

IM3523 IM3523A IM3533 IM3533-01 IM3536 LCR METER

HIOKI

Communication Instruction Manual

IM3570 IM7580 IMPEDANCE ANALYZER

IM3590 CHEMICAL IMPEDANCE ANALYZER

Check for the latest edition and
other language versions.



EN



Contents

Introduction.....	1
Safety Information	2

Chapter 1 Specifications 3

1.1 RS-232C Specifications	3
1.2 GP-IB Specifications	4
1.3 USB Specifications	4
1.4 LAN Specifications	4

Chapter 2 Model IM3570/ IM3536 Connection and Setting 5

2.1 Overview of Communication	5
2.2 RS-232C Connection and Settings	7
■ Connecting the RS-232C Cable	7
■ Setting RS-232C	8
2.3 GP-IB Connection and Settings	9
■ Connecting the GP-IB Cable	9
■ Setting GP-IB	9
2.4 USB Settings and Connection	11
■ Setting USB	11
■ Connecting the USB Cable	12
2.5 LAN Settings and Connection	13
■ LAN Settings	13
■ Connecting a LAN Cable	18
2.6 Remote Mode	19

Chapter 3 Model IM3523/ IM3523A Connection and Setting 21

3.1 Overview of Communication	21
■ IM3523	21
■ IM3523A	22
3.2 USB Settings and Connection	23
■ Setting USB	23
■ Connecting the USB Cable	24

3.3 GP-IB Connection and Settings (IM3523 only, when connected to the Z3000)	25
■ Connecting the GP-IB Cable	25
■ Setting GP-IB	25
3.4 RS-232C Connection and Settings (IM3523 only, when connected to the Z3001)	27
■ Connecting the RS-232C Cable	27
■ Setting RS-232C	28
3.5 LAN Settings and Connection (IM3523 needs to be connected to the Z3002)	30
■ LAN Settings	30
■ Connecting a LAN Cable	34
3.6 Remote Mode	35

Chapter 4 Model IM3533/ IM3533-01/ IM3590 Connection and Setting 37

4.1 Overview of Communication	37
4.2 USB Settings and Connection	39
■ Setting USB	39
■ Connecting the USB Cable	40
4.3 GP-IB Connection and Settings (when connected to the Z3000)	41
■ Connecting the GP-IB Cable	41
■ Setting GP-IB	41
4.4 RS-232C Connection and Settings (when connected to the Z3001)	43
■ Connecting the RS-232C Cable	43
■ Setting RS-232C	44
4.5 LAN Settings and Connection (when connected to the Z3002)	45
■ LAN Settings	45
■ Connecting a LAN Cable	50
4.6 Remote Mode	51

Chapter 5 Model IM7580 Connection and Setting 53

5.1 Overview of Communication	53
5.2 USB Settings and Connection	55
■ Setting USB	55
■ Connecting the USB Cable	56
5.3 LAN Settings and Connection	57
■ LAN Settings	57
■ Connecting a LAN Cable	62
5.4 GP-IB Connection and Settings (when connected to the Z3000)	63
■ Connecting the GP-IB Cable	63
■ Setting GP-IB	63
5.5 RS-232C Connection and Settings (when connected to the Z3001)	65
■ Connecting the RS-232C Cable	65
■ Setting RS-232C	66
5.6 Remote Mode	67

Appendix A 1

Appendix 1 Checking the USB Virtual COM Port	A 1
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Introduction

This instruction manual provides details on the communication interfaces of the IM3523, IM3523A, IM3533, IM3533-01, IM3536 LCR Meter, IM3570, IM7580 Impedance Analyzer and IM3590 Chemical Impedance Analyzer.

In this document, the “instrument” means the IM3523, IM3523A, IM3533, IM3533-01, IM3536, IM3570, IM7580 and IM3590.

Information on download site

For details on the product application, the update file for the instrument, and the instruction manual, please check Hioki's website:

<https://cloud.gennect.net/dl>



Product registration

Register your product in order to receive important product information.

<https://www.hioki.com/global/support/myhioki/registration/>



Safety Information

This manual contains information and warnings essential for safe operation of the instrument and for maintaining it in safe operating condition. Before using it, be sure to carefully read the following safety precautions.

Safety Symbols

The following symbols in this manual indicate the relative importance of cautions and warnings.

 WARNING	Indicates that incorrect operation presents a significant hazard that could result in serious injury or death to the user.
 CAUTION	Indicates that incorrect operation presents a possibility of injury to the user or damage to the product.
NOTE	Advisory items related to performance or correct operation of the product.

Notation

Symbols in this manual

	Indicates the prohibited action.
(p.)	Indicates the location of reference information.
*	Indicates that descriptive information is provided below.
[]	Menus, commands, dialogs, buttons in a dialog, and other names on the screen and the keys are indicated in brackets.
CURSOR (Bold character)	Bold characters within the text indicate operating key labels.
Windows	Unless otherwise specified, "Windows" represents Windows 7, Windows 8, or Windows 10.
Dialogue	Dialogue box represents a Windows dialog box.

Mouse Operation

Click:	Press and quickly release the left button of the mouse.
Right-click:	Press and quickly release the right button of the mouse.
Double click:	Quickly click the left button of the mouse twice.
Drag:	While holding down the left button of the mouse, move the mouse and then release the left button to deposit the chosen item in the desired position.

Specifications

Chapter 1

1.1 RS-232C Specifications

Transmission Method	Communication method: Full duplex Synchronous method: Start-stop synchronization	
Transmission Speed	9600 bps, 19200 bps, 38400 bps, 57600 bps	
Data Bits	8 bits	
Parity	None	
Stop bit	1 bits	
Message terminator (delimiter)	CR+LF, CR	
Flow control	Hardware (RTS/CTS control), software (XON/XOFF control) "Handshake (About Buffer Flow Control)" (p. 3) IM7580: Software (XON/XOFF control only)	
Electrical Specifications	Input voltage level	5 to 15 V ON -15 to -5 V OFF
	Output voltage level	5 to 9 V ON -9 to -5 V OFF

Handshake (About Buffer Flow Control)

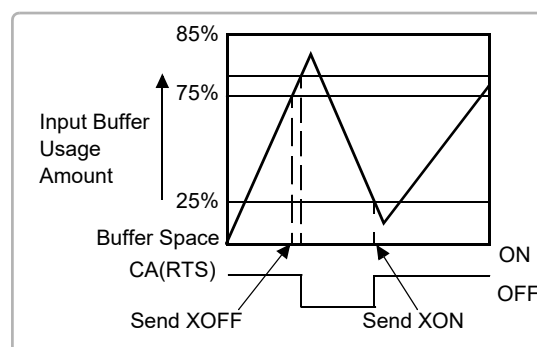
Control during Receiving

When using hardware (RTS/CTS control):

- When the data in the receive buffer exceeds 85% of the buffer, CA(RTS) is set to OFF and the controller is notified that there is not much space remaining in the buffer.
- Processing of the data in the buffer continues, and then CA(RTS) is set to ON and the controller is notified that there is sufficient remaining space in the buffer when the amount of data becomes less than 25%.

When using software (XON/XOFF control):

- When the data in the receive buffer exceeds 75% of the buffer, XOFF(13H) is sent and the controller is notified that there is not much space remaining in the buffer.
- Processing of the data in the buffer continues, and then XON(11H) is sent and the controller is notified that there is sufficient remaining space in the buffer when the amount of data becomes less than 25%.



Control during Sending

When using hardware (RTS/CTS control):

- When CB(CTS) is confirmed to be OFF, the sending of data is halted. When it is confirmed to be ON, the sending of data is resumed.

When using software (XON/XOFF control):

- When XOFF is received, the sending of data is halted. When XON is received, the sending of data is resumed.

1.2 GP-IB Specifications

SH1	Supports all source handshake functions.
AH1	Supports all acceptor handshake functions.
T6	Supports standard talker functions. Supports serial poll functions. Talk only mode is not supported. Supports the talker cancel function by MLA (My Listen Address).
L4	Supports standard listener functions. Listener only mode is not supported. Supports the listener cancel function by MTA (My Talk Address).
SR1	Supports all service request functions.
RL1	Supports all remote/local functions.
PP0	Parallel poll functions are not supported.
DC1	Supports all device clear functions.
DT1	Supports all device trigger functions.
C0	Controller functions are not supported.

Code used: ASCII code

1.3 USB Specifications

Connector	Series B receptacle
Compliance standard	USB2.0 (Full Speed/High Speed) (IM3523A: Full Speed only)
No. of ports	1
Class	Communication class
Supported OS	Windows 7, Windows 8, Windows 10, or Windows 11

1.4 LAN Specifications

Connector	RJ-45 connector × 1
Compliance standard	IEEE 802.3-compliant Ethernet
Transfer system	10BASE-T/ 100BASE-TX Auto detected IM7580: 10BASE-T/ 100BASE-TX/ 1000BASE-T Auto detected
Protocol	TCP/IP
Function	Command control

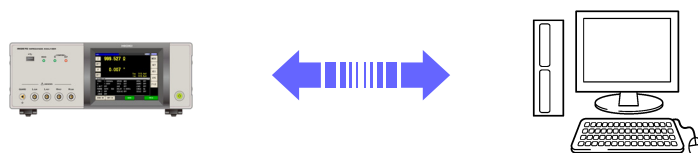
Model IM3570/ IM3536 Connection and Setting

Chapter 2

2.1 Overview of Communication

You can control the instrument with communication commands from a computer via the GP-IB, RS-232C, USB, and LAN interfaces.

There are the following four communication methods. To enable communication, the communication conditions need to be set on the instrument.



RS-232C communication (p. 7)

Printer can be connected to enable printing measurement values and screens.

GP-IB communication (p. 9)

- Commands common to IEEE-488-2 1987 (requirement) can be used.
- The instrument complies with the following standard. (Compliance standard: IEEE-488.1 1987)
- The instrument has been designed with reference to the following standard. (Reference standard: IEEE-488.2 1987)

USB communication (p. 11)

The instrument is communication class compatible.

LAN communication (p. 13)

Command control using the TCP/IP protocol is possible.

! WARNING

- Always turn both devices OFF when connecting and disconnecting an interface connector. Otherwise, an electric shock accident may occur.
- To avoid damage to the instrument, do not short-circuit the terminal and do not input voltage to the terminal.
- Failure to fasten the connectors properly may result in sub-specification performance or damage to the equipment.

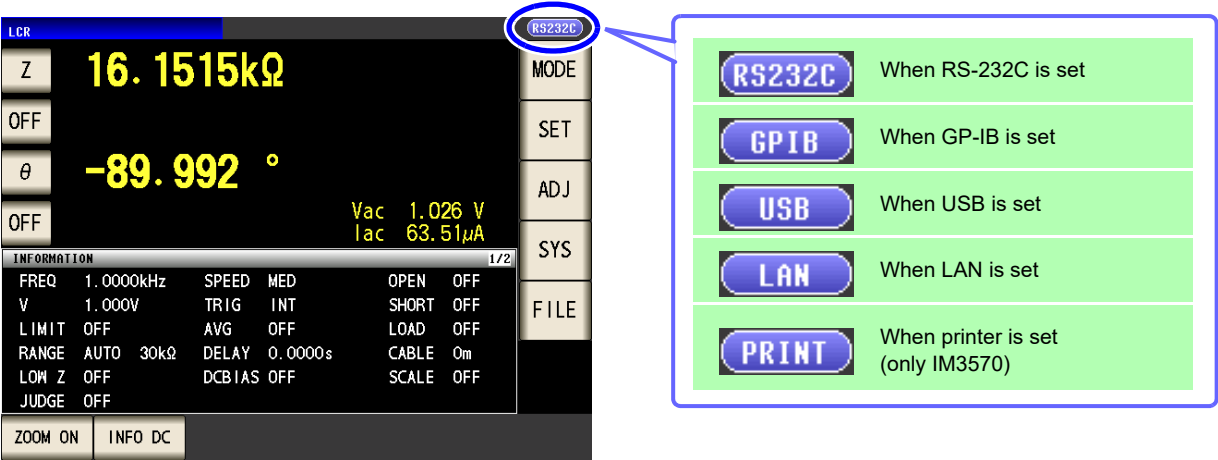
! CAUTION

- To avoid damage, do not disconnect the communications cable while the instrument is sending or receiving data.
- Use a common ground for both the instrument and the computer. Grounding them to different ground points will result in a potential difference between the instrument's ground and the computer's ground. If the communications cable is connected while such a potential difference exists, it may result in equipment malfunction or failure.
- Before connecting or disconnecting any communications cable, always turn off the instrument and the computer. Failure to do so could result in equipment malfunction or damage.
- After connecting the communications cable, tighten the screws on the connector securely. Failure to secure the connector could result in equipment malfunction or damage.

2.1 Overview of Communication

Screen Displayed while Setting Interfaces

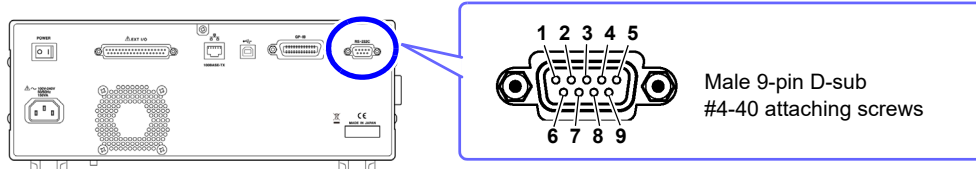
When you set an interface, the icon for the set interface is displayed on the right side of the screen.



2.2 RS-232C Connection and Settings

Connecting the RS-232C Cable

Connect the RS-232C cable to the RS-232C connector.
(Recommended cable: 9637 RS-232C cable)

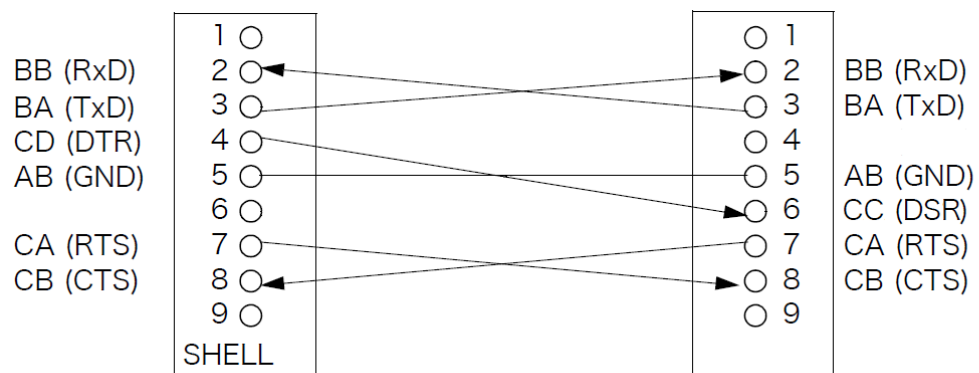


To connect the instrument to a controller (DTE), use a **crossover cable** compatible with the connectors on both the instrument and the controller. The I/O connector is a DTE (Data Terminal Equipment) configuration.

Connector (D-sub) Pin No.	Interchange Circuit Name	CCITT Circuit No.	EIA Abbreviation	JIS Abbreviation	Common Abbreviation
1	Unused				
2	Received Data	104	BB	RD	RxD
3	Transmitted Data	103	BA	SD	TxD
4	Unused	108/2	CD	ER	DTR
5	Signal Ground	102	AB	SG	GND
6	Unused				
7	Request to Send	105	CA	RS	RTS
8	Clear to Send	106	CB	CS	CTS
9	Unused				

Example: Connecting to a DOS/V PC

Specification: D-sub 9-pin female and female connector, reverse connection



NOTE

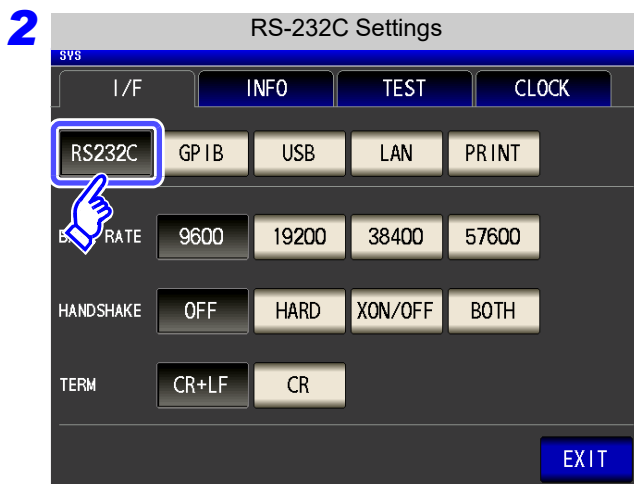
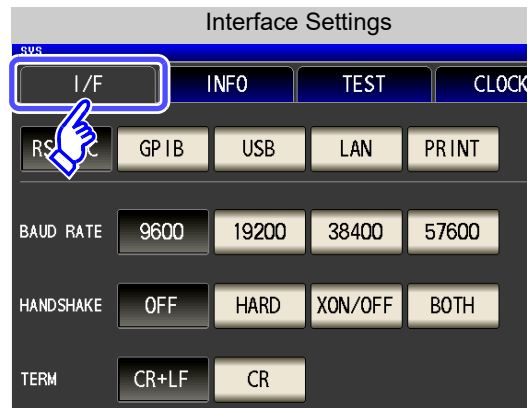
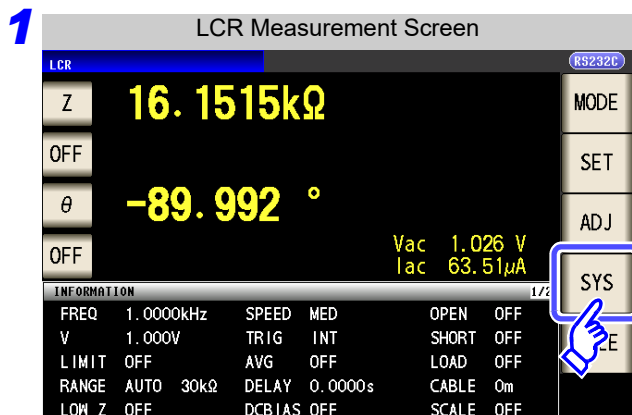
Hardware control will not work properly if you use a cable that has CA(RTS) and CB(CTS) short-circuited.

2.2 RS-232C Connection and Settings

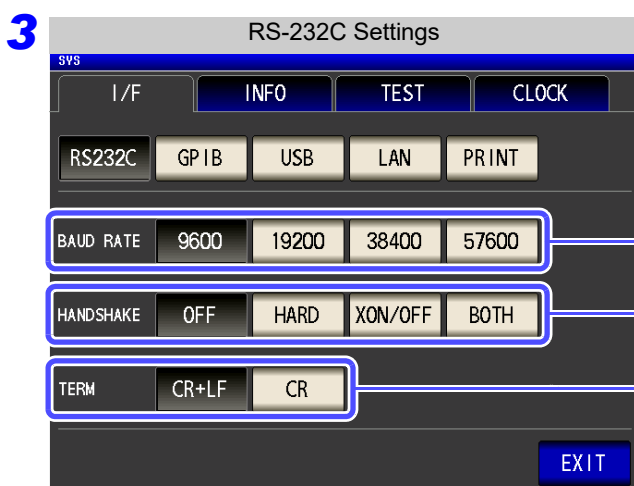
Setting RS-232C

Procedure

You can configure the setting from any of **LCR** mode and **ANALYZER** mode (only IM3570).



Press **RS232C**.



Select the baud rate setting.

Select the handshake setting.

OFF	No flow control
HARD	Hardware (RTS/CTS control)
XON/OFF	Software (XON/XOFF control)
BOTH	Hardware + software

Select the terminator setting.

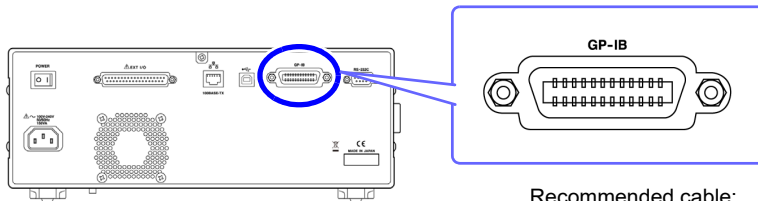
CR+LF	CR+LF
CR	CR

4 Press **EXIT** to confirm the setting.

2.3 GP-IB Connection and Settings

Connecting the GP-IB Cable

Connect the GP-IB cable to the GP-IB connector.



