

INSTRUCTION MANUAL

2353-20

LAN MODULE

HIOKI E. E. CORPORATION

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Introduction

Thank you for purchasing the HIOKI "Model 2353-20 LAN MODULE". To obtain maximum performance from the instrument, please read this manual first, and keep it handy for future reference.

Inspection

When you receive the instrument, inspect it carefully to ensure that no damage occurred during shipping. In particular, check the panel switches, and connectors. If damage is evident, or if it fails to operate according to the specifications, contact your dealer or Hioki representative.

Accessory

Instruction manual 1

Option

9642 LAN CABLE

Safety Notes






This instrument is designed to comply with IEC 61010 Safety Standards, and has been thoroughly tested for safety prior to shipment. However, mishandling during use could result in injury or death, as well as damage to the instrument. Be certain that you understand the instructions and precautions in the manual before use. We disclaim any responsibility for accidents or injuries not resulting directly from instrument defects.

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



In the manual, the  symbol indicates particularly important information that the user should read before using the instrument.

The  symbol printed on the instrument indicates that the user should refer to a corresponding topic in the manual (marked with the ) before using the relevant function.



Indicates DC (Direct Current).

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



Indicates that incorrect operation presents an extreme hazard that could result in serious injury or death to the user.



Indicates that incorrect operation presents a significant hazard that could result in serious injury or death to the user.



Indicates that incorrect operation presents a possibility of injury to the user or damage to the instrument.



Indicates advisory items related to performance or correct operation of the instrument.

Other Symbols



Indicates the prohibited action.



Indicates the location of reference information.

Notes on Use



Follow these precautions to ensure safe operation and to obtain the full benefits of the various functions.

CAUTION

Do not allow the instrument to get wet.



Operation and Installation environment.

This instrument should be installed and operated indoors only, between 0 and 50°C and 80% RH or less.

Do not allow the instrument to get wet, and do not take measurements with wet hands.

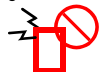
This may cause an electric shock.



Corrosive or combustible gases

Do not use the instrument where it may be exposed to corrosive or combustible gases.

The instrument may be damaged.



Electromagnetic radiation or highly electrically charged object

Do not use the instrument near a source of strong electromagnetic radiation, or near a highly electrically charged object.

These may cause a malfunction.

This instrument is not designed to be entirely water- or dust-proof.



Temperature or humidity

Do not use it in an especially dusty environment, nor where it might be splashed with liquid. This may cause damage.

When the module is used in a dusty environment, place it in a dustproof case and take measures to ensure heat dissipation.



Dust
Direct sunlight

Do not store or use the instrument where it could be exposed to direct sunlight, high temperature or humidity, or condensation.

Under such conditions, the instrument may be damaged and insulation may deteriorate so that it no longer meets specifications.



To avoid damage to the instrument, protect it from physical shock when transporting and handling.

Be especially careful to avoid physical shock from dropping.

Do not obstruct the ventilation holes.

Ventilation holes for heat radiation are provided on the top and rear panels of the instrument. Leave sufficient space around the ventilation holes and install the instrument with the holes unobstructed. Installation of the instrument with the ventilation holes obstructed may cause a malfunction or fire.

When using the instrument in the case, drill ventilation holes.

Drill ventilation holes or install a ventilation fan to prevent heat buildup.

Wiring



- A qualified electrician shall perform the wiring to prevent electric shock.
- Connect the module to a power source that matches the rating in order to prevent fire.
- Ensure that the power supply, input, and output are correctly wired according to the wiring diagram. (See the chapter on "Preparations" in the instructions manual for each module.) This will prevent fire, malfunction, and errors.
- Avoid live-line electrical work to prevent electric shock and accidents due to short-circuiting.

! WARNING

- Use cables of the proper sizes for the rated current. This will prevent entire system errors and fire resulting from broken wire.
- Use crimp connectors suitable for the cable sizes. This will prevent module errors and fire due to broken wires.
- When tightening the screws, confirm that all screws are securely tightened. A loose screw may result in module errors, fire, or electric shock.
- Tighten the screws within the specified torque. Excessive torque may damage the terminals. Inadequate torque may result in module errors, fire, or electric shock.
- Ensure that the power supply module and input are OFF until all wiring work is finished. This will prevent module trouble and electric shock.
- Ensure that the power supply module and input are OFF when connecting or disconnecting the module to the system. This will prevent electric shock, errors, and malfunction.

! CAUTION

- If power supply noise poses a problem, use of a noise filter is recommended.
- Avoid stepping on or pinching cables, which could damage the cable insulation.
- Keep the cables well away from heat sources, as bare conductors could be exposed if the insulation melts.

