HITACHI PROGRAMMABLE CONTROLLER

HIDIC EH-150

PROFIBUS-DP SLAVE MODULE
APPLICATION MANUAL

WARNING

To ensure that the equipment described by this manual. As well as all equipment connected to and used with it, operate satisfactorily and safety, all applicable local and national codes that apply to installing and operating the equipment must be followed. Since codes can vary geographically and can change with time, it is the user's responsibility to determine which standard and codes apply, and to comply with them.

FAILURE TO COMPLY WITH APPLICABLE CODES AND STANDARDS CAN RESULT IN DAMAGE TO EQUIPMENT AND/OR SERIOUS INJURY TO PERSONNEL.

INSTALL EMARGENCY POWER STOP SWITCH, WHICH OPERATES INDEPENDENTLY OF THE PROGRAMMABLE CONTROLLER TO PROTECT THE EQUIPMENT AND/OR PERSONNEL IN CASE OF THE CONTROLLER MALFUNCTION.

Personnel who are to install and operate the equipment should carefully study this manual and any other referred to by it prior to installation and/or operation of the equipment. Hitachi Industrial Equipment Systems Co., Ltd. constantly strives to improve its products, and the equipment and the manual(s) that describe it may be different from those already in your possession.

If you have any questions regarding the installation and operation of the equipment, or if more information is desired, contact your local Authorized Distributor or Hitachi Industrial Equipment Systems Co., Ltd.

IMPORTANT

THIS EQUIPMENT GENERATES, USES, AND CAN RADIATE RADIO FREQUENCY ENERGY AND, IF NOT INSTALLED AND USED IN ACCORDANCE WITH THE INSTRUCTION MANUAL, MAY CAUSE INTERFERENCE TO RADIO COMMUNICATIONS. AS TEMPORARILY PERMITTED BY REGULATION, IT HAS NOT BEEN TESTED FOR COMPLIANCE WITH THE LIMITS FOR CLASS A COMPUTING DEVICES PURSUANT TO SUBPART J OF PART 15 OF FCC ROULES, WHICH ARE DESIGNED TO PROVIDE PEASONABLE PROTECTION AGAINST SUCH INTERFERENCE.

OPERATION OF THIS EQUIPMENT IN A RESIDENTIAL AREA IS LIKELY TO CAUSE INTERFERENCE IN WHICH CASE THE USER, AT HIS OWN EXPENSE, WILL BE REQUIRED TO TAKE WHATEVER MEASURES MAY BE REQUIRED TO CORRECT THE INTERFERENCE.

LIMITED WARRANTY AND IMITATION OF LIABILITY

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.

⬦ **DANGER**
: Cases where if handled incorrectly a dangerous circumstance may be created, resulting in possible death or severe injury.

⚠ **CAUTION**
: Cases where if handled incorrectly a dangerous circumstance may be created, resulting in possible minor to medium injury to the body, or only mechanical damage.

However, depending on the circumstances, items marked with ⚠ CAUTION may result in major

 accidents.

In any case, they both contain important information, so please follow them closely.

Icons for prohibited items and required items are shown below:

🚫 : Indicates prohibited items (items that may not be performed). For example, when open flames are prohibited, 🚫 is shown.

🛑 : Indicates required items (items that must be performed). For example, when grounding must be performed, ⏚ is shown.

1. About installation

⚠ CAUTION

- Use this product in an environment as described in the catalogue and 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.

- Perform installation according to this manual.
  If installation is not performed adequately, it may result in dropping, malfunction or an operational error in the unit.

- Do not allow foreign objects such as wire chips to enter the unit.
  They may become the cause of fire, malfunction or failure.

2. About wiring

⏚ REQUIRED

- Always perform grounding (FE terminal).
  If grounding is not performed, there is a risk of electric shocks and malfunctions.

⚠ CAUTION

- Connect power supply that meets rating.
  If a power supply that does not meet rating is connected, fire may be caused.

- The wiring operation should be performed by a qualified personnel.
  If wiring is performed incorrectly, it may 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 risk of electric shock.

- Structure the emergency stop circuit, interlock circuit, etc. outside the programmable controller (hereinafter referred to as PC).
  Damage to the equipment or accidents may occur due to failure of the PC.
  However, do not interlock the unit to external load via relay drive power supply of the relay output module.

⚠ CAUTION

- When performing program change, forced output, RUN, STOP, etc., while the unit is running, be sure to verify safety.
  Damage to the equipment or accidents may occur due to operation error.

- Supply power according to the power-up order.
  Damage to the equipment or accidents may occur due to malfunctions.

4. About preventive maintenance

◇ DANGER

- Do not connect the ⊕, ⊖ of the battery in reverse. Also, do not charge, disassemble, heat, place in fire, or short circuit the battery.
  There is a risk of explosion or fire.

⊘ PROHIBITED

- Do not disassemble or modify the unit.
  These actions may result in fire or malfunction.

⚠ CAUTION

- Turn off the power supply before removing or attaching module/unit.
  Electric shock, malfunction or failure may result.

Table of contents

Chapter 1   INTRODUCTION

We appreciate that you have selected the EH-150 Profibus-DP Slave Module of the Hitachi programmable logic controller. This application manual describes how to properly operate the EH-150 Profibus-DP Slave Module. Carefully read the manual to familiarize yourself with the procedures respectively of installation , operation, and maintenance and check.
reference documents

(1) EH-150 APLLICATION MANUAL ----------- NJI-281*(X)

(2) EH-150 PROFIBUS DP SLAVE MODULE

  APLLICATION MANUAL   ----------- NJI-333*(X)

*The last character of the manual number may be modified when the product is revised.
Notes. The contents of this manual may be modified without previous notice.

