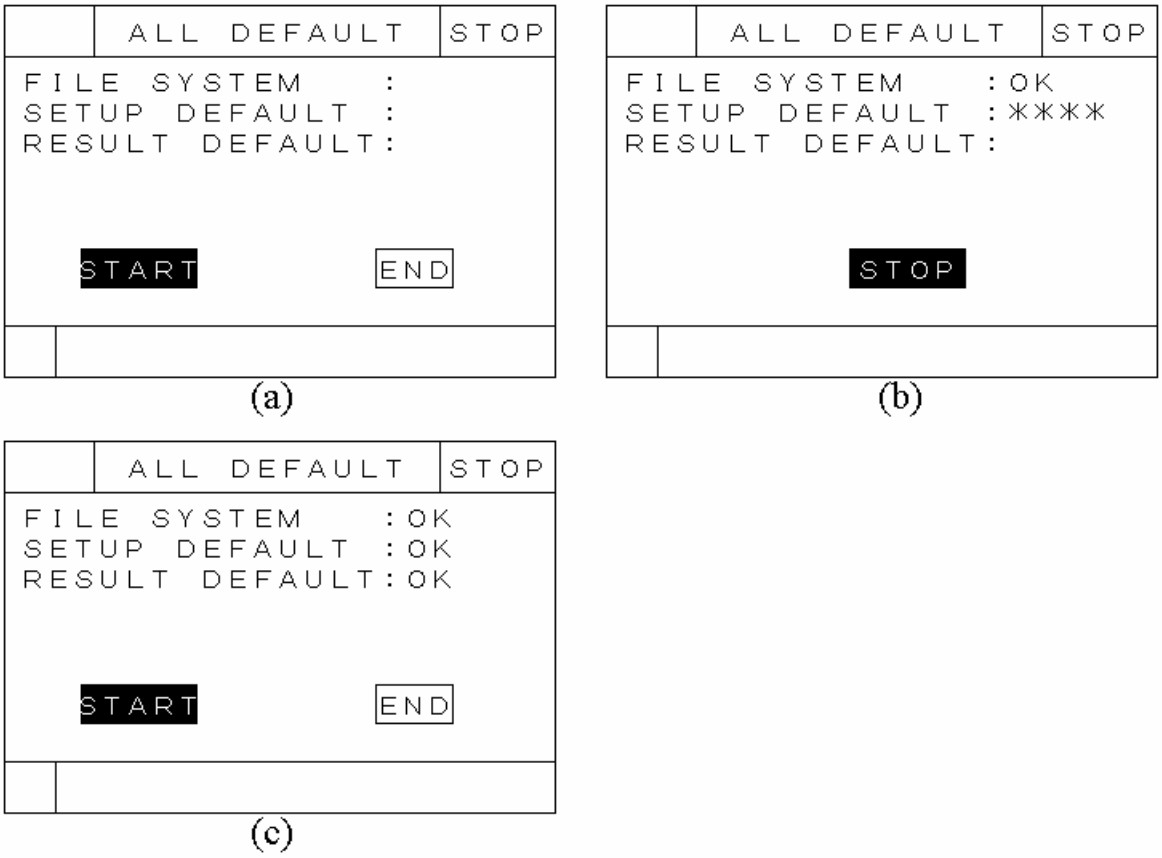


Figure 4.2-41 ALL DEFAULT screen

Table 4.2-40 Key functions (ALL DEFAULT screen)

Key type	Description
POWER	Power on/off
↑	NA
↓	NA
←	To move the cursor
→	To move the cursor
RUN	NA
STOP	NA
DISP	To return to the Mode Select screen.
ENTER	1 Runs the ALL DEFAULT function when the cursor is pointing to [OK]. 2 Changes the display to the Mode Select screen when the cursor is pointing to [END].
UP	NA
DOWN	

Each screen shown in Figure 4.2-41 is outlined below.

(a) This is the initial screen. Point the cursor to [START] and press the ENTER key to run the ALL DEFAULT function.
(b) This shows that the ALL DEFAULT function is running. Pressing the ENTER key stops the function.
(c) This shows the processing results of the ALL DEFAULT function. To exit the screen, press the DISP key or point the cursor to [END] and press the ENTER key.

Items to be processed are described below.

FILE SYSTEM
This checks the file system of the CompactFlash. If a damaged file is found, it will be automatically deleted (including a system file).
If the AE5501 does not boot up after running the ALL DEFAULT function, perform the recovery operation. (For further details, see Section 5.5.2 “Recovery Mode.”

SETUP DEFAULT
This initializes the setup files.

RESULT DEFAULT
This deletes all result files.

Repeat this function several times if NG is indicated as a processing result.

4.3 TELNET remote control

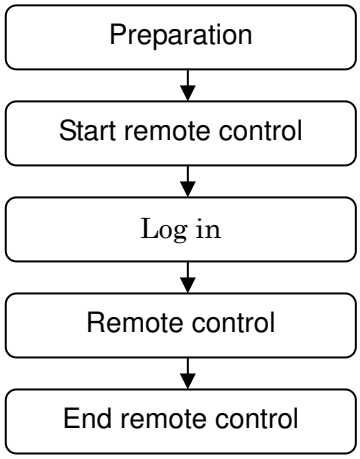
This section describes AE5501 remote control using TELNET.
TELNET remote control of the AE5501 is a function which allows the AE5501 to be remotely controlled through a PC or the like using TELNET. TELNET commands are used to control operations. A list of TELNET commands is shown in the table below.

Table 4.3-1 TELNET commands

Function name	Commands	Details
Super user command	su	Page 4-119
End remote control	quit or exit	Page 4-121
Start measurement	run	Page 4-122
Stop measurement	stop	Page 4-123
Check status	status	Page 4-125
Change measurement condition	select	Page 4-127
Display measurement condition list	setlist	Page 4-128
Change setting	set	Page 4-129
Check setting	display	Page 4-136
Display measurement results	result	Page 4-140
Display result file list	list	Page 4-146
Delete result file	delete or remove	Page 4-148
Display version	version	Page 4-151
Self test	selftest	Page 4-152
Set date/time	datetime	Page 4-153
Display date/time	datetime	Page 4-154
Set all defaults	init	Page 4-155
Upgrade version	versionup	Page 4-156
AE5730 remote control	remote	Page 4-157
Performs DHCP	dhcp	Page 4-158
Performs ARP	arp	Page 4-159
Set prompt	prompt	Page 4-161
Set password	passwd	Page 4-160
Command history list	history	Page 4-162
Help	help or ?	Page 4-163
Script commands		Page 4-165

4.3.1 TELNET Basic remote control procedure

The basic flow of TELNET remote control operations is as follows.



4.3.1.1 Preparation

Prepare for remote control operations.

1 The confirmation of cable connections
Remote control operations may be performed in a variety of connection configurations. Check whether all of the cable connections are OK.
Remote control cannot be performed simply by connecting a remote line to the AE5501 measurement port. The remote line must be connected to the remote port located on the right side of the unit.

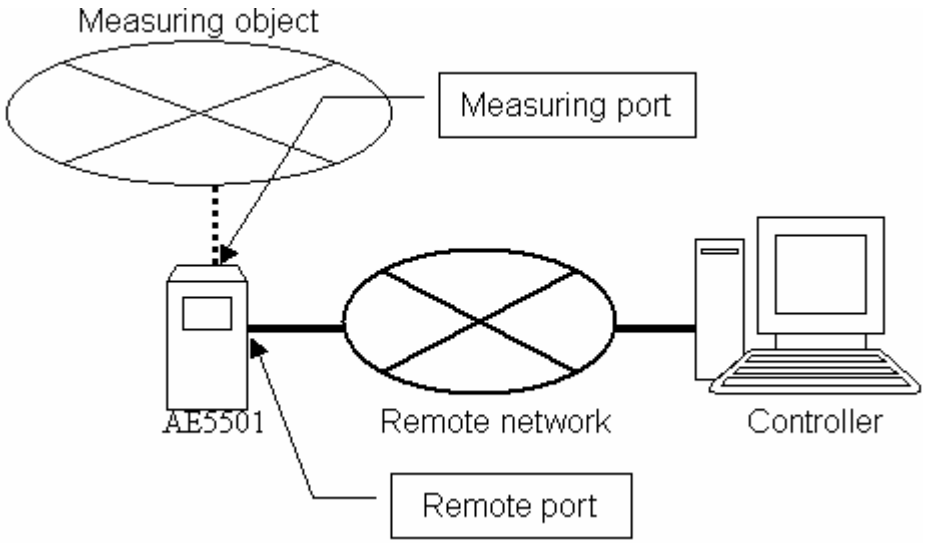


Figure 4.3-1 Basic illustration of connections for remote control

2 A setup of a network of AE5501 and the controller
See 4.1.5Connecting to an AE5730E-installed PC for information on various network settings.

3 Terminal software settings
Prepare the remote control terminal software on the controller. The “Hyperterminal” application or “TELNET” application is normally installed as a standard feature on Windows operating systems.
Select “VT100” as the terminal software emulation mode.

4.3.1.2 Starting remote control

The following procedure is required to start remote control.

1 Preparation for the TELNET connection
Select “TELNET” as the “MODE” item on the AE5501 REMOTE SETUP screen, then select “OK” or press the DISP key.
After this, the screen automatically changes to the MODE SELECT screen. On the MODE SELECT screen, the AE5501 is ready for a TELNET connection. At this time, all keys other than the UP/DOWN keys and the STOP key are disabled. (The STOP key is used to abort TELNET control.)

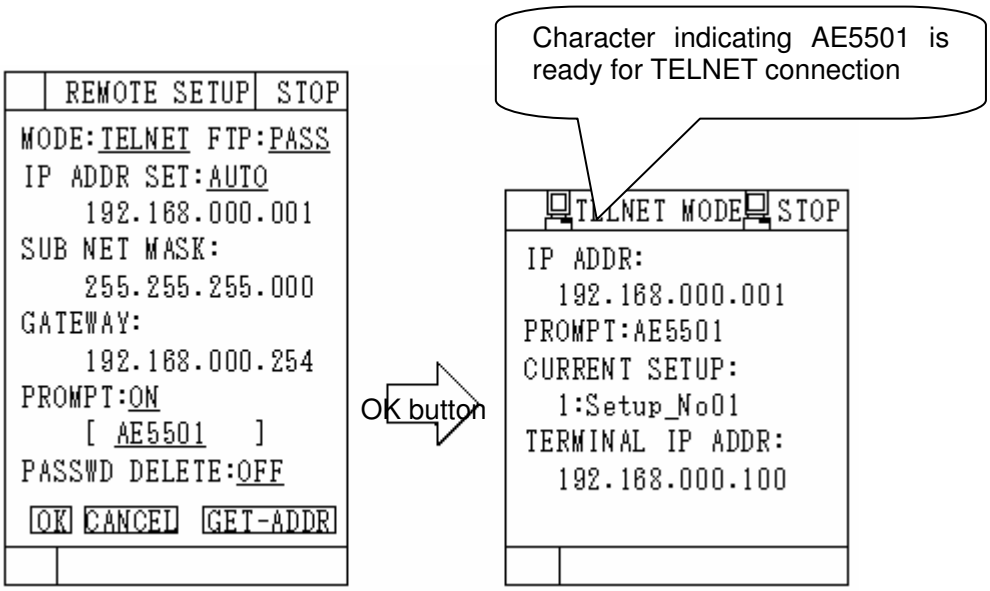


Figure 4.3-2 TELNET Connection Ready State

The item indicated on the TELNETMODE screen is shown in the following.

(a) IP ADDR
The IP address of remote port confirmed on the REMOTE SETUP screen is indicated.

(b) PROMPT
A REMOTESETUP screen or PROMPT set up with the PROMPT command during the TELNET control is indicated.

(c) CURRENT SETUP
SETUP chosen at present is indicated.

2 A TELNET connection from the controller which terminal software was used for
After confirming that the AE5501 is ready, start the TELNET connection through the terminal software on the controller.
Following is an example of a connection using the HyperTerminal that is provided as a standard feature in Windows 2000.

(a) Start terminal software
From the Windows Start menu, select “Run”, then type “hypertrm.exe” and click “OK”. The IP address indicated on the MODE SELECT screen of AE5501 is inputted to ***.***.***.***.

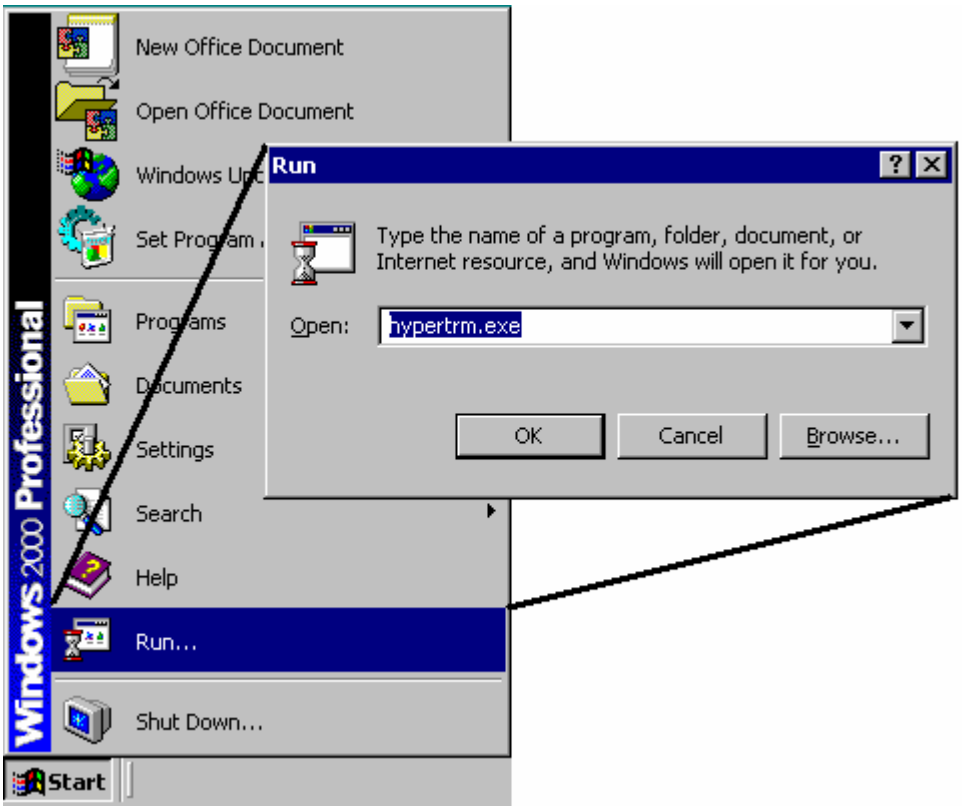


Figure 4.3-3 Starting the terminal software (example)

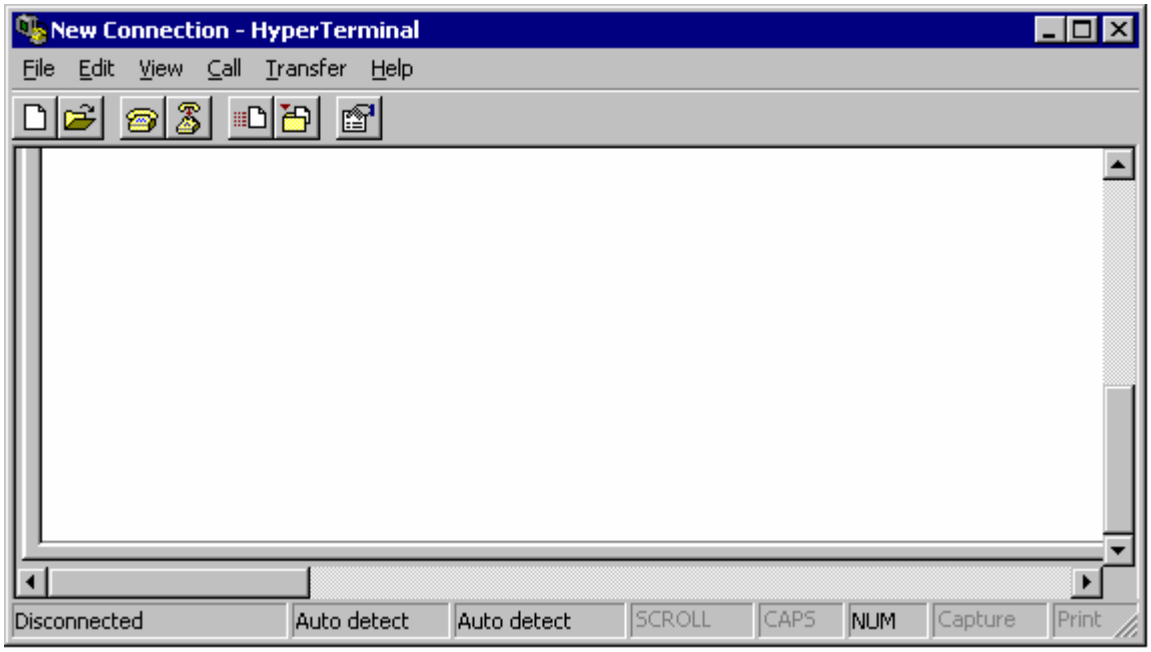


Figure 4.3-4 Terminal software (TELNET) startup screen

(b) Specifying the destination IP address and Connection Settings
From the terminal software menu bar, select “File” → “Properties”.

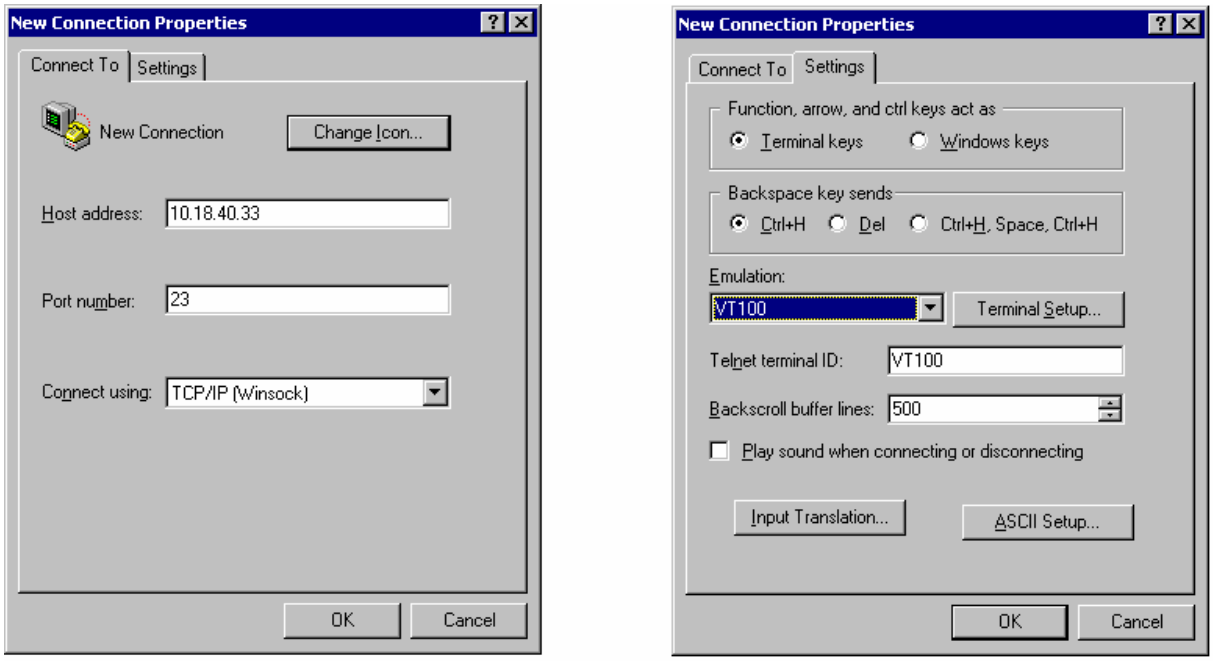


Figure 4.3-5 Connection settings screen

For “Host address”, enter the IP address shown on the AE5501 MODE SELECT screen.
Set “Connect using” to “TCP/IP [Winsock]”, and set “Emulation” to “VT100”.

4.3.1.3 Log in

When the TELNET connection is completed in the terminal connection, you will be prompted to enter a login name and password.

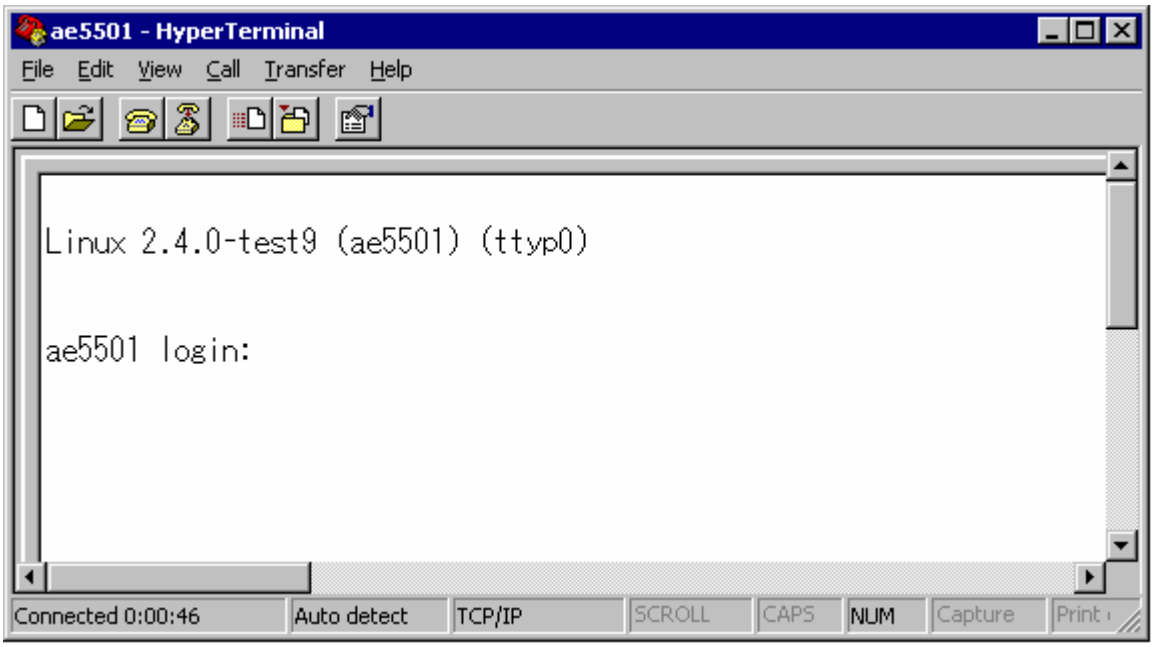


Figure 4.3-6 Log in screen

Enter "ttmini" in lower case for both the login name and password. If login is successful, the screen appears as shown below.