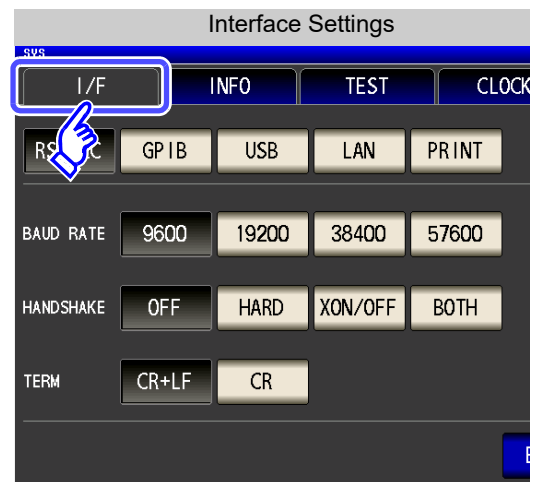
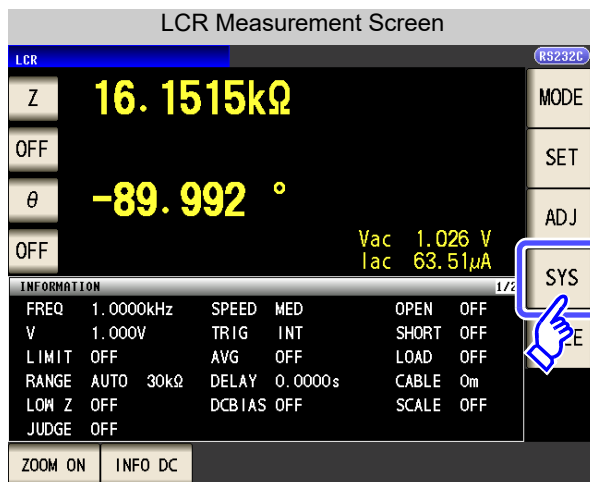
Recommended cable:
9151-02 GP-IB connection cable (2 m)

Setting GP-IB

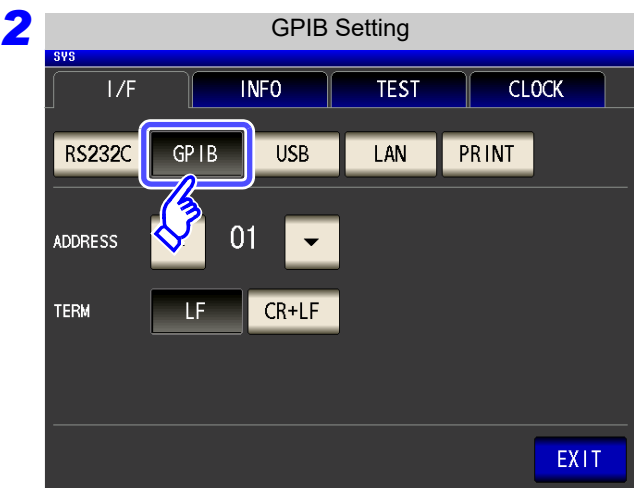
Procedure

You can configure the setting from any of **LCR** mode and **ANALYZER** mode (only IM3570).

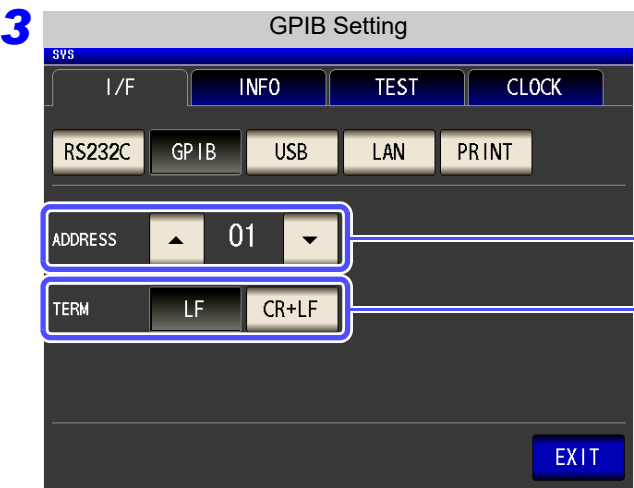
1



2.3 GP-IB Connection and Settings



Press .



Use or to set the GP-IB address.

Select the terminator setting.

	LF with EO!
	LF with CR+EO!

4 Press to confirm the setting.

2.4 USB Settings and Connection

NOTE

To connect the instrument to a computer the first time, a dedicated USB driver must be installed.

Before connecting the instrument to the computer, install the USB driver.

The USB driver can be downloaded from the bundled CD, or our web site. (p. 1)

The USB driver is compatible with the Windows 7 (32-bit, 64-bit version), Windows 8 (32-bit, 64-bit version), Windows 10 (32-bit, 64-bit version), and Windows 11 (64-bit version) operating systems.

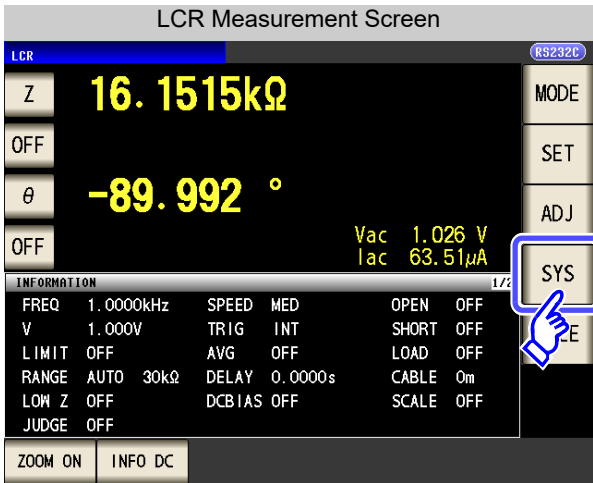
Additionally, do not put the computer into the sleep state while the instrument is connected to the computer.

Setting USB

Procedure

You can configure the setting from any of **LCR** mode and **ANALYZER** mode (only IM3570).

1



LCR Measurement Screen

Z 16.1515kΩ

θ -89.992 °

Vac 1.026 V
Iac 63.51μA

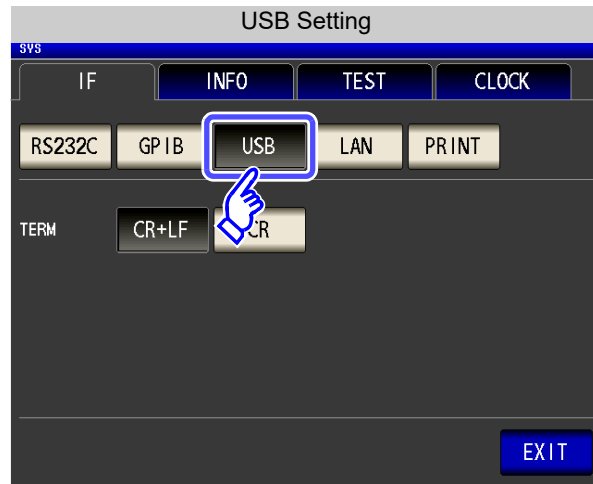
MODE
SET
ADJ
SYS

INFORMATION

FREQ	1.0000kHz	SPEED	MED	OPEN	OFF
V	1.000V	TRIG	INT	SHORT	OFF
LIMIT	OFF	AVG	OFF	LOAD	OFF
RANGE	AUTO 30kΩ	DELAY	0.0000s	CABLE	Om
LOW Z	OFF	DCBIAS	OFF	SCALE	OFF
JUDGE	OFF				

ZOOM ON INFO DC

2



USB Setting

IF INFO TEST CLOCK

RS232C GPIB USB LAN PRINT

TERM CR+LF CR

EXIT

Interface Settings

I/F INFO TEST CLOCK

RS232C GPIB USB LAN PRINT

BAUD RATE 9600 19200 38400 57600

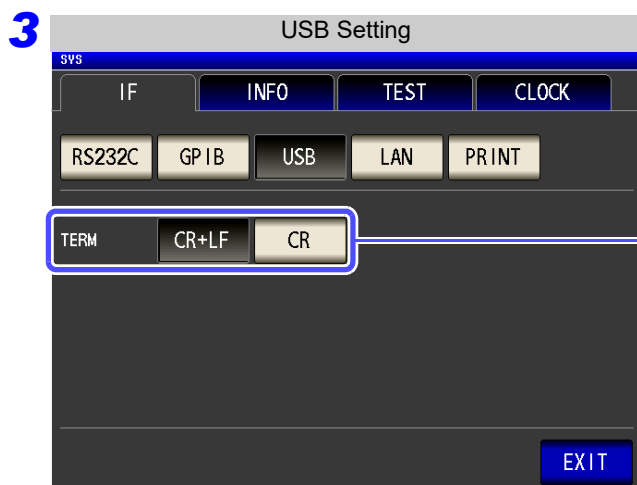
HANDSHAKE OFF HARD XON/OFF BOTH

TERM CR+LF CR

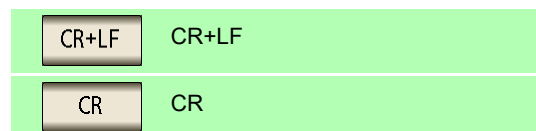
Press **USB**.

12

2.4 USB Settings and Connection



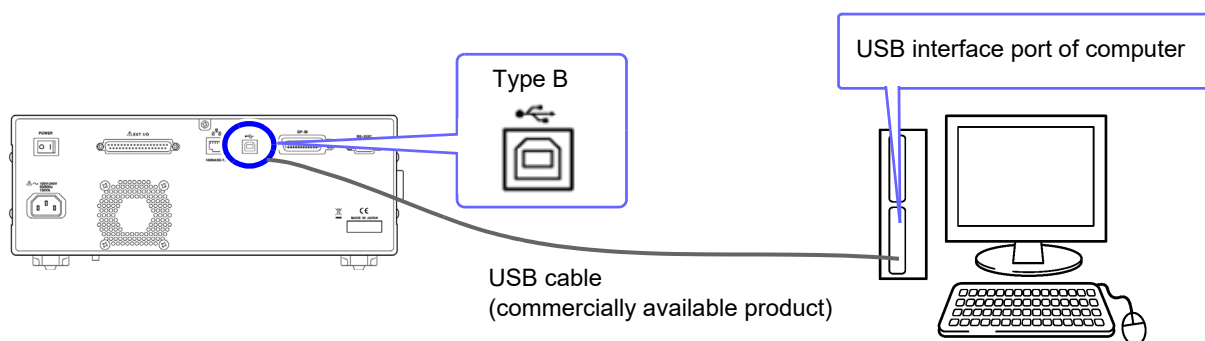
Select the terminator setting.



4 Press **EXIT** to confirm the setting.

Connecting the USB Cable

Connect a USB cable (commercially available USB cable) to the USB port of the instrument.



2.5 LAN Settings and Connection

LAN Settings

You can perform command control using the TCP/IP protocol.
Set the instrument to match your network environment in advance.

- NOTE**
- Make these settings before connecting to a network. Changing settings while connected can duplicate IP addresses of other network devices, and incorrect address information may otherwise be presented to the network.
 - The instrument does not support DHCP (automatic IP address assignment) on a network.

Setting Items

IP address	Identifies each device connected on a network. Each network device must be set to a unique address. The instrument supports IP version 4, with IP addresses indicated as four decimal octets, e.g., "192.168.0.1".
Subnet mask	This setting is for separating the IP address into the network address that indicates the network and the host address that indicates the instrument. On this instrument, the subnet mask is represented as four decimal numbers separated by "." such as "255.255.255.0."
Default Gateway	When the computer and instrument are on different but overlapping networks (subnets), this IP address specifies the device to serve as the gateway between the networks. If the computer and instrument are connected one-to-one, no gateway is used, and the instrument's default setting "0.0.0.0" can be kept as is.

Network Environment Configuration

Example 1. Connecting the instrument to an existing network

When connecting the instrument to an existing network, the network settings need to be confirmed in advance.

An IP address which is not the same as that of another network device needs to be assigned.

Confirm the following items with the network administrator, and write them down.

IP Address	_____ . _____ . _____ . _____
Subnet Mask	_____ . _____ . _____ . _____
Default Gateway	_____ . _____ . _____ . _____

Example 2. Connecting multiple instruments to a single computer using a hub

When building a local network with no outside connection, the following private IP addresses are recommended.

Example of private IP address:

IP Address Computer: 192.168.0.100

Instrument: 192.168.0.1, 192.168.0.2, 192.168.0.3...

(Set an IP address that differs from that of other network devices.)

Subnet Mask 255.255.255.0

Default Gateway OFF(0.0.0.0)

Example 3. Connecting one instrument to a single computer using the 9642 LAN Cable

The 9642 LAN Cable can be used with its supplied connection adapter to connect one instrument to one computer, in which case the IP address is freely settable. Use the recommended private IP addresses.

IP Address Computer: 192.168.0.100

Instrument: 192.168.0.1 (Set to a different IP address than the computer.)

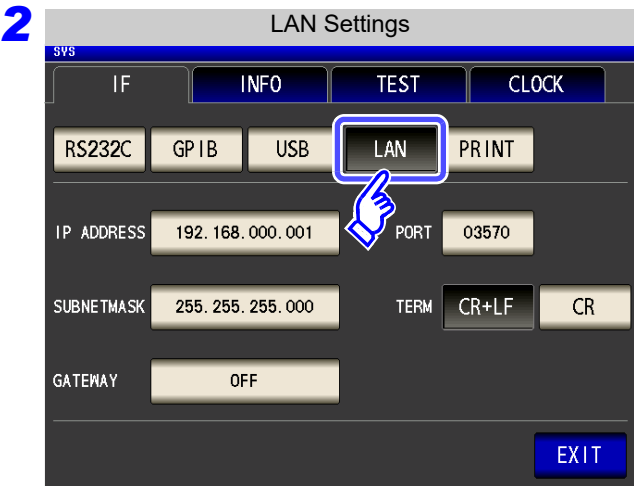
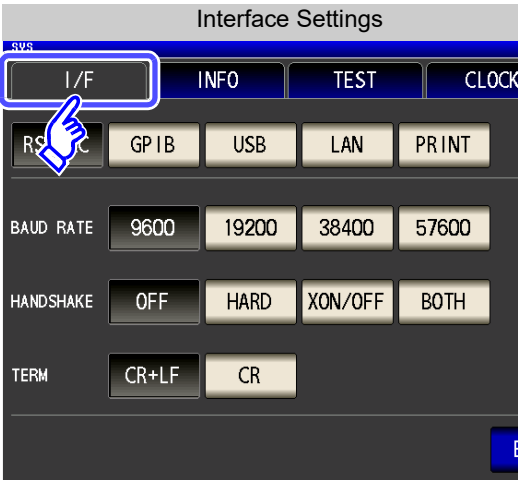
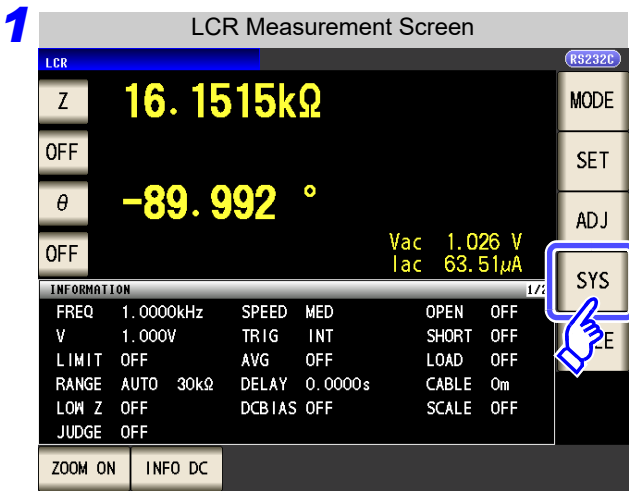
Subnet Mask 255.255.255.0

Default Gateway OFF(0.0.0.0)

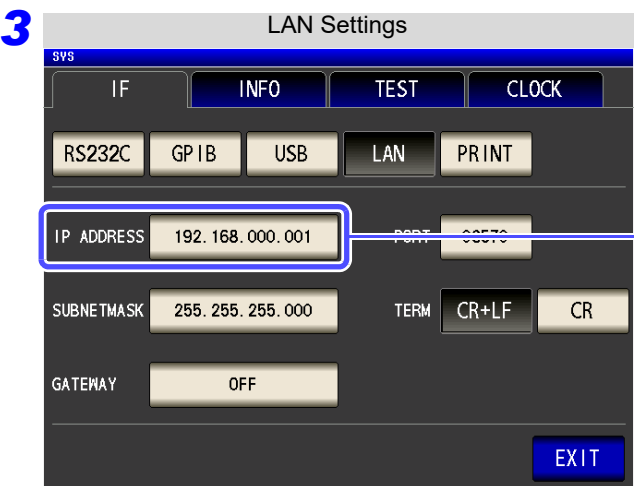
2.5 LAN Settings and Connection

Procedure

You can configure the setting from any of **LCR** mode and **ANALYZER** mode (only IM3570).

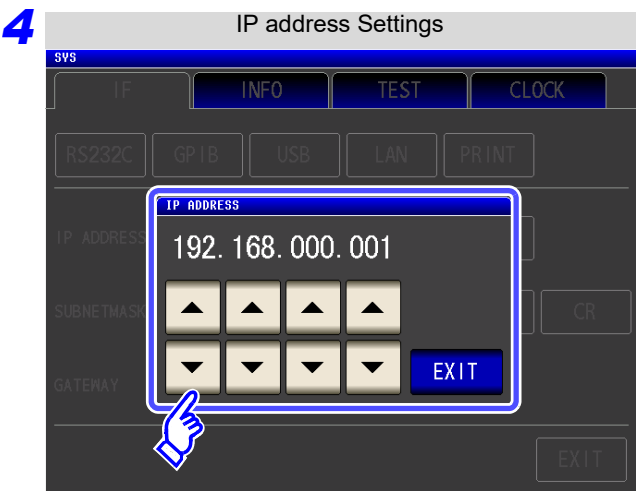


Press **LAN**.



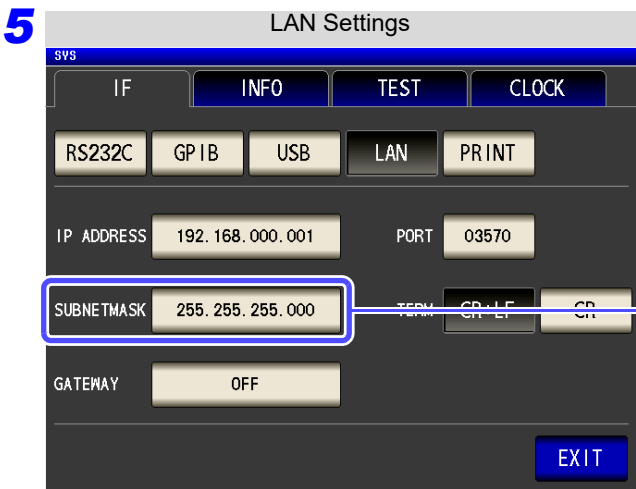
Select the IP address.

2.5 LAN Settings and Connection

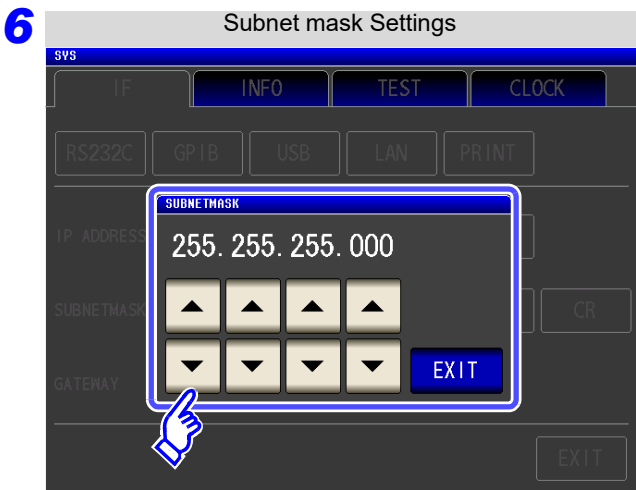


Use  or  to set the IP address.

Press  to confirm the setting.



Select the subnet mask.



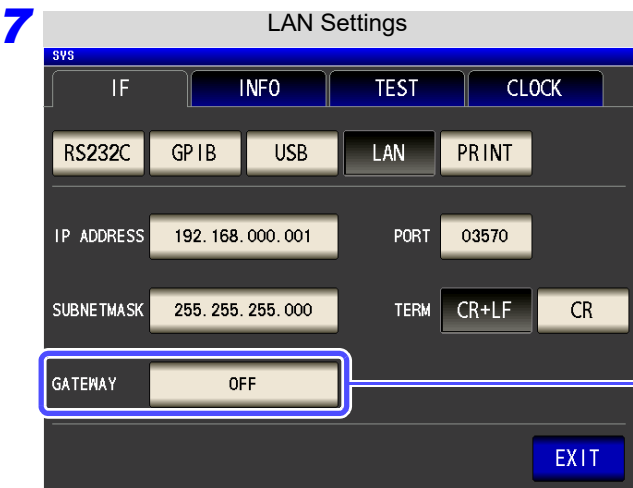
Use  or  to set the subnet mask, and press  to confirm the setting.

NOTE

Any of the following 30 subnet masks can be set for the instrument.

