HITACHI
Inspire the Next

PROGRAMMABLE CONTROLLER

EH-150

A Compact Body Packed with Next-Generation Capabilities. This is What the Control Systems of Tomorrow Really Need.

Control systems are increasingly being introduced in diverse fields.
At the same time, automatic machines have rapidly become more sophisticated.
The programmable controller that forms the heart of a control system, no matter how small the system may be, is strongly demanded to allow for advanced, complicated control, shorter program development periods, and easier maintenance.
The EH-150 incorporates the most advanced technologies in its compact body, such as a 32-bit RISC chip microcomputer for high-speed arithmetic operations, various application commands, and Flash memory. With its high performance and high functions, the EH-150 positively meets the new needs of the small and medium-sized control systems of tomorrow.

Program Memory 48k steps

NEW CPU EH-CPU548/516

Expansion : EH-CPU548 maximum 4, EH-CPU516 maximum 2
Slot for communication module : maximum 0 to 7
(in use of new base EH-BS5A/EH-BS8A/EH-BS11A)
New timer TM (maximum 2,048 points)

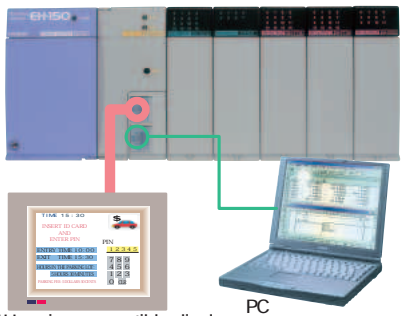
C-Tick compliant model is also available.

Point 1

Two communication ports are provided as standard in the small-sized CPU.

EH-150's CPU has two communication ports: Port 1 and Port 2.
Port 1 can be used as a dedicated port and can be switched to a general-purpose port.
It also supports the modem control function (except for EH-CPU104A).
Port 2 can be used as a dedicated port for programming devices.
When a general-purpose port is designated, the TRNS command can be used, making operation easier and improving connectivity.
The interface be selected from RS-232C, RS-422, and RS-485 for port 1 general-purpose port and the port 1 dedicated port (EH-CPU316A and EH-CPU516/548) .

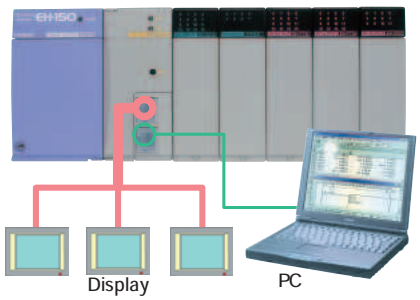
① When Port 1 is used as a dedicated port



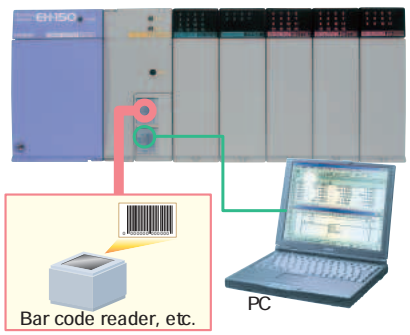
H/EH series compatible display

Multi-link connection of displays (EH-CPU316A and EH-CPU516/548)

Port 1 can be switched among RS-232C, RS-422, and RS-485.
Task code communication with a station number by HI-PROTOCOL can be supported by using RS-422.



② When Port 1 is used as a general-purpose port

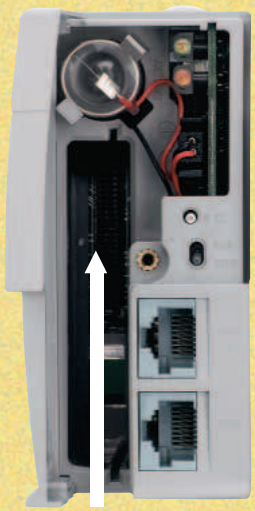


Point 2

A memory board that can read and write programs can be loaded in the CPU. (EH-CPU316A, and EH-CPU516/548)

Transferring and comparing programs can be done without a programming device.
The CPU can be operated with the program on the memory board.

A memory board that can store data (384k words)in addition to the program is also available (EH-MEMD).
The memory board employs a battery-less Flash memory to make maintenance easier.



Memory board
Model : EH-MEMP
EH-MEMD

Point 3

The compact and stylish EH-150 meets various automation requirements.

As many as 512 I/O points can be configured on the EH-150, which is only 372.5 mm (W)× 100 mm (H) × 109 mm (D) in size.
The EH-150's compact size helps reduce machine size and save installation space, and its bright color and sleek design adds aesthetic appeal to the entire system.

Point 4

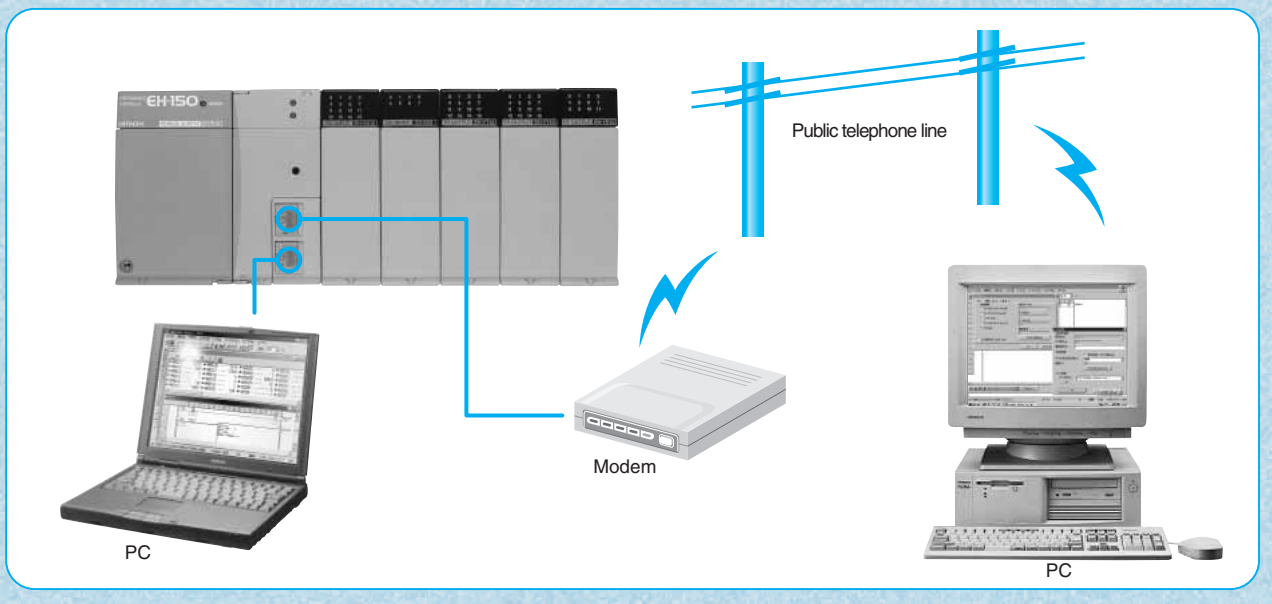
The modem connection capability incorporated as a standard feature allows for 38.4 kbps high-speed communication (EH-CPU208A, EH-CPU316A, and EH-CPU516/548).

Port 1 of EH-150′s CPU(except for EH-CPU104A)has a modem connection function that supports 38.4 kbps high-speed communication.

The control operation can be remotely monitored through the public telephone line.

The clock function also incorporated as a standard feature realizes real-time control without an additional module.

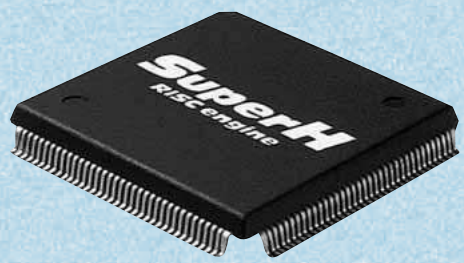
LADDER EDITOR for Windows® Ver. 2.0 latter has the dial-up function. It is possible to connect to the public telephone line using the software.



Point 5

The state-of-art technologies and functions realize high-speed processing of complicated control.

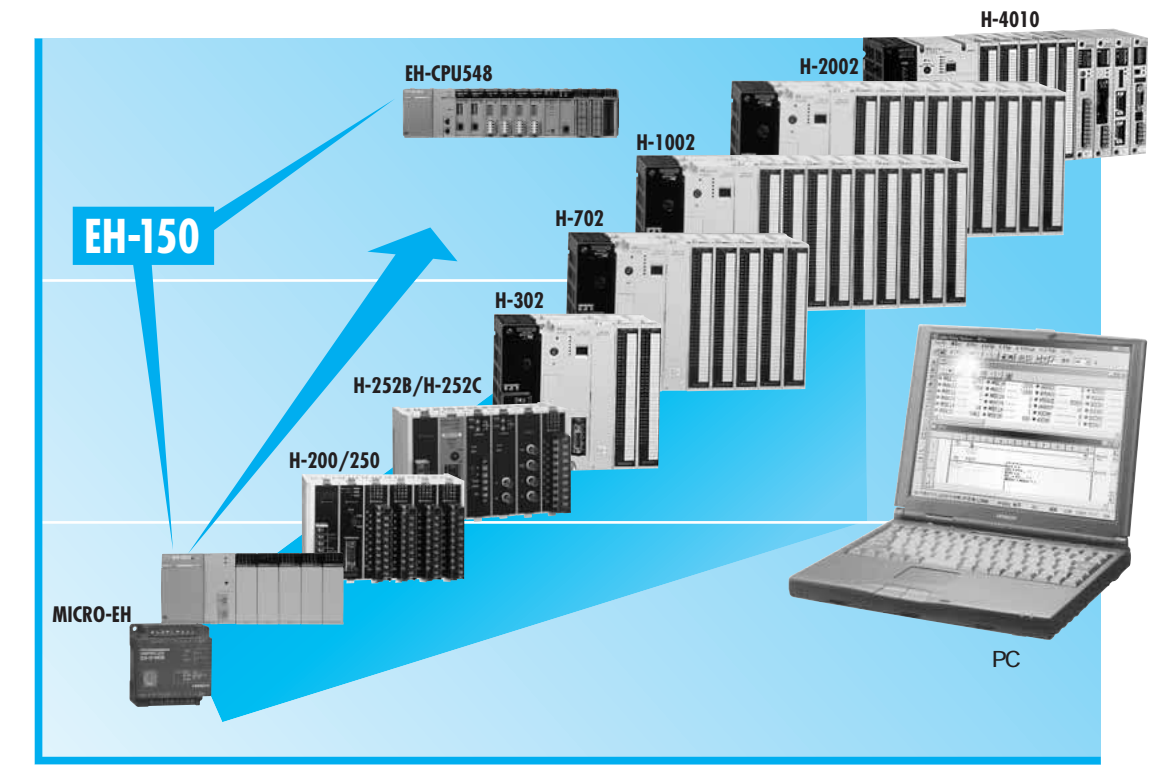
- The EH-150 contains a 32-bit RISC processor (Super H series made by Hitachi, Ltd.) that allows high-speed operations.
- To protect valuable programs from being erased, the EH-150 has a Flash memory for storing user programs.
- As many as 193 commands (EH-CPU516/548) are available. Commands such as REFRESH assure quick response to high-speed operation of assembly machines.



Point 6

Compatibility with H series PLC utilizes valuable existing user programs.

- The same programming software 'LADDER EDITOR' can be used.
- LADDER EDITOR for Windows® provides easier programming and debugging with its comfortable operation environment.
- Various types of displays and monitoring software compatible with the H series PLC can be used as peripheral equipment.



Point 7

The maintenance fo EH-150 is easy even after installed in a machine.

- Flash memory protects user programs even if the power fails.
- Programs can be easily modified even while the CPU is running. This helps reduce the time required for a test run.
- Easy installation by snapping on a DIN rail
- Removable terminal block for easy set-up
- The battery for data memory back-up can be replaced by opening the hinged front cover of the CPU.

System Composition

Power supply module

Model	Specification
EH-PSA	Input: 100 to 240 V AC Output: 5 V DC 3.8 A, 24 V DC 0.4 A
EH-PSD	Input: 21.6 to 26.4 V DC Output: 5 V DC 3.8 A

Memory board

Model	Specification
EH-MEMP	Program capacity: 48k steps
EH-MEMD	Program capacity: 16k steps Data capacity: 384k words

Base unit

Model	Specification
EH-BS3A	3 I/O modules can be installed
EH-BS5A	5 I/O modules can be installed
EH-BS8A	8 I/O modules can be installed
EH-BS11A	11 I/O modules can be installed

EH-BS11A is supported by EH-CPU516/548.