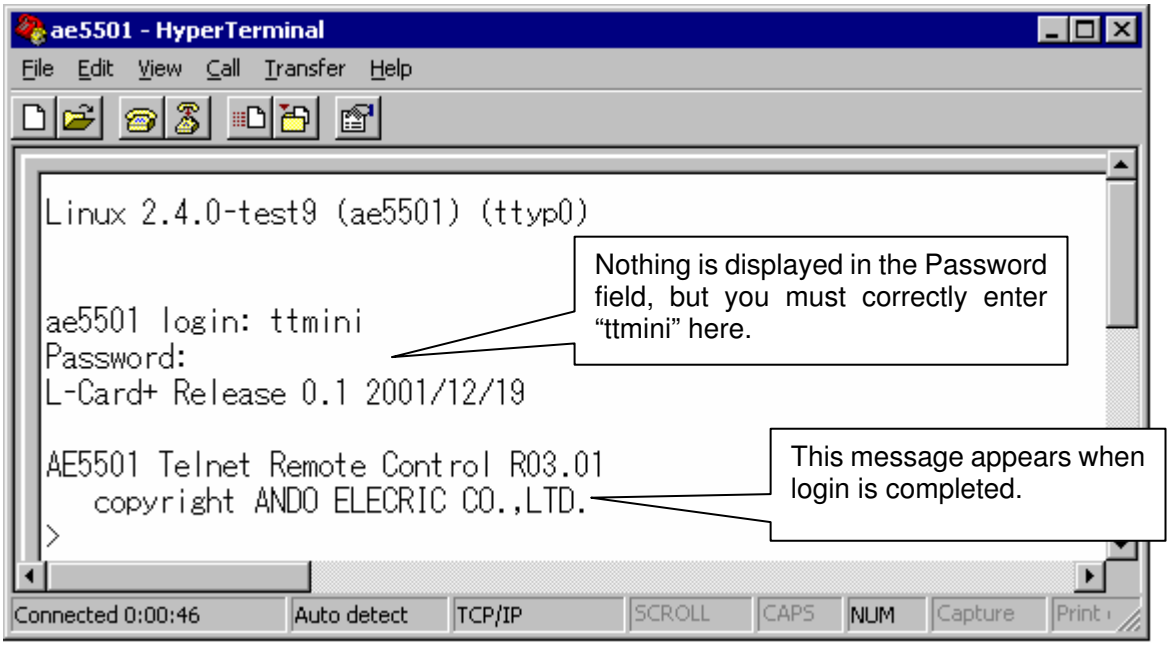


Figure 4.3-7 Log in complete screen

If the login or password is incorrect, you will be prompted to reenter them on this screen. Note that the TELNET connection will be disconnected if they are entered incorrectly three times in a row.
If ttmini has already been used to login from another terminal, the following message appears and the TELNET connection is disconnected. (**Login from multiple terminals is not allowed**)

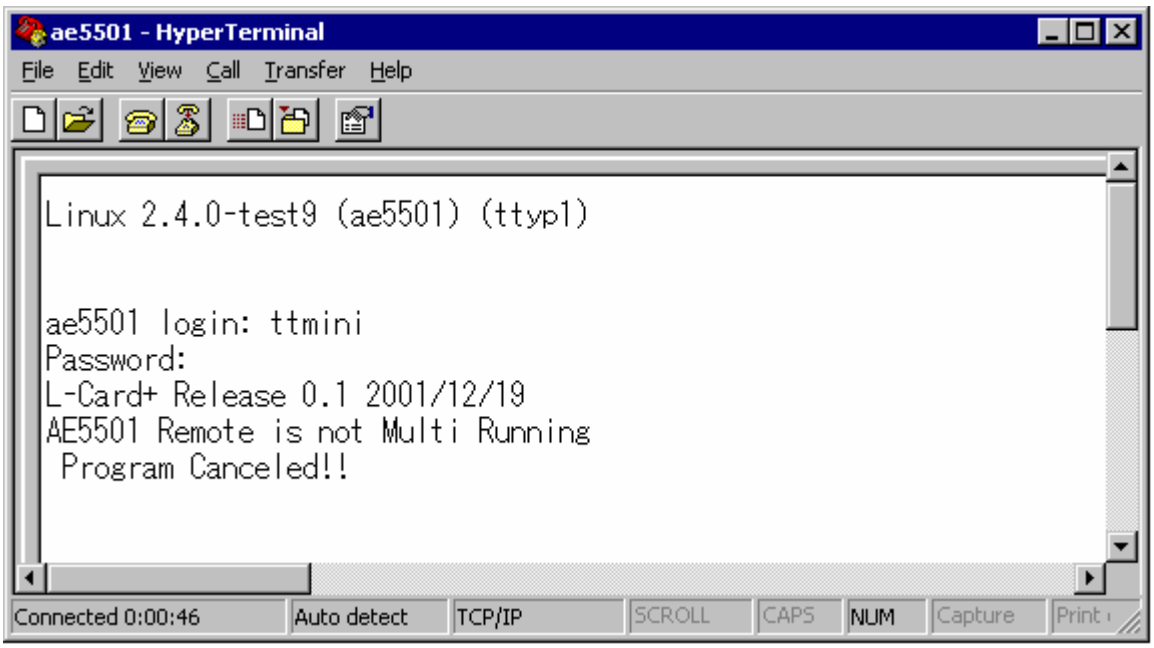


Figure 4.3-8 Message appearing when the same login name has already been used

NOTE
When the network is down during the fixed time, "AE5501" has the possibility to keep maintaining the TELNET session. **In case that, Enter “clear” in lower case for both the login name and password**. If login is successful, All Telnet session that AE5501 in keeping is released.

4.3.1.4 Remote control

The AE5501 is not remotely controlled as soon as login is completed. It is the condition (the USER mode) that only a setup and the indication of the result can be carried out. The current connection status can be determined using the “status” command.
To change to control status, enter the “su” command. This activates control status, making it possible to perform various actions, such as executing and stopping measurement, displaying and editing measurement conditions, and displaying and deleting measurement results. For information on command types, see 4.3.2 TELNET commands.
The following diagram shows the transition to control status using the su command.

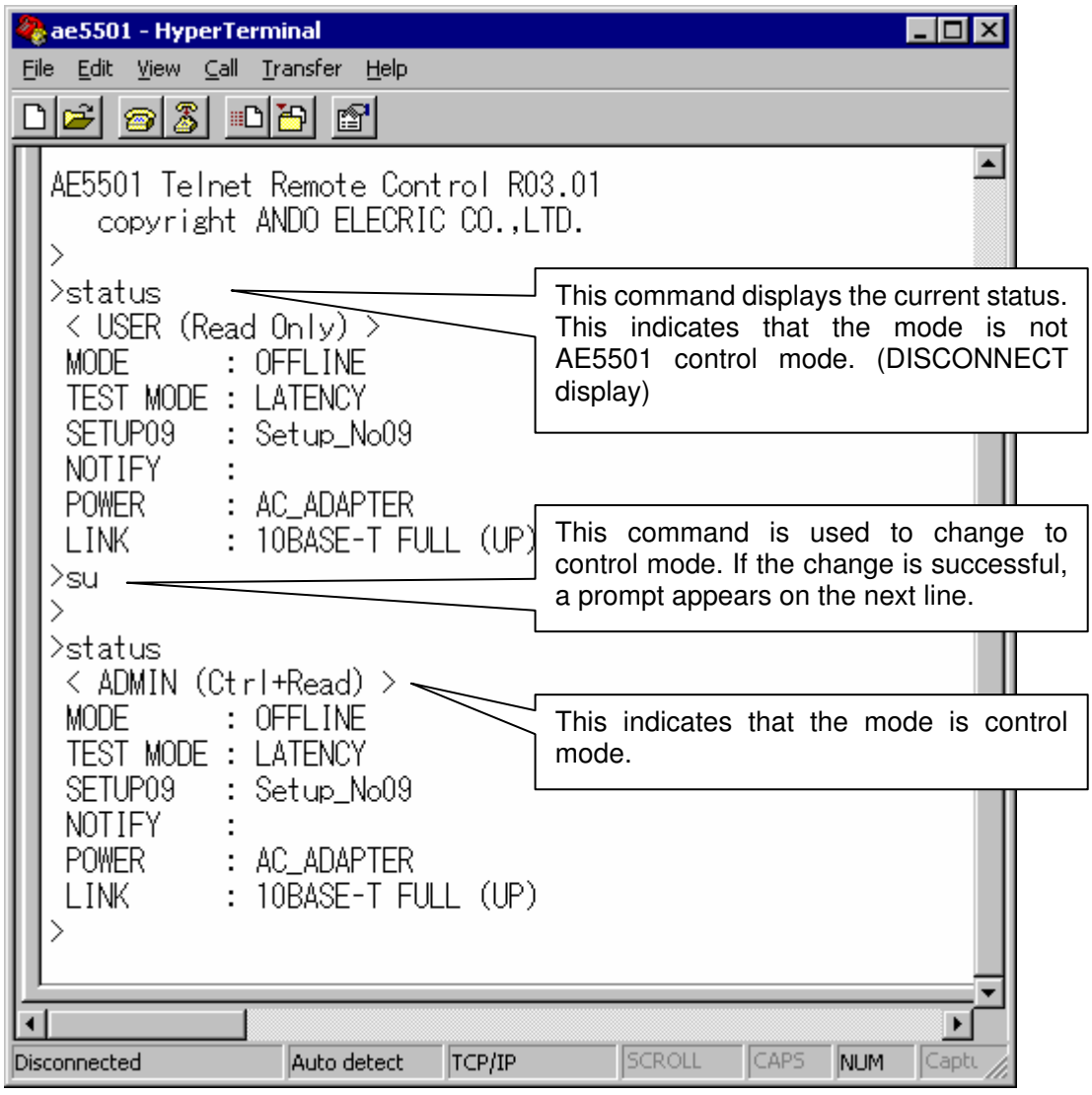


Figure 4.3-9 Change to control mode

Please note the following points which pertain to TELNET command input.

1 The key which is effective in input of a TELNET command.
(a) Alphanumeric/symbol keys
(b) [Esc] key (used to stop a script which is in progress; the cancellation of the input when a script is not being executed)

2 A precaution in the case of input of a TELNET command.

The TELNET command input format is as follows.
[Command] [Sub-command] [Parameter]:[Sub-parameter]=[Value]
example) >set setup01 link:L1=10BASE-T_FULL

(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)
>	set		setup01		link:L1	=	10BASE-T_FULL

(a)This is the prompt display.
(b)This is the command.
(c)This is a space. Be sure to enter spaces between the command and sub-command, and between the command and parameter.
(d)Sub-command (may be omitted)
(e)This is a space. Be sure to enter spaces between the sub-command and parameter.
(f)Parameter and sub-parameter. The entry in this case means “Item L1 of LINK settings group”.
(g)This is a symbol for entering a value.
(h)This is the value being registered. It may consist of a character string or a numerical value (DEC or HEX).

TELNET commands are also valid in abbreviated form.
Example >display setup03 tx_frame1:vlan1

>disp 3 tf1v1

There is no distinction between upper case and lower case in half-size alphanumeric characters entered for [Command], [Sub-command] and [Parameter].

>SET SetuP01 Link:L1=10Base-t_Full
>sEt sETUp01 liNK:l1=10baSE-T_fuLL

If a pound sign (#) is entered at the beginning, the line is treated as a comment line and no action is taken.

3 Input support function.

The following function is assigned to key input as a support function of input of a command.

Key	Function
↑↓	The history of the command is indicated. Maximum history for 50 lines can be kept.
PageUp,PageDown ctrl+N,ctrl+B	Item switching of the sub-command, the sub-parameter, the setup value.

A PageUp/PageDown may not be able to be used by the terminal software.
Do item switching by using "ctrl+N","ctrl+B" in that case.

4.3.1.5 Ending remote control

To end remote control, enter “quit” or “exit” at the prompt. Doing so automatically disconnects the TELNET connection. When this happens, the AE5501 is maintained in the TELNET connection ready state.
To start another TELNET connection, set the AE5501 to the TELNET mode reception state.

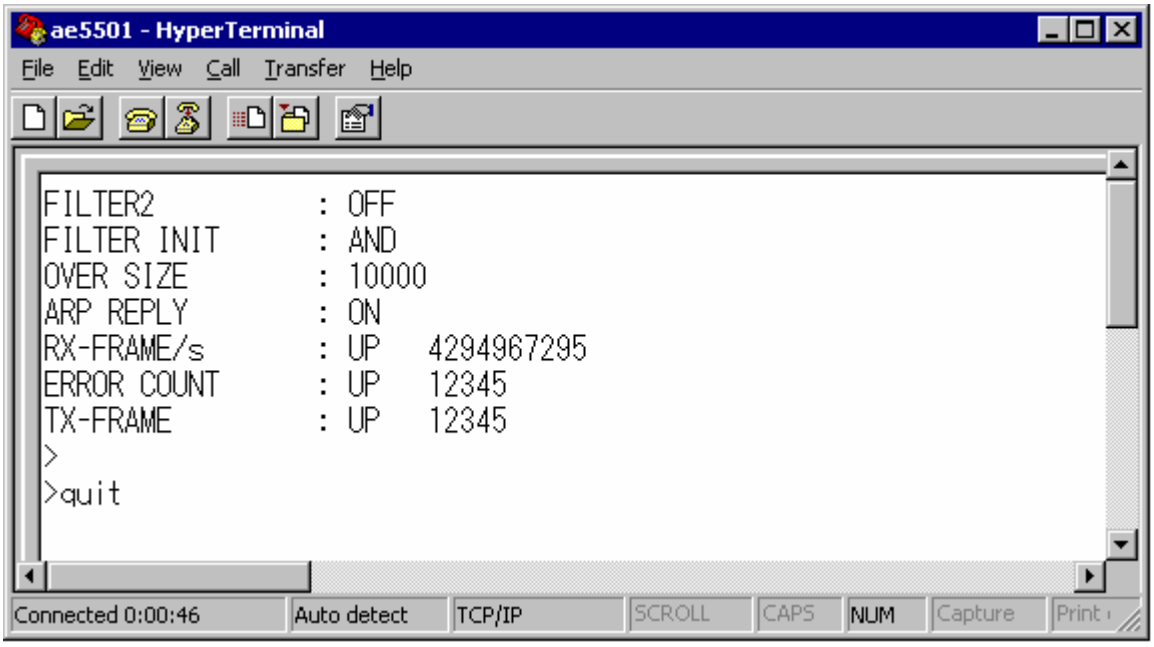


Figure 4.3-10 End remote control

NOTE
To finish remote control,use a completion command, or cut terminal software. Try to do a connection again after it passes for about 10 seconds when you connect TELNET again. Be sure to set up the AE5501's own TELNET mode again when remote cable comes out during the TELNET connection. The re-setup of the TELNET mode is done with the following process. (a) Push the stop key of AE5501. (b) Change a screen on the REMOTE SETUP screen, and choose TELNET. (Refer to 4.3.1.2 Starting remote control) A TELNET session is cut when the re-setup of the TELNET mode is done during the TELNET connection.

4.3.2 TELNET commands

This section describes the TELNET commands used to remotely control the AE5501.
The individual transmission contents may or may not be available for input depending on the conditions. Table 4.3-2 and Table Table 4.3-3 present lists of conditions under which each TELNET command may or may not be entered.

Table 4.3-2 Commands in normal input mode

Function name	Commands	AE5501 and PC connected							
		As soon as login is completed - USER -				After input of a su command - ADMIN -			
		Condition of AE5501				Condition of AE5501			
		OFFLINE	ONLINE RX only	ONLINE RX&TX	REMOTE	OFFLINE	ONLINE RX only	ONLINE RX&TX	REMOTE
Super user	su	OK	OK	OK	OK	NO	NO	NO	NO
Remote control stop	quit(exit)	OK	OK	OK	OK	OK	OK	OK	OK
Measurement start	run	NO	NO	NO	NO	OK	OK	NO	NO
Measurement stop	stop	NO	NO	NO	NO	NO	OK	OK	OK
Status check	status	OK	OK	OK	OK	OK	OK	OK	OK
Change measurement condition	select	NO	NO	NO	NO	OK	NO	NO	NO
Display measurement conditions list	setlist	OK	OK	OK	NO	OK	OK	OK	NO
Change settings	set	NO	NO	NO	NO	OK	NO	NO	NO
Setting check	display	OK	OK	OK	NO	OK	OK	OK	NO
Display measurement results	result	OK	OK	OK	NO	OK	OK	OK	NO
Display results file list	list	OK	OK	OK	NO	OK	OK	OK	NO
Delete results file	delete (remove)	NO	NO	NO	NO	OK	NO	NO	NO
Display version	version	OK	OK	OK	OK	OK	OK	OK	OK
Self test	selftest	NO	NO	NO	NO	OK	NO	NO	NO
Set time/date	datetime	NO	NO	NO	NO	OK	NO	NO	NO
Display time/date	datetime	OK	OK	OK	OK	OK	OK	OK	OK
Set all defaults	init	NO	NO	NO	NO	OK	NO	NO	NO
Version upgrade	versionup	NO	NO	NO	NO	OK	NO	NO	NO
AE5730E remote control	remote	NO	NO	NO	NO	OK	NO	NO	NO
Performs DHCP	dhcp	NO	NO	NO	NO	OK	NO	NO	NO
Performs ARP	arp	NO	NO	NO	NO	OK	NO	NO	NO
Set password	passwd	NO	NO	NO	NO	OK	OK	OK	NO
Set prompt	prompt	NO	NO	NO	NO	OK	OK	OK	NO
Command history list	history	OK	OK	OK	OK	OK	OK	OK	OK
Help	help(?)	OK	OK	OK	OK	OK	OK	OK	OK

NO: Cannot be executed (Error message is displayed.)
OK: Execution is possible while connected or in the operating state. However, execution may not be possible depending on the combination of measurement conditions.If execution is not possible, an error message is displayed.

Table 4.3-3 Script commands

Function name		Commands	USER authority	ADMIN authority			
				Condition of AE5501			
				OFFLINE	ONLINE RX	ONLINE	REMOTE
Script	Start registration	Shell	OK	OK	OK	OK	OK
	End registration	shellend	OK	OK	OK	OK	OK
	Display program	shellview	OK	OK	OK	OK	OK
	Execute script	shellgo	OK	OK	OK	OK	OK
	Wait	wait	OK	OK	OK	OK	OK
	Start loop	loop	OK	OK	OK	OK	OK
	End loop	loopend	OK	OK	OK	OK	OK

NO: Cannot be executed (Error message is displayed.)
OK: Execution is possible while connected or in the operating state. However, execution may not be possible depending on the combination of measurement conditions.If execution is not possible, an error message is displayed.

4.3.2.1 Su (Super user) command

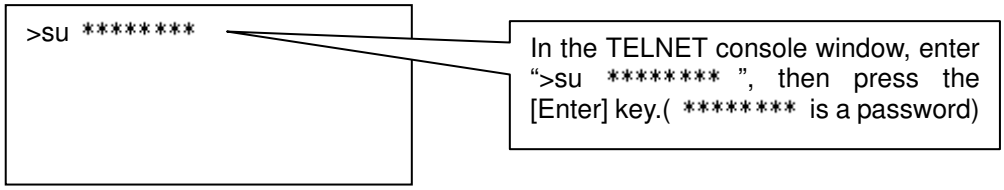
It is the command to change the authority of the TELNET movement.
Authority condition is as the following.

USER	The state immediately after login Only a setup and the indication of the result are possible.
ADMIN	Setup and the indication of the result. Change settings, measurement executive control, Delete results Self test, time setting, default AE5730E remote, version up setting

A SU command is effective only in the case of USER authority. When a su command is accepted, authority is changed from USER to ADMIN. It can't be changed to USER authority from ADMIN authority. SETUP01 is chosen under the condition that a Su command is inputted as a measurement condition.

1 Command input

A password is inputted after the su command when settlement of a password of the ADMIN authority change is done.
The password of the authority change can be set up by inputting a PASSWD command under the ADMIN condition.



2 An effect effect-less condition with the command input

Refer to Table 4.3-2

3 Screen example

During normal operation, nothing is displayed and the system waits for the next command.

```
>su
>
```

It is inputted as follows when a password is set up.

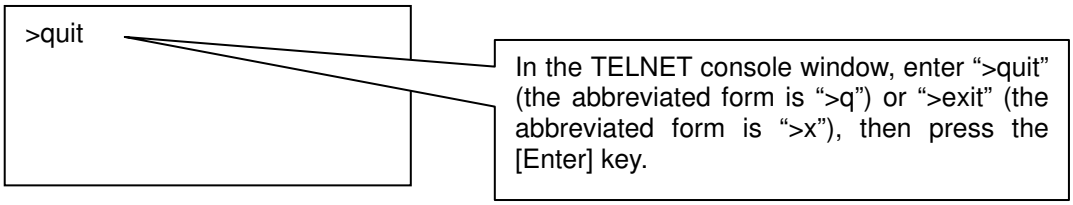
```
>su 12345
>
```

If, when a password is forgotten, "PASSWD DELETE" of the AE5501's own REMOTE SETUP screen is set up in on, and a password can be erased.

4.3.2.2 QUIT (Remote control stop) command

This command is used to cancel remote control by a controller terminal and enable direct control on the AE5501 unit. When remote control is ended by the QUIT command, the TELNET command ready state on the AE5501 is also cleared. To start remote control again, set the AE5501 to the TELNET command ready state, then use the connect command.

1 Command input



2 An effect effect-less condition with the command input
Refer to Table 4.3-2

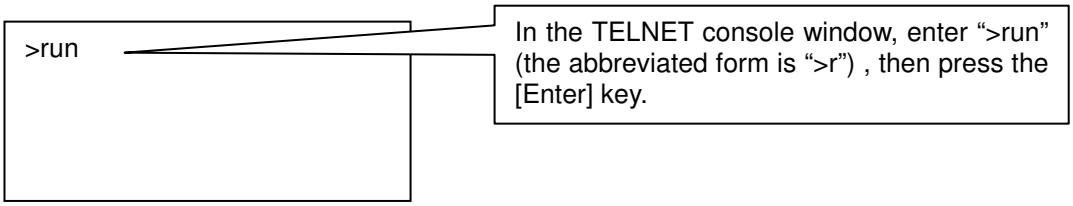
4.3.2.3 RUN (Measurement start) command

The function of this command is like that of the [RUN] key on the AE5501.
The “RUN MODE” setting in the measurement conditions (see 4.2.101 on page 4-52 for details on “RUN MODE”) determines the particular operation which is performed after the RUN command is entered.