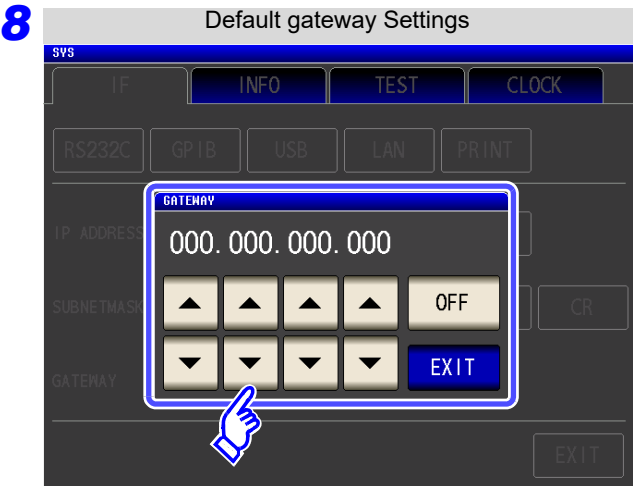
128.000.000.000	255.128.000.000	255.255.128.000	255.255.255.128
192.000.000.000	255.192.000.000	255.255.192.000	255.255.255.192
224.000.000.000	255.224.000.000	255.255.224.000	255.255.255.224
240.000.000.000	255.240.000.000	255.255.240.000	255.255.255.240
248.000.000.000	255.248.000.000	255.255.248.000	255.255.255.248
252.000.000.000	255.252.000.000	255.255.252.000	255.255.255.252
254.000.000.000	255.254.000.000	255.255.254.000	
255.000.000.000	255.255.000.000	255.255.255.000 (Initial setting)	

2.5 LAN Settings and Connection



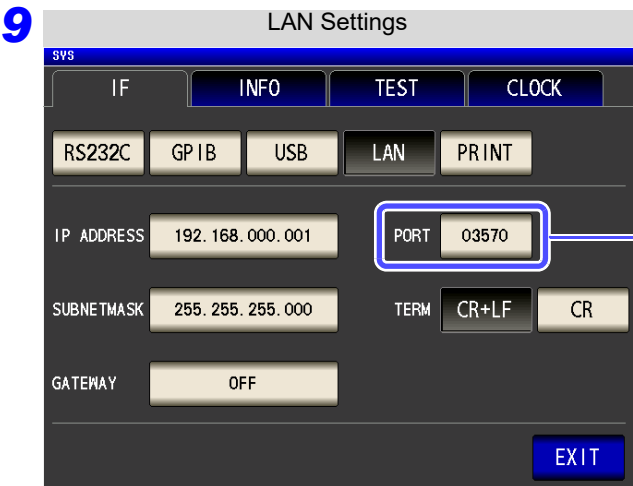
Select the default gateway.

If the default gateway does not need to be set, for example, when connecting the instrument and computer on a one-to-one basis using a cross cable, leave this set to OFF.



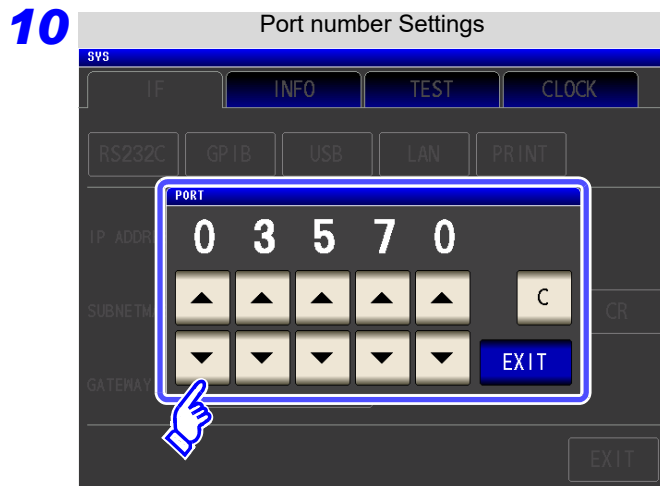
Use  or  to set the default gateway.

Press  to confirm the setting.



Select the port number.

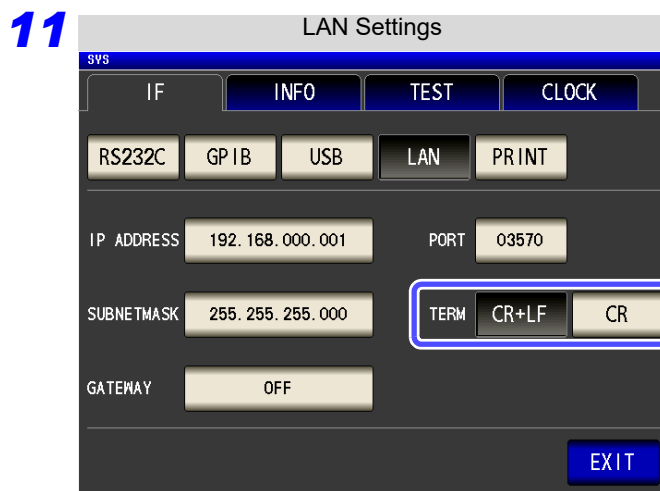
2.5 LAN Settings and Connection



Use or to set the port number to use for communication commands.

Settable range : 1024 to 65535

Press to confirm the setting.



Select the terminator setting.

	CR+LF
	CR

12 Press to confirm the setting.

Connecting a LAN Cable

Use a LAN cable to connect the instrument and computer.

CAUTION When connecting the instrument to your LAN using a LAN cable of more than 30 m or with the cable laid outdoors, take appropriate countermeasures that include installing a surge protector for LANs. Such signal wiring is susceptible to induced lighting, which can cause damage to the instrument.

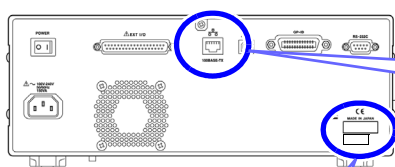
Required items:

When connecting the instrument to an existing network (prepare any of the following):

- Straight-through Cat 5, 100BASE-TX-compliant Ethernet cable (up to 100 m, commercially available).
For 10BASE communication, a 10BASE-T-compliant cable may also be used.
- Hioki 9642 LAN Cable (option)
(A cross adapter cannot be used.)

When connecting one instrument to a single computer (prepare one of the following):

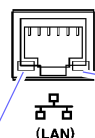
- 100BASE-TX-compliant cross-over cable (up to 100 m)
- 100BASE-TX-compliant straight-through cable with cross-over adapter (up to 100 m)
- Hioki 9642 LAN Cable (option)



The MAC address of the LAN is displayed below the serial number.

You can also check it on the instrument screen.

See: "Checking the Version of the Instrument" in the instruction manual.



SPEED LED

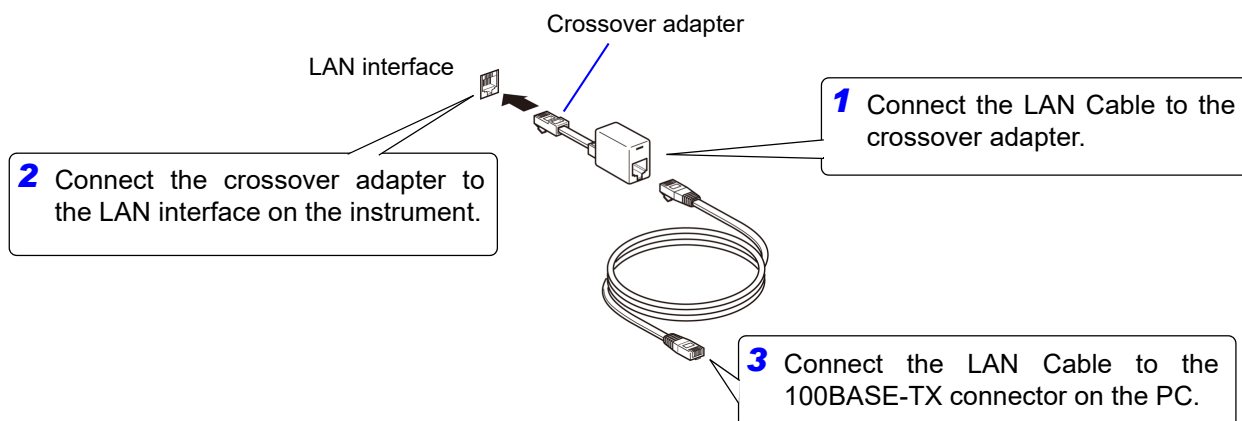
On: Performing communication with 100BASE.
Off: Performing communication with 10BASE.

RX/TX LED

Flashes when data is being exchanged.

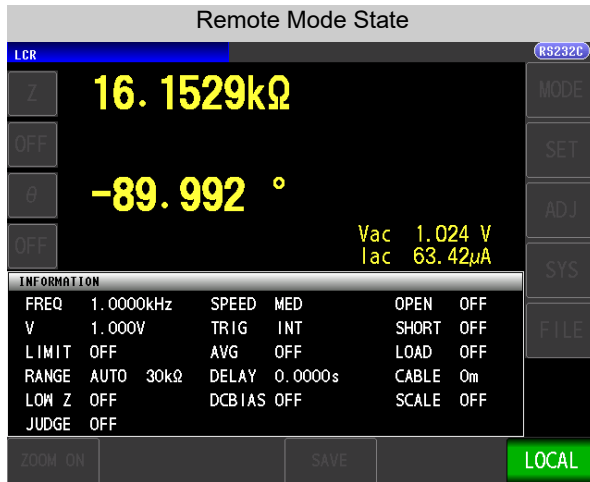
When connecting the instrument to a single computer (connect the instrument to the computer)

Connecting with the 9642 LAN Cable and crossover adapter (supplied with the 9642)



2.6 Remote Mode

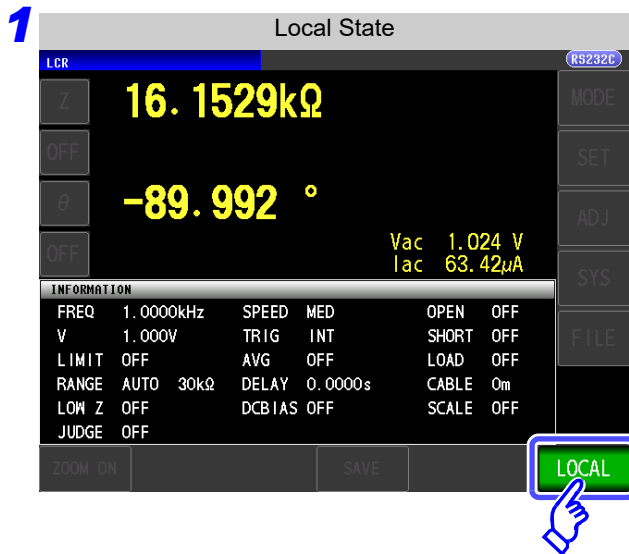
When you connect a device to an interface and start communication, the mode becomes remote mode (remote operation state) and the keys on the LCD are disabled.



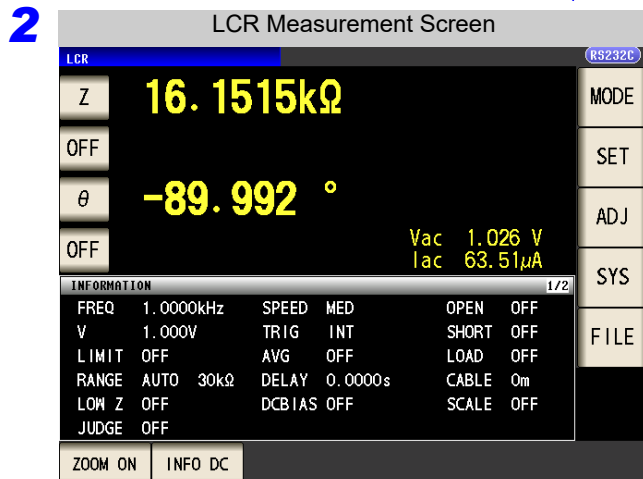
All of the keys except **LOCAL** are disabled.

Canceling Remote Mode

Procedure



Press **LOCAL** to return to the normal state (local state).



The measurement screen is redisplayed.

Model IM3523/ IM3523A

Connection and Setting

Chapter 3

3.1 Overview of Communication

! WARNING

- Always turn both devices OFF when connecting and disconnecting an interface connector. Otherwise, an electric shock accident may occur.
- To avoid damage to the instrument, do not short-circuit the terminal and do not input voltage to the terminal.
- Failure to fasten the connectors properly may result in sub-specification performance or damage to the equipment.

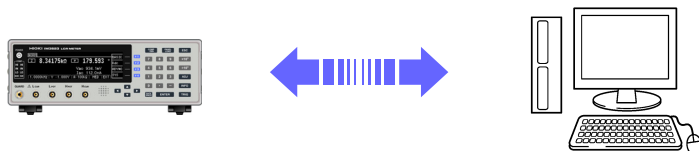
! CAUTION

- To avoid damage, do not disconnect the communications cable while the instrument is sending or receiving data.
- Use a common ground for both the instrument and the computer. Grounding them to different ground points will result in a potential difference between the instrument's ground and the computer's ground. If the communications cable is connected while such a potential difference exists, it may result in equipment malfunction or failure.
- Before connecting or disconnecting any communications cable, always turn off the instrument and the computer. Failure to do so could result in equipment malfunction or damage.
- After connecting the communications cable, tighten the screws on the connector securely. Failure to secure the connector could result in equipment malfunction or damage.

IM3523

You can control the instrument with communication commands from a computer via the USB, GP-IB, RS-232C and LAN interfaces.

There are the following four communication methods. To enable communication, the communication conditions need to be set on the instrument.



USB communication (p. 23)

The instrument is communication class compatible.

GP-IB communication (when connected to the Z3000) (p. 25)

- Commands common to IEEE-488-2 1987 (requirement) can be used.
- The instrument complies with the following standard. (Compliance standard: IEEE-488.1 1987)
- The instrument has been designed with reference to the following standard. (Reference standard: IEEE-488.2 1987)

3.1 Overview of Communication

■ RS-232C communication (when connected to the Z3001) (p. 27)

Printer can be connected to enable printing measurement values and screens.

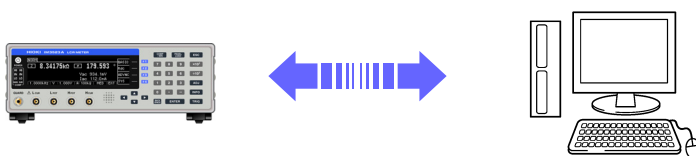
■ LAN communication (when connected to the Z3002) (p. 30)

Command control using the TCP/IP protocol is possible.

IM3523A

You can control the instrument with communication commands from a computer via the USB and LAN interfaces.

There are the following two communication methods. To enable communication, the communication conditions need to be set on the instrument.



■ USB communication (p. 23)

The instrument is communication class compatible.

■ LAN communication (p. 30)

Command control using the TCP/IP protocol is possible.

3.2 USB Settings and Connection

NOTE

IM3523

To connect the instrument to a computer the first time, a dedicated USB driver must be installed. Before connecting the instrument to the computer, install the USB driver.

The USB driver can be downloaded from the bundled CD, or our web site. (p. 1)

IM3523A

When the instrument is connected to a computer, the USB driver is automatically installed. Since the OS standard driver is installed, it is not necessary to install another driver.

The USB driver is compatible with the Windows 7 (32-bit, 64-bit version), Windows 8 (32-bit, 64-bit version), Windows 10 (32-bit, 64-bit version), and Windows 11 (64-bit version) operating systems. Additionally, do not put the computer into the sleep state while the instrument is connected to the computer.

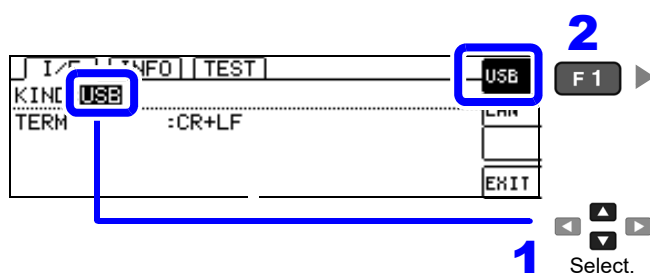
Setting USB

- 1 Open the SYSTEM screen.



► The SYSTEM screen will be displayed.

- 2 Select USB as the interface.

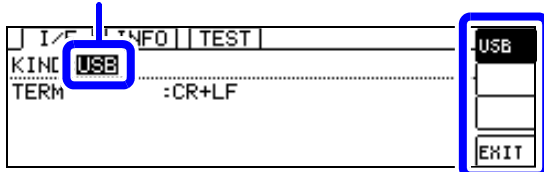


► Select USB.

IM3523

The display will vary with the installed options.

Selected interface

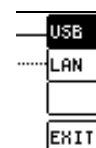
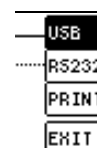
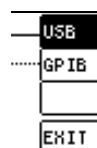


When an option is connected

Using the Z3000

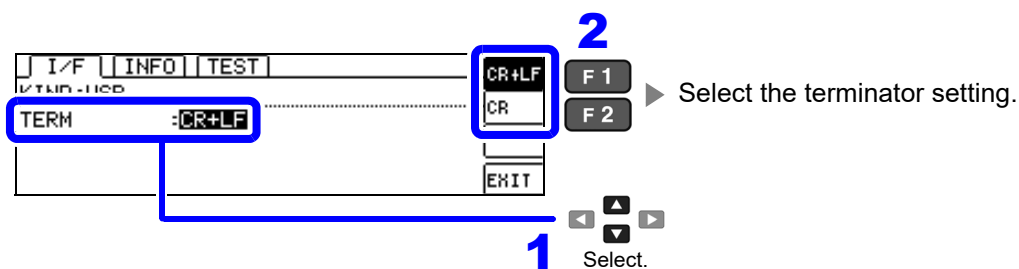
Using the Z3001

Using the Z3002

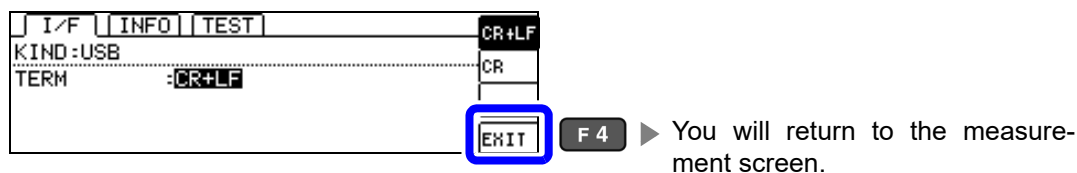


3.2 USB Settings and Connection

3 Select the terminator setting.



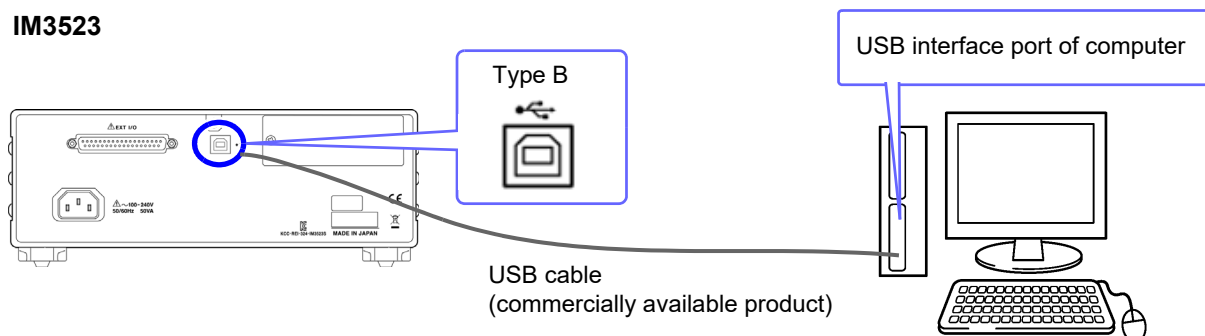
4



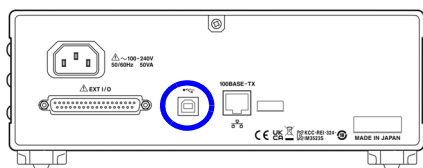
Connecting the USB Cable

Connect a USB cable (commercially available USB cable) to the USB port of the instrument.

IM3523



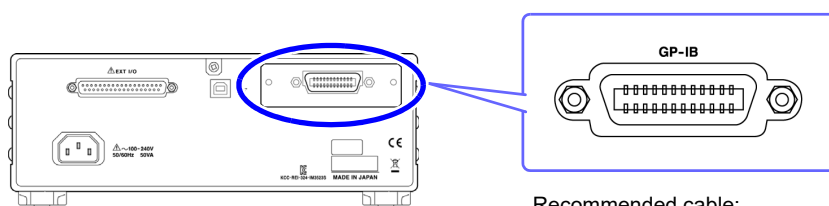
IM3523A



3.3 GP-IB Connection and Settings (IM3523 only, when connected to the Z3000)

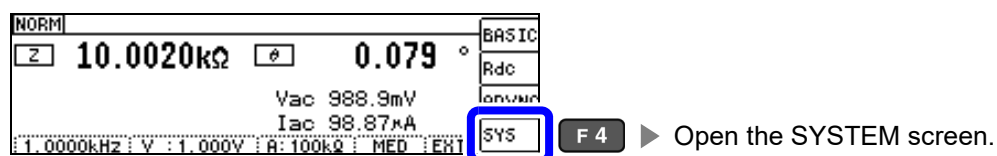
Connecting the GP-IB Cable

Connect the GP-IB cable to the GP-IB connector.



Setting GP-IB

- 1 Open the SYSTEM screen.



- 2 Select GP-IB as the interface.

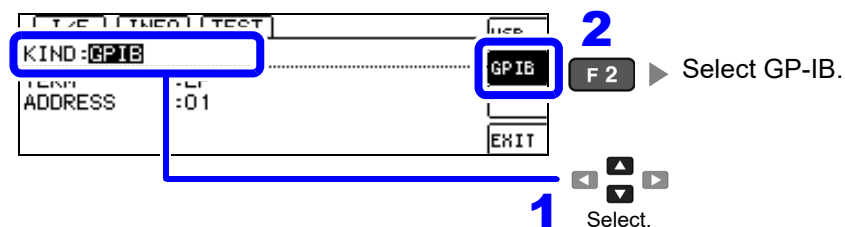


Diagram illustrating the sequence of actions to enter the test menu:

- Press the **TERM** key (labeled 1).
- Press the **LF** key (labeled 2).