1.1 Before Use

When you purchased the EH-150 Profibus Slave Module , please check the following matters:

(1) If model name and specifications are correct.

(2) If there is no shipping damage on product (If any, consult the dealer of this module.)

(3) If following parts are in a carton box.

table 1.1 List of Counter Module Parts

NO.	Contents	Quantity
1	EH-150 Pofibus Slave Module	1
2	Notes to use	1

1.2 Technical features

1.2.1 I/O

Maximum number of PI/O modules:	16
Maximum IN + OUT data:	208 words
IN data update cycle time:	5 ms
OUT-data update cycle time:	On Profibus-DP slave node OUT-data exchange
Clear/freeze functionality:	Configurable

1.2.2 Profibus DP

Fieldbus type:	PROFIBUS-DP EN 50170 (DIN 19245)
Transmission media:	Profibus bus line, type A or B specified in EN 50170
Fieldbus connectors:	9 pin female DSUB, as standard
Cable:	Shielded copper cable, Twisted pair
Isolation:	The bus is galvanically separated from the other electronics with an on board DC/DC converter. Bus signals (A-line and B-line) are isolated via opto couplers.
Node address range:	1 - 99

Chapter 2   STRUCTURE and SPECIFICATION

2.1 Structure and Parts name

Name and function		Model	EH-IOCP
		Weight	Approx.160 g
		Current	Approx. 600mA
		dimension(mm)	

No	Name	Function		Remarks
1)	Lock button	This is used when removing the module from the base unit. After it is installed to the base unit, the fixation can be reinforced using screws. In this case, use M4x10 mm screws.		
2)	LEDs	STATUS: the state of the EH-IOCP LINE-ON: module is on-line and data exchange is possible LINE-OFF: module is off-line and no data exchange is possible DIAG: diagnostics present		
3)	Rotary switch	Node address setting		
4)	Bus connector	Connect to field bus		9pin female Sub-D The screw is the terminal for functional earth.
5)	DIP switch (No. 1,2,3 not used)	Switch No.	Supplementary explanation	
		4		
		OFF	CLEAR mode: When the fieldbus is off-line , the output data is cleared.	
		ON	FREEZE mode: When the fieldbus is off-line , the output data is frozen.	
6)	Reset switch	When module is abnormal, module is be reset by pushing this.		
7)	Termination switch	ON: bus termination enabled OFF: bus termination disabled		

2.2 Specification

ITEM		SPECIFICATION
General	Power source	Supplied from power Supply Module
	Operating ambient temperature	0 to 55 degree
	Storage ambient temperature	-10 to 75 degree
	Operating ambient humidity	No condensation 20 to 90 % RH
	Storage ambient humidity	No condensation 10 to 90 % RH
	Vibration resistance	In accordance with JIS C 0911
	Noise resistance	○Noise voltage 1500 Vpp Noise pulse with 100 ns, 1μs by using noise simurator. ○Based on NEMA ICS 3-304 (with the exception of input module) ○Static noise : 3000 V at metal exposed area
	Dielectric withstand voltage	250 V DC between External signal terminal and FE terminal
	Consumption current	5 V DC 600 mA
	Usage environment	No corrosive gasses, no excessive dirt
	Structure	Attaches to an open wall
	Cooling	Natural air cooling
Function	Number of I/O modules	16
	Node address range	1 - 99
	IN + OUT data	208 words
	IN data update cycle time	5 ms
	Data transfer rate : Max segment length	9.6 kbps : 1200 m 19.2 kbps : 1200 m 93.75 kbps : 1200 m 187.5 kbps : 1000 m 500 kbps : 400 m 1500 kbps : 200 m 3 Mbps : 100 m 6 Mbps : 100 m 12 Mbps : 100 m
	Self-diagnosis	System ROM/RAM check, watch-dog timer check
GSD file		File name : hita049d.gsd This file can either be downloaded from the webpage http://www.hms.se/fbfiles.htm or received by contacting **HMS Fieldbus AB**.

2.3 Supported EH-150 I/O modules

The EH-IOCP supports the EH-150 I/O module types listed in table 1. Any combinations of supported modules are allowed. However, the total data size (IN + OUT) must not exceed 208 words.

Table 2.1 Supported I/O modules

Module Name	Module Type	Module ID	Data size IN(word)	Data size OUT(word)
	Empty slot	0x00	0	0
EH-XD8	X16	0x01	1	0
EH-XD16	X16	0x01	1	0
EH-XA16	X16	0x01	1	0
EH-XAH16	X16	0x01	1	0
EH-XD32	X32	0x02	2	0
	X64	0x03	4	0
EH-YT8	Y16	0x05	0	1
EH-YT16	Y16	0x05	0	1
EH-YTP8	Y16	0x05	0	1
EH-YTP16	Y16	0x05	0	1
EH-YS4	Y16	0x05	0	1
EH-YR12	Y16	0x05	0	1
EH-YT32	Y32	0x06	0	2
EH-YTP32	Y32	0x06	0	2
	Y64	0x07	0	4
EH-PT4	X4W	0x11	4	0
EH-AX44	X8W	0x12	8	0
	Y4W	0x1A	0	4
EH-AY22	Y8W	0x19	0	8
EH-AY2H	Y8W	0x19	0	8
	B1/1	0x08	1	1
	X1W/Y7W	0x18	1	7
	X2W/Y6W	0x17	2	6
	X3W/Y5W	0x16	3	5
EH-POS	X4W/Y4W	0x04	4	4
EH-CU	X5W/Y3W	0x15	5	3
	X6W/Y2W	0x14	6	2
	X7W/Y8W	0x13	7	8