Preliminary Checks

- Before using the instrument the first time, verify that it operates normally to ensure that no damage occurred during storage or shipping. If you find any damage, contact your dealer or Hioki representative.
- Before using the instrument, make sure that the insulation on the cables is undamaged and that no bare conductors are improperly exposed. Using the product in such conditions could cause an electric shock, so contact your dealer or Hioki representative for repair.

Overview

Chapter 1

1.1 Product Overview

The 2353-20 is the communications module of Hioki "Smart Site" (remote measurement system). This module is used with the power supply module, measurement module, and module base.

This module links the measurement modules with a PC, server, and communications infrastructure, and transfers data.

10BASE-T supports LAN communication.

Number of communications modules connectable to one FA server or a PC	Up to 89 units
Number of measurement modules connectable to one communications module	Up to 63 units



(Conceptual image)

1.2 Major Features

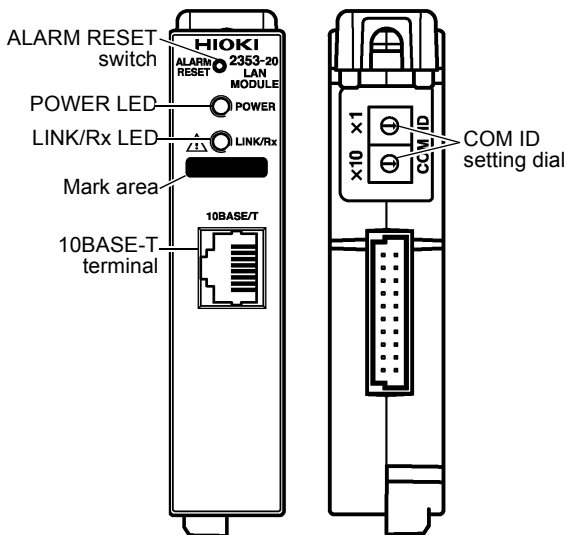
The communication interface supports 10BASE-T. The module lets you record data via LAN communication.

1.3 Name and Function of the Parts



Front

Back



POWER LED Goes on or flashes when power is supplied to the module.
Remains on, flashes, or changes to another color according to the state of the module.

POWER LED indication

Lit in green: Operating normally

Lit in yellow: Alarm output.

Lit in red: Non-recoverable error occurred. *1

Flashing in red: Recoverable error occurred.*2

LINK/Rx LED Remains on, flashes, or changes to another color according to the state of the module.

Lit in green: Linking in progress.

(The LAN cable is properly connected.)

Flashing in yellow: Communicating

Mark area Use this area to make a note of the object to measure or the com ID.
Use an ink pen, since pencil lead may rub off.

10BASE-T terminal The LAN cable connects the terminal and a PC.

ALARM RESET switch This switch cancels alarm output. Hold down the switch for at least one second to cancel the alarm.

COM ID setting dial Use the dial to set the module's identification No.

*1: The module needs repair. Contact your dealer or Hioki representative.

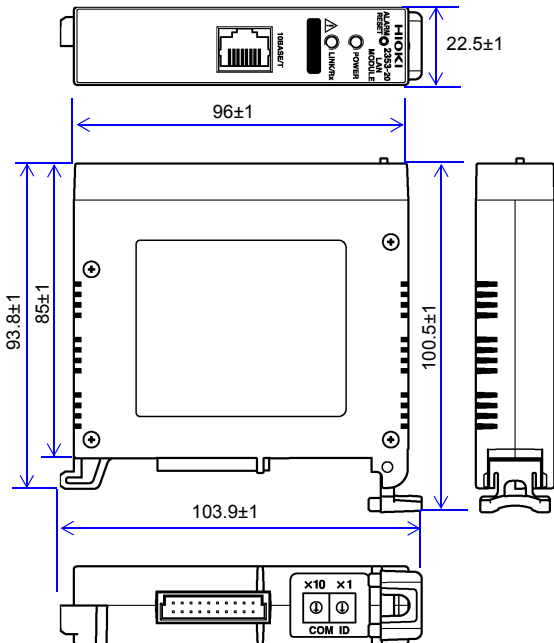
*2: More than one communications module may be connected to one internal bus (CAN bus).

NOTE

The LED starts flashing in yellow when power is turned on. If it does not stop flashing after 20 seconds, check the setting of the CAN termination switch on the 2391 or 2392 series MODULE BASE [**TERMINATION ON/OFF**]. (The switch should normally be set ON. When using the CAN bus, be sure to turn off the switch of the corresponding terminal No.) If the setting is not correct, turn off the power, then correct the setting.