The diagram shows a terminal screen with fields for **I/F**, **INFO**, and **TEST**. The **TERM** field is highlighted with a blue box and a blue line pointing to the **LF** key. The **LF** key is also highlighted with a blue box. To the right of the **LF** key are two buttons: **F1** (labeled **LF with EOI**) and **F2** (labeled **LF with CR+EOI**). Below the **LF** key is an **EXIT** button. At the bottom right are four arrow keys and the text **Select.**

[illegible]

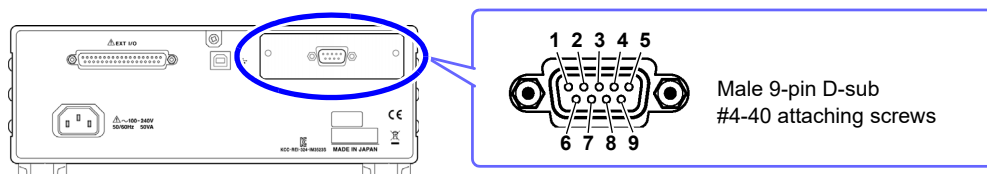
▶ You will return to the measurement screen.

3.4 RS-232C Connection and Settings (IM3523 only, when connected to the Z3001)

3.4 RS-232C Connection and Settings (IM3523 only, when connected to the Z3001)

Connecting the RS-232C Cable

Connect the RS-232C cable to the RS-232C connector.
(Recommended cable: 9637 RS-232C cable)

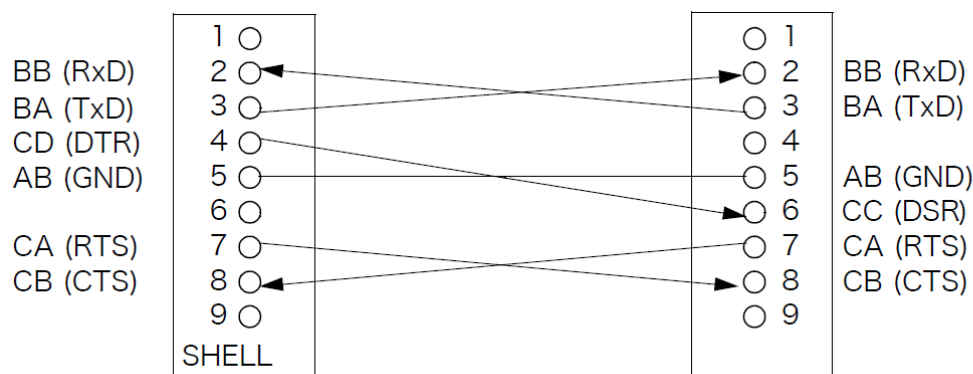


To connect the instrument to a controller (DTE), use a **crossover cable** compatible with the connectors on both the instrument and the controller. The I/O connector is a DTE (Data Terminal Equipment) configuration.

Connector (D-sub) Pin No.	Interchange Circuit Name	CCITT Circuit No.	EIA Abbreviation	JIS Abbreviation	Common Abbreviation
1	Unused				
2	Received Data	104	BB	RD	RxD
3	Transmitted Data	103	BA	SD	TxD
4	Data Terminal Ready	108/2	CD	ER	DTR
5	Signal Ground	102	AB	SG	GND
6	Unused				
7	Request to Send	105	CA	RS	RTS
8	Clear to Send	106	CB	CS	CTS
9	Unused				

Example: Connecting to a DOS/V PC

Specification: D-sub 9-pin female and female connector, reverse connection

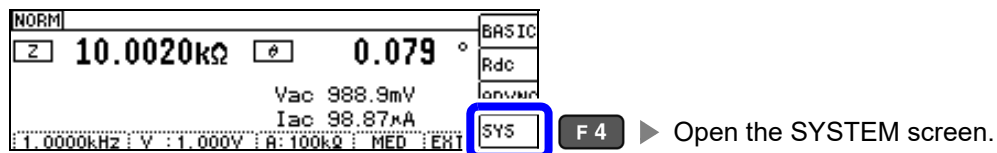


NOTE

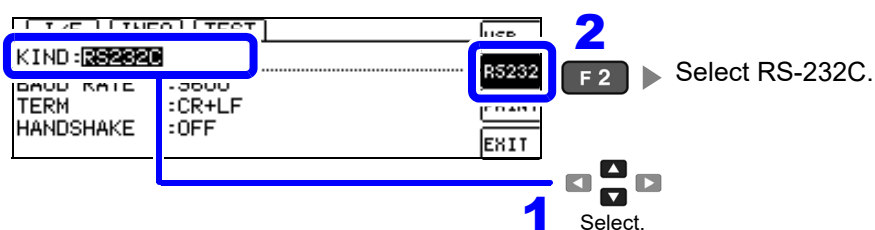
Hardware control will not work properly if you use a cable that has CA(RTS) and CB(CTS) short-circuited.

Setting RS-232C

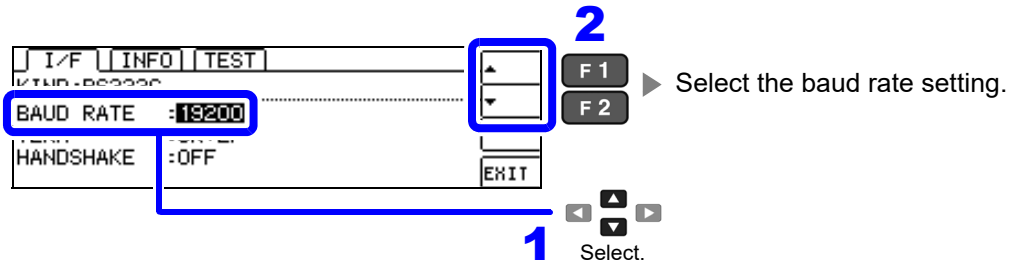
- 1 Open the SYSTEM screen.



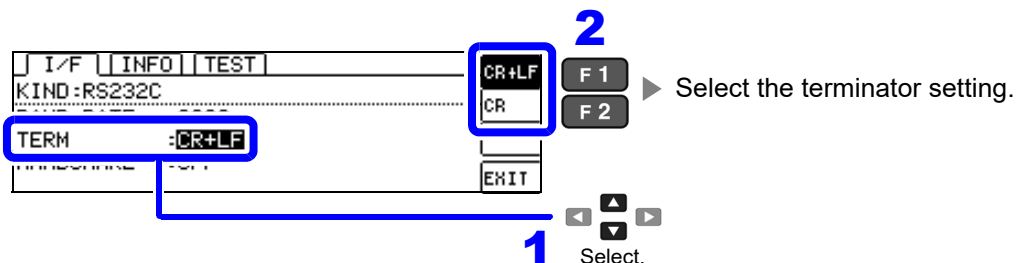
- 2 Select RS-232C as the interface.



- 3 Select from the following baud rate setting.
9600, 19200, 38400, 57600



- 4 Select the terminator setting.



3.4 RS-232C Connection and Settings (IM3523 only, when connected to the Z3001)

5 Select the handshake setting.

I/FINFOTEST

KIND:RS232C

BAUD RATE :9600

HANDSHAKE :HARD

EXIT

2

F1

F2

1

Select.

Select the handshake setting.

OFF	No flow control
HARD	Hardware (RTS/CTS control)
XON/OFF	Software (XON/XOFF control)
BOTH	Hardware + software

6

I/FINFOTEST

KIND:RS232C

BAUD RATE :9600

TERM :CR+LF

HANDSHAKE :OFF

EXIT

F4

You will return to the measurement screen.

3.5 LAN Settings and Connection (IM3523 needs to be connected to the Z3002)

LAN Settings

You can perform command control using the TCP/IP protocol.
Set the instrument to match your network environment in advance.

NOTE

- Make these settings before connecting to a network. Changing settings while connected can duplicate IP addresses of other network devices, and incorrect address information may otherwise be presented to the network.
- The instrument does not support DHCP (automatic IP address assignment) on a network.

Setting Items

IP address	Identifies each device connected on a network. Each network device must be set to a unique address. The instrument supports IP version 4, with IP addresses indicated as four decimal octets, e.g., "192.168.0.1".
Subnet mask	This setting is for separating the IP address into the network address that indicates the network and the host address that indicates the instrument. On this instrument, the subnet mask is represented as four decimal numbers separated by ". " such as "255.255.255.0."
Default Gateway	When the computer and instrument are on different but overlapping networks (subnets), this IP address specifies the device to serve as the gateway between the networks. If the computer and instrument are connected one-to-one, no gateway is used, and the instrument's default setting "0.0.0.0" can be kept as is.
Transmission method (IM3523A only)	Normally, the Auto-Negotiation function automatically selects the optimal speed and duplex settings. If Auto-Negotiation fails to complete due to compatibility issues with the communications device, you can disable it and communicate using fixed settings: 100BASE-TX, full duplex, and MDI.

Network Environment Configuration

Example 1. Connecting the instrument to an existing network

When connecting the instrument to an existing network, the network settings need to be confirmed in advance.

An IP address which is not the same as that of another network device needs to be assigned.

Confirm the following items with the network administrator, and write them down.

IP Address	_____ . _____ . _____ . _____
Subnet Mask	_____ . _____ . _____ . _____
Default Gateway	_____ . _____ . _____ . _____

Example 2. Connecting multiple instruments to a single computer using a hub

When building a local network with no outside connection, the following private IP addresses are recommended.

Example of private IP address:

IP AddressComputer: 192.168.0.100

Instrument: 192.168.0.1, 192.168.0.2, 192.168.0.3...

(Set an IP address that differs from that of other network devices.)

Subnet Mask255.255.255.0

```

Default Gateway .....OFF(0.0.0.0)

```

3.5 LAN Settings and Connection (IM3523 needs to be connected to the Z3002)

Example 3. Connecting one instrument to a single computer using the 9642 LAN Cable

The 9642 LAN Cable can be used with its supplied connection adapter to connect one instrument to one computer, in which case the IP address is freely settable. Use the recommended private IP addresses.

IP Address Computer: 192.168.0.100

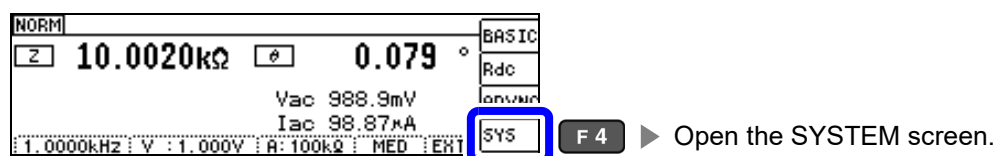
Instrument: 192.168.0.1 (Set to a different IP address than the computer.)

Subnet Mask 255.255.255.0

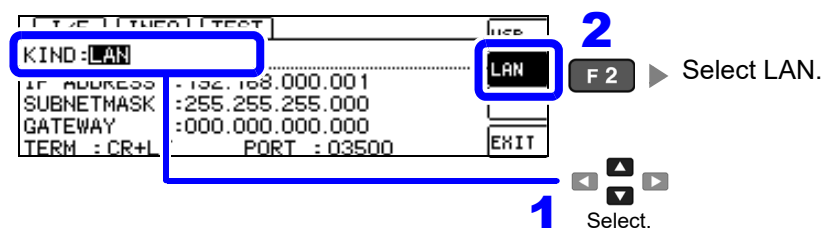
Default Gateway OFF(0.0.0.0)

Change LAN settings (image: IM3523)

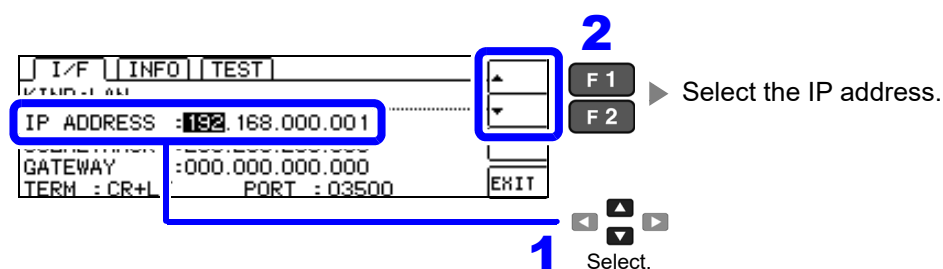
1 Open the SYSTEM screen.



2 Select LAN as the interface.

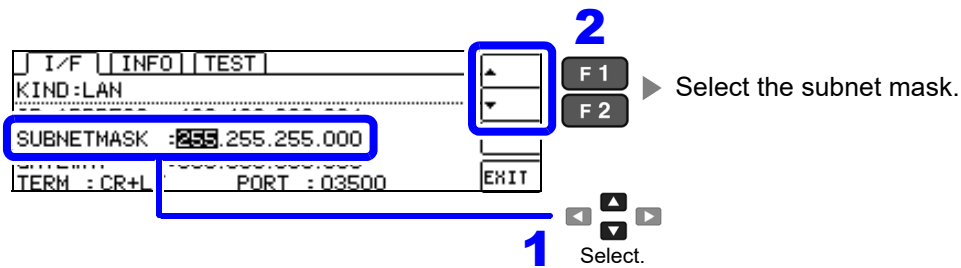


3 Select the IP address.



3.5 LAN Settings and Connection (IM3523 needs to be connected to the Z3002)

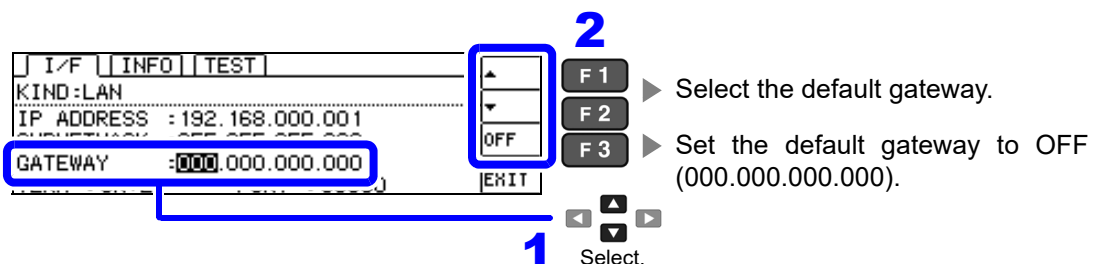
4 Select the subnet mask.



NOTE Any of the following 30 subnet masks can be set for the instrument.

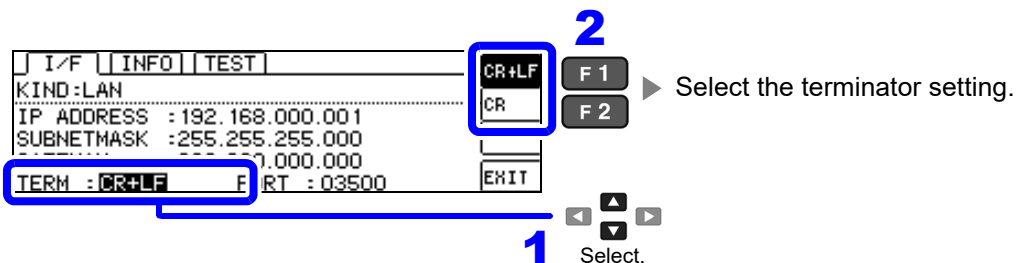
128.000.000.000	255.128.000.000	255.255.128.000	255.255.255.128
192.000.000.000	255.192.000.000	255.255.192.000	255.255.255.192
224.000.000.000	255.224.000.000	255.255.224.000	255.255.255.224
240.000.000.000	255.240.000.000	255.255.240.000	255.255.255.240
248.000.000.000	255.248.000.000	255.255.248.000	255.255.255.248
252.000.000.000	255.252.000.000	255.255.252.000	255.255.255.252
254.000.000.000	255.254.000.000	255.255.254.000	
255.000.000.000	255.255.000.000	255.255.255.000 (Initial setting)	

5 Select the default gateway.



If the default gateway does not need to be set, for example, when connecting the instrument and computer on a one-to-one basis using a cross cable, leave this set to OFF.

6 Select the terminator setting.

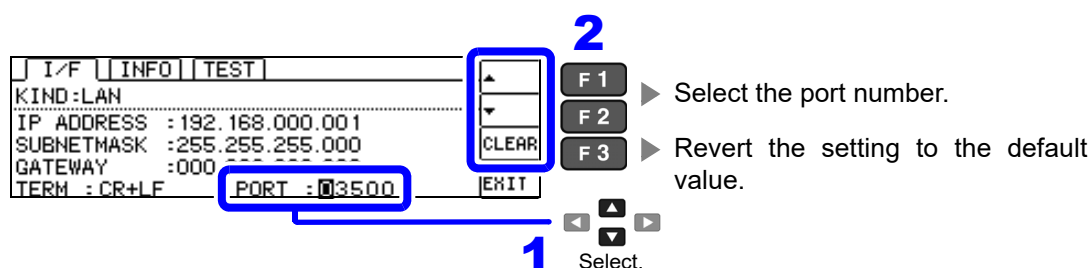


3.5 LAN Settings and Connection (IM3523 needs to be connected to the Z3002)

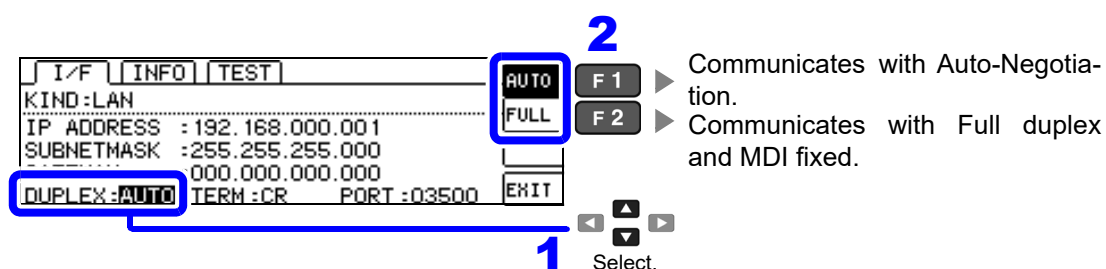
7 Select the port number.

Settable range : 1024 to 65535 (IM3523)

Settable range : 1 to 65535 (IM3523A)



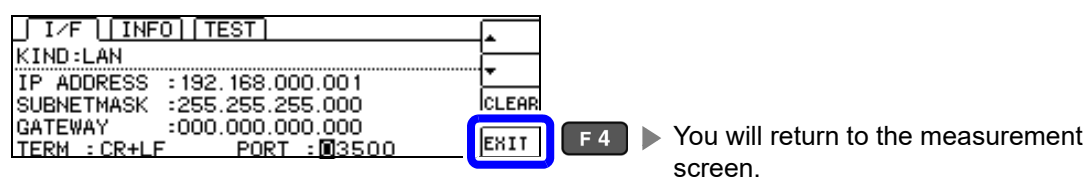
8 Select the transmission method. (IM3523A only)



IM3523A only:

- Normally, use the AUTO setting for transmission mode.
- If the connected device does not support the Auto-Negotiation function or cannot establish a link, you may be able to communicate with it by selecting FULL.
- When setting to FULL, ensure that the connected device in the one-to-one connection is set to the same transmission mode (100BASE-TX, full duplex). Failure to use the same settings on both sides may result in reduced communication bandwidth or an unstable connection.

9



3.5 LAN Settings and Connection (IM3523 needs to be connected to the Z3002)

Connecting a LAN Cable

Use a LAN cable to connect the instrument and computer.

Required items:

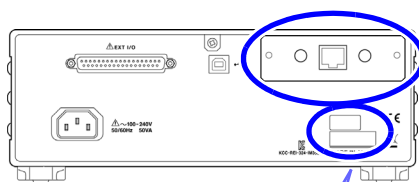
When connecting the instrument to an existing network (prepare any of the following):

- Straight-through Cat 5, 100BASE-TX-compliant Ethernet cable (up to 100 m, commercially available).
For 10BASE communication, a 10BASE-T-compliant cable may also be used.
 - Hioki 9642 LAN Cable (option)
- (A cross adapter cannot be used.)

When connecting one instrument to a single computer (prepare one of the following):

- 100BASE-TX-compliant cross-over cable (up to 100 m)
- 100BASE-TX-compliant straight-through cable with cross-over adapter (up to 100 m)
- Hioki 9642 LAN Cable (option)

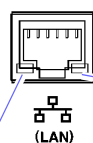
IM3523



The MAC address of the LAN is displayed above the serial number.

You can also check it on the instrument screen.

See: "Checking the Version of the Instrument" in the instruction manual.



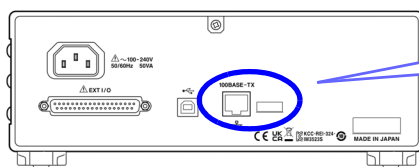
SPEED LED

On: Performing communication with 100BASE.
Off: Performing communication with 10BASE.

RX/TX LED

Flashes when data is being exchanged.

