

H Series MICRO-EH Ethernet Option Board Instruction manual

Thank you for purchasing a Hitachi Programmable Logic Controller.

To operate it safely, please read this instruction manual and all the user manuals carefully. Please be sure to use the latest versions of user manuals and keep them at hand of end users for future reference.

Caution

1. All rights reserved.
2. The content of this manual may be changed without notice.
3. While efforts have been made on this manual to be accurate, please contact us if any mistake or unclear part is found.

Warranty period and coverage

The warranty period is within 18 months after manufacturing date (MFG No) or 12 months after installation.

Examination and repair within the warranty period is covered. However within the warranty period, the warranty will be void if the fault is due to;

- (1) Incorrect use from instructed in this manual and the application manual.
- (2) Malfunction or failure of external other devices than this unit.
- (3) Attempted repair by unauthorized personnel.
- (4) Natural disasters.

The warranty is for the PLC only, any damage caused to third party equipment by malfunction of the PLC is not covered by the warranty.

Repair

Any examination or repair after the warranty period is not covered. A within the warranty period any repair and examination which results in information showing the fault was caused by any of the items mentioned above, the repair and examination cost are not covered. If you have any questions regarding the warranty or repair cost, please contact your supplier or the local Hitachi Distributor. (Depending on failure part, repair might be impossible.)

Ordering spare parts and inquiries

Please contact your local suppliers for ordering products/spare parts or any inquires with providing the following information.

- (1) Product name
- (2) Manufacturing number (MFG No.)
- (3) Details of failure

Reference manual

Read the following application manuals carefully depend on series to use the PLC safely and properly. Be sure to keep the latest version.

Manual name	Manual No.
MICRO-EH APPLICATION MANUAL	NJI-350*(X)
MICRO-EH BASIC UNIT (20-point, 40-point, 64-point type) APPLICATION MANUAL	NJI-465*(X)

*: The alphabet between 350 and (X) means a version. The first edition is a space. And this is modified without notice.

Name	Type
APPLICATION MANUALS	CDM-PLC

(Also other instruction manuals and application manuals of Hitachi PLC are included.)

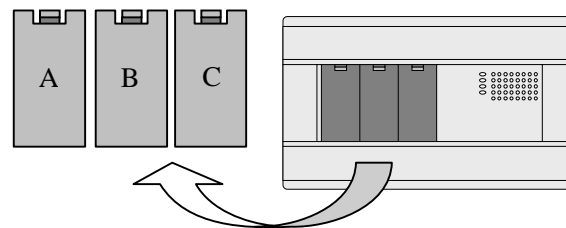
Installation



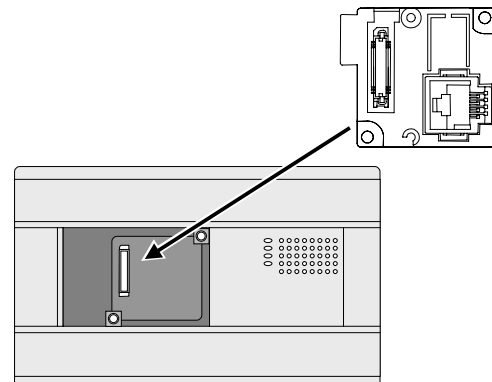
CAUTION

- Do not attach and detach an option board with power applied to MICRO-EH. Otherwise, there is a danger of breakdown and/or malfunction.

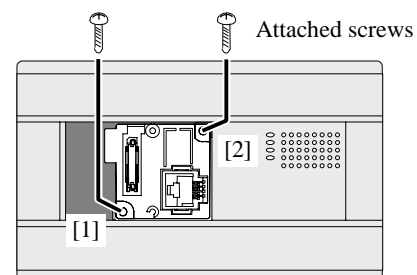
- (1) Remove the cover A, B, and C from a basic unit.



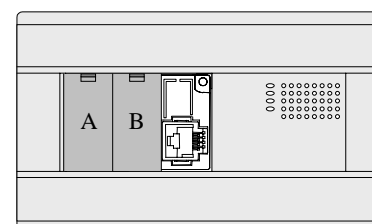
- (2) Insert a connector on the back of EH-OBETH into a connector on a basic unit as shown.



- (3) Attached screws fixate an option board to a basic unit. Screw position is [1] and [2] in EH-OBETH.