Cables for connecting peripheral devices

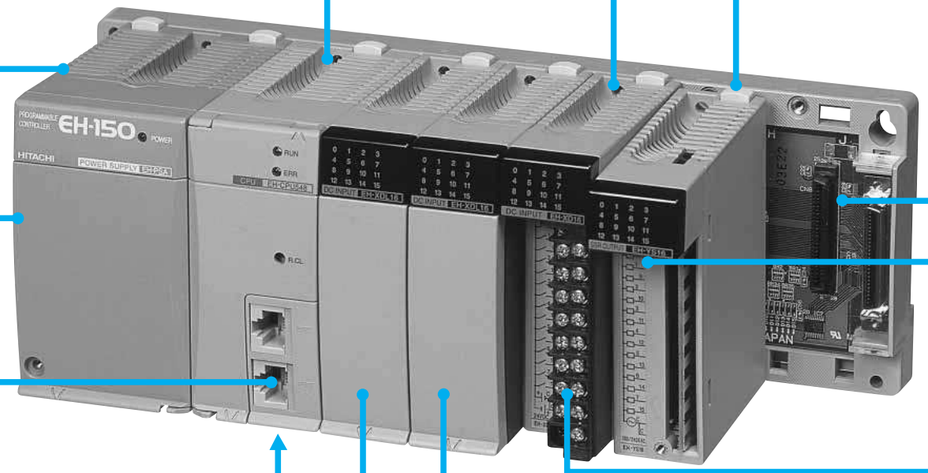
Model	Specification
EH-VCB02	Direct connection between EH-150 and a personal computer (2m)
WVCB02H	Connection with a personal computer, EH-RS05 is required. (2m)
EH-RS05	Adapter cable for WVCB02H (0.5m)

I/O controller connecting cable

Model	Specification
EH-CB05A	Length: 0.5m (Between Base unit and EH-IOCH)
EH-CB10A	Length: 1m (Between Base unit and EH-IOCH)
EH-CB20A	Length: 2m (Between Base unit and EH-IOCH)

CPU module

Model	Specification
EH-CPU104A	4k steps 2 ports (19.2 kbps) (Cannot be expanded)
EH-CPU208A	8k steps, 2 ports (38.4kbps), Clock function, Modem control function
EH-CPU316A	16k steps, 2 ports (38.4 kbps), Clock function, Modem control function, RS-422/RS-485 delicated/general port, PID
EH-CPU516	16k steps, 2 ports (38.4 kbps), Clock function, Modem control function, RS-422/RS-485 delicated/general port, PID
EH-CPU548	48k steps, 2 ports (38.4 kbps), Clock function, Modem control function, RS-422/RS-485 dedicated/general port, PID



I/O controller

Model	Specification
EH-IOCH	I/O control module (One unit / one expansion base, EH-CPU104 is not expandable.)
EH-IOCD	DeviceNet slave module, 256-word input and 256-word output
EH-IOCP	PROFIBUS slave module, 209-word input and 209-word output

Counter module, positioning module

Model	Specification
EH-CU	High-speed counter input, 2ch 32-bit, 100 kHz max.
EH-CUE	High-speed counter input, 1ch 32-bit, 100 kHz max.
EH-POS	1-axis pulse positioning
EH-POS4	4-axis pulse positioning

Analog input module

Model	Specification	Model	Specification
EH-AX44	12-bit analog input Current 4–20 mA, Voltage 0–10 V, 4ch each Removable terminal block	EH-AX8O	12-bit analog input Current 0 – 22 mA, 8ch Removable terminal block
EH-AX8V	12-bit analog input Voltage 0–10 V, 8ch Removable terminal block	EH-PT4	Resistance Temperature Detective input module (Pt100/1000), Signed 15 bit, 4ch
EH-AX8H	12-bit analog input Voltage –10 to 10 V, 8ch Removable terminal block	EH-TC8	Thermocouple input module (K, E, J, T, B, R, S, N)
EH-AX8I	12-bit analog input Current 4 – 20 mA, 8ch Removable terminal block		

Communication module

Model	Specification	Model	Specification
EH-RMD	DeviceNet master module 256-word input, 256-word output, Up to 2 units can be installed per CPU	EH-LNK	CPU Link module (coaxial cable)
EH-RMP	PROFIBUS master module 256-word input, 256-word output, Up to 2 units can be installed per CPU	EH-OLNK	CPU Link module (optical cable)
EH-ETH	Ethernet module IEEE802.3 standard 10BASE-T	EH-SIO	Serial communication module

Analog output module

Model	Specification
EH-AY22	12-bit analog output, Current 4–20 mA, Voltage, 0–10 V, 2ch each Removable terminal block
EH-AY4V	12-bit analog output, Voltage 0–10 V, 4ch Removable terminal block
EH-AY4H	12-bit analog output, Voltage –10 to 10 V, 4ch Removable terminal block
EH-AY2H	12-bit analog output, Voltage –10 to 10 V, 2ch Removable terminal block

Dummy module

Model	Specification
EH-DUM	Module for an open slot

Input module

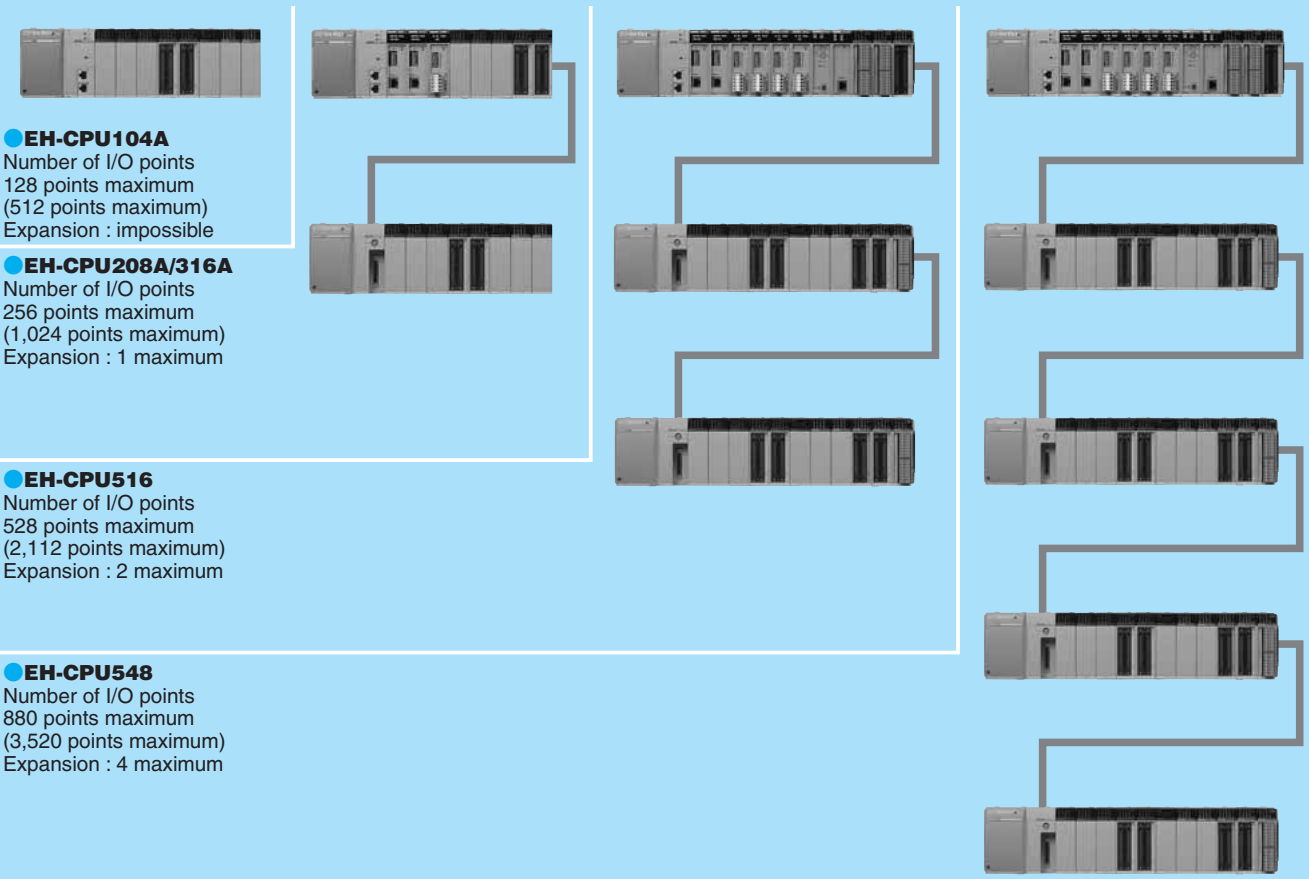
Model	Specification
EH-XD8	8 points, 24 V DC input, Removable terminal block
EH-XD16	16 points, 24 V DC input, Removable terminal block
EH-XDL16	16 points, 24 V DC input, Removable terminal block (Input lag 16ms)
EH-XA16	16 points, 100 V AC input, Removable terminal block
EH-XAH16	16 points, 200 V AC input, Removable terminal block
EH-XD32	32 points, 24 V DC input, Connector
EH-XD32E	32 points, 24 V DC input, Euro-terminal
EH-XDL32E	32 points, 24 V DC input, Euro-terminal (Input lag 16ms)
EH-XD64	64 points, 24 V DC input, Connector

Output module

Model	Specification
EH-YT8	8 points, Transistor output, 12/24 V DC, Removable terminal block (Sink type logic)
EH-YTP8	8 points, Transistor output, 12/24 V DC, Removable terminal block (Source type logic)
EH-YT16	16 points, Transistor output, 12/24 V DC, Removable terminal block (Sink type logic)
EH-YTP16	16 points, Transistor output, 12/24 V DC, Removable terminal block (Source type logic)
EH-YTP16S	16 points, Transistor output, 12/24 V DC with short circuit protection, Removable terminal block (Source type logic)
EH-YT32	32 points, Transistor output, 12/24 V DC with short circuit protection, Connector type (Sink type logic)
EH-YTP32	32 points, Transistor output, 12/24 V DC with short circuit protection, Connector type (Source type logic)
EH-YT32E	32 points, Transistor output, 12/24 V DC with short circuit protection, Euro-terminal (Sink type logic)
EH-YTP32E	32 points, Transistor output, 12/24 V DC with short circuit protection, Euro-terminal (Source type logic)
EH-YT64	64 points, Transistor output, 12/24 V DC with short circuit protection, Connector type (Sink type logic)
EH-YTP64	64 points, Transistor output, 12/24 V DC with short circuit protection, Connector type (Source type logic)
EH-YS4	4 points, Triac output, 100/240 V AC, Removable terminal block, 0.5A
EH-YS16	16 points, Triac output, 100/240 V AC, Removable terminal block, 0.3A
EH-YR12	12 points, Relay output, 100/240 V AC, 24 V DC, Removable terminal block
EH-YR8B	8 points, Independent relay output, Varistor, 100/240 V AC, 24 V DC, Removable terminal block
EH-YR16	16 points, Relay output, 100/240V AC, 24 V DC, Removable terminal block

System Configuration

Standalone



●EH-CPU104A
Number of I/O points
128 points maximum
(512 points maximum)
Expansion : impossible

●EH-CPU208A/316A
Number of I/O points
256 points maximum
(1,024 points maximum)
Expansion : 1 maximum

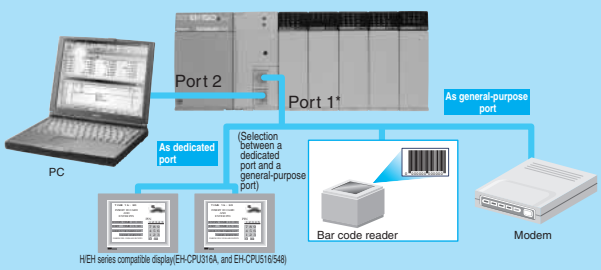
●EH-CPU516
Number of I/O points
528 points maximum
(2,112 points maximum)
Expansion : 2 maximum

●EH-CPU548
Number of I/O points
880 points maximum
(3,520 points maximum)
Expansion : 4 maximum

( ) : when 64 points I/O modul is used

EH-BS11A is supported by EH-CPU516/548.

Application System



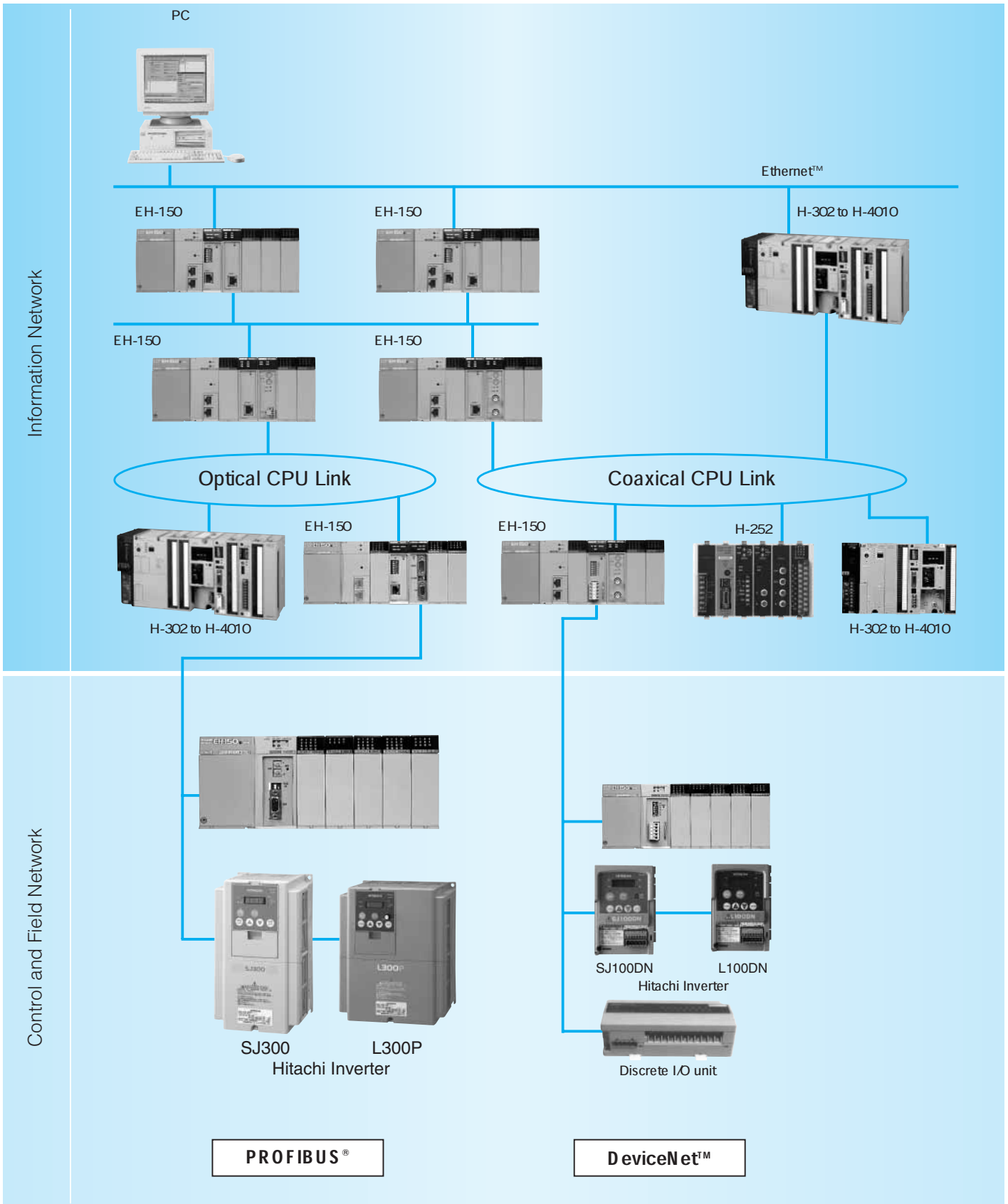
*EH-CPU316A and EH-CPU516/548 can select either RS-232C or RS-422/485 on the general-purpose port or the dedicated port.