IM3523A



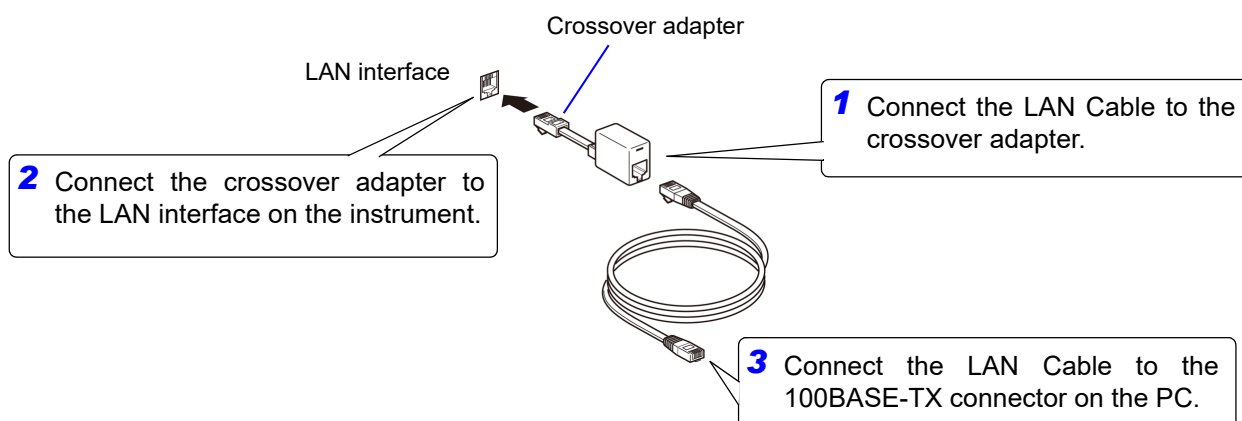
The LAN MAC address is shown to the right of the LAN terminal.

You can also check it on the instrument screen.

See: "Checking the Version of the Instrument" in the instruction manual.

When connecting the instrument to a single computer (connect the instrument to the computer)

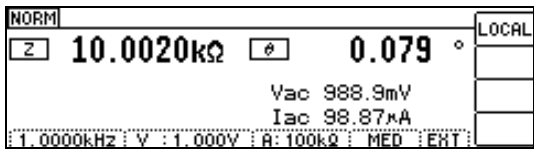
Connecting with the 9642 LAN Cable and crossover adapter (supplied with the 9642)



3.6 Remote Mode

When you connect a device to an interface and start communication, the mode becomes remote mode (remote operation state) and the keys on the LCD are disabled.

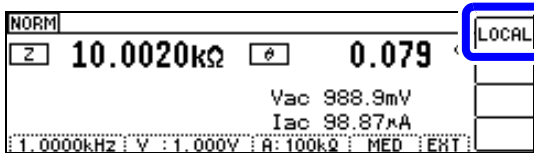
Remote status



F 1 Keys other than [F1] are disabled.

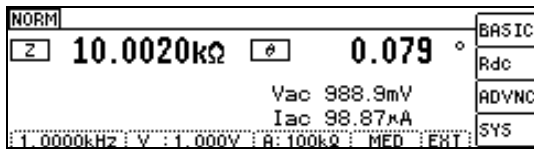
Canceling Remote Mode

1



F 4 ► You will return to the measurement screen.

2



You will return to the measurement screen.

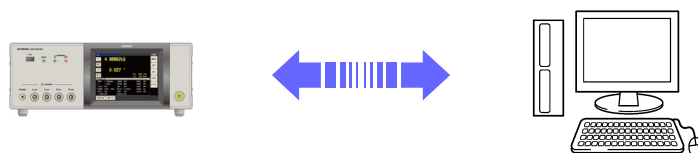
Model IM3533/ IM3533-01/ IM3590 Connection and Setting

Chapter 4

4.1 Overview of Communication

You can control the instrument with communication commands from a computer via the USB, GP-IB, RS-232C and LAN interfaces.

There are the following four communication methods. To enable communication, the communication conditions need to be set on the instrument.



USB communication (p. 39)

The instrument is communication class compatible.

GP-IB communication (when connected to the Z3000) (p. 41)

- Commands common to IEEE-488-2 1987 (requirement) can be used.
- The instrument complies with the following standard. (Compliance standard: IEEE-488.1 1987)
- The instrument has been designed with reference to the following standard. (Reference standard: IEEE-488.2 1987)

RS-232C communication (when connected to the Z3001) (p. 43)

Printer can be connected to enable printing measurement values and screens.

LAN communication (when connected to the Z3002) (p. 45)

Command control using the TCP/IP protocol is possible.

! WARNING

- Always turn both devices OFF when connecting and disconnecting an interface connector. Otherwise, an electric shock accident may occur.
- To avoid damage to the instrument, do not short-circuit the terminal and do not input voltage to the terminal.
- Failure to fasten the connectors properly may result in sub-specification performance or damage to the equipment.

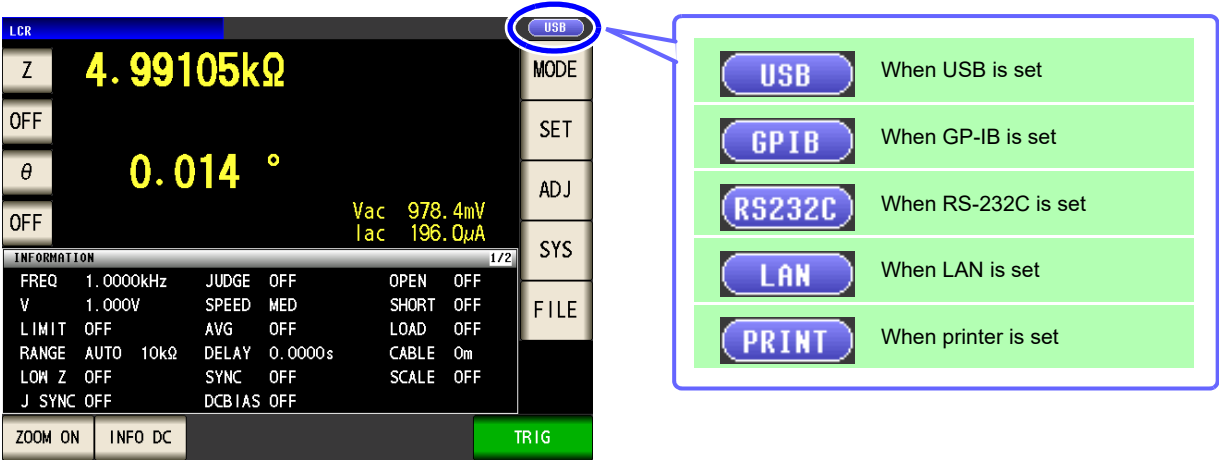
! CAUTION

- To avoid damage, do not disconnect the communications cable while the instrument is sending or receiving data.
- Use a common ground for both the instrument and the computer. Grounding them to different ground points will result in a potential difference between the instrument's ground and the computer's ground. If the communications cable is connected while such a potential difference exists, it may result in equipment malfunction or failure.
- Before connecting or disconnecting any communications cable, always turn off the instrument and the computer. Failure to do so could result in equipment malfunction or damage.
- After connecting the communications cable, tighten the screws on the connector securely. Failure to secure the connector could result in equipment malfunction or damage.

4.1 Overview of Communication

Screen Displayed while Setting Interfaces

When you set an interface, the icon for the set interface is displayed on the right side of the screen.



4.2 USB Settings and Connection

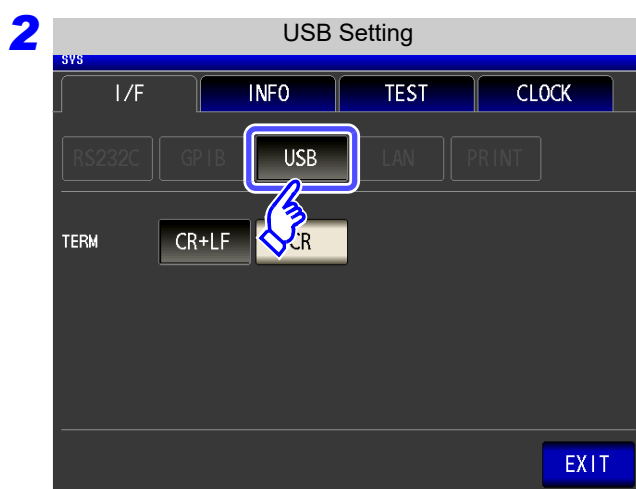
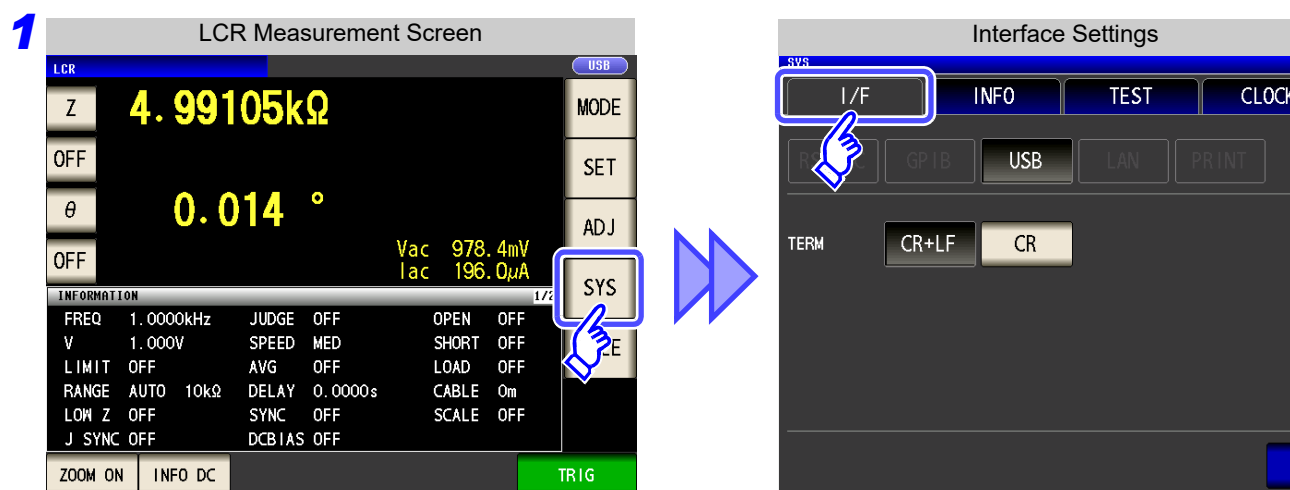
NOTE To connect the instrument to a computer the first time, a dedicated USB driver must be installed. Before connecting the instrument to the computer, install the USB driver. The USB driver can be downloaded from the bundled CD, or our web site. (p. 1) The USB driver is compatible with the Windows 7 (32-bit, 64-bit version), Windows 8 (32-bit, 64-bit version), Windows 10 (32-bit, 64-bit version), and Windows 11 (64-bit version) operating systems. Additionally, do not put the computer into the sleep state while the instrument is connected to the computer.

Setting USB

The display will vary with the installed options.

Procedure

You can configure the setting from any of **LCR** mode, **ANALYZER** mode, and **TRANSFORMER** mode.



Press **USB**.

When an option is connected

Using the Z3000



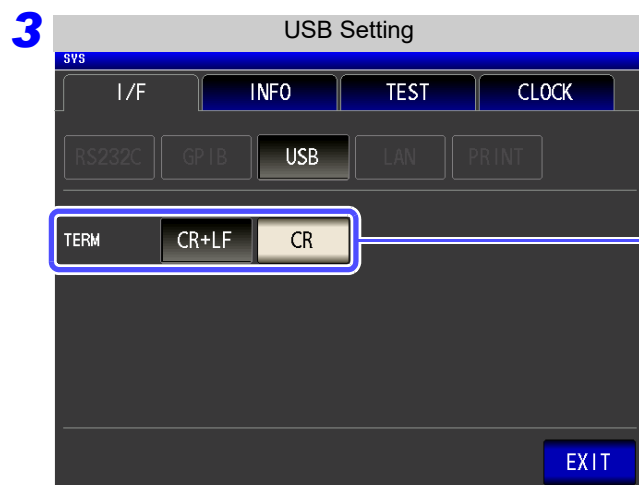
Using the Z3001



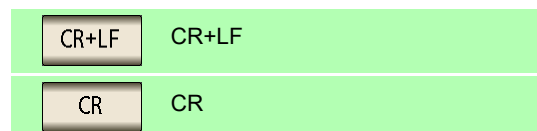
Using the Z3002



4.2 USB Settings and Connection



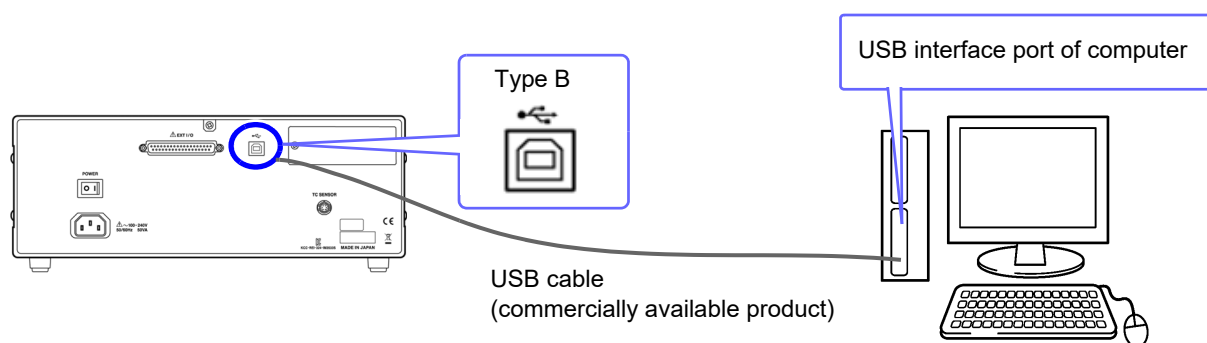
Select the terminator setting.



4 Press **EXIT** to confirm the setting.

Connecting the USB Cable

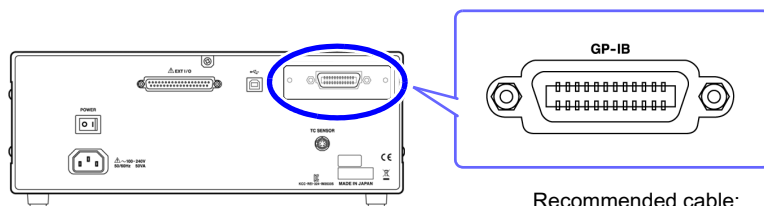
Connect a USB cable (commercially available USB cable) to the USB port of the instrument.



4.3 GP-IB Connection and Settings (when connected to the Z3000)

Connecting the GP-IB Cable

Connect the GP-IB cable to the GP-IB connector.

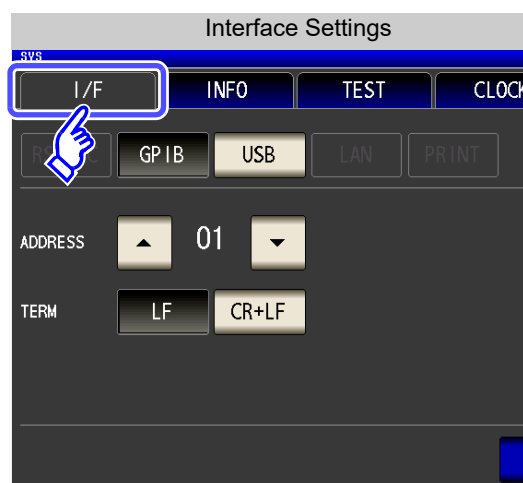
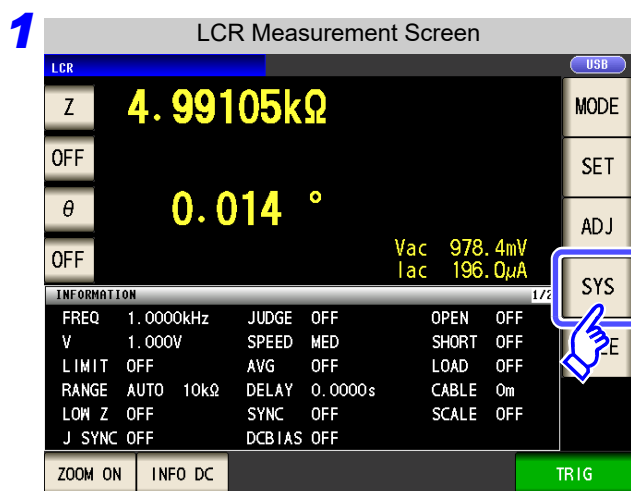


Recommended cable:
9151-02 GP-IB connection cable (2 m)

Setting GP-IB

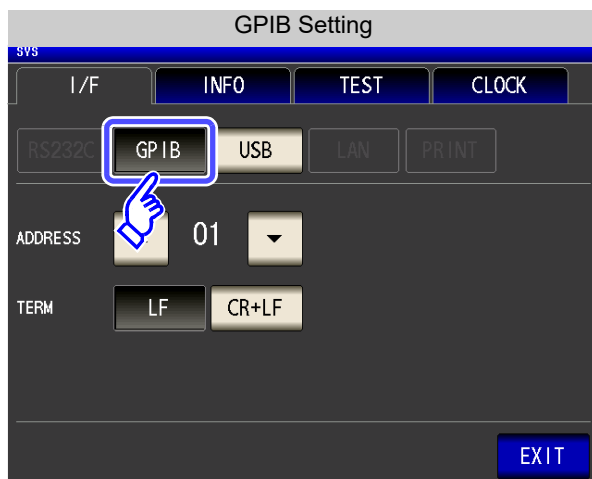
Procedure

You can configure the setting from any of **LCR** mode, **ANALYZER** mode, and **TRANSFORMER** mode.



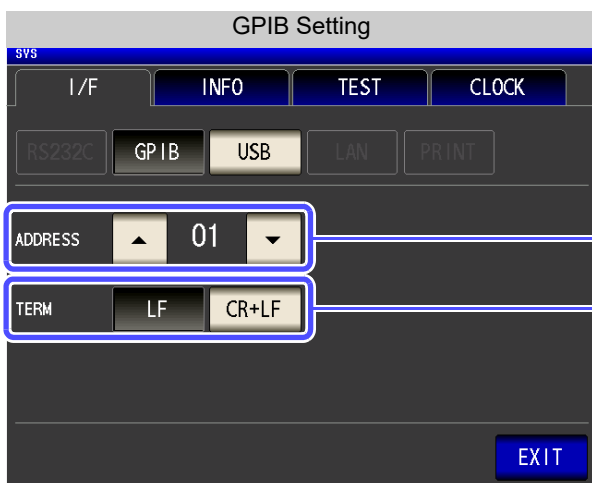
4.3 GP-IB Connection and Settings (when connected to the Z3000)

2



Press .

3



Use or to set the GP-IB address.

Select the terminator setting.

LF with EOI

LF with CR+EOI

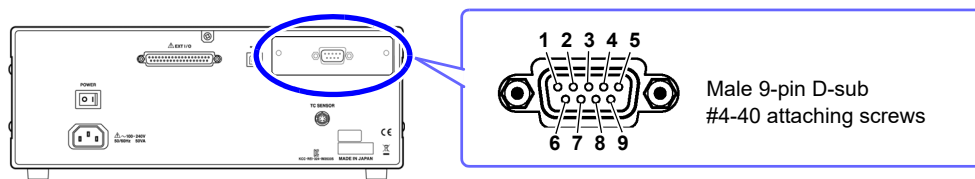
4

Press to confirm the setting.

4.4 RS-232C Connection and Settings (when connected to the Z3001)

Connecting the RS-232C Cable

Connect the RS-232C cable to the RS-232C connector.
(Recommended cable: 9637 RS-232C cable)

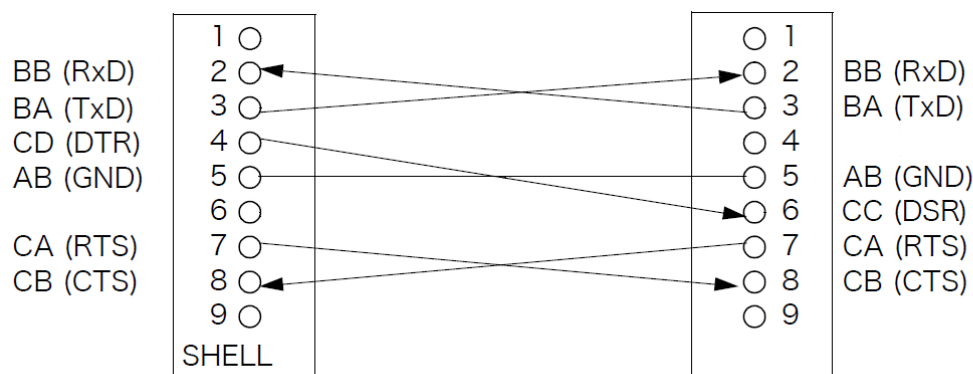


To connect the instrument to a controller (DTE), use a **crossover cable** compatible with the connectors on both the instrument and the controller. The I/O connector is a DTE (Data Terminal Equipment) configuration.