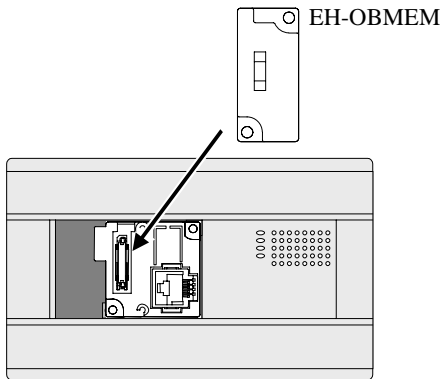


- (4) Attach the cover A and B.

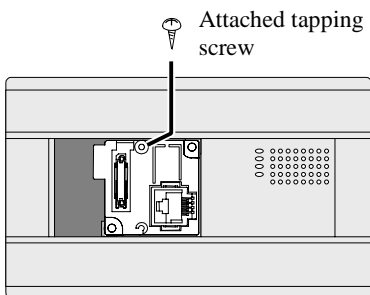


■ Installing EH-OBMEM on communication board

- (1) After fixing a communication board by screws, insert a connector on the back of EH-OBMEM into a connector on the front of the communication board.



- (2) Fix EH-OBMEM to the option board by attached tapping screw.

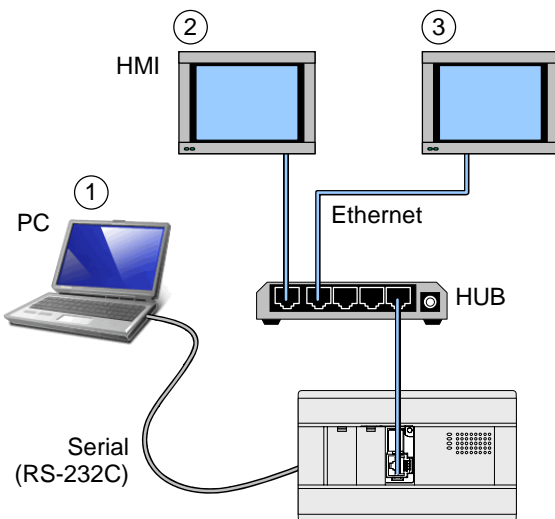


- (3) Attach the cover A.

Features

EH-OBETH is an option board to convert Serial to Ethernet. This allows to communicate with MICRO-EH over Ethernet network using H-Protocol.

Since EH-OBETH has 2 logical ports, in total 3 communication lines are available in MICRO-EH (RS232C + 2 Ethernets)



Basic specifications

Item	Specifications
Ethernet standard	Conforms to IEEE802.3
Transmission modulation method	Baseband
Medium access method	CSMA/CD
Protocol	TCP/IP, UDP/IP
Transmission speed	10 / 100 Mbps (Auto negotiation)
Max. cable length to HUB	100 (m)
Cable	Category 5 UTP or STP cable

Communication specifications

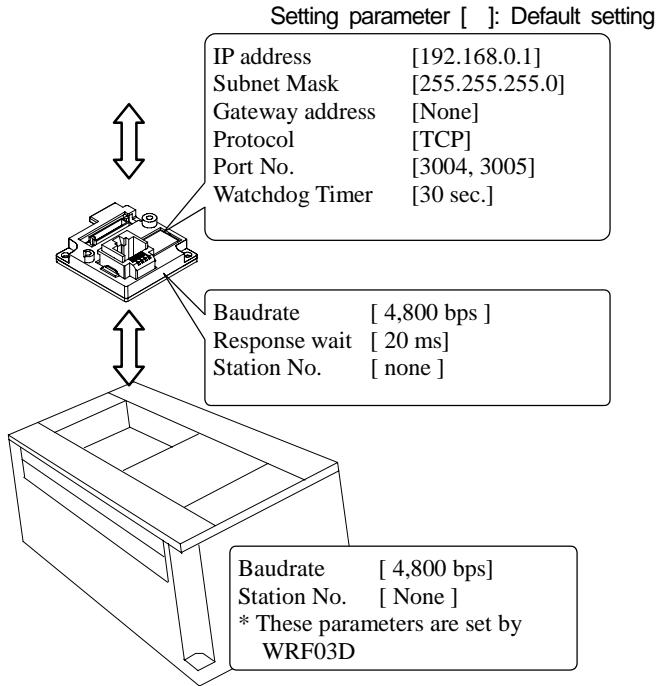
Item	Specifications
Communication protocol	H-Protocol (task code communication)
Number of connections	2 connections
Connection mode	Undesignated IP, Passive
Watchdog timer	1 to 65,535 seconds