●Communication port functions

	Port specification	Interface	Connection mode	Communication protocol	Connected device
Port 1	Dedicated	RS-232C	1 : 1	H-Protocol (procedure 1 or 2)	PC (Programming software or SCADA), HMI, etc.
				AT command, H-Protocol (procedure 1 or 2)	Modem
		RS-422 *	1 : 1	H-Protocol (procedure 1 or 2)	PC (Programming software or SCADA), HMI, etc.
			1 : N	H-Protocol with station number (procedure 1 or 2)	
		RS-485 *	1 : 1	H-Protocol (procedure 1)	PC (Programming software or SCADA), HMI, etc.
			1 : N	H-Protocol with station number (procedure 1 or 2)	
	General purpose	RS-232C	1 : 1	No protocol operated by TRNS/RECV command in user program	Bar code reader, serial printer, PC, etc.
		RS-422 *	1 : 1, 1 : N		
		RS-485 *	1 : 1, 1 : N		
Port 2	Dedicated	RS-232C	1 : 1	H-Protocol (procedure 1)	PC (Programming software or SCADA), HMI, etc.

* Supported by the EH-CPU316A/516/548

Network System



●DeviceNet is a trademark of Open DeviceNet Vendor Association.
●PROFIBUS is a registered trademark of Profibus Nutzer Organization.
●Ethernet is a trademark of Xerox Corporation.

Specifications

CPU

Model	Name		EH-150				
	Type		EH-CPU104A	EH-CPU208A	EH-CPU316A	EH-CPU516	EH-CPU548
Number of I/O points	16-point I/O module		128 point maximum	256 point maximum		528 point maximum	880 point maximum
	64-point I/O module		512 point maximum	1024 point maximum		2112 point maximum	3520 point maximum
Control specifications	CPU		32-bit RISC processor				
	Processing method		Stored program cyclic method				
	Processing speed	Basic commands	1.0 μs/command			0.1 μs / command	
		Application commands	Several 10 μs/command				
	User program memory		4 k steps (RAM) 4 k steps (Flash memory)	8 k steps (RAM) 8 k steps (Flash memory)	16 k steps (RAM) 16 k steps (Flash memory)		48k steps (RAM) 48k steps (Flash memory)
Calculation processing specifications	Command language	Basic commands	39 types such as LD, LDI, AND, ANI, OR, ORI, ANB, ORB, OUT, MPS, MRD, MPP			40 types such as LD, LDI, AND, ANI, OR, ORI, ANB, ORB, OUT, MPS, MRD, MPP	
		Arithmetic commands Application commands	116 types	117 types	145 types	153types	
	Ladder	Basic commands	39 types such as			40 types such as	
		Arithmetic commands Application commands	116 types	117 types	145 types	153 types	
I/O processing specifications	External I/O	I/O processing method	Refresh processing				
		16 points I/O module	128 points maximum	256 points maximum			
	Internal output	Bit	1,984 points (R0 to R7BF)				
		Word	4,096 words (WR0 to WRFFF)	8,192 words (WR0 to WR1FFF)	22,528 words (WR0 to WR57FF)		50,176 words (WR0 to WRC3FF)
		Special Bit	64 points (R7C0 to R7FF)				
		Special Word	512 words (WRF000 to WRF1FF)				
		CPU link	16,384 points 1,024 words × 2 loops (L0 to L3FFF/L10000 to L13FFF, WL0 to WL3FF/WL1000 to WL13FF)				
		Remote I/O	–			512 points × 4 master stations	
		Bit/word shared	16,384 points 1,024 words (M0 to M3FFF, WM0 to WM3FF)				
	Timer and counter	Number of points	512 points (TD + CU) However, TD is up to 256 points*1			512 points (TD + CU) However, TD is up to 256 points*1 2,048 points (TM)*3	
		Timer set value	0 to 65,535, timer base 0.01s, 0.1s, 1s (64 points are maximum for 0.01s*2)			TD:0 to 65,535, timer base 0.01s, 0.1s, 1s (64 points are maximum for 0.01s*2) TM:0 to 65,535, timer base 0.01s	
		Counter set value	1 to 65,535 times				
	Edge detection		512 points (DIF0 to DIF511: decimal) + 512 points (DFN0 to DFN511: decimal)				
Weight			Approximately 0.18kg(0.4lb.)			Approximately 0.2kg(0.44lb.)	
Peripheral equipment	Program method		Command language, ladder diagram				
	Peripheral devices		Programming software (LADDER EDITOR for Windows® / LADDER EDITOR DOS version, PRO-H (IEC61131-3)), Command language programmer, Portable graphic programmer, Graphic input device				
Maintenance functions	Self-diagnosis		PC error (LED) display : microcomputer error, watchdog timer error, memory error, program error, system ROM/RAM error, scan time monitoring, battery under-voltage detection, and others				
Additional functions	Clock function, modem control function		–	Yes			
	Memory board		–		Yes		
	Instruction	PID instruction	–		Yes		
		data logging	–		Yes		
		BINARY/ASCII conversion	Yes				
		Telecommunication	–	Yes			
		Floating Point	–		Yes		
	RS-422/485 interface at general-purpose port		–		Yes		
	RS-422/485 interface at dedicated / general-purpose port		–		Yes		

*1: The same numbers cannot be used with the timer and the counter. TD is 0 to 255.
*2: Only timers numbered 0 to 63 can use 0.01s for their timer base.
*3: Supported by LADDER EDITOR for Windows® ver.3

Memory board

Item	EH-MEMP	EH-MEMD
Program capacity	See page 2	See page 2
Data capacity	—	384k words
Program transfer function	Yes	Yes
Memory	Flash	Flash
Weight	Approximately0.05kg (0.11lb.)	

Power supply module

Item		EH-PSA	EH-PSD
Input	Rated voltage	85 to 264V AC	21.6 to 26.4 V DC
	Current	1A or less (85 to 264V AC)	1.25A or less (24V DC)
	Inrush current	50 A or less (Ta = 25°C), 100 A or less (Ta = 55°C)	50 A or less (Ta = 25°C), 100 A or less (Ta = 55°C)
Output	5V DC	3.8A	3.8A
Current	24V DC	0.4A	—
Weight		Approximately 0.36kg (0.79lb.)	

DC and AC Input Module

Item		Specification				
Type		EH-XD8	EH-XD16	EH-XDL16	EH-XA16	EH-XAH16
Input specification		DC input			AC input	
Input voltage		24 V DC			100 to 120 V AC	200 to 240 V AC
Allowable input voltage range		19.2 to 30 V DC			85 to 132 V AC	170 to 264 V AC
Input impedance (Approximately)		3.5kΩ	5.9 kΩ		16 kΩ(50 Hz),13 kΩ(60 Hz)	32 kΩ(50 Hz),27 kΩ(60 Hz)
Input current (Approximately)		6.9mA	4.0mA		4.8 to 7.6mA (100 V AC / 50Hz)	4.3 to 8.0mA (200 V AC / 50Hz)
Operating voltage	ON voltage	15 V or more			79 V AC	164 V AC
	OFF voltage	5 V or less			20 V AC	40 V AC
Input lag	OFF→ON	5 ms or less (4 ms TYP)		16 ms or less (13 ms TYP)	15 ms or less	
	ON→OFF	5 ms or less (4 ms TYP)		16 ms or less (13 ms TYP)	25 ms or less	
Number of input points		8 points / module	16 points / module		16 points / module	
Number of common points		2 common points / 8 inputs*	2 common points / 16 inputs*		2 common points / 16 inputs*	
Polarity		None			None	
Insulation method		Photocoupler insulation			Photocoupler insulation	
Input display		LED (green)			LED (green)	
Weight		Approximately 0.16kg(0.35lb.)			Approximately 0.18kg(0.4lb.)	
External connection		Removable screw terminal block (M3)			Removable screw terminal block (M3)	
Internal current consumption (5V DC)		Approximately 26 mA	Approximately 51 mA		Approximately 51 mA	Approximately 51 mA

*Commons are connected internally.

Transistor Output Module

Item		Specification				
Type		EH-YT8	EH-YT16	EH-YTP8	EH-YTP16	EH-YTP16S (with short-circuit protection)
Output specification		Transistor output (sink type)		Transistor output (source type)		
Rated load voltage		12/24 V DC (+10%, —15%)		12/24 V DC (+10%, —15%)		
Minimum switching current		1mA		1mA		
Leak current		0.1mA		0.1mA		
Maximum load current	1 point	0.5A				0.8A
	1 common	2.3A	4A	2.4A	4A	5A
Output responese time	OFF→ON	0.3 ms or less		0.3 ms or less		
	ON→OFF	1 ms or less		1 ms or less		
Number of output of points		8 points / mudule	16 points / mudule	8 points / mudule	16 points / mudule	
Number of common points		1 common point / 8 outputs*	1 common point / 16 outputs*	1 common point / 8 outputs*	1 common point / 16 outputs*	
Surge removal circuit		Diode		Diode		Built-in
Fuse*1		4 A / common	8 A / common	4 A / common	8 A / common	None
Insulation method		Photocoupler insulation		Photocoupler insulation		
Output display		LED (green)		LED (green)		
Weight		Approximately 0.16kg(0.35lb.)				
External connection		Removable screw terminal block (M3)		Removable screw terminal block (M3)		
Internal current consumption (5 V DC)		Approximately 30 mA	Approximately 50 mA	Approximately 30 mA	Approximately 50 mA	
External power supply*2 (For supplying power to the S terminal)		12/24 V DC (+10%, —15%) (maximum 30 mA)		12/24 V DC (+10%, —15%) (maximum 30 mA)		

*1: The module needs to be repaired in case a load short causes a blown fuse. Funthermore, the fuse cannot be replaced by the user. *2: It is necessary to supply 12/24 V DC externally to the S terminal.

Relay and AC (SSR) Output Module

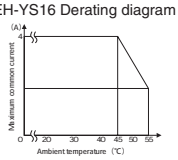
Item		Specification				
Type		EH-YR8B	EH-YR12	EH-YR16	EH-YS4	EH-YS16
Output specification		Independent relay output	Relay output		Triac output	
Rated load voltage		100/240 V AC, 24 V DC			100/240V AC (85 to 250V AC)	
Minimum switching current		1 mA (5V DC except after switching with excessive current)			100mA	10mA
Leak current		None			5mA or less	2mA or less
Maximum load current	1 point	2A			0.5A	0.3A
	1 common	2A	5A	8A	2A	4A (Derating diagram)
Output response time	OFF→ON	10 ms or less			1ms or less	
	ON→OFF	10 ms or less			1ms + 1/2 cycles or less	
Number of output of points		8 points/module	12 points / module	16 points/module	4 points / module	16 points / module
Number of common points		1 common point / 1 output	1 common point / 12 outputs (Common terminal is 2 points) *1	1 common point / 16 outputs (Common terminal is 2 points) *1	1 common point / 4 outputs	1 common point / 16 outputs (Common terminal is 2 points) *1
Surge removal circuit		Varistor (voltage characteristic of varistor : 423~517V)	None		Varistor	
Fuse		None			4 A / 1 common	6.3 A / 1 common*3
Insulation method		Relay insulation	Photocoupler insulation	Relay insulation	Photo-triac insulation	
Output display		LED (green)				
Weight		Approximatery 0.16kg(0.35lb.)	Approximatery 0.20kg(0.44lb.)	Approximatery 0.16kg(0.35lb.)	Approximatery 0.18kg(0.40lb.)	Approximatery 0.23kg(lb.)
External connection		Removable type screw terminal block (M3)				
Internal current consumption (5 V DC)		Approximately 220 mA	Approximately 40 mA	Approximately 440 mA(Approximately 430 mA)*2	Approximately 100mA	Approximately 250mA
Externally supplied power*2 (for driving relays)		Not used	24 V DC (+10%, —5%) (maximum 70 mA)	Not used	Not used	Not used

*1: The common terminals are connected internally.