Connector (D-sub) Pin No.	Interchange Circuit Name	CCITT Circuit No.	EIA Abbreviation	JIS Abbreviation	Common Abbreviation
1	Unused				
2	Received Data	104	BB	RD	RxD
3	Transmitted Data	103	BA	SD	TxD
4	Data Terminal Ready	108/2	CD	ER	DTR
5	Signal Ground	102	AB	SG	GND
6	Unused				
7	Request to Send	105	CA	RS	RTS
8	Clear to Send	106	CB	CS	CTS
9	Unused				

Example: Connecting to a DOS/V PC

Specification: D-sub 9-pin female and female connector, reverse connection



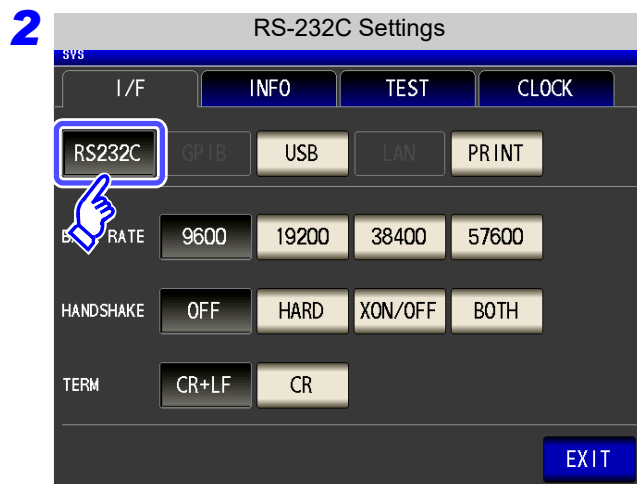
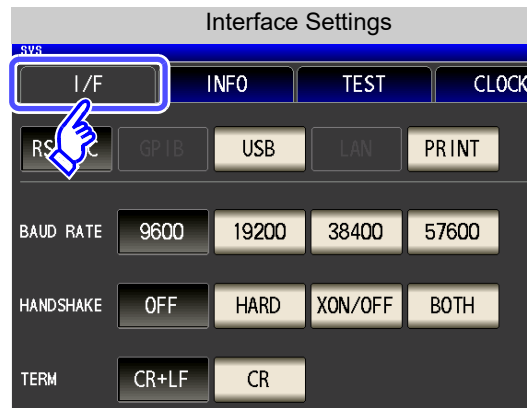
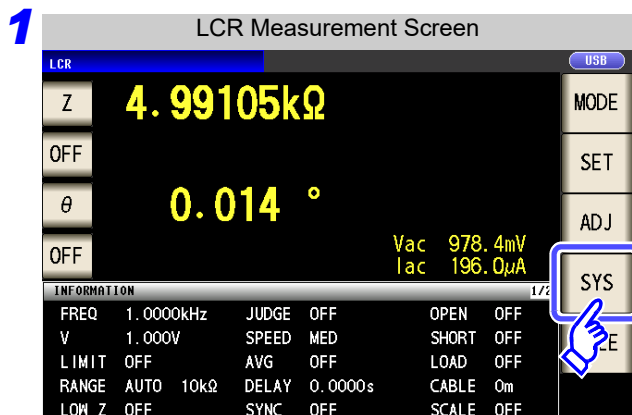
NOTE Hardware control will not work properly if you use a cable that has CA(RTS) and CB(CTS) short-circuited.

4.4 RS-232C Connection and Settings (when connected to the Z3001)

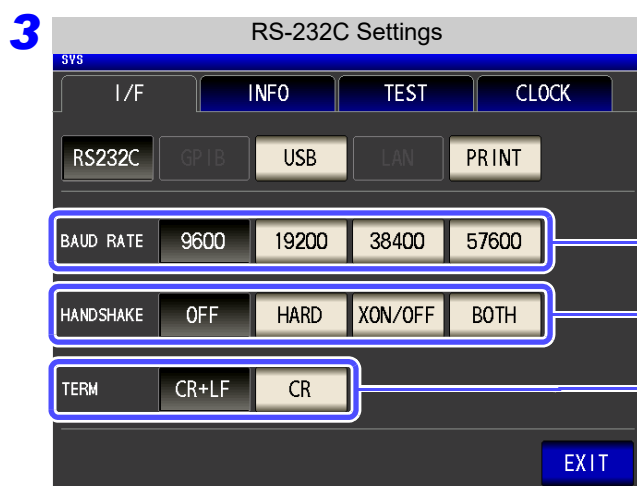
Setting RS-232C

Procedure

You can configure the setting from any of **LCR** mode, **ANALYZER** mode, and **TRANSFORMER** mode.



Press **RS232C**.



Select the baud rate setting.

Select the handshake setting.

OFF	No flow control
HARD	Hardware (RTS/CTS control)
XON/OFF	Software (XON/XOFF control)
BOTH	Hardware + software

Select the terminator setting.

CR+LF	CR+LF
CR	CR

4 Press **EXIT** to confirm the setting.

4.5 LAN Settings and Connection (when connected to the Z3002)

LAN Settings

You can perform command control using the TCP/IP protocol.
Set the instrument to match your network environment in advance.

- NOTE**
- Make these settings before connecting to a network. Changing settings while connected can duplicate IP addresses of other network devices, and incorrect address information may otherwise be presented to the network.
 - The instrument does not support DHCP (automatic IP address assignment) on a network.

Setting Items

IP address	Identifies each device connected on a network. Each network device must be set to a unique address. The instrument supports IP version 4, with IP addresses indicated as four decimal octets, e.g., "192.168.0.1".
Subnet mask	This setting is for separating the IP address into the network address that indicates the network and the host address that indicates the instrument. On this instrument, the subnet mask is represented as four decimal numbers separated by "." such as "255.255.255.0."
Default Gateway	When the computer and instrument are on different but overlapping networks (subnets), this IP address specifies the device to serve as the gateway between the networks. If the computer and instrument are connected one-to-one, no gateway is used, and the instrument's default setting "0.0.0.0" can be kept as is.

Network Environment Configuration

Example 1. Connecting the instrument to an existing network

When connecting the instrument to an existing network, the network settings need to be confirmed in advance.

An IP address which is not the same as that of another network device needs to be assigned.

Confirm the following items with the network administrator, and write them down.

IP Address	_____ . _____ . _____ . _____
Subnet Mask	_____ . _____ . _____ . _____
Default Gateway	_____ . _____ . _____ . _____

Example 2. Connecting multiple instruments to a single computer using a hub

When building a local network with no outside connection, the following private IP addresses are recommended.

Example of private IP address:

IP Address Computer: 192.168.0.100

Instrument: 192.168.0.1, 192.168.0.2, 192.168.0.3...

(Set an IP address that differs from that of other network devices.)

Subnet Mask 255.255.255.0

Default Gateway OFF(0.0.0.0)

Example 3. Connecting one instrument to a single computer using the 9642 LAN Cable

The 9642 LAN Cable can be used with its supplied connection adapter to connect one instrument to one computer, in which case the IP address is freely settable. Use the recommended private IP addresses.

IP Address Computer: 192.168.0.100

Instrument: 192.168.0.1 (Set to a different IP address than the computer.)

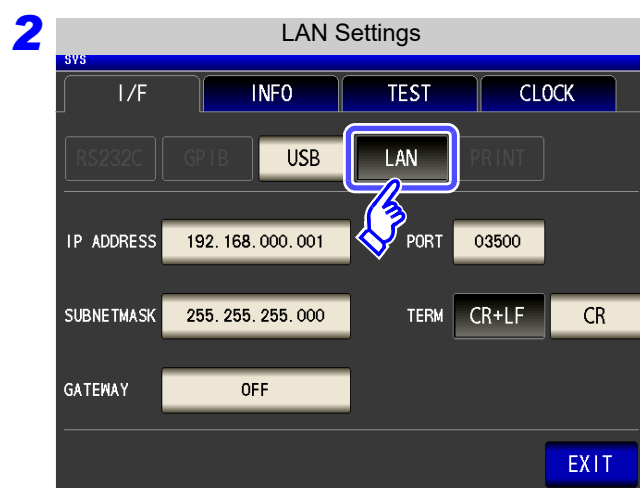
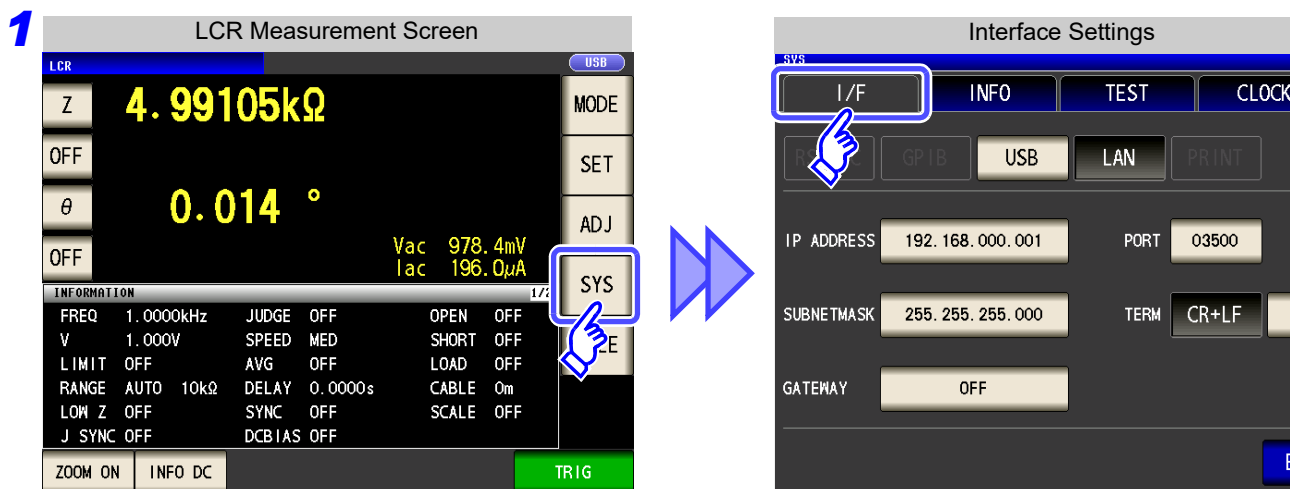
Subnet Mask 255.255.255.0

Default Gateway OFF(0.0.0.0)

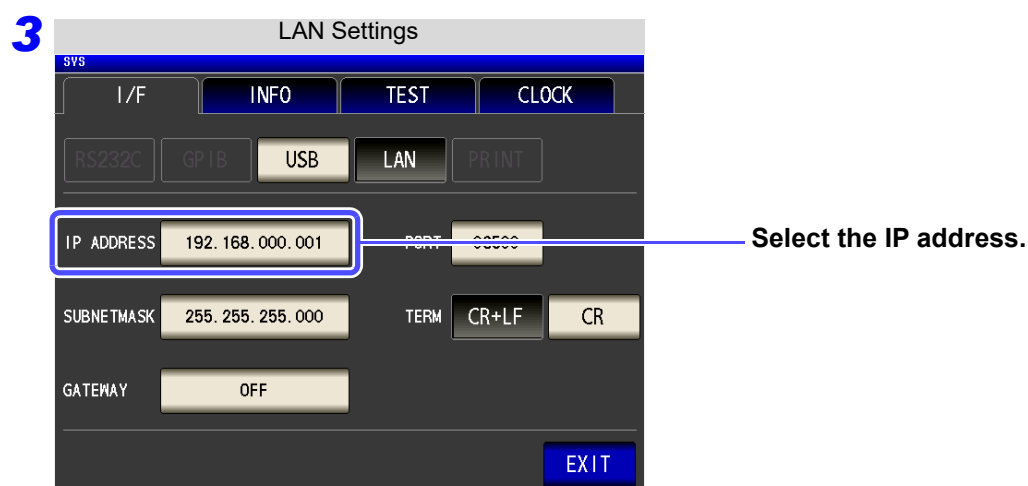
4.5 LAN Settings and Connection (when connected to the Z3002)

Procedure

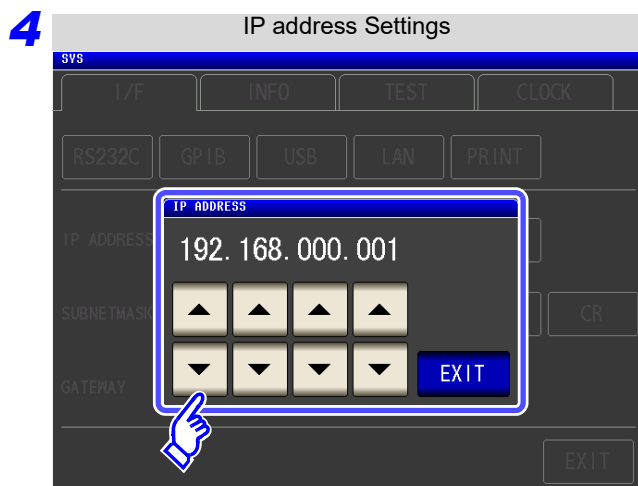
You can configure the setting from any of **LCR** mode, **ANALYZER** mode, and **TRANSFORMER** mode.



Press **LAN**.

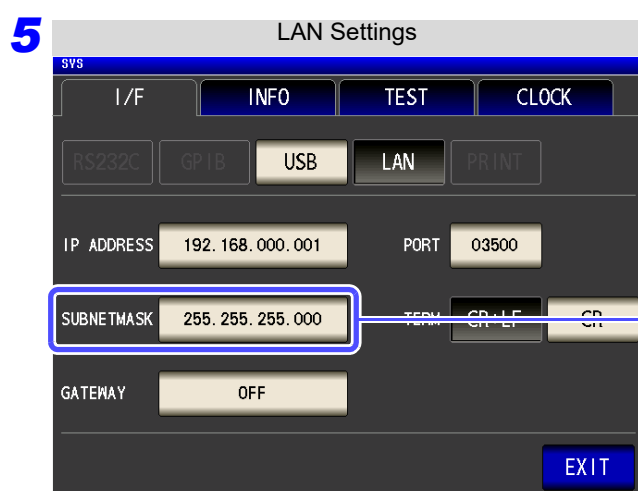


4.5 LAN Settings and Connection (when connected to the Z3002)

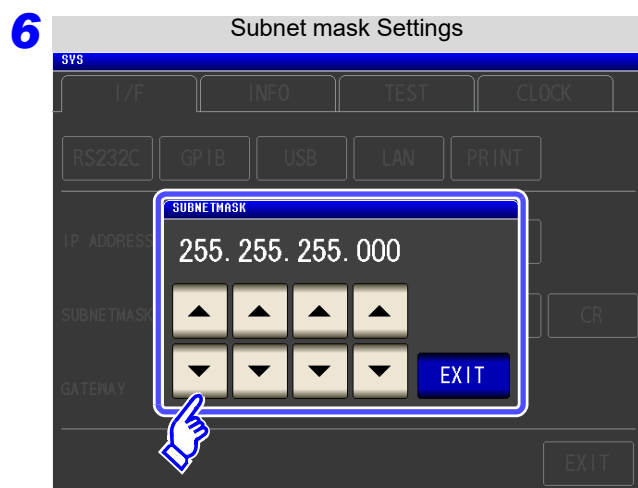


Use or to set the IP address.

Press to confirm the setting.



Select the subnet mask.



Use or to set the subnet mask, and press to confirm the setting.

NOTE

Any of the following 30 subnet masks can be set for the instrument.

128.000.000.000	255.128.000.000	255.255.128.000	255.255.255.128
192.000.000.000	255.192.000.000	255.255.192.000	255.255.255.192
224.000.000.000	255.224.000.000	255.255.224.000	255.255.255.224
240.000.000.000	255.240.000.000	255.255.240.000	255.255.255.240
248.000.000.000	255.248.000.000	255.255.248.000	255.255.255.248
252.000.000.000	255.252.000.000	255.255.252.000	255.255.255.252
254.000.000.000	255.254.000.000	255.255.254.000	
255.000.000.000	255.255.000.000	255.255.255.000 (Initial setting)	

4.5 LAN Settings and Connection (when connected to the Z3002)

7

LAN Settings

SVS

I/F INFO TEST CLOCK

RS232C GPIB USB LAN PRINT

IP ADDRESS 192.168.000.001 PORT 03500

SUBNETMASK 255.255.255.000 TERM CR+LF CR

GATEWAY OFF

EXIT

Select the default gateway.

If the default gateway does not need to be set, for example, when connecting the instrument and computer on a one-to-one basis using a cross cable, leave this set to OFF.

8

Default gateway Settings

SVS

I/F INFO TEST CLOCK

RS232C GPIB USB LAN PRINT

GATEWAY

000.000.000.000

OFF

EXIT

Use  or  to set the default gateway.

Press  to confirm the setting.

9

LAN Settings

SVS

I/F INFO TEST CLOCK

RS232C GPIB USB LAN PRINT

IP ADDRESS 192.168.000.001 PORT 03500

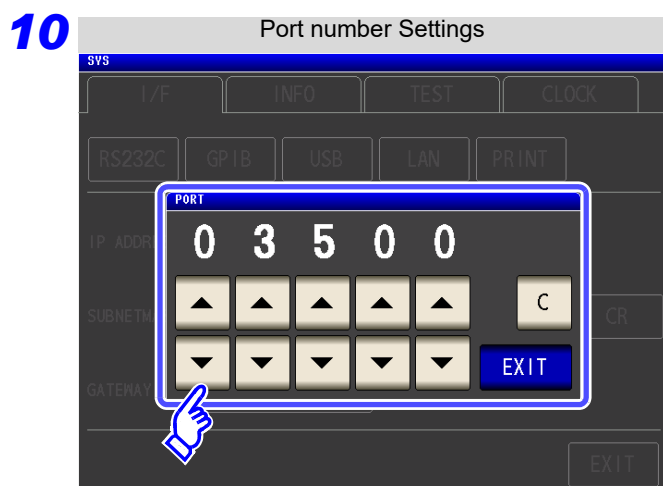
SUBNETMASK 255.255.255.000 TERM CR+LF CR

GATEWAY OFF

EXIT

Select the port number.

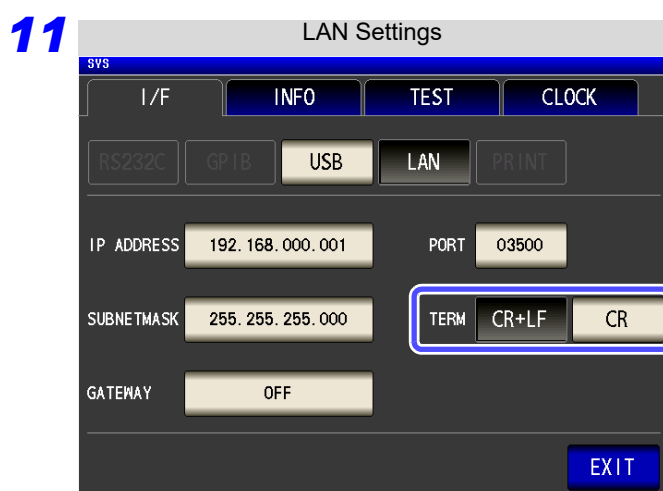
4.5 LAN Settings and Connection (when connected to the Z3002)



Use or to set the port number to use for communication commands.

Settable range : 1024 to 65535

Press to confirm the setting.



Select the terminator setting.

CR+LF

CR

12 Press to confirm the setting.

4.5 LAN Settings and Connection (when connected to the Z3002)

Connecting a LAN Cable

Use a LAN cable to connect the instrument and computer.

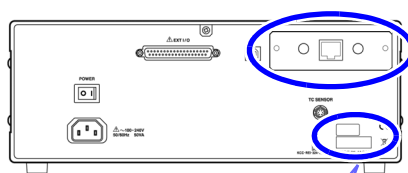
Required items:

When connecting the instrument to an existing network (prepare any of the following):

- Straight-through Cat 5, 100BASE-TX-compliant Ethernet cable (up to 100 m, commercially available).
For 10BASE communication, a 10BASE-T-compliant cable may also be used.
- Hioki 9642 LAN Cable (option)
(A cross adapter cannot be used.)

When connecting one instrument to a single computer (prepare one of the following):

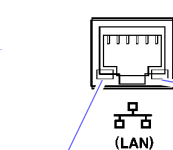
- 100BASE-TX-compliant cross-over cable (up to 100 m)
- 100BASE-TX-compliant straight-through cable with cross-over adapter (up to 100 m)
- Hioki 9642 LAN Cable (option)



The MAC address of the LAN is displayed above the serial number.

You can also check it on the instrument screen.

See: "Checking the Version of the Instrument" in the instruction manual.



SPEED LED

On: Performing communication with 100BASE.

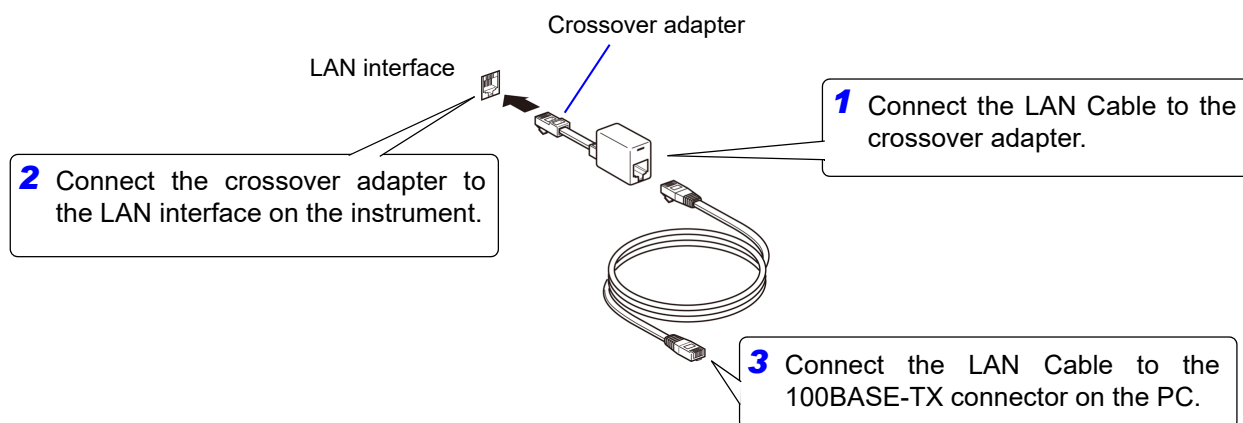
Off: Performing communication with 10BASE.

RX/TX LED

Flashes when data is being exchanged.