Chapter 3   CONFIGURATIONS

3.1 System configurations

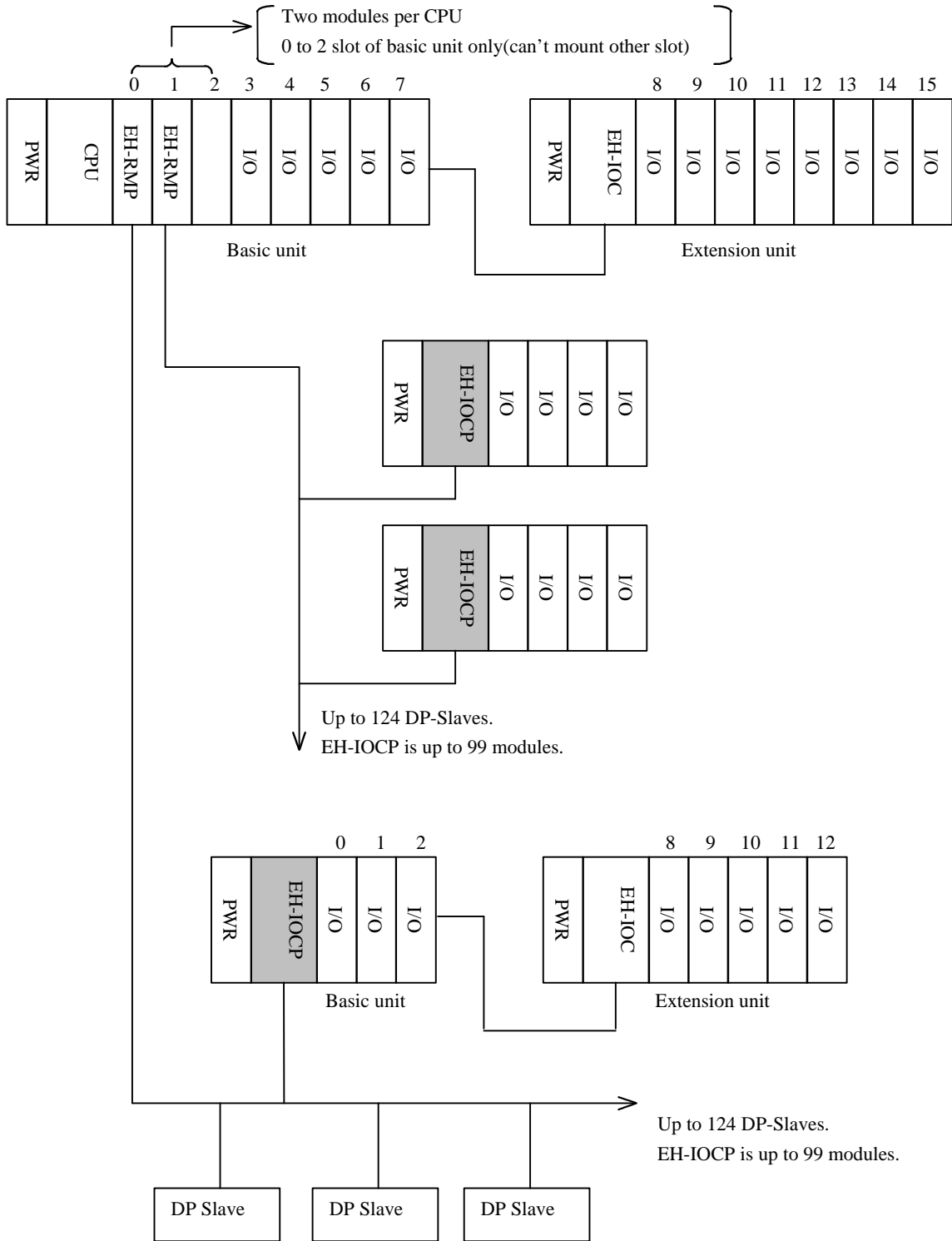The EH-IOCP is mounted next to the power supply in the expansion base as shown in below.

Fig. 3.1 Example of system configurations

3.2 Start up

To operation this module normally, the making a setup which is shown in the following figure is necessary.

      (1) Set the DIP switch. Refer to chapter 3.2.1 .

      (2) Set the termination switch. Refer to chapter 3.2.2 .

      (3) Set the node address. Refer to chapter 3.2.3 .

3.2.1 Mode setting

The EH-IOCP can be configured to run in different modes depending on the users requirements. The configuration is accomplished by the switch S4 placed on the right side of the EH-IOCP.

Note : Don't operate this switch while EH-IOCP is working.

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(1) Clear mode

  When the fieldbus is off-line and on run-time errors, the EH-IOCP clears the output data.

Switch	Position
1	Don't care
2	Don't care
3	Don't care
4	OFF (default)
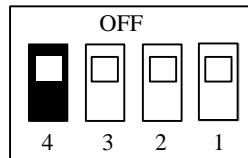
(2) Freeze mode

  When the fieldbus is off-line and on run-time errors, the EH-IOCP freezes the output data.

Switch	Position
1	Don't care
2	Don't care
3	Don't care
4	On
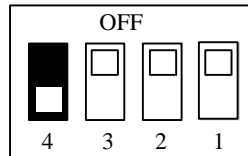
3.2.2 Bus termination

The start node and the end node in a Profibus-DP network has to be terminated to avoid reflections on the bus line. The EH-RMP is equipped with a termination switch to accomplish this in an easy way.

If the module is used as the first or last module in a network the termination switch has to be in ON position.

Otherwise the switch has to be in OFF position.