*2: 24 V DC must be supplied externally to drive the relays. (The 24 V output of the power module may be used.)

*3: Be sure to conect the fuse to external wiring

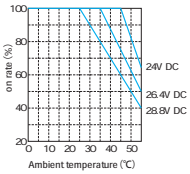
EH-YS16 Derating diagram



32-/64-point DC Input Module


EH-XD32


EH-XD64



EH-XD64
Derating chart

Item		Specification	
Type		EH-XD32	EH-XD64
Input specification		DC input	
Input voltage		24 V DC	
Allowable input voltage range		19.2 to 30 V DC	20.4 to 28.8 V DC
Input impedance		Approximately 5.6 kΩ	
Input derating		—	See the derating chart
Input current		Approximately 4.3 mA	
Operating voltage	ON voltage	15 V or more	
	OFF voltage	5 V or less	
Imput lag	OFF→ON	5 ms or less	1 ms or less
	ON→OFF	5 ms or less	1 ms or less
Number of input points		32 points / module	64 points / module
Number of common points		32 points / 1 common (common terminal is 4*1)	
Polarity		None	
Insulation method		Photocoupler insulation	
Input display		LED (green)*2	
Weight		Approximately 0.15kg(0.33lb.)	Approximately 0.14kg(0.31lb.)
External connection		Connector	
Internal current consumption (5V DC)		Approximately 100 mA	Approximately 70 mA

*1: Commons are connected internally.
*2: There are 16 LED displays. Use the toggle switch to select a group of input points to be displayed.

32-/64-point DC Output Module


EH-YT32
EH-YTP32


EH-YT64
EH-YTP64

Item		Specification			
Type		EH-YT32	EH-YTP32	EH-YT64	EH-YTP64
Output specification		Transistor output (sink type)	Transistor output (source type)	Transistor output (sink type)	Transistor output (source type)
Rated load voltage		12 / 24 V DC (+10%, —15%)			
Minimum switching current		1 mA			
Leak voltage		0.1 mA or less			
Maximum load current	1 point	0.2 A		0.1 A	
	1common	4.0 A*1		3.2 A	
Output response time	OFF→ ON	0.3 ms or less			
	OFF→ OFF	1 ms or less			
Number of output points		32 points / module		64 points / module	
Number of common points		32 points / 1 common			
Surge removal circuit		Diode			
Fuse *2		10 A / 1 common		5 A / 1 common	
Insulation method		Photocoupler insulation			
Output display		LED (green)*3			
Short-circuit protection		Short-circuit protection function			
Weight		Approximatery 0.16kg(0.35lb.)		Approximatery 0.13kg(0.29lb.)	
External connection		Connector			
Internal current consumption (5 VDC)		Approximately 90 mA		Approximately 120 mA	
External power supply*4 (For supplying power to the S terminal)		12 / 24 VDC (+10%, —15%) (Maximum 100 mA)			

*1: Total current for 4 common pins. The maximum current for 1 pin is 3A.
*2: The fuse is soldered in the PC board. When it is blown, it is not allowed for user to replace as safety reason.
*3: There are 16 points for each LED display. The displayed group is toggled using a switch.
*4: It is necessary to supply 12/24 V DC to the S terminal

Euro-terminal 32-points DC Input Module

Item		Specification	
Type		EH-XD32E	EH-XDL32E
Input specification		DC input	
Input voltage		24 V DC	
Allowable input voltage range		20.4 to 28.8 V DC	
Input impedance		Approximately 5.6 kΩ	
Input current		Approximately 4.3mA (24VDC)	
Operating voltage	ON voltage	15 V or more	
	OFF voltage	5 V or less	
Imput lag	OFF→ON	1 ms or less	16 ms or less
	ON→OFF	1 ms or less	16 ms or less
Number of input points		32 points/module	
Number of common points		8 points/1 common (number of common terminals is 4)	
Polarity		None	
Insulation isolation		Photocoupler isolation	
Input display		LED (green)*1	
External connection		Euro-terminal	
Internal current consumption (5 V)		Approximately 60 mA	

*1: There are 16 points for each LED display. The displayed group is toggled using a switch. And, LED display is renewed by refresh processing.

Euro-terminal 32-points DC Output Module

Item		Specification	
Type		EH-YT32E	EH-YTP32E
Output specification		Transistor output (sink type)	Transistor output (source type)
Rated load voltage		12/24 V DC (+10%, -15%)	
Minimum switching current		1 mA	
Leak current		0.1 mA or less	
Maximum load current	1 point	0.2 A	
	1 common	1.0 A	
Output response time	OFF→ON	0.3 ms or less	
	ON→OFF	1 ms or less	
Number of output points		32 points/module	
Number of common points		8 points/1 common (number of common terminals is 4)	
Surge removal ladder		Diode	
Fuse*1		10 A/common	
Isolation system		Photocoupler isolation	
Output display		LED (green)*2	
Short-circuit protection		Built-in short-circuit protection function	
External connection		Euro-terminal	
Internal current consumption (5 V DC)		Approximately 90 mA	
External power supply*3 (For supplying power to the S terminal)		12/24 V DC (+10%, -15%) (maximum 30 mA)	

*1: The module needs to be repaired when a fuse blows out. Because the fuse can not be replaced by the user, please send back the module to our distributors for repair in such case.
*2: There are 16 points for each LED display. The display group is switched using a switch. And, LED display is renewed by refresh processing.
*3: It is necessary to supply 12/24 V DC from outside to the S terminal.

Terminal Block for 32/64 points I/O module

Features

- With one cable, the terminal block can be connected to a 32/64-point I/O module.
- Width of the terminal block is 40mm. It saves installation space.
- Terminal screws are retention-type. A closed-loop terminal connector can be easily attached without removing a screw.
- The terminal block can be snapped on a DIN rail.
- Connection cables between the terminal block and a 32/64-point I/O module are available.

Item	Specification
Type	HPX7DS-40V6
Number of terminals	40
Terminal width	7.62
Applicable cable	Max. 1.25mm^2
Tightening torque	0.5 – 0.75N·m
Terminal screw	M3 x 6L
Rated voltage	125 V
Rated current	1 A
Dielectric withstand voltage	500 V AC for 1 minute (Against ground: 1000 V AC for 1 minute)
Insulation resistance	1000 M Ω or more between charge and ground (500 V mega)
Vibration resistance	10 – 50Hz / dual-amplitude 1.5 mm
Shock resistance	491m/S^2 (50G) or more

Cables for 32/64-point module

With a connector at each end		With a connector at one end	
Type	Cable length	Type	Cable length
EH-CBM01W	1 m	EH-CBM01	1 m
EH-CBM03W	3 m	EH-CBM03	3 m
EH-CBM05W	5 m	EH-CBM05	5 m
EH-CBM10W	10 m	EH-CBM10	10 m

Analog Input Module

Item		Specification				
Type		EH-AX44	EH-AX8V	EH-AX8H	EH-AX8I	EH-AX8IO
Current input range		4 to 20 mA (Ch. 0 to 3)	—		4 to 20 mA	0 to 22 mA
Voltage input range		0 to 10 V DC (Ch. 4 to 7)	0 to 10 V DC	–10 to 10 V DC	—	
Resolution		12 bits				
Conversion time		5 ms or less				
Overall accuracy		±1% or less (of full-scale value)				
Input impedance	Current input	Approximately. 100Ω	—		Approximately. 100Ω	
	Voltage input	Approximately. 100 kΩ			—	
Insulation	Channel・Internal circuit	Photocoupler insulation				
	Between channels	No insulation				
Number of channels	Current input	4 channels / module (Ch. 0 to 3)	—		8 channels/module	
	Voltage input	4 channels / module (Ch. 4 to 7)	8 channels/module		—	
Weight		Approximately 0.18 kg (0.4 lb.)				
External connection		Removable screw terminal block (M3)				
Internal current consumption (5 V DC)		Approximately 100 mA				
External power supply		24 V DC (+20%, –15%) Approximately 0.15 A (Approximately 0.4 A at power On)				
External wiring		2-core shield wire (20 m (65.62 ft.) or less)				

Analog Output Module

Item		Specification				
Type		EH-AY22	EH-AY4V	EH-AY4H	EH-AY2H	EH-AY4I
Voltage output range		0 to 10 V DC (Ch. 0 to 1)	0 to 10 VDC	–10 to 10 V DC		—
Current output range		4 to 20 mA (Ch. 2 to 3)	—			4 to 20 mA
Resolution		12 bits				
Conversion time		5 ms or less				
Overall accuracy		±1 % or less (of full-scale value)				
External load resistor	Voltage output	10 kΩor more				—
	Current output	0 to 500Ω	—			0 to 350Ω
Insulation	Channel ・Internal circuit	Photocoupler insulation				
	Between channels	No insulation				
Number of channels	Voltage output	2 channels / module (Ch. 0 to 1)	4 channels / module		2 channels / module	—
	Current output	2 channels / module (Ch. 2 to 3)	—			4 channels / module
Weight		Approximately 0.18 kg (0.4 lb.)				
External connection		Removable screw terminal block (M3)				
Internal current consumption (5 VDC)		Approximately 100 mA				Approximately 130 mA
External power supply		24 V DC (+20%, –15%) Approximately 0.15 A (Approximately 0.5 A at power On)				
External wiring		2-core shield wire (20 m (65.62 ft.) or less)				

Resistance Temperature Detective Input Module

Item		Specification
Type		EH-PT4
Temperature-sensing element		Platinum resistance temperature detector Pt 100 (JIS C 1604-1989) / Pt 1000
Temperature conversion data		Signed 15 bits
Accuracy *1	–20˚C to 40˚C (Pt 100)	±0.1˚C @ 25˚C ±0.5˚C (0 to 55˚C)
	–50˚C to 400˚C (Pt 100)	±0.6˚C @ 25˚C ±3˚C (0 to 55˚C)
	–50˚C to 400˚C (Pt 1000)	±0.8˚C @ 25˚C ±6˚C (0 to 55˚C)
Temperature measuring range		–20 to +40˚C/ –50 to +400˚C (2 mA constant current system)
Number of input points		4
Conversion time		Approximately 0.5 second per four inputs
Insulation	Between input and internal circuit	Photocoupler insulation
	Between inputs	No insulation
Weight		Approximately 0.15 kg (0.33lb.)
External Connection		Removal terminal block (M3)
Unused terminal processing		Unused terminals (for current, voltage and ground) should be shorted at the terminal block (Temperature conversion data for one of the four values is H7FFF)
External wiring register		The maximum total wiring resistance from current terminal to ground terminal is 2 Ω.
External wiring		3 cores shielded cable
Additional function		Linearization
Resolution	–20˚C to 40˚C (Pt100)	0.0024˚C
	–50˚C to 400˚C (Pt100)	0.024˚C
	–50˚C to 400˚C (Pt1000)	0.024˚C
Internal current consumption (5V DC)		Approximatly 200mA
Externally supplied power		24V DC ±10%, Maximum current consumption is 70mA

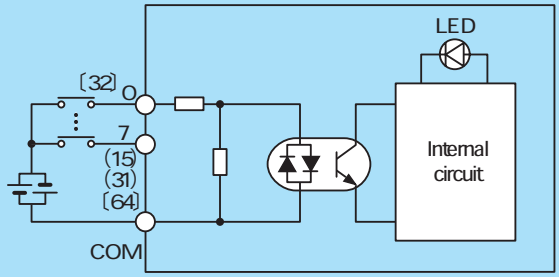
*1: Accuracy 10 minutes after power on.

