User's Manual

Fast Ethernet Module

WE7052

IM 707052-01E
1st Edition

Thank you for purchasing the Fast Ethernet Module WE7052 for the PC-based measurement instruments, WE7000.

This User's Manual contains useful information about the function, connection to the measuring station, operations of the software on the PC, and troubleshooting of the WE7052. This manual assumes that you will be using the WE7000 Control Software that is included with the measuring station. To ensure correct use, please read this manual thoroughly before operation.

Keep this manual in a safe place for quick reference in the event a question arises.

The manual listed below contains general information about the WE7000 (primarily describes the measuring station, the optical interface module/card, and the WE7000 Control Software) and is included with the measuring station. Read them along with this manual.

Manual Title	Manual No.
WE7000 User's Manual	IM707001-01E

Notes

- **The contents of this manual describe WE7000 Control Software Ver. 4.0.2.0 and module software Ver 4.03. If you are using another version of the software, the operating procedures or the figures given in this manual may differ from the actual software.**
- The contents of this manual are subject to change without prior notice as a result of continuing improvements to the instrument's performance and functions.
- Every effort has been made in the preparation of this manual to ensure the accuracy of its contents. However, should you have any questions or find any errors, please contact your nearest YOKOGAWA dealer.
- Copying or reproducing all or any part of the contents of this manual without YOKOGAWA's permission is strictly prohibited.

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- Adobe and Acrobat are trademarks of Adobe Systems Incorporated.
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Revisions

1st Edition: August 2000

Checking the Contents of the Package

Unpack the box and check the contents before operating the instrument. If some of the contents are not correct or missing or if there is physical damage, contact the dealer from which you purchased them.
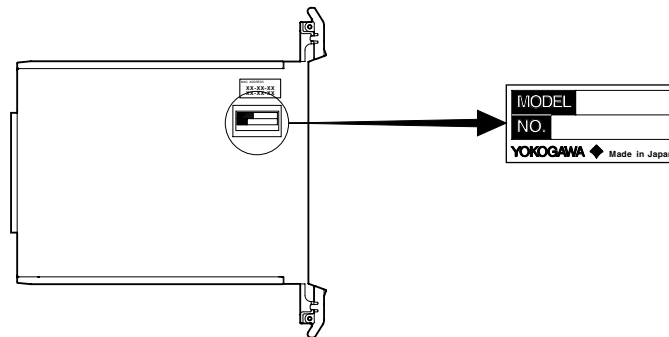
Measurement Module

Check that the model name given on the name plate matches those on the order.

MODEL

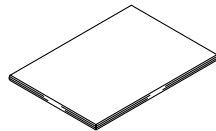| Model	Notes
707052	WE7052 Fast Ethernet Module

NO.

When contacting the dealer from which you purchased the instrument, please quote the instrument No.

Standard Accessories

The following standard accessories are supplied with the instrument. Check that all contents are present and that they are undamaged.

User's Manual (1)
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Optional Accessories (Sold Separately)

Part Name	Model	Notes
Serial interface cable	707801	9 pin-9 pin, length: 2 m

How to Use This Manual

Structure of the Manual

This User's Manuapœconsists of the following five chapters and an index.

Chapter	Title	Description
1	**Explanation of Functions**	Explains the system configuration and functions.
2	**Hardware Preparation**	Explains how to install the module into the measuring station and how to connect the input and output.
3	**Software Operation**	Explains how to operate the software on the PC.
4	**Troubleshooting and Maintenance**	Explains the procedures for troubleshooting and self testing.
5	**Specification**	Explains the specifications of the module.
Index		Index of contents.

Conventions Used in This Manual

Unit

k ...... Denotes 1000. Example: 100 kHz

K ...... Denotes 1024. Example 720 KB

Displayed characters

Alphanumeric characters enclosed with [ ] usually refer to characters or settings that are displayed on the screen.

Symbols

The following symbols are used in this manual.

A symbol mark affixed to the instrument. Indicates danger to personnel or instrument and the operator must refer to the User's Manual. The symbol is used in the User's Manual to indicate the reference.

WARNING   Describes precautions that should be observed to prevent injury or death to the user.

CAUTION   Describes precautions that should be observed to prevent minor or moderate injury, or damage to the instrument.

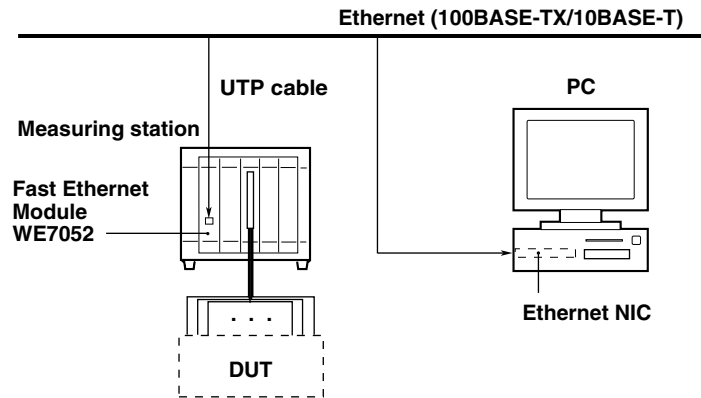*Note*   Provides important information for the proper operation of the instrument.

# Contents

1.1 System Configuration

1

System Configuration

The following is an example in which the Fast Ethernet Module WE7052 is installed into the measuring station. The measuring station and a PC are both connected to an Ethernet network.

Network Configuration

With the current version of the Fast Ethernet Module WE7052, up to three measuring stations can be connected to each PC existing in the same subnet. Each PC and the measuring stations with which it will be communicating, are configured as one group. If there are multiple PCs that need to communicate with different triplet groups of measuring stations over the same Ethernet segment, multiple groups can be set. In this case, communication is possible only within the same group.
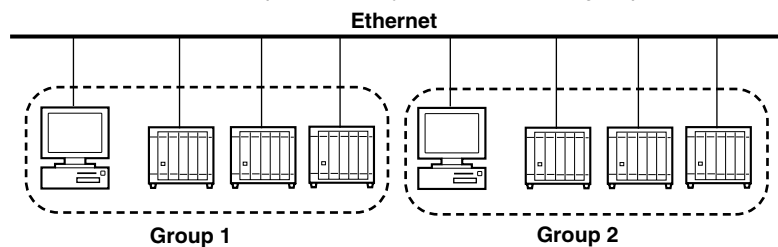
To reduce the amount of network traffic on a public use Ethernet network, the PC and the measuring stations can be connected via their own independent network. In this case, the PC and the measuring stations should be in the same IP subnet. For example, as shown in the following figure, each PC has two Ethernet NICs, one for connecting with other PCs and one dedicated for use with the WE7000 measuring stations. The two cards are configured with different IP addresses.
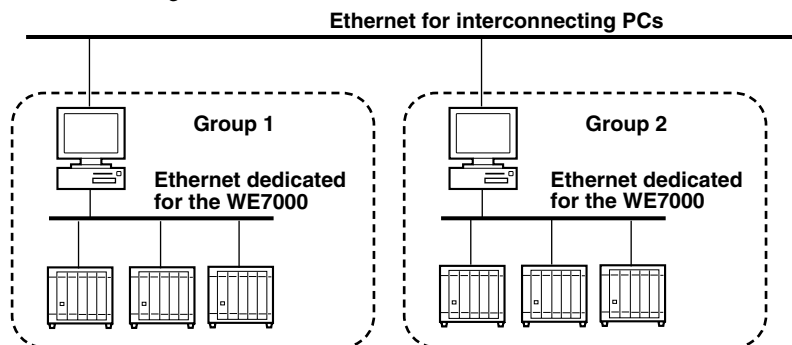
Note

If there are multiple Ethernet NICs installed on a PC, you will specify which Ethernet NIC will be used to communicate to the WE7000 by specifying the IP address through the start option of the WE7000 Control Software (see section 3.3, "Configuring Ethernet Communications of the WE7000 Control Software."