Name of each part

Appearance
<ul style="list-style-type: none"> [2] LINK (orange) [2] ACTIVITY (green) [2] STATUS (red)
<p>[1] Connection port RJ-45 type connector Connect Category 5 UTP or STP cable.</p>
<p>[2] Status display LED Each LED displays the status of Ethernet communication individually.</p> <p>LINK : On (orange) when connecting by cable to HUB or communication device.</p> <p>ACTIVITY : On (green) during communication.</p> <p>STATUS : Not used</p>
<p>[3] Memory board connector Connector for a memory board.</p>
<p>[4] Connector for basic unit Connector to mount on a basic unit (located on the back side).</p>
<p>[5] Mounting hole Use M3 screw to fix.</p>

Setting of communication parameters

Web browser is used to set the communication parameters.



Communication setting

Be sure to set communication parameters for both EH-OBETH and a basic unit. Communication parameters of a basic unit are set in special internal output WRF03D.

	15	12	11	8	7	0
WRF03D	a	b	c	d	e	

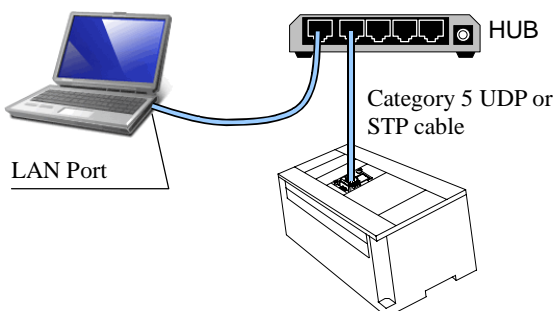
Field	Content
a	0 : Setting completed, 1 : Setting change request
b	0 : Transmission control procedure 1 1 : Transmission control procedure 2
c	0 : Without station number, 1 : With station number
d	Transmission speed H0 : 4800bps H1 : 9600bps H2 : 19.2kbps H3 : 38.4kbps Other than above : 4,800bps
e	Station number (Set by BCD)

Ex) Transmission control procedure 1, 38.4kbps, Without station number
 WRF03D = H8300

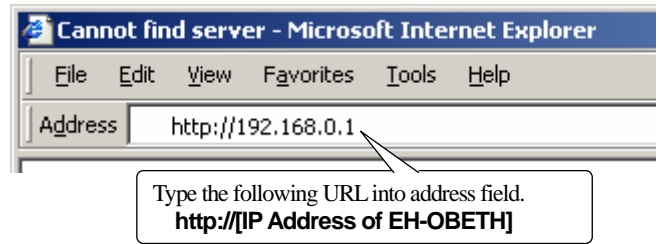
If basic unit complete the setting, setting value is changed as below .
 H8300 → H0300

In addition, the serial communication on EH-OBETH supports the “transmission control procedure 1”. Be sure to set transmission control procedure 1 in a basic unit.

(1) Connect EH-OBETH to PC



(2) Start web browser on PC and type the URL



(3) Enter user name and account

The following window to login appears. Enter user name and password.



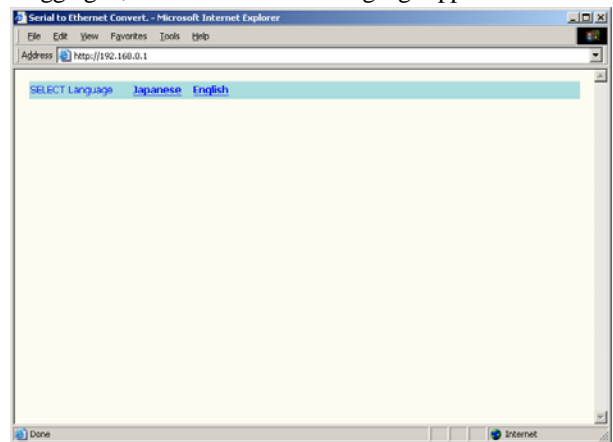
Default setting

User Name: root (fixed)

Password: (none)

(4) Language choice

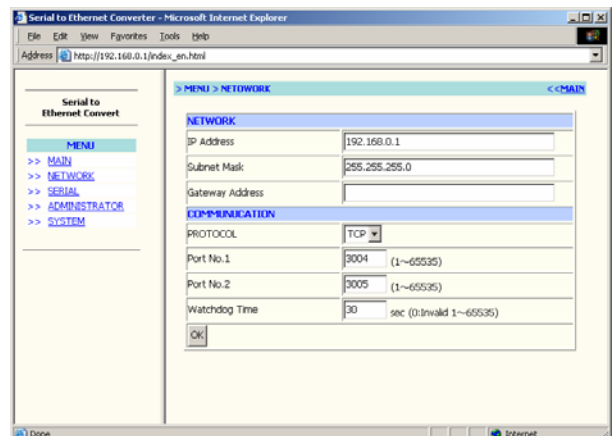
After logging in, a window to choose language appears.



