

HITACHI PROGRAMMABLE CONTROLLER

EH-150

**PROFIBUS Slave Controller 2
(EH-IOCP2)
APPLICATION MANUAL
(SERVICE MANUAL)**

NJI-612A(X)

○ Warranty period and coverage

The warranty period is the shorter period either 18 months from the date of manufacture or 12 months from the date of installation.

However within the warranty period, the warranty will be void if the fault is due to;

- (1) Incorrect use as directed 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. And 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 please contact with your supplier or the local Hitachi Distributor. (Depending on failure part, examination might be impossible.)

○ Ordering parts or asking questions

When contacting us for repair, ordering parts or inquiring about other items, please have the following details ready before contacting the place of purchase.

- (1) Model
- (2) Manufacturing number (MFG.No.)
- (3) Details of the malfunction

○ Reader of this manual

This manual is described for the following person.

- Person considering the introduction of PLC
- PLC system engineer
- Person handling PLC
- Manager after installing PLC

Warning

- (1) Reproduction of the contents of this manual, in whole or in part, without written permission of Hitachi-IES, is prohibited.
- (2) The content of this document may be changed without notice.
- (3) While efforts have been made to be accurate, if any wrong or missing information is found, please contact us.

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Safety Precautions

Read this manual and related documents thoroughly before installing, operating, performing preventive maintenance or performing inspection, and be sure to use the unit correctly. Use this product after acquiring adequate knowledge of the unit, all safety information, and all cautionary information. Also, make sure this manual enters the possession of the chief person in charge of safety maintenance.

Safety caution items are classified as “Danger” and “Caution” in this document.



: Identifies information about practice or circumstances, which may lead to personal injury or death, property damage, or economic loss.



: Identifies information about practice or circumstances, which may lead to personal injury, property damage, or economic loss.

However, depending on the circumstances, items marked with



may result in major accidents.

The both marks show important information. Be sure to follow the instructions.

Icons for prohibited items and required items are shown below:



: Identifies prohibition. For example, when open flames are prohibited,



is indicated.



: Identifies requirement. For example, when grounding must be performed,



is indicated.

1. Installation

CAUTION

- Use this product in an environment as described in the catalog or this document.
If this product is used in an environment subject to high temperature, high humidity, excessive dust, corrosive gases, vibration or shock, it may result in electric shock, fire or malfunction.
- Be sure to install the PLC according to this manual. Failure to do so could result in damage by falling off, failure or malfunction.
- Do not allow foreign objects such as wire chips to enter the unit.
They may become the cause of fire, malfunction or failure.

2. Wiring

REQUIRED

- The PLC must be grounded (FE terminal).
Failure to do so could result in injury to personnel or causing it to malfunction.

CAUTION

- Always use the power supply voltage listed in specifications. Using other voltage may damage the equipment or present a risk of fire.
- The wiring operation should be performed by a qualified personnel.
Failure to do so could result in fire, damage or electric shock.

3. Precautions when using the unit

DANGER

- Do not touch the terminals while the power is on.
There is a risk of electric shock.
- Appropriate emergency stop circuit, interlock circuitry and similar safety measures should be added to the PLC system to ensure safety in the event of incorrect, missing or abnormal signals caused by broken signal lines, momentary power interruptions or other causes. Do not share the power supply of relay output module and interlock circuitry because relay output might not work properly due to switching noise from interlock circuitry.

CAUTION

- When performing program change, forced output, RUN, STOP, etc., while the unit is running, be sure to check system safety carefully. Failure to do so could lead to damage to equipment.
- Supply power according to the power-up order.
Failure to do so could lead to damage to equipment or malfunction.


CAUTION

USE POWER SUPPLY UNIT OF EH-PS SERIES FOR SUPPLYING ELECTRIC POWER.

4. Preventive maintenance

 **DANGER**

- Do not connect the +/- of the battery in reverse polarity. Do not recharge, disassemble, heat, place in fire, or short circuit the battery. There is a risk of explosion or fire.

 **PROHIBITED**

- Do not attempt to disassemble, repair or modify any part of the PLC.
Electric shock, malfunction or failure may result.

 **CAUTION**

- Turn off power to the PLC before mounting or dismantling the module
Electric shock, malfunction or failure may result.

Revision History

No.	Description of revision	Date of revision	Manual number
1	The first edition	Apr. 2014	NJI-612(X)
2	Output hold function added I/O points were expanded	Oct. 2014	NJI-612A(X)

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Chapter 1 Introduction

1.1 Before use

Thank you very much for choosing Hitachi Programmable Controller (hereinafter referred to as PLC), EH-150 series. This manual explains how to use the PROFIBUS-DP slave controller 2 with the Hitachi EH-150 series Programmable Controller. Read this manual thoroughly and keep for installation operations, maintenance checks and other procedures. The following documentation related to PLC is also available and should be used together with this manual.

Table 1.1-1 List of Description materials

Items		Title of document	Manual number
EHV+ series	Main system of EHV+	IEC 61131-3 Compliant PLC EHV+ APPLICATION MANUAL	NJI-564*(X)
EHV series	Main system of EHV	EH-150 EHV-CPU APPLICATION MANUAL EH-150 EHV-CPU PROGRAMMING MANUAL	NJI-481*(X) NJI-482*(X)
	Programming software (Standard edition)	EH-150 EHV series Ladder Programming software Control Editor INSTRUCTION MANUAL	NJI-537*(X)
	Programming software (Variable Name Edition)	EH-150 EHV series Ladder Programming software Control Editor INSTRUCTION MANUAL	NJI-486*(X)
EH-150 series	Main system of EH-150	EH-150 APPLICATION MANUAL	NJI-280*(X)
	Programming software	LADDER EDITOR for Windows® INSTRUCTION MANUAL	NJI-206*(X)

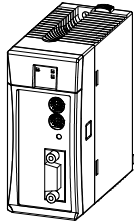
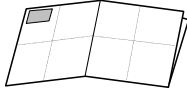
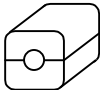
* The alphabet between the number and (X) means version (A,B...) and the space means the first edition.

1.2 Item packaged with the module

Great care has been taken in the manufacture of this product, but we advise that the following points are checked immediately after purchase.

1. Is the model the same one that you ordered?
2. Has the product been damaged in any way?
3. Are any of the accessories listed in Table 1.2-1 missing?

Table 1.2-1 List of accessories supplied with the EH-IOCP2

No.	Product name	Model name	Appearance	Quantity	Remarks
1	PROFIBUS Slave controller 2	EH-IOCP2		1	
2	Instruction manual	NJI-610*(X)		1	
3	Ferrite Core	SFC-10		2	For applying CE marking (EMC direction). Please refer to 3.3 Wiring.

1.3 System configurations

EH-IOCP2 is slave controller on PROFIBUS-DP protocol of industrial network. EH-IOCP2 is helpful as I/O controller of PROFIBUS system. Example of system configuration is shown below.

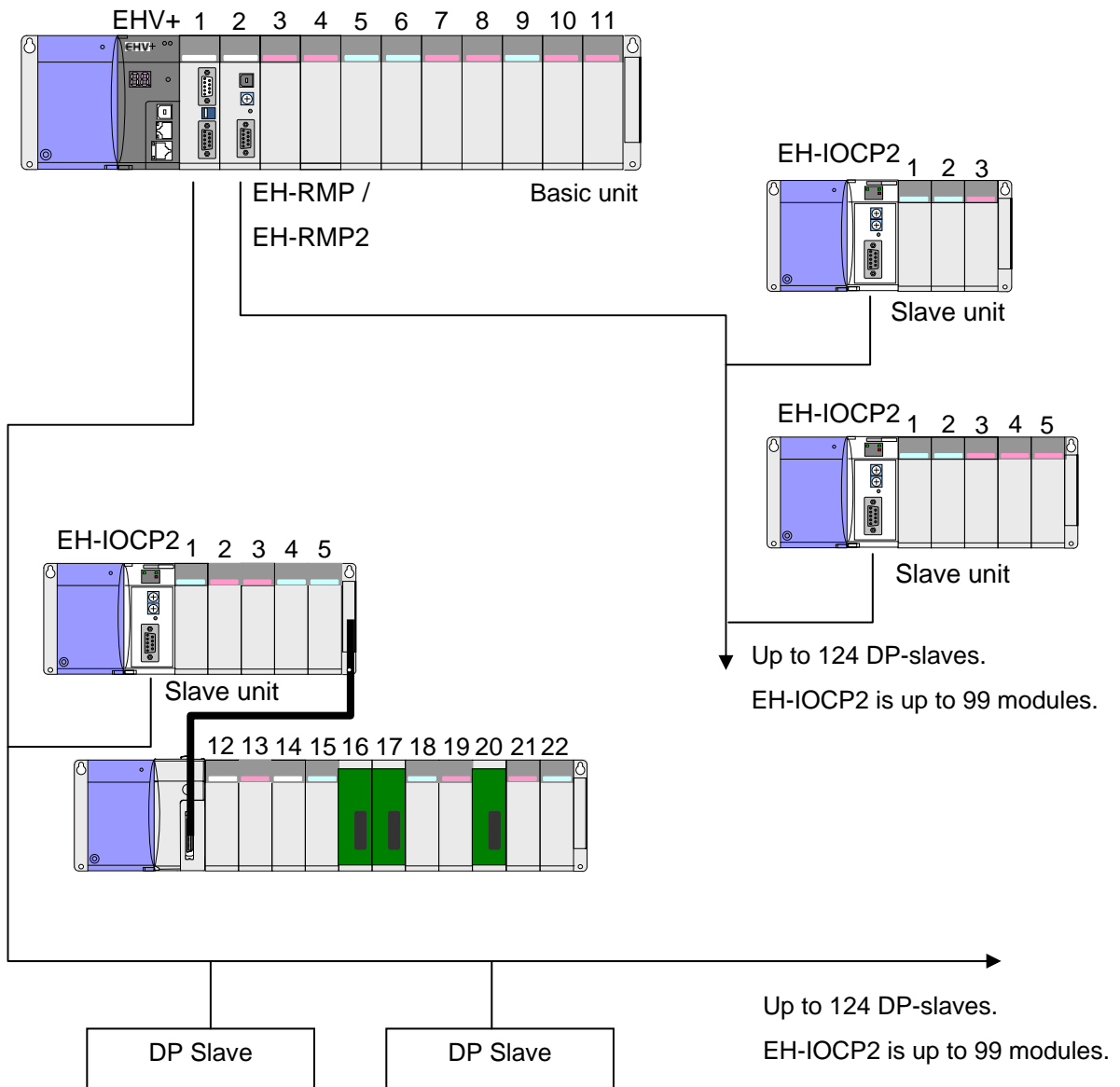


Figure 1.3-1 Example of system configurations

1.4 Feature

(1) Full compatible with EH-IOCP

EH-IOCP2 supports compatible mode with EH-IOCP to replace without re-configuration of PROFIBUS master.

(2) Byte swap function

EH-IOCP2 supports byte swap function, which can swap all I/O data by byte. If a master unit using opposite byte order is connected, no need to swap data in your application program.

(3) Maximum number of I/O expanded to 1,408 points

Since 11-slot base unit has been newly supported, EH-IOCP2 up to 1,408 digital I/O or 176 analog I/O are controlled, which enables EH-IOCP2 to be used large-scale control system.

1.5 Difference between EH-IOCP2 and EH-IOCP

There are some differences between EH-IOCP2 and EH-IOCP.

(1) Rotary switch position

EH-IOCP: The ones place is upper rotary switch. The tenths place is lower rotary switch.

EH-IOCP2: The ones place is lower rotary switch. The tenths place is upper rotary switch.

(2) Name of output hold function

EH-IOCP: Freeze mode

EH-IOCP2: Output hold function

(3) Bus termination

EH-IOCP: Supported

EH-IOCP2: Not Supported (This function will not be added. Please use a connector which has a termination switch.)



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Chapter 2 Specifications

2.1 General Specifications

General specifications are shown in Table 2.1-1. These specifications are common in EH-150 series.

Table 2.1-1 General specifications

Item	Specifications
Operating ambient temperature	0 to 55 °C
Storage ambient temperature	− 10 to 75 °C
Operating ambient humidity	5 to 95 % RH (no condensation)
Storage ambient humidity	5 to 95 % RH (no condensation)
Vibration resistance	Conforms to IEC 60068-2-6
Noise resistance	<ul style="list-style-type: none">○ Noise voltage 1,500 Vpp Noise pulse width 100 ns, 1μ (Noise created by the noise simulator is applied across the power supply modules input terminals. This is determined by this company's measuring method.)○ Based on IEC61131-2○ Static noise: 3,000V at metal exposed area
Insulation resistance	20 MΩ or more between the AC external and case ground (FE) terminal (based on 500 V DC)
Dielectric withstand voltage	1,500 V AC for 1 minute between the AC external terminal and case ground (FE) terminal
Grounding	Class D grounding (ground with power supply module)
Usage environment	No corrosive gases, no excessive dust
Structure	Open, wall-mount type
Cooling	Natural air cooling

2.2 Functional Specifications

Functional specifications are shown in Table 2.2-1.

Table 2.2-1 Functional specifications

Item	Specifications			
	EH-IOCP2 (This product)		EH-IOCP (Existing model)	
	Standard mode	EH-IOCP compatible mode		
Communication specifications	Communication protocol	PROFIBUS-DP V0		
	Range of node address	0 to 99: Setting by rotary switch		
	Maximum I/O size	Input: 244 bytes, output: 244 bytes*2		
	Connector	D-sub 9 pin		
	Topology	BUS		
	Communication cable	PROFIBUS cable		
	Segment length,	9.6	kbps	: 1,200 m
	Transmit speed	19.2	kbps	: 1,200 m
		93.75	kbps	: 1,200 m
		187.5	kbps	: 1,000 m
		500	kbps	: 400 m
		1500	kbps	: 200 m
		3	Mbps	: 100 m
		6	Mbps	: 100 m
	12	Mbps	: 100 m	
Output hold	Supported*3			
Data swap	Supported		Not supported	
Termination	Not built-in		Built-in	
GSD file	HITA0E64.GSD	HITA049D.GSD		
Functional specifications	Support base unit	EH-BS3 / 5 / 8 / 3A / 5A / 6A / 8A / 11A / 8R	EH-BS3 / 5 / 8 / 3A / 5A / 6A / 8A	
	Number of modules	22 modules / EH-IOCP2	16 modules / EH-IOCP(2)	
	Number of I/O points	1,408 points: Digital I/O 176 ch : Analog I/O*2	1,024 points: Digital I/O, 128 ch : Analog I/O	
	Expansion unit	1 (use by EH-IOC, EH-IOCH and EH-IOCH2)		
	Refresh time	500 μs		5 ms
	Self-check	WDT check		WDT check System memory check
	Error indication	LED		
	Current consumption	350 mA		600 mA
	Standard compliant	CE, C-Tick*1		UL, CE, C-Tick

*1 UL is not supported. Contact your local supplier for further information.

*2 Each I/O size of EH-IOCP2 is expanded from 128 bytes to 244 bytes by software version 0014 or newer.

*3 The output hold function of EH-IOCP2 is supported by software version 0014 or newer.



CAUTION

EH-IOCP2 supports digital I/O modules, Analog I/O modules (incl. RTD and Thermocouple), counter modules and positioning modules only. Note that the others are not supported. Do not use unsupported modules with EH-IOCP2.

For information on the GSD files for EH-IOCP2, contact your local supplier.

2.2.1 EH-IOCP2 supported modules

EH-IOCP2 supported modules and units are shown in Table 2.2.1-1, 2. Shaded modules and units had ceased in production. I/O Assignment symbols mean I/O type on the PROFIBUS-DP network.

Table 2.2.1-1 supported modules (1 / 2)

Product name	Model name	Specifications	Supported	I/O Assignment symbol
Power module	EH-PSA	Input 100 to 240 V AC, Output 5V DC 3.8A, 24V DC, 0.4A	○	—
	EH-PSD	Input 21.6 to 26.4 V DC, Output 5 V DC 3.8 A	○	—
	EH-PSR	Redundant power supply, Input 100 to 240 V AC, Output 5 V DC 5.6 A, (up to 45 deg ambient temp)	○	—
Base unit	EH-BS3A	3 I/O modules installed	○	—
	EH-BS5A	5 I/O modules installed	○	—
	EH-BS6A	6 I/O modules installed	○	—
	EH-BS8A	8 I/O modules installed	○	—
	EH-BS11A	11 I/O modules installed	○	—
	EH-BS8R	Redundant power supply, 8 I/O modules installed	○	—
	EH-BS3	3 I/O modules installed	○	—
	EH-BS5	5 I/O modules installed	○	—
	EH-BS8	8 I/O modules installed	○	—
Input and output controller	EH-IOC	Input and output control module (1 unit/1expansion)	○	—
	EH-IOCH	Input and output control module (1 unit/1expansion)	○	—
	EH-IOCH2	Input and output control module (1 unit/1expansion)	○	—
Digital input module	EH-XD8	8 points, 24 V DC input	○	X16
	EH-XD16	16 points, 24 V DC input	○	X16
	EH-XDL16	16 points, 24 V DC input, Intensified filter	○	X16
	EH-XDS16	16 points, 24 V DC input, Fast input	○	X16
	EH-XD32	32 points, 24 V DC input	○	X32
	EH-XDL32	32 points, 24 V DC input, Intensified filter	○	X32
	EH-XDS32	32 points, 24 V DC input, Fast input	○	X32
	EH-XD32E	32 points, 24 V DC input, Spring type terminal block	○	X32
	EH-XDL32E	32 points, 24 V DC input, Spring type terminal block, Intensified filter	○	X32
	EH-XD32H	32 points, 24 V DC input, Connector compatible with EM/H-200 series	○	X32
	EX-XD64	64 points, 24 V DC input	○	X64
	EH-XA16	16 points, 100 to 120 V AC input	○	X16
	EH-XAH16	16 points, 200 to 240 V AC input	○	X16
Digital output module	EH-YR8B	8 points, relay output (isolated contact point), 100/240 V AC, 24 V DC	○	Y16
	EH-YR12	12 points, relay output, 100/240 V AC, 24 V DC	○	Y16
	EH-YR16	16 points, relay output, 100/240 V AC, 24 V DC, 16 points/1 common	○	Y16
	EH-YR16D	16 points, relay output, 100/240 V AC, 24 V DC, 8 points/1 common	○	Y16
	EH-YT8	8 points, transistor output, 12/24 V DC (sink type)	○	Y16
	EH-YTP8	8 points, transistor output, 12/24 V DC (source type)	○	Y16
	EH-YT16	16 points, transistor output, 12/24 V DC (sink type)	○	Y16
	EH-YTP16	16 points, transistor output, 12/24 V DC (source type)	○	Y16
	EH-YTP16S	16 points, transistor output, 12/24 V DC (source type)	○	Y16
	EH-YT32	32 points, transistor output, 12/24 V DC (sink type)	○	Y32
	EH-YTP32	32 points, transistor output, 12/24 V DC (source type)	○	Y32
	EH-YT32E	32 points, transistor output, 12/24 V DC (sink type), Spring terminal block	○	Y32
	EH-YTP32E	32 points, transistor output, 12/24 V DC (source type), Spring terminal block	○	Y32
	EH-YT32H	32 points, transistor output, 5/12/24 V DC (sink type), Connector compatible with EM/H-200 series	○	Y32
	EH-YT64	64 points, transistor output, 12/24 V DC (sink type)	○	Y64
	EH-YTP64	64 points, transistor output, 12/24 V DC (source type)	○	Y64
EH-YS4	4 points, triac output, 100/240 V AC	○	Y16	
EH-YS16	16 points, triac output, 100/240 V AC	○	Y16	

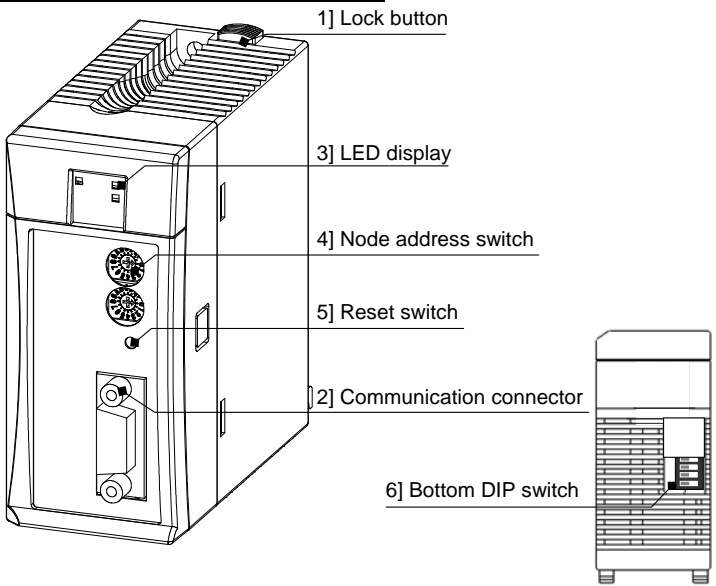
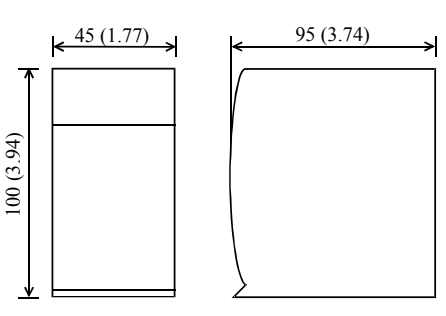
Table 2.2.1-2 supported modules (2 / 2)

Product name	Model name	Specifications	Supported	I/O Assignment symbol
TTL I/O module	EH-MTT32	16 points TTL output, 16 points TTL input, 4 to 27V DC	○	B1_1
Analog input module	EH-AX44	12 bits analog input (4 to 20mA, 0 to 10 V) each 4 ch.	○	X8W
	EH-AX8V	12 bits analog input 8 ch., Voltage (0 to +10 V)	○	X8W
	EH-AX8H	12 bits analog input 8 ch., Voltage (-10 to +10 V)	○	X8W
	EH-AX8I	12 bits analog input 8 ch., Current (4 to 20 mA)	○	X8W
	EH-AX8IO	12 bits analog input 8 ch., Current (0 to 22 mA)	○	X8W
	EH-AXH8M	14 bits analog input (0 to 22mA, 4 to 22mA, -10 to +10V, 0 to 10V) 8 ch.	○	X8W
	EH-AXG5M	Isolated analog input (0 to 22mA, 4 to 22mA, -10 to +10V, 0 to 10V) 5 ch.	○	X8W
Analog output module	EH-AY22	12 bits analog output (4 to 20mA, 0 to 10 V) each 2 ch.	○	Y8W
	EH-AY2H	12 bits analog output 2 ch., Voltage (-10 to +10 V)	○	Y8W
	EH-AY4V	12 bits analog output 4 ch., Voltage (0 to +10 V)	○	Y8W
	EH-AY4H	12 bits analog output 4ch., Voltage (-10 to +10 V)	○	Y8W
	EH-AY4I	12 bits analog output 4 ch., Current (4 to 20 mA)	○	Y8W
	EH-AYH8M	14 bits analog output (0 to 22mA, 4 to 22mA, 0 to 10V) 8 ch.	○	Y8W
	EH-AYG4M	Isolated analog output (0 to 22mA, 4 to 22mA, -10 to +10V, 0 to 10V) 4 ch.	○	Y8W
Resistance bulb input module	EH-PT4	4 channels resistance bulb input, Signed 15 bits Platinum (Pt 100Ω / Pt 1000Ω)	○	X4W
	EH-RTD8	6 / 8 channels resistance bulb input, Signed 15 bits Platinum (Pt 100Ω / Pt 1000Ω)	○	X4W / X8W
Thermocouple input module	EH-TC8	Signed 15 bits, Thermocouple input (K, E, J, T, B, R, S, N) 8 points	○	X8W
Counter module	EH-CU	2 channels high-speed counter input, Maximum frequency of 100 kHz, 1/ 2-phases switchover, 4-point opened collector output	○	X5Y3W
	EH-CUE	1 channel high-speed counter input, Maximum frequency of 100 kHz, 1 /2-phases switchover, 2-point opened collector output	○	X5Y3W
Positioning module	EH-POS	1-axis pulse positioning module	○	X4Y4W
	EH-POS4	4-axes pulse positioning module	×	X4Y4W
Communication and network module	EH-SIO	Serial communication module, RS-232C / RS-422 / RS-485 general-purpose, Modbus protocol, Hi-Protocol, Simple data link	×	—
	EH-ETH	Ethernet module IEEE802.3 standard, 10BASE-T	×	—
	EH-ETH2	Ethernet module IEEE802.3 standard, 10BASE-T/ 100BASE-TX (Auto negotiation)	×	—
	EH-LNK	CPU link module (coaxial)	×	—
	EH-OLNK	CPU link module (optical fiber)	×	—
	EH-OLNKG	CPU link module (support optical fiber GI50/125μm cable)	×	—
	EH-OLNKE	CPU link module (support optical fiber GI62.5/125μm cable)	×	—
	EH-TRMME	Compact remote master module, Twisted pair cable	×	—
	EH-TRMLE	Compact remote slave module, Twisted pair cable	×	—
	EH-TRME2	Compact remote 2 master module, Twisted pair cable	×	—
	EH-TRLE2	Compact remote 2 slave module, Twisted pair cable	×	—
	EH-RIOTL	Compact remote module, Dedicated for replace, Twisted pair cable	×	—
	EH-TLNKE	Compact LINK module, Twisted pair cable	×	—
	EH-TRLLE	Compact I/O LINK module, Twisted pair cable	×	—
	EH-RMD	Device Net master module	×	—
	EH-IOCD	Device Net slave controller, 256 words input / 256 words output	×	—
	EH-IOCD2	Device Net slave controller, 256 words input / 256 words output	×	—
	EH-RMP	PROFIBUS-DP master module	×	—
	EH-RMP2	PROFIBUS-DP master module	×	—
EH-IOCP	PROFIBUS-DP slave controller, 208 words input / output	×	—	
Dummy module	EH-DUM	Module for an opened slot	○	—*2

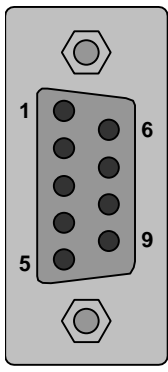
*1 If unsupported modules are mounted on the base of EH-IOCP2, EH-IOCP2 may malfunction.

*2 If dummy modules are mounted on the base of EH-IOCP2, I/O assignment symbol is not displayed.

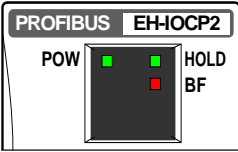
2.3 Name and function of each part

Name and function of each part		Model name	EH-IOCP2
		Weight	0.14 kg (0.31 lb)
		Current consumption (5VDC)	0.35 A
		Dimensions (mm (in.))	
		No.	Name
1]	Lock button	Press this button to dismount. Module can be fixed firmly by a screw of M4 × 10mm (0.39in).	
2]	Communication connector	D-sub 9-pin connector for communication cable.	
3]	LED display	The status of module is displayed on this LED.	
4]	Node address switch	This is a switch to set the node address.	
5]	Reset switch	The module can be reset by pressing this switch when the module detected an error.	
6]	Bottom DIP switch	This is a switch to set an operation mode (the output hold, etc.).	

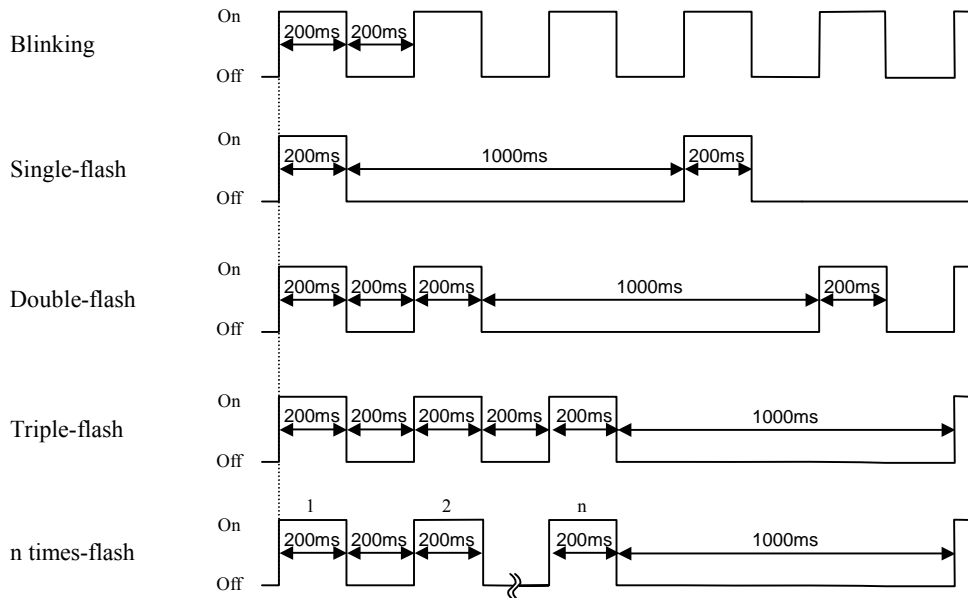
■ Description of Connector

Connector	Symbol	Indication	Details																				
	PROFIBUS	Communication connector	<p>D-sub 9 pin connector.</p> <p>Terminal layouts are shown below.</p> <table border="1"> <thead> <tr> <th>Pin No.</th> <th>Details</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>NC</td> </tr> <tr> <td>2</td> <td>NC</td> </tr> <tr> <td>3</td> <td>B-Line</td> </tr> <tr> <td>4</td> <td>NC</td> </tr> <tr> <td>5</td> <td>GND</td> </tr> <tr> <td>6</td> <td>+5 V DC</td> </tr> <tr> <td>7</td> <td>NC</td> </tr> <tr> <td>8</td> <td>A-Line</td> </tr> <tr> <td>9</td> <td>NC</td> </tr> </tbody> </table>	Pin No.	Details	1	NC	2	NC	3	B-Line	4	NC	5	GND	6	+5 V DC	7	NC	8	A-Line	9	NC
Pin No.	Details																						
1	NC																						
2	NC																						
3	B-Line																						
4	NC																						
5	GND																						
6	+5 V DC																						
7	NC																						
8	A-Line																						
9	NC																						

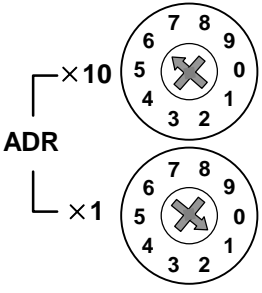
■ Description of LED display

LED	LED name	Indication	Details													
	POW	Power supply (Green)	On : indicates that the DC5V power is supplied. Off : indicates that the DC5V power is not supplied or reset switch is on. <table border="1" data-bbox="738 349 1369 577"> <thead> <tr> <th>State</th> <th>Details</th> </tr> </thead> <tbody> <tr> <td>Off</td> <td>Hardware error Power supply error</td> </tr> <tr> <td>n times flash</td> <td>I/O modules failure (n is modules failure point)</td> </tr> <tr> <td>On</td> <td>No error</td> </tr> </tbody> </table>	State	Details	Off	Hardware error Power supply error	n times flash	I/O modules failure (n is modules failure point)	On	No error					
	State	Details														
	Off	Hardware error Power supply error														
n times flash	I/O modules failure (n is modules failure point)															
On	No error															
HOLD	Output hold (Green)	Display the output hold function status. <table border="1" data-bbox="738 622 1369 741"> <thead> <tr> <th>State</th> <th>Details</th> </tr> </thead> <tbody> <tr> <td>Off</td> <td>Disable the output hold function</td> </tr> <tr> <td>On</td> <td>Enable the output hold function</td> </tr> </tbody> </table>	State	Details	Off	Disable the output hold function	On	Enable the output hold function								
State	Details															
Off	Disable the output hold function															
On	Enable the output hold function															
BF	Error (Red)	Display PROFIBUS error status or EH-IOCP2 hardware status. <table border="1" data-bbox="738 786 1393 1131"> <thead> <tr> <th>State</th> <th>Details</th> </tr> </thead> <tbody> <tr> <td>Off</td> <td>No error</td> </tr> <tr> <td>Blinking</td> <td>Communication timeout</td> </tr> <tr> <td>Single-flash</td> <td>Communication data failure I/O modules failure</td> </tr> <tr> <td>Double-flash</td> <td>Mount not support modules Mount at out of area</td> </tr> <tr> <td>Triple-flash</td> <td>I/O data size over</td> </tr> <tr> <td>On</td> <td>Internal error</td> </tr> </tbody> </table>	State	Details	Off	No error	Blinking	Communication timeout	Single-flash	Communication data failure I/O modules failure	Double-flash	Mount not support modules Mount at out of area	Triple-flash	I/O data size over	On	Internal error
State	Details															
Off	No error															
Blinking	Communication timeout															
Single-flash	Communication data failure I/O modules failure															
Double-flash	Mount not support modules Mount at out of area															
Triple-flash	I/O data size over															
On	Internal error															

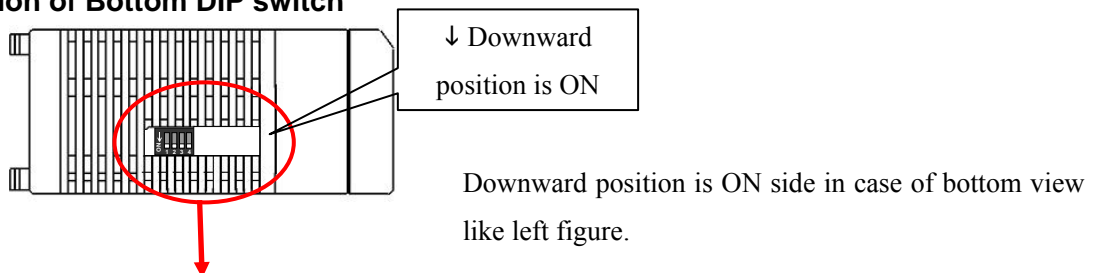
The state of LED is indicated below.

























■ Description of Rotary switch

Rotary switch	Symbol	Meaning	Details of setting
 <p>[Default setting: 00]</p>	<p>×10 (tenths place)</p>	<p>Station No. (00 to 99)</p>	<p>The station No. of PROFIBUS network is set from 00 to 99. The tenths place set by upper rotary switch. The ones place set by lower rotary switch.</p>
	<p>×1 (ones place)</p>		

■ Description of Bottom DIP switch



No.	Setting description	Details									
1	<p>Output hold function selecting</p>  <p>[Default setting: OFF]</p>	<p>When the communication timeout error occurred, it is selected whether the output data from the master is held or not. (Hold means the last data received properly is fixed.)</p> <table border="1"> <thead> <tr> <th>Bit1</th> <th>Position</th> <th>Output hold function selection</th> </tr> </thead> <tbody> <tr> <td>OFF</td> <td></td> <td>Disable the output hold function (Turn off all output data from the master at the communication error.)</td> </tr> <tr> <td>ON</td> <td></td> <td>Enable the output hold function (At the communication error, output data from master is held with last data received properly.)</td> </tr> </tbody> </table>	Bit1	Position	Output hold function selection	OFF		Disable the output hold function (Turn off all output data from the master at the communication error.)	ON		Enable the output hold function (At the communication error, output data from master is held with last data received properly.)
Bit1	Position	Output hold function selection									
OFF		Disable the output hold function (Turn off all output data from the master at the communication error.)									
ON		Enable the output hold function (At the communication error, output data from master is held with last data received properly.)									
2	<p>EH-IOCP compatible mode selecting</p>  <p>[Default setting: OFF]</p>	<p>It can select whether the EH-IOCP2 operates as standard mode or compatible mode.</p> <table border="1"> <thead> <tr> <th>Bit2</th> <th>Position</th> <th>EH-IOCP compatible mode selection</th> </tr> </thead> <tbody> <tr> <td>OFF</td> <td></td> <td>Standard mode (EH-IOCP2)</td> </tr> <tr> <td>ON</td> <td></td> <td>Compatible mode (EH-IOCP)</td> </tr> </tbody> </table>	Bit2	Position	EH-IOCP compatible mode selection	OFF		Standard mode (EH-IOCP2)	ON		Compatible mode (EH-IOCP)
Bit2	Position	EH-IOCP compatible mode selection									
OFF		Standard mode (EH-IOCP2)									
ON		Compatible mode (EH-IOCP)									
3	<p>Data swap function selecting</p>  <p>[Default setting: OFF]</p>	<p>It can select whether it performs byte swap by a word unit.</p> <table border="1"> <thead> <tr> <th>Bit3</th> <th>Position</th> <th>Data swap function selection</th> </tr> </thead> <tbody> <tr> <td>OFF</td> <td></td> <td>Disable the data swap function</td> </tr> <tr> <td>ON</td> <td></td> <td>Enable the data swap function</td> </tr> </tbody> </table>	Bit3	Position	Data swap function selection	OFF		Disable the data swap function	ON		Enable the data swap function
Bit3	Position	Data swap function selection									
OFF		Disable the data swap function									
ON		Enable the data swap function									
4	<p>No use</p>  <p>[Default setting: OFF]</p>	<p>Please keep off.</p>									



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Chapter 3 Installation

3.1 Mounting Module

(1) Mounting

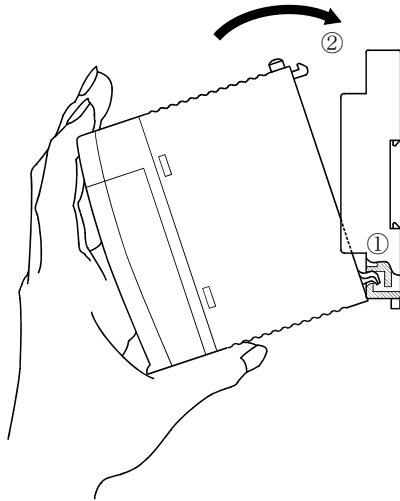


Figure 3.1-1 Mounting Module

- 1] Hook the lower part of the module to the hole in the base.
- 2] Press in the upper side of the module until it clicks.

Note 1: Make sure the module is mounted securely.

Note 2: Slot position of power supply module is fixed as 1st slot of base unit.

Note 3: Slot position of CPU module is fixed as 2nd slot of base unit.

Modules can be fixed firmly by M4 x 10mm screws.

(2) Removing

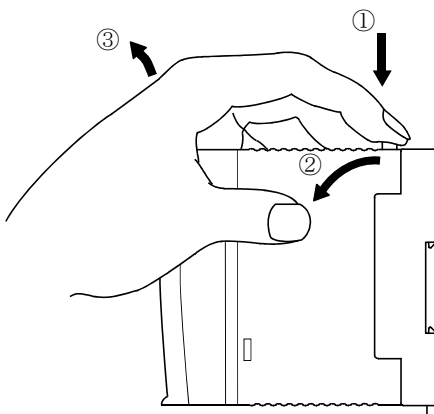


Figure 3.1-2 Removing Module

- 1] Press the lock button.
- 2] With the lock button pressed, pull the top of the module.
- 3] Pull the unit away from the base unit.

Note: Press the lock button for a power supply module.

3.2 Mountable slots for EH-IOCP2

EH-IOCP2 is mountable on only slot for CPU (right side of power supply module).

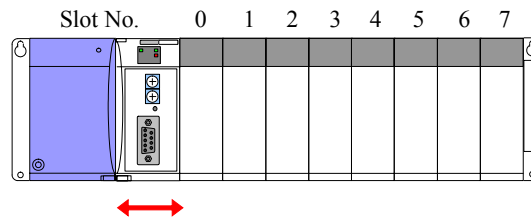


Figure 3.2-1 Mountable slot for EH-IOCP2

3.3 Wiring

For information about installation of the PROFIBUS DP fieldbus, please refer to the document *Installation Guideline for PROFIBUS-DP/FMS* from PNO, Order No. 2.112.

PROFIBUS homepage: <http://www.profibus.com>

3.3.1 PROFIBUS port

EH-IOCP2 has D-sub 9 pin female connector for PROFIBUS port.

Terminal layouts are shown below.

Table 3.3.1-1 Terminal layouts of EH-IOCP2

Pin No.	Details
1	NC
2	NC
3	B-Line
4	NC
5	GND
6	+5 V DC
7	NC
8	A-Line
9	NC

+5V DC and GND are used for bus termination. Some devices, like optical transceivers (RS-485 to fiber optics) might require external power supply from these pins. In normal applications, PROFIBUS-DP is only used A-Line and B-Line.

3.3.2 Recommended connectors

Recommended connectors of EH-IOCP2 are shown below.

Table 3.3.2-1 Recommended connectors of EH-IOCP2

Manufacturer	Model name	Description
PHOENIX CONTACT	PROFIB/SC2	Angle type
	PROFIB/AX/SC	Straight type

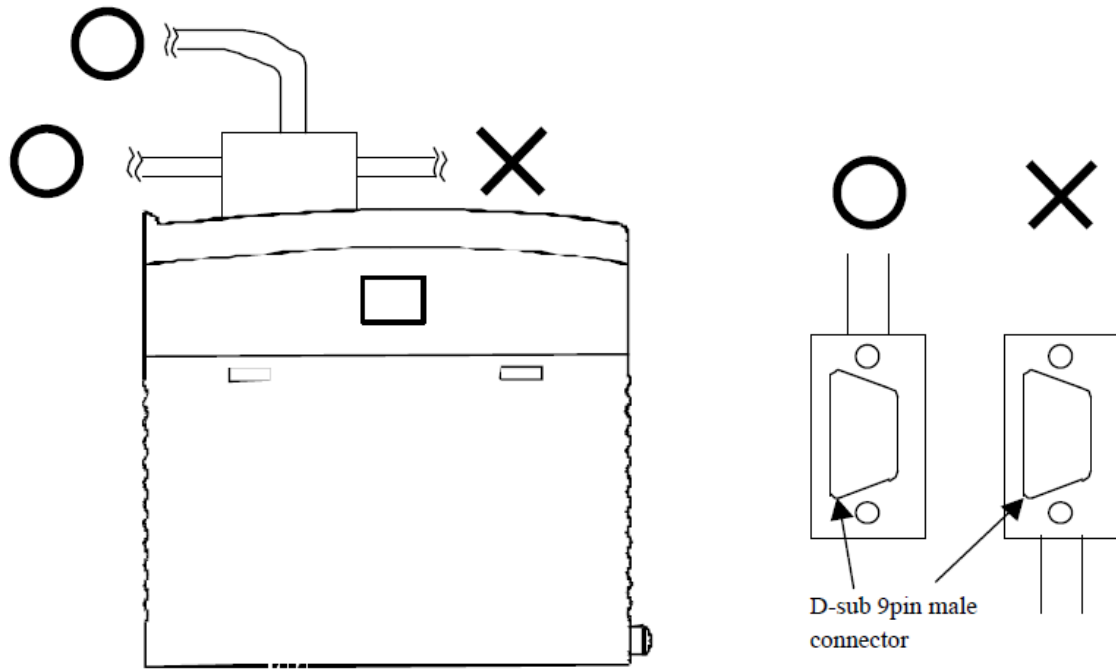


Figure 3.3.2-1 The connector type for EH-IOCP2

3.3.3 Cable parameters

The bus cable is specified in EN 50170 part 8-2 as “Cable Type A”, and should comply with the parameters in the table below. Cable type B, which is also described in EN 50170, is outdated and should no longer be used.

Table 3.3.3-1 Cable parameters

Parameter	Cable type A
Characteristic impedance	135 to 165 Ω at a frequency of 3 to 20MHz
Operating capacity	< 30 pF/m
Loop resistance	\leq 100 Ω /km
Core diameter	> 0.64 mm
Core cross-section*1	> 0.34mm ²

*1 The cable cross-sections used should be compatible with the mechanical specifications of the bus interface connector.

3.3.4 Maximum length of bus segment

Maximum length of bus segment is shown below.

Table 3.3.4-1 Maximum cable lengths per segment

	Data transfer rate (kbit/s)								
	9.6	19.2	93.75	187.5	500	1500	3000	6000	12000
Max segment length (m)	1200	1200	1200	1000	400	200	100	100	100



If EH-IOCP2 is applied for CE marking (EMC direction), follow the instructions below.

- 1] Communication cable must be routed in metal duct separated from power or I/O cables as much as possible.
- 2] Use included ferrite core for communication cable with one turn as the picture below.

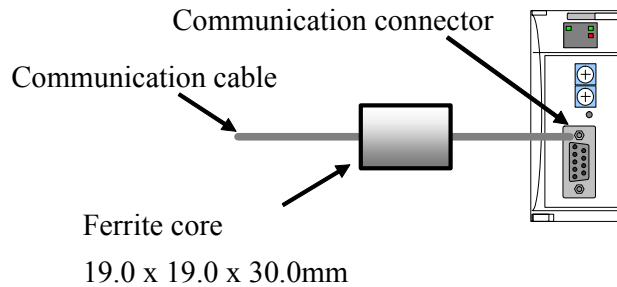


Figure 3.3.4-1 Use ferrite core

3.4 Mount redundant power supply (EH-PSR, EH-BS8R)

If you use EH-PSR and EH-BS8R, it must use breaker to each power supply modules.

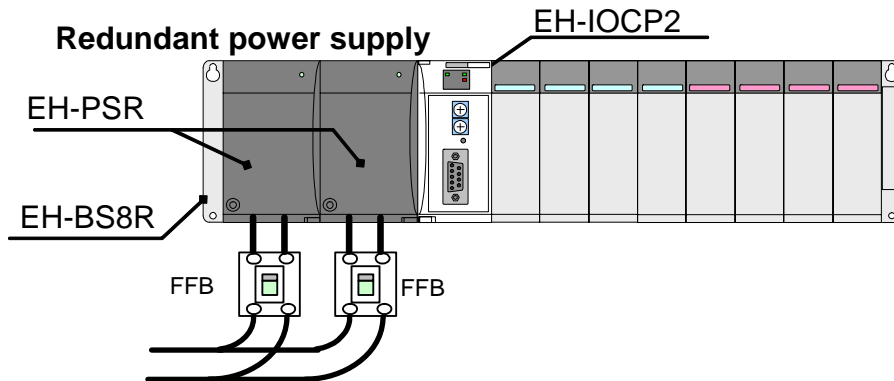


Figure 3.4-1 Use redundant power supply

If you use power operation monitor of redundant power supply, please refer to the section “4.3 Mount example”.

3.5 Mount expansion unit

EH-IOCP2 can use one expansion unit use by EH-IOCH2, EH-IOCH or EH-IOC. If you use EH-IOCH2 or EH-IOCH, their rotary switch must be set 1. Expansion unit can also use redundant power supply.

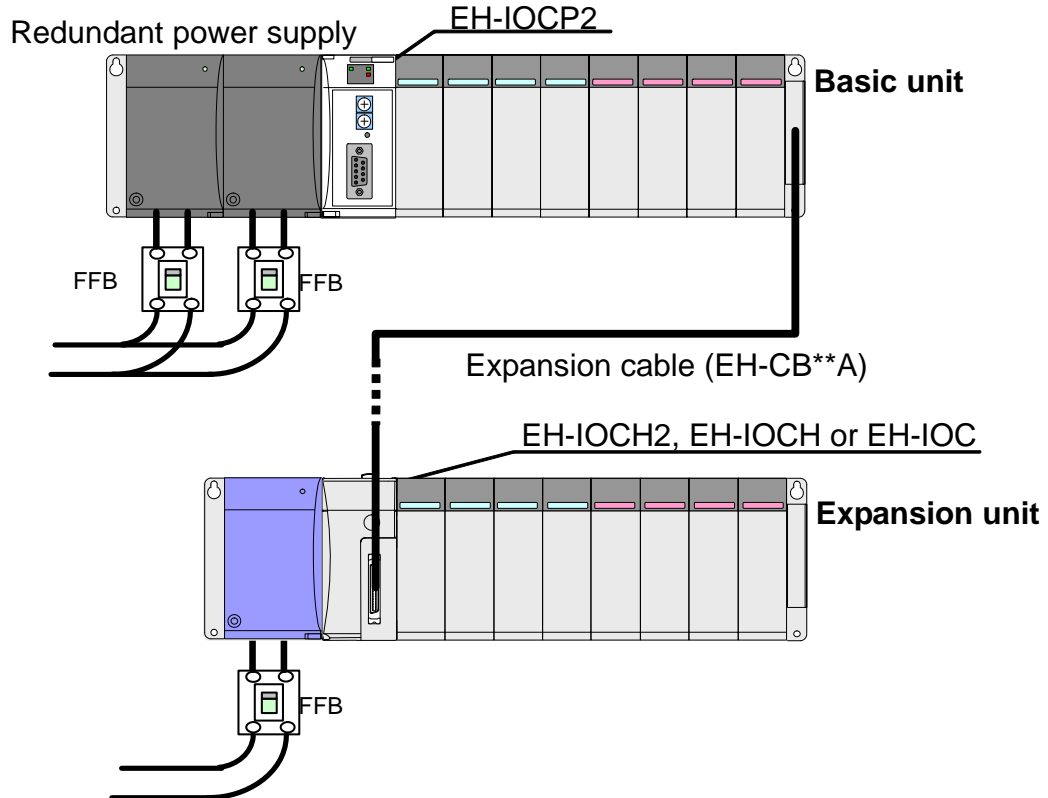


Figure 3.5-1 Use expansion unit



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Chapter 4 Operation

4.1 I/O module assignment symbol

Data sizes of each I/O assignment symbol are shown below.

Table 4.1-1 Data sizes of each I/O assignment symbol

I/O assignment symbol	Device ID	Input sizes (Rx)	Output sizes (Tx)
Empty slot	0x00	-	-
16 Digital Input (X16)	0x50	1 word	-
EH-XD*8* (X16)			
EH-XD*16* (X16)	0x51	2 word	-
32 Digital Input (X16)			
EH-XD*32* (X32)	0x53	4 word	-
64 Digital Input (X64)			
EH-XD*64* (X64)	0x60	-	1 word
16 Digital Output (Y16)			
EH-YT*8* (Y16)			
EH-YT*16* (Y16)			
EH-YR** (Y16)			
EH-YS** (Y16)	0x61	-	2 word
32 Digital Output (Y32)			
EH-YT*32* (Y32)	0x63	-	4 word
64 Digital Output (Y64)			
EH-YT*64* (Y64)	0x70	1 word	1 word
EH-MTT32 (B1/1)	0x53	4 word	-
4 Analog Input (X4W)			
EH-PT4 (X4W)	0x57	8 word	-
8 Analog Input (X8W)			
EH-AX*** (X8W)			
EH-TC8 (X8W)	0x67	-	8 word
8 Analog Output (Y8W)			
EH-AY*** (Y8W)	0xC0,0xC2	5 word	3 word
EH-CU/E (X5W/Y3W)			
EH-POS	0x73	4 word	4word

Table 4.1-2 Data sizes of each I/O assignment symbol

I/O assignment symbol	Device ID	Input sizes (Rx)	Output sizes (Tx)
16/32 Digital In/Output	0xC0, 0xC1	1 word	2 word
32/16 Digital In/Output	0xC0, 0xC0	2 word	1 word
32/32 Digital In/Output	0x71	2 word	2 word
7/1 word In/Output	0xC0, 0xC0	7 word	1 word
6/2 word In/Output	0xC0, 0xC1	6 word	2 word
3/5 word In/Output	0xC0, 0xC4	3 word	5 word
2/6 word In/Output	0xC0, 0xC5	2 word	6 word
1/7 word In/Output	0xC0, 0xC6	1 word	7 word

For information on relation between model name of I/O modules and I/O assignment symbol, please refer to “2.2 Functional Specifications”.

4.2 Data format

EH-IOCP2 is word oriented module. The data format is shown below.

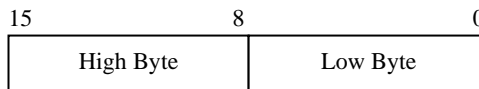


Figure 4.2-1 The data format on EH-IOCP2

To control the I/O modules right, transfer the user data by the format below from the PROFIBUS-DP master.

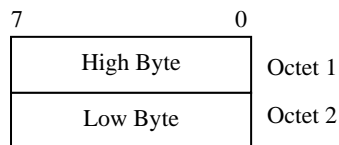
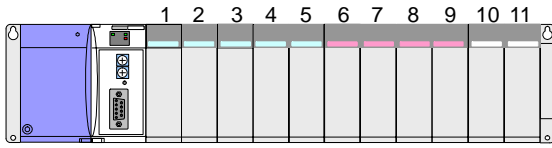


Figure 4.2-2 The user data format on PROFIBUS-DP

The byte swap function is set by DIP switch. If you use it, byte data of EH-IOCP2 is swap by word unit. Please refer to “2.3 Name and function of each part”.

4.3 Mount example

The Mapping addresses of each I/O module are shown below.



Item	Model name	I/O assignment symbol
Power supply module	EH-PSA	—
Base unit	EH-BS11A	—
Module 1	EH-XD16	X16
Module 2	EH-XD32	X32
Module 3	EH-XD64	X64
Module 4	EH-PT4	X4W
Module 5	EH-AX8V	X8W

Item	Model name	I/O assignment symbol
Module 6	EH-YTP8	Y16
Module 7	EH-YTP32	Y32
Module 8	EH-YTP64	Y64
Module 9	EH-AY8H	Y8W
Module 10	EH-MTT32	B1/1
Module 11	EH-POS	X4Y4W

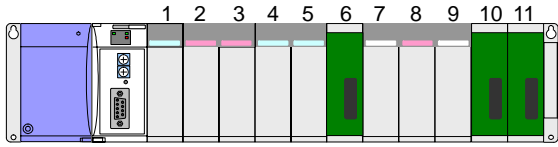
Table 4.3-1 Input area

Input area (word unit)	Module
+0	Module 1 (bit 0 to 15)
+1	Module 2 (bit 0 to 15)
+2	Module 2 (bit 16 to 31)
+3	Module 3 (bit 0 to 15)
+4	Module 3 (bit 16 to 31)
+5	Module 3 (bit 32 to 47)
+6	Module 3 (bit 48 to 63)
+7	Module 4 (ch 0)
+8	Module 4 (ch 1)
+9	Module 4 (ch 2)
+10	Module 4 (ch 3)
+11	Module 5 (ch 0)
+12	Module 5 (ch 1)
+13	Module 5 (ch 2)
+14	Module 5 (ch 3)
+15	Module 5 (ch 4)
+16	Module 5 (ch 5)
+17	Module 5 (ch 6)
+18	Module 5 (ch 7)
+19	Module 10 (bit 0 to 15)
+20	Module 11 (word 0)
+21	Module 11 (word 1)
+22	Module 11 (word 2)
+23	Module 11 (word 3)

Table 4.3-2 Output area

Output area (word unit)	Module
+0	Module 6 (bit 0 to 15)
+1	Module 7 (bit 0 to 15)
+2	Module 7 (bit 16 to 31)
+3	Module 8 (bit 0 to 15)
+4	Module 8 (bit 16 to 31)
+5	Module 8 (bit 32 to 47)
+6	Module 8 (bit 48 to 63)
+7	Module 9 (ch 0)
+8	Module 9 (ch 1)
+9	Module 9 (ch 2)
+10	Module 9 (ch 3)
+11	Module 9 (ch 4)
+12	Module 9 (ch 5)
+13	Module 9 (ch 6)
+14	Module 9 (ch 7)
+15	Module 10 (bit 16 to 31)
+16	Module 11 (word 4)
+17	Module 11 (word 5)
+18	Module 11 (word 6)
+19	Module 11 (word 7)
+20	-
+21	-
+22	-
+23	-

(1) If you use only basic unit.



Item	Model name	I/O assignment symbol
Power supply module	EH-PSA	—
Base unit	EH-BS11A	—
Module 1	EH-XD16	X16
Module 2	EH-YT16	Y16
Module 3	EH-YT32	Y32
Module 4	EH-AX8V	X8W
Module 5	EH-XD64	X64

Item	Model name	I/O assignment symbol
Module 6	Empty	—
Module 7	EH-CU	X5Y3W
Module 8	EH-AY8H	Y8W
Module 9	EH-POS	X4Y4W
Module 10	Empty	—
Module 11	Empty	—

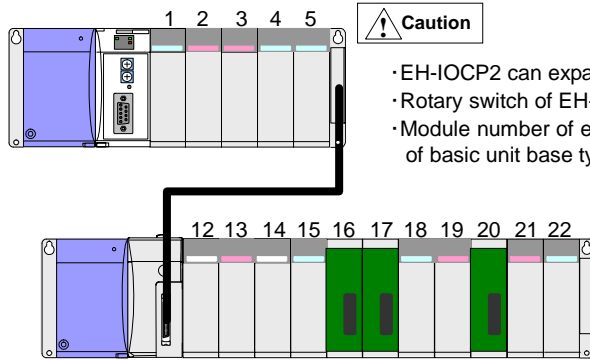
Table 4.3-3 Input area

Input area (word unit)	Module
+0	Module 1 (bit 0 to 15)
+1	Module 4 (ch 0)
+2	Module 4 (ch 1)
+3	Module 4 (ch 2)
+4	Module 4 (ch 3)
+5	Module 4 (ch 4)
+6	Module 4 (ch 5)
+7	Module 4 (ch 6)
+8	Module 4 (ch 7)
+9	Module 5 (bit 0 to 15)
+10	Module 5 (bit 16 to 31)
+11	Module 5 (bit 32 to 47)
+12	Module 5 (bit 48 to 63)
+13	Module 7 (word 0)
+14	Module 7 (word 1)
+15	Module 7 (word 2)
+16	Module 7 (word 3)
+17	Module 7 (word 4)
+18	Module 9 (word 0)
+19	Module 9 (word 1)
+20	Module 9 (word 2)
+21	Module 9 (word 3)

Table 4.3-4 Output area

Output area (word unit)	Module
+0	Module 2 (bit 0 to 15)
+1	Module 3 (bit 0 to 15)
+2	Module 3 (bit 16 to 31)
+3	Module 7 (word 5)
+4	Module 7 (word 6)
+5	Module 7 (word 7)
+6	Module 8 (ch 0)
+7	Module 8 (ch 1)
+8	Module 8 (ch 2)
+9	Module 8 (ch 3)
+10	Module 8 (ch 4)
+11	Module 8 (ch 5)
+12	Module 8 (ch 6)
+13	Module 8 (ch 7)
+14	Module 9 (word 4)
+15	Module 9 (word 5)
+16	Module 9 (word 6)
+17	Module 9 (word 7)
+18	-
+19	-
+20	-
+21	-

(2) If you use expansion unit.



Item	Model name	I/O assignment symbol
Power supply module (Basic unit)	EH-PSA	—
Base unit (Basic unit)	EH-BS5A	—
Module 1	EH-XD32	X32
Module 2	EH-YT64	Y64
Module 3	EH-YT32	Y32
Module 4	EH-PT4	X4W
Module 5	EH-XD16	X16

Item	Model name	I/O assignment symbol
Power supply module (Expansion unit)	EH-PSA	—
Base unit (Expansion unit)	EH-BS11A	—
Module 12	EH-MTT32	B1/1
Module 13	EH-AYG4M	Y8W
Module 14	EH-POS	X4Y4W
Module 15	EH-AXG5M	X8W
Module 16	Empty	—
Module 17	Empty	—
Module 18	EH-XD64	X64
Module 19	EH-YT16	Y16
Module 20	Empty	—
Module 21	EH-YT32	Y32
Module 22	EH-PT4	X4W

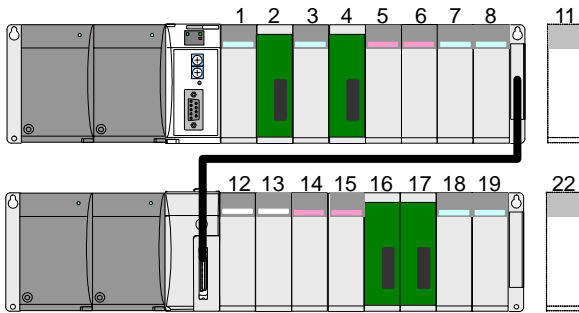
Table 4.3-5 Input area

Input area (word unit)	Module
+0	Module 1 (bit 0 to 15)
+1	Module 1 (bit 16 to 31)
+2	Module 4 (ch 0)
+3	Module 4 (ch 1)
+4	Module 4 (ch 2)
+5	Module 4 (ch 3)
+6	Module 5 (bit 0 to 15)
+7	Module 12 (bit 0 to 15)
+8	Module 14 (word 0)
+9	Module 14 (word 1)
+10	Module 14 (word 2)
+11	Module 14 (word 3)
+12	Module 15 (ch 0)
+13	Module 15 (ch 1)
+14	Module 15 (ch 2)
+15	Module 15 (ch 3)
+16	Module 15 (ch 4)
+17	Module 15 (ch 5)
+18	Module 15 (ch 6)
+19	Module 15 (ch 7)
+20	Module 18 (bit 0 to 15)
+21	Module 18 (bit 16 to 31)
+22	Module 18 (bit 32 to 47)
+23	Module 18 (bit 48 to 63)
+24	Module 22 (ch 0)
+25	Module 22 (ch 1)
+26	Module 22 (ch 2)
+27	Module 22 (ch 3)

Table 4.3-6 Output area

Output area (word unit)	Module
+0	Module 2 (bit 0 to 15)
+1	Module 2 (bit 16 to 31)
+2	Module 2 (bit 32 to 47)
+3	Module 2 (bit 48 to 63)
+4	Module 3 (bit 0 to 15)
+5	Module 3 (bit 16 to 31)
+6	Module 12 (bit 16 to 31)
+7	Module 13 (ch 0)
+8	Module 13 (ch 1)
+9	Module 13 (ch 2)
+10	Module 13 (ch 3)
+11	Module 13 (ch 4)
+12	Module 13 (ch 5)
+13	Module 13 (ch 6)
+14	Module 13 (ch 7)
+15	Module 14 (word 4)
+16	Module 14 (word 5)
+17	Module 14 (word 6)
+18	Module 14 (word 7)
+19	Module 19(bit 0 to 15)
+20	Module 21 (bit 0 to 15)
+21	Module 21 (bit 16 to 31)
+22	-
+23	-
+24	-
+25	-
+26	-
+27	-

(3) If use redundant power supply



Caution
 Power operation monitors of redundant power supply are shown below.
 Basic unit: Module 11
 Expansion unit: Module 22
 Must use EH-IOCH or EH-IOCH2 for expansion unit.

Item	Model name	I/O assignment symbol
Power supply module (Basic unit)	EH-PSR	—
Base unit (Basic unit)	EH-BS8R	—
Module 1	EH-XD32	X32
Module 2	Empty	—
Module 3	EH-XD32	X32
Module 4	Empty	—
Module 5	EH-YT32	Y32
Module 6	EH-YT32	Y32
Module 7	EH-AXH8M	X8W
Module 8	EH-AXH8M	X8W
Module 11	EH-PSR*1	X16

Item	Model name	I/O assignment symbol
Power supply module (Expansion unit)	EH-PSR	—
Base unit (Expansion unit)	EH-BS8R	—
Module 12	EH-CU	X5Y3W
Module 13	EH-CUE	X5Y3W
Module 14	EH-AYH8M	Y8W
Module 15	EH-AYH8M	Y8W
Module 16	Empty	—
Module 17	Empty	—
Module 18	EH-YTP16	Y16
Module 19	EH-YTP16	Y16
Module 22	EH-PSR*1	X16

*1 Power operation monitor

Table 4.3-7 Input area

Input area (word unit)	Module
+0	Module 1 (bit 0 to 15)
+1	Module 1 (bit 16 to 31)
+2	Module 3 (bit 0 to 15)
+3	Module 3 (bit 16 to 31)
+4	Module 7 (ch 0)
+5	Module 7 (ch 1)
+6	Module 7 (ch 2)
+7	Module 7 (ch 3)
+8	Module 7 (ch 4)
+9	Module 7 (ch 5)
+10	Module 7 (ch 6)
+11	Module 7 (ch 7)
+12	Module 8 (ch 0)
+13	Module 8 (ch 1)
+14	Module 8 (ch 2)
+15	Module 8 (ch 3)
+16	Module 8 (ch 4)
+17	Module 8 (ch 5)
+18	Module 8 (ch 6)
+19	Module 8 (ch 7)
+20	Module 11 (bit 0 to 15)
+21	Module 12 (word 0)
+22	Module 12 (word 1)
+23	Module 12 (word 2)
+24	Module 12 (word 3)
+25	Module 12 (word 4)
+26	Module 13 (word 0)
+27	Module 13 (word 1)
+28	Module 13 (word 2)
+29	Module 13 (word 3)
+30	Module 13 (word 4)
+31	Module 22 (bit 0 to 15)

Table 4.3-8 Output area

Output area (word unit)	Module
+0	Module 5 (bit 0 to 15)
+1	Module 5 (bit 16 to 31)
+2	Module 6 (bit 0 to 15)
+3	Module 6 (bit 16 to 31)
+4	Module 12 (word 5)
+5	Module 12 (word 6)
+6	Module 12 (word 7)
+7	Module 13 (word 5)
+8	Module 13 (word 6)
+9	Module 13 (word 7)
+10	Module 14 (ch 0)
+11	Module 14 (ch 1)
+12	Module 14 (ch 2)
+13	Module 14 (ch 3)
+14	Module 14 (ch 4)
+15	Module 14 (ch 5)
+16	Module 14 (ch 6)
+17	Module 14 (ch 7)
+18	Module 15 (ch 0)
+19	Module 15 (ch 1)
+20	Module 15 (ch 2)
+21	Module 15 (ch 3)
+22	Module 15 (ch 4)
+23	Module 15 (ch 5)
+24	Module 15 (ch 6)
+25	Module 15 (ch 7)
+26	Module 18 (bit 0 to 15)
+27	Module 19 (bit 0 to 15)
+28	-
+29	-
+30	-
+31	-

4.4 EH-IOCP compatible mode

EH-IOCP2 supports compatible mode to replace EH-IOCP without re-configuration of PROFIBUS master.

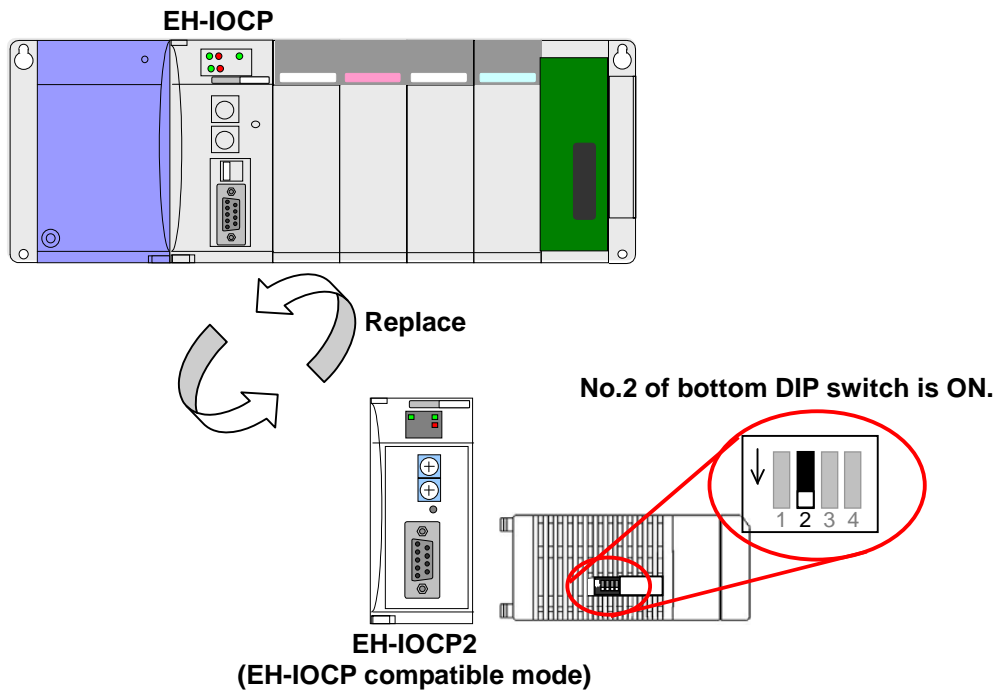
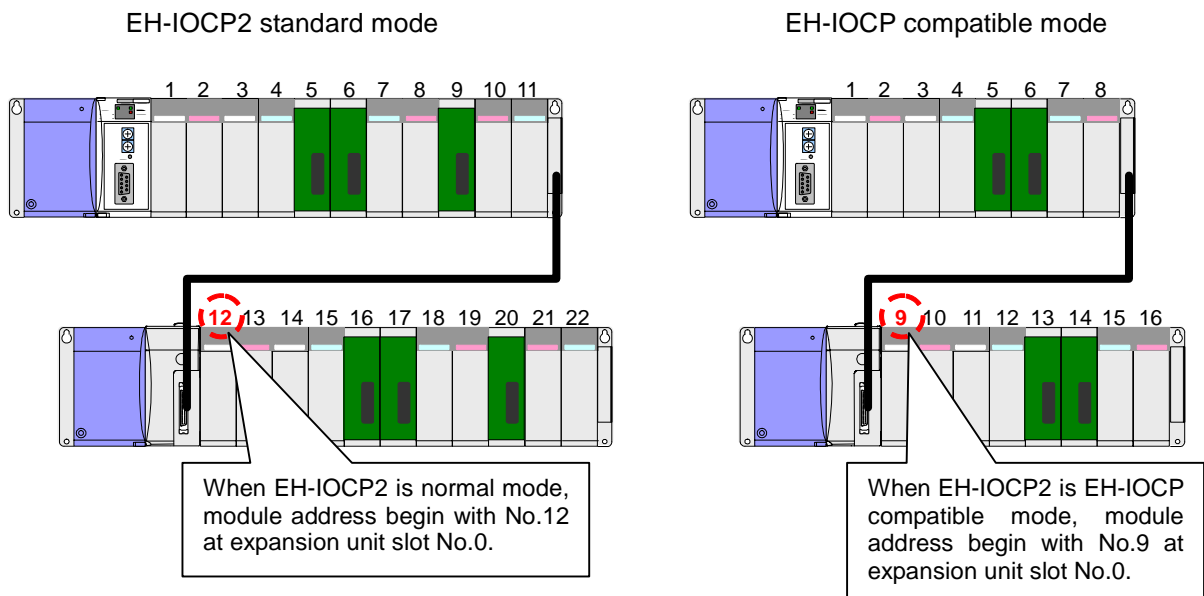


Figure 4.4-1 EH-IOCP compatible mode

CAUTION When EH-IOCP2 is in compatible mode, GSD file, the number of I/O modules and module address are different from standard mode.





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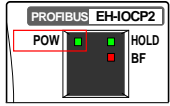
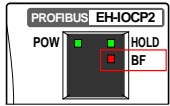
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Chapter 5 Troubleshooting

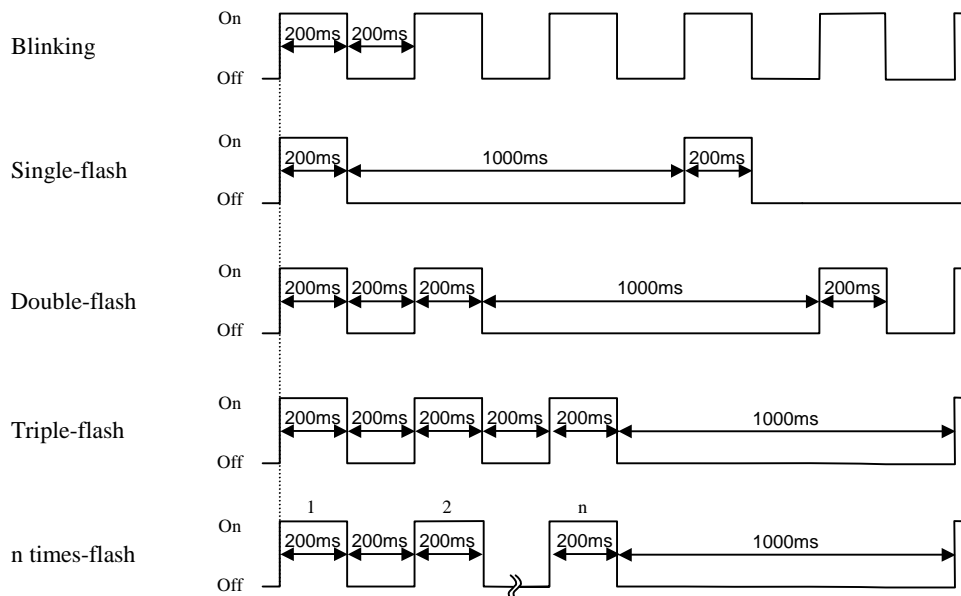
5.1 Error indications of EH-IOCP2

Error descriptions are shown below.

Table 5.1-1 Indications of EH-IOCP2

LED	Indicate pattern	Description	Actions
	OFF	Hardware failure. The power is not properly supplied to the EH-IOCP2.	<ul style="list-style-type: none"> • Check power of power supply module. • Replace EH-IOCP2.
	n times-flash	Error in I/O modules. The number of green flashes indicates the module position is detected error at first. (1 flash = 0 slot).	Check the module state.
	ON	No error.	—
	OFF	No error.	—
	Blinking	Communication timeout.	<ul style="list-style-type: none"> • Check the connection of the communication cable. • Check there are no sources of noise near the communication cable.
	Single-flash	a. Configuration error. b. Error in I/O modules.	a. Check system and node address and push reset switch of EH-IOCP2. b. Replace I/O modules.
	Double-flash	a. Nonsupport modules are mounted. b. The I/O modules were mounted outside range slot.	Check system and node address and push reset switch of EH-IOCP2.
	Triple-flash	Total input and output size are zero or exceed maximum.	Check the installation. The total sum of input and output sizes must be greater than zero and less than 244 bytes.
	ON	Internal error.	Replace EH-IOCP2.

The state of LED is indicated below.






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Appendix 1 Before using high function module

A1.1 For using the EH-CU

The partial operation is different on the case of using on the side of CPU module and the case of using on the side of EH-IOCP2. When using EH-CU, always take care of the following attention item.

	When using EH-CU on the side of EH-IOCP2, the CPU stop count becomes invalid. (fixed in “countable during CPU stopping” mode)
	In using the “uncountable during CPU stopping” mode, insert a relay between “comparison output” of EH-CU and the external input device. And control to OFF the relay in PLC (the PROFIBUS-DP master) stopping.
	When not use, the comparison output becomes ON follows the OE flag of the control register of EH-CU even if PLC (the PROFIBUS-DP master) is stopping.
	And initialize the current value in case of the CPU become RUN.

The example wiring when controlling the relay which was inserted among the external input device and the comparison output of EH-CU is shown.

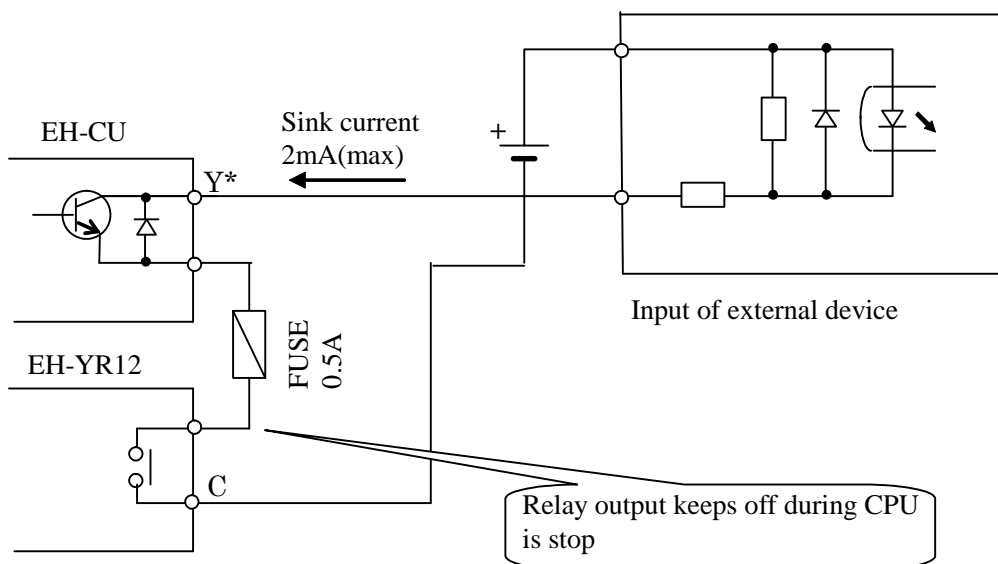


Figure A1.1-1 Caution for using the EH-CU

Allocates optional one point of EH-YR** for the external device. Make a circuit at the head of the program to become OFF in STOP or become ON in RUN for PLC (the PROFIBUS-DP master).

A1.2 For using the EH-POS

The partial operation is different on the case of using on the side of CPU module and the case of using on the side of EH-IOCP2. When using EH-POS, always take care of the following attention item.



When using EH-POS on the side of EH-IOCP2, always use the output of EH-YR** for “servo-on” input by the servo. (refer to the following about controlling wiring)
 When not used, even if PLC (the PROFIBUS-DP master) becomes STOP during EH-POS is positioning control (while the motor turn), EH-POS continues operation until positioning completion.

The example wiring when using EH-YR12 for the “servo-on” input by the servo is shown.

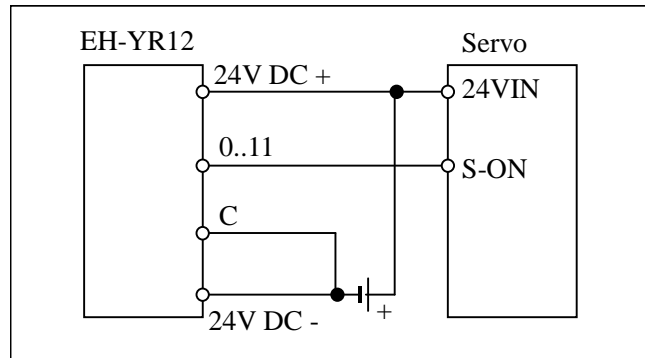


Figure A1.2-1 Caution for using the EH-POS



- Refer to the EH-POS manual and each servo manual for wiring between EH-POS and servo.
 - Refer to the manual of each servo about the function of the “S-ON” terminal of the servo and the detailed way of wiring.

Allocates optional one point of EH-YR12 for the control of the servo ON terminal.

Make a circuit at the head of program to become OFF in STOP or become ON in RUN for PLC (the PROFIBUS-DP master).