1.2 Ethernet Configuration

Default

0   1

1
2
3
4
5
6
7
8

☐ : Switch position
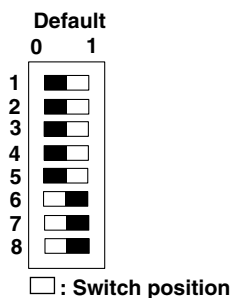
The dip switch on the front panel of the module (see next section) is used for configuration.

1. Auto selection of transfer rate and transmission mode (AUTO NEGOTIATION)

When connecting the module to a hub equipped with an AUTO NEGOTIATION function, set this switch to "1." In this case, you do not have to set the transfer rate and communication format below. When connecting the module to a hub that is not equipped with an AUTO NEGOTIATION function, set this switch to "0," and set the transfer rate and communication format below.

2. Transfer rate (100 Mbps)

Select 100 Mbps or 10 Mbps depending on the LAN you are connecting to.
When the LAN standard is 100BASE-TX: 100 Mbps ("1" position)
When the LAN standard is 10BASE-T: 10 Mbps ("0" position)

3. Transmission mode (FULL DUPLEX)

Select full duplex ("1" position) or half duplex ("0" position).

4. DHCP

Specify whether or not to use DHCP (use: "1" position, not use: "0" position).
If you specify to use DHCP and there is a DHCP server in operation in the same segment as the measuring station, the IP address, subnet mask, and IP address of the default gateway (described below) are obtained dynamically.

5. Communication mode (COMPATIBLE)

This setting specifies whether or not to enable the Ethernet Module WE7051 compatible mode.
If there are one or more Ethernet Module WE7051s in the network that you are connecting to, the dip switch must be set to the "1" position (WE7051 compatible mode). If the network only contains Fast Ethernet Module WE7052s, the dip switch can be set to the "0" position (WE7052 dedicated mode). In this case, however, you must add "COMPATIBLE=OFF" to the start option of the WE7000 Control Software (set to the link destination of the shortcut). You can use the "WE7051 compatible mode," even if the network contains only Fast Ethernet Module WE7052s. However, data transfer rate is faster if the "WE7052 dedicated mode" is used.

Note

Turn OFF the main power switch of the measuring station when operating the dip switches.

If you specify not to use DHCP by setting the "DHCP" dip switch to the "0" position, the following parameters must be written to the Fast Ethernet Module.
There are two methods you can use to configure the module: by going over the Ethernet network or by connecting the PC and measuring station with a serial interface cable. For the procedure, see section 3.4, "Configuring the Communication Parameters of the Fast Ethernet Module via Ethernet" or section 3.5, "Configuring the Communication Parameters of the Fast Ethernet Module Using Serial Communication."

• **IP address**

Specify the IP address to assign to the measuring station. The default IP address is "192.168.21.3."

• **Subnet mask**

Specify the mask that is used to determine the network address from the IP address. The default setting is "255.255.255.0."

1

Explanation of Functions

• **Default gateway**

Specify the IP address of the default gateway that is used when communicating with other devices on a different network. Specify "0.0.0.0" when there is no gateway. The default setting is "0.0.0.0."

Note

• The IP address is used to distinguish between the various devices connected to the Internet which communicate using the TCP/IP protocol. The address is a 32-bit value normally expressed in four octets (each 0 to 255), each separated by a period as in 192.168.1.1. The IP addresses that are used over the Internet are managed by InterNIC. However, if the PC and measuring stations are connected over their own independent network as indicated in the bottom figure in section 1.1 "Network Configuration," then IP addresses can be assigned arbitrarily within that network. The following three numerical ranges of IP addresses are provided for such use.
192.168.0.0 through 192.168.255.255, 172.16.0.0 through 172.31.255.255, and 10.0.0.0 through 10.255.255.255
As factory default, the WE7052 Ethernet Module is set to use "192.168.21.0 to 192.168.21.255" which is contained in the first of the IP address ranges just described. If there are no existing devices that use IP addresses in the range "192.168.21.0 to 192.168.21.255," and the PC and measuring stations are connected over their own independent network, then the factory default settings can be used.
• When configuring the communication parameters of the Fast Ethernet Module via Ethernet, the "ADDRESS SETUP" dip switch (see next section) on the front panel must be set to the "1" position.

The following parameter is written to the Fast Ethernet Module as necessary.

• **Port number**

Specify the port number of the process that receives UDP (User Datagram Protocol) packets of file transfers. The default setting is "34191." This parameter is also needed when using DHCP, but no configuration is necessary if you are using the default settings.

1.3 Names and Function of Sections

Front Panel

Indicator

RX/TX: Receive/Transmit state
    ON - Transmitting or receiving data
    OFF - Idle state

100 Mbps: Transfer rate
    ON - 100 Mbps
    OFF - 10 Mbps

FULL DUPLEX: Communication format
    ON - Full duplex
    OFF - Half duplex

LINK: Link state
    ON - Connected to the network
    OFF - Not connected to the network

STANDBY: Standby state
    ON - Operating normally
       (Main power is ON)

100BASE-TX port

Connect the RJ-45 modular jack of the UTP cable that is connected to the Ethernet.
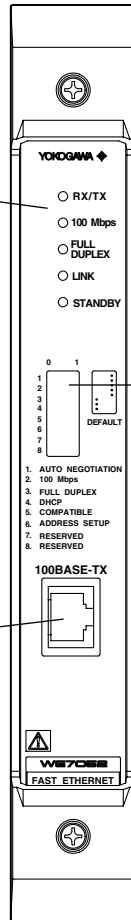
Communication configuration dip switch

1. AUTO NEGOTIATION
    0 - OFF
    1 - ON

2. 100 Mbps
    0 - 10 Mbps
    1 - 100 Mbps

3. FULL DUPLEX
    0 - Half duplex
    1 - Full duplex

4. DHCP
    0 - Don't use DHCP
    1 - Use DHCP

5. COMPATIBLE
    0 - WE7052 dedicated mode
    1 - WE7051 compatible mode

6. ADDRESS SETUP
    0 - Normal communication mode
    1 - Communication configuration mode

7, 8. RESERVED
   Used by the system. Leave this in the "0" position.

* For details on the configuration, see section 1.2.

2.1   Installing the Module into the Measuring Station

2

Hardware Preparation

Preparing to Install the Module

The measuring station comes with each slot covered with a cover plate as shown in the figure below. Verify that the power supply is not connected to the measuring station, then loosen the module attachment screws (2 locations) and remove the cover plate from the slot on the left end. The slot on the left end is dedicated to the communication module.
* The following figure shows an example of the measuring station WE400.