EH-TC8

Item	Specification
Type	EH-TC8
Number of input points	8 points / module
Type of sensor	K,E,J,T,B,R,S,N (Selected by the setting switch on the PWB)
Insulation	Photocoupler (Channel - internal circuit)
Conversion time	860 ms / 8 channels or 108 ms / 8 channels (Selected by the setting switch on the PWB)
Temperature conversion data	15 bits binary data (Negative values are indicated in two's complements)
Resolution	0.1˚C/0.1˚F (Selected by the setting switch on the PWB), 1˚C/1˚F (B, R, S)
Accuracy	+/- 0.3 to 1.0% FS
Error detection	Turn on LED and Value 7FFFH (Each channel)
External power source	24V DC

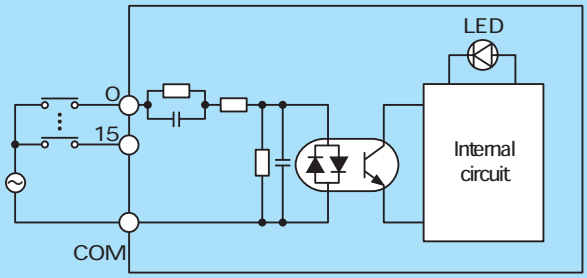
Internal Circuit Diagram

DC Input (8, 16, 32 and 64 points)



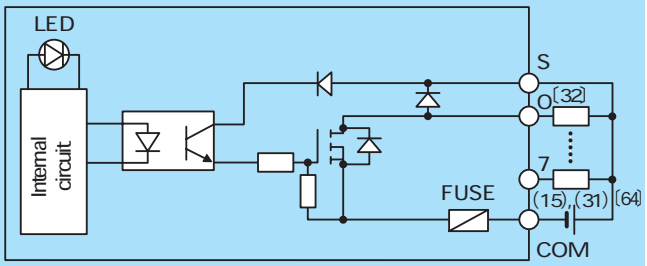
Model: EH-XD8, EH-XD16, EH-XD32, EH-XD64

AC Input (16 points)



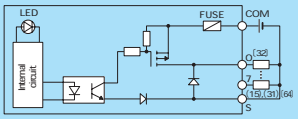
Model: EH-XA16, EH-XAH16

Transistor Output (8,16, 32 and 64 points) Sink Type

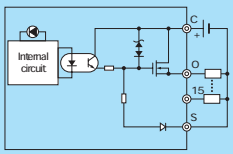


Model: EH-YT8, EH-YT16, EH-YT32, EH-YT64

Transistor Output (8,16, 32 and 64 points) Source Type

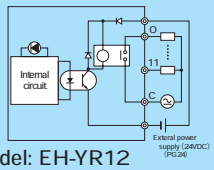


Model: EH-YTP8, EH-YTP16, EH-YTP32, EH-YTP64

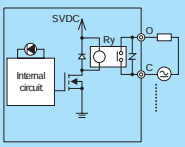


Model: EH-YTP16S

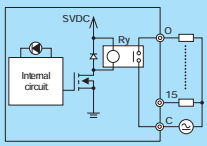
Relay Output (8, 12 and 16 points)



Model: EH-YR12

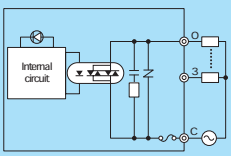


Model: EH-YR8B

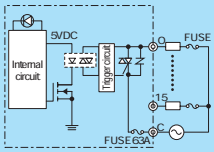


Model: EH-YR16

AC (SSR) Output (4 points)

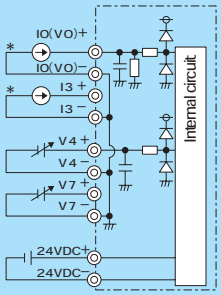


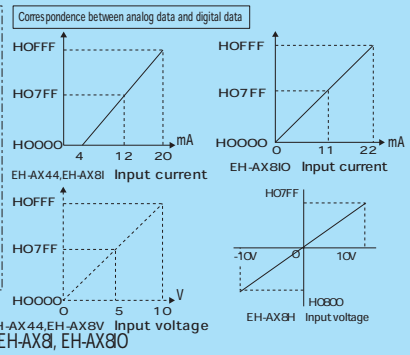
Model: EH-YS4



Model: EH-YS16

Analog Input

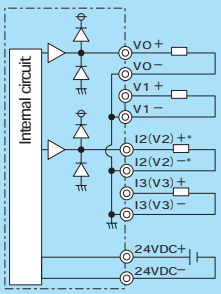


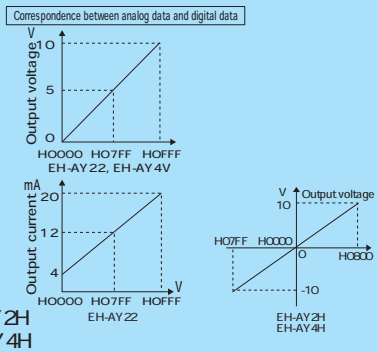


Model: EH-AX44
EH-AX8V, EH-AX8H, EH-AX8I, EH-AX8IO

* In the case of EH-AX44, current input.

Analog Output





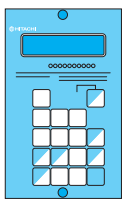
Model: EH-AY22, EH-AY2H
EH-AY4V, EH-AY4H

* In the case of EH-AY22, current output.

Counter Module

Item			Specification	
Type			EH-CU	EH-CUE
Counter specification	Maximum number of count		32 bit (0 to 4, 294, 967, 295)	
	Maximum frequency		100 kHz (25 kHz when multiple of 4)	
	Count mode		Select via dip switch settings. (Common to both channels for the EH-CU.) 2 phases; 1 phase (cw/ccw, ck, U/D); 2 phases, multiplication by 4	
	Number of channels		2 channels	1 channel
	Differential current		4 mA or higher	
	Differential input voltage		12 to 24 VDC	
		Minimum ON voltage	10 V DC	
		Maximum OFF voltage	4 V DC	
	Insulation method		Photocoupler	
	Number of input points 3 points x 2 channels	A: A, CW, CK	Phase difference of each channel (A - B) during 2-phase counting +45 to +125° when up, -45° to -125° when down	
		B: B, CCW, U/D		
		M: Marker (z)		
	Minimum counter pulse width		ON: 4µs or higher, OFF: 4µs or higher	
	Minimum marker pulse width		10µs or higher (Detected via ON edge)	
	External wiring method		30-Pin batch connector for both channels	30-pin connector
	External wiring		Wired with twisted pair wires and batch shielded wires	
Output specification	Output voltage		12/24 VDC (30 VDC maximum)	
	Load current		20 mA / point maximum	
	Output method		Open collector output	
	Minimum load current		1 mA	
	Output delay time	ON→OFF	1 ms or less	
		OFF→ON	1 ms or less	
	Voltage drop when ON		1.5 V maxmum	
	Number of external output points		4 points / module	2 points / module
		Normal counter	Current value = Set Value 1 or current value > Set Value 1	
		Ring counter	Current value = Set Value 2	
	Leak current		0.5 mA maximum	
	Polarity		(-) common within the module	
	External power supply		12/24 VDC (30 VDC maximum)	
	Insulation method		Photocoupler	
Weight			Approximately 0.16kg(0.35lb.)	
Internal current consumption			5 V 200 mA	

1-axis Pulse Positioning Module



Posioner (RPS-3A)

A handy type positioner RPS-3A* which is useful for test runs can be used.

* An accessory for Hitachi AC servo motor EP series.

Item				Specification
Type				EH-POS
Functional specification	Number of control axes			1- axis
	Highest frequency			400 k pulse/s
	Positioning data	Capacity		256 points
		Setting procedures		Sequence program / Positioner (Note that the positioner is optional.)
	Positioning	Method		Absolute system / Absolute system + increment system / Increment system
		Positioning command		Pulse specification / µm specification / inch specification / degree specification
		Speed command		Automatic, manual, home position return 6.25 pulse/s to 400 k pulse/s µ m/s, inch/s, degree/s input function
		Speed stage		10 stages
		Acceleration / deceleration system		Trapezoid acceleration / deceleration S-curve acceleration / deceleration (3-stage acceleration / deceleration)
		Acceleration / deceleration time		1 to 65,535 ms
		Backlash		0 to 255 pulse
		High / low limit setting		+2,147,483,647 to -2,147,483,648 pulse
		Pulse output method		Pulse chain (CW / CCW) / Clock + direction signal (CK / direction) (Use dip switches 1 and 2 to select the pulse output method and to switch between positive and negative logic for the selected method.)
		Pulse output procedures		Open collector output (Photocoupler insulation) / Line driver output (Photocoupler insulation)
	Home position return function			Arbitrary origin / Low speed origin return / High speed origin return 1 / High speed origin return 2 / Absolute value encoder home position return
	Manual (JOG) operation			Possible
	Teaching			Pulse output by manual input signal
	Operation when the CPU has stopped			Operation may be performed via I/O setting or using the positioner.
	Absolute value encoder input			Supports the ∑ series and ∑ II series by Yasukawa Denki and the P series by Sanyo Denki, AD series by Hitachi.
I/O interface specification	Output	Pulse train (CW / CCW) output Clock + direction signal (CK / direction) Pulse output		1. DOpen collector output Photocoupler insulation (30 VDC maximum, 30 mA resistive load) 2. DLone driver output Photocoupler insulation (5 VDC)
		Maximum leakage current		100µA or less
		Maximum voltage drop at ON		0.8 V maximum (at output current 30 mA)
	Input	Input voltage		10.8 to 30 VDC
		Input impedance		Approximately 2.2 kΩ
		Operation voltage	Minimum ON voltage	Approximately 10 mA (24 VDC)
			Maximum OFF voltage	9 V
		Input lag	ON→OFF	3.6 V
			OFF→ON	1 ms or less
		Polarity		1 ms or less
		Insulation method		Only the encoder signal input uses the plus common inside the module. Other inputs do not specify polarity.
Weight				Photocoupler
Internal current consumption				Approximately 0.17kg(0.37lb.)
External power supply				5 V DC, 300 mA, 600 mA (When the positioner is connected) .
				5 V DC ±5%, 100 mA (For pulse chain output) 24 V DC,10 mA/point (For external control input)

Note 1: Stopping the CPU during operation causes the motor to decelerate and come to a stop.
2: The maximum travel per single movement is 2,147,483,647 pulses. When an operation attempts to move beyond the maximum travel, the motor decelerates and stops at the maximum travel position.

4-axis Pulse Positioning Module

Function Specification

Item			Specification
Type			EH-POS4
Number of controlled axes			4-axis
Number of interpolation axes			Linear interpolation : up to 4 axes Circular interpolation : 2 axes
Maximum speed			1 M pulse/ s
Positioning data	Number of positioning points		Maximum 256 points/ axis (storage in the module)
	Setting method		1) Ladder Program 2) Positioning Data Setting tool
Positioning	Positioning mode		1) Absolute mode 2) Absolute and Incremental 3) Incremental
	Positioning Unit		1) Pulse 2) μm 3) inch 4) degree
	Speed unit		1 pulse/ s - 1M pulse/ s (Auto, Manual, Homing) μm /s , inch/s , degree/s (selectable by common parameter)
	Number of speed stage		Maximum 256 stages (in continuous operation)
	Acceleration and Deceleration		Linear S-curve (3 types)
	Acceleration and Deceleration time		1 up to 65 535 ms
	Backlash		0 - 65 535 pulses
	Operation range		– 2,147,483,648 up to + 2,147,483,647 pulses – 214,748,364.8 up to + 214,748,364.7 μm – 21,474.83648 up to +21,474.83647 inch – 21,474.83648 up to + 21,474.83647 degree
	Pulse train signal		1) 2 Pulse signal (CW pulse and CCW pulse) 2) Pulse and Direction signal (PLS and SIG) (Selectable by common parameter)
	Output method		Line driver
Homing			1) Free home position 2) Low speed homing 3) High speed homing 1 (Off edge stop) 4) High speed homing 2 (Phase Z input stop) 5) Absolute encoder homing
Applied servo amp in absolute homing			Hitachi AD series
Manual operation			Manual command
Teaching function			Teaching command
Operation on CPU stopping			Available
Output	Pulse & Sign		Line driver (SN75158(TI))
	"High" voltage		Minimum 2.4 V
	"Low" voltage		Maximum 0.4 V
Phase input	Phase Z input and Absolute encoder serial signal		Line driver (input impedance: 220 ohm)
Input	Input voltage		20.4 up to 28.8 V DC
	Input impedance		Approx. 5.6 k ohm
	Input current		Approx. 4.3 mA (24 V DC)
	Operation voltage	"ON" voltage	Minimum 15 V DC
		"OFF" voltage	Maximum 5 V DC
	Delay	"ON" to "OFF"	Maximum 1 ms
		"OFF" to "ON"	Maximum 1 ms
	Polarity		No
	isolation		Photo-coupler
Weight			Approximately 0.13kg(0.29 lb.)
Consumption current			5 V DC , 850 mA (supplied from Power module)
External power supply			24 V DC, approx. 4.3 mA /point (for external input)

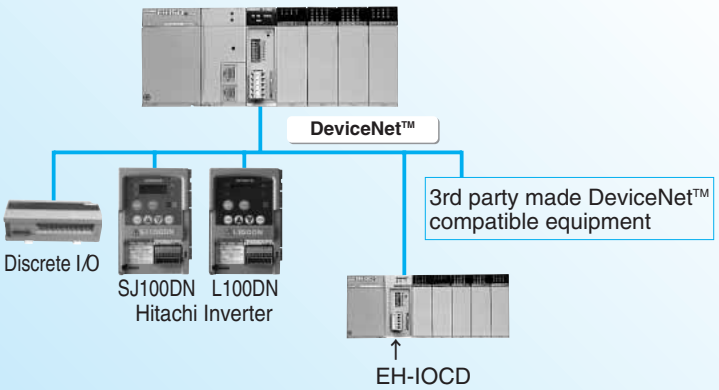
Note: When CPU is turned "RUN" to "STOP" or "STOP" to "RUN", the servo motor stops.

DeviceNet™ Master/Slave Module

System configuration


EH-RMD


EH-IOCD



General Specifications

Item	Specification	
	EH-RMD	EH-IOCD
Internal current consumption	5 V DC, 450 mA	
Weight	Approximately 0.15 kg (0.33 lb.)	Approximately 0.17 kg (0.37 lb.)
External power supply	100 (3. 94) 24 V DC ± 10 % (supplied from communication connector)	
Mounted slot position	Only slot 0 to 2 on basic base, Max. two times / CPU	CPU Slot

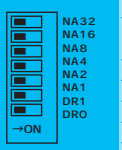
Performance Specifications

Item	Specification	
	EH-RMD	
	LINK mode	REMOTE mode
No. of installed units	2 units (only on communication slot *)	4 units (only on communication slot)
No. of slave-connected units	63 units	
I/O assignment	LINK	REMOTE2
Output data	256 words (WL0-)	64 words (WX1000-, WY1000-)
Input data	256 words (WL200-)	
Communication protocol	DeviceNet 2.0 standard	
Supported connections	1] Poll I/O connection 2] Bit strobe I/O connection 3] Cyclic I/O connection 4] Change of state (COS) I/O connection 5] Explicit message connection	
Connection mode	1] Multi-drop connection 2] Multi-branch connection using T branch	
Communication speed	500k/250k/125kbps (set by DIP switches)	
Cable	Dedicated DeviceNet cable	
Communication distance	Communication / Maximum / Each sub-line / Total sub-line 500 kbps / 100 m or less / 6 m or less / 39 m or less 250 kbps / 250 m or less / 6 m or less / 78 m or less 125 kbps / 500 m or less / 6 m or less / 156 m or less The maximum network length shows the value when a thick trunk cable is used.	

Note 1 : EH-RMD is supported by EH-CPU316A/516/548.
2 : Please prepare the configuration software for set-up.

Item	Specification
	EH-IOCD
Number of installed I/O modules	16 units / EH-IOCD (Use the EH-IOC to install 9 or more units.)
Output data	256 words
Input data	256 words
Communication protocol	DeviceNet 2.0 standard
Supported connections	Poll I/O connection / Bit Strobe I/O connection / Cyclic I/O connection / Change of state (COS) I/O connection / Explicit message connection
Connection mode	Multi-drop connection / Multi-drop connection using T branch
Baud rate	500 k / 250 k / 125 kbps (switched by DIP switches)
Cable	Dedicated DeviceNet Cable (see Note below)
Communication distance	Communication speed / Maximum network length / Each sub-line length / Total sub-line length 500 kbps / 100 m or less / 6 m or less / 39 m or less 250 kbps / 250 m or less / 6 m or less / 78 m or less 125 kbps / 500 m or less / 6 m or less / 156 m or less The maximum network length shows the value when a thick trunk cable is used.

Node Address and Communication Speed Settings



Node address	NA1	NA2	NA4	NA8	NA16	NA32
0	OFF	OFF	OFF	OFF	OFF	OFF
1	ON	OFF	OFF	OFF	OFF	OFF
2	OFF	ON	OFF	OFF	OFF	OFF
• •						
62	OFF	ON	ON	ON	ON	ON
63	ON	ON	ON	ON	ON	ON

Baud rate	DR0	DR1
125	OFF	OFF
250	ON	OFF
500	OFF	ON
	ON	ON

Supported I/O Modules

The I/O modules that are supported by the EH-IOCD are as follows:

Type	Input size (word)	Output size (word)
EH-XD8 EH-XD16 EH-XDL16 EH-XA16 EH-XAH16	1	0
EH-XD32 EH-XD32E EH-XDL32E	2	0
EH-XD64	4	0
EH-PT4	4	0
EH-AX44 EH-AX8V EH-AX8H EH-AX8I EH-AX8IO EH-TC8	8	0
EH-YT8 EH-YT16 EH-YTP8 EH-YPT16 EH-YTP16S EH-YS4 EH-YS16 EH-YR8B EH-YR12 EH-YR16	0	1
EH-YT32 EH-YTP32 EH-YT32E EH-YTP32E	0	2
EH-YT64 EH-YTP64	0	4
EH-AY22 EH-AY2H EH-AY4V EH-AY4H EH-AY4I	0	8
EH-POS	4	4
EH-CU EH-CUE	5	3

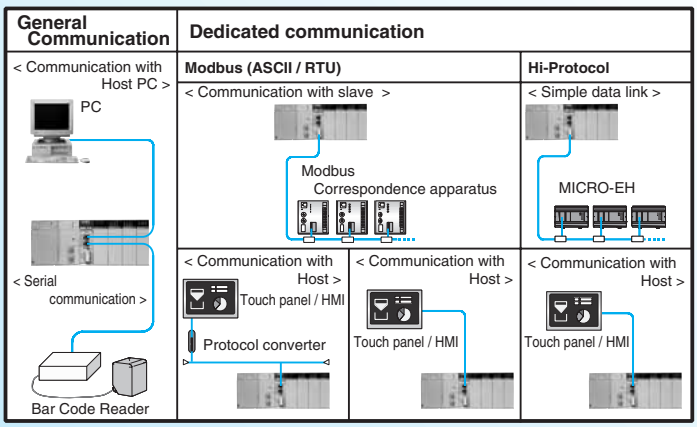
•DeviceNet is a trademark of Open DeviceNet Vendor Association.

Discrete I/O unit

Item		RDX16D	RDY16R	RDY16TP
Input/output specification		DC input	Relay output	Transistor output(source)
Number of Input /output points per common		2 common points/16 inputs (1 common points/8 outputs)	1 common points/16 outputs	2 common points/16 inputs (1 common points/8 outputs)
Input voltage and current		19.2V to 30V DC Approximately 4 mA	—	
Rated load voltage Maximum load current		—	24V DC, 100V/240V AC 1 point 2 A, 1 common 5A	12/24V DC 1 point 0.3A, 1 common 2.4A
Input/output response	OFF→ON	5ms or less	10ms or less	0.3ms or less
	ON→OFF	5ms or less	10ms or less	1.0ms or less
External connection		Screw terminal(M3)		
External dimension		60H × 150W × 43D		
Externally supplied power(control circuit)		24 V DC (+10% to –5%)		
Externally supplied power(communication circuit)		+11 to 25V DC(ODVA standard)(supplied through communication connector)		
Weight		Approximately 0.22 kg (48 lb.)	Approximately 0.25 kg (55 lb.)	Approximately 0.23 kg (51 lb.)

Serial communication Module

System configuration



General Specifications

Item	Specification
	EH-SIO
Interface	RS-232C × 1 RS-232C/422/485 × 1
Communication mode	Hafe-duplex
Communication speed(bps)	300/ 600/ 1200/ 2400/ 48200/ 9600/ 19200/ 38400/ 57600
Maximum communication data	Maximum 1024 byte
Communication protocol	Non-protocol Modbus ASCII Modbus RTU Hi-Protocol(*)
Remarks	Simple data link by Hi-Protocol

(*) For Touch panel/HMI (LADDER EDITOR cannot be used)

PROFIBUS® Master/Slave Module

System configuration

EH-RMP

EH-IOCP

EH-RMP

PROFIBUS®

SJ300 L300P
Hitachi Inverter

3rd party made PROFIBUS® compatible equipment

↑ EH-IOCP

General Specifications

Item	Specification	
	EH-RMP	EH-IOCP
Current consumption	5 V DC, 600 mA	
Weight	Approximately 0.13 kg (0.29 lb.)	Approximately 0.16 kg (0.35 lb.)
Mounted slot position	Only slot 0 to 2 on basic base, Max. two times / CPU	CPU Slot

Performance specifications

Item	Specification
	EH-RMP
Number of installed units	2 units / CPU (can only be installed in slots 0 to 2)
Number of supported slave units	Maximum of 124 units. However,a repeater is required to connect 32 or more units.
Number of output words	256 words
Number of input words	256 words
Baud rate: Segment length	9.6 kpbs : 1,200 m 19.2 kbps : 1,200 m 45.45 kbps : 1,200 m 93.75 kbps : 1,200 m 187.5 kbps : 1,000 m 500 kbps : 400 m 1,500 kbps : 200 m 3 Mbps : 100 m 6 Mbps : 100 m 12 Mbps : 100 m
Self-diagnostics	System ROM / RAM check Watchdog timer
GSD file	File name: Hita1004.gsd Please contact Hitachi sales office.

Note 1 : EH-RMP is supported by EH-CPU316A/516/548.
2 : Please prepare the configuration software for set-up.

Item	Specification
	EH-IOCP
Number of installed I/O modules	16 units / EH-IOCP (use the EH-IOC to install 9 or more units.)
Node address setting range	1 to 99
Input/output capacity	208 words
Data update time	5 ms
Baud rate: Segment length	9.6 kpbs : 1,200 m 19.2 kbps : 1,200 m 93.75 kbps : 1,200 m 187.5 kbps : 1,000 m 500 kbps : 400 m 1,500 kbps : 200 m 3 Mbps : 100 m 6 Mbps : 100 m 12 Mbps : 100 m
Self-diagnostics	System ROM / RAM check Watchdog timer
GSD file	File name: Hita049.gsd Please contact our sales department.

Supported I/O List

The I/O modules that are supported by the EH-IOCP are as follows:

Type	Input size (word)	Output size (word)
EH-XD8	1	0
EH-XD16		
EH-XDL16		
EH-XA16		
EH-XAH16		
EH-XD32	2	0
EH-XD32E		
EH-XDL32E		
EH-XD64	4	0
EH-PT4	4	0
EH-AX44	8	0
EH-AX8V		
EH-AX8H		
EH-AX8I		

Type	Input size (word)	Output size (word)
EH-AX8IO	8	0
EH-TC8		
EH-YT8	0	1
EH-YT16		
EH-YTP8		
EH-YTP16		
EH-YTP16S		
EH-YS4		
EH-YS16		
EH-YR8B		
EH-YR12		
EH-YR16		

Type	Input size (word)	Output size (word)
EH-YT32	0	2
EH-YTP32		
EH-YT32E		
EH-YTP32E		
EH-YT64	0	4
EH-YTP64		
EH-AY22	0	8
EH-AY4V		
EH-AY4H		
EH-AY4I		
EH-POS	4	4
EH-CU	5	3
EH-CUE		

•PROFIBUS is a registered trademark of Profibus Nutzer Organization

■Ethernet™ Module

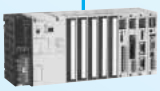
●System configuration

EH-ETH

EH-ETH
Ethernet™(IEEE802.3)

PC

3rd party made PLC



H-302 to H-4010

3rd party made
Ethernet™ compatible displays

■General Specifications

Item	Specification
Internal current consumption	5 V DC, 260 mA
Weight	0.15 kg (0.33 lb.)
Mounted slot position	Only slot 0 to 2 on basic base, Max. two times / CPU

■Performance Specifications

Item		Specification
Transfer specification	Ethernet standard	IEEE802.3 standard
	Transfer modulation method	Base band
	Medium access method	CSMA / CD
	Transfer speed	10 Mbps
	Maximum segment length	100 (m)
ASR connection		Number of simultaneous connections: Maximum 6 Transmission data: Maximum 1,454 bytes/try
Task code communication		Number of simultaneous connections: Maximum 4

■Functional Specifications

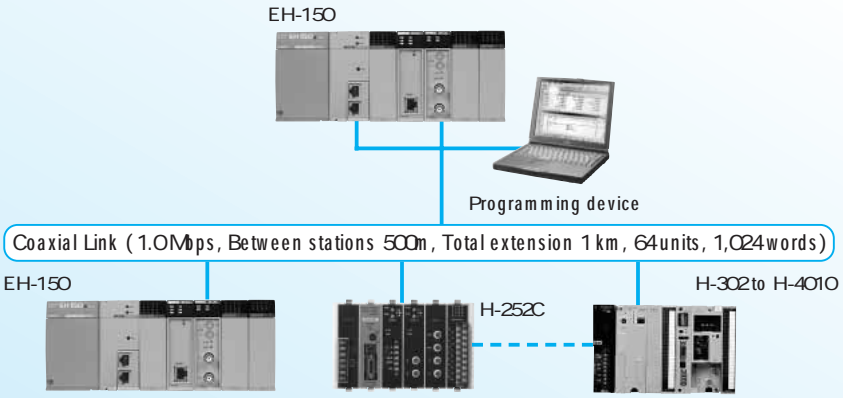
Item	Specification
Setup function	●Select the setup mode by using a DIP switch, and perform initial settings such as the IP address, transmission operation specification, and transmission/reception area specification using a general-purpose Web browser. ●The IP address can also be set by programming with a ladder program.
Auto Sending / Receiving function, event transmission function	●Data can be transmitted and received periodically by specifying an internal output signal in a table format. ●Data can be transmitted and received by signal variation (event) in a ladder program.
Task code communication	●Either TCP / IP or UDP / IP can be specified. ●H series task code communication can be performed.
Test function	●Internal loop and external loop check functions are supported. ●One-to-one transmission / reception test function is supported.

Note : EH-ETH is supported by EH-CPU316A/516/548.

●Ethernet is a trademark of Xerox Corporation.

CPU Link Module (Coaxial cable)

System configuration



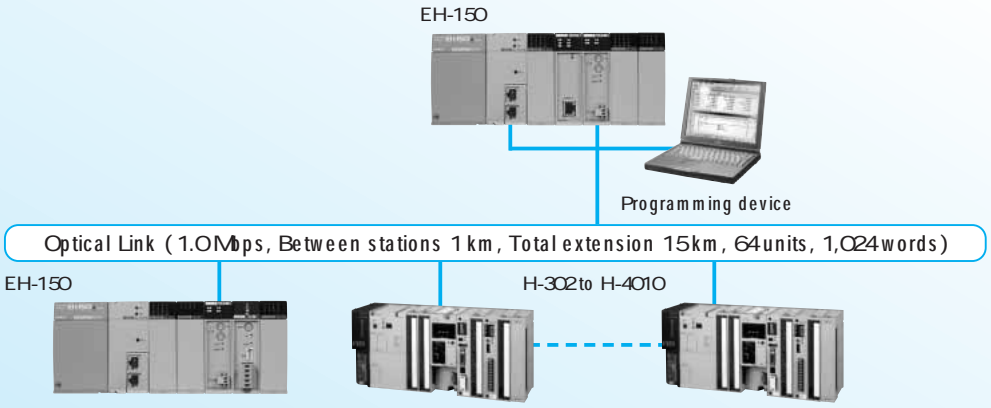
Specifications

Item			Specification
Type			EH-LNK
Functional specification	Number of connected Link module		Max. 64 units / 1 loop
	Number of mounted units		Max. 2 units / 1 CPU (2 loops / 1 CPU)
	Number of Link points		1,024 words / 1 loop (2,048 words / 2 loops)*1
	Data delivery system		Common data area system
	Send / Receive distinction on data area allocation		Parameter setting from peripheral device
	Designation of Station No.		0 to 63 ; designated by rotary switch
	Communication speed		1.0 Mbps
	Transfer method		Half – duplex serial transfer, frame synchronization
	Communication method		Token passing
	Modulation method		Base band
	Refresh time		At the time of transfer of 1,024 words with 64 stations connected -- Approx. 390ms *2
	Error check		CRC, overrun check, time out, open circuit, parameter error (dual designation of station No., overlapped Link area, etc.)
	Self – diagnosis		System ROM / RAM check, watchdog timer check, transfer loop back check
Transfer path specification	Transfer path form		Loop type
	Cable length	Between stations	Max. 500m
		Total extension	Max. 1,000m
	Error station processing		Bypass system
	Recommended cable		5D2V with shield or equivalent
	Recommended connector		413631-1 (made by AMP) or equivalent
Internal Current consumpion			5V DC Approximately. 480 mA

*1: No retentive area.
*2: This could be more in case peripheral devices access to CPU via link network.
*3: EH-LNK is supported by EH-CPU316A/516/548.

CPU Link Module (Optical cable)

System configuration



Specifications

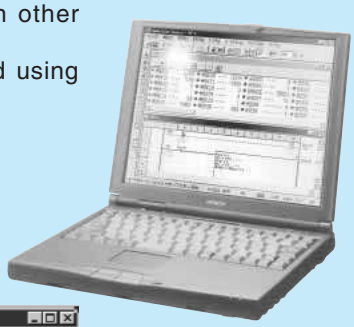
Item			Specification
Type			EH-OLNK
Functional specification	Number of connected Link module		Max. 64 units / 1 loop
	Number of mounted units		Max. 2 units / 1 CPU (2 loops / 1 CPU)
	Number of Link points		1,024 words / 1 loop (2,048 words / 2 loops)*1
	Data delivery system		Common data area system
	Send / Receive distinction on data area allocation		Parameter setting from peripheral device
	Designation of Station No.		0 to 63 ; designated by rotary switch
	Communication speed		1.0 Mbps
	Transfer method		Half – duplex serial transfer, frame synchronization
	Communication method		Token passing
	Modulation method		Base band
	Refresh time		In case of 1,024 words data and 64 stations connected -- Approx. 390ms *2
	Error check		CRC, overrun check, time out, open circuit, parameter error (dual designation of station No., overlapped Link area, etc.)
	Self – diagnosis		System ROM / RAM check, watchdog timer check, transfer loop back check
Transfer path specification	Transfer path form		Loop type
	Cable length	Between stations	Max. 1,000m
		Total extension	Max. 15,000m
	Error station processing		Bypass system (In case of supply a 5VDC from the outside.)
	Recommended Cable and connector		CA7103-(1)M-(2)L(3)1 JAPAN OPNEXT product (1) Cable length, (2)Cable type, (3) Core number
Internal Current consumpion			5V DC Approximately. 480 mA

*1: No retentive area.
*2: This could be more in case peripheral devices access to CPU via link network.
*3: EH-OLNK is supported by EH-CPU316A/516/548

Programming Tools

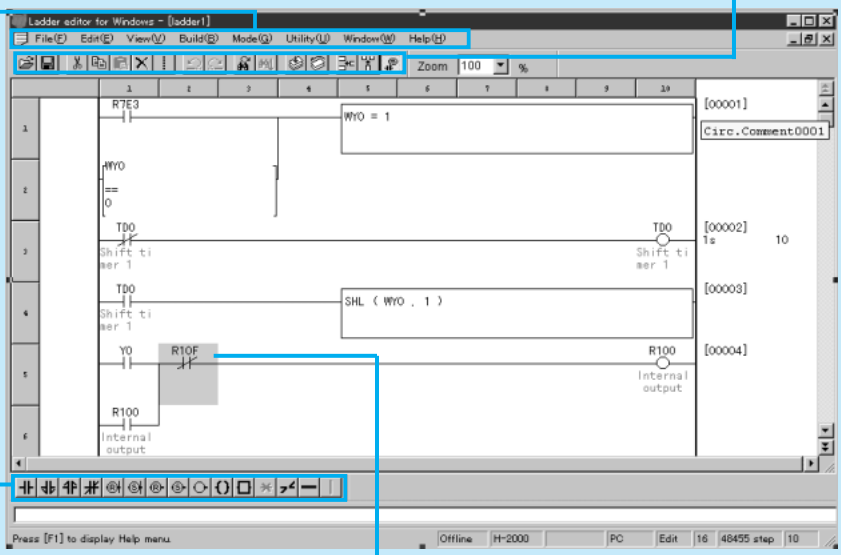
LADDER EDITOR for Windows® (HLW-PC3E : For Windows® 95/98/NT®4.0/2000/XP)

LADDER EDITOR for Windows®, which can be used with all H/EH series PLCs, realizes comfortable project management, thanks to its user-friendly features based on the distinctive functions of the Windows® operating system, such as icons, menu bar, and mouse operation.
Such operations as cut, copy, paste, and save can be done in the same way as on other Windows® based software.
Execution of various commands and input of ladder symbols can be easily performed using a mouse.
The features of LADDER EDITOR for Windows® help users program efficiently.



Menu bar
Almost all the commands required to operate LADDER EDITOR for Windows® can be selected from the pull-down menu. No command input from the keyboard is necessary.

Tool bar
Icons are prepared for such commands than are often used as open, save, cut, paste, etc.
Just click to execute a command.



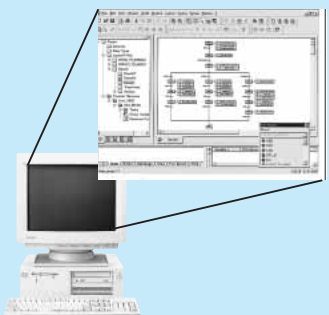
Symbol bar
Ladder symbols can be input by selecting one from the symbol bar and entering the necessary information, such as I/O number.

The circuit being edited is distinguished from the others by a different color.
The color can be customized during editing and monitoring.

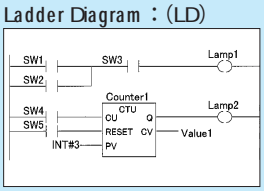
Pro-H

Pro-H is the universally usable 32-bit programming software for all Hitachi H/EH series PLCs.

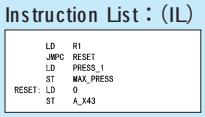
- Standard according to IEC 61131-3
- Additional special instructions for H/EH series PLCs.
- 5 program editors(LD,IL,FBD,SFC, and ST)
- System requirements: Windows® 95/98/NT®4.0



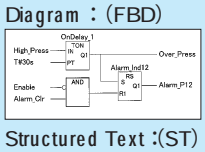
Ladder Diagram : (LD)



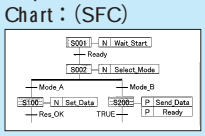
Instruction List : (IL)



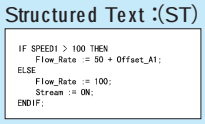
Function Block Diagram : (FBD)



Sequential Function Chart : (SFC)



Structured Text :(ST)



●LADDER EDITOR DOS version (HL–AT3E) is also available.

Programmer

Portable graphic programmer

PGM-GPH

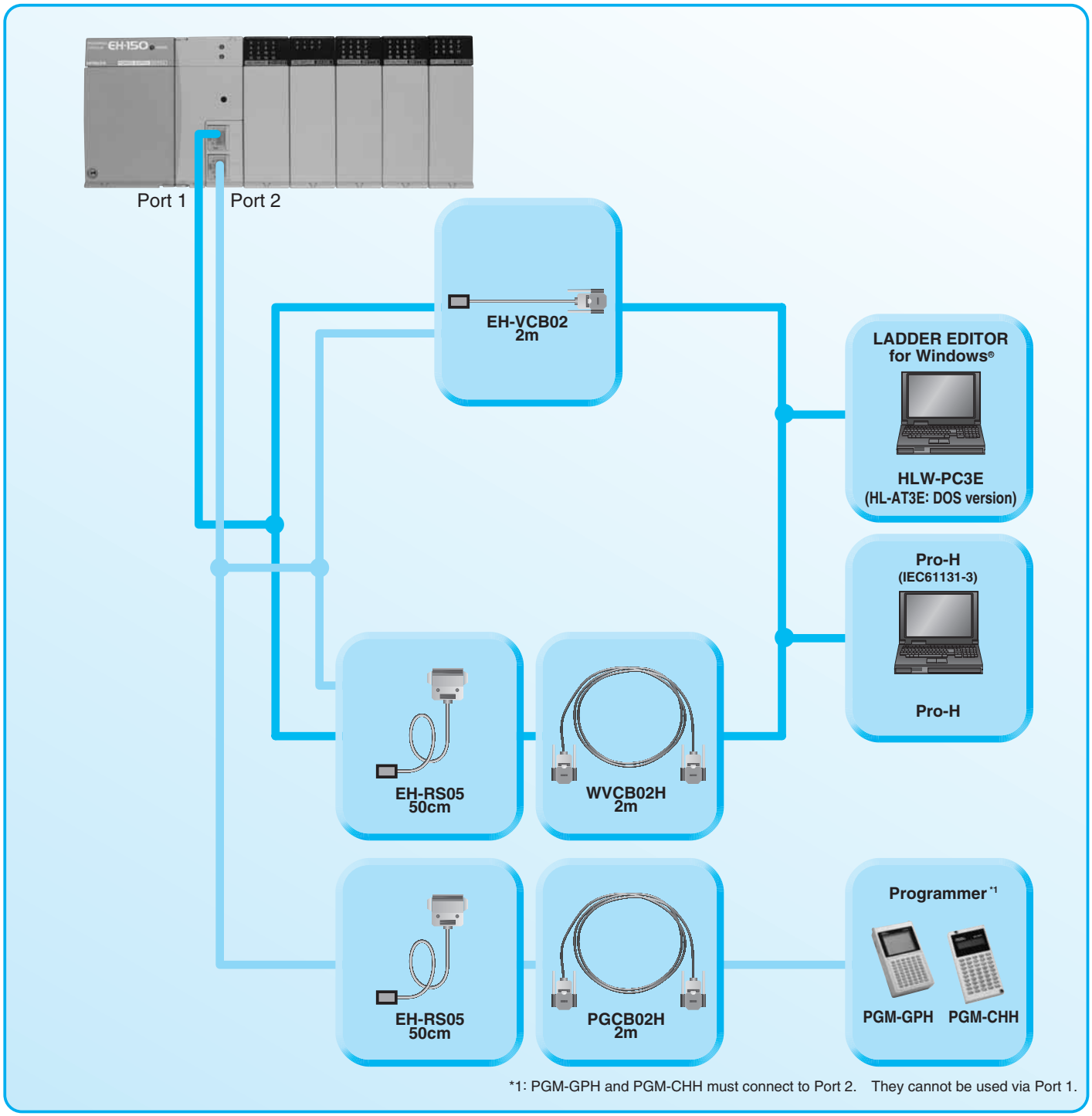
Command language programmer

PGM-CHH

●Windows is a registered trademark of Microsoft Corp. in the U.S. and other countries.

Connection with Peripheral Devices

When connecting peripheral equipment, please use the cable(s) shown below.
Be sure to set the mode switch of the CPU module as desired before using.
(Please see the manuals for the setting.)



*1: PGM-GPH and PGM-CHH must connect to Port 2. They cannot be used via Port 1.

●Windows is a registered trademark of Microsoft Corp. in the U.S. and other countries.

Components List

Item	Model name	Specification	I/O assignment symbol	Remarks
CPU module	EH-CPU104A	512 I/O points maximum *1, 4k steps (Cannot be expanded)	—	
	EH-CPU208A	1,024 I/O points maximum *1, 8k steps, Clock function, Modem control function	—	
	EH-CPU316A	1,024 I/O points maximum *1, 16k steps, Clock function, Modem control function, RS-422/485 communication support, PID command, Floating point opereation support	—	
	EH-CPU516	2,112 I/O points maximum *1, 16k steps, Clock function, Modem control function, RS-422/485 communication support, PID command, Floating point opereation support, 2 expansion bases	—	
	EH-CPU548	3,520 I/O points maximum *1, 48k steps, Clock function, Modem control function, RS-422/485 communication support, PID command, Floating point opereation support, 4 expansion bases	—	
Memory board	EH-MEMP	Program capacity: 48k steps	—	Insert in to CPU module
	EH-MEMD	Program capacity 16 k steps, Data capacity 384 k words	—	
Power supply module	EH-PSA	Input 100 to 240 V AC, Output 5 V DC 3.8 A, 24 V DC 0.4 A	—	
	EH-PSD	Input 21.6 to 26.4 V DC, Output 5 V DC 3.8 A	—	
Base unit	EH-BS3A	3 I/O modules can be installed (for 2 or 4 expansion bases and 8 option slots)	—	Basic base and expansion base are the same product.
	EH-BS5A	5 I/O modules can be installed (for 2 or 4 expansion bases and 8 option slots)	—	
	EH-BS8A	8 I/O modules can be installed (for 2 or 4 expansion bases and 8 option slots)	—	
	EH-BS11A	11 I/O modules can be installed (for 2 or 4 expansion bases and 8 option slots)	—	
Input module	EH-XD8	8 points, 24 V DC input, Removable terminal block	X16	
	EH-XD16	16 points, 24 V DC input, Removable terminal block	X16	
	EH-XDL16	16 points, 24 V DC input Removable terminal block (Input lag 16ms)	X16	
	EH-XD32	32 points, 24 V DC input, Connector	X32	
	EH-XD32E	32 points, 24 V DC input, Euro-terminal	X32	
	EH-XDL32E	32 points, 24 V DC input, Euro-terminal (Input lag 16ms)	X32	
	EH-XD64	64 points, 24 V DC input, Connector	X64	
	EH-XA16	16 points, 100 to 120 V AC input, Removable terminal block	X16	
	EH-XAH16	16 points, 200 to 240 V AC input, Removable terminal block	X16	
Output module	EH-YT8	8 points, Transistor output 12/24 V DC, Removable terminal block (sink type)	Y16	
	EH-YTP8	8 points, Transistor output 12/24 V DC, Removable terminal block (source type)	Y16	
	EH-YR8B	8 points, Relay output, 100/240 V AC, 24 V DC, Removable terminal block	Y16	
	EH-YR12	12 points, Relay output, 100/240 V AC, 24 V DC, Removable terminal block	Y16	
	EH-YR16	16 points, Relay output, 100/240V AC, 24 V DC, Removable terminal block	Y16	
	EH-YT16	16 points, Transistor output 12/24 V DC, Removable terminal block (sink type)	Y16	
	EH-YTP16	16 points, Transistor output 12/24 V DC, Removable terminal block (source type)	Y16	
	EH-YTP16S	16 points, Transistor output 12/24 V DC with short circuit protection, Removable terminal block (source type)	Y16	With short-circuit protection function
	EH-YT32	32 points, Transistor output, 12/24 V DC, Connector (sink type)	Y32	
	EH-YTP32	32 points, Transistor output, 12/24 V DC, Connector (source type)	Y32	
	EH-YT32E	32 points, Transistor output, 12/24 V DC, Euro-terminal (Sink type logic)	Y32	
	EH-YTP32E	32 points, Transistor output, 12/24 V DC, Euro-terminal (Source type logic)	Y32	
	EH-YT64	64 points, Transistor output, 12/24 V DC with short circuit protection, Connector (sink type)	Y64	
	EH-YTP64	64 points, Transistor output, 12/24 V DC with short circuit protection, Connector (source type)	Y64	
	EH-YS4	4 points, Triac output , 100/240 V AC, Removable terminal block	Y16	
	EH-YS16	16 points, Triac output output, 100/240 V AC, Removable terminal block	Y16	
Analog input module	EH-AX44	12-bit analog input, Current 4-20 mA, Voltage 0-10 V,4ch each	WX8W	
	EH-AX8V	12-bit analog input, Voltage 0-10 V,8ch	WX8W	
	EH-AX8H	12-bit analog input, Voltage -10 to 10 V,8ch	WX8W	
	EH-AX8I	12-bit analog input, Current 4-20mA, 8ch	WX8W	
	EH-AX8IO	12-bit analog input, Current 0-22mA, 8ch	WX8W	
	EH-AXH8M	14-bit analog input, Current 0-22 mA/4-22 mA, Voltage -10 to 10 V/0-10 V,8ch	WX8W	To be released shortly
	EH-PT4	Signed 15-bit, Pt 100 ohms/Pt 1000 ohms, 4ch	WX4W	
	EH-TC8	Signed 15-bit, Thermo-couple (K,E,J,T,B,R,S,N) 8ch	WX8W	To be released shortly
Analog output module	EH-AY22	12-bit analog output, Current 4-20 mA, Voltage 0-10 V,2ch each	WY8W	
	EH-AY4V	12-bit analog output, Voltage 0-10 V,4ch	WY8W	
	EH-AY4H	12-bit analog output, Voltage -10 to 10 V,4ch	WY8W	
	EH-AY2H	12-bit analog output, Voltage -10 to 10V, 2ch	WY8W	
	EH-AY4I	12-bit analog output, Current 4-20mA	WY8W	
	EH-AYH8M	14-bit analog output, Current 0-22 mA/4-22 mA, voltage 0-10 V,8ch	WY8W	To be released shortly
I/O controller	EH-IOCH	I/O control module (Maximum 4 expansion bases, EH-CPU104 is not expandable.)	—	
Dummy module	EH-DUM	Module for open slots	Empty 16	
Counter module	EH-CU	High speed counter input, Maximum frequency of 100 kHz, 2 channels, 1/2-phase switchable, 4-point open collector output	FUN0	
	EH-CUE	High speed counter input, Maximum frequency of 100 kHz, 1 channel, 1/2-phase switchable, 2-point open collector output	FUN0	
Positioning module	EH-POS	1-axis positioning module	4W/4W	
	EH-POS4	4-axis positioning module	4W/4W	*2
Communication module	EH-LNK	Coaxial CPU Link Module	LINK	*3
	EH-OLNK	Optical CPU Link Module	LINK	
	EH-ETH	Ethernet module IEEE802.3 standard, 10 BASE-T	COMM	
	EH-SIO	Serial Communication Module (RS-232C, RS-422/485)	4W/4W	To be released shortly
	EH-RMD	DeviceNet master module 256- word input, 256-word output, Up to 2 units can be installed per CPU Remote master module 1024 points (IN+OUT), Up to 4 units can be installed per CPU	LINK/REMOTE2	*3
	EH-IOCD	DeviceNet slave module, 256-word input and 256- word output	—	
	EH-RMP	PROFIBUS master module 256- word input, 256-word output, Up to 2 units can be installed per CPU	LINK	*3
	EH-IOCP	PROFIBUS slave module, 209-word input and 209- word output	—	

*1: When 64 points I/O module is used
*2: Supported by EH-CPU316A/516/548
*3: Supported by EH-CPU316A/516/548 in slot 0 to 7 (EH-BS5A/8A/11A)
EH-BS11A is supported by EH-CPU516/548.

Item	Model name	Specification	Remarks
Portable graphic programmer	PGM-GPH	Portable graphic programmer with a 2 m (6.56 ft.) connection cable (PGCB02H)	*4
Command language programmer	PGM-CHH	Command language programmer	
Programming software	HLW-PC3E	Ladder diagram/Command language editor (English version) LADDER EDITOR (for Windows® 95/98/NT® 4.0/2000/XP)	
	Pro-H	IEC61131-3 standard programming software, 5 Program editors (LD, IL, FBD, SFC, ST)	
	HL-AT3E	LADDER EDITOR DOS version	

Note: MS-DOS, Windows® 95/98/2000/XP and Windows NT®4.0 are registered of Microsoft Corporation in the United States.
HI-LADDER (attached to GPCL01H) can also be used.
*4: Don't use the option box (model name: PGMIF1H) for the portable programmer.
Its high current may cause the EH-150 system to break down.

Item	Model name	Specification	Remarks
Cable for connecting basic base to I/O controller	EH-CB05A	Length:0.5m (1.64 ft.) (Between Base unit and EH-IOCH) (for 2 or 4 expansion bases)	
	EH-CB10A	Length:1m (3.28 ft.) (Between Base unit and EH-IOCH) (for 2 or 4 expansion bases)	
	EH-CB20A	Length:2m (6.56 ft.) (Between Base unit and EH-IOCH) (for 2 or 4 expansion bases)	
I/O connector cable for EH-POS	EH-POC10	Length: 1m (3.28 ft.)	
	EH-POC20	Length: 2m (6.56 ft.)	
	EH-POC50	Length: 5m (16.4 ft.)	
Conversion cable for connecting peripheral devices	EH-RS05	Adapter cable for WVCB02H (0.5m 19.69 in.))	
For portable graphic programmer, command language programmer	PGCB02H	Length: 2 m (6.56 ft.), between CPU and programmer	
Peripheral devices	WVCB02H	Connection with a personal computer, EH-RS05 is required. (2m (6.56 ft.))	*5
	EH-VCB02	Direct connection between EH-150 and a personal computer (2m (6.56 ft.))	*5

*5: EH-VCB02 and WVCB02H are cables for LADDER EDITOR for Windows®.

■Save wiring equipment

Item	Model name	Specification	Remarks
Distributed I/O units	RDX16D	16 points input, 24V DC, Based on DeviceNet.	
	RDY16T	16 points, Transistor output 0.3 A (sink type), Based on DeviceNet.	
	RDY16TP	16 points, Transistor output 0.3 A (source type), Based on DeviceNet.	
	RDY16R	16 points, relay output 2 A DC, Based on DeviceNet.	
Terminal block	HPX7DS-40V6	Terminal for 32 / 64 points I/O module	
Cable for teminal block	EH-CBM01W	Length: 1m, Both edges connector.	
	EH-CBM03W	Length: 3m, Both edges connector.	
	EH-CBM05W	Length: 5m, Both edges connector.	
	EH-CBM10W	Length: 10m, Both edges connector.	
	EH-CBM01	Length: 1m, One edge connector.	
	EH-CBM03	Length: 1m, One edge connector.	
	EH-CBM05	Length: 1m, One edge connector.	
	EH-CBM10	Length: 1m, One edge connector.	

Form	Usage	Remarks
LIBAT-H	Lithium battery	The battery is used in common with the H series.
EH-LCN	L-type connector for the turn of coaxial connector. (for coaxial type CPU link module.)	

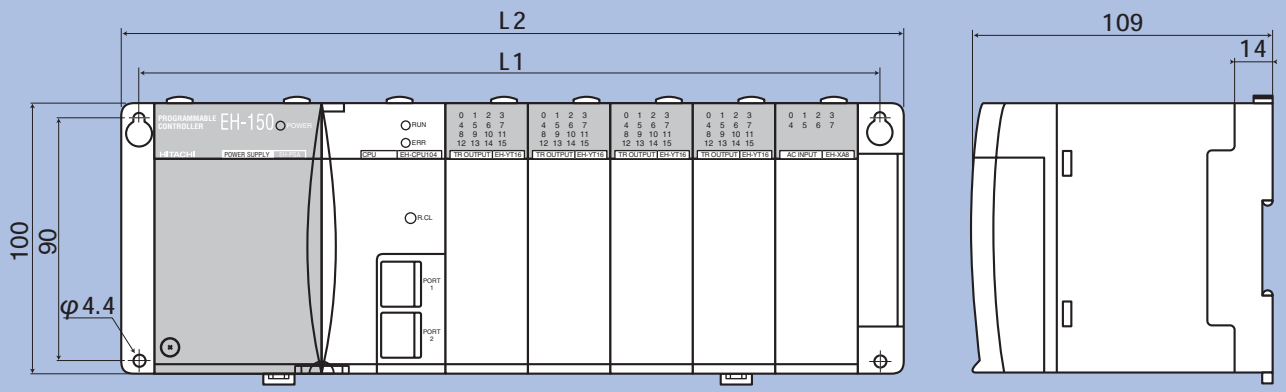
●Windows is a registered trademark of Microsoft Corp. in the U.S. and other countries.

General Specifications

Item		Specification
Power voltage	AC receiving power	100/110/120 V AC (50/60Hz) , 200/220/240 V AC (50/60Hz)
	DC receiving power	24 V DC
Power voltage fluctuation range		85 to 264 V AC wide range
		21.6 to 26.4 V DC
Allowable instantaneous power failure		85 to 100 VAC: for a momentary power failure of less than 10 ms, operation continues 100 to 264 VAC: for a momentary power failure of less than 20 ms, operation continues
Operating ambient temperature		0 to 55˚C (Storage ambient temperature –10 to 75˚C)
Operating ambient humidity		20 to 90% RH (no condensation) (Storage ambient humidity 10 to 90% RH (no condensation))
Vibration resistance		Conforms to JIS C 0911 (16.7 Hz double amplitude 3 mm X, Y and Z each direction)
Noise resistance		◯Noise voltage 1,500 Vpp Noise pulse width 100 ns, 1 µs (Noise created by the noise simulator is applied across the power supply module's input terminals. This is determined by this company's measuring methods.) ◯Based on NEMA ICS3-304 (with the exception of input module) ◯Static noise: 3,000 V at metal exposed area
Insulation resistance		20 MΩor more between the AC external terminal and case ground (FE) terminal (based on 500 V DC mega)
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

Dimensions

[Unit: mm]



Base	EH-BS11A	EH-BS8	EH-BS5	EH-BS3
Number of I/O modules	11	8	5	3
L1	447	357	267	207
L2	462.5	372.5	282.5	222.5
Weight	0.4kg (0.88 lb.)	0.36kg (0.79 lb.)	0.28kg (0.62 lb.)	0.22kg (0.49 lb.)

EH-BS11A is supported by EH-CPU516/548.

ISO 14001
EC97J1045

ISO 9001
JQA-1000

The EH-150 series PLCs are produced at the factory registered under the ISO 14001 standard for environmental management system and the ISO 9001 standard for quality management system.

Information in this brochure is subject to change without notice.

For further information, please contact your nearest sales representative.

HITACHI

Printed in Japan (H) **SI-E103V** 0204