”RUN MODE”=RX->TX
-> Only reception starts when “>run” is entered. When “>run” is entered again, transmission and reception start.
”RUN MODE”=RX&TX
-> When “>run” is entered, transmission and reception start.

Even if a link fails when measurement starts, the measurement is started anyway.
If measurement is started while there are more than 100 measurement result files, the oldest file is deleted before measurement starts.

1 Command input



2 An effect effect-less condition with the command input
Refer to Table 4.3-2

3 Screen example
During normal operation, nothing is displayed and the system waits for the next command.

```
>run
Please Wait...
>
```

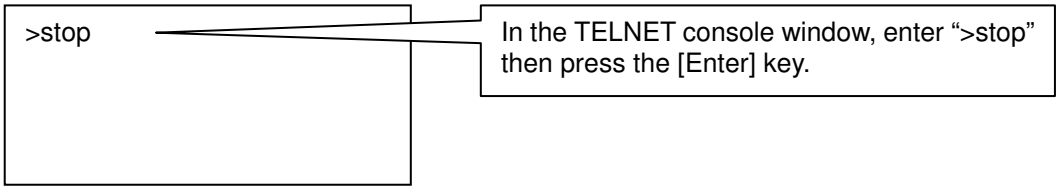
4.3.2.4 STOP (Measurement stop) command

The function of this command is like that of the [STOP] key on the AE5501.
The “RUN MODE” setting in the measurement conditions (see 4.2.101 on page 4-52 for details on “RUN MODE”) determines the particular operation which is performed after the STOP command is entered.

”RUN MODE”=RX->TX
-> Only transmission is stopped when “>stop” is entered while sending/reception is in progress. When “>stop” is entered again, measurement is stopped.
”RUN MODE”=RX&TX
-> When “>stop” is entered, measurement is stopped.

If this command is executed while an AE5730E control command (see 4.3.2.19) is being used, the AE5730E control command is cancelled.

1 Command input



2 An effect effect-less condition with the command input
Refer to Table 4.3-2

3 Screen example
During normal operation, nothing is displayed and the system waits for the next command.

```
>stop
>
```

The following screen is displayed if the command is executed while the AE5501 is OFFLINE.

```
>stop
>stop
Now Offline...
>
```

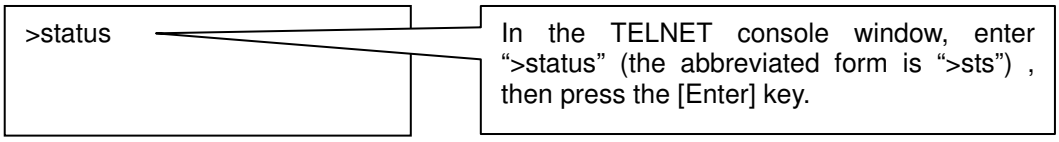
The following screen is displayed while the AE5730 control command is being cancelled.

```
>stop
>
```

4.3.2.5 STATUS (Status check) command

This command is used to display the current AE5501 operating status, the selected measurement conditions, etc.

1 Command input



2 An effect effect-less condition with the command input
Refer to Table 4.3-2

3 Screen example
The contents indicated by input of a command are as mentioned in the bottom table.

Table 4.3-4 Contents of indication 1/2

Overview	Screen display	Description
Connection statuses	USER (Read Only)	It is shown that it is USER authority.
	ADMIN (Ctrl+Read)	It is shown that it is ADMIN authority.
Operating statuses (MODE)	OFFLINE	Indicates that the AE5501 is OFFLINE.
	ONLINE	Indicates that the AE5501 is ONLINE (frame sending/reception in progress).
	ONLINE(Rx)	Indicates that the AE5501 is ONLINE (frame reception in progress).
	REMOTE	Indicates that an AE5730E control command is being executed.
Selected test mode (TEST MODE)	GENERATE	Indicates that the selected test mode is GENERATE.
	LATENCY	Indicates that the selected test mode is LATENCY.
	PING	Indicates that the selected test mode is PING.
	REPLY	Indicates that the selected test mode is REPLY.
	LOOPBACK	Indicates that the selected test mode is LOOPBACK.
Selected measurement condition (Setup01 to 10 FREE)		Indicates the currently selected measurement condition and its name. Note that this is not displayed while an AE5730E control command is being executed.
Notification message (NOTIFY)	ARP MISS	Indicates that the status has changed to OFFLINE because the ARP process at the start of PING measurement failed.
	STOP ACTION	Indicates that STOP ACTION was successful and transmission has been stopped or measurement has been ended.
	I/F MISMATCH	Indicates that running is not possible due to an I/F mismatch.
	COUNT SEND OVER	Indicates that count transmission ended and transmission stopped.

Table 4.3-5 Contents of indication 2/2

Overview	Screen display	Description
Power supply status (POWER)	AC_ADAPTER	Indicates that an AC adapter is being used.
	BATTERY_HIGH	Indicates that the battery level is HIGH.
	BATTERY_MIDDLE	Indicates that the battery level is MIDDLE. Quickly recharging the battery is recommended.
	BATTERY_LOW	Indicates that the battery level is LOW. The power must be turned off immediately and the battery must be recharged.
Interface	10BASE-T HALF	It is shown that circuit is 10BASE-T HALF.
	10BASE-T FULL	It is shown that circuit is 10BASE-T FULL.
	100BASE-TX HALF	It is shown that circuit is 100BASE-T HALF.
	100BASE-TX FULL	It is shown that circuit is 100BASE-T FULL.
	1000BASE-T FULL	It is shown that circuit is 1000BASE-T FULL.
	1000BASE-SX FULL	It is shown that circuit is 1000BASE-SX FULL.
	1000BASE-LX FULL	It is shown that circuit is 1000BASE-LX FULL.
Link status	UP	It is shown that link is up.
	DOWN	It is shown that link is down.

Following is an example of the screen display when the Check Status command is executed.

```
>status
 <ADMIN(Ctrl+Read)>
 MODE      : OFFLINE
 TEST MODE : GENERATE
 SETUP01   : Setup_No01
 NOTIFY    :
 POWER     : AC_ADAPTER
 LINK      : 100BASE-TX FULL (UP)
```

4.3.2.6 SELECT (Change measurement condition) command

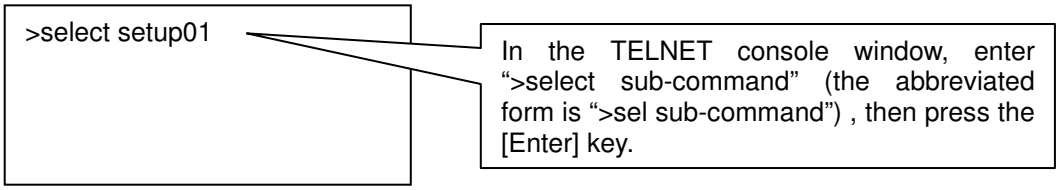
This command changes the currently selected measurement condition. When the measurement condition is changed using this command, it becomes valid when the sub-parameter is omitted in the following commands.

Condition for changing settings with the SET command

Condition for displaying settings with the DISP command

In addition to the above, the measurement condition also applies to starting measurement with the RUN command.

1 Command input



2 Sub-command

Sub-command

Select a measurement condition as a sub-command. The table below presents a list of sub-commands that can be selected.

Table 4.3-6 Sub-command

Sub-command	Abbreviated forms	Description
setup01	1(s1)	Generate/Latency Measurement Condition 1
setup02	2(s2)	Generate/Latency Measurement Condition 2
setup03	3(s3)	Generate/Latency Measurement Condition 3
setup04	4(s4)	Generate/Latency Measurement Condition 4
setup05	5(s5)	Generate/Latency Measurement Condition 5
setup06	6(s6)	Generate/Latency Measurement Condition 6
setup07	7(s7)	Generate/Latency Measurement Condition 7
setup08	8(s8)	Generate/Latency Measurement Condition 8
setup09	9(s9)	Generate/Latency Measurement Condition 9
setup10	10(s10)	Generate/Latency Measurement Condition 10
Free	f(s11)	Ping/Reply/Loopback Measurement Condition

3 An effect effect-less condition with the command input

Refer to Table 4.3-2

4 Screen example

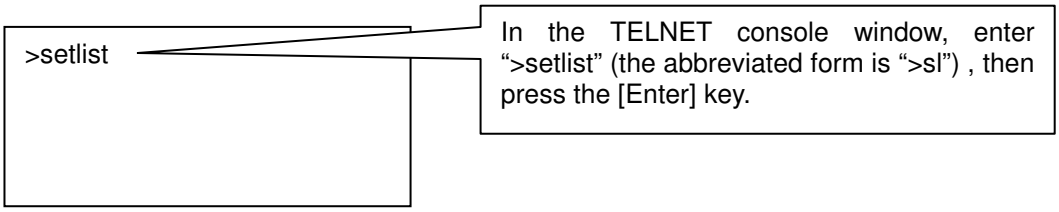
During normal operation, nothing is displayed and the system waits for the next command.

```
>select setup01
>
```

4.3.2.7 SETLIST (Display measurement conditions list) command

This command displays a list of measurement conditions.

1 Command input



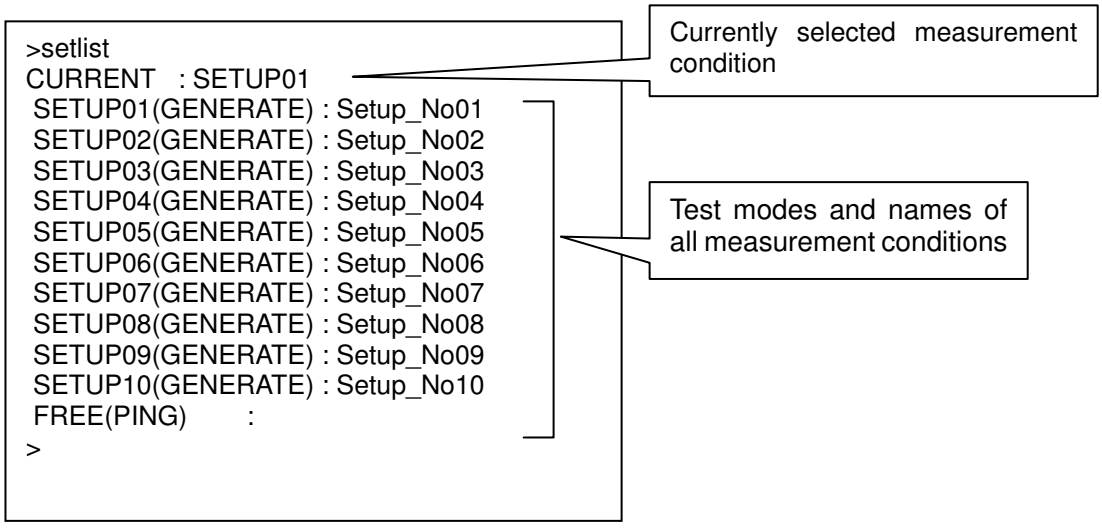
2 An effect effect-less condition with the command input
Refer to Table 4.3-2

3 Screen example
When the SETLIST command is executed, the following information is displayed.

Currently selected measurement condition

Test modes and names of all measurement conditions

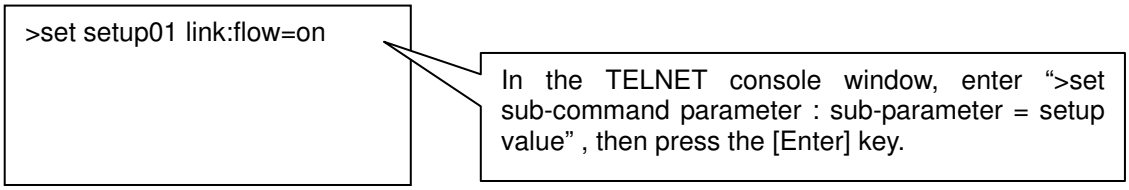
Following is an example of the screen which is displayed during normal operations.



4.3.2.8 SET (Change settings) command

This command changes the individual settings in a measurement condition.

1 Command input



2 Sub-command / Parameter / Setup value

Sub-command

Select a measurement condition as a sub-command. The table below presents a list of sub-commands that can be selected. If a sub-command is omitted, the measurement condition selected with the Change Measurement Condition command is changed.
Note that the sub-command cannot be omitted when setting DHCP and ARP.

Table 4.3-7 Sub-command

Sub-command	Abbreviated forms	Description
setup01	1(s1)	Generate/Latency Measurement Condition 1
setup02	2(s2)	Generate/Latency Measurement Condition 2
setup03	3(s3)	Generate/Latency Measurement Condition 3
setup04	4(s4)	Generate/Latency Measurement Condition 4
setup05	5(s5)	Generate/Latency Measurement Condition 5
setup06	6(s6)	Generate/Latency Measurement Condition 6
setup07	7(s7)	Generate/Latency Measurement Condition 7
setup08	8(s8)	Generate/Latency Measurement Condition 8
setup09	9(s9)	Generate/Latency Measurement Condition 9
setup10	10(s10)	Generate/Latency Measurement Condition 10
Free	f(s11)	Ping/Reply/Loopback Measurement Condition
DHCP	None	Applies to item on DHCP screen
ARP	None	Applies to item on ARP screen

Parameters (sub-parameters)

Specify the setting to be changed using a parameter (sub-parameters).
With some settings, the parameter may be further divided into sub-parameters.
The relationships between the individual parameters (sub-parameters) and the set values and test modes are presented in Table 4.3-8 , Table 4.3-9 , Table 4.3-10 , Table 4.3-11 , Table 4.3-12.

Set values

Enter a new value for the setting which is being changed. The relationships between the individual parameters (sub-parameters) and the set values and test modes are presented in Table 4.3-8 , Table 4.3-9 , Table 4.3-10 , Table 4.3-11 , Table 4.3-12.

The relationships between the parameters (sub-parameters) and the set values and test modes are presented in the following tables.In cases where there are sub-parameters, the parameter entry appears as [Parameter: sub-parameter].

Table 4.3-8 Parameter / Setup value 1/5

Parameter	Setup value	Measuring mode				
		Generate	Latency	Ping	Reply	Loop back
Name	Character	OK	OK	OK	OK	OK
test_mode(test)	Generate(gen)	OK	OK	NO	NO	NO
	Latency(lat)	OK	OK	NO	NO	NO
	Ping(pin)	NO	NO	OK	OK	OK
	Reply(rep)	NO	NO	OK	OK	OK
	Loopback(lb)	NO	NO	OK	OK	OK
run_mode(run)	rx&tx(r&t)	OK	OK	NO	NO	NO
	rx->tx(r-t)	OK	OK	NO	NO	NO
link:L1(L1)	10BASE-T_FULL(10F)	OK	OK	OK	OK	OK
	10BASE-T_HALF(10H)	OK	OK	OK	OK	OK
	100BASE-TX_FULL(100F)	OK	OK	OK	OK	OK
	100BASE-TX_HALF(100H)	OK	OK	OK	OK	OK
	1000BASE-T_FULL(1000T)	OK	OK	OK	OK	OK
	1000BASE-SX_FULL(1000S)	OK	OK	OK	OK	OK
	1000BASE-LX_FULL(1000L)	OK	OK	OK	OK	OK
link:flow (flow)	On	OK	OK	NO	NO	NO
	Off	OK	OK	NO	NO	NO
link:negotiate (nego)	Auto(AT)	OK	OK	OK	OK	OK
	Manual(Man)	OK	OK	OK	OK	OK
link:crossover (cross)	Mdi	OK	OK	OK	OK	OK
	mdix	OK	OK	OK	OK	OK
	Auto(AT)	OK	OK	OK	OK	OK
tx_setup:transmit (trans)	10M	OK	OK	NO	NO	NO
	100M	OK	OK	NO	NO	NO
	1G(1000M)	OK	OK	NO	NO	NO
tx_setup:tx-mode (txmode)	constant/count(c/cnt)	OK	OK	NO	NO	NO
	constant/continue(c/con)	OK	OK	NO	NO	NO
	burst/count(b/cnt)	OK	OK	NO	NO	NO
	burst/continue(b/con)	OK	OK	NO	NO	NO
tx_setup:ifg(ifg)	XXXbit	OK	OK	NO	NO	NO
	XXX.XXX%	OK	OK	NO	NO	NO
tx_setup:idle(idle)	XXXbit(bit can be omitted.)	OK	OK	NO	NO	NO
tx_setup:cnt(cnt)	XXX	OK	OK	NO	NO	NO
tx_setup:stop_action (stopact)	On	OK	OK	NO	NO	NO
	Off	OK	OK	NO	NO	NO
	XXXXmin(min can be omitted.)	OK	OK	NO	NO	NO

Note: Parameters enclosed in parentheses are the abbreviated forms.

Table 4.3-9 Parameter / Setup value 2/5

Parameter	Setup value	Measuring mode				
		Generate	Latency	Ping	Reply	Loop back
tx_frame_count(frmcnt)	XXXX	OK	OK	NO	NO	NO
tx_frame?:length (tf?len)	XXXX	OK	OK	NO	NO	NO
tx_frame?:dst_mac (tf?dmac)	Manual(man)	OK	OK	NO	NO	NO
	ARP	OK	OK	NO	NO	NO
	XX-XX-XX-XX-XX-XX	OK	OK	NO	NO	NO
tx_frame?:src_mac (tf?smac)	Global	OK	OK	NO	NO	NO
	Manual(man)	OK	OK	NO	NO	NO
	DHCP	OK	OK	NO	NO	NO
	XX-XX-XX-XX-XX-XX	OK	OK	NO	NO	NO
tx_frame?:vlan_cnt (tf?vcnt)	X	OK	OK	NO	NO	NO
tx_frame?:vlan?:tpid (tf?v?tpid)	XXXX	OK	OK	NO	NO	NO
tx_frame?:vlan?:up (tf?v?up)	X	OK	OK	NO	NO	NO
tx_frame?:vlan?:cfi (tf?v?cfi)	On	OK	OK	NO	NO	NO
	Off	OK	OK	NO	NO	NO
tx_frame?:vlan?id (tf?v?id)	XXXX (decimal input)	OK	OK	NO	NO	NO
tx_frame?:type (tf?type)	IPv4	OK	OK	NO	NO	NO
	IPv4-MC	OK	OK	NO	NO	NO
	IPv6	OK	OK	NO	NO	NO
	USER	OK	OK	NO	NO	NO
	XXXX (hexadecimal input)	OK	OK	NO	NO	NO
tx_frame?:dst_IP (tf?dip)	ARP	OK	OK	NO	NO	NO
	Manual	OK	OK	NO	NO	NO
	XXX.XXX.XXX.XXX	OK	OK	NO	NO	NO
tx_frame?:src_IP (tf?sip)	DHCP	OK	OK	NO	NO	NO
	Manual	OK	OK	NO	NO	NO
	XXX.XXX.XXX.XXX	OK	OK	NO	NO	NO
tx_frame?:tos (tf?sip)	XXX (decimal input)	OK	OK	NO	NO	NO
tx_frame?:error (tf?err)	None	OK	OK	NO	NO	NO
	CRC	OK	OK	NO	NO	NO

Note: Parameters enclosed in parentheses are the abbreviated forms.
Note: In MAC address entries, “XX” is in HEX notation.
Note: In IP address entries, “XXX” is in DEC notation.
Note: Enter a value in the range of 1 to 4 in place of question marks.
Note: Enter 1 or 2 in place of pound signs.
Note: The “XX” in filter patterns or filter masks is in HEX notation.

Table 4.3-10 Parameter / Setup value 3/5

Parameter	Setup value	Measuring mode				
		Generate	Latency	Ping	Reply	Loop back
Filter#:sel (f#sel)	On	OK	OK	NO	NO	NO
	Off	OK	OK	NO	NO	NO
Filter#:offset(f#off)	XX(decimal input)	OK	OK	NO	NO	NO
Filter#:length(f?len)	X	OK	OK	NO	NO	NO
Filter#:pattern(f?pat)	XX-XX-XX-XX-XX-XX	OK	OK	NO	NO	NO
Filter#:mask(f?msk)	XX-XX-XX-XX-XX-XX	OK	OK	NO	NO	NO
filter_init(finit)	And	OK	OK	NO	NO	NO
	Or	OK	OK	NO	NO	NO
over_size(OVSZ)	XXXXX(decimal input)	OK	OK	NO	NO	NO
alarm:rx_frame (almrx)	On	OK	NO	NO	NO	NO
	Off	OK	NO	NO	NO	NO
	Up	OK	NO	NO	NO	NO
	Down	OK	NO	NO	NO	NO
	XXXXXXXXXX (decimal input)	OK	NO	NO	NO	NO
alarm:err_cnt (almer)	On	OK	NO	NO	NO	NO
	off	OK	NO	NO	NO	NO
	XXXXXXXXXX (decimal input)	OK	NO	NO	NO	NO
alarm:tx_frame (almtx)	On	OK	NO	NO	NO	NO
	off	OK	NO	NO	NO	NO
	XXXXXXXXXX (decimal input)	NO	NO	NO	NO	NO
fixed_delay (delay)	On	NO	OK	NO	NO	NO
	off	NO	OK	NO	NO	NO

Note: Parameters enclosed in parentheses are the abbreviated forms.
Note: In MAC address entries, “XX” is in HEX notation.
Note: In IP address entries, “XXX” is in DEC notation.
Note: Enter a value in the range of 1 to 4 in place of question marks.

Table 4.3-11 Parameter / Setup value 4/5

Parameter	Setup value	Measuring mode				
		Gene rate	Laten cy	Ping	Reply	Loop back
src_mac (smac)	all	NO	NO	NO	NO	OK
	global	NO	NO	OK	OK	OK
	manual	NO	NO	OK	OK	OK
	XX-XX-XX-XX-XX-XX	NO	NO	OK	OK	OK
Loopback(lb)	MAC	NO	NO	NO	NO	OK
	MAC+IP	NO	NO	NO	NO	OK
Src_IP (sip)	Manual	NO	NO	OK	OK	OK
	Dhcp	NO	NO	OK	OK	OK
	XXX.XXX.XXX.XXX	NO	NO	OK	OK	OK
subnet_mask(subnet)	XXX.XXX.XXX.XXX	NO	NO	OK	NO	NO
Gateway(gw)	XXX.XXX.XXX.XXX	NO	NO	OK	NO	NO
Dst_IP(dip)	XXX.XXX.XXX.XXX	NO	NO	OK	NO	NO
frame_len(frmlen)	XXXX(decimal input)	NO	NO	OK	NO	NO
Interval	1sec	NO	NO	OK	NO	NO
	5sec	NO	NO	OK	NO	NO
	10sec	NO	NO	OK	NO	NO
tx_mode (txmode)	continue	NO	NO	OK	NO	NO
	count	NO	NO	OK	NO	NO
	XXXXXXXXXX (decimal input)	NO	NO	OK	NO	NO
vlan_cnt(vcnt)	X	NO	NO	OK	OK	OK
vlan_cmp(vcmp)	On	NO	NO	NO	OK	NO
	Off	NO	NO	NO	OK	NO
vlan?:tpid(v?tpid)	XXXX(decimal input)	NO	NO	OK	OK	NO
vlan?:up(v?up)	X	NO	NO	OK	NO	NO
vlan?:cfi(v?cfi)	On	NO	NO	OK	NO	NO
	Off	NO	NO	OK	NO	NO
vlan?:id(v?id)	XXXX(hexadecimal input)	NO	NO	OK	OK	NO
arp_reply(ARPREP)	On	OK	OK	NO	NO	OK
	Off	OK	OK	NO	NO	OK

Note: Parameters enclosed in parentheses are the abbreviated forms.
Note: In MAC address entries, “XX” is in HEX notation.
Note: In IP address entries, “XXX” is in DEC notation.