Slot dedicated to the optical interface module

Slots for other modules

Module attachment screw

Cover plate

Module attachment screw
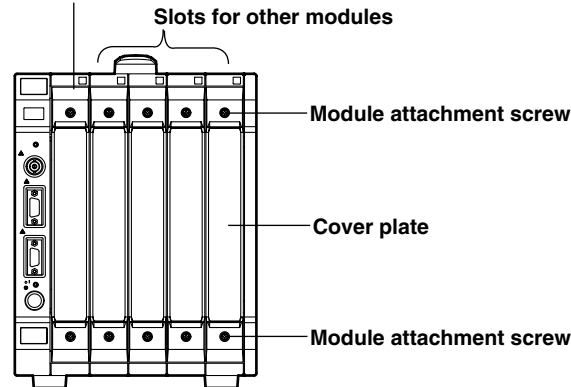
Installing the Fast Ethernet Module

⚠

WARNING

Make sure to fasten the top and bottom attachment screws. If you connect the signal cable without fastening the attachment screws, the protective grounding of the measurement module provided by the power cord is compromised and may cause electric shock.

⚠

CAUTION

• When installing the Fast Ethernet Module, make sure turn OFF the main power switch that is located on the rear panel of the measuring station or remove the power cord. This is to prevent the instrument from damage.
• Be careful not to get your fingers caught in the ejection lever when inserting the module. In addition, do not put your hand inside the slot, because there are protrusions along the module guide that may injure your fingers.
• Do not remove the cover plates from unused slots. It can cause overheating and malfunction. The cover plates are also needed to minimize the influence of electromagnetic interference.

Insert the module along the guide rail of the slot from which you removed the cover plate. Insert the module until it clicks into the connector. Be careful not to get your fingers caught in the ejection lever while inserting the module. When the module is securely inserted, fasten the module attachment screws (tightening torque: 0.6 to 0.7 N-m). To remove the module, loosen the module attachment screws and pull the ejection lever from the inside to the outside. This will force the module out of the slot.
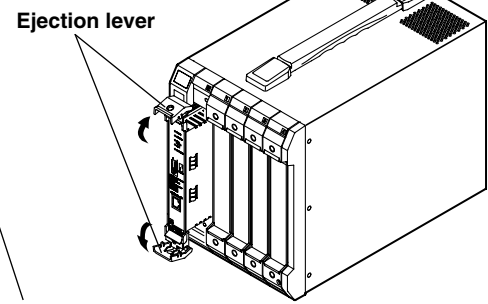
<There is an illustration on the next page.>

Module attachment screw

Module attachment screw
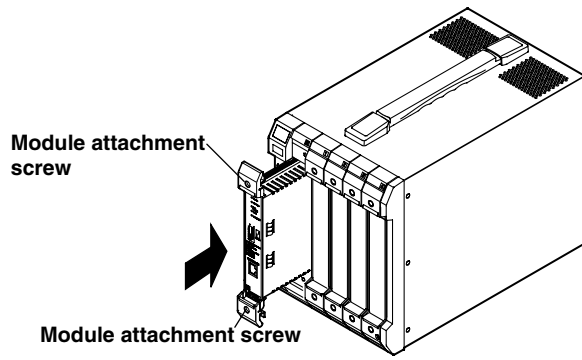
• **When removing the module**

Ejection lever

2.2 Connecting the Cable

## Serial Interface Connection for Ethernet Configuration

If you are not using DHCP, the communication parameters (see page 1-2) such as the IP address must be written to the Fast Ethernet Module. There are two methods you can use to configure the parameters: via Ethernet or by connecting the PC and measuring station with a serial interface cable (optional accessory sold separately, model: 707801). Follow the steps below when connecting the serial interface cable.

Serial interface port

Serial interface cable
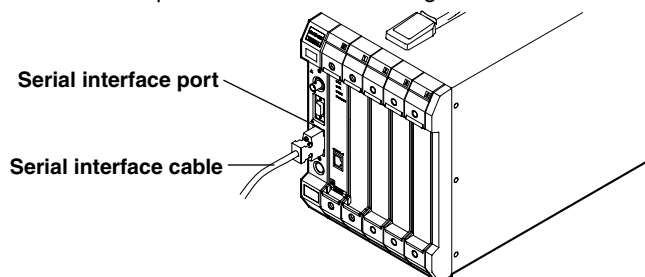
If you are going to use your own serial interface cable, use a cable that complies with the following specifications.

Pin Assignments

Pin No.	Signal Name
1	Not used
2	RD (Received Data)
3	SD (Send Data)
4	Not used
5	SG (Signal Ground)
6	Not used
7	RS (Request send)
8	CS (Clear Send)
9	Not used

Wiring

Measuring station side	PC side
RD	RD
SD	SD
SG	SG
RS	RS
CS	CS
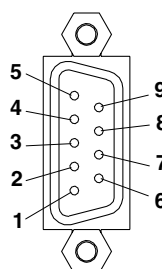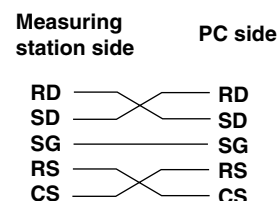
For the procedure on configuring the communication parameters on the WE7000 Control Software, see section 3.5, "Configuring the Communication Parameters of the Fast Ethernet Module Using Serial Communication" (page 3-8).

Connecting the UTP (Unshielded Twisted-Pair) Cable

Connect the RJ-45 modular jack of the UTP cable that is connected to the Ethernet network (HUB) to the 100BASE-TX of the Fast Ethernet Module.

RJ-45 modular jack

100BASE-TX port
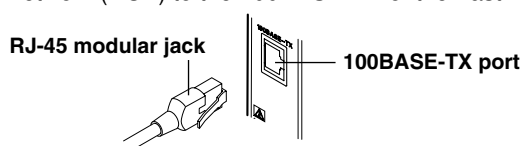
You need a hub to connect a PC and the measuring station.

Hub

PC

Measuring station

UTP cable

Fast Ethernet Module WE7052

Ethernet card
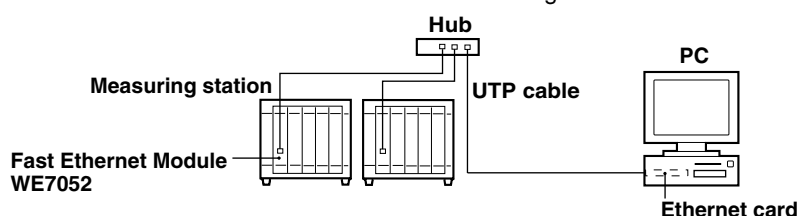
Note

- When performing communications at 100 Mbps, make sure to use a category 5 UTP cable.
- When performing communications at 10 Mbps, make sure to use a category 3, 4, or 5 UTP cable.
- Do not directly connect a PC and the Fast Ethernet Module WE7052 without using a hub. Operations are not guaranteed for communications using direct connection.

3.1 Configuration Procedure

Carry out operations according to the following flow diagram.