For details, see the 2391 or 2392 series MODULE BASE instruction manual.

1.4 Dimension Diagrams



(Unit: mm)

Settings

Chapter 2

2.1 Setting the COM ID

You can connect up to 89 communications modules to one 2371 FA SERVER unit or a PC.

Setting Procedure

Use the COM ID setting dial to set the ID No. of the module to a number from 01 and to 89. (You cannot set a number other than the above.)

NOTE

- Ensure that the set ID is not used by any other communications module on the system controlled by the same 2371 FA SERVER or PC.
- The ID numbers of modules need not be consecutive.
- Setting the ID to 99, then turning on the power resets all internal settings to the defaults.
- The module ID, COM ID, and IP address are not related and can be set independently.

Preparations

Chapter 3

3.1 Installing the Module

3.1.1 Installing the Module Base

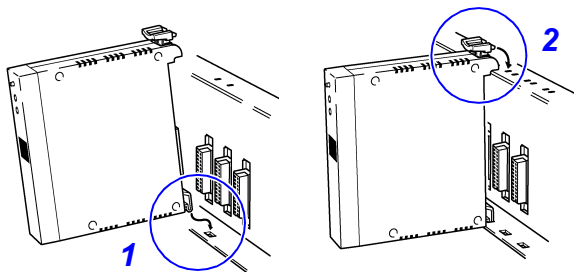


Do not mount the module base on the ceiling where it may fall off.

Fasten the module base to a DIN rail or the wall according to the procedure described in the 2391 or 2392 series MODULE BASE instruction manual.

3.1.2 Mounting a Module on the Module Base

Insert the levers of the module into the module-mounting slots to mount the module as shown below. Ensure that the levers click into position.



3.2 Connecting the LAN Cable

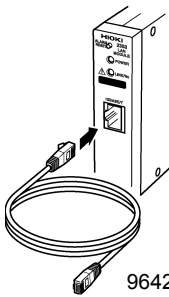


CAUTION Before connecting this server to a hub or PC, make sure that said devices are powered off to prevent internal damage.

Connecting the 2353-20 to a Hub

(When using a 2353-20 module connected to a network)

Use the 9642 LAN CABLE (optional) to connect the 2353-20 to the hub.



9642 LAN CABLE(optional)

Connecting to a Hub

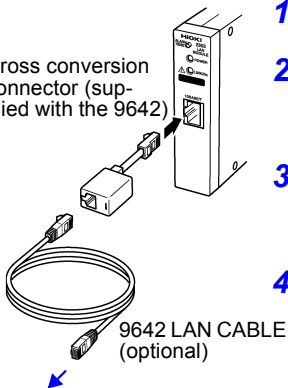
1. Turn off power of the system and hub.
2. Connect the 9642 LAN Cable to 10BASE-T connectors of the 2353-20 and hub.

Connecting the 2353-20 to a PC

(To directly connect the 2353-20 to a PC)

Use the 9642 LAN CABLE (optional) to connect the 2353-20 to a PC.

Cross conversion connector (supplied with the 9642)



9642 LAN CABLE (optional)

Connecting to a PC

1. Turn off power of the system and PC.
2. Connect the 9642 LAN CABLE to the cross conversion connector supplied.
3. Connect the cross conversion connector to the 10BASE-T connector of the 2353-20.
4. Connect the 9642 LAN CABLE to the 10BASE-T connector of the PC.

3.3 Setting the IP Address

The following software is required for setting the IP address.

For details, contacting your dealer or Hioki representative.

- Smart Site Utility
- 9763 Smart Communicator

Installing the software above automatically copies an IP address configuration tool to the PC.

Use the IP address configuration tool to configure the IP address. Refer to the software manual for how to configure the IP address.

NOTE

Contact your network administrator for the setting value of the IP address.

Specifications

Chapter 4

4.1 Basic Specifications

Operation	Enables communications (data acquisition, setting) between a PC and the measurement modules when positioned between both.
External communications interface	LAN IEEE802.3 Ethernet 10BASE-T Connector: RJ-45
Internal communications interface	CAN (Connecting LAN modules to measurement modules) transmission speed of 500 kbps

4.2 Function Specifications

Clock function	RTC is built in (year, month, day, hour, minute, and second). Corrects the internal clock of each measurement module at irregular intervals.
Alarm clear	Clears alarm output of a measurement module, controlled by key operation or communications.
Number of modules to connect	External communications: up to 89 units (Assign a COM ID to each communications module.) Internal communications: up to 63 units (Assign a MODULE ID to each measurement module.)