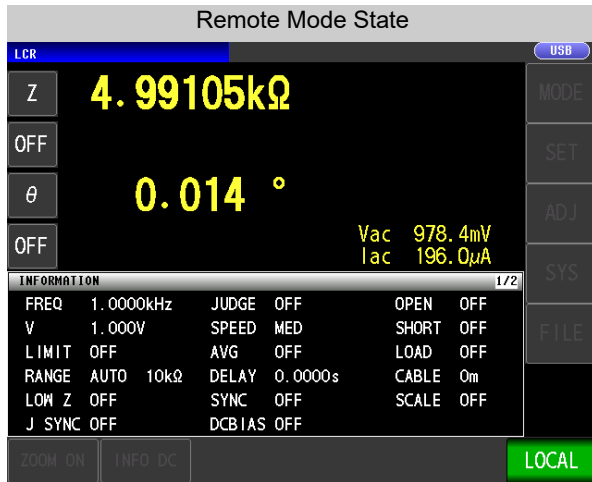
When connecting the instrument to a single computer (connect the instrument to the computer)

Connecting with the 9642 LAN Cable and crossover adapter (supplied with the 9642)



4.6 Remote Mode

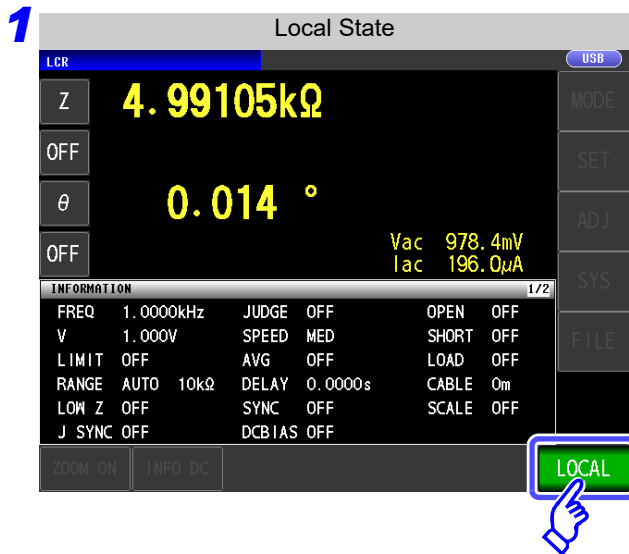
When you connect a device to an interface and start communication, the mode becomes remote mode (remote operation state) and the keys on the LCD are disabled.



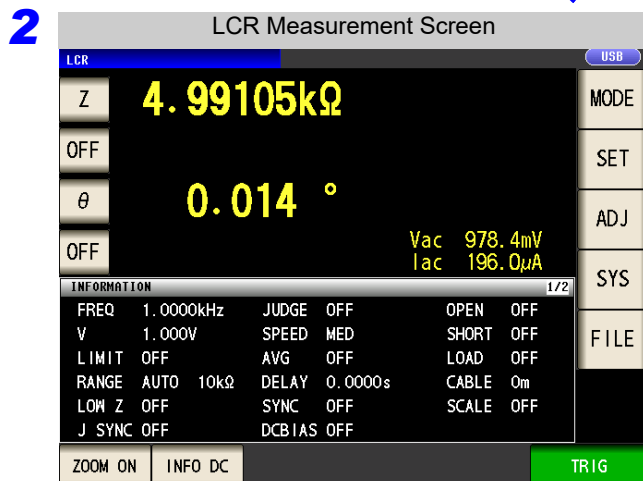
All of the keys except **LOCAL** are disabled.

Canceling Remote Mode

Procedure



Press **LOCAL** to return to the normal state (local state).



The measurement screen is redisplayed.

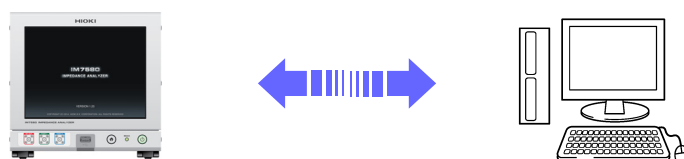
Model IM7580 Connection and Setting

Chapter 5

5.1 Overview of Communication

You can control the instrument with communication commands from a computer via the USB, GP-IB, RS-232C and LAN interfaces.

There are the following four communication methods. To enable communication, the communication conditions need to be set on the instrument.



USB communication (p. 55)

The instrument is communication class compatible.

LAN communication (p. 57)

Command control using the TCP/IP protocol is possible.

GP-IB communication (when connected to the Z3000) (p. 63)

- Commands common to IEEE-488-2 1987 (requirement) can be used.
- The instrument complies with the following standard. (Compliance standard: IEEE-488.1 1987)
- The instrument has been designed with reference to the following standard. (Reference standard: IEEE-488.2 1987)

RS-232C communication (when connected to the Z3001) (p. 65)



WARNING

- Always turn both devices OFF when connecting and disconnecting an interface connector. Otherwise, an electric shock accident may occur.
- To avoid damage to the instrument, do not short-circuit the terminal and do not input voltage to the terminal.
- Failure to fasten the connectors properly may result in sub-specification performance or damage to the equipment.

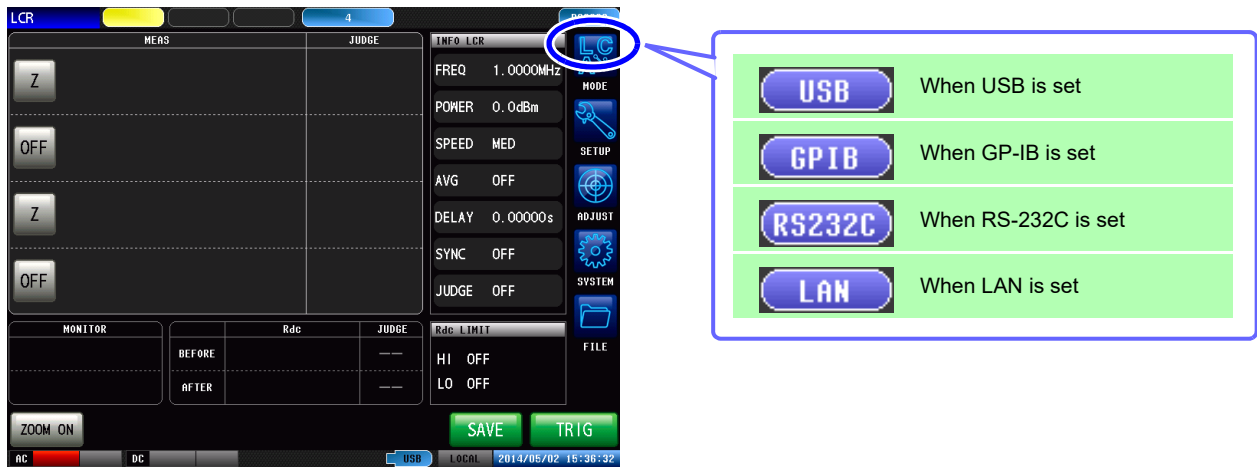


CAUTION

- To avoid damage, do not disconnect the communications cable while the instrument is sending or receiving data.
- Use a common ground for both the instrument and the computer. Grounding them to different ground points will result in a potential difference between the instrument's ground and the computer's ground. If the communications cable is connected while such a potential difference exists, it may result in equipment malfunction or failure.
- Before connecting or disconnecting any communications cable, always turn off the instrument and the computer. Failure to do so could result in equipment malfunction or damage.
- After connecting the communications cable, tighten the screws on the connector securely. Failure to secure the connector could result in equipment malfunction or damage.

Screen Displayed while Setting Interfaces

When you set an interface, the icon for the set interface is displayed on the right side of the screen.



5.2 USB Settings and Connection

NOTE To connect the instrument to a computer the first time, a dedicated USB driver must be installed. Before connecting the instrument to the computer, install the USB driver. The USB driver can be downloaded from the bundled CD, or our web site. (<http://www.hioki.com>) The USB driver is compatible with the Windows 7 (32-bit, 64-bit version), Windows 8 (32-bit, 64-bit version), Windows 10 (32-bit, 64-bit version), and Windows 11 (64-bit version) operating systems. Additionally, do not put the computer into the sleep state while the instrument is connected to the computer.

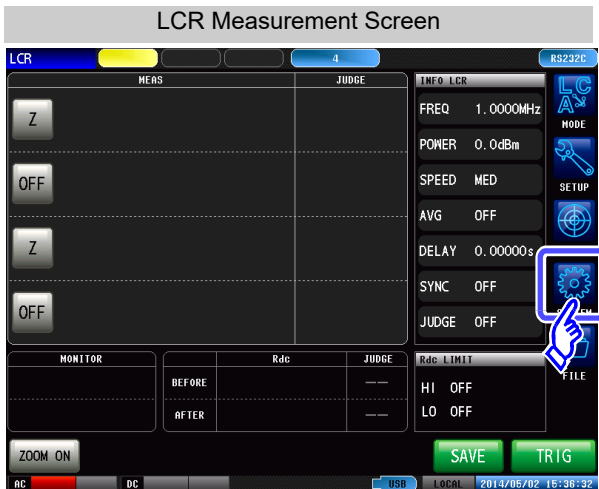
Setting USB

The display will vary with the installed options.

Procedure

You can configure the setting from any of **LCR** mode and **ANALYZER** mode.

1



LCR Measurement Screen

LCR

MEAS

JUDGE

INFO LCR

FREQ 1.0000MHz

POWER 0.0dBm

SPEED MED

AVG OFF

DELAY 0.00000s

SYNC OFF

JUDGE OFF

MONITOR

BEFORE

AFTER

Rdc

Rdc LIMIT

HI OFF

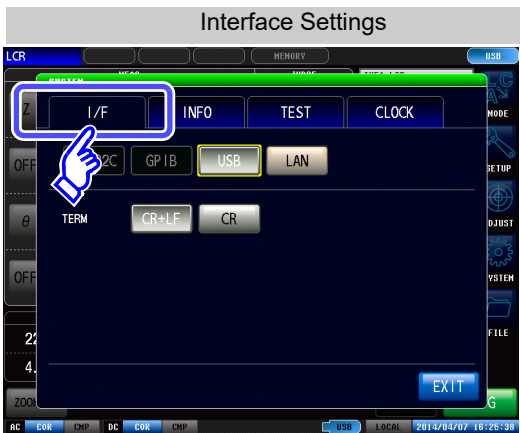
LO OFF

SAVE

TRIG

2014/06/02 16:38:32

➡



Interface Settings

LCR

MEMORY

USB

I/F

INFO

TEST

CLOCK

MODE

RS232C

GP I/B

USB

LAN

TERM

CR+LF

CR

EXIT

2014/04/07 16:26:38

2



USB Setting

LCR

MEMORY

USB

SYSTEM

I/F

INFO

TEST

CLOCK

MODE

RS232C

GP I/B

USB

LAN

TERM

CR+LF

CR

EXIT

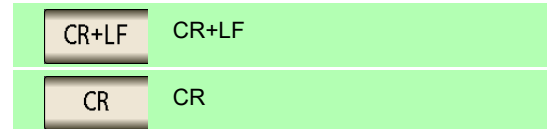
2014/04/07 16:26:38

Press **USB**.

5.2 USB Settings and Connection



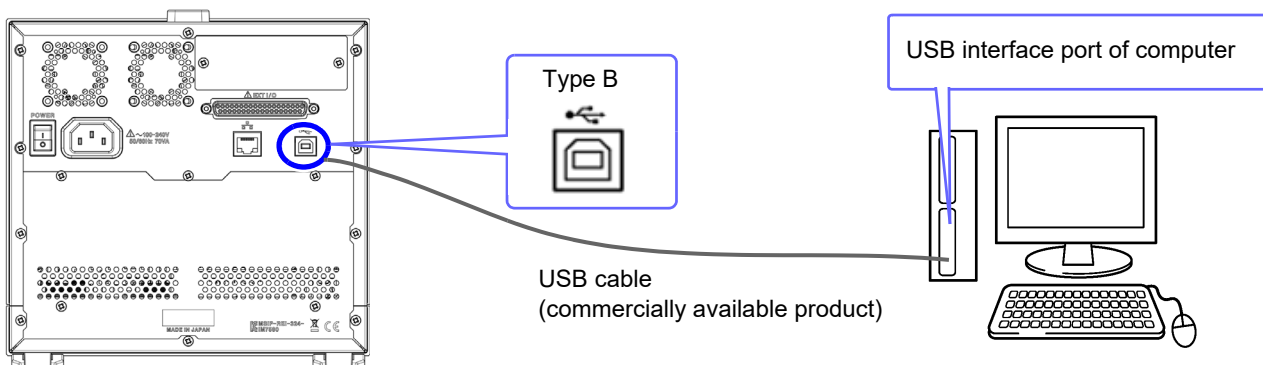
Select the terminator setting.



4 Press **EXIT** to confirm the setting.

Connecting the USB Cable

Connect a USB cable (commercially available USB cable) to the USB port of the instrument.



5.3 LAN Settings and Connection

LAN Settings

You can perform command control using the TCP/IP protocol.
Set the instrument to match your network environment in advance.

- NOTE**
- Make these settings before connecting to a network. Changing settings while connected can duplicate IP addresses of other network devices, and incorrect address information may otherwise be presented to the network.
 - The instrument does not support DHCP (automatic IP address assignment) on a network.

Setting Items

IP address	Identifies each device connected on a network. Each network device must be set to a unique address. The instrument supports IP version 4, with IP addresses indicated as four decimal octets, e.g., "192.168.0.1".
Subnet mask	This setting is for separating the IP address into the network address that indicates the network and the host address that indicates the instrument. On this instrument, the subnet mask is represented as four decimal numbers separated by "." such as "255.255.255.0."
Default Gateway	When the computer and instrument are on different but overlapping networks (subnets), this IP address specifies the device to serve as the gateway between the networks. If the computer and instrument are connected one-to-one, no gateway is used, and the instrument's default setting "0.0.0.0" can be kept as is.

Network Environment Configuration

Example 1. Connecting the instrument to an existing network

When connecting the instrument to an existing network, the network settings need to be confirmed in advance.

An IP address which is not the same as that of another network device needs to be assigned.

Confirm the following items with the network administrator, and write them down.

IP Address	_____ . _____ . _____ . _____
Subnet Mask	_____ . _____ . _____ . _____
Default Gateway	_____ . _____ . _____ . _____

Example 2. Connecting multiple instruments to a single computer using a hub

When building a local network with no outside connection, the following private IP addresses are recommended.

Example of private IP address:

IP Address Computer: 192.168.0.100

Instrument: 192.168.0.1, 192.168.0.2, 192.168.0.3...

(Set an IP address that differs from that of other network devices.)

Subnet Mask 255.255.255.0

Default Gateway OFF(0.0.0.0)

Example 3. Connecting one instrument to a single computer using the 9642 LAN Cable

The 9642 LAN Cable can be used with its supplied connection adapter to connect one instrument to one computer, in which case the IP address is freely settable. Use the recommended private IP addresses.

IP Address Computer: 192.168.0.100

Instrument: 192.168.0.1 (Set to a different IP address than the computer.)

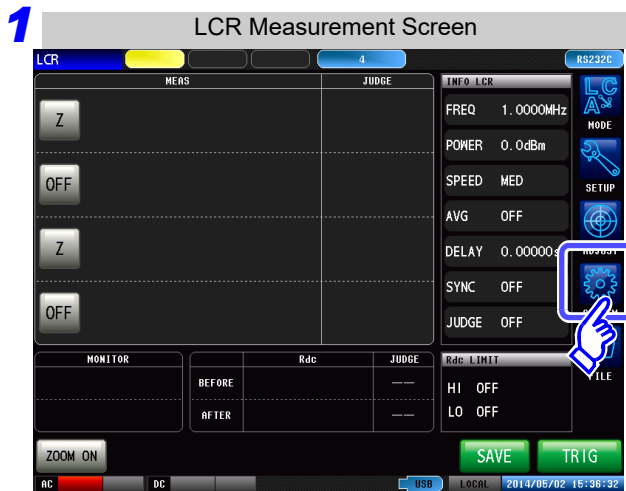
Subnet Mask 255.255.255.0

Default Gateway OFF(0.0.0.0)

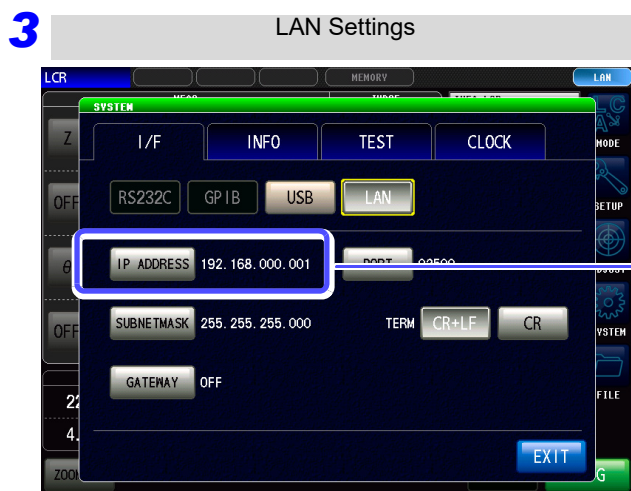
5.3 LAN Settings and Connection

Procedure

You can configure the setting from any of **LCR** mode and **ANALYZER** mode.

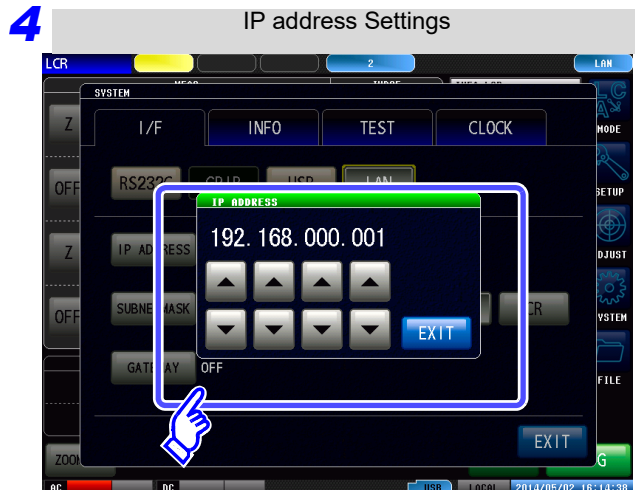


Press **LAN**.



Select the IP address.

5.3 LAN Settings and Connection

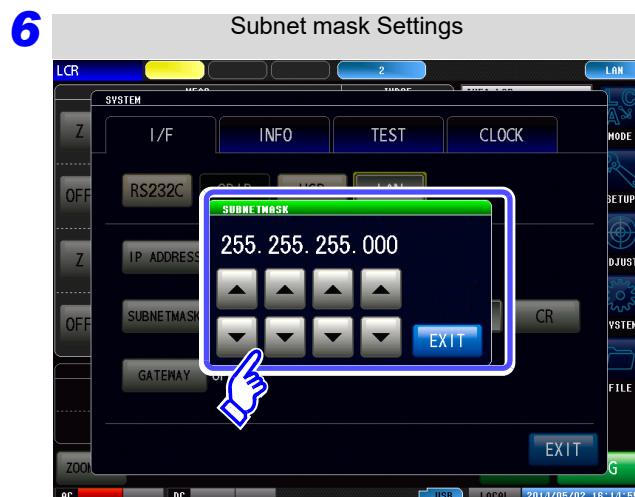


Use or to set the IP address.

Press to confirm the setting.



Select the subnet mask.



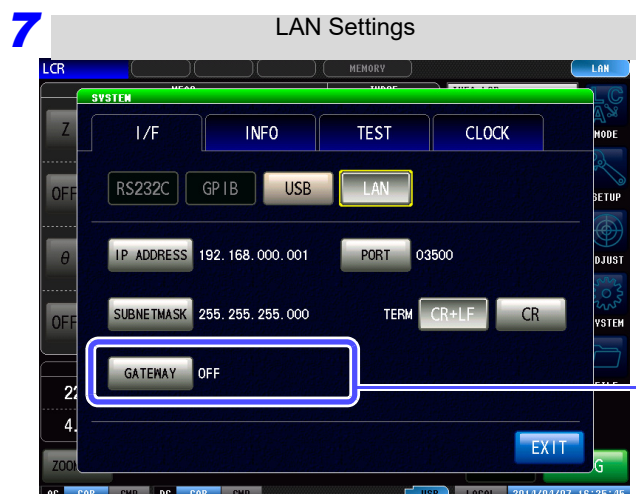
Use or to set the subnet mask, and press to confirm the setting.

NOTE

Any of the following 30 subnet masks can be set for the instrument.

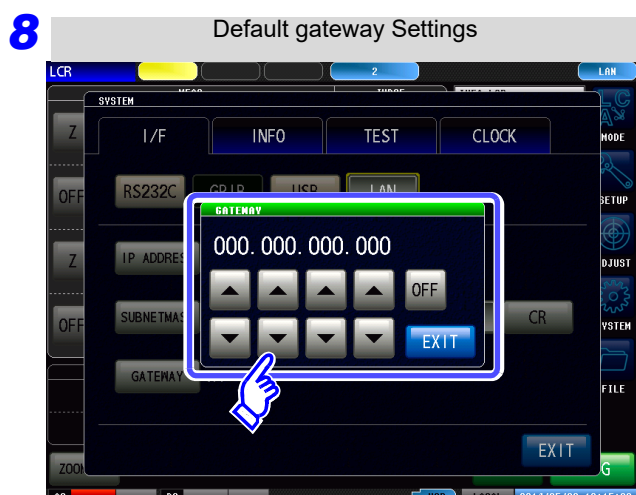
128.000.000.000	255.128.000.000	255.255.128.000	255.255.255.128
192.000.000.000	255.192.000.000	255.255.192.000	255.255.255.192
224.000.000.000	255.224.000.000	255.255.224.000	255.255.255.224
240.000.000.000	255.240.000.000	255.255.240.000	255.255.255.240
248.000.000.000	255.248.000.000	255.255.248.000	255.255.255.248
252.000.000.000	255.252.000.000	255.255.252.000	255.255.255.252
254.000.000.000	255.254.000.000	255.255.254.000	
255.000.000.000	255.255.000.000	255.255.255.000 (Initial setting)	

5.3 LAN Settings and Connection



Select the default gateway.