Termination switch	Bus termination
ON	ENABLED
	If the module is the last or first module, the bus termination has to be set on, or an external termination connector has to be used.
OFF	DISABLED

3.2.3 Node address

The node address of the EH-IOCP has to be set before connecting to the fieldbus. This is done with two rotary switches
On the module, this enables address setting from 1-99 in decimal format.
The example of the setting is shown in figure 3.2 .
PLEASE NOTE: The node address can not be changed during operation.

In case of the Node Address = 63
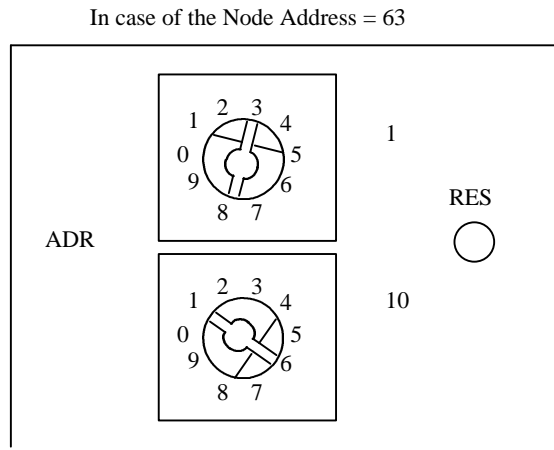
Fig. 3.2 Example of Node address setting

3.3 Configuration of the Profibus-DP Master

The Profibus-DP master must be configured according to the current EH-150 Slave Rack PI/O configuration.
Beside the EH-IOCP Identity code included in the GSD file, this configuration includes the following user defined values:
- Station address
- Configuration data
- Parameter data

The EH-150 configuration below, with an EH-150 Profibus DP Master (EH-RMP) in the EH-150 CPU rack, will be used as an example in the following chapters:
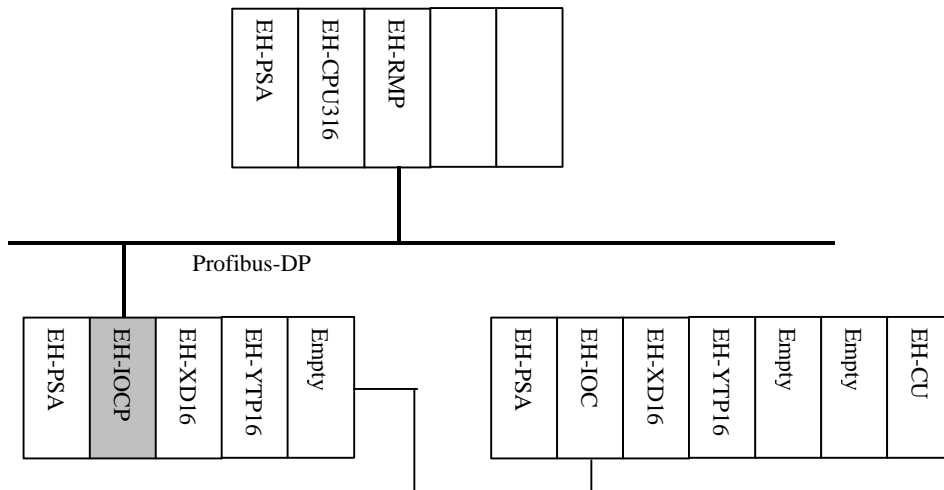
Fig. 3.3 Example of the EH-150 configuration

3.3.1 GSD file

Each device on a Profibus-DP network is associated with a GSD file, containing all necessary information about the device. This file is used by the network configuration program during configuration of the network.

The GSD file associated with the EH-IOCP is: **HITA049D.GSD**

The latest version of this GSD file can either be downloaded from the webpage http://www.hms.se/fbfiles.htm or received by contacting Hitachi.

The user must add the GSD file for the EH-IOCP in the network configuration program device data base as shown in the following example, using HMS System Configurator DP. (Order No.: KONF-PDP)

Choose **[Add device (*.GSD)]** in the **[Device data base]** menu.
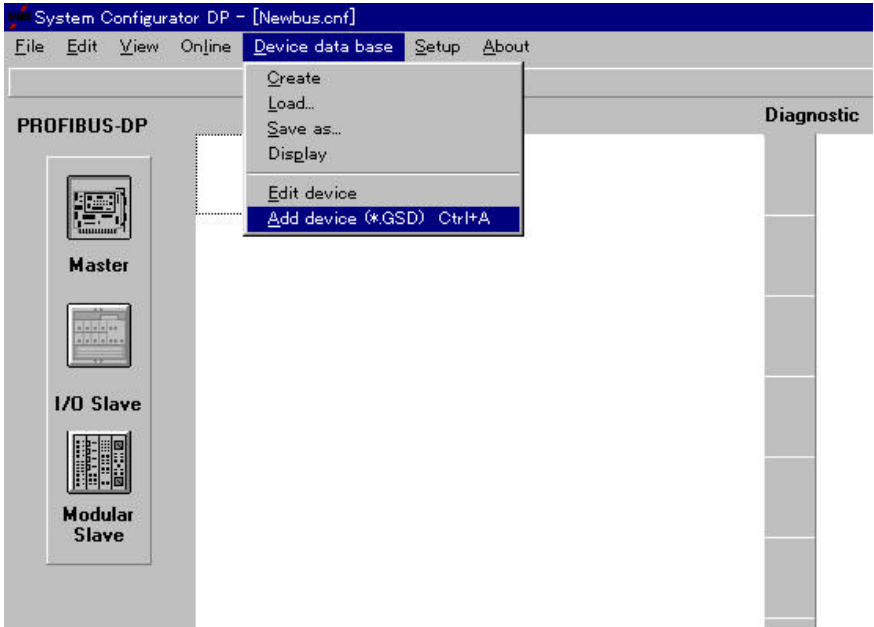
Fig. 3.4 Add device

Confirm the list of the added GSD file.