4.3 General Specifications

Clock accuracy	±30 ppm (Reference value at temperature from 0 to 50°C)
Backup	Clock (uses a lithium battery) Battery life: about 5 years(at 25°C)
Rated supply voltage	5 VDC±0.3 V
Maximum rated power	1.4 W
Dimensions	Approx.22.5W × 96H × 85D mm (sans protrusions) (0.89"W × 3.78"H × 3.35"D)
Mass	Approx.120 g (4.2 oz.)
Accessory	Instruction manual
Option	9642 LAN CABLE (Straight/cross conversion connector provided, 5 m)
Operating temperature and humidity	0 to 50°C (32 to 122°F), 80%RH or less (non-condensating)
Storage temperature and humidity	-10 to 50°C (14 to 122°F), 80%RH or less (non-condensating)
Operating environment	Indoors, altitude up to 2000 m (6562-ft.)
Applicable standards	Safety EN61010-1:2001 Pollution degree 2
	EMC EN61326:1997+A1:1998+A2:2001 Class A

Maintenance and Service

Chapter 5

5.1 Cleaning

To clean the instrument, wipe it gently with a soft cloth moistened with water or mild detergent. Never use solvents such as benzene, alcohol, acetone, ether, ketones, thinners or gasoline, as they can deform and discolor the case.

5.2 Servicing



Never modify the instrument. Only Hioki service engineers should disassemble or repair the instrument. Failure to observe these precautions may result in fire, electric shock, or injury.

- If the instrument seems to be malfunctioning, confirm that the cables are not open circuited before contacting your dealer or Hioki representative.
- When sending the instrument for repair, remove the batteries and pack carefully to prevent damage in transit. Include cushioning material so the instrument cannot move within the package. Be sure to include details of the problem. Hioki cannot be responsible for damage that occurs during shipment.
- When transporting the 2353-20 Module or a system containing this module, tape the front of the module or take similar measures to avoid losing internal components.

5.3 Instrument Disposal

- The instrument contains a built-in backup lithium battery, which offers a service life of about five years. If the date and time deviate substantially when the instrument is switched on, it is the time to replace that battery. Contact your dealer or Hioki representative.

5.3 Instrument Disposal



This instrument contains a lithium battery for system backup.

WARNING

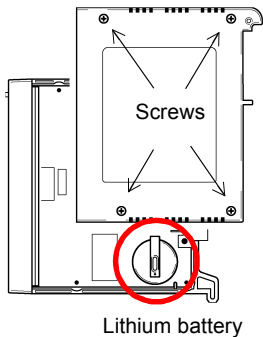
- To avoid electrocution, turn off the power switch of the power supply module and disconnect the power cord and communication cable before removing the lithium battery.
- To avoid the possibility of explosion, do not short circuit, disassemble or incinerate batteries.

CAUTION

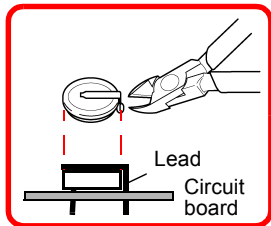
When disposing of this instrument, remove the lithium battery and dispose of battery and instrument in accordance with local regulations.

Required tools

- Phillips screwdriver 1
- Wire cutter 1



1. Remove the four screws fastening the lower case.
2. Use a wire cutter to cut off the two leads of the lithium button battery contained in the corner of the circuit board.



HIOKI

DECLARATION OF CONFORMITY

Manufacturer's Name: HIOKI E.E. CORPORATION
Manufacturer's Address: 81 Koizumi, Ueda, Nagano 386-1192, Japan
Product Name: LAN MODULE
Model Number: 2353-20
Option: 9642 LAN CABLE

The above mentioned products conform to the following product specifications:

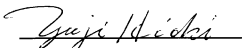
Safety: EN61010-1:2001
EMC: EN61326:1997+A1:1998+A2:2001
Class A equipment
Equipment intended for use in industrial location

Supplementary Information:

The product herewith complies with the requirements of the Low Voltage Directive 73/23/EEC and the EMC Directive 89/336/EEC.

16 July 2004

HIOKI E.E. CORPORATION



Yuji Hioki
President

2353A999-00

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- All reasonable care has been taken in the production of this manual, but if you find any points which are unclear or in error, please contact your supplier or the International Sales and Marketing Department at HIOKI headquarters.
 - In the interests of product development, the contents of this manual are subject to revision without prior notice.
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