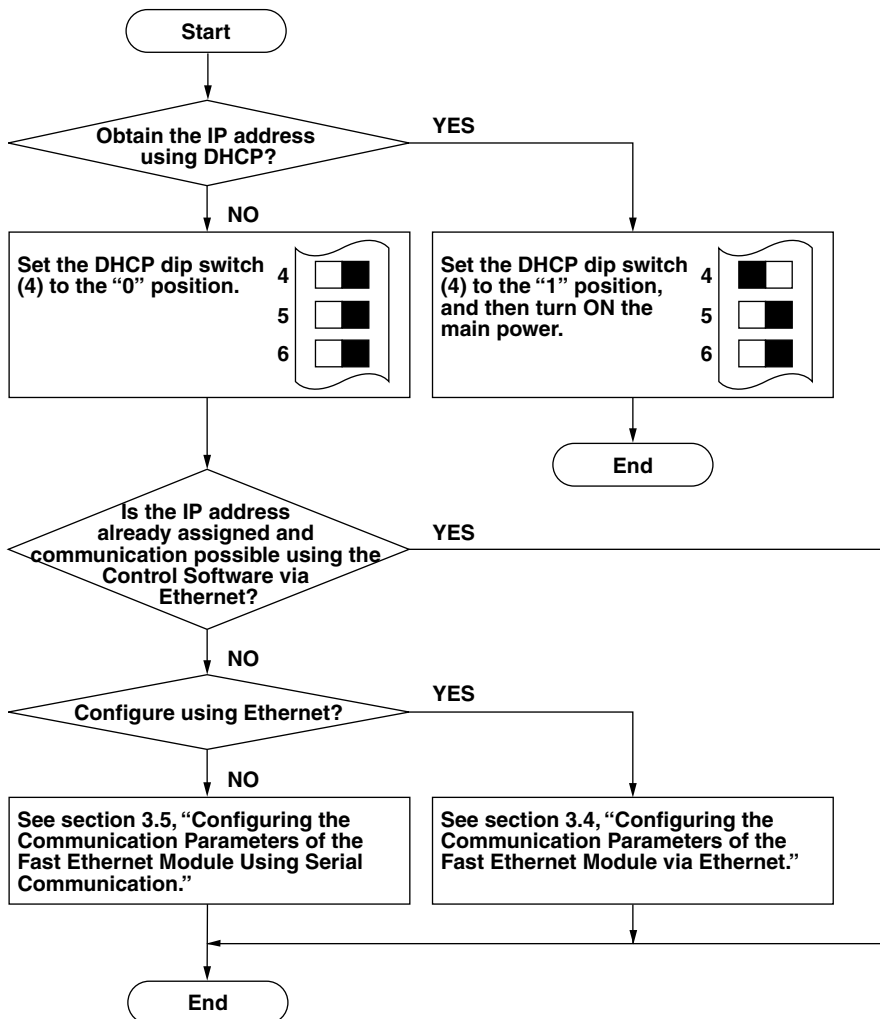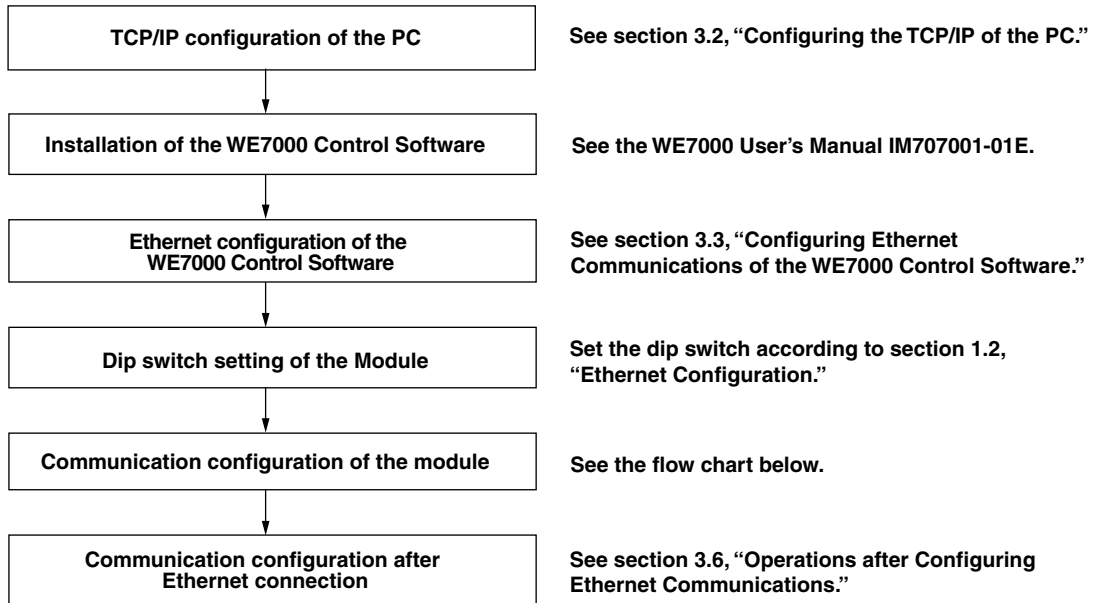|	
TCP/IP configuration of the PC	**See section 3.2, "Configuring the TCP/IP of the PC."**
Installation of the WE7000 Control Software	**See the WE7000 User's Manual IM707001-01E.**
Ethernet configuration of the WE7000 Control Software	**See section 3.3, "Configuring Ethernet Communications of the WE7000 Control Software."**
Dip switch setting of the Module	**Set the dip switch according to section 1.2, "Ethernet Configuration."**
Communication configuration of the module	**See the flow chart below.**
Communication configuration after Ethernet connection	**See section 3.6, "Operations after Configuring Ethernet Communications."**

Start

Obtain the IP address using DHCP?

YES →

NO ↓

Set the DHCP dip switch (4) to the "0" position.
4
5
6

Set the DHCP dip switch (4) to the "1" position, and then turn ON the main power.
4
5
6

End

Is the IP address already assigned and communication possible using the Control Software via Ethernet?

YES →

NO ↓

Configure using Ethernet?

YES →

NO ↓

See section 3.5, "Configuring the Communication Parameters of the Fast Ethernet Module Using Serial Communication."

See section 3.4, "Configuring the Communication Parameters of the Fast Ethernet Module via Ethernet."

End

3

Software Operation

3.2 Configuring the TCP/IP Settings of the PC

When using an Ethernet connection, you must set communication parameters, such as the IP address, using the PC. Communication parameters are specified for each Ethernet NIC that is installed in the PC. This section will describe the configurations of the Ethernet NIC used to connect to the measuring station.

If the IP address and other parameters are to be obtained dynamically using the DHCP server, the following settings are not necessary. In this case, select [Obtain an IP address automatically] under the [IP Address] tab of the [TCP/IP Properties] dialog box. For example, if you are connecting a PC and a measuring station to an independent Ethernet network, you can specify parameters as indicated in the next table.

Parameter	Value	Note
IP address	192.168.21.128	Set the same value as the IP address of the start parameter of the WE7000 Control Software as described on the next page.
Subnet mask	255.255.255.0	Set the same value as the subnet mask that was specified for the measuring station.
Gateway	None	
DNS	Disable	
WINS	Disable	

The following procedure describes the steps for Windows 95/98. Carry out similar steps for Windows NT/2000 Pro.