Table 4.3-12 Parameter / Setup value 5/5

Sub-command + parameter	Setup value	Special mode	
		DHCP	ARP
dhcp link:L1 (dhcp L1)	10BASE-T_FULL(10F)	OK	NO
	10BASE-T_HALF(10H)	OK	NO
	100BASE-TX_FULL(100F)	OK	NO
	100BASE-TX_HALF(100H)	OK	NO
	1000BASE-T_FULL(1000T)	OK	NO
	1000BASE-SX_FULL(1000S)	OK	NO
	1000BASE-LX_FULL(1000L)	OK	NO
dhcp link:negotiate (dhcp nego)	Auto(AT)	OK	NO
	Manual(Man)	OK	NO
dhcp link:crossover (dhcp cross)	Mdi	OK	NO
	mdix	OK	NO
	Auto(AT)	OK	NO
dhcp Src_IP (dhcp sip)	Manual	OK	NO
	Dhcp	OK	NO
	XXX.XXX.XXX.XXX	OK	NO
dhcp Subnet_mask (dhcp subnet)	XXX.XXX.XXX.XXX	OK	NO
dhcp Gateway (dhcp gw)	XXX.XXX.XXX.XXX	OK	NO
arp Dst_IP (arp dip)	XXX.XXX.XXX.XXX	NO	OK

Note: Parameters enclosed in parentheses are the abbreviated forms.
Note: In MAC address entries, “XX” is in HEX notation.
Note: In IP address entries, “XXX” is in DEC notation.

3 An effect effect-less condition with the command input
Refer to Table 4.3-2

4 Screen example
During normal operation, nothing is displayed and the system waits for the next command.

```
>set setup01 flow=on
>
```

NOTE

The SET command, DISP command, and RESULT command have numerous sub-parameters, so input abbreviations are provided.

To display a list of the types of SET command sub-parameters, enter “help set” or “? set” at the prompt.

To display a list of the types of SET command set values, enter “help set ‘sub-parameter’” or “? set ‘sub-parameter’” at the prompt.

In the HELP which is displayed by
TX_FRAME#:SRC_MAC(TXFRM#:SRCMAC,F#SMAC) “? set” in the above case, the following three input formats are available:

>set tx_frame1:src_mac=00-00-00-00-00-01
>set txfrm1:srcmac=00-00-00-00-00-01
>set t1smac=00-00-00-00-00-01

Address settings are as follows.

> set TX_FRAME1:DST_MAC=manual (type input)
> set TX_FRAME1:DST_MAC=arp (type input)
> set TX_FRAME1:DST_MAC=00-00-00-00-00-01 (numerical value input)
> set TX_FRAME1:src_ip=DHCP (type input)
> set TX_FRAME1:src_ip=192.168.0.1 (numerical value input)

When a numerical value is input, the type is automatically set to MANUAL.

The following types are provided as type inputs:

ARP (applies the ARP screen acquisition results)
DHCP (applies the DHCP screen set value)
MANUAL (manual input)
GLOBAL (measurement port global MAC address)
ALL (can only be specified for LOOPBACK SRCMAC)

For information on the abbreviated forms of the individual parameters in the SET command, see 5.4The abbreviation of the TELNET command.

NOTE

In the Help which is displayed by entering “>help set”, character strings enclosed in parentheses and separated by commas are abbreviated forms.

TX_FRAME#:VLAN#:TPID(TXFRM#:VLAN#TPID,TF#V#TPID)
1 2 3

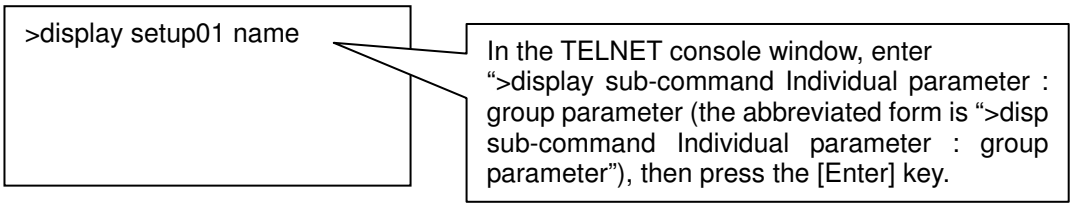
There are three different specifying methods:

(a)TX_FRAME1:VLAN1:TPID
(b)TXFRM1:VLAN1TPID
(c)TF1V1TPID

4.3.2.9 DISPLAY (Setting check) command

This command is used to check the specified set condition. Parameter settings can be used to check a single condition or multiple conditions.
DHCP and ARP execution results can be checked with the DISPLAY command (not the RESULT command).

1 Command input
>display Sub-command Individual parameter: Group parameter
>disp Sub-command Individual parameter: Group parameter abbreviation allowed.



2 Sub-command / parameter

Sub-command
Select a measurement condition as a sub-command. The table below presents a list of sub-commands that can be selected. If the sub-command is omitted, the measurement condition selected by the Change Measurement Condition command is displayed.
Note that the sub-command cannot be omitted when displaying DHCP and ARP settings.

Table 4.3-13 Sub-command

Sub-command	Abbreviated forms	Description
setup01	1(s1)	Generate/Latency Measurement Condition 1
setup02	2(s2)	Generate/Latency Measurement Condition 2
setup03	3(s3)	Generate/Latency Measurement Condition 3
setup04	4(s4)	Generate/Latency Measurement Condition 4
setup05	5(s5)	Generate/Latency Measurement Condition 5
setup06	6(s6)	Generate/Latency Measurement Condition 6
setup07	7(s7)	Generate/Latency Measurement Condition 7
setup08	8(s8)	Generate/Latency Measurement Condition 8
setup09	9(s9)	Generate/Latency Measurement Condition 9
setup10	10(s10)	Generate/Latency Measurement Condition 10
Free	f(s11)	Ping/Reply/Loopback Measurement Condition
DHCP	None	Applies to item on DHCP screen
ARP	None	Applies to item on ARP screen

Parameters (group parameters)
Use parameters (group parameters) to specify the setting which is to be displayed.
If a parameter is omitted, all settings specified by the sub-command (or for the currently selected measurement condition) will be displayed.
Parameters may be specified as a group or individually. When just a group is specified, all settings within it are displayed. When individual parameters are specified, only the specified settings are displayed.
The relationships between the group parameters and the individual parameters and test modes are presented in Table 4.3-14 , Table 4.3-15 and Table 4.3-16.

Table 4.3-14 Parameter 1/3

Parameter		Measuring mode				
Group	individual	Generate	Latency	Ping	Reply	Loopback
name		OK	OK	OK	OK	OK
test_mode(test)		OK	OK	OK	OK	OK
run_mode(run)		OK	OK	NO	NO	NO
Link	L1	OK	OK	OK	OK	OK
	Flow	OK	OK	NO	NO	NO
	Negotiate (nego)	OK	OK	OK	OK	OK
	Crossover (cross)	OK	OK	OK	OK	OK
tx_setup (txset)	Transmit (trans)	OK	OK	NO	NO	NO
	tx-mode (txmdoe)	OK	OK	NO	NO	NO
	Ifg	OK	OK	NO	NO	NO
	Idle	OK	OK	NO	NO	NO
	Cnt	OK	OK	NO	NO	NO
	stop_action (stopact)	OK	OK	NO	NO	NO
tx_frame_count (frmcnt)		OK	OK	NO	NO	NO
tx_frame1 (tf1) tx_frame2 (tf2) tx_frame3 (tf3) tx_frame4 (tf4)	Length	OK	OK	NO	NO	NO
	dst_mac	OK	OK	NO	NO	NO
	src_mac	OK	OK	NO	NO	NO
	vlan_cnt	OK	OK	NO	NO	NO
	vlan1(v1)	OK	OK	NO	NO	NO
	vlan2(v2)	OK	OK	NO	NO	NO
	vlan3(v3)	OK	OK	NO	NO	NO
	vlan4(v4)	OK	OK	NO	NO	NO
	dst_IP	OK	OK	NO	NO	NO
	src_IP	OK	OK	NO	NO	NO
	tos	OK	OK	NO	NO	NO
	error	OK	OK	NO	NO	NO

Note 1: The settings [vlan1] to [vlan4] display all of the following: [TPID], [UP], [CFI], [ID].
Note 2: When tx_setup is specified, both [tx_frame_count] and [tx_frame] are displayed.
(all sending conditions are displayed)

Table 4.3-15 Parameter 2/3

Parameter		Measuring mode				
Group	Individual	Generate	Latency	Ping	Reply	Loopback
filter1(f1)		OK	OK	NO	NO	NO
filter2(f2)		OK	OK	NO	NO	NO
filter_init(finit)		OK	OK	NO	NO	NO
over_size(ovsz)		OK	OK	NO	NO	NO
Alarm (alm)	rx_frame(rx)	OK	NO	NO	NO	NO
	err_cnt(er)	OK	NO	NO	NO	NO
	tx_frame(tx)	OK	NO	NO	NO	NO
Fixed_delay(delay)		NO	OK	NO	NO	NO
src_mac(smac)		NO	NO	OK	OK	OK
Loopback(lb)		NO	NO	NO	NO	OK
src_ip(sip)		NO	NO	OK	OK	NO
subnet_mask(subnet)		NO	NO	OK	NO	NO
Gateway(gw)		NO	NO	OK	NO	NO
dst_ip(dip)		NO	NO	OK	NO	NO
frame_len(frmlen)		NO	NO	OK	NO	NO
Interval		NO	NO	OK	NO	NO
tx_mode(txmode)		NO	NO	OK	NO	NO
vlan_cnt(vcnt)		NO	NO	OK	OK	OK
vlan_cmp(vcmp)		NO	NO	NO	OK	NO
vlan1(v1)		NO	NO	OK	OK	NO
vlan2(v2)		NO	NO	OK	OK	NO
vlan3(v3)		NO	NO	OK	OK	NO
vlan4(v4)		NO	NO	OK	OK	NO
arp_reply(arprep)		OK	OK	NO	NO	OK

Note 1: [filter1] or [filter2] can also be applied to group parameters only.
Note 2: The settings [vlan1] to [vlan4] display all of the following: [TPID], [UP], [CFI], [ID].

Table 4.3-16 Parameter 3/3

Parameter		Special mode	
Group	Individual	DHCP	ARP
Link	L1	OK	NO
	Negotiate (nego)	OK	NO
	Crossover (cross)	OK	NO
src_mac(smac)		OK	NO
src_ip(sip)		OK	NO
subnet_mask(subnet)		OK	NO
Gateway(gw)		OK	NO
dst_ip(dip)		NO	OK

3 An effect effect-less condition with the command input
Refer to Table 4.3-2

4 Screen example
The screen display varies depending on the parameter settings.

When group parameter is specified

```
>disp setup01 link
<< LINK >>
L1              : 10BASE-T FULL
FLOW            : ON
NEGOTIATE       : AUTO
CROSSOVER       : MDI
>
```

Individual parameter

```
>disp setup01 link:negotiate
LINK - NEGOTIATE       : AUTO
>
```

NOTE

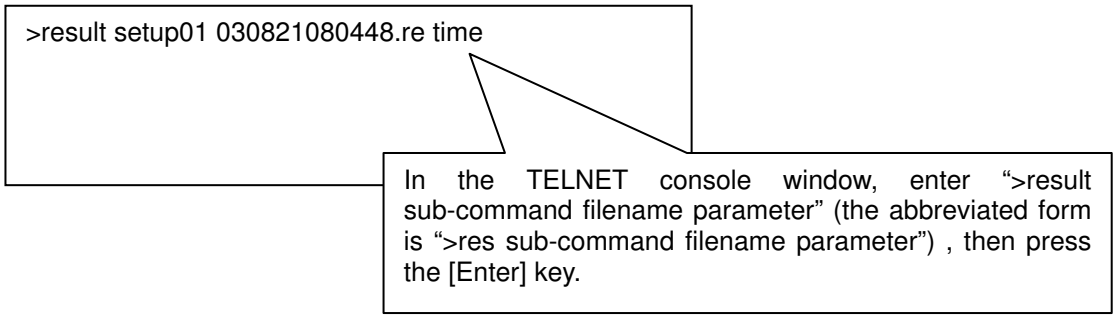
A list of disp command sub-parameter types can be displayed by entering “help disp” or “? disp” at the prompt.
The SET command, DISP command, and RESULT command have numerous sub-parameters, so input abbreviations are provided.
In the HELP which is displayed by TX_FRAME#:SRC_IP(TXFRM#:SRCIP,F#SIP) “? disp” in the above case, the following three input formats are available:

```
>disp tx_frame1:src_ip
>disp txfrm1:srcip
>disp t1sip
```

4.3.2.10 RESULT (Display measurement results) command

This command displays the AE5501 measurement results.
Sub-commands and parameters can be used to select the ONLINE or OFFLINE screen and specify measurement items. (DHCP and ARP execution results can be checked with the DISPLAY command)

1 Command input



2 Sub-command / File name / Parameter

Sub-command

Select a measurement condition as a sub-command. The table below presents a list of sub-commands that can be selected. The displayed measurement results are different if the sub-command/file name is omitted.
See Table 4.3-17.

Table 4.3-17 Sub-command

Sub-command	Abbreviated forms	Description
setup01	1(s1)	Generate/Latency Measurement Condition 1
setup02	2(s2)	Generate/Latency Measurement Condition 2
setup03	3(s3)	Generate/Latency Measurement Condition 3
setup04	4(s4)	Generate/Latency Measurement Condition 4
setup05	5(s5)	Generate/Latency Measurement Condition 5
setup06	6(s6)	Generate/Latency Measurement Condition 6
setup07	7(s7)	Generate/Latency Measurement Condition 7
setup08	8(s8)	Generate/Latency Measurement Condition 8
setup09	9(s9)	Generate/Latency Measurement Condition 9
setup10	10(s10)	Generate/Latency Measurement Condition 10
Free	f(s11)	Ping/Reply/Loopback Measurement Condition

File name

Enter the file name for the measurement result file to be displayed. The result file name can be checked using the Display Measurement Result File List command.

The displayed information is different if the sub-command/file name is omitted. See Table 4.3-18.

Table 4.3-18 An applicable measurement result in the sub- command / file name omission

Sub-command	File name	Measurement result
abbreviation	abbreviation	AE5501 is ONLINE : Present condition AE5501 is OFFLINE : Measurement result
specification	abbreviation	AE5501 is ONLINE : Error AE5501 is OFFLINE : Error
abbreviation	specification	AE5501 is ONLINE :Error AE5501 is OFFLINE : A designated measurement result file in the measurement condition specified with the select command.(File name)
specification	specification	AE5501 is ONLINE : Error AE5501 is OFFLINE : The designated measurement result file of the designated measurement condition (sub-command)

Parameters

Use parameters to specify the settings which are to be displayed.

More than one parameter can be specified by dividing it with ", " .

If parameters are omitted, the results for all measurement items are displayed. There are group parameters and individual parameters. The relationships between individual parameters and test modes are shown in Table 4.3-19. The relationships between group parameters and measurement items are shown in Table 4.3-20.

Measurement results are displayed following individual parameter input in the test modes with a OK.

Table 4.3-19 Individual parameter and measuring mode

Individula parameter	Abbreviation	Measuring mode				
		Generate	Latency	Ping	Reply	Loopback
head	MD	OK	OK	OK	OK	OK
time	TM	OK	OK	OK	OK	OK
tx_rate	TRATE,TR	OK	OK			
rx_rate	RRATE,RR	OK	OK			
tx_frm/s	TFRMS,TFS	OK	OK			
rx_frm/s	RFRMS,RFS	OK	OK			
tx_bit/s	TBITS,TBS	OK	OK			
rx_bit/s	RBITS,RBS	OK	OK			
tx_error	TERR,TE	OK	OK			
rx_error	RERR,RE	OK	OK			
crc_error	CRC	OK	OK			
under_size	UNDER,UD	OK	OK			
over_size	OVER,OV	OK	OK			
alignment	ALIGN,AL	OK	OK			
collision	COLL,CL	OK	OK			
pause_pkt	PAUSE,PS	OK	OK			
tx_byte	TBYTE,TB	OK	OK			
rx_byte	RBYTE,RB	OK	OK			
tx_frame	TFRAME,TFRM,TF	OK	OK	OK		
rx_frame	RFRAME,RFRM,RF	OK	OK	OK		
Idle	IL	OK	OK			
alarm	ALM	OK				
delay	DLY		OK			
src_ip	SIP			OK		
dst_ip	DIP			OK		
tx_mode	TXMODE,TMD			OK		
interval				OK		
loss_cnt	LCNT			OK		
loss_rate	LRATE			OK		
round_trip	ROUND			OK		
ping	PIN				OK	
arp					OK	

Note 1: Displays some measurement conditions during measurement (RUN MODE / STOP ACTION) and LINK information.

Note 2: Valid only when offline measurement results are displayed. The measurement start time and measurement end time are displayed.

Note 3: ”filter1” or ”filter2” can also be applied to group parameters only.

Note 4: It is effective only during the online measurement.

When a group parameter is entered, the measurement items with a OK are displayed.

Table 4.3-20 Group parameter and measurement item

Measurement item	Group parameter							
	tx	rx	rate	frm/s (frm)	bit/s (bits)	error (err)	byte	frame (frm)
tx_rate	OK		OK					
rx_rate		OK	OK					
tx_frm/s	OK			OK				
rx_frm/s		OK		OK				
tx_bit/s	OK				OK			
rx_bit/s		OK			OK			
tx_error	OK					OK		
rx_error		OK				OK		
crc_error						OK		
under_size						OK		
over_size						OK		
alignment						OK		
collision						OK		
pause_pkt						OK		
tx_byte	OK						OK	
rx_byte		OK					OK	
tx_frame	OK							OK
rx_frame		OK						OK
idle								
alarm								
delay								
src_ip								
dst_ip								
tx_mode								
loss_cnt								
loss_rate								
round_trip								
ping								
arp								

3 An effect effect-less condition with the command input
Refer to Table 4.3-2

4 Screen example
Following is an example of the screen which is displayed when a group is specified while the AE5501 is OFFLINE. A file name is not specified, so the most recent measurement results are shown.

```
>result tx
TX RATE        :  0.000%
TX FRM/s       :0
TX BIT/s       :0
TX ERROR       :0
TX BYTE        :33984
TX FRAME       :531
>
```

NOTE

A list of result command sub-parameter types can be displayed by entering “help result” or “? result” at the prompt.
The SET command, DISP command, and RESULT command have numerous sub-parameters, so input abbreviations are provided.
For details on Result command abbreviations, see 5.4.2 The abbreviation list of the parameter of the result command.

The most recent measurement results are all displayed if the sub-command, file name, and parameter are omitted.

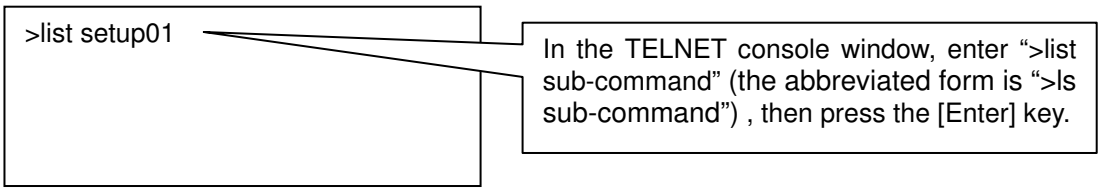
```
>result
VERSION        :R03.01
NAME           :030820093048.re
SETUP MODE     :Setup_No01
TEST MODE      :GENERATE

L1             :10BASE-T  FULL
FLOW CTRL      :ON
NEGOTIATE      :AUTO
LINK           :UP
CROSSOVER      :MDI
RUM MODE       :RX->TX
STOP ACTION    :OFF
START TIME     :2003/08/20 09:29:16
END TIME       :2003/08/20 09:30:48
TX RATE        :  0.000%
TX RATE        :  0.000%
TX FRM/s       :0
TX FRM/s       :0
TX BIT/s       :0
RX BIT/s       :0
TX ERROR       :0
RX ERROR       :0
CRC ERROR      :0
UNDERSIZE      :0
OVER SIZE      :0
ALIGNMENT      :0
COLLISION      :0
PAUSE Pkt      :0
TX BYTE        :43392
RX BYTE        :43392
TX FRAME       :678
RX FRAME       :678
IDLE           :
 MAX           :6704usec
 MIN           :6704usec
 AVG           :6704usec
TX FRAME       :678
RX FRAME       :678
>
```

4.3.2.11 LIST (Display results file list) command

This command displays a list of measurement result files for each measurement condition.

1 Command input



2 Sub-command

Select a measurement condition as a sub-command. The table below presents a list of sub-commands that can be selected. If the sub-command is omitted, a list of the number of files for each measurement condition is presented.

Table 4.3-21 Sub-command

Sub-command	Abbreviated forms	Description
setup01	1(s1)	Generate/Latency Measurement Condition 1
setup02	2(s2)	Generate/Latency Measurement Condition 2
setup03	3(s3)	Generate/Latency Measurement Condition 3
setup04	4(s4)	Generate/Latency Measurement Condition 4
setup05	5(s5)	Generate/Latency Measurement Condition 5
setup06	6(s6)	Generate/Latency Measurement Condition 6
setup07	7(s7)	Generate/Latency Measurement Condition 7
setup08	8(s8)	Generate/Latency Measurement Condition 8
setup09	9(s9)	Generate/Latency Measurement Condition 9
setup10	10(s10)	Generate/Latency Measurement Condition 10
Free	f(s11)	Ping/Reply/Loopback Measurement Condition

3 An effect effect-less condition with the command input

Refer to Table 4.3-2

4 Screen example

There are two different screen types. The type which is displayed depends on whether the sub-command is omitted, and the sub-command setting.