Choose **[Display]** in the **[Device data base]** menu.

Fig. 3.5 List of device data base

3-4

3.3.2 Station address

The station address is the node address set by the rotary switched as described in chapter 3.2.2 .
Choose **[Edit device]** in the **[Device database]** menu , or **Double-click** on EH-IOCP icon.
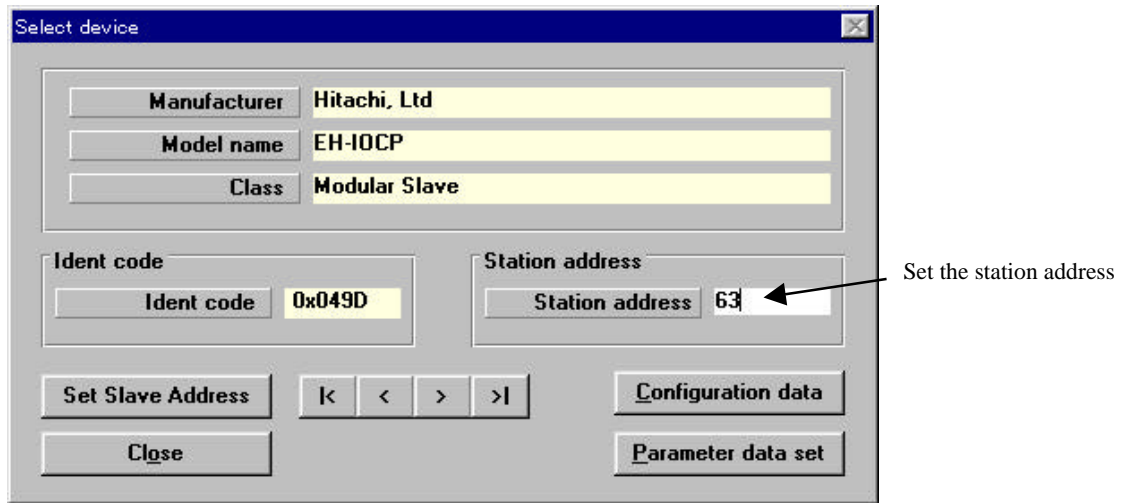
Fig. 3.6 Edit device

3.3.3 Configuration data

In the DP slave configuration data, the user shall enter IO modules that are currently installed in the slave rack.
Click **[Configuration data]** of above **"Select device"** window.
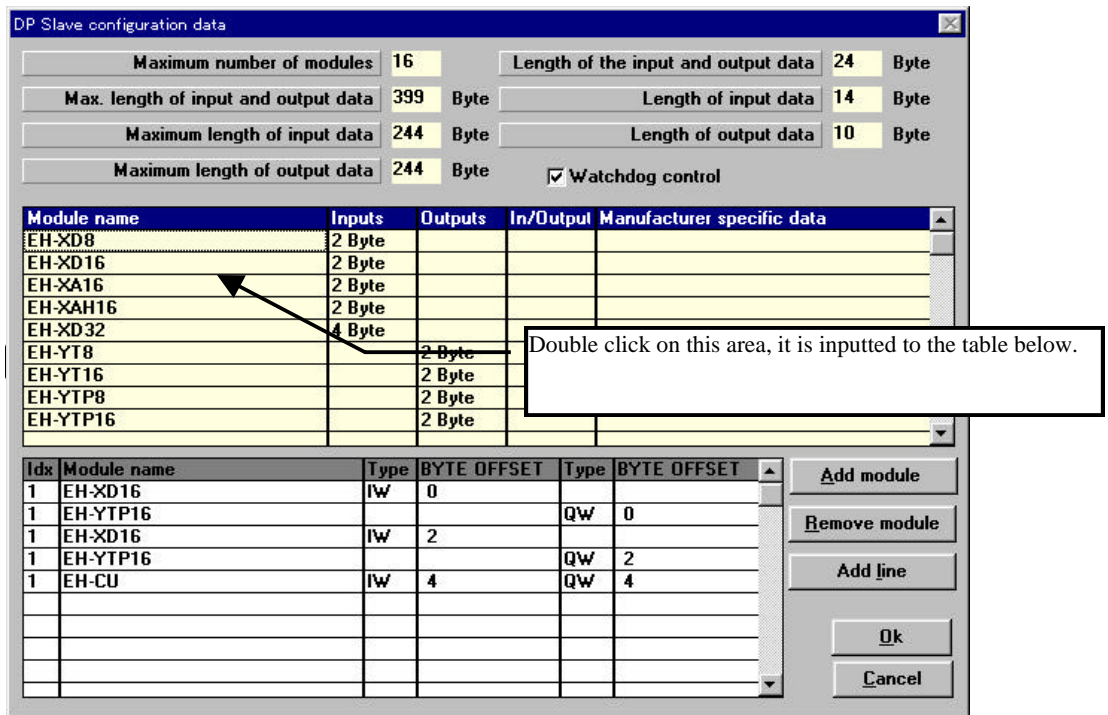
Fig. 3.7 Configuration data

3.3.4 Parameter data

During initialisation, the EH-IOCP identifies all installed IO modules. These identities are compared with the parameter data received from the master during parameterisation of the EH-IOCP Profibus-DP slave node.

If a mismatch is found in one or more identities, the parameterisation of the node is rejected and the node will not go on-line.

The parameter data shown in table 6 must therefore be set by the user according to the current slave rack configuration.

The first byte is reserved and must be 0x00. In the following 16 bytes, the identities of the installed IO modules found in table 1, chapter 2.3 are to be set.

All 16 slots (eight slots in the basic base and eight slots in the optional expansion base) must be assigned an module ID, even the empty slots.