If the default gateway does not need to be set, for example, when connecting the instrument and computer on a one-to-one basis using a cross cable, leave this set to OFF.



Use  or  to set the default gateway.

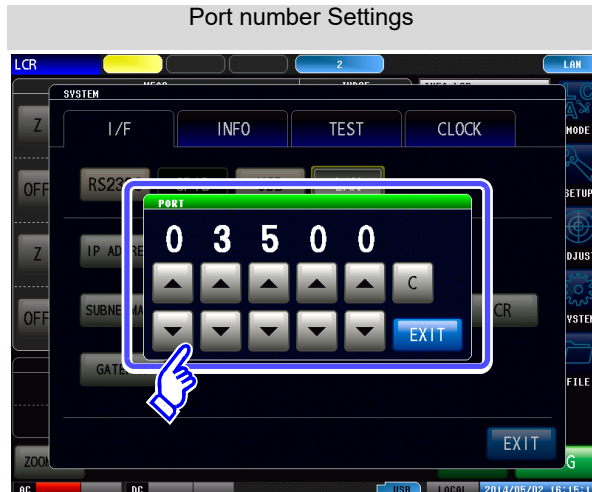
Press  to confirm the setting.



Select the port number.

5.3 LAN Settings and Connection

10

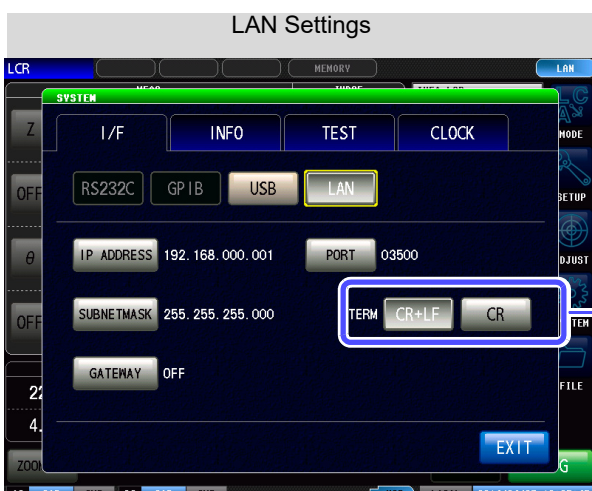


Use or to set the port number to use for communication commands.

Settable range : 1024 to 65535

Press to confirm the setting.

11



Select the terminator setting.

	CR+LF
	CR

12

Press to confirm the setting.

5.3 LAN Settings and Connection

Connecting a LAN Cable

Use a LAN cable to connect the instrument and computer.

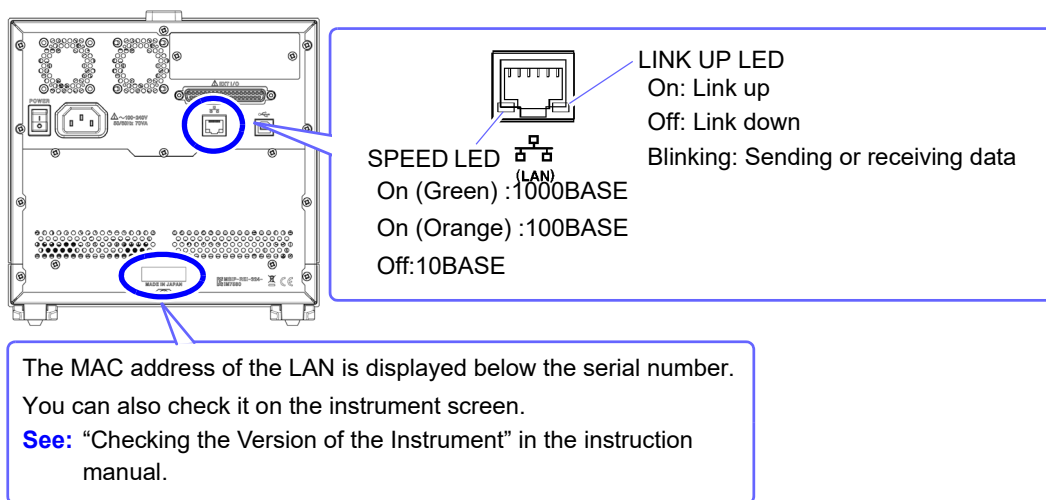
Required items:

When connecting the instrument to an existing network (prepare any of the following):

- Straight-through Cat 5, 100BASE-T-compliant Ethernet cable (up to 100 m, commercially available).
For 100BASE/10BASE communication, a 100BASE-TX/10BASE-T-compliant cable may also be used.
- Hioki 9642 LAN Cable (option)
(A cross adapter cannot be used.)

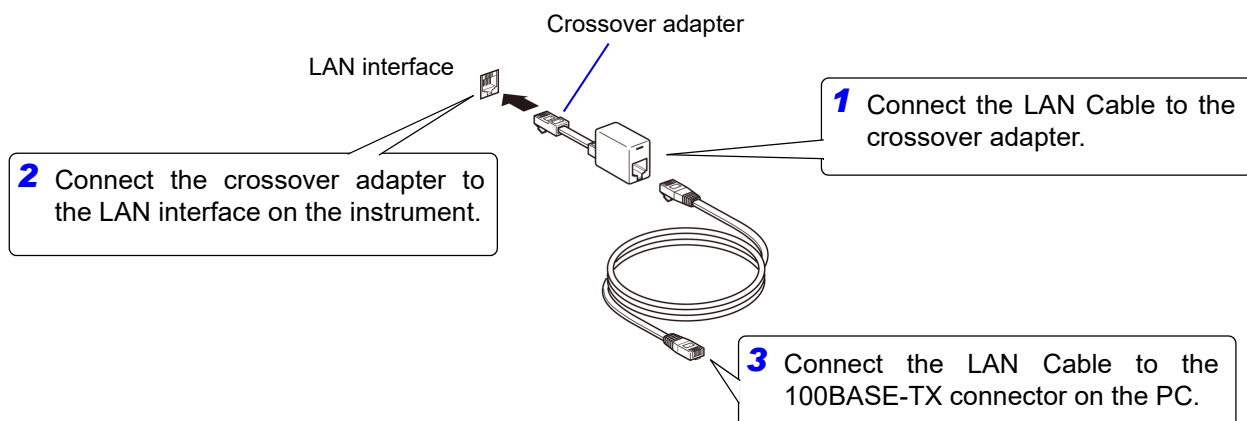
When connecting one instrument to a single computer (prepare one of the following):

- 1000BASE-T-compliant cross-over cable (up to 100 m)
- 1000BASE-T-compliant straight-through cable with cross-over adapter (up to 100 m)
- Hioki 9642 LAN Cable (option)



When connecting the instrument to a single computer (connect the instrument to the computer)

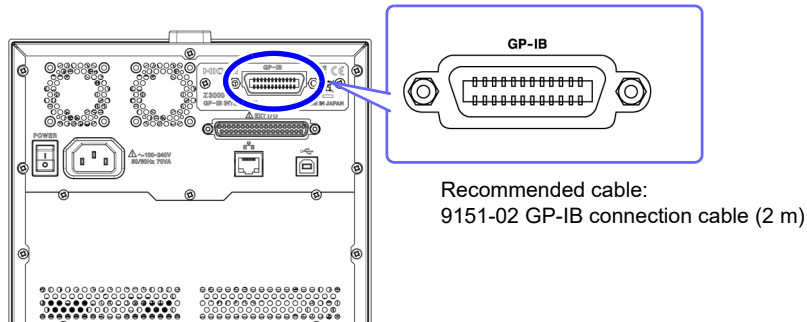
Connecting with the 9642 LAN Cable and crossover adapter (supplied with the 9642)



5.4 GP-IB Connection and Settings (when connected to the Z3000)

Connecting the GP-IB Cable

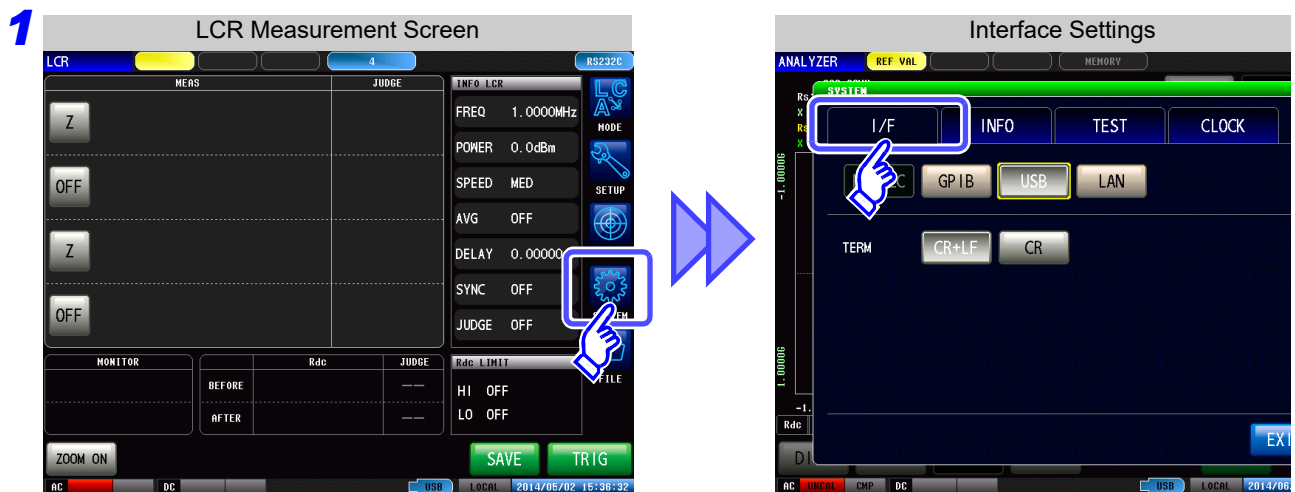
Connect the GP-IB cable to the GP-IB connector.



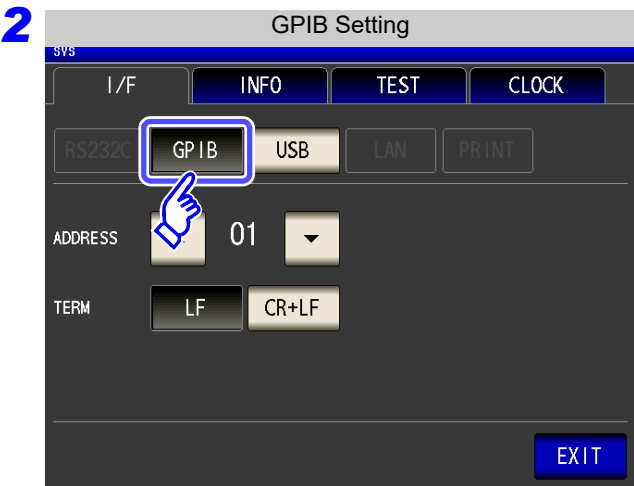
Setting GP-IB

Procedure

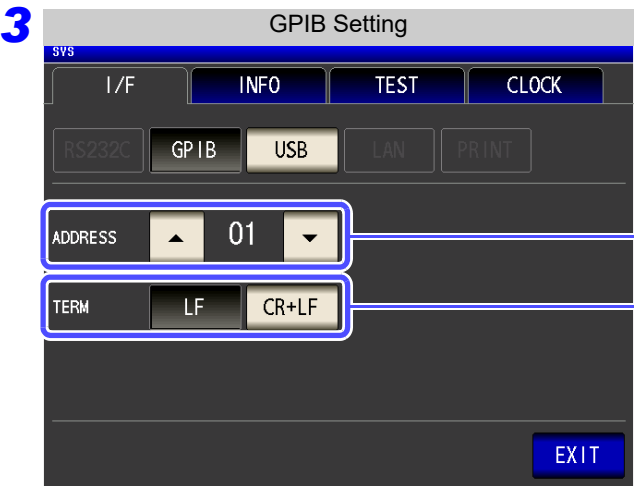
You can configure the setting from any of **LCR** mode and **ANALYZER** mode.



5.4 GP-IB Connection and Settings (when connected to the Z3000)



Press  .



Use  or  to set the GP-IB address.

Select the terminator setting.

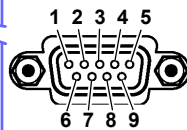
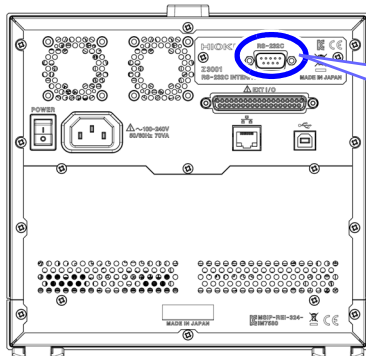
	LF with EOI
	LF with CR+EOI

4 Press  to confirm the setting.

5.5 RS-232C Connection and Settings (when connected to the Z3001)

Connecting the RS-232C Cable

Connect the RS-232C cable to the RS-232C connector.
(Recommended cable: 9637 RS-232C cable)



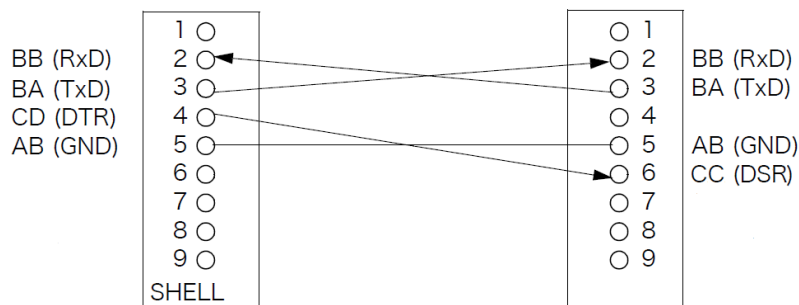
Male 9-pin D-sub
#4-40 attaching screws

To connect the instrument to a controller (DTE), use a **crossover cable** compatible with the connectors on both the instrument and the controller. The I/O connector is a DTE (Data Terminal Equipment) configuration.

Connector (D-sub) Pin No.	Interchange Circuit Name	CCITT Circuit No.	EIA Abbreviation	JIS Abbreviation	Common Abbreviation
1	Unused				
2	Received Data	104	BB	RD	RxD
3	Transmitted Data	103	BA	SD	TxD
4	Data Terminal Ready	108/2	CD	ER	DTR
5	Signal Ground	102	AB	SG	GND
6	Unused				
7	Unused				
8	Unused				
9	Unused				

Example: Connecting to a DOS/V PC

Specification: D-sub 9-pin female and female connector, reverse connection



5.5 RS-232C Connection and Settings (when connected to the Z3001)

Setting RS-232C

Procedure

You can configure the setting from any of **LCR** mode and **ANALYZER** mode.



Press **RS232C**.



Select the baud rate setting.

Select the handshake setting.

OFF	No flow control
XON/OFF	Software (XON/XOFF control)

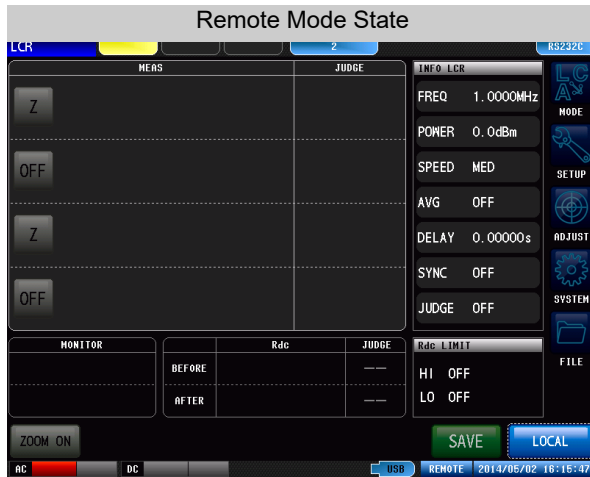
Select the terminator setting.

CR+LF	CR+LF
CR	CR

4 Press **EXIT** to confirm the setting.

5.6 Remote Mode

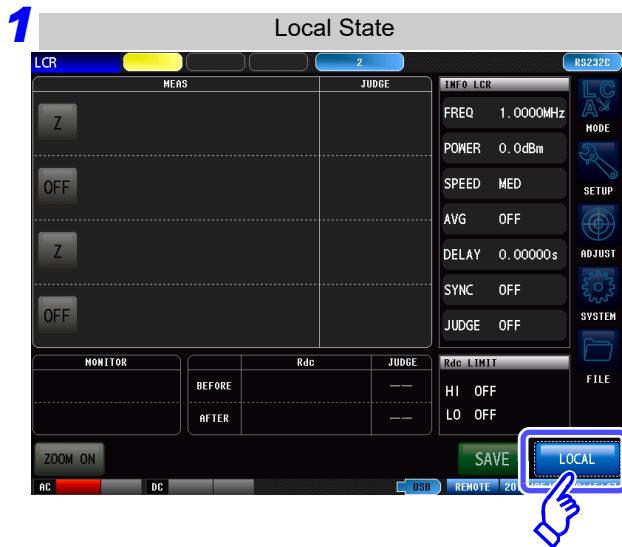
When you connect a device to an interface and start communication, the mode becomes remote mode (remote operation state) and the keys on the LCD are disabled.



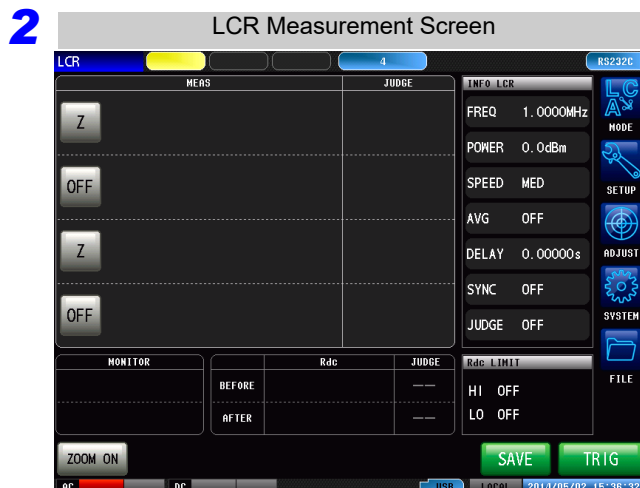
All of the keys except **LOCAL** are disabled.

Canceling Remote Mode

Procedure



Press **LOCAL** to return to the normal state (local state).



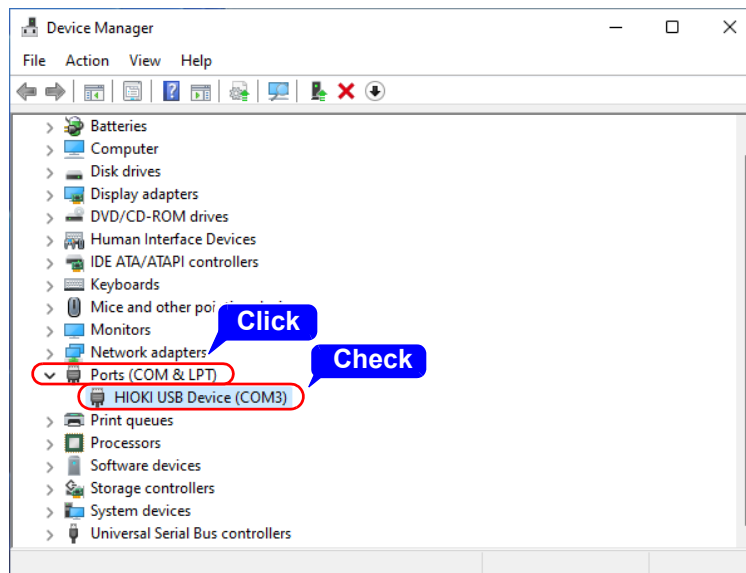
The measurement screen is redisplayed.

Appendix

Appendix 1 Checking the USB Virtual COM Port

The instrument's USB interface supports communications-class performance, allowing control operations on par with RS-232C to be performed from a computer. When you connect the instrument to a computer and set its interface to USB, it will be recognized as a virtual COM port on the computer.

Device Manager starts.



Check the COM number on the right of “HIOKI IM3570 Impedance Analyzer” port in the **[Ports (COM & LPT)]** list.

- When the IM3523, IM3523A, IM3533, IM3533-01, IM3590 and IM7580 : Check the COM number to the right of “HIOKI USB Device” in the **[Ports (COM & LPT)]** list.
- When the IM3570 : Check the COM number to the right of “HIOKI IM3570 Impedance Analyzer” in the **[Ports (COM & LPT)]** list.

NOTE

The procedure to start Device Manager differs depending on the version of the Windows operating system.

For details, refer to Help of the operating system.

A2

Appendix 1 Checking the USB Virtual COM Port

HIOKI
www.hioki.com/



**All regional
contact
information**

HIOKI E.E. CORPORATION

81 Koizumi, Ueda, Nagano 386-1192 Japan

2402 EN

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•Contact in Europe: HIOKI EUROPE GmbH

Helfmann-Park 2, 65760 Eschborn, Germany

hioki@hioki.eu