Choose your language.

(5) Network setting (setting between host and Ethernet port)

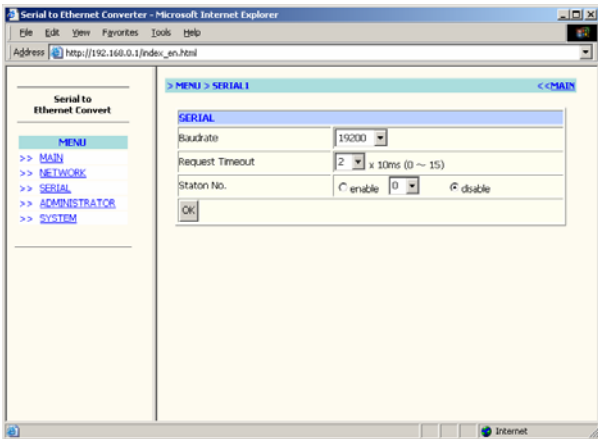
Choose “NETWORK” in the menu in the left side on the screen.



Click the OK after entering the required parameters.

(6) Port setting (between communication board and basic unit)

Choose "SERIAL" in the menu in the left side on the screen.



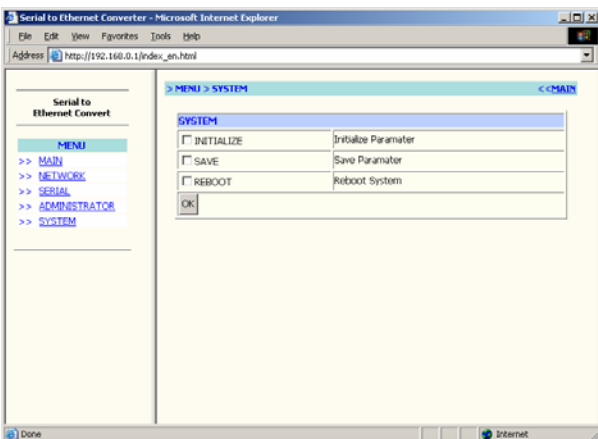
Click the OK after entering the required parameters.

i Port setting

Request Timeout is waiting time to respond. Use the default value (20ms) in normal use.

(7) Saving the setting information

Choose "SYSTEM" in the menu in the left side on the screen. Check the box of SAVE and then click the OK.



(8) Rebooting the option board

Rebooting EH-OBETH is required to enable the settings. Check the box of REBOOT and click the OK or restore power to the basic unit.

Convenient functions

(1) Password protection for communication parameters
 Password can be set in "ADMINISTRATOR" menu to protect communication parameters. Up to 20 alphanumeric characters can be set.
 [Notice]

Do not forget your password. If the password is lost, it is impossible to change communication setting.

(2) If IP address is unknown

If the settings of serial communication of EH-OBETH is matched with basic unit, IP address and MAC address can be monitored in special internal outputs shown below.

Special internal output	Meaning
WRF1A9	IP address (1st byte)
WRF1AA	IP address (2nd byte)
WRF1AB	IP address (3rd byte)
WRF1AC	IP address (4th byte)
WRF1AD	MAC address (1st and 2nd bytes)
WRF1AE	MAC address (3rd and 4th bytes)
WRF1AF	MAC address (5th and 6th bytes)

IP Address 192 . 168 . 0 . 1
 WRF1A9 WRF1AA WRF1AB WRF1AC
 MAC Address XX - XX - XX - XX - XX - XX
 WRF1AD WRF1AE WRF1AF

i Value of special internal output

Above special internal outputs are set once at start up of EH-OBETH. In ROM version 1.50 or older MICRO-EH, if retentive area is cleared or CPU is initialized, above values are cleared to 0.

Basic units supporting EH-OBETH

EH-OBETH can be used with following basic units.

Basic units supporting EH-OBETH	
64 points type	Hardware Rev. 1.10 or later (MFG No. 05Gxx or later)
40 points type	
20 points type	
Other than above	EH-OBETH is not supported.

	CAUTION
- If EH-OBETH is used with unsupported MICRO-EH, the system might be unstable due to power short.	