1. Select [Settings]-[Control Panel] from the [Start] menu to open the Control Panel folder.
2. Double-click the [Network] icon to display the following network setting dialog box.
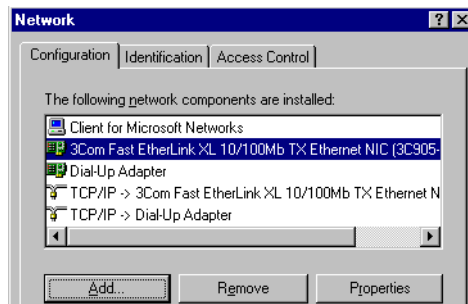
3. Select the Ethernet NIC that is connected to the measuring station and click the [Properties] button to display the Ethernet NIC setting dialog box.
4. Check only [TCP/IP] under [Bindings] and click the [OK] button.
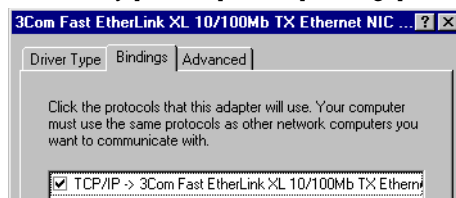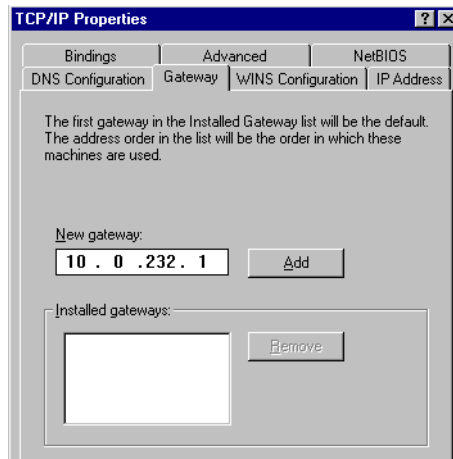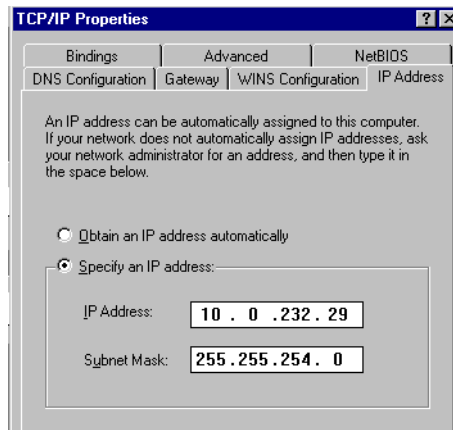
5. Select the [TCP/IP] corresponding to the Ethernet NIC that is connected to the measuring station and click the [Properties] button to display the TCP/IP properties setting dialog box.
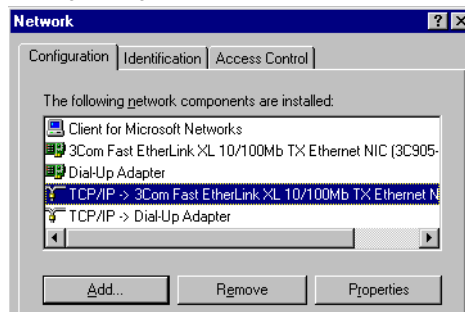
6. Set various parameters such as the IP address according to the table on the previous page and click the [OK] button.

3

Software Operation

3.3 Configuring Ethernet Communications of the WE7000 Control Software

For setting up the WE7000 Control Software before carrying out step 1, see chapter 3 in the "PC-based Measurement Instruments User's Manual" (IM707001-01E).

1. Select the [WE7000] shortcut icon and click the right mouse button.

2. Select [Properties], and click the [Shortcut] tab in the properties window that appears.

3. [... WE7000.exe" "-comm ethernet" ([ethernet95] in place of [ethernet] on Windows 95) is already entered in the [Target] textbox. Enter the following start parameters behind it. Separate each parameter with a space or a tab and close the parenthesis at the end. The parameters are not case-sensitive. Set all parameters except the IP address to be the same as the parameters written to the Fast Ethernet Module.
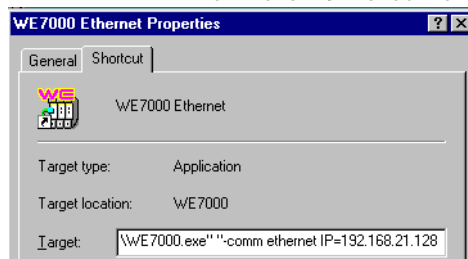
   The "IP address" and "Subnet mask" can normally be skipped. However, they must be specified in the following cases (for details, see the Note below):
   - **When using Windows 95.**
   - **When using multiple Ethernet NICs.**

   The group number is specified when multiple PCs and measuring stations are connected to the same network and you wish to avoid having multiple PCs controlling a particular measuring station. For information about groups, see "Network Configuration" on page 1-1. For changing the group of the measuring station, see "Changing the Group Number of the Measuring Station" on page 3-10.

   - IP address: IP = address of the PC (example: 192.168.21.128)
   - Subnet mask: NETMASK = subnet mask (example: 255.255.255.0)
   - Port number (can be omitted): PORTNO = port number (example: 34191 ← default setting)
   - Group number (can be omitted): GROUPNO = group number (example: 0 ← default setting)
   - Communication mode (can be omitted): COMPATIBLE = ON or OFF (example: ON ← default setting)

   ```
   Entry example: "-comm ethernet IP=192.168.21.128 NETMASK=255.255.255.0
                   PORTNO=34191 GROUPNO=1 COMPATIBLE=OFF"
   ```


Note

- On Windows 95, the IP address and subnet mask must be specified. This is because the IP address and subnet mask that are assigned to the PC cannot be searched under the Windows 95 environment. When the IP address is automatically obtained through the DHCP server, the IP address is variable. Therefore, communications with the Fast Ethernet Module may not be possible, because the specified IP address and the IP address that is dynamically obtained may not match. To avoid this kind of problem, we recommend that you assign a fixed IP address to the PC instead of using the DHCP server in a Windows 95 environment.
- On Windows operating systems other than Windows 95 (Windows 98/NT 4.0/2000 Pro), the IP address and the subnet mask do not need to be specified if only one Ethernet NIC is installed. When multiple Ethernet NICs are installed, specify which card will be used by specifying the IP address of that card. You do not have to specify the subnet mask.
- If there is at least one Ethernet Module WE7051 in the same network, omit the communication mode parameter or specify "COMPATIBLE=ON." If there are no WE7051 in the network and the COMPATIBLE dip switch is set to the "0" setting, make sure to specify "COMPATIBLE=OFF."

4. Click the [OK] button.

3.4 Configuring the Communication Parameters of the Fast Ethernet Module via Ethernet

The procedure below is for configuring the communication parameters of the module when you elect not to use DHCP by setting the "DHCP" dip switch to the "0" position.

When configuring the communication parameters of the module via Ethernet, follow the procedure below.

Confirming the MAC address of the Fast Ethernet Module

As shown in the figure below, there is a seal that indicates the MAC address (Media Access Control Address) on the name plate that is located on the left panel of the Fast Ethernet Module WE7052. Note the 12 alphanumeric characters written on the MAC seal.