If the sub-command is omitted, the individual file counts for setup01 to setup10 and FREE, as well as the total number of measurement result files, are presented.

```
>list
 SETUP01 : 18 Files
 SETUP02 :  4 Files
 SETUP03 :  0 Files
 SETUP04 :  0 Files
 SETUP05 :  0 Files
 SETUP06 :  0 Files
 SETUP07 :  0 Files
 SETUP08 :  0 Files
 SETUP09 :  0 Files
 SETUP10 :  0 Files
 FREE    :  0 Files
   Total : 22 Files
>
```

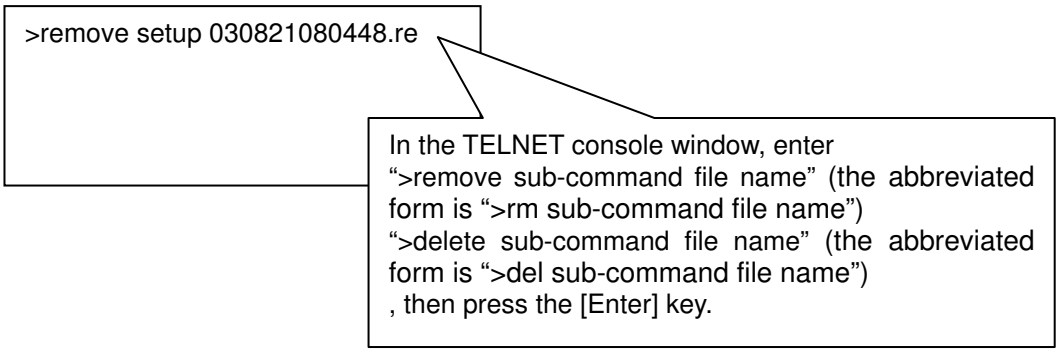
When a sub-command is specified, a list of file names for the specified measurement condition, and the file count for measurement result files under the specified measurement condition, are presented.

```
>list setup02
 SETUP02(GENERATE) : Setup_No02
  030819094808.re
  030819102113.re
  030819102344.re
  030819102525.re
   Total :  4 Files.
>
```

4.3.2.12 REMOVE (REMOVE results file) command

This command removes measurement result files.

1 Command input



2 Sub-command / File name

Sub-command

Select a measurement condition as a sub-command. The table below presents a list of sub-commands that can be selected. In cases where a sub-command is omitted, if a file name has been specified, a single specified measurement result file under the measurement condition specified by the Change Measurement Condition command is deleted.

Table 4.3-22 Sub-command

Sub-command	Abbreviated forms	Description
setup01	1(s1)	Generate/Latency Measurement Condition 1
setup02	2(s2)	Generate/Latency Measurement Condition 2
setup03	3(s3)	Generate/Latency Measurement Condition 3
setup04	4(s4)	Generate/Latency Measurement Condition 4
setup05	5(s5)	Generate/Latency Measurement Condition 5
setup06	6(s6)	Generate/Latency Measurement Condition 6
setup07	7(s7)	Generate/Latency Measurement Condition 7
setup08	8(s8)	Generate/Latency Measurement Condition 8
setup09	9(s9)	Generate/Latency Measurement Condition 9
setup10	10(s10)	Generate/Latency Measurement Condition 10
Free	f(s11)	Ping/Reply/Loopback Measurement Condition

File name
Specify the name of the measurement result file which is to be removed, under the measurement condition.
If the file name is omitted, all measurement result files specified by the sub-command, under the measurement condition, will be removed.

The files which are removed when the sub-command/file name is omitted are presented in Table 4.3-23.

Table 4.3-23 Files removed when sub-command/file name is omitted

Sub-command	File name	File to be removed
Omitted	Omitted	All measurement result files under all measurement conditions
Specified	Omitted	All measurement result files under the specified measurement condition (sub-command)
Omitted	Specified	One specified measurement result file (file name) under the measurement condition specified by the Change Measurement Condition command
Specified	Specified	One specified measurement result file (file name) under the specified measurement condition (sub-command)

3 An effect effect-less condition with the command input
Refer to Table 4.3-2

4 Screen sample
The screen appears as shown below when all measurement result files are being removed. In response to the question, enter [y].

```
>remove
All Result File Delete OK ?
OK=[Y] / Cancel=[N] :y
Removed 4 Files.
>
```

The screen appears as shown below when all measurement result files under a specific measurement condition are being removed. In response to the question, enter [y].

```
>remove setup02
SETUP02 All Result File Delete OK ?
OK=[Y] / Cancel=[N] :y
 Removed 5 Files.
>
```

The screen appears as shown below when a specific measurement result file is being removed. In response to the question, enter [y].

```
>remove setup01 030814152525.re
030814152525.re Result File Delete OK ?
OK=[Y] / Cancel=[N] :y
 Removed 030814152525.re Result File.
>
```

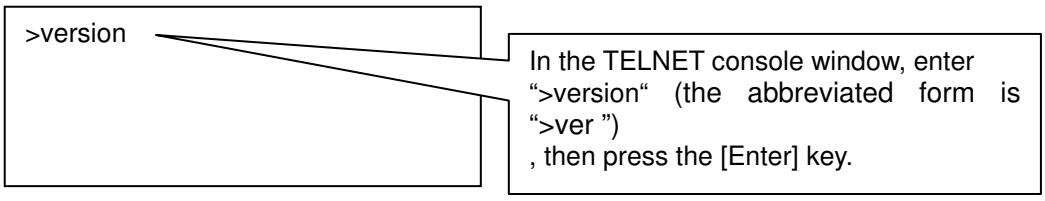
If [n] is entered in response to the question, the file removal process is cancelled.

```
>remove
All Result File Delete OK ?
OK=[Y] / Cancel=[N] :n
>
```

4.3.2.13 VERSION (Display version) command

This command is used to check the AE5501 version information.

1 Command input



2 An effect effect-less condition with the command input
Refer to Table 4.3-2

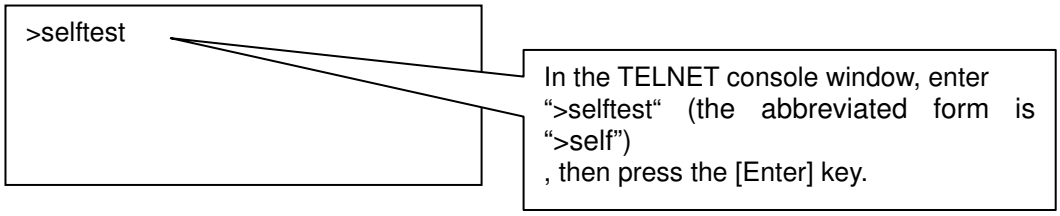
3 Screen sample

```
>version
 AE5501 Traffic Tester Mini
 Version : R03.01
 Copyright ANDO ELECTRIC CO.,LTD.
>
```

4.3.2.14 SELFTEST (Self test) command

This command performs a self test on the AE5501.

1 Command input



2 An effect effect-less condition with the command input
Refer to Table 4.3-2

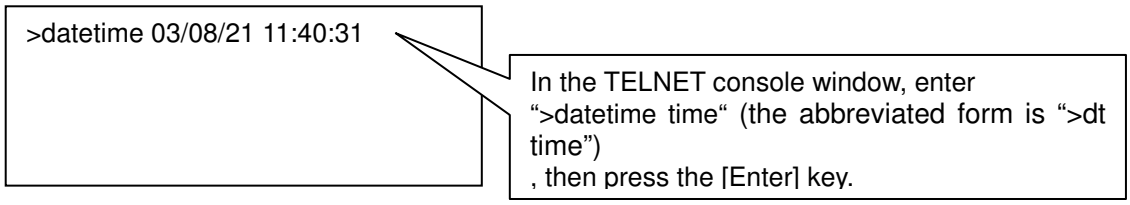
3 Screen sample
To perform a self test, enter [y] in response to the question. It takes approximately five seconds for the self test to complete once it starts.
After the self test ends, the results are displayed and the system waits for input.

```
>selftest
Execute SELFTEST OK ?
OK=[Y] / Cancel=[N] :y
Please Wait...
 Test1 = OK
 Test2 = OK
 Test3 = OK
>
```

4.3.2.15 DATETIME (Set time/date) command

This command sets the AE5501 calendar.

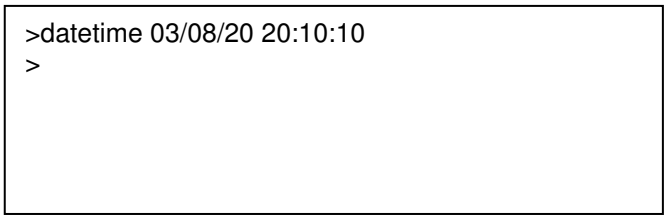
1 Command input



2 Time
Enter the new date/time in the following format: “Year/Month/Day Hours:Minutes:Seconds”.
The AE5501 calendar is displayed if the date/time is omitted.

3 An effect effect-less condition with the command input
Refer to Table 4.3-2

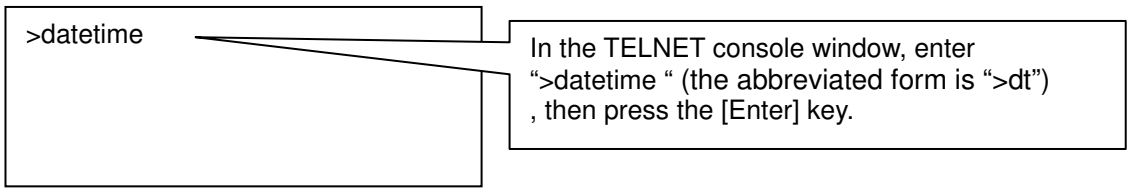
4 Screen sample



4.3.2.16 DATETIME (Display time/date) command

This command displays the AE5501 calendar.

1 Command input



2 An effect effect-less condition with the command input
Refer to Table 4.3-2

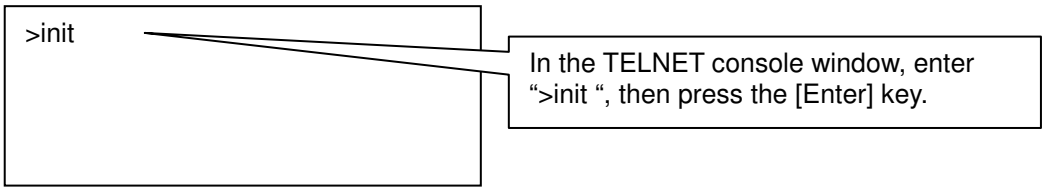
3 Screen sample

```
>datetime
 Date/Time = 03/08/20 20:10:18
>
```

4.3.2.17 INIT (Set all defaults) command

This command sets all AE5501 values to their defaults.

1 Command input



2 An effect effect-less condition with the command input
Refer to Table 4.3-2

3 Screen example
To set all values to their defaults, in response to the question, enter [y].
It takes approximately 15 seconds for the INIT command to complete once it starts.
After all of the values are set to their defaults, the system waits for input. To cancel the INIT command, enter [n] in response to the question.

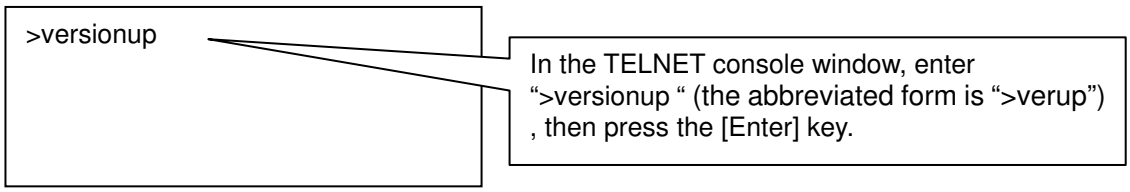
```
>init
All Default OK ?
OK=[Y] / Cancel=[N] :y
Please Wait...
 File   = OK
 Setup  = OK
 Result = OK
>
```

Be careful because a password for the SU command is erased, too, when an init command succeeds.

4.3.2.18 VERSIONUP (Version upgrade) command

This command is used to connect to AE5730 and change the AE5501 to version upgrade mode.

1 Command input



2 An effect effect-less condition with the command input
Refer to Table 4.3-2

3 Screen example
To change to version upgrade mode, enter [y] in response to the question.

```
>verup
Version Up OK ?
OK=[Y] / Cancel=[N] :y
<Now Verup Mode>. Can't receive any request.
>
```

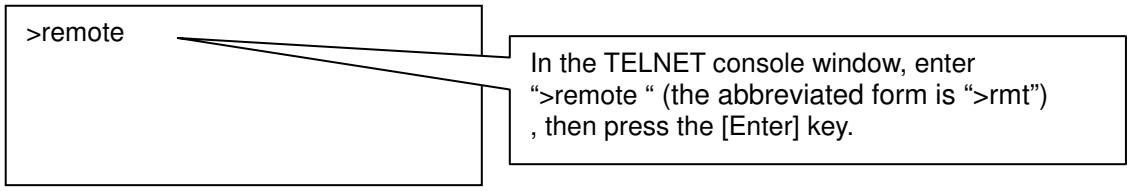
NOTE

When the VERSIONUP command is executed, the AE5501 can no longer engage in TELNET communication.
Upgrade the version from an AE5730E unit.

4.3.2.19 REMOTE (AE5730E remote control) command

This command changes the mode to remote mode, in which uploads and downloads from the AE5730E can be received.

1 Command input



2 An effect effect-less condition with the command input
Refer to Table 4.3-2

3 Screen example
To change the mode to remote mode, enter [y] in response to the question.
If the operation is executed properly, the system waits for the next input.

```
>remote
AE5730 Connect OK ?
OK=[Y] / Cancel=[N] :y
>
```

Make sure that the prompt is displayed, then perform upload/download control from the AE5730.

NOTE
The STATUS command is used to display the current AE5501 status (OFFLINE status/ONLINE status/REMOTE status). Use the STOP command to end remote status. (The status changes to OFFLINE after the STOP command is used)

4.3.2.20 DHCP (Performs DHCP) command

This command is used to acquire an IP address on the measurement port using DHCP.

1 Command input

```
>dhcp
```

In the TELNET console window, enter ">dhcp " , then press the [Enter] key.

2 An effect effect-less condition with the command input
Refer to Table 4.3-2

3 Screen example
While the command is being executed, "Please Wait…" is displayed. When the command is completed, "Complete" is displayed. Check the DHCP acquisition results by entering "display dhcp".
Note that if "SRC IP" is not set to AUTO in the DHCP settings, the DHCP operation will not work. (To change the setting, enter ">set dhcp sip=auto". This enables the DHCP command.)
If the operation is executed properly, the system waits for the next input.

```
>disp dhcp
<< LINK >>
L1              : 10BASE-T FULL
NEGOTIATE       : AUTO
CROSSOVER       : MDI
SRC MAC         : 00-01-E2-00-1E-C4(GLOBAL)
SRC IP          : ***.***.***.***(AUTO)
SUBNET MASK     : ***.***.***.***(AUTO)
GATEWAY         : ***.***.***.***(AUTO)
>
>dhcp
Please Wait...
!!! Complete !!!
>
>disp dhcp
<< LINK >>
L1              : 10BASE-T FULL
NEGOTIATE       : AUTO
CROSSOVER       : MDI
SRC MAC         : 00-01-E2-00-1E-C4(GLOBAL)
SRC IP          : 192.168.0.5(AUTO)
SUBNET MASK     : 255.255.255.0(AUTO)
GATEWAY         : 192.168.0.254(AUTO)
>
```

Current DHCP acquisition status is displayed.

Make sure this is set to AUTO.

Execute DHCP process

Completion message

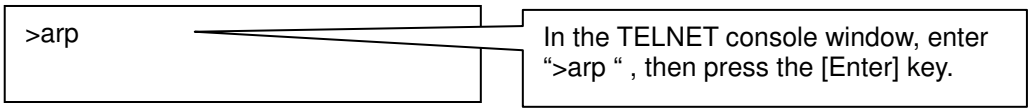
Acquisition results check command

Displays the "SRC IP", "SUBNET", and "GATEWAY" acquisition results.

4.3.2.21 ARP (Performs ARP) command

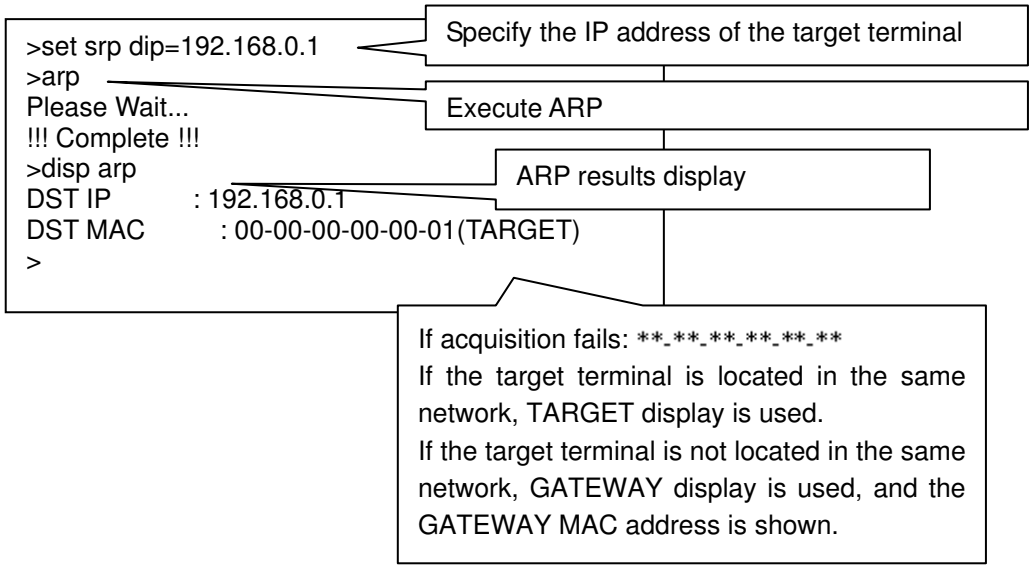
This command is used to acquire the MAC address of a terminal with a specified IP address using the ARP process.

1 Command input



2 An effect effect-less condition with the command input
Refer to Table 4.3-2

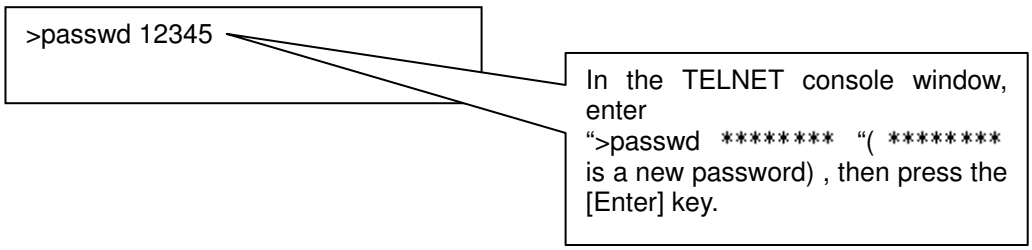
3 Screen example
The IP address of the target terminal can be specified by entering “>set arp dip=XXX.XXX.XXX.XXX”.
While the command is being executed, “Please Wait…” is displayed. When the command is completed, “Complete” is displayed. Check the ARP acquisition results by entering “display arp”.
The values set on the DHCP screen are used as the SRC address information (SRC MAC/SRC IP, etc.) or LINK setting information required by ARP.
If the operation is executed properly, the system waits for the next input.



4.3.2.22 PASSWD (Set password) command

The settlement of a password to use with the su command is done.

1 Command input



2 An effect effect-less condition with the command input
Refer to Table 4.3-2

3 Screen example

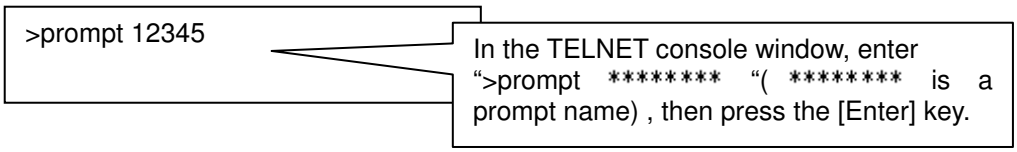
```
>passwd 12345
Re-enter New Password :12345
>
>
```

It becomes effective only when it has ADMIN authority. The character lines which can be specified as a password become only an English letter to eight characters and a number.
It registers as a new password when the character line of the re-input corresponds to the sub-parameter of the passwd command.
And, the password set up is erased in the case of the one without a sub-parameter. Input of a password in input of a su command is stopped by this inescapably.
And, be careful of the password as well set up when an init command is carried out because it is erased.

4.3.2.23 PROMPT (Set prompt) command

It is the command which prompt indicated on the terminal screen is changed to.

1 Command input



2 An effect effect-less condition with the command input
Refer to Table 4.3-2

3 Screen example

```
>prompt 12345
12345>
12345>
12345>prompt
>
>
```

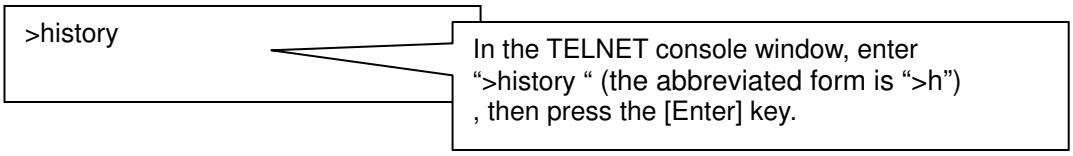
The character lines which can be specified as prompt become an English letter to eight characters, a number, a sign (ASCII character from 0x21 to 0x7E).
The space can't be inputted in the character line.

And, when there is no sub-parameter, prompt indication is returned to ">".

4.3.2.24 HISTORY (Command history list) command

The one's personal history list of the character line inputted on the terminal screen is indicated.

1 Command input



2 An effect effect-less condition with the command input
Refer to Table 4.3-2

3 Screen example

```
>history
01 : su 12345
02 : status
03 : ls
04 : disp
05 : set setup01 test=gen
>
```

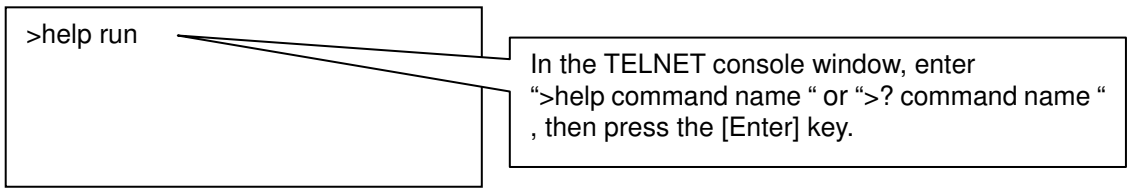
There is a one's personal history number in the list indicated. When it is inputted "! one's personal history number", it is possible to specify its personal history directly and to indicate it. The character line inputted right before the front when it was inputted again "!!" is indicated.