The user data length must therefore always be set to 17.

Fig. 3.8 parameter data

Chapter 4   Installation and Wiring

4.1 Installation of Module

EH-IOCP can be installed next to the power supply module.
Install and uninstall the module after turn off the base unit power source.

4.2 Loading the Module

(1)Installing
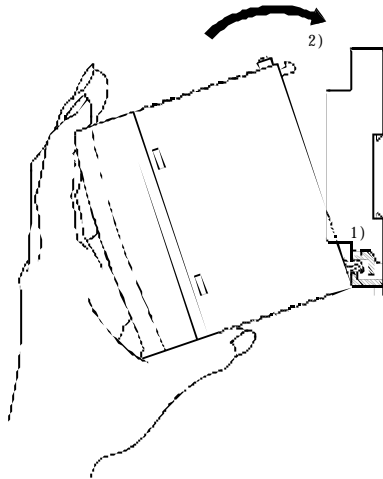
1)   Hook the claw at the lower section of the module to the hole in the base.

2)   Press in the upper side of the module until it clicks.

Note 1:   After loading the module, check to make sure it does not come out.

Note 2:   Load the power module at the leftmost side of the base unit.

Note 3:   Load the CPU module and I/O controller to the right neighbor of the power module.

(2)Removing
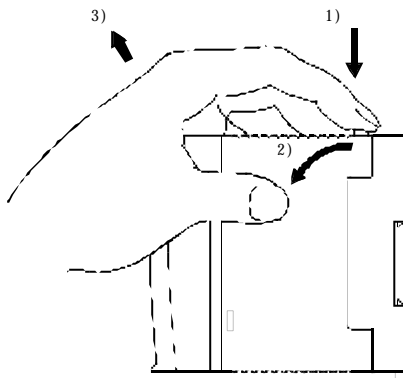
1)   Push in the lock button.
2)   With the lock button pushed in, pull the top of the module toward the front.
3)   Raise it toward the top and pull it out.

Note: For the power module, pull it out while pushing down the two lock buttons.

4.3 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 on the Internet: http://www.profibus.com

4.3.1 Profibus port

EH-IOCP has D-sub 9 pin female connector for Profibus port.
Connect the connector of axial cable outlet with this port.

Example of a suitable D-sub connector : Siemens, Order number : 6GK1500-0EA02

Table 4.1 Pin order of Profibus port

Pin	Name	Function
Housing	Shield	Connected to PE
1	Not Connected	-
2	Not Connected	-
3	B-Line	Positive RxD/TxD according to RS 485 specification
4	RTS	Request To Send *)
5	GND BUS	Isolated GND from RS 485 side *)
6	+5V BUS	Isolated +5V from RS 485 side *)
7	Not Connected	-
8	A-Line	Negative RxD/TxD according to RS 485 specification
9	Not Connected	-

*) +5V BUS and GND BUS are used for bus termination. Some devices, like optical transceivers (RS485 to fibre optics) might require external power supply from these pins. RTS is used in some equipment to determine the direction of transmission. In normal applications only A-Line, B-Line and Shield are used.

D-sub 9pin male connector
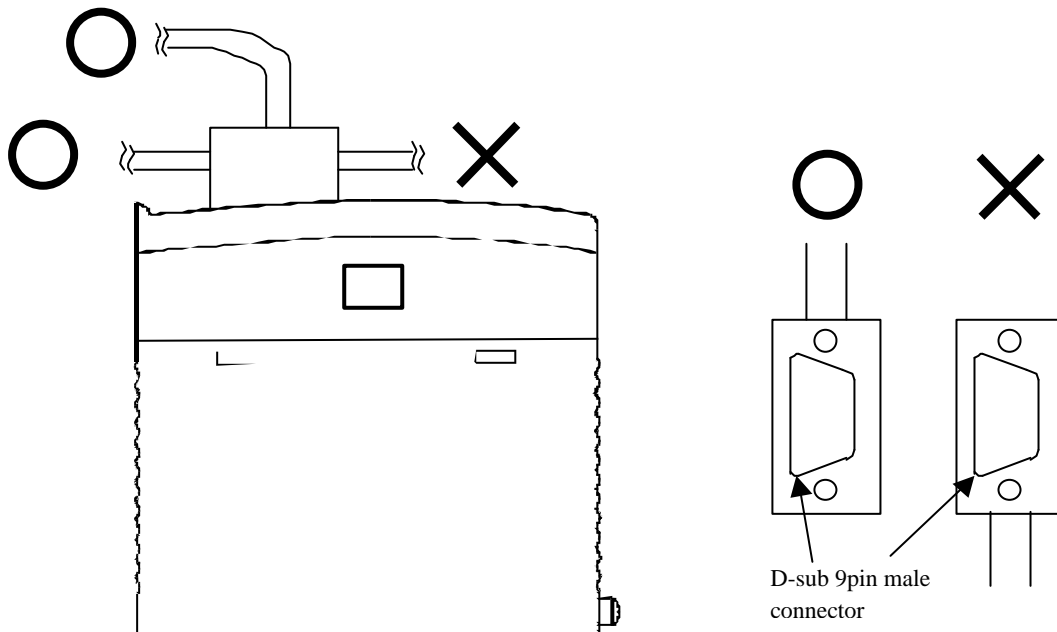
Fig. 4.1 The connector type for the EH-IOCP

4.3.2 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.

Example of cable for Profibus DP: Siemens, Order number: 6XV1830-0EH10

Table 4.2 Cable parameters

Parameter	Cable type A
Characteristic impedance	135.to.165 Ω at a frequency of 3.to.20 MHz
Operating capacity	< 30 pF/m
Loop resistance	<= 110 Ω/km
Core diameter	> 0.64 mm *)
Core cross-section	> 0.34 mm^2 *)

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

4.3.3 Maximum length of bus segment

The cable parameters specified for standard Type A bus cables result in the maximum length of each bus segment for the respective data transfer rate shown in table *.