Notation example of a MAC address:
For "00-00-64-80-20-07"

MAC ADDRESS
00-00-64
80-20-07
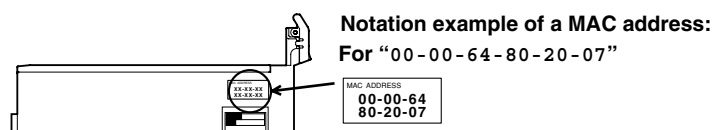
Installing the Fast Ethernet Module

Install the Fast Ethernet Module WE7052 into the measuring station according to the procedure on page 2-1.

Switching to the communication configuration mode using the dip switch

Set the "ADDRESS SETUP" switch of the dip switch on the front panel of the Fast Ethernet Module WE7052 (see page 1-4) to the "1" position.

Turning ON the main power of the measuring station

Turn ON the main power switch located on the rear panel of the measuring station.

Connecting the PC and measuring station to the Ethernet

Connect the PC and the Fast Ethernet Module to a 100BASE-TX or 10BASE-T Ethernet.

Note

When configuring communication parameters, the PC and measuring station must reside in the same Ethernet segment. If this is not the case, you must configure communication parameters using serial communication according to the description in section 3.5, and then connect the Fast Ethernet Module of the measuring station to the Ethernet.

Registering the IP address and MAC address to the PC

1. On the PC, display the MS-DOS prompt window.
2. Confirm that the IP address that the measuring station will use is not in use by another machine. When the IP address to be used is "10.0.73.63," enter as follows.

```
----------------------------------------------------------------
C:¥> ping 10.0.73.63

Ping 10.0.73.63 with 32 byte of data:

Request timed out.
Request timed out.
Request timed out.
----------------------------------------------------------------
```

Note

The IP address assigned to the measuring station must be in the same subnet as the PC.

3. If "Reply from 10.0.73.63..." is displayed, the IP address is in use by another machine. Check to see that the IP address is correct.
4. Register the IP address and MAC address to the ARP table of the PC.
   If the IP address to be used is "10.0.73.63" and the alphanumerical characters written on the MAC address sheet are "000064802007," enter them as follows.

```
----------------------------------------------------------------
C:¥>  arp -s 10.0.73.63 00-00-64-80-20-07
----------------------------------------------------------------
```

Note

- When using Windows NT or Windows 2000 Pro, you need administrator authority to execute the "arp -s" command.
- On Windows 95, there is a bug in the "arp -s" command. Addresses cannot be registered unless there is at least one registration in the ARP table. Therefore, issue a ping command to an arbitrary machine and check that there is at least one registration in the ARP table.

5. Confirm the IP address and MAC address that have been registered in the ARP table.

```
-------------------------------------------------------------------------
C:¥>  arp –a

Interface: 10.0.73.240 on Interface 2
  Internet Address        Physical Address       Type
  10.0.73.63              00-00-64-80-20-07      static
-------------------------------------------------------------------------
```

Temporarily writing the IP address to the Fast Ethernet Module

Enter the following in the MS-DOS prompt window. The Fast Ethernet Module will receive the ping packet and set the received IP address as its own IP address. If "Request timed out." is displayed, the configuration may not be set correctly.

```
-------------------------------------------------------------------------
C:¥>ping 10.0.73.63

Pinging 10.0.73.63 with 32 bytes of data:

Reply from 10.0.73.63: bytes=32 time<10ms TTL=255
Reply from 10.0.73.63: bytes=32 time<10ms TTL=255
-------------------------------------------------------------------------
```

Note

The IP address assignment through the ping command is only temporary, and the information is lost when the measuring station is turned OFF. Make sure to configure using the telnet command as described in the following.

Writing the communication parameters to the Fast Ethernet Module

1. As shown in the figure below, enter the telnet command in the MS-DOS prompt window.

```
-------------------------------------------------------------------------
C:¥>telnet 10.0.73.63
-------------------------------------------------------------------------
```

2. In the telnet window of the Fast Ethernet Module that appears, set the same IP address as the temporary address, the subnet mask, and the IP address of the default gateway as shown below. In the example below, the subnet mask is set to "255.255.255.0," and the IP address of the default gateway is set to "10.0.73.1."
   If you wish to set the port number to some value other than "34191," enter the command "port XXXXX" (XXXXX: 1 to 65535).

```
-------------------------------------------------------------------------
Fast Ethernet Module WE7052 Ver. 3.01

3.01> host 10.0.73.63

host          : 10.0.73.63

3.01> netmask 255.255.255.0

netmask       : 255.255.255.0

3.01> gateway 10.0.73.1

gateway       : 10.0.73.1
-------------------------------------------------------------------------------
```

3. Close the telnet window.

Turning OFF the main power of the measuring station

Turn OFF the main power switch located on the rear panel of the measuring station.

Switching to the normal communication mode using the dip switch

Set the "ADDRESS SETUP" switch of the dip switch on the front panel of the Fast Ethernet Module WE7052 to the "0" position.

Turning ON the main power of the measuring station

Turn ON the main power switch located on the rear panel of the measuring station.

Confirming the communication parameters

1. Open the MS-DOS prompt window and enter the telnet command as shown below.

```
------------------------------------------------------------------------
C:¥>telnet 10.0.73.63
------------------------------------------------------------------------
```

2. In the telnet window of the Fast Ethernet Module that appears, enter the show
   command and confirm the settings (see below).

```
------------------------------------------------------------------------
Fast Ethernet Module WE7052 Ver. 3.01

3.01> show

hardid          : 00 00 64 80 20 07 00 00
groupno         : 0
host            : 10.0.73.63
netmask         : 255.255.255.0
gateway         : 10.0.73.1
portno          : 34191
------------------------------------------------------------------------
```

Note

- The communication parameters of the Fast Ethernet Module are written to the memory of the
  Fast Ethernet Module WE7052. Therefore, the communication parameters are valid even if it is
  installed into another measuring station.
- The commands that can be used in the telnet window of the Fast Ethernet Module are as
  follows.

Function	Command
IP address setting	host [<IP address>] <IP address>: 999.999.999.999 (999 = integer between 0 and 255)
Subnet mask setting	netmask [<netmask>] <Net mask>: 999.999.999.999 (999 = integer between 0 and 255)
IP address setting of the default gateway	gateway [<IP address>] <IP address>: 999.999.999.999 (999 = integer between 0 and 255)
Port number setting	portno [<port number>] <Port number>: 9999 (99999 = integer between 1 and 65535)
Display a list of settings	show
Initialize settings	initialize

3

Software Operation

3.5 Configuring the Communication Parameters of the Fast Ethernet Module Using Serial Communication

The procedure below is for configuring the communication parameters of the module when you specify not to use DHCP by setting the "DHCP" dip switch to the "0" position.

After connecting the PC and measuring station according to "Serial Interface Connection for Ethernet Configuration" on page 2-3, carry out the following procedure. For setting up the WE7000 Control Software before carrying out step 1, see chapter 3 in the "PC-based Measuring Instrument User's Manual" (IM707001-01E). If you already created the [WE7000] shortcut icon for serial communications when the WE7000 Control Software was installed, start from step 5.