NOTE
History holds a maximum for 50 cases. When it exceeds 50 cases, it is replaced one after another from its old personal History.

4.3.2.25 HELP command

This command is used to display help on commands used in TELNET control.

1 Command input



2 Command name
Enter the command name which is to be displayed. If the command name is omitted, all command names and command overviews will be shown.

3 An effect effect-less condition with the command input
Refer to Table 4.3-2

4 Screen example
Following is the screen display which is shown when a command name is specified.

```
>help run
Run Command -- Start Measurement.
[Syntax]
 >Run
>
```

As for the SET command, it is possible that the list of the setup value is indicated in every sub-parameter.

```
>? set nego
[Syntax]
 >SET [setupXX,free,dhcp] LINK:NEGOTIATE=(Value)
  Parameter : LINK:NEGOTIATE(NEGOTIATE,NEGO)
  Value     : AUTO(AT)
              MANUAL(MAN)
>
```

NOTE

To display the sub-parameters for an individual command, enter “>HELP ‘command name’” or “>? ‘command name’”.
The SET command, DISP command, and RESULT command have numerous sub-parameters. Input abbreviations are also provided.

The screen appears as shown below when the command name is omitted.

```
>help
AE5501 Remote Control Command Reference
 CONnect   -- Connecting for AE5501.
 Quit      -- Quit Telnet Remote Control(same eXit).
 Run       -- Start Measurement.
 DHCP      -- Get IP Address.
 ARP       -- Get Destination Terminal MAC Address.
 SToP      -- Stop Measurement or AE5730 Remote.
 STatuS    -- Display System Status.
 SELect    -- Select Measure Condition.
 SetList   -- Display Measure Condition List.
 SET       -- Change Measure Condition Setup.
 DISPlay   -- Display Measure Condition Setup.
 RESult    -- Display Measure Result.
 LiSt      -- Display Result File List.
 DELete    -- Deleted Result File(same ReMove).
 VERsion   -- Display System Version Information.
 SELFtest  -- Execute System Self Test.
 DATETIME  -- Change or Display Date,Time.
 INIT      -- System All Default.
 VERsionUP -- Execute System Version Up.
 ReMoTe    -- Change AE5730 Remote Control Mode.
 HELP      -- Display Command Reference.
 SHell     -- Shell Command : Start Shell Command Entry.
 shellEND  -- Shell Command : Finish Shell Program Entry.
 shellVIEW -- Shell Command : Display Entry Shell Program.
 shellGO   -- Shell Command : Execute Entry Shell Program.
 WAIT      -- Shell Command : Waiting for some Sec or Input Key.
 LOOP      -- Shell Command : Start Loop.
 LOOPEND   -- Shell Command : end of Loop.
 History   -- Display Command History.
>
```

NOTE

In the Help which is displayed by entering “>help set” or “>help disp”, character strings enclosed in parentheses and separated by commas are abbreviated forms.

TX_FRAME#:VLAN#:TPID(TXFRM#:VLAN#TPID,TF#V#TPID)
1 2 3

There are three different specifying methods:
(a)TX_FRAME1:VLAN1:TPID
(b)TXFRM1:VLAN1TPID (abbreviation type 1)
(c)TF1V1TPID (abbreviation type 2)

4.3.3 Script commands

With this function, TELNET commands are registered as script commands in order to execute continuous operations. In addition to ordinary commands, there are special commands such as those shown in the table below, which may be registered as script commands.

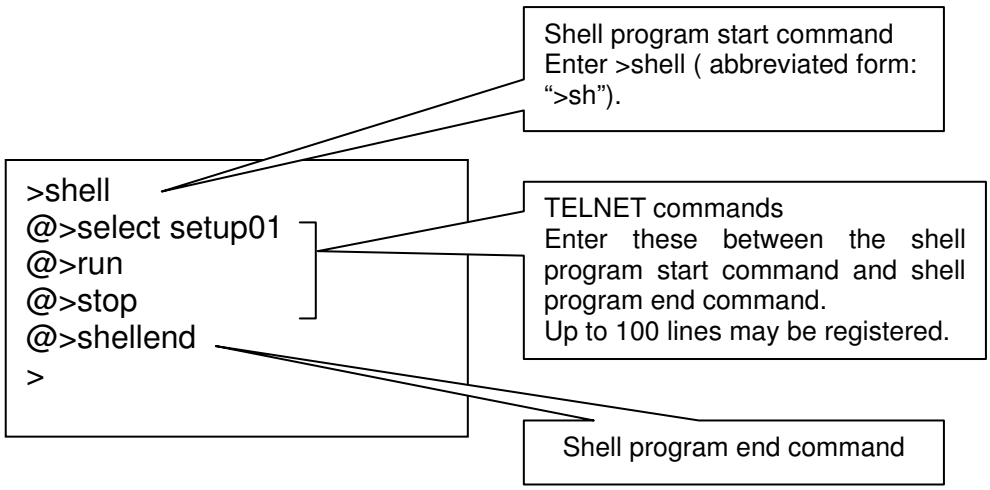
Table 4.3-24 Script commands

Name	Details
SHELL command	Page 4-165
SHELLVIEW command	Page 4-166
SHELLGO command	Page 4-167
WAIT command	Page 4-169
LOOP command	Page 4-170

4.3.3.1 SHELL (Register shell program) command

This command is used to register a shell program. TELNET commands registered between shell program registration commands are automatically executed by the SHELLGO command (see 4.3.3.3 for details).

1 Command input
The command format will now be explained with reference to an actual screen display example. Start with the “>shell” command and end with “@>shellend”.



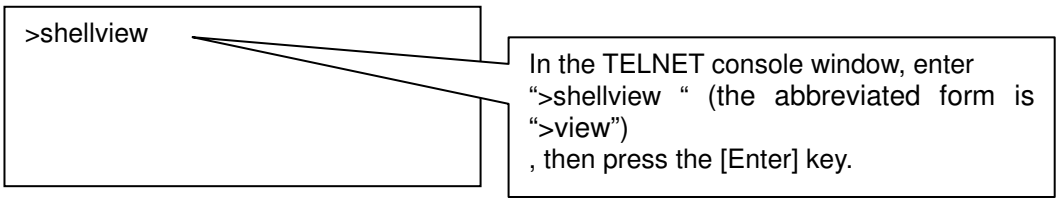
After the shell program is registered in the above format, the registered shell program is executed by entering the shell program execution command (see 4.3.3.3 for details).
Only one shell program may be registered. If the shell command is used to register a program again, the previously registered program will be overwritten.
Prompt changes in "@>" from ">" during shell program registration.

2 An effect effect-less condition with the command input
Refer to Table 4.3-2

4.3.3.2 SHELLVIEW (shell program indication) command

This command displays the registered shell program.

1 Command input



2 An effect effect-less condition with the command input
Refer to Table 4.3-2

3 Screen example
The screen appears as shown below if a shell program has been registered.

```
>shellview
  select setup01
  run
  stop
  shellend
>
```

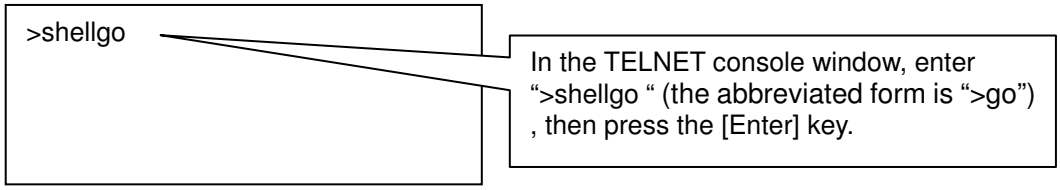
The screen appears as shown below if a shell program has not been registered.

```
>shellview
(E)Shell Program No Registry
>
```

4.3.3.3 SHELLGO (shell prgram execution) command

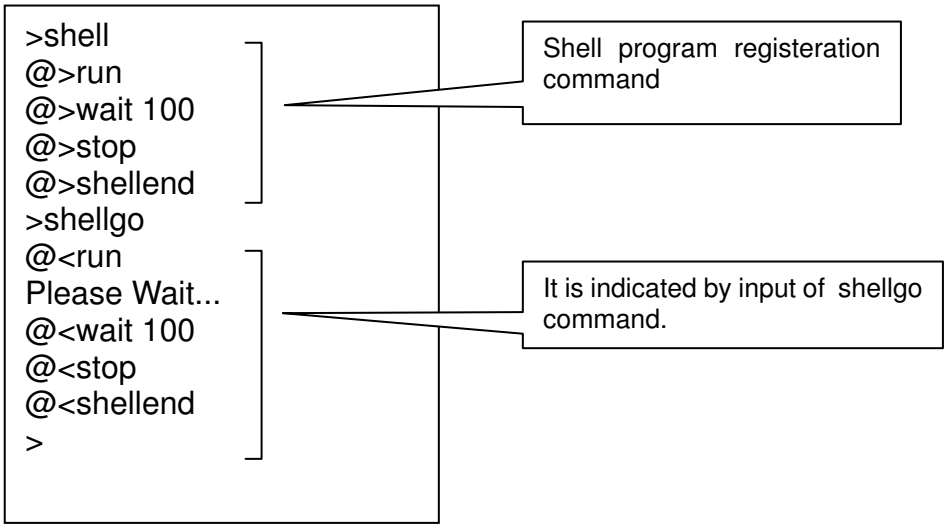
The most recent registered shell program is executed. For information on shell command, see 4.3.3.1.

1 Command input

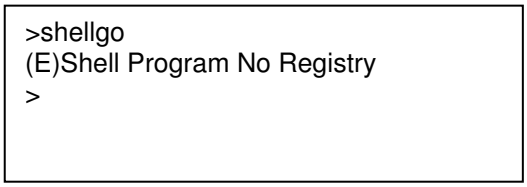


2 An effect effect-less condition with the command input
Refer to Table 4.3-2

3 Screen example
Following is an example of the screen which is displayed when a shell program has been registered.



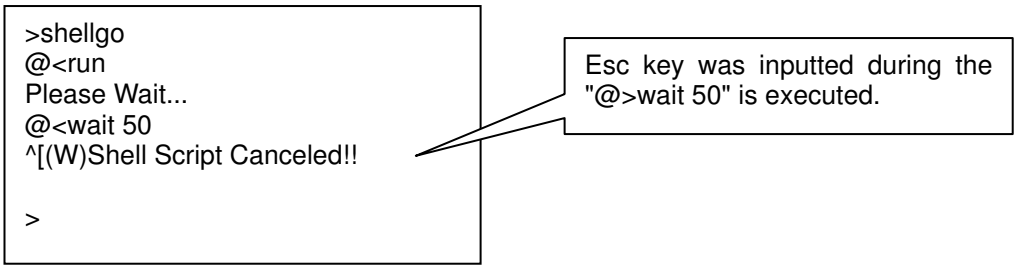
The screen appears as shown below if a shell program has not been registered.



NOTE

When remote cable is pulled out after shell program is executed, the about 15 minutes shell program movements are continued. But, when TELNET control is done from TELNET console window again, you must set up the TELNET mode of AE5501 again. Prompt changes in "@>" from ">" during shell program registration.

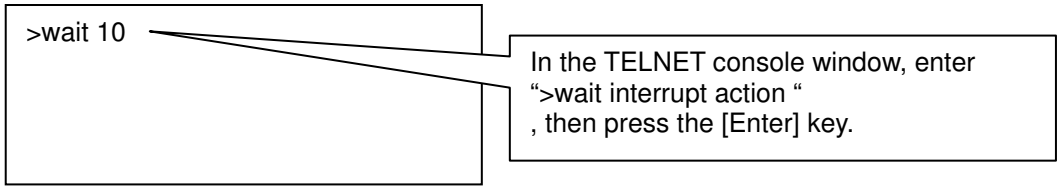
Pressing the [Esc] key while the script command is being executed causes the command to abort. Following is an example screen.



4.3.3.4 WAIT command

This command is used during a shell program to continue the immediately preceding command for a specified length of time. This may be set in two different ways: continuing the previous command for a specified length of time, and continuing the previous command until the next key input.

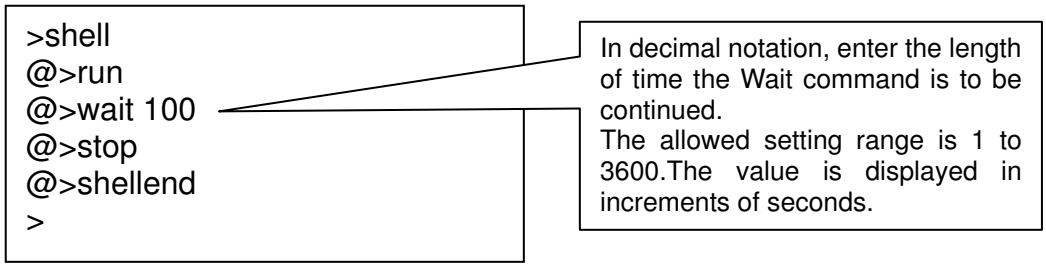
1 Command input



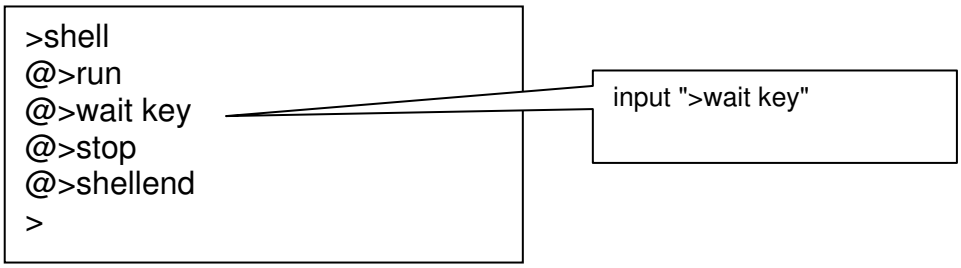
2 Interrupt action

The interrupt action may be set in two different ways: interrupt at a specified time, and interrupt at the next key input.

To continue the Wait command for a specified length of time, enter the settings as follows.



To continue the Wait command until the next key input, enter the settings as follows.



3 An effect effect-less condition with the command input

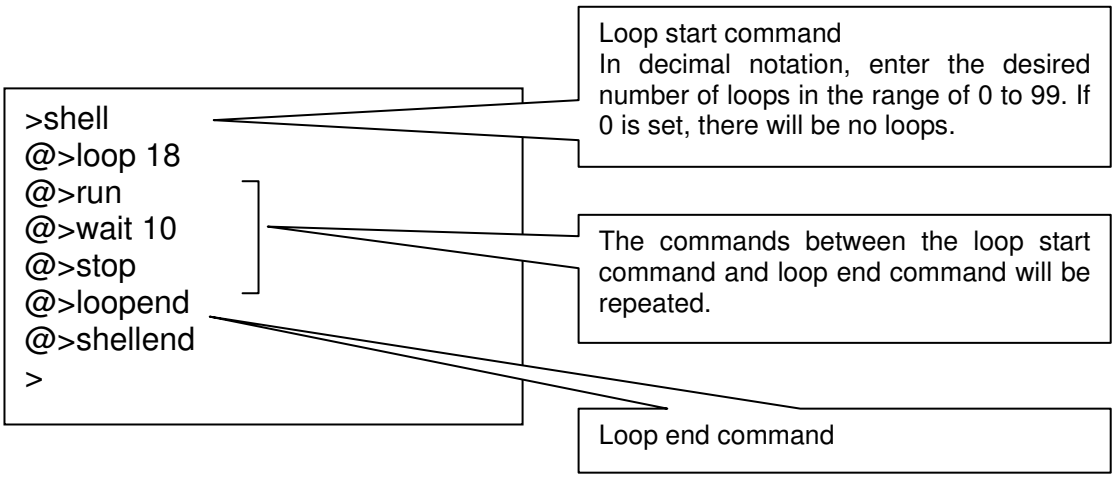
Refer to Table 4.3-2

4.3.3.5 LOOP (Repetition) command

This command is used in a script program. Commands in a range enclosed by LOOP commands are repeated a specified number of times.

1 Command input

The command format will now be explained with reference to an actual screen display example. Start with the “@>loop” and end with “@>loopend”.



2 An effect effect-less condition with the command input

Refer to Table 4.3-2

4.3.4 Error messages

The following table presents a list of error messages displayed on the TELNET console screen when TELNET remote control is executed.

Table 4.3-25 List of TELNET remote control error messages

Error messages	Description
(E)Permission Error	It tried to carry out the command of the ADMIN authority with the USER authority.
(E)Already [ADMIN]..	It tried to carry out a SU command under the condition which was already ADMIN authority.
(E)Now Online...	A command which is invalid while ONLINE was executed.
(E)Now Offline...	A command which is invalid while OFFLINE was executed.
(E)Now Remoting...	A command which is invalid while REMOTE was executed.
(E)Invalid Parameter Key Word..	The parameter which couldn't be specified was specified.
(E)Invalid Parameter Value..	The value which couldn't be specified was specified.
(E)Can't Disp Parameter..	The parameter which couldn't be indicated was specified.
(E)Not Telnet Mode	AE5501 is not the condition that it waits for the TELNET connection.
(W)Already Sending...	A RUN command was executed during transmission.
(E)System Error...	System error
(E)Can't Get Address...	Unable to acquire address during DHCP or ARP execution.
(E)Complete !	Address acquisition completed during DHCP or ARP execution.
(E)Can't RUN.. I/F Mismatch..	Unable to execute measurement due to I/F mismatch.
(E)Undefined Parameter Key Word	An undefined command parameter was specified.
(E)Undefined Command Key Word	An undefined command was specified.
(E)Over/Under Parameter Range	A value which is outside the range was specified.

[This page is intentionally left blank.]

Chapter 5 Appendix

5.1 List of Error Messages

The following is a list of error messages that may appear in the message window of this device along with possible solutions to the problems.

Table 5.1-1 List of Error Messages

Error message	Error type	Remedy
ERROR NO.1	Boot processing error	Reboot the system.
ERROR NO.2		
ERROR NO.3		
ERROR NO.4		
ERROR NO.5		
ERROR NO.6		
ERROR NO.7	Link setting error	
ERROR NO.8	File check error	
ERROR NO.9	FTP server operation error	
ERROR NO.10	File error	
ERROR NO.11	Other system errors	
ERROR NO.12	Setup details and GBIC implementation status do not match.	
ERROR NO.13	Network information registration error	
ERROR NO.14		
ERROR NO.15	Remote initial processing error	
ERROR NO.16	Mismatch between data length and buffer write	
ERROR NO.24	Run processing error	
ERROR NO.25		
ERROR NO.26		
ERROR NO.27		
ERROR NO.32		
ERROR NO.28	Stop processing error	
ERROR NO.29		
ERROR NO.30	Error during Ping processing	
ERROR NO.31	Error during reply processing	
ERROR NO.33	ARP timeout of Ping	Try to rerun after checking the measuring port connection.
ERROR NO.34	Overflow during running	Reboot the system.
ERROR NO.36	Error during self-test	
Interface not supported	Cannot run because of interface mismatch	Check the implementation status of the GBIC.
No Result File	There is no measurement results file	Create a measurement results file.
Pull Out GBIC	GBIC is implemented and 1000BASE-T is selected for L1 setting	Pull out the GBIC.
Remote Complete	Remote operation is completed	Exit the Remote screen.
Prm Miss & Modify	Set value is outside the range and the target value is modified	Confirm the modified value when the cursor automatically moves to the modified portion.

5.2 Popup Messages

The following is a list of popup messages that may appear in various screen windows of this device.

Table 5.2-1 Popup Messages 1

Popup message	Description	Remarks
File Delete? CANCEL OK	This screen is to confirm that you want to delete the result files on the File Select screen.	OK: Delete result files. CANCEL: Return to the File Select screen.
System Error Please Power Off	This will appear when a critical system error takes place.	Reboot the AE5501.
Set Remote Cable [ENTER] & Retry	This indicates that the measuring port's link is not established.	Connect the remote cable and press the ENTER key again.
I/F Mismatch OK	This indicates that the measurement information is different from the implemented interface configuration.	Implement GBIC and confirm the interface information in the measuring configuration.
Can't Detect DHCP server	This indicates that IP ADDR SET is set to AUTO on the Remote Setup screen and the remote port link is not established or a DHCP server is not detected on the network.	Recheck the remote network.
Init Error Please Retry CANCEL OK	This will appear when an error is detected in remote results.	Repeat the remote processing.
System Error Stop Init OK	This will appear when an error occurs during the initial processing of measurement.	Stop measurement and reboot the AE5501.
System Error Execute STOP OK	This will appear when an error occurs during measurement.	
ARP Miss Execute STOP OK	This will appear if ARP reply is not received during ARP processing in the Ping operation.	Check the line to be measured and retry measuring.
File Count 100 Delete OK? CANCEL OK	This will appear if there are already 100 measurement result files when measurement begins.	OK: Deletes the oldest file. CANCEL: Stops measuring.
Now Link Down Continue? CANCEL OK	This will appear if there is no link established when measurement begins.	OK: Measurement will continue without an established link. CANCEL: Stops measuring.
Rmt Miss Detect! Please Retry! OK	This will appear when an error occurs during remote processing.	Repeat the remote processing.
File loss Detec Please Remote OK		
Pull Out Gbic Module! OK	This will appear if 1000BASE-TX measurement information is selected when the GBIC is implemented.	Turn off the power, pull out the GBIC and reboot the system.
Really? <VerUP Mode> CANCEL OK	This will appear as the final confirmation request before changing to the VerUP mode.	OK: Transfer to the VerUP mode. CANCEL: Cancel the transfer.

5.3 List of Consumables

The following is a list of consumables used for this device.

Table 5.3-1 List of Consumables

Item	Manufacture/supplier	Model	Remarks
Rechargeable battery	Matsushita Electric Industrial	HHR 3XPS	Maximum number of recharging times: 500
CompactFlash	Hagiwara Sys-Com Co., Ltd	CFI-128MDG	

NOTE

Consumables are not covered by our free warranty service.
Refer to the paragraph of 4.1.3 "Preparing of Power Supply" - 2 "Battery" about replacing battery.
The AE5501 must be sent to our factory in order to replace the CompactFlash.
The manufacturers/suppliers and models of the consumables are subject to change without prior notice.