Table 4.3 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

<Notes of wiring>

1) Add a ferrite core

   Insert a ferrite core with the bus cable.

   Insert a ferrite core with the input/output shielded wires, and wind the shielded wires by one turn around

   the ferrite core.

2) To guarantee correct operation, connect to Functional Earth from screw of D-sub female connector.
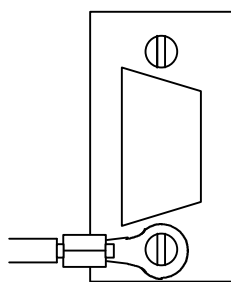
Fig. 4.2 Functional Earth

Chapter 5   Normal Operation

5.1 Start-up Sequence

When the power is turned on the EH-IOCP will perform an internal hardware check.
As a LED test, the STATUS led will flash Green -> Red -> Green -> Red.
When the initialization sequence is finished the STATUS LED will be constantly lit green, indicating that it is ready to exchange data.

5.2 Data exchange

When the fieldbus initialization sequence is finished and contact has been established with the master, the data exchange starts automatically.
The IN data is transferred within a fixed period of 5ms. The OUT data is transferred whenever new data from the master is present.

5.3 Data format

The EH-IOCP is word oriented module. The data format is below.

15	8	0
High Byte	Low Byte	
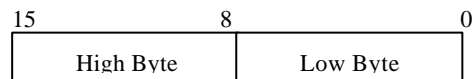
Fig. 5.1 The data format on EH-IOCP

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

7	0	
High Byte		Octet 1
Low Byte		Octet 2

Fig. 5.2 The user data format on Profibus-DP

Chapter 6   Indications

The EH-IOCP is equipped with four indication LED's on the front of the module: the EH-IOCP Status LED and three Profibus-DP Status LED's.

Off-line
On-line
Status
Not used
Fieldbus Diagnostics

6.1 EH-IOCP Status

Color: bicolour (red/green)

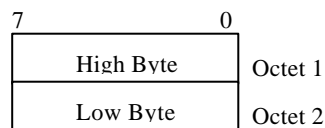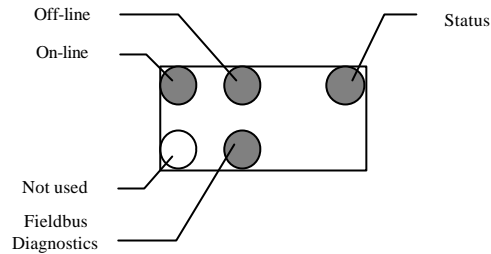Table 6.1 Status LED indications

Indication	Description
Solid green	Normal operation.
Flashing red (+ green)	Error - the number of red flashes indicates the error number. On PI/O module errors, an additional sequence of green flashes indicate the erroneous module (1 flash = slot 0). Error messages: see Table 6.2 below.
LED-test	During EH-IOCP initialisation, a LED-test sequence is run (green-red-green-red).

Table 6.2 Error messages

Error No.	Cause	Action
-	EH-IOCP internal error. Status LED is lit solid red.	Contact supplier.
1	Error in PI/O module. The number of green flashes indicate the first PI/O module to be found erroneous (1 flash = slot 0).	Exchange the indicated PI/O module.
2	One or more installed PI/O modules not supported by the EH-IOCP. The number of green flashes indicate the first found not supported PI/O module (1 flash = slot 0).	Exchange the indicated PI/O module.
3	Total PI/O module data is zero or too large.	Check the installation. The total sum of IN and OUT data must be greater than zero and less than 209 words.
4	EH-IOCP RAM or System Program error.	Contact supplier.
5	AnyBus-S hardware error.	Exchange the AnyBus-S module or contact supplier.
6	Other AnyBus-S error.	Exchange the AnyBus-S module or contact supplier.
7	Installed AnyBus-S module not supported.	Contact supplier.
8	EH-IOCP internal error	Contact supplier.

6.2 Fieldbus Diagnostics

Color: Red

Table 6.3 Fieldbus diagnostics LED indications

Indication	Description
Flashing red - 1 Hz	IN and / or OUT length set during initialisation of the module is not equal to the length set during configuration of the network.
Flashing red - 2 Hz	Error in parameter data.
Flashing red - 2 Hz	Error in PDP initialisation.
Off	No diagnostics present.

6.3 On-line

Color: Green

Table 6.4 On-line LED indications

Indication	Description
On	Module is on-line and data exchange is possible.
Off	Module is not on-line.

6.4 Off-line

Color: Red

Table 6.5 Off-line LED indications

Indication	Description
On	Module is off-line and no data exchange is possible.
Off	Module is not off-line.

Chapter 7　　Daily and Periodic Inspection

In order to use the EH-IOCP functions in the most desirable condition and maintain the system to operate normally, it is essential to conduct daily and periodic inspections.

(1)　Daily inspection
Verify the following items while the system is running.

Table 7.1　Items for daily inspection

Item	LED display	Inspection method	Normal status	Main cause of error
EH-IOCP indication	STATUS	Visual check	Lit Green	When unlit: Power supply error or Hardware error of EH-IOCP. When lit Red: Hardware error of EH-IOCP When flashing: This module has some error or warning.
	LINE-ON	Visual check	Lit Green	When unlit: Power supply error or This module could not communication with Profibus-DP Master
	LINE-OFF	Visual check	Unlit	When lit Red: This module could not communication with Profibus-DP Master.
	DIAG	Visual check	Unlit	When flashing: This module has some error or warning.