1. Select the [WE7000] shortcut icon and click the right mouse button.
2. Select [Properties], and click the [Shortcut] tab in the properties window that appears.
3. In the [Target] textbox, enter a space after [WE7000.exe"] followed by ["-comm serial"]. The default communication setting is as follows: "Serial port: COM1, baud rate: 38400, hardware handshaking: ON(CTS-RTS)." If these parameters need to be changed, enter the appropriate startup parameter after ["-comm serial] according to the syntax given below. Separate each parameter with a space or tab and close the parenthesis at the end. The parameters are not case-sensitive.
   • Serial port: COM=serial port name (Example: COM2)
   • Baud rate: BAUDRATE=baud rate (9600, 19200, or 38400)
   ```
   Entry example: "-comm serial COM=COM2 BAUDRATE=9600"
   ```
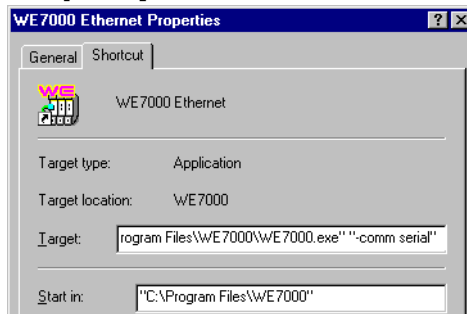

4. Click the [OK] button.
5. Turn ON both the main power switch and the standby power switch of the measuring station and double-click the [WE7000] shortcut icon.
6. Using the menu bar that appears, select [Set IP] from the [Network] menu to open the communication settings dialog box.

7. Check that the appropriate station name is displayed in the [Station Name] list box.
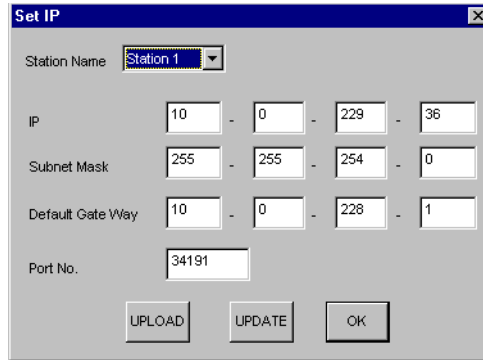
8. Set each parameter and click the [UPDATE] button.

The default value of each parameter is as follows:
- IP address: 192.168.21.3
- Subnet Mask: 255.255.255.0
- Default gateway: 0.0.0.0
- Port No.: 34191 (Selectable range: 0 to 65535)

    Clicking the [UPLOAD] button displays the current settings.

    Clicking the [OK] button closes the dialog box.

To activate the changes, you must power cycle the measuring station.

Next, to connect to Ethernet, carry out the steps below and follow the procedure given in section 3.6.

1. Select [Exit] from the [File] menu to quit the WE7000 Control Software.

2. Remove the serial interface cable and connect the UTP cable to the Fast Ethernet Module connector.

3

Software Operation

3.6 Operations after Configuring Ethernet Communications

This section will describe the operations of the WE7000 Control Software that deals with the Fast Ethernet Module after connecting to Ethernet. For other operations, see the "PC-based Measuring Instrument User's Manual" (IM707001-01E).

Checking Whether Communication Is Possible

1. Double-click the [WE7000] shortcut icon to start the WE7000 Control Software.
2. With the main power switch of the measuring station connected to Ethernet turned ON, check that the station icon appears in the station list window.
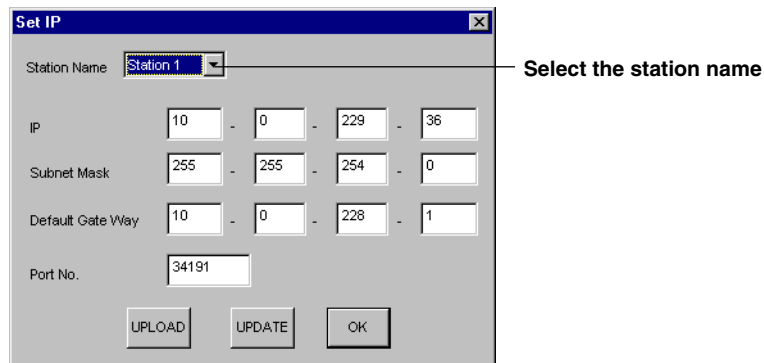

Station icon
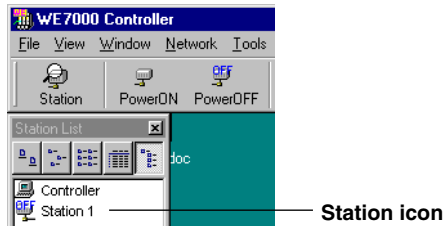
Changing the Ethernet Communication Parameters when DHCP Is Not Used

1. After turning ON the standby power switch of the measuring station, select [Set IP] from the [Network] menu of the WE7000 Control Software to open the communication setting dialog box.

2. The appropriate station name is displayed in the [Station Name] list box.
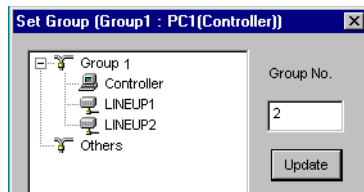

Select the station name

3. Click the [UPLOAD] button to recall the setup data.
4. Change the values of the appropriate parameters and click the [UPDATE] button.
   To activate the changes, you must power cycle the measuring station.

Changing the Group Number of the Measuring Station

1. After turning ON the standby power switch of the measuring station, select [Set Group] from the [Network] menu of the WE7000 Control Software to open the group setting dialog box.

2. Click the icon of the measuring station for which you wish to change the group
   number.

Set Group (Group1 : PC1(Controller))

- Group 1
  - Controller
  - LINEUP1
  - LINEUP2
- Others

Group No.

`2`

Update

3. Enter the new number in the [Group No.] entry box.
   The range of group numbers is from "0 to 32767." The default setting is "0."
   In the group setting dialog box, the measuring stations of the group that was specified
   by the start parameter (Group 1 in the above figure), the measuring stations belonging
   to another group without a running PC*, and the measuring stations belonging to the
   undefined group (factory default setting) are displayed. If the WE7000 Control
   Software is started without specifying a group number using the start parameter or if
   the group number is set to "0" using the start parameter, then the measuring stations
   not belonging to groups without a running PC and those belonging to the undefined
   group are shown as [Group 0].
   *   For example, if a measuring station is connected to a PC in "Group 2," the measuring
       station appears in the group setting dialog box of the "Group 2" PC.

Note

You cannot change the group number of the PC (Controller) using the group setting dialog box. It
can only be changed via the start parameter of the WE7000 Control Software.

4. Click the [Update] button.
   You must power cycle the measuring station that had its group number changed so
   that all PCs recognize the new group number.

Refresh

When connected to the Ethernet, the WE7000 Control Software does not automatically
detect changes in the configuration of the measuring stations such as the addition or
deletion of measuring stations from the Ethernet network, and the OFF state of the main
power switch of measuring stations. Only by selecting [Refresh] from the [View] menu of
the WE7000 Control Software, are the most current configurations of the measuring
stations identified and updated in the display.

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Software Operation

4.1 Troubleshooting

- If servicing is necessary, or if the instrument is not operating correctly after performing the following corrective actions, contact your nearest YOKOGAWA dealer.
- To verify that the module is operating correctly, perform the self test as described on the next page.