5.4 The abbreviation of the TELNET command.

5.4.1 The abbreviation list of the setup parameter of the SET command

Sub-parameter	Basic setup item	Abbreviation1	Abbreviation2	Abbreviation3
test_mode	GENERATE	GEN		
	LATENCY	LAT		
	PING	PIN		
	REPLY	REP		
	LOOPBACK	LOOP	LB	
run_mode	RX->TX	R-T		
	RX&TX	R&T		
link:L1	10BASE-T_HALF	10FULL	10F	
	10BASE-T_FULL	10HALF	10H	
	100BASE-TX_HALF	100FULL	100F	
	100BASE-TX_FULL	100HALF	100H	
	1000BASE-T_FULL	1000TFULL	1000TF	1000T
	1000BASE-SX_FULL	1000SFULL	1000SF	1000S
	1000BASE-LX_FULL	1000LFULL	1000LF	1000L
link:flow	OFF			
	ON			
link:negotiate	AUTO	AT		
	MANUAL	MAN		
link:crossover	MDI			
	MDIX			
	AUTO	AT		
tx_setup:transmit	10M	10		
	100M	100		
	1000M	1000	1G	
tx_setup:tx-mode	constant/count	c/cnt		
	constant/continue	c/con		
	burst/count	b/cnt		
	burst/continue	b/con		
tx_setup:ifg	XXXbit XXX%		A unit is omitted.	
tx_setup:idle	XXXbit		A unit is omitted.	
tx_setup:cnt	XXXbit		A unit is omitted.	

Sub-parameter	Basic setup item	Abbreviation1	Abbreviation2	Abbreviation3
tx_setup:stop_action	ON			
	OFF			
	XXXmin	A unit is omitted.	Action becomes ON automatically by input of value.	
tx_frame#:dst_mac	manual	man		
	arp			
	XX-XX-XX-XX-XX-XX		A setup becomes MANUAL by inputting address automatically.	
tx_frame#:src_mac	manual	man		
	global	gl		
	dhcp			
	XX-XX-XX-XX-XX-XX		A setup becomes MANUAL by inputting address automatically.	
tx_frame#:dst_ip	manual	man		
	arp			
	XXX.XXX.XXX.XXX		A setup becomes MANUAL by inputting address automatically.	
tx_frame#:src_ip	manual	man		
	dhcp			
	XXX.XXX.XXX.XXX		A setup becomes MANUAL by inputting address automatically.	
tx_frame#:error	NONE	NO		
	CRC			
filter%:sel	OFF			
	ON			
filter_init	OR			
	AND			

Sub-parameter	Basic setup item	Abbreviation1	Abbreviation2	Abbreviation3
alarm:rx_frame	OFF			
	ON			
	DOWN	D		
	UP	U		
	XXXX		It is set up in on automatically by input of value.	
alarm:err_cnt	OFF			
	ON			
	XXXX		It is set up in on automatically by input of value.	
alarm:tx_frame	OFF			
	ON			
	XXXX		It is set up in on automatically by input of value.	
arp_reply	OFF			
	ON			

Sub-parameter	Basic setup item	Abbreviation1	Abbreviation2	Abbreviation3
fixed_delay	OFF ON			
loopback (LATENCY, LOOPBACK)	MAC			
	MAC+IP	MACIP		
src_mac (PING,REPLY, LOOPBACK)	MANUAL	man		
	GLOBAL	gl		
	ALL			
	DHCP			
src_ip (PING,REPLY, LOOPBACK)	manual	man		
	dhcp			
	XXX.XXX.XXX.XXX			
subnet_mask	XXX.XXX.XXX.XXX		When src_ip is specified in DHCP, it can't be set up.	
gateway	XXX.XXX.XXX.XXX		When src_ip is specified in DHCP, it can't be set up.	
dst_ip	XXX.XXX.XXX.XXX			
interval (PING)	1sec	1		
	5sec	5		
	10sec	10		
tx_mode (PING)	continue	con		
	count	cnt		
	XXXX		A setup becomes count by inputting value automatically.	
dhcp src_mac	manual	man		
	global	gl		
	XX-XX-XX-XX-XX-XX		A setup becomes count by inputting address automatically.	
dhcp src_ip	manual	man		
	auto	at		
	XXX.XXX.XXX.XXX		A setup becomes count by inputting address automatically.	
dhcp subnet_mask	XXX.XXX.XXX.XXX		When src_ip is specified in AUTO, it can't be set up	
dhcp gateway	XXX.XXX.XXX.XXX		When src_ip is specified in AUTO, it can't be set up	
arp dst_ip	XXX.XXX.XXX.XXX			

5.4.2 The abbreviation list of the parameter of the result command

Sub-parameter	Abbreviation1	Abbreviation2	Abbreviation3
HEAD	HD		
TIME	TM		
TX_RATE	TRATE	TR	
RX_RATE	RRATE	RR	
TX_FRM/S	TFRMS	TFS	
RX_FRM/S	RFRMS	RFS	
TX_BIT/S	TBITS	TBS	
RX_BIT/S	RBITS	RBS	
TX_ERROR	TERR	TE	
RX_ERROR	RERR	RE	
CRC_ERROR	CRC		
UNDER_SIZE	UNDER	UD	
OVER_SIZE	OVER	OV	
ALIGNMENT	ALIGN	AL	
COLLISION	COLL	CL	
PAUSE_PKT	PAUSE	PS	
TX_BYTE	TBYTE	TB	
RX_BYTE	RBYTE	RB	
TX_FRAME	TFRAME	TFRM	TF
RX_FRAME	RFRAME	RFRM	RF
IDLE	IL		
ALARM	ALM		
DELAY	DLY		
SRC_IP	SIP		
DST_IP	DIP		
TX_MODE	TXMODE	TMD	
INTERVAL			
LOSS_CNT	LCNT		
LOSS_RATE	LRATE		
ROUND_TRIP	ROUND		
PING	PIN		
ARP			
TX	TX		
RX	RX		
RATE	RATE		
FRM/S	FRMS		
BIT/S	BITS		
ERROR	ERR		
BYTE			
FRAME	FRM		

5.5 Connection Configuration for AE5730E-installed PC

As mentioned in Section 4.1.5 “Connecting to an AE5730E-installed PC,” the device can be connected in two ways. If you connect the device directly to an AE5730E-installed PC by using a cross cable as shown in the chart below, you must change certain setting items for the PC.

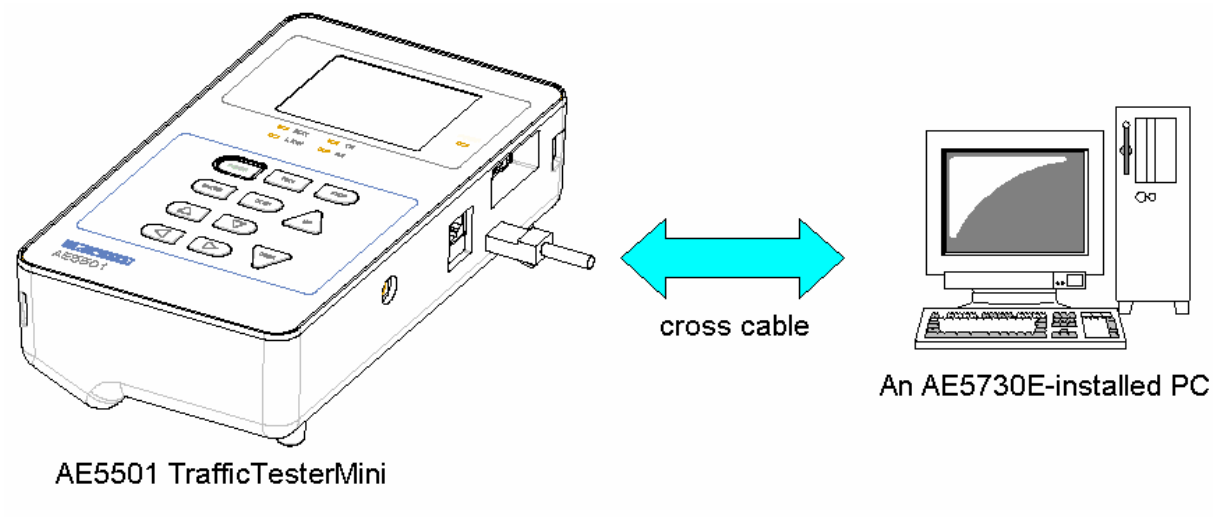


Figure 5.5-1 Direct connection to AE5730E-installed PC

5.5.1 Microsoft® Windows® XP

This section describes the setup procedure for a PC with Microsoft® Windows® XP operating system.

(a) On the Windows Start menu, select [Control Panel]. The dialog shown in Figure 5.5-2 will be displayed. Click [Network and Internet Connections].

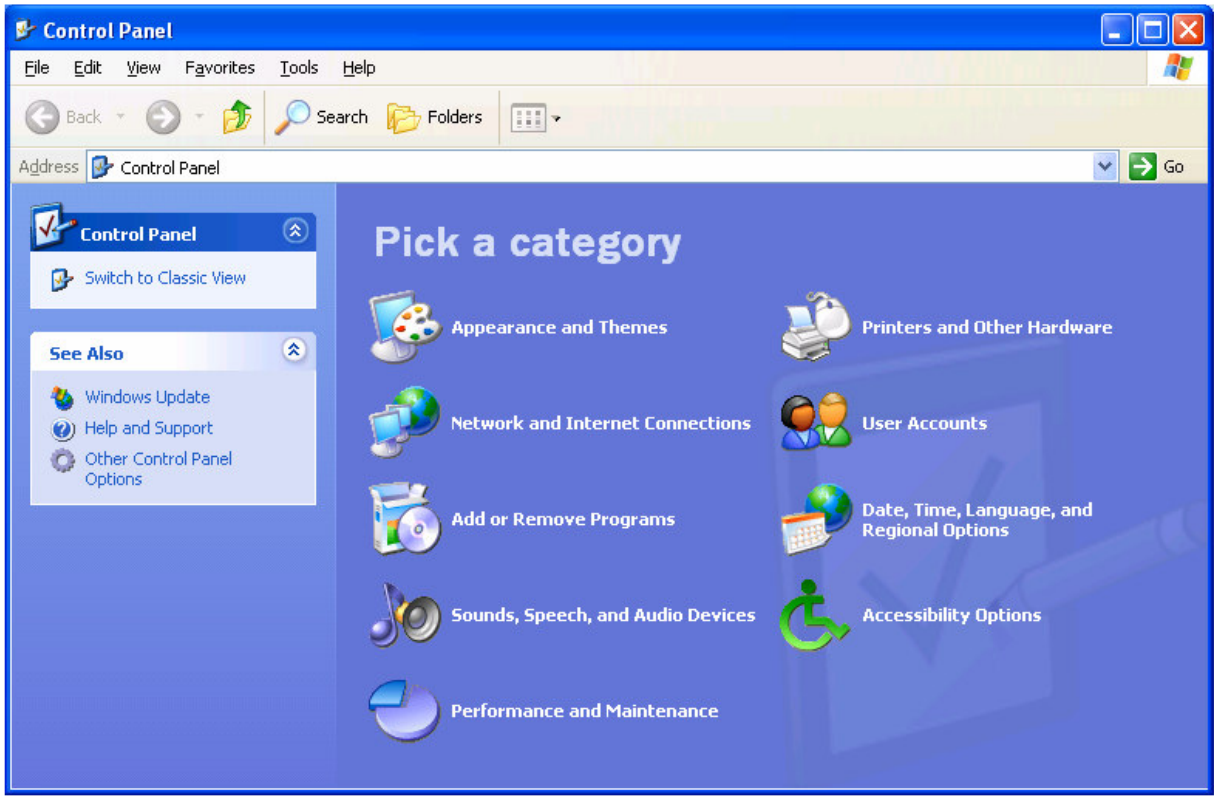


Figure 5.5-2 [Control] dialog

(b) After completing the operation described in (a), the [Network and Internet Connections] dialog will be displayed. Click [Network Connections].

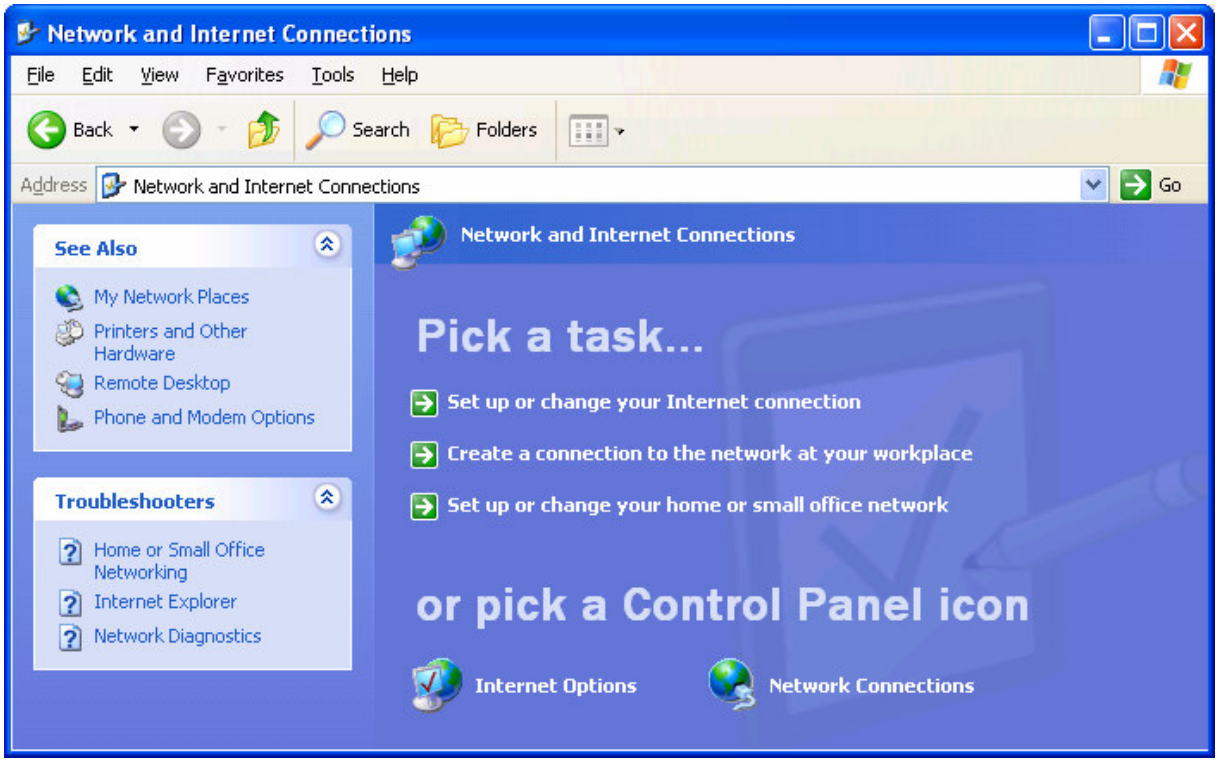


Figure 5.5-3 [Network and Internet Connections] dialog

NOTE
You should keep a copy of the network settings for your PC with the AE5730E TrafficTesterMini Setup Software installed in order to recover it if required.

(c) Double-click [Local Area Connection].

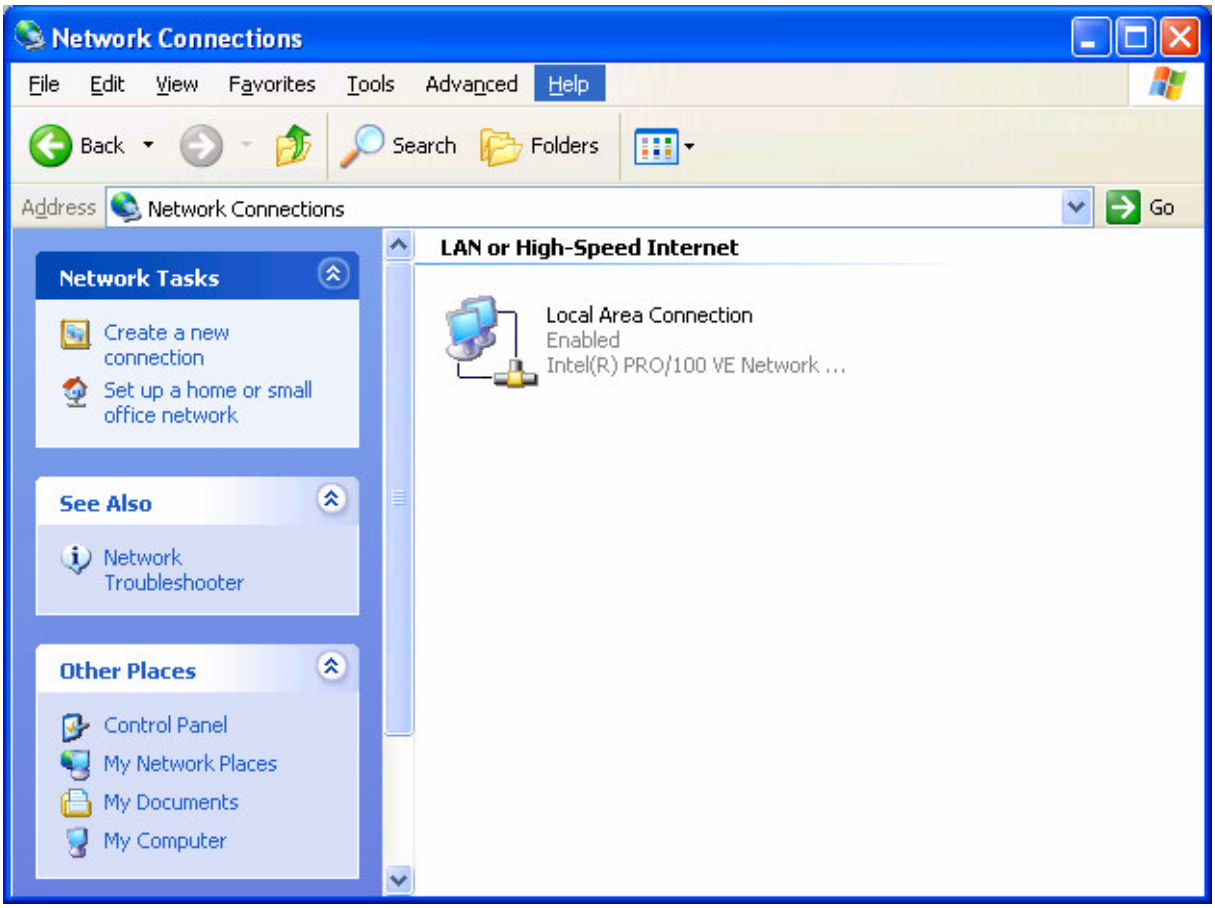


Figure 5.5-4 [Network Connections] dialog

(d) Click [Properties].

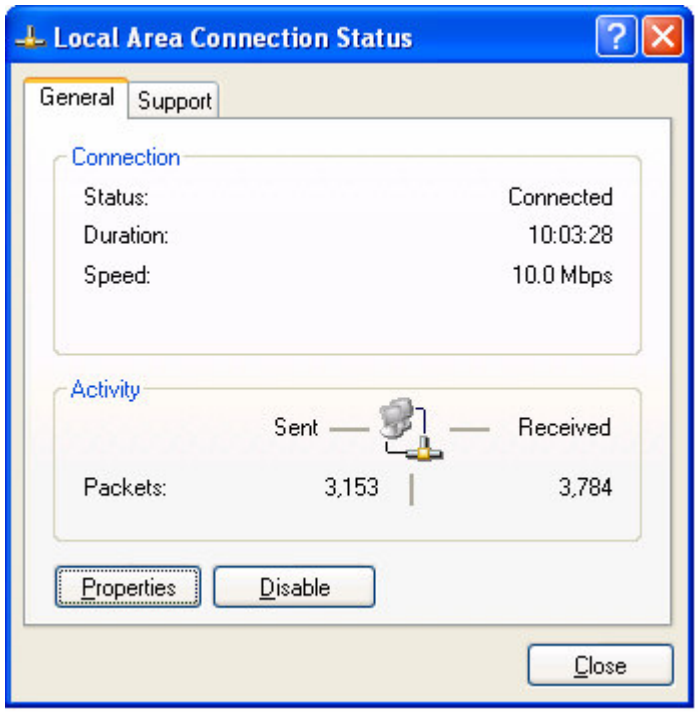


Figure 5.5-5 [Local Area Connections Status] dialog

(e) Select [Internet Protocol (TCP/IP)] and click [Properties].

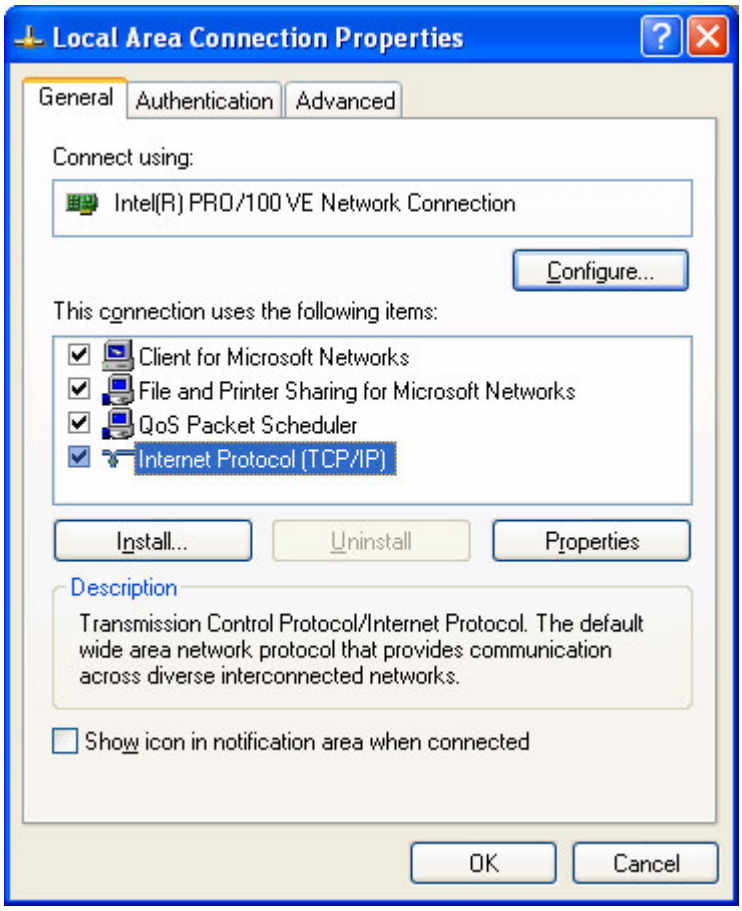


Figure 5.5-6 [Local Area Connection Properties] dialog

(f) After you complete the operation described in (e), the [Internet Protocol (TCP/IP) Properties] dialog will appear. Set up the [Internet Protocol (TCP/IP) Properties] as shown in Figure 5.5-7 and click [Advanced]. The chart below shows sample values of the [IP Address] and [Subnet Mask]. If any values have been set up previously, it is not necessary to change them.

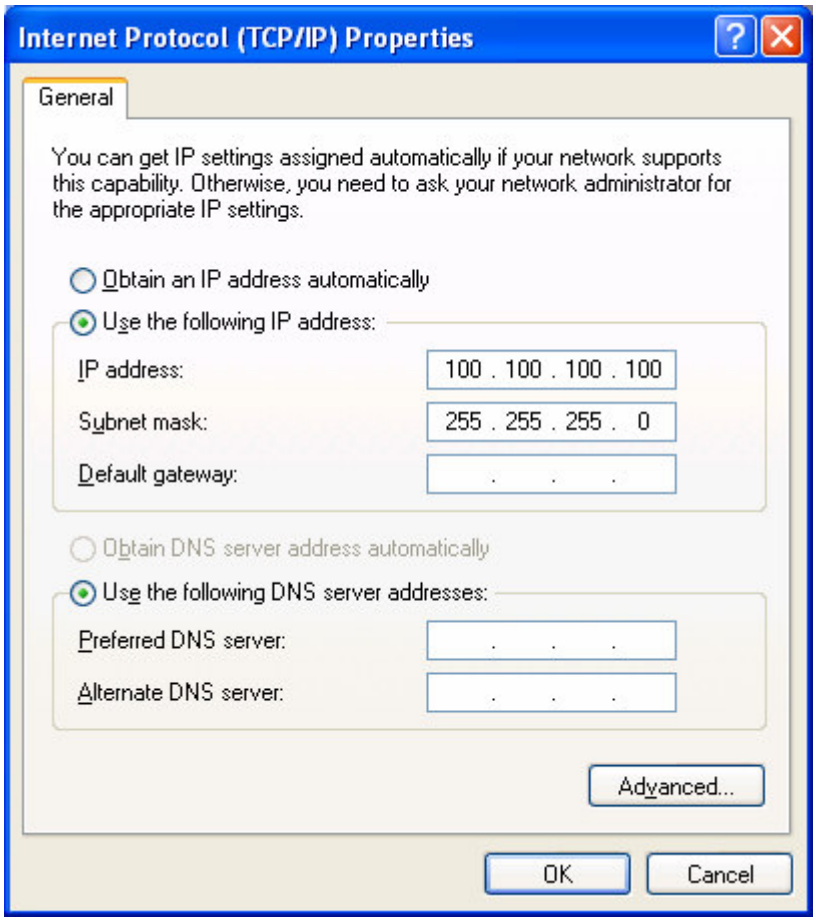


Figure 5.5-7 [Internet Protocol (TCP/IP) Properties] dialog

(g) When the [Advanced TCP/IP Settings] dialog appears, set it up as follows. Set [IP Settings] as follows.

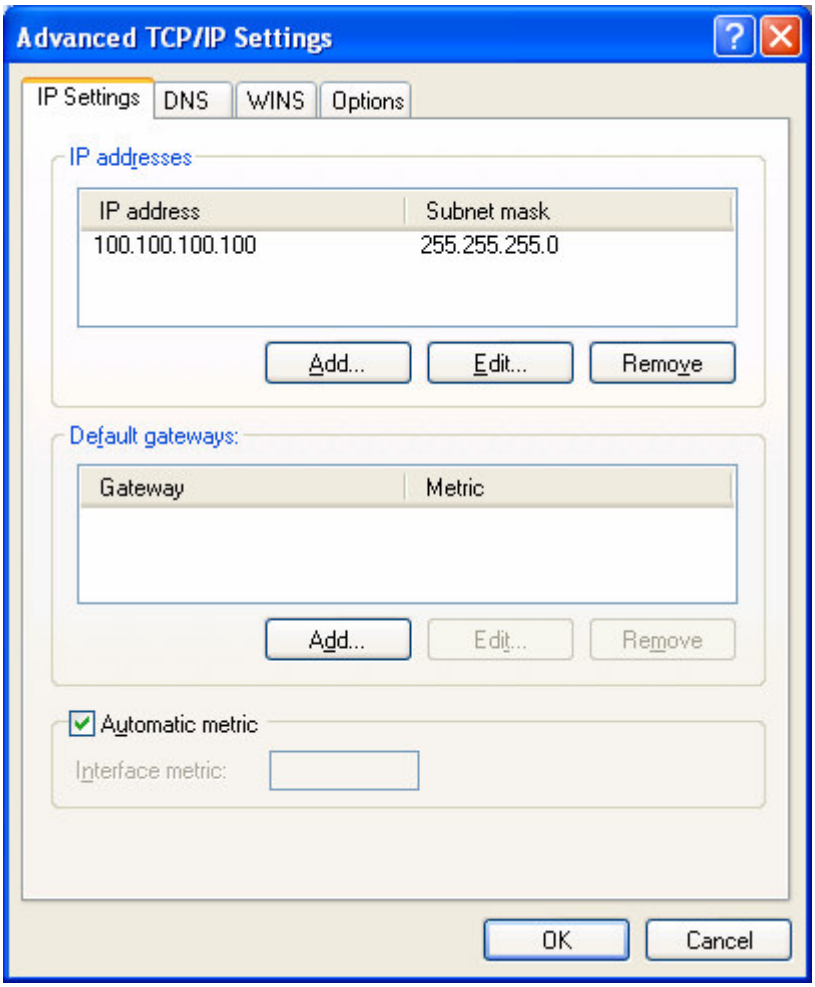


Figure 5.5-8 Advanced TCP/IP Settings

Set [DNS] as follows.

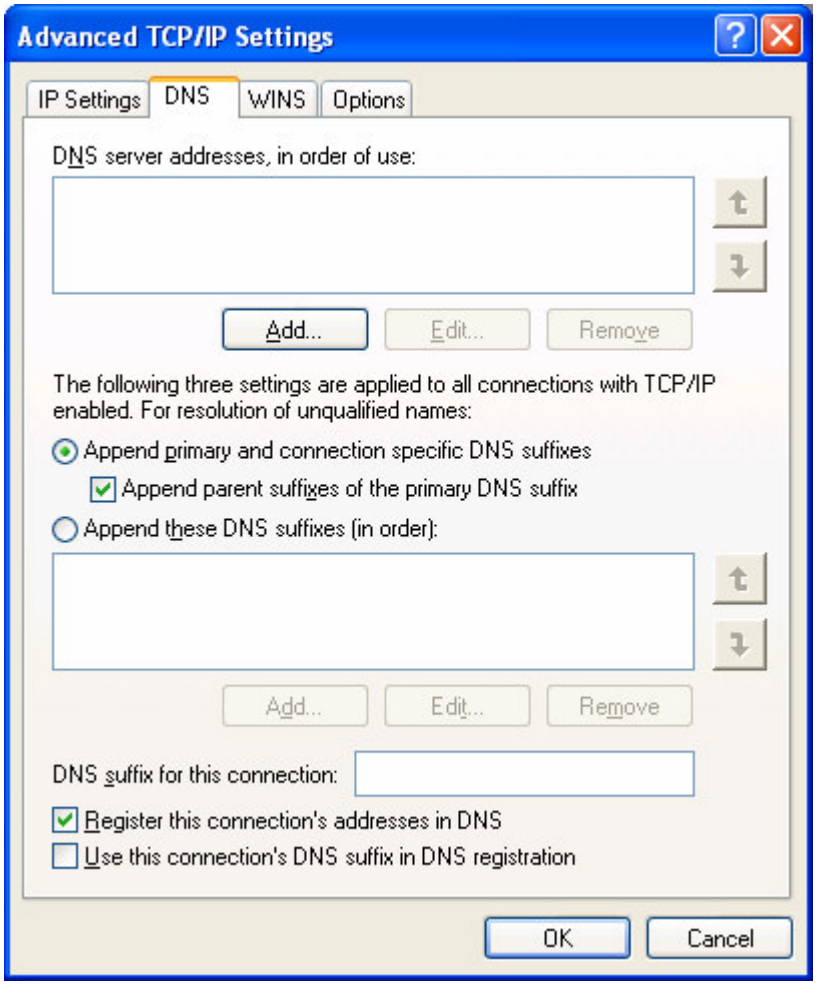


Figure 5.5-9 DNS Setup

Set up [WINS] as shown in the following chart and then click [OK].

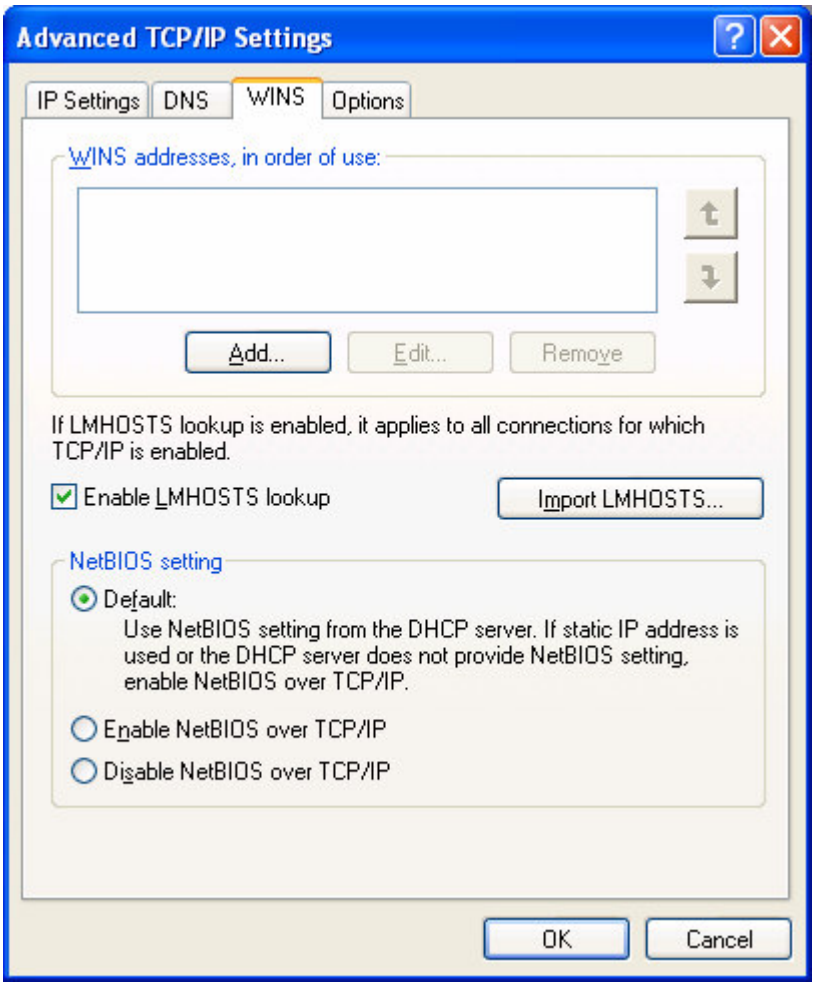


Figure 5.5-10 WINS Setup

(h) After you complete the settings in (g), click [OK].

(i) Click [OK] on the dialog shown in Figure 5.5-7.

(j) Clicking [OK] on the dialog shown in Figure 5.5-6 complete the setup procedure.

5.6 Other Cautionary Notes

5.6.1 Version Upgrading

5.6.1.1 Upgrading from R02.01 or earlier releases to R02.04 or later releases

To upgrade from R02.01 or an earlier release to R02.04 or a later release, it is necessary to reboot the system during the upgrade process.
However, if you use the AE5730E TrafficTesterMini Setup Software for version upgrading, the operation will be performed as an integrated part of the software procedure. In that case, conduct the version upgrade operation as prompted by the application.
The following is a conceptual diagram of the operation. For more information, see the sections related to version upgrade in the AE5730E TrafficTesterMini Setup Software Instruction Manual.

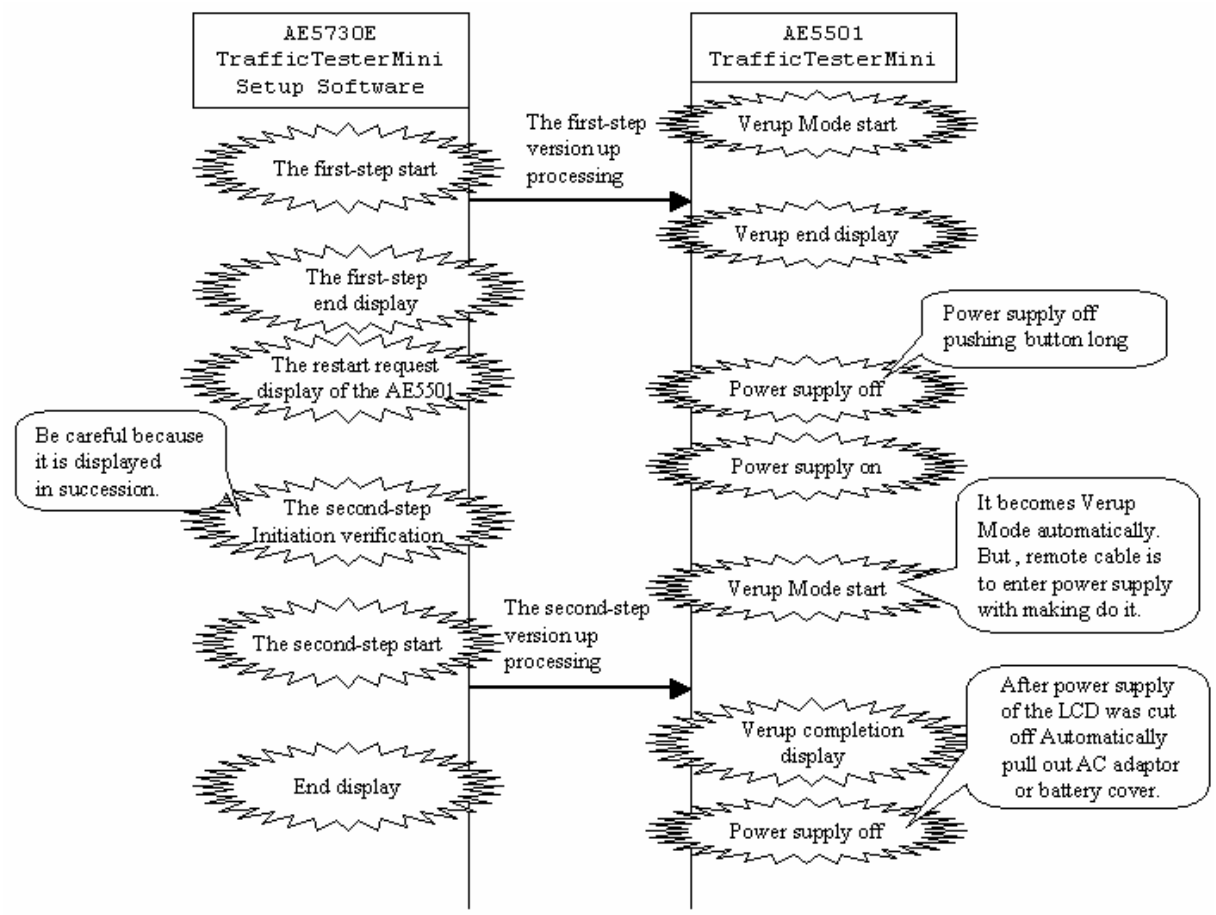


Figure 5.6-1 Conceptual diagram of version upgrade operation

5.6.1.2 Upgrading from R02.04 release to R02.04 or later releases

To upgrade from R02.04 release to R02.04 or a later release (e.g. from R02.04 to R02.05 in the future), set the AE5501 in the version upgrade mode and start the procedure from the AE5730E.

The AE5501 automatically shuts down the system when it determines that the version upgrade procedure is completed. The LCD display will turn off and the PowerLED will blink. The method used for rebooting the AE5501 differs depending on the power supply system.

When the system is powered via AC adapter:

Pull out and insert the AC adapter and press the POWER key for the time required to turn on the power.

When the system is powered by battery:

Open and close the battery cover on the reverse side of the device and press the POWER key for the time required to turn on the power.

5.6.2 Recovery Mode

If file transfer fails during the version upgrade process for any reason, the AE5501 TrafficTesterMini may not be activated even after rebooting the system.
The Recovery mode is a function mode used to reconfigure and correctly reboot the system in such a case.

5.6.2.1 If the System Freezes at the BOOT Logo

In this case, the PowerLED will blink continuously and the system will not be activated even after a minute or two.

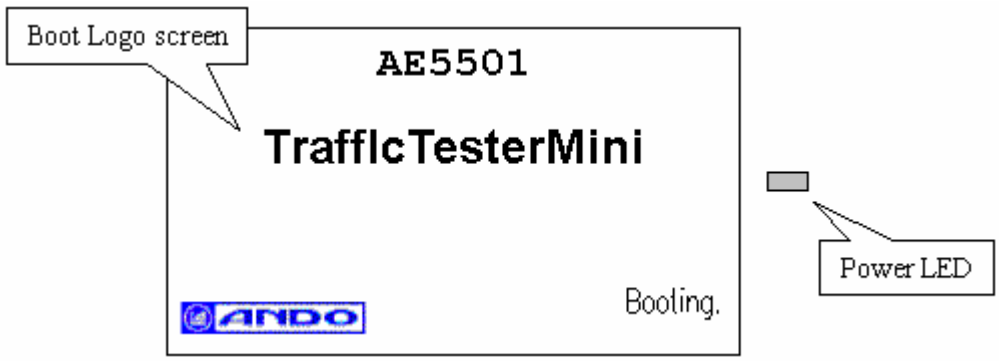


Figure 5.6-2 Screen frozen at the BOOT logo

It may be possible to restore the system by conducting the recovery operation from the AE5730E TrafficTesterMini Setup Software.

5.6.2.2 Mode for Manual Recovery

It is possible to manually set the device in a mode that accepts the recovery operation if the device is halted by a system error even after using the ALL DEFAULT function and the boot-up procedure freezes at the AE5501 Boot screen.
Hold the DISP key down while the Boot screen is on until the following screen is displayed and the recovery process is accepted.

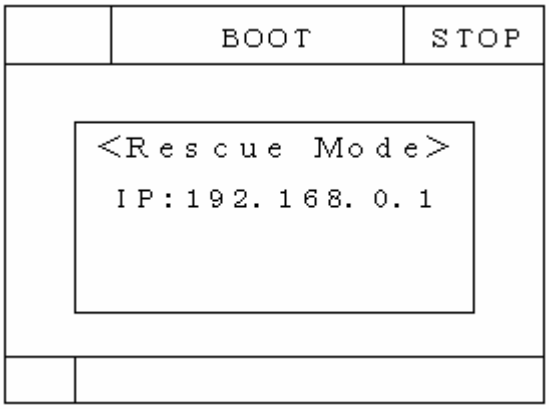


Figure 5.6-3 Screen displayed when the system is manually set in the recovery mode

5.6.2.3 Cautionary Note for Recovery Operation

Confirm the following points before conducting the recovery operation.

1 Checking remote lines

The network settings for the remote ports are defined as follows when the AE5501 is booted up.

IP address	192.168.0.1
Subnet mask	255.255.255.0

The remote port, however, must be connected to the remote network at the time of system boot-up.
It is recommended that the network connection be set as follows for the recovery operation.

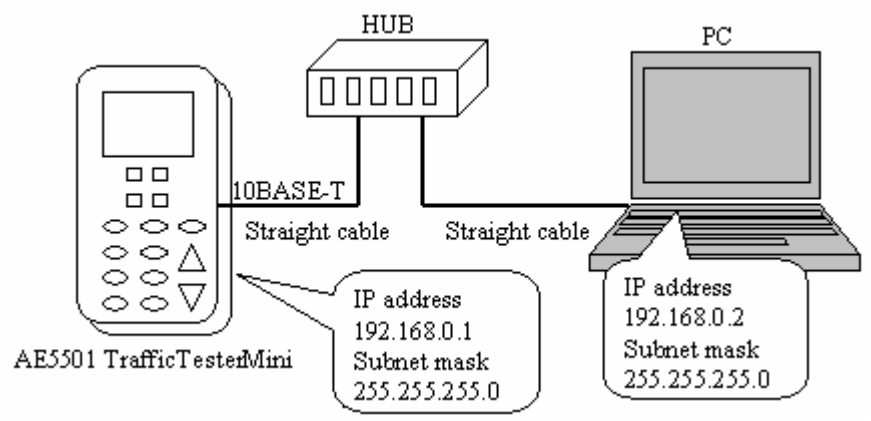


Figure 5.6-4 Example of hub connection

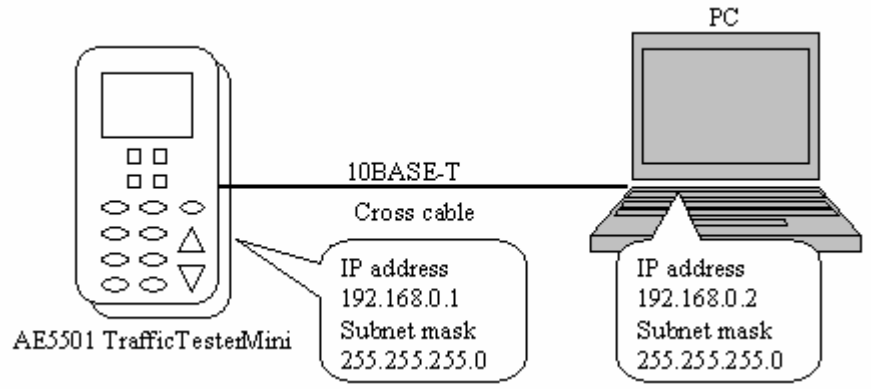


Figure 5.6-5 Connection by cross cable

2 Recovery Operation

Perform the recovery operation from the AE5730E TrafficTesterMini Setup Software. For more information, refer to the AE5730E TrafficTesterMini Setup Software Instruction Manual.

3 Completion of Recovery Operation

When the AE5730E TrafficTesterMini Setup Software indicates that recovery is completed, the AE5501 will automatically shut down. Reboot the system using the following procedures.

When the system is powered via AC adapter:

Pull out and insert the AC adapter and press the POWER key for the time required to turn on the power.

When the system is powered by battery:

Open and close the battery cover on the reverse side of the device and press the POWER key for the time required to turn on the power.

It is recommended that the version upgrade process be repeated if the AE5501 is rebooted through the recovery operation (or when the Mode Select screen is displayed). (For more information on version upgrading, see Section 4.2.12.2 “VerUP Screen” or Section 5.5.1 “Version Upgrading.“)

5.6.3 Cleaning

This device does not need periodic cleaning.
For remarkable contaminations on the enclosure, key tops and/or the LCD panel of the device, wipe those parts with a soft, clean, damp and tightly wrung cloth.
Ensure that water does not seep inside the device.
Do not use organic solvents such as thinner or benzine because they may deteriorate and/or may discolor those parts of the device.

[This page is intentionally left blank.]

Reference No. AS-84708Y
Issued: September 2007
Rev, 2.1

Address : 2-9-32 Naka-cho, Musashino-shi,
Tokyo, 180-8750 Japan

Yokogawa Electric Corporation