

Programmable Logic Controllers

# EHV+ Series

**HITACHI**  
Inspire the Next

Full compliance with the  
IEC61131-3 International Standard



# EHV+ Series CPU modules

The EHV+ Series is a newly released, fully IEC61131-3 compliant PLC Series which offers effective programming features and reduced debugging and commissioning time.

## CPU module “EHV+”

The powerful hardware performances of existing EHV Series are succeeded to EHV+, such as multi-programming port (USB, Ethernet, Serial), compatibility of I/O modules for EH-150 Series, high reliability, superior in quality and much more.

## Programming software “EHV-CoDeSys”

EHV-CoDeSys is a professional development tool based on CoDeSys V3.4 by 3S.

Compared to standard CoDeSys, following components are additionally included in the installation file (setup.exe)

- Device description files (.xml) for EHV+ Series
- Special libraries for EHV+ Series. (get\_error\_info, Counter\_interface, etc.)

Well over 200 renowned device manufacturers from different industrial sectors program their automation devices with CoDeSys. Today, CoDeSys is the widest-spread IEC61131-3 development tool in Europe and has established itself as the standard in controller and PLC programming. Advantages of CoDeSys are introduced as follows.

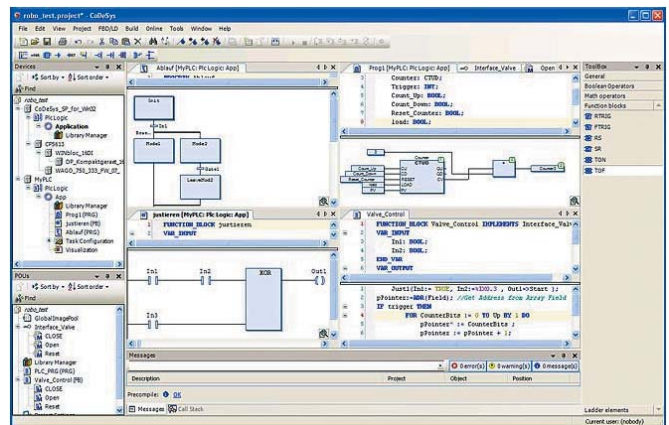
- Standardized programming style with 5 programming languages (LD, FBD, IL, ST, SFC).
- No need to study manufacturer’s specific programming way.
- Easy to start using Hitachi PLC for those who having;  
No experience of PLC  
Experience of other manufacturer’s programming  
Experience of high level languages
- Same Variable names are shared by PLC, HMI, SCADA, and other I/O devices.
- Offline simulation function on programming software.

## EHV+ CPU Series: Scalable memory size (4 Models)

- EHV-CPU1006 (64KB)
- EHV-CPU1025 (256KB)
- EHV-CPU1051 (512KB)
- EHV-CPU1102 (1024KB)



## Hitachi version of CoDeSys by 3S-Smart Software Solutions GmbH



## EHV+CPU module

**User program memory**  
Max. 1,024KB

**3 commutation ports**

- Ethernet port (10BASE-T/100BASE-TX)
- USB port (Ver2.0 FullSpeed 12Mbps)
- Serial port (RS-232C/RS-422/RS-485)

**User program is stored in non-volatile FLASH memory.**  
(Data is stored in volatile RAM memory retained by battery.)

**7 Segment LED Display**  
Error code is displayed here.

The battery can be replaced easily with CPU module mounted.

Battery  
Battery connector

The Ethernet and the Serial port have LEDs of communication status.

## No. of I/O is Max.4224(using 64 pts module)

Power module  
CPU module  
I/O module  
Basic base  
Expansion cable  
Input and output controller  
Power module  
Expansion base  
A max. of 5 expansion base

EHV+ Series is small size but powerful PLC covering wide range of applications since it is possible to expand up to 5 expansion bases, which offers max. 4224 I/O points in 66 I/O modules.



# Programming software “EHV-CoDeSys”

## ● Five programming language editors

The user can freely select among the 5 programming languages of the IEC61131-3 standard according to the intended purpose and the programmer’s skills and experience.

### LD Ladder Diagram

### FBD Function Block Diagram

### SFC Sequential Function Chart

### IL Instruction List

|      |                                 |
|------|---------------------------------|
| LD   | bVar                            |
| ST   | inst1.IN                        |
| JMPC | m1                              |
| CAL  | inst1(<br>PT:=t1,<br>ET:>tout1) |
| LD   | inst1.Q                         |
| ST   | inst2.IN                        |

### ST Structured Text

```

1  a := a + 1;
2  tl(IN:=FALSE, PT:= T#5S);
3  tl(IN:=TRUE);
4  FOR i := 0 TO count DO
5  test_l_int();
6  END FOR
7  IF value < 7 THEN
8  WHILE value < 8 DO
9  value:=value+1;
10 END_WHILE;
11 END_IF;
```

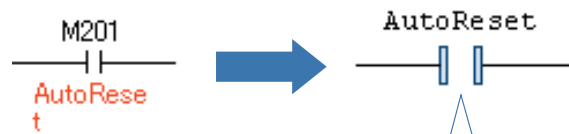
## ● Easy and efficient programming

### Structured Programming

Task configuration and structured-based editors on POU (Program Organization Unit) enable flexible programming.

### Programming with variable names

Programming with variable name enables you to be free from I/O addressing of PLC.



## ■ Specifications of EHV-CoDeSys

| Item                 | Descriptions      |  |
|----------------------|-------------------|--|
| System requirements  | RAM               | 1GB  |
|                      | Operating system  | Windows 2000 or higher(not yet released for the 64-bit platforms of Windows Vista and Windows 7) |
|                      | CPU               | 1GHz Pentium   |
|                      | Hard disk         | 1GB  |
|                      | Screen resolution | 1024x768   |
| Communication cables | USB               | Standard USB cable (Type-B connector)  |
|                      | Ethernet          | UTP or STP cable (cat 5E)  |
|                      | Serial            | EH-VCB02   |

Minimal requirements for small projects with up to 100 POU's, 10 visualizations, 8 field bus devices.

## ● Debugging and commissioning features

Many of user-friendly debugging and commissioning features are supported.

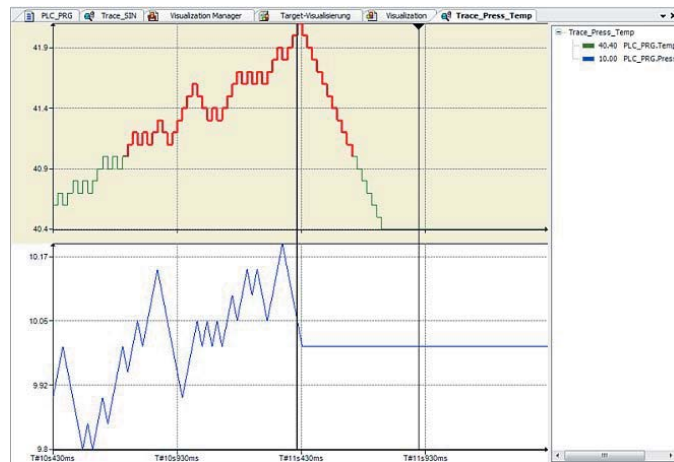
- Monitoring
- Forcing of variables
- Break points
- Single step execution
- Single cycle execution
- Flow control
- Online change
- Incremental compile
- Incremental download
- Sampling trace
- Simulation
- and much more.

| Expression | Type     | Value              | Prepared value |
|------------|----------|--------------------|----------------|
| StartTime  | TIME     | T#0ms              |                |
| S3         | GEN      |                    |                |
| MODE       | GEN_MODE | GEN_MODE.SAWTOO... |                |
| BASE       | BOOL     | FALSE              | TRUE           |
| PERIOD     | TIME     | T#1s               |                |
| CYCLES     | INT      | 100                | 45             |
| AMPLITUDE  | INT      | 1000               |                |
| RESET      | BOOL     | FALSE              |                |
| OUT        | INT      | -280               |                |

```

1.3 D (IN:=INT_TO_REAL(S6.Out 440) , TM:=10 , RESET:=FALSE) ;
1.4 B (ENABLE:=TRUE, TIMELOW:=t#4s , TIMEHIGH:=t#8s) ;
1.5 iSpecialSinus -833 := S12.Out 639 - S11.OUT 1472 ;
1.6 RETURN
    
```

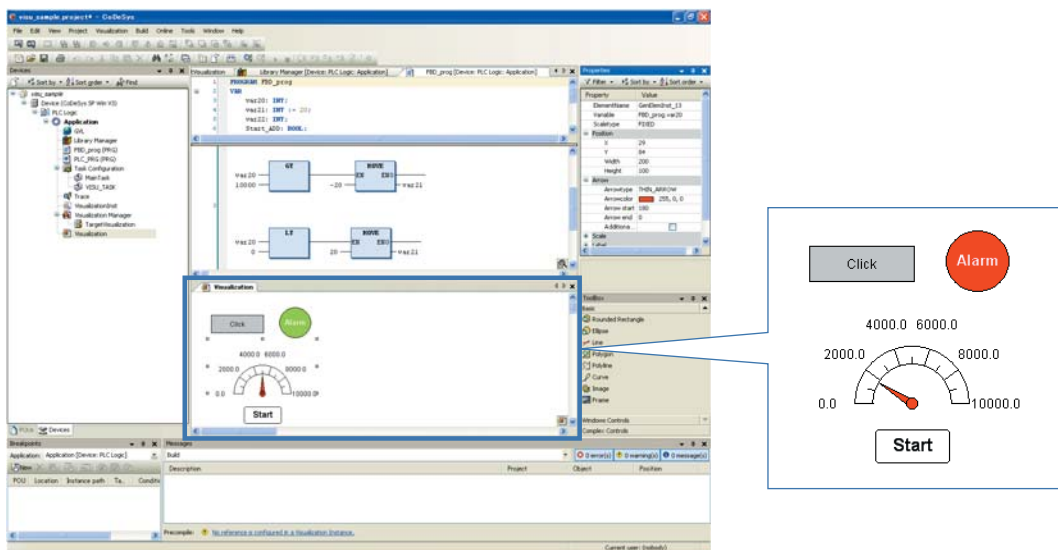
Forcing of variables



Sampling trace

## Visualization

In addition to the core programming functionality, EHV-CoDeSys offers powerful visualization functions such as an integrated graphical editor, which is useful for test, commissioning or diagnostic purpose.



# Overview of the I/O module lineup

## Big variety of modules to meet various applications demands

### DC and AC digital input and output modules



#### 8/16 pts. Input module (terminal block)

- EH-XD8 : 8 pts. 24 VDC
- EH-XD16 : 16 pts. 24 VDC
- EH-XDL16 : 16 pts. 24 VDC  
(Input lag 16ms)
- EH-XA16 : 16 pts. 100 to 120 VAC
- EH-XAH16 : 16 pts. 200 to 240 VAC



#### 8/16 pts. Output module (terminal block)

- EH-YT8 : 8 pts. Transistor (sink)
- EH-YTP8 : 8 pts. Transistor (source)
- EH-YT16 : 16 pts. Transistor (sink)
- EH-YTP16 : 16 pts. Transistor (source)
- EH-YS4 : 4 pts. Triac
- EH-YS16 : 16 pts. Triac
- EH-YR12 : 12 pts. Relay
- EH-YR16 : 16 pts. Relay
- EH-YR8B : 8 pts. Isolated relay



#### 32 pts. Input module (connector)

- EH-XD32 : 32 pts. 24 VDC



#### 32 pts. Output module (connector)

- EH-YT32 : 32 pts. Transistor (sink)
- EH-YTP32 : 32 pts. Transistor (source)



#### 64 pts. Input module (connector)

- EH-XD64 : 64 pts. 24 VDC



#### 64 pts. Output module (connector)

- EH-YT64 : 64 pts. Transistor (sink)
- EH-YTP64 : 64 pts. Transistor (source)



#### 32 pts. Input module (Spring type terminal block)

- EH-XD32E : 32 pts. 24 VDC
- EH-XDL32E : 32 pts. 24 VDC  
(Input lag 16 ms)



#### 32 pts. Output module (Spring type terminal block)

- EH-YT32E : 32 pts. Transistor (sink)
- EH-YTP32E : 32 pts. Transistor (source)

## Analog input and output modules



### Analog Input module

- EH-AX44 : 12-bit analog input, Current 4-20 mA, Voltage 0-10 V, 4 ch each
- EH-AX8V : 12-bit analog input, Voltage 0-10 V, 8 ch
- EH-AX8H : 12-bit analog input, Voltage -10 to 10 V, 8 ch
- EH-AX8I : 12-bit analog input, Current 4-20 mA, 8 ch
- EH-AX8IO : 12-bit analog input, Current 0-22 mA, 8 ch
- EH-AXH8M : 14-bit analog input, Current 0-22 mA / 4-22 mA, Voltage -10 to 10 V / 0-10 V, 8 ch

### Analog Output module

- EH-AY22 : 12-bit analog output, Current 4-20 mA, Voltage 0-10 V, 2 ch each
- EH-AY4V : 12-bit analog output, Voltage 0-10 V, 4ch
- EH-AY4H : 12-bit analog output, Voltage -10 to 10 V, 4 ch
- EH-AY4I : 12-bit analog output, Current 4-20 mA
- EH-AY2H : 12-bit analog output, Voltage -10 to 10 V, 2 ch
- EH-AYH8M : 14-bit analog output, Current 0-22 mA / 4-22 mA, voltage 0-10 V, 8 ch

### Temperature Detective Input module

- EH-PT4 : Signed 15-bit, Pt 100 / Pt 1000, 4 ch
- EH-TC8 : Signed 15-bit, Thermo-couple (K, E, J, T, B, R, S, N) 8 ch

## Positioning and Counter modules



### 1-axis positioning module

- EH-POS : Open collector output  
Line driver output



### 4-axis positioning module

- EH-POS4 : Line driver output



### High speed counter module

- EH-CU : Maximum 100 kHz, 2 ch
- EH-CUE : Maximum 100 kHz, 1 ch

## Communication and Network modules



### Serial communication Module : EH-SIO

Interface : RS-232C×1, RS-232C/422/485×1  
Communication mode : Half-duplex  
Communication speed : 300-57600 bps  
Communication protocol : Non-protocol  
Modbus RTU



### PROFIBUS® Master / Slave Controller

Number of slave-connected units : Max. 124  
(a repeater is required to connect 32 or more)  
Number of installed I/O modules by Slave Controller : Max. 16  
Communication speed Max. 12 Mbps  
Communication distance Max. 1,200 m (9.6 kbps)



### DeviceNet™ Master / Slave Controller

Number of slave-connected units : Max. 63  
Number of installed I/O modules by Slave Controller : Max. 16  
Communication speed Max. 500 kbps  
Communication distance Max. 500 m (125 kbps)





# Specifications



## CPU Module

| Item                             | EHV-CPU1006  | EHV-CPU1025  | EHV-CPU1051 | EHV-CPU1102 |
|----------------------------------|--|--|-------------|-------------|
| User program memory              | 64KB   | 256KB  | 512KB       | 1024KB      |
| Source file memory               | 2MB  | 6MB  |             |             |
| Data memory (non retain)         | 256KB  |  |             |             |
| Data memory (retain)             | 16KB   |  |             |             |
| Data memory (Fieldbus)           | 16KB (2KB×8 = 1KW×8)   |  |             |             |
| No. of expansion base            | 0  | 5  |             |             |
| No. of I/O (using 64 pts module) | 704  | 4,224  |             |             |
| Programming languages            | IEC61131-3 compliant 5 languages<br>LD : Ladder Diagram<br>FBD : Function Block Diagram (incl. CFC: Continuous Function Chart)<br>SFC : Sequential Function Chart<br>IL : Instruction List<br>ST : Structured Text |  |             |             |
| I/O updating cycle               | Refresh processing   |  |             |             |
| Communication                    | Protocol   | CoDeSys V3 protocol  |             |             |
|                                  | USB  | USB 2.0 Full speed (Gateway*)  |             |             |
|                                  | Ethernet   | 10BASE-T/100BASE-TX (Gateway*, Modbus-TCP client/server, Global network variables) |             |             |
|                                  | Serial   | RS-232C/422/485 (Gateway*, Modbus-RTU master, General purpose)                     |             |             |
| Switch, indications              | Indications  | RUN LED, ERR LED, 7-segment LED (2 digits)   |             |             |
|                                  | RUN switch   | STOP/ RUN (Remote RUN/STOP enabled when the switch position is in RUN.)            |             |             |
|                                  | E.CLR button   | Reset error information  |             |             |
| Calendar clock                   | Support (Built-in RTC)   |  |             |             |
| Battery                          | LIBAT-H (for RTC and RETAIN data)  |  |             |             |
| Maintenance function             | Diagnosis (micro processor error, watch dog timer error, memory error, battery error, etc.)  |  |             |             |

\* Gateway: Communication with EHV-CoDeSys

## Power Supply Module



| Item           |                | EH-PSA   | EH-PSD   |
|----------------|----------------|--|--|
| Input          | Rated voltage  | 85 to 264V AC  | 21.6 to 26.4 V DC                                      |
|                | Current        | 1A maximum (85 to 264V AC)                             | 1.25A maximum (24V DC)                                 |
|                | Inrush current | 50 A maximum (Ta = 25°C),<br>100 A maximum (Ta = 55°C) | 50 A maximum (Ta = 25°C),<br>100 A maximum (Ta = 55°C) |
| Output Current | 5 V DC         | 3.8A   | 3.8A   |
|                | 24 V DC        | 0.4A   | —  |

## Redundant Power Supply Module



| Item           |                | EH-PSR  |
|----------------|----------------|---|
| Input          | Rated voltage  | 85 to 264 V AC                                      |
|                | Current        | 1A maximum (85 to 264 V AC)                         |
|                | Inrush current | 50 A maximum (Ta = 25°C), 100 A maximum (Ta = 55°C) |
| Output Current | 5 V DC         | 5.8A  |
|                | 24 V DC        | —   |

### DC and AC Input Module



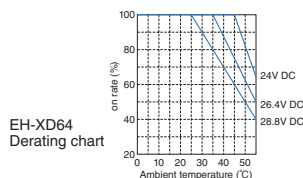
| Item                                  | Specification                       |                            |          |                                |                                |
|---------------------------------------|-------------------------------------|----------------------------|----------|--------------------------------|--------------------------------|
|                                       | EH-XD8                              | EH-XD16                    | EH-XDL16 | EH-XA16                        | EH-XAH16                       |
| Type                                  | DC input                            |                            |          | AC input                       |                                |
| Input specification                   | 24 V DC                             |                            |          |                                |                                |
| Input voltage                         | 19.2 to 30 V DC                     |                            |          |                                |                                |
| 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 minimum               |          |                                | 79 V AC                        |
|                                       | OFF voltage                         | 5 V maximum                |          |                                | 20 V AC                        |
| Input lag                             | OFF→ON                              | 5 ms maximum (4 ms TYP)    |          | 16 ms maximum (13 ms TYP)      | 15 ms maximum                  |
|                                       | ON→OFF                              | 5 ms maximum (4 ms TYP)    |          | 16 ms maximum (13 ms TYP)      | 25 ms maximum                  |
| Number of input points                | 8                                   | 16                         |          | 16                             |                                |
| Number of inputs / common             | 8                                   | 16 (1 common, 2 terminals) |          |                                |                                |
| Polarity                              | None                                |                            |          | None                           |                                |
| Insulation method                     | Photocoupler insulation             |                            |          | Photocoupler insulation        |                                |
| Input display                         | LED (green)                         |                            |          | LED (green)                    |                                |
| External connection                   | Removable screw terminal block (M3) |                            |          |                                |                                |
| Internal current consumption (5 V DC) | 30 mA                               | 50 mA                      |          |                                |                                |

### 32-/64-point DC Input Module



EH-XD32

EH-XD64



EH-XD64 Derating chart

| Item                                  | Specification              |                             |
|---------------------------------------|----------------------------|-----------------------------|
|                                       | EH-XD32                    | EH-XD64                     |
| Type                                  | DC input                   |                             |
| Input specification                   | 24 V DC                    |                             |
| Input voltage                         | 19.2 to 30 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 minimum                |
|                                       | OFF voltage                | 5 V maximum                 |
| Input lag                             | OFF→ON                     | 5 ms maximum                |
|                                       | ON→OFF                     | 5 ms maximum                |
| Number of input points                | 32                         | 64                          |
| Number of inputs / common             | 32 (1 common, 4 terminals) | 32 (2 commons, 8 terminals) |
| Polarity                              | None                       |                             |
| Insulation method                     | Photocoupler insulation    |                             |
| Input display                         | LED (green)*1              |                             |
| External connection                   | Connector                  |                             |
| Internal current consumption (5 V DC) | 60 mA                      | 80 mA                       |

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

### 32-point Spring type terminal DC Input Module



| Item                                  | Specification               |              |
|---------------------------------------|-----------------------------|--------------|
|                                       | EH-XD32E                    | EH-XDL32E    |
| Type                                  | DC input                    |              |
| Input specification                   | 24 V DC                     |              |
| Input voltage                         | 20.4 to 28.8 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 minimum |
|                                       | OFF voltage                 | 5 V maximum  |
| Input lag                             | OFF→ON                      | 1 ms maximum |
|                                       | ON→OFF                      | 1 ms maximum |
| Number of input points                | 32                          |              |
| Number of inputs / common             | 8 (4 commons, 8 terminals)  |              |
| Polarity                              | None                        |              |
| Insulation isolation                  | Photocoupler insulation     |              |
| Input display                         | LED (green)*1               |              |
| External connection                   | Spring type terminal        |              |
| Internal current consumption (5 V DC) | 60 mA                       |              |

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

## Transistor Output Module



| Item   | Specification                                |                |  |                |  |
|--|--|----------------|--|----------------|--|
|  | EH-YT8                                       | EH-YT16        | EH-YTP8                                      | EH-YTP16       | EH-YTP16S<br>(with short-circuit protection) |
| Type   | Transistor output (sink type)                |                | Transistor output (source type)              |                |  |
| Output specification   | 12 / 24 V DC (+10%, -15%)                    |                | 12 / 24 V DC (+10%, -15%)                    |                |  |
| Rated load voltage   | 12 / 24 V DC (+10%, -15%)                    |                | 12 / 24 V DC (+10%, -15%)                    |                |  |
| Minimum switching current  | 1 mA   |                | 1 mA   |                |  |
| Leak current   | 0.1 mA                                       |                | 0.1 mA                                       |                |  |
| Maximum load current   | 1 point                                      | 0.5 A          |  |                |  |
|  | 1 common                                     | 2.4 A          | 4 A  | 2.4 A          | 4 A  |
| Output response time   | OFF → ON                                     | 0.3 ms maximum |  | 0.3 ms maximum |  |
|  | ON → OFF                                     | 1 ms maximum   |  | 1 ms maximum   |  |
| Number of output points  | 8  | 16             | 8  | 16             |  |
| Number of outputs / common                                       | 8  | 16             | 8  | 16             |  |
| Surge removal circuit  | Diode  |                | Diode  |                | Built-in                                     |
| Fuse   | 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)                                  |                |  |
| External connection  | Removable screw terminal block (M3)          |                |  |                |  |
| Internal current consumption (5 V DC)                            | 30 mA  | 50 mA          | 30 mA  | 50 mA          |  |
| External power supply<br>(For supplying power to the S terminal) | 12 / 24 V DC (+10%, -15%)<br>(maximum 30 mA) |                | 12 / 24 V DC (+10%, -15%)<br>(maximum 30 mA) |                |  |

## 32-/64-point DC Output Module



EH-YT32  
EH-YTP32

EH-YT64  
EH-YTP64

| Item   | Specification                                 |                                 |                               |                                 |
|--|---|---------------------------------|-------------------------------|---------------------------------|
|  | EH-YT32                                       | EH-YTP32                        | EH-YT64                       | EH-YTP64                        |
| Type   | Transistor output (sink type)                 | Transistor output (source type) | Transistor output (sink type) | Transistor output (source type) |
| Output specification   | 12 / 24 V DC (+10%, -15%)                     |                                 |                               |                                 |
| Rated load voltage   | 12 / 24 V DC (+10%, -15%)                     |                                 |                               |                                 |
| Minimum switching current  | 1 mA  |                                 |                               |                                 |
| Leak current   | 0.1 mA maximum                                |                                 |                               |                                 |
| Maximum load current   | 1 point                                       | 0.2 A                           | 0.1 A                         |                                 |
|  | 1 common                                      | 4.0 A*1                         | 3.2 A                         |                                 |
| Output response time   | OFF → ON                                      | 0.3 ms maximum                  |                               |                                 |
|  | ON → OFF                                      | 1 ms maximum                    |                               |                                 |
| Number of output points  | 32  |                                 | 64                            |                                 |
| Number of outputs / common                                       | 32 (1 common, 4 terminals)                    |                                 | 32 (2 commons, 8 terminals)   |                                 |
| Surge removal circuit  | Diode   |                                 |                               |                                 |
| Fuse   | 10 A / 1 common                               |                                 | 5 A / 1 common                |                                 |
| Insulation method  | Photocoupler insulation                       |                                 |                               |                                 |
| Output display   | LED (green)*2                                 |                                 |                               |                                 |
| Short-circuit protection   | Short-circuit protection function             |                                 |                               |                                 |
| External connection  | Connector                                     |                                 |                               |                                 |
| Internal current consumption (5 V DC)                            | 90 mA   |                                 | 120 mA                        |                                 |
| External power supply<br>(For supplying power to the S terminal) | 12 / 24 V DC (+10%, -15%)<br>(Maximum 100 mA) |                                 |                               |                                 |

\* 1: Total current for 4 common pins. The maximum current for 1 pin is 3A.

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

## Spring type terminal DC Output Module



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

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



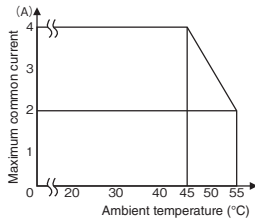
**Relay and AC (SSR) Output Module**



| Item   | Specification  |                                     |                            |                                |                            |
|--|--|-------------------------------------|----------------------------|--------------------------------|----------------------------|
|  | EH-YR8B  | EH-YR12                             | EH-YR16                    | EH-YS4                         | EH-YS16                    |
| Type   | Independent relay output                                   | Relay output                        |                            | Triac output                   |                            |
| Rated load voltage                             | 100 / 240 V AC, 24 V DC                                    |                                     |                            | 100 / 240V AC (85 to 250 V AC) |                            |
| Minimum switching current                      | 1 mA (5V DC except after switching with excessive current) |                                     |                            | 100mA                          | 10mA                       |
| Leak current                                   | None   |                                     |                            | 5mA maximum                    | 2mA maximum                |
| Maximum load current                           | 1 point  | 2A                                  |                            |                                | 0.5A                       |
|  | 1 common   | 2A                                  | 5A                         | 8A                             | 4A (Derating diagram)      |
| Output response time                           | OFF→ON   | 10 ms maximum                       |                            |                                | 1ms maximum                |
|  | ON→OFF   | 10 ms maximum                       |                            |                                | 1ms + 1/2 cycles maximum   |
| Number of output points                        | 8  | 12                                  | 16                         | 4                              | 16                         |
| Number of outputs / common                     | 1 (each output separated)                                  | 12 (1 common, 2 terminals)          | 16 (1 common, 2 terminals) | 4                              | 16 (1 common, 2 terminals) |
| Surge removal circuit                          | Varistor (voltage characteristic of varistor : 423~517 V)  | None                                |                            | Varistor                       |                            |
| Fuse   | None   |                                     |                            | 4 A / 1 common                 | 6.3 A / 1 common*1         |
| Insulation method                              | Relay insulation   | Photocoupler insulation             | Relay insulation           | Photo-triac insulation         |                            |
| Output display                                 | LED (green)  |                                     |                            |                                |                            |
| External connection                            | Removable screw terminal block (M3)                        |                                     |                            |                                |                            |
| Internal current consumption (5 V DC)          | 220 mA   | 40 mA                               | 430 mA                     | 70mA                           | 250mA                      |
| Externally supplied power (For driving relays) | Not used   | 24 V DC (+10%, -5%) (maximum 70 mA) | Not used                   | Not used                       | Not used                   |

\* 1: Install an external fuse at each load.

EH-YS16 Derating diagram



**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 <sup>2</sup>                                       |
| 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 <sup>2</sup> (50G) minimum                              |

**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 (12 bit)

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

### Analog Output Module (12 bit)

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

### Resistance Temperature Detectable Input Module

| Item                                  |                                    | Specification  |  |
|---------------------------------------|------------------------------------|--|--|
| Type                                  |                                    | EH-PT4   |  |
| Temperature-sensing element           |                                    | Platinum resistance temperature detector Pt 100<br>(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<br>(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  |  |
| 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 (Pt 100)             | 0.0024°C   |  |
|                                       | -50°C to 400°C (Pt 100)            | 0.024°C  |  |
|                                       | -50°C to 400°C (Pt 1000)           | 0.024°C  |  |
| Internal current consumption (5 V DC) |                                    | 160mA  |  |
| Externally supplied power             |                                    | 24 V DC ±10%,<br>Maximum current consumption is 70mA   |  |

\* 1: Accuracy 10 minutes after power on.

### Analog Input Module (14 bit)

| Item                                     |                                  | Specification   |  |
|--|----------------------------------|---|--|
| Model name                               |                                  | EH-AXH8M  |  |
| Input range<br>(Selected by the switch.) |                                  | Voltage 0 to 10 V DC / -10 to 10 V DC<br>Current 0 to 22 mA / 4 to 22 mA        |  |
| Resolution<br>(Selected by the switch)   | 0 to 10 V<br>0 to 22 mA          | Voltage 1 mV or 1/16384 (14 bits)<br>Current 0.002 mA or 1/16384 (14 bits)      |  |
| Conversion time                          |                                  | 8.9 ms / 8 channels   |  |
| Overall accuracy                         |                                  | Voltage ±0.5% maximum (Full scale)<br>Current ±0.8% maximum (Full scale)        |  |
| Linearity                                |                                  | ±0.1% maximum (Full scale)  |  |
| Input filter<br>(Selected by the switch) | Enable                           | Approx. 90 ms (to reach 90% after step input)                                   |  |
|  | Disable                          | 18 ms maximum (to reach 90% after step input)                                   |  |
| Input impedance                          | Voltage<br>Current               | Differential 200 kΩ<br>249Ω   |  |
| Isolation                                | Between channel and internal bus | Photo coupler   |  |
|  | Between channels                 | Not isolated  |  |
| Number of channel                        |                                  | Differential voltage input 8 ch. or Current input 8 ch.<br>(selected per 4 ch.) |  |
| Wiring                                   |                                  | Removable screw terminal block (M3)   |  |
| Internal current consumption (5 V DC)    |                                  | 70mA  |  |
| External power supply                    |                                  | 24 V DC (+20%, -15%) 0.04 A (0.3 A at power on)                                 |  |
| Cable                                    |                                  | Shielded pair cable (Max. 20m)  |  |

### Analog Output Module (14 bit)

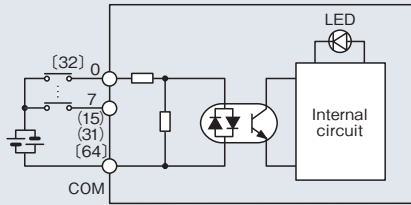
| Item                                      |                                  | Specification  |  |
|---|----------------------------------|--|--|
| Model name                                |                                  | EH-AYH8M   |  |
| Output range<br>(Selected by the switch)  |                                  | Voltage 0 to 10 V DC<br>Current 0 to 22 mA / 4 to 22 mA                    |  |
| Resolution<br>(Selected by the switch)    |                                  | Voltage 1 mV or 1/16384 (14 bits)<br>Current 0.002 mA or 1/16384 (14 bits) |  |
| Conversion time                           |                                  | 8.9 ms / 8 channels  |  |
| Overall accuracy                          |                                  | ±0.8% maximum (Full scale)   |  |
| Linearity                                 |                                  | ±0.2% maximum (Full scale, in range 0 to 10V / 0.05 to 22mA)               |  |
| Output filter<br>(Selected by the switch) | Disable                          | 18 ms maximum (to reach 90% of set value)                                  |  |
|   | Enable                           | 200 ms maximum (to reach 90% of set value)                                 |  |
| Output impedance                          | Voltage<br>Current               | Min. 10 kΩ<br>Max. 400Ω  |  |
| Isolation                                 | Between channel and internal bus | Photo coupler  |  |
|   | Between channels                 | Not isolated   |  |
| Number of output channel                  |                                  | Voltage output 8 ch. or Current output 8 ch.<br>(selected per 4 ch.)       |  |
| Wiring                                    |                                  | Removable screw terminal block (M3)  |  |
| Internal current consumption (5 V DC)     |                                  | 70mA   |  |
| External power supply                     |                                  | 24 V DC (+20%, -15%) 0.15 A (0.4 A at power on)                            |  |
| Cable                                     |                                  | Shielded pair cable (Max. 20m)   |  |

### Thermocouple Input Module

| Item                                  |  | Specification   |  |
|---------------------------------------|--|---|--|
| Type                                  |  | EH-TC8  |  |
| Number of input points                |  | 8   |  |
| Type of sensor                        |  | K, E, J, T, B, R, S, N<br>(Selected by the setting switch on the PWB)                     |  |
| Insulation                            |  | Photocoupler (Channel - internal circuit)   |  |
| Conversion time                       |  | 860 ms / 8 channels or 108 ms / 8 channels<br>(Selected by the setting switch on the PWB) |  |
| Temperature conversion data           |  | 15 bits binary data<br>(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)  |  |
| Internal current consumption (5 V DC) |  | 70mA  |  |
| External power source                 |  | 24 V DC   |  |

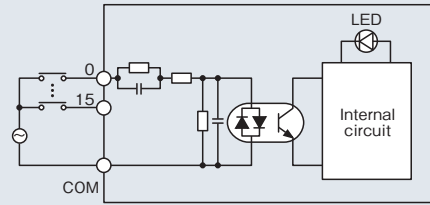
Internal Circuit Diagram

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



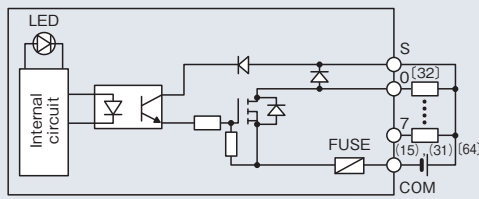
Model: EH-XD8, EH-XD16, EH-XDL16, EH-XD32, EH-XD64

AC Input (16 points)



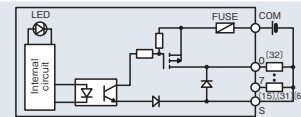
Model: EH-XA16, EH-XAH16

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

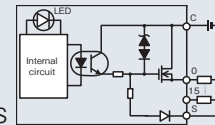


Model: EH-YT8, EH-YT16, EH-YT32, EH-YT64

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

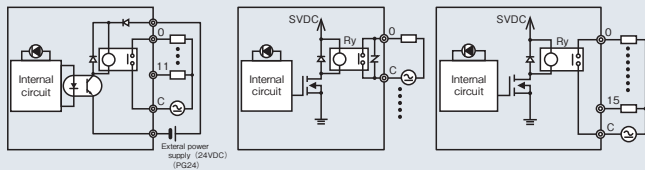


Model: EH-YTP8, EH-YTP16, EH-YTP32, EH-YTP64



Model: EH-YTP16S

Relay Output (8, 12 and 16 points)

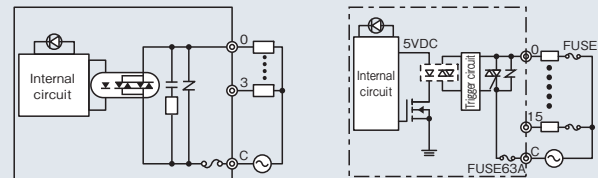


Model: EH-YR12

Model: EH-YR8B

Model: EH-YR16

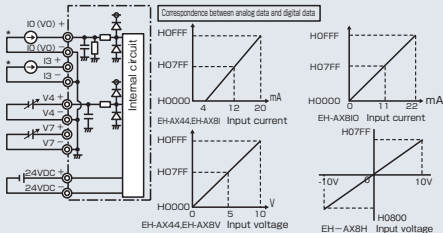
AC (SSR) Output (4 points)



Model: EH-YS4

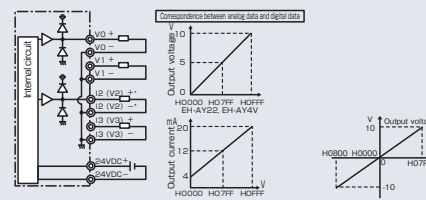
Model: EH-YS16

Analog Input



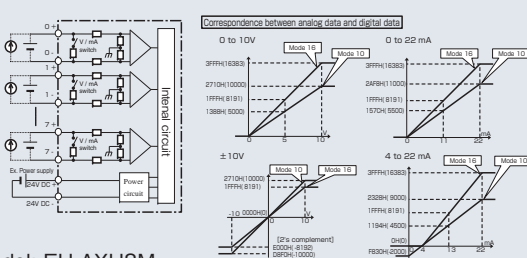
Model: EH-AX44, EH-AX8V, EH-AX8H, EH-AX8I, EH-AX8IO

Analog Output



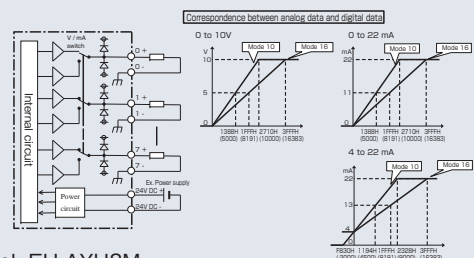
Model: EH-AY22, EH-AY2, EH-AY4V, EH-AY4H, EH-AY4I

Analog Input (EH-AXH8M)



Model: EH-AXH8M

Analog Output (EH-AYH8M)



Model: EH-AYH8M

# Communication and Network Module

## PROFIBUS® Master/Slave Module

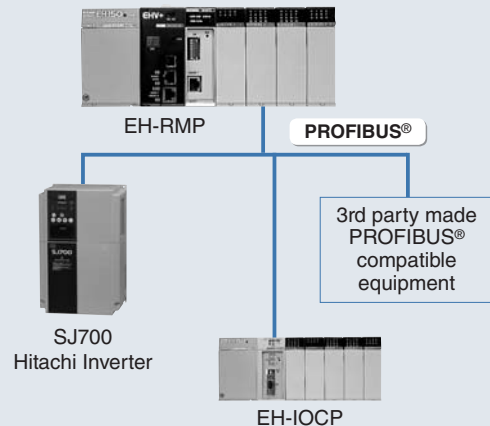
### System configuration



EH-RMP



EH-IOCP



### General Specifications

| Item                  | Specification                  |          |
|-----------------------|--------------------------------|----------|
|                       | EH-RMP                         | EH-IOCP  |
| Current consumption   | 5 V DC, 600 mA                 |          |
| Mounted slot position | Only slot 0 to 7 on basic base | CPU Slot |

### Performance specifications

| Item                            | Specification  |
|---------------------------------|--|
|                                 | EH-RMP   |
| Number of installed units       | 8 units / CPU (slot 0 to 7 only)   |
| 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 kbps : 1,200 m<br>19.2 kbps : 1,200 m<br>45.45 kbps : 1,200 m<br>93.75 kbps : 1,200 m<br>187.5 kbps : 1,000 m<br>500 kbps : 400 m<br>1,500 kbps : 200 m<br>3 Mbps : 100 m<br>6 Mbps : 100 m<br>12 Mbps : 100 m |
| Self-diagnostics                | System ROM / RAM check Watchdog timer  |
| GSD file                        | File name: Hita1004.gsd<br>Please contact Hitachi sales office.  |

| Item                            | Specification  |
|---------------------------------|--|
|                                 | EH-IOCP  |
| Number of installed I/O modules | 16 units / EH-IOCP<br>(use the EH-IOCH2 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 kbps : 1,200 m<br>19.2 kbps : 1,200 m<br>93.75 kbps : 1,200 m<br>187.5 kbps : 1,000 m<br>500 kbps : 400 m<br>1,500 kbps : 200 m<br>3 Mbps : 100 m<br>6 Mbps : 100 m<br>12 Mbps : 100 m |
| Self-diagnostics                | System ROM / RAM check Watchdog timer  |
| GSD file                        | File name: Hita049.gsd<br>Please contact our sales department.   |

Note : Please prepare the configuration software for set-up.

### 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   |                   |                    |
| EH-XD32E  |                   |                    |
| EH-XDL32E |                   |                    |
| EH-XD64   | 2                 | 0                  |
| EH-PT4    |                   |                    |
| EH-AX44   |                   |                    |
| EH-AX8V   |                   |                    |
| EH-AX8H   | 8                 | 0                  |
| EH-AX8I   |                   |                    |

| Type      | Input size (word) | Output size (word) |
|-----------|-------------------|--------------------|
| EH-AX8IO  | 8                 | 0                  |
| EH-AXH8M  |                   |                    |
| EH-TC8    |                   |                    |
| EH-YT8    |                   |                    |
| EH-YT16   |                   |                    |
| EH-YTP8   |                   |                    |
| EH-YTP16  |                   |                    |
| EH-YTP16S |                   |                    |
| EH-YS4    | 0                 | 1                  |
| EH-YS16   |                   |                    |
| EH-YR8B   |                   |                    |
| EH-YR12   |                   |                    |
| EH-YR16   |                   |                    |

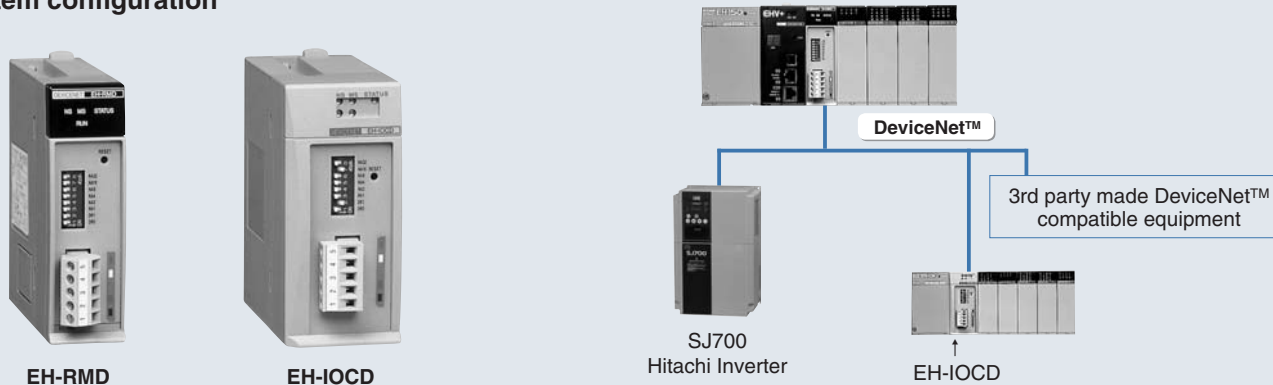
| Type      | Input size (word) | Output size (word) |
|-----------|-------------------|--------------------|
| EH-YT32   | 0                 | 2                  |
| EH-YTP32  |                   |                    |
| EH-YT32E  |                   |                    |
| EH-YTP32E |                   |                    |
| EH-YT64   | 0                 | 4                  |
| EH-YTP64  |                   |                    |
| EH-AY22   |                   |                    |
| EH-AY4V   |                   |                    |
| EH-AY4H   | 0                 | 8                  |
| EH-AY4I   |                   |                    |
| EH-AYH8M  |                   |                    |
| EH-POS    |                   |                    |
| EH-POS4   | 4                 | 4                  |
| EH-CU     |                   |                    |
| EH-CUE    |                   |                    |

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## DeviceNet™ Master/Slave Module

### ● System configuration



### General Specifications

| Item                         | Specification   |                |
|------------------------------|---|----------------|
|                              | EH-RMD  | EH-IOCD        |
| Internal current consumption | 5 V DC, 280 mA  | 5 V DC, 320 mA |
| External power supply        | 100 (3. 94) 24 V DC ± 10% (supplied from communication connector) |                |
| Mounted slot position        | Only slot 0 to 7 on basic base                                    | CPU Slot       |

### Performance Specifications

| Item   | Specification   |                        |                      |                       |
|--|---|------------------------|----------------------|-----------------------|
|  | EH-RMD  |                        |                      |                       |
|  | LINK mode   |                        |                      |                       |
| No. of installed units   | 8 units (slot 0 to 7 only)  |                        |                      |                       |
| No. of slave-connected units   | 63 units  |                        |                      |                       |
| I/O assignment   | LINK  |                        |                      |                       |
| Output data  | 256 words   |                        |                      |                       |
| Input data   | 256 words   |                        |                      |                       |
| Communication protocol   | DeviceNet 2.0 standard  |                        |                      |                       |
| Supported connections  | 1) Poll I/O connection<br>2) Bit strobe I/O connection<br>3) Cyclic I/O connection<br>4) Change of state (COS) I/O connection<br>5) Explicit message connection |                        |                      |                       |
| Connection mode  | 1) Multi-drop connection<br>2) Multi-branch connection using T branch   |                        |                      |                       |
| Communication speed  | 500 k / 250 k / 125 kbps (set by DIP switches)  |                        |                      |                       |
| Cable  | Dedicated DeviceNet Cable   |                        |                      |                       |
| 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. |   |                        |                      |                       |

Note : Please prepare the configuration software "RSNet Worx™ for DeviceNet" (Rookwell Software co.,Ltd.) for set-up.

| Item   | Specification  |                        |                      |                       |
|--|--|------------------------|----------------------|-----------------------|
|  | EH-IOCD  |                        |                      |                       |
| Number of installed I/O modules  | 16 units / EH-IOCD (Use the EH-IOCH2 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  |      |      |

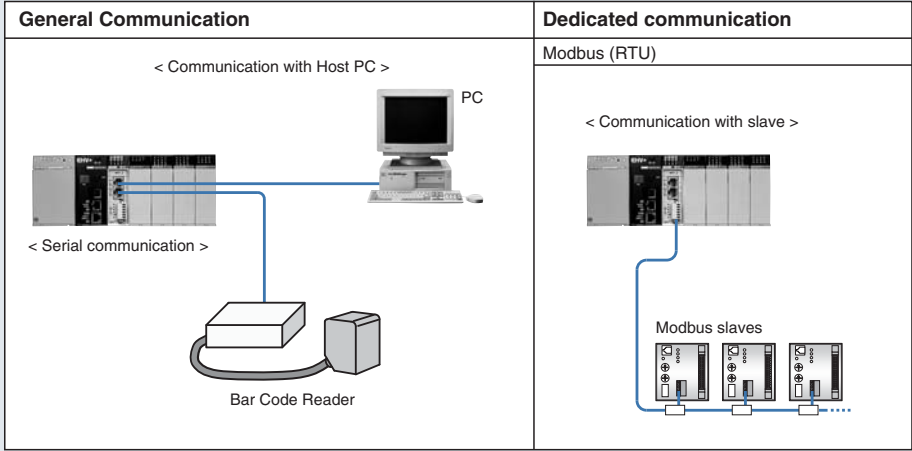
### Supported I/O Modules

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  | 1                 | 0                  |
| EH-XA16   |                   |                    |
| EH-XAH16  |                   |                    |
| EH-XD32   |                   |                    |
| EH-XD32E  | 2                 | 0                  |
| EH-XDL32E |                   |                    |
| EH-XD64   | 4                 | 0                  |
| EH-PT4    | 4                 | 0                  |
| EH-AX44   |                   |                    |
| EH-AX8V   |                   |                    |
| EH-AX8H   |                   |                    |
| EH-AX8I   | 8                 | 0                  |
| EH-AX8IO  |                   |                    |
| EH-AXH8M  |                   |                    |
| EH-TC8    |                   |                    |
| EH-YT8    |                   |                    |
| EH-YT16   |                   |                    |
| EH-YTP8   |                   |                    |
| EH-YPT16  |                   |                    |
| EH-YTP16S |                   |                    |
| EH-YS4    |                   |                    |
| EH-YS16   | 0                 | 1                  |
| EH-YR8B   |                   |                    |
| EH-YR12   |                   |                    |
| EH-YR16   |                   |                    |
| EH-YT32   |                   |                    |
| EH-YTP32  |                   |                    |
| EH-YT32E  | 0                 | 2                  |
| EH-YTP32E |                   |                    |
| EH-YT64   |                   |                    |
| EH-YTP64  | 0                 | 4                  |
| EH-AY22   |                   |                    |
| EH-AY2H   |                   |                    |
| EH-AY4V   |                   |                    |
| EH-AY4H   | 0                 | 8                  |
| EH-AY4I   |                   |                    |
| EH-AYH8M  |                   |                    |
| EH-POS    |                   |                    |
| EH-POS4   | 4                 | 4                  |
| EH-CU     |                   |                    |
| EH-CUE    | 5                 | 3                  |

## Serial communication Module

### System configuration



### General Specifications

| Item                       | Specification   |
|----------------------------|---|
|                            | <b>EH-S10</b>   |
| Interface                  | RS-232C × 1   |
| Communication mode         | RS-232C/422/485 × 1                                   |
| Communication speed(bps)   | Half-duplex   |
| Maximum communication data | 300/ 600/ 1200/ 2400/ 4800/ 9600/ 19200/ 38400/ 57600 |
| Communication protocol     | Maximum 1024 byte                                     |
|                            | Non-protocol  |
|                            | Modbus RTU master                                     |

# Positioning, Counter Module

## 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.)<br>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   |  |  |
|                                  | Insulation method                                      | Minimum ON voltage   | 10 V DC  |  |
|                                  |  | Maximum OFF voltage  | 4 V DC   |  |
|                                  | Insulation method                                      |  | Photocoupler   |  |
|                                  | Number of input points 3 points × 2 channels           | A: A, CW, CK   | Phase difference of each channel (A - B) during 2-phase counting<br>+45 to +125 when up, -45 to -125 when down |  |
|                                  |  | B: B, CCW, U/D<br>M: Marker (z)  |  |  |
|                                  | Minimum counter pulse width                            | ON: 4 μs or higher, OFF: 4 μs or higher  |  |  |
|                                  | Minimum marker pulse width                             | 10 μs or higher (Detected via ON edge)   |  |  |
|                                  | External wiring cable                                  | Type: EH-CUC**   |  |  |
| External wiring                  | Wired with twisted pair wires and batch shielded wires |  |  |  |
| Output voltage                   | 12 / 24 V DC (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 maximum   |  |  |
|                                  | OFF → ON   | 1 ms maximum   |  |  |
| Voltage drop when ON             | 1.5 V maximum  |  |  |  |
| Number of external output points | Normal counter   | 4 points / module  | 2 points / module  |  |
|                                  | Ring counter   | Current value = Set Value 1 or current value > Set Value 1<br>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   |  |  |  |
| Internal current consumption     | 5 V 310 mA   |  |  |  |

## 1-axis Positioning Module



| 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   |   |  |
|                                    | 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<br>μm/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) /<br>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) /<br>Line driver output (Photocoupler insulation)   |   |  |   |  |
| Home position return function      | Arbitrary origin / Low speed origin return / High speed origin return 1 /<br>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 Σ series and Σ II series<br>by Yasukawa Denki and the P series by Sanyo Denki, AD series by Hitachi.                                     |   |  |   |  |
| I/O interface specification        | Output  | Pulse train (CW / CCW) output   | 1. Open collector output Photocoupler insulation (30 V DC maximum, 30 mA resistive load)<br>2. Line driver output Photocoupler insulation (5 V DC) |   |  |
|                                    |   | Clock + direction signal (CK / direction) Pulse output  | 100 μA maximum   |   |  |
|                                    |   | Maximum leakage current   | 0.8 V maximum (at output current 30 mA)  |   |  |
|                                    |   | Maximum voltage drop at ON  | 10.8 to 30 V DC  |   |  |
|                                    | Input   | Input voltage   | Approximately 2.2 kΩ   |   |  |
|                                    |   | Input impedance   | Approximately 10 mA (24 V DC)  |   |  |
|                                    |   | Operation voltage   | Minimum ON voltage   | 9 V   |  |
|                                    |   |   | Maximum OFF voltage  | 3.6 V   |  |
|                                    |   | Input lag   | ON → OFF   | 1 ms maximum  |  |
|                                    |   |   | OFF → ON   | 1 ms maximum  |  |
| Polarity                           | Only the encoder signal input uses the plus common inside the module. Other inputs do not specify polarity.   |   |  |   |  |
| Insulation method                  | Photocoupler  |   |  |   |  |
| Internal current consumption       | 5 V DC, 300 mA  |   |  |   |  |
| External power supply              | 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 Positioning Module



| Item                                 |  | Specification   |                 |
|--------------------------------------|--|---|-----------------|
| Type                                 |  | EH-POS4   |                 |
| Number of controlled axes            |  | 4-axis  |                 |
| Number of interpolation axes         |  | Linear interpolation : up to 4 axes<br>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                                   | Ladder Program  |                 |
| Positioning                          | Positioning mode                                 | 1) Absolute mode<br>2) Absolute and Incremental<br>3) Incremental   |                 |
|                                      | Positioning Unit                                 | 1) Pulse<br>2) $\mu\text{m}$<br>3) inch<br>4) degree  |                 |
|                                      | Speed unit                                       | 1 pulse/ s - 1M pulse/ s (Auto, Manual, Homing)<br>$\mu\text{m/s}$ , inch/s, degree/s (selectable by common parameter)  |                 |
|                                      | Number of speed stage                            | Maximum 256 stages (in continuous operation)  |                 |
|                                      | Acceleration and Deceleration                    | Linear<br>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<br>-214,748,364.8 up to + 214,748,364.7 $\mu\text{m}$<br>-21,474.83648 up to + 21,474.83647 inch<br>-21,474.83648 up to + 21,474.83647 degree |                 |
|                                      | Pulse train signal                               | 1) 2 Pulse signal (CW pulse and CCW pulse)<br>2) Pulse and Direction signal (PLS and SIG)<br>( Selectable by common parameter)  |                 |
|                                      | Output method                                    | Line driver   |                 |
| Homing                               |  | 1) Free home position<br>2) Low speed homing<br>3) High speed homing 1 (Off edge stop)<br>4) High speed homing 2 (Phase Z input stop)<br>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 $\Omega$ )  |                 |
| Input                                | Input voltage                                    | 20.4 up to 28.8 V DC  |                 |
|                                      | Input impedance                                  | Approx. 5.6 k $\Omega$  |                 |
|                                      | 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 isolation                   | No   |   |                 |
| 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.



# Components List

| Item                 | Model name   | Specification  | Internal current consumption (5V AC)(mA)  | I/O type | CE   | UL | Remarks                                   |  |
|----------------------|--|--|---|----------|------|----|---|--|
| CPU module           | EHV-CPU1006  | Program capacity 64 KB, Max. 704 I/O points(*1), Ethernet port/Serial port/USB port      | 750   | —        | ☆    |    |   |  |
|                      | EHV-CPU1025  | Program capacity 256 KB, Max. 4,224 I/O points(*1), Ethernet port/Serial port/USB port   | 750   | —        | ☆    |    |   |  |
|                      | EHV-CPU1051  | Program capacity 512 KB, Max. 4,224 I/O points(*1), Ethernet port/Serial port/USB port   | 750   | —        | ☆    |    |   |  |
|                      | EHV-CPU1102  | Program capacity 1,024 KB, Max. 4,224 I/O points(*1), Ethernet port/Serial port/USB port | 750   | —        | ☆    |    |   |  |
| 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   | —   | —        | ☆    | ☆  |   |  |
|                      | EH-PSR   | Input 100 to 240 V AC, Output 5 V DC 5.8 A (for redundant Power Supply)                  | —   | —        | ☆    | ☆  |   |  |
| Base unit            | EH-BS3A  | 3 I/O modules installed  | 200   | —        | ☆    | ☆  | Commonly used for basic or expansion base |  |
|                      | EH-BS5A  | 5 I/O modules installed  | 200   | —        | ☆    | ☆  |   |  |
|                      | EH-BS6A  | 6 I/O modules installed  | 200   | —        | ☆    | ☆  |   |  |
|                      | EH-BS8A  | 8 I/O modules installed  | 200   | —        | ☆    | ☆  |   |  |
|                      | EH-BS11A   | 11 I/O modules installed   | 200   | —        | ☆    | ☆  |   |  |
|                      | EH-BS8R  | 8 I/O modules installed(for redundant Power Supply)                                      | 200   | —        | ☆    | ☆  |   |  |
| I/O controller       | EH-IOCH2   | I/O control module ( 1 unit / expansion base)  | 80  | —        | ☆    | ☆  | Mounted CPU position                      |  |
| Input module         | EH-XD8   | 8 points, 24 V DC input, Removable terminal block  | 30  | 16DI     | ☆    | ☆  |   |  |
|                      | EH-XD16  | 8 points, 24 V DC input, Removable terminal block  | 50  | 16DI     | ☆    | ☆  |   |  |
|                      | EH-XDL16   | 16 points, 24 V DC input Removable terminal block (Input lag 16ms)                       | 50  | 16DI     | ☆    | ☆  |   |  |
|                      | EH-XA16  | 16 points, 100 to 120 V AC input, Removable terminal block                               | 50  | 16DI     | ☆    | ☆  |   |  |
|                      | EH-XAH16   | 16 points, 200 to 240 V AC input, Removable terminal block                               | 50  | 16DI     | ☆    | ☆  |   |  |
|                      | EH-XD32  | 32 points, 24 V DC input, Connector  | 60  | 32DI     | ☆    | ☆  |   |  |
|                      | EH-XDL32   | 32 points, 24 V DC input, Connector (Input lag 16ms)                                     | 60  | 32DI     | ☆    | ☆  |   |  |
|                      | EH-XD32E   | 32 points, 24 V DC input, Spring type terminal block                                     | 60  | 32DI     | ☆    | ☆  |   |  |
|                      | EH-XDL32E  | 32 points, 24 V DC input, Spring type terminal block (Input lag 16ms)                    | 60  | 32DI     | ☆    | ☆  |   |  |
|                      | EH-XD64  | 64 points, 24 V DC input, Connector  | 80  | 64DI     | ☆    | ☆  |   |  |
| Output module        | EH-YT8   | 8 points, Transistor output 12/24 V DC, Removable terminal block (sink type)             | 30  | 16DO     | ☆    | ☆  |   |  |
|                      | EH-YTP8  | 8 points, Transistor output 12/24 V DC, Removable terminal block (source type)           | 30  | 16DO     | ☆    | ☆  |   |  |
|                      | EH-YT16  | 16 points, Transistor output 12/24 V DC, Removable terminal block (sink type)            | 50  | 16DO     | ☆    | ☆  |   |  |
|                      | EH-YTP16   | 16 points, Transistor output 12/24 V DC, Removable terminal block (source type)          | 50  | 16DO     | ☆    | ☆  |   |  |
|                      | EH-YT32  | 32 points, Transistor output, 12/24 V DC, Connector (sink type)                          | 90  | 32DO     | ☆    | ☆  |   |  |
|                      | EH-YTP32   | 32 points, Transistor output, 12/24 V DC, Connector (source type)                        | 90  | 32DO     | ☆    | ☆  |   |  |
|                      | EH-YT32E   | 32 points, Transistor output, 12/24 V DC, Spring type terminal block (Sink type logic)   | 90  | 32DO     | ☆    | ☆  |   |  |
|                      | EH-YTP32E  | 32 points, Transistor output, 12/24 V DC, Spring type terminal block (Source type logic) | 90  | 32DO     | ☆    | ☆  |   |  |
|                      | EH-YT64  | 64 points, Transistor output, 12/24 V DC, Connector (sink type)                          | 120   | 64DO     | ☆    | ☆  |   |  |
|                      | EH-YTP64   | 64 points, Transistor output, 12/24 V DC, Connector (source type)                        | 120   | 64DO     | ☆    | ☆  |   |  |
|                      | EH-YR8B  | 8 points, Independent Relay output, 100/240 V AC, 24 V DC, Removable terminal block      | 220   | 16DO     | ☆    |    |   |  |
|                      | EH-YR12  | 12 points, Relay output, 100/240 V AC, 24 V DC, Removable terminal block                 | 40  | 16DO     | ☆    | ☆  |   |  |
|                      | EH-YR16  | 16 points, Relay output, 100/240 V AC, 24 V DC, Removable terminal block                 | 430   | 16DO     | ☆    | ☆  |   |  |
|                      | EH-YS4   | 4 points, Triac output , 100/240 V AC, Removable terminal block                          | 70  | 16DO     | ☆    | ☆  |   |  |
| EH-YS16              | 16 points, Triac output , 100/240 V AC, Removable terminal block | 250  | 16DO  | ☆        |      |    |   |  |
| Analog input module  | EH-AX44  | 12-bit analog input, Current 4-20 mA, Voltage 0-10 V,4ch each                            | 100   | 8AI      | ☆    | ☆  |   |  |
|                      | EH-AX8V  | 12-bit analog input, Voltage 0-10 V,8ch  | 100   | 8AI      | ☆    | ☆  |   |  |
|                      | EH-AX8H  | 12-bit analog input, Voltage -10 to 10 V,8ch   | 100   | 8AI      | ☆    | ☆  |   |  |
|                      | EH-AX8I  | 12-bit analog input, Current 4-20mA, 8ch   | 100   | 8AI      | ☆    | ☆  |   |  |
|                      | EH-AX8IO   | 12-bit analog input, Current 0-22mA, 8ch   | 100   | 8AI      | ☆    | ☆  |   |  |
|                      | EH-AXH8M   | 14-bit analog input, Current 0-22 mA/4-22 mA, Voltage -10 to 10 V/0-10 V,8ch             | 70  | 8AI      | ☆    | ☆  |   |  |
|                      | EH-PT4   | Signed 15-bit, Pt 100/Pt 1000, 4ch   | 160   | 4AI      | ☆    | ☆  |   |  |
|                      | EH-TC8   | Signed 15-bit, Thermo-couple (K,E,J,T,B,R,S,N) 8ch                                       | 70  | 8AI      | ☆    | ☆  |   |  |
|                      | EH-AY22  | 12-bit analog output, Current 4-20 mA, Voltage 0-10 V,2ch each                           | 100   | 8AO      | ☆    | ☆  |   |  |
|                      | EH-AY2H  | 12-bit analog output, Voltage -10 to 10V, 2ch  | 100   | 8AO      | ☆    | ☆  |   |  |
| Analog output module | EH-AY4V  | 12-bit analog output, Voltage 0-10 V,4ch   | 100   | 8AO      | ☆    | ☆  |   |  |
|                      | EH-AY4H  | 12-bit analog output, Voltage -10 to 10 V,4ch  | 100   | 8AO      | ☆    | ☆  |   |  |
|                      | EH-AY4I  | 12-bit analog output, Current 4-20mA   | 130   | 8AO      | ☆    | ☆  |   |  |
|                      | EH-AYH8M   | 14-bit analog output, Current 0-22 mA/4-22 mA, voltage 0-10 V,8ch                        | 70  | 8AO      | ☆    | ☆  |   |  |
|                      | Counter module   | EH-CU  | High speed counter input, Maximum frequency of 100 kHz, 2 channels, 1/2-phase switchable, 4-point open collector output | 310      | CU/E | ☆  | ☆   |  |
|                      |  | EH-CUE   | High speed counter input, Maximum frequency of 100 kHz, 1 channel, 1/2-phase switchable, 2-point open collector output  | 310      | CU/E | ☆  | ☆   |  |
| Positioning module   | EH-POS   | 1-axis positioning module  | 300   | POS/4    | ☆    | ☆  |   |  |
|                      | EH-POS4  | 4-axis positioning module  | 850   | POS/4    | ☆    | ☆  |   |  |
| Communication module | EH-SIO   | Serial Communication Module (RS-232C, RS-422/485)  | 250   | SIO      | ☆    | ☆  |   |  |
|                      | EH-RMD   | DeviceNet master modul, 256/256 words I/O  | 280   | RMP      | ☆    | ☆  |   |  |
|                      | EH-IOCD  | DeviceNet slave module, 256-word input and 256- word output                              | 320   | —        | ☆    | ☆  | Mounted CPU position                      |  |
|                      | EH-RMP   | PROFIBUS-DP master module, 256/256 words I/O   | 600   | RMP      | ☆    | ☆  |   |  |
| Dummy module         | EH-IOCP  | PROFIBUS slave module, 208-word input and 208- word output                               | 600   | —        | ☆    | ☆  | Mounted CPU position                      |  |
|                      | EH-DUM   | Module for open slots  | —   | Empty    | —    | —  |   |  |
| Battery              | LIBAT-H  | Lithium battery  | —   | —        | —    | —  |   |  |

\* 1: When 64 points I/O module is used

# Components List

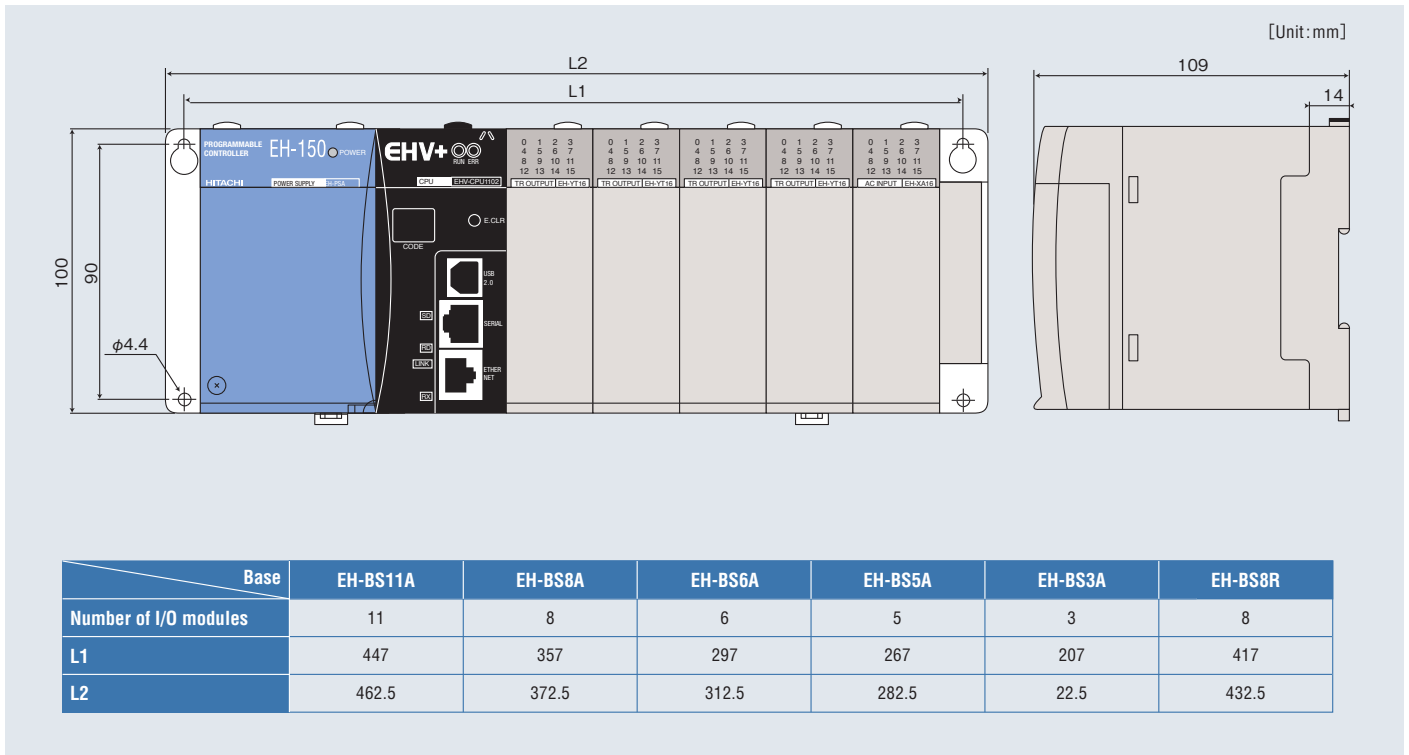
| Item  | Model name  | Specification  | Internal current consumption (5V AC)(mA) | I/O type | CE | UL | Remarks |
|---|-------------|--|--|----------|----|----|---------|
| Expansion cable   | EH-CB05A    | Length:0.5m (basic / expansion base to I/O controller)   | —  | —        | ☆  | ☆  |         |
|   | EH-CB10A    | Length:1m (basic / expansion base to I/O controller)   | —  | —        | ☆  | ☆  |         |
|   | EH-CB20A    | Length:2m (basic / expansion base to I/O controller)   | —  | —        | ☆  | ☆  |         |
| Programing  | EHV-CDS     | EHV-CoDeSys IEC61131-3 full compliant programming software   | —  | —        | —  | —  |         |
|   | EH-VCB02    | Direct connection cable between EHV-CPU**** (serial port RJ-45) and a personal computer(D sub9) 2m |  | —        |    |    |         |
| Terminal block  | HPX7DS-40V6 | Terminal for 32 / 64 points I/O module   | —  | —        | ☆  | ☆  |         |
| I/O cable for 32/64 points module (connector in both ends)  | EH-CBM01W   | Length: 1m, (32 / 64 pts. module to HPX7DS-40V6)   | —  | —        | —  | —  | * 2     |
|   | EH-CBM03W   | Length: 3m, (32 / 64 pts. module to HPX7DS-40V6)   | —  | —        | —  | —  | * 2     |
|   | EH-CBM05W   | Length: 5m, (32 / 64 pts. module to HPX7DS-40V6)   | —  | —        | —  | —  | * 2     |
|   | EH-CBM10W   | Length: 10m, (32 / 64 pts. module to HPX7DS-40V6)  | —  | —        | —  | —  | * 2     |
| I/O cable for 32/64 points module (connector and open ends) | EH-CBM01    | Length: 1m, (32 / 64 pts. module to external terminal block)                                       | —  | —        | —  | —  | * 2     |
|   | EH-CBM03    | Length: 3m, (32 / 64 pts. module to external terminal block)                                       | —  | —        | —  | —  | * 2     |
|   | EH-CBM05    | Length: 5m, (32 / 64 pts. module to external terminal block)                                       | —  | —        | —  | —  | * 2     |
|   | EH-CBM10    | Length: 10m, (32 / 64 pts. module to external terminal block)                                      | —  | —        | —  | —  | * 2     |
| Cable for counter Input module                              | EH-CUC01    | Length: 1m   | —  | —        | —  | —  |         |
|   | EH-CUC02    | Length: 2m   | —  | —        | —  | —  |         |
|   | EH-CUC03    | Length: 3m   | —  | —        | —  | —  |         |
|   | EH-CUC04    | Length: 4m   | —  | —        | —  | —  |         |
|   | EH-CUC05    | Length: 5m   | —  | —        | —  | —  |         |

\* 2: Rated withstand voltage is 30 V. Be sure to use with 32 / 64 I/O modules in the cabinet PLC installed.

## 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<br>21.6 to 26.4 V DC   |
| Allowable instantaneous power failure |                    | 85 to 100 V AC: for a momentary power failure of less than 10 ms, operation continues<br>100 to 264 V AC: 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)<br>(Storage ambient humidity 10 to 90% RH (no condensation))  |
| Vibration resistance                  |                    | Conforming to IEC (EN) 61131-2 (147m/s <sup>2</sup> , 3 times in each 3 directions X,Y,Z)  |
| Noise resistance                      |                    | <ul style="list-style-type: none"> <li>○ Noise voltage 1,500 Vpp Noise pulse width 100 ns, 1 μs<br/>(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.)</li> <li>○ Based on NEMA ICS3-304 (with