Problem	Probable Cause/Corrective Action	Reference Page
Cannot communicate with the measuring station.	If the "STANDBY" LED on the Fast Ethernet Module is not lit, check to see that the power cord is plugged in correctly, that the main power switch is turned ON, and that the Fast Ethernet Module is connected securely in the slot.	1-4, *
	Check to see that the dip switch settings on the front panel of the Fast Ethernet Module are correct. If an Ethernet Module WE7051 is included in the same network, the communication mode dip switch must be set to "WE7051 compatible mode" (default). If there is no Ethernet Module WE7051 in the same network and the communication mode dip switch is set to "WE7052 dedicated mode," "COMPATIBLE=OFF" must be specified in the start option of the WE7000 Control Software (set in the [Target] box of the shortcut).	1-2 to 1-4, *
	If the "STANDBY" LED is lit, check whether the "LINK" LED on the Fast Ethernet Module is lit. If it is not lit, check that the UTP cable is connected securely to the Fast Ethernet Module as well as to the hub. Also, check whether the hub's power is turned ON. INPUT terminal (BNC terminal).	1-4, 2-3
	Check that the IP address, subnet mask, port number, and group number settings of the measuring station (Fast Ethernet Module WE7052) are correct.	3-6
	Check whether the IP address, subnet mask, port number, and group number specified at the [WE7000] shortcut icon properties are correct. Check to see that the Ethernet interface of the PC is operating properly.	3-8, 3-9
	Check that the TCP/IP protocol is installed on the PC and that the TCP/IP settings are correct.	3-2, 3-3
	When using the DHCP server and the amount of time during which communication is cut off from the DHCP server exceeds the lease time, IP address and other settings cannot be updated. In such case, communication between the PC and measuring station will no longer be possible. For the lease time of an IP address, consult your system administrator. If you are continuously operating the WE7000 system, we recommend that you use fixed IP addresses and not use the DHCP server.	–

* See the WE7000 User's Manual (IM 707001-01E).

4

Troubleshooting and Maintenance

4.2 Self Test

If you believe that the module is not operating correctly, perform the self test according to the following steps:
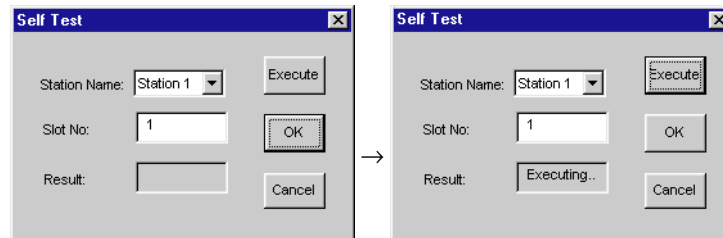
Executing Self Test

1. Select [Self Test] from the [System] menu of the WE7000 Control Software.

2. In the [Self Test] dialog box that appears, select the station name and enter "0" for the slot number, and click the [Execute] button.
   "Executing..." is displayed in the [Result] display box.

Note _____

This module performs the self test immediately after the main power switch of the measuring station is turned ON. The operations shown above display the result of this test. Therefore, if you wish to execute the self test again, power cycle the measuring station before carrying out the steps above.

Verifying Test Results

If a value other than "0" is displayed in the "Result" display box of the "Self Test" dialog box, the module is probably malfunctioning. Please contact your nearest YOKOGAWA dealer for repairs.

4.3 Maintenance

Maintenance of Parts

There are no parts in this module that require periodic replacement.

5.1   Specification

Number of Communication Ports

1

Media

100BASE-TX/10BASE-T

Transfer Rate

When the LAN standard is 100BASE-TX: 100 Mbps (when using a category 5 UTP cable)

When the LAN standard is 10BASE-T: 10 Mbps (when using a category 3 to 5 UTP cable)

Transmission Mode

Select full duplex or half duplex

Communication Distance

Up to 100 m

Communication Protocol

TCP/IP (UDP/IP)

Number of Measurement Stations That Can Be Controlled from a Single PC

3 stations or less

LED Indication

Communication status (RX/TX), transfer speed (100 Mbps), communication format (FULL DUPLEX), link status (LINK), and standby status (STANDBY)

General Specifications

Safety standards

Complies with CSA C22.2 No.1010.1 and EN61010-1, conforms to JIS C1010-1
- Overvoltage Category CAT I and II[*1]
- Pollution Degree 1 and 2[*2]

EMC standards

Emission

Complying Standard

EN55011 Group 1 Class A

This product is a Class A (for commercial environment) product. Operation of this product in a residential area may cause radio interference in which case the user is required to correct the interference.

Immunity

Complying Standard

EN50082-2

Note:

At a transfer rate of 10 Mbps, the WE7052 complies with the EN50082-2 standard for the conducted disturbance immunity test. At 100 Mbps, the immunity level is 3 V for this test.

Operating conditions

Same as those of the measuring station

Storage conditions

Temperature: –20 to 60°C

Humidity: 20 to 80%RH (no condensation)

Power consumption

Approx. 5 VA (Typical value at 100 V/50 Hz[*3])

External dimensions

Approx. 33(W) X 243(H) X 232(D) mm (projections excluded)

Weight

Approx. 0.6 kg

Number of used slots

1

Standard accessories

User's Manual (this manual) (1)

[1] Overvoltage Categories define transient overvoltage levels, including impulse withstand voltage levels.

Overvoltage Category I: Applies to equipment supplied with electricity from a circuit containing an overvoltage control device.

Overvoltage Category II: Applies to equipment supplied with electricity from fixed installations like a distribution board.

[2] Pollution Degree: Applies to the degree of adhesion of a solid, liquid, or gas which deteriorates withstand voltage or surface resistivity.

Pollution Degree 1: Applies to closed atmospheres (with no, or only dry, non-conductive pollution).

Pollution Degree 2: Applies to normal indoor atmospheres (with only non-conductive pollution).

[3] Typical value represents a typical or average value. It is not strictly guaranteed.

5.2   Dimensional Drawings

Fast Ethernet Module (WE7052)
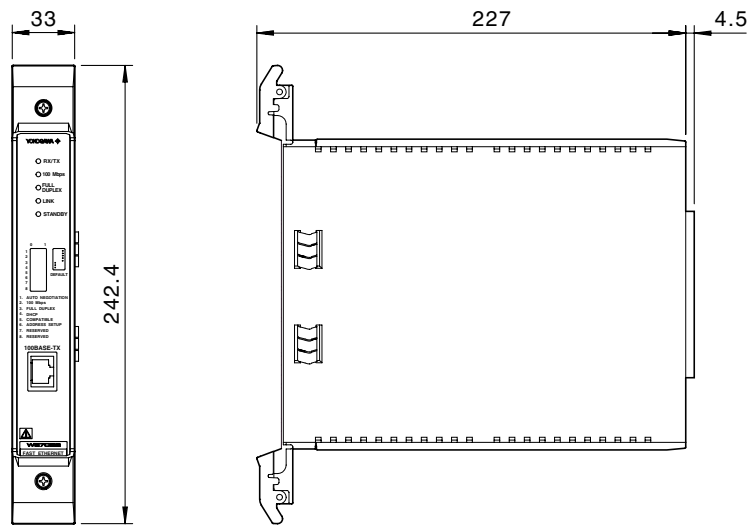
If not specified, the tolerance is ±3%. However, in cases of less than 10 mm, the tolerance is ±0.3 mm.

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Specification

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