(2)　Periodic inspection
Turn off the power for the external I/O ladder and check the following items once every six months.

Table 7.2　Items for periodic inspection

Part	Item	Check criteria	Remarks
Power supply	Check for voltage fluctuations	85 to 264 V AC (when EH-PSA) 21.6 to 26.4 V DC (when EH-PSD)	Tester
Installation and connecting areas	(1) All modules are securely fixed (2) All connectors fit snugly (3) All screws are tight (4) All cables are normal	No defects	Tighten Check insertion Tighten Visual check
Ambient environment	(1) Temperature (2) Humidity (3) Other	0 to 55 °C 20 to 90 % RH (no condensation) No dust, foreign matter, vibration	Visual check

Chapter 8 Troubleshooting

Trouble	Possible cause	Action
A slave does not get **on-line** even if the slave is configured in the master.	Node address in configurator does not match the actual node address.	Check the node address on the slave.
A slave does not react on a command from the PLC even if everything is configured correctly.	Wrong offset address is used in the PLC program for the specific slave.	Check the input and output offset addresses in the configurator to make sure that the right address is used.
	High byte and low byte are swapped in word data from Profibus-DP Master.	Swap the high byte and low byte in the PLC program.

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 EH-CPU and the case of using on the side of EH-IOCP.

When using EH-CU, always take care of the following attention item.

❗ **REQUIRED**

When using EH-CU on the side of EH-IOCP, 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.
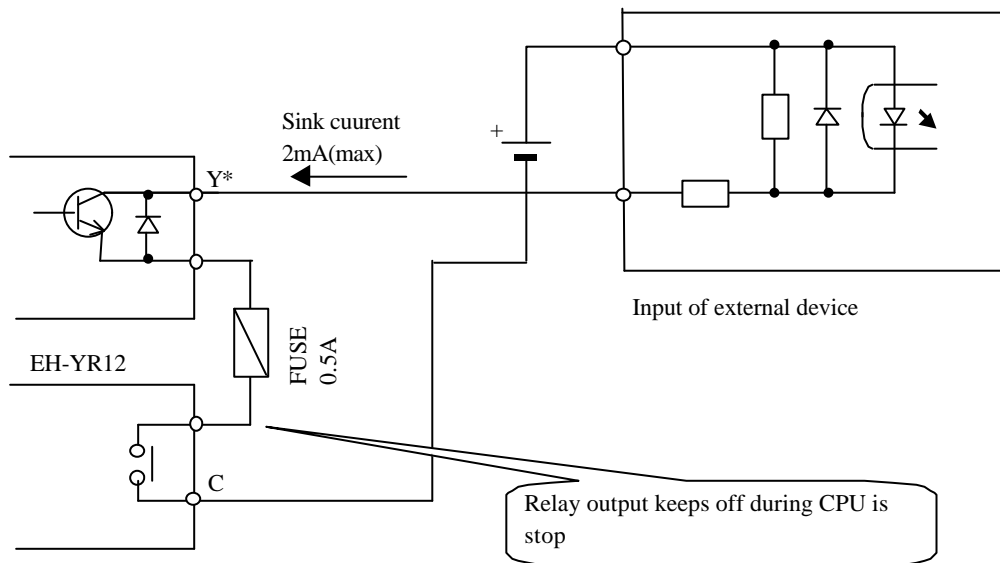
Allocates optional one point of EH-YR12 for the external input device.

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

The ladder program for EH-150 CPU is shown in the following.
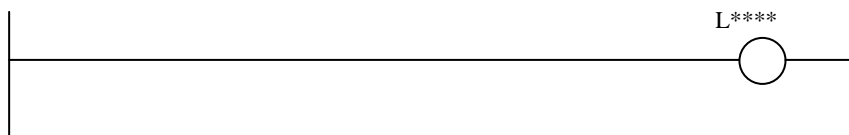
A1.2 For using the EH-POS

The partial operation is different on the case of using on the side of EH-CPU and the case of using on the side of EH-IOCP.

When using EH-POS, always take care of the following attention item.

ⓘ **REQUIRED**

When using EH-POS on the side of EH-IOCP, always use the output of EH-YR12 for "servo-on" input by the servo. (Refer to the following about controlling and wiring.)

When not used, even if PLC (the Profibus-DP master) becomes STOP during EH-POS is positioning control (while the motor turns), EH-POS continues operation until positioning completion.

The example wiring when using EH-YR12 for the "servo-on" input by the servo is shown.
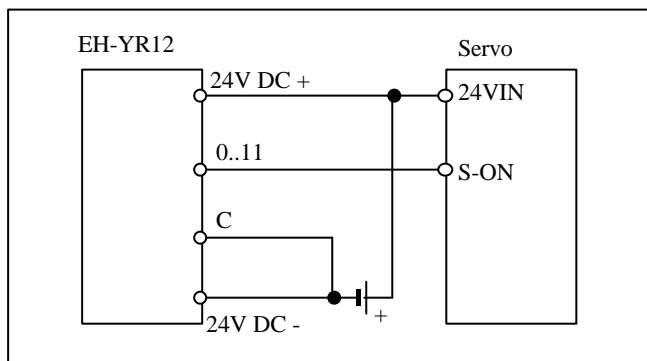
Note:
Refer to the EH-POS manual and each servo manual for wiring between
EH-POS and servo.
Refer to the manual of each servo about the function of the "S-ON" terminal
of the servo and the detailed way of wiring.

Allocates optional one point of EH-YR12 for the control of the servo on terminal.
Make a circuit at the head of the ladder program to become OFF in STOP or become ON in
RUN for PLC (the Profibus-DP master).
The ladder program for EH150 CPU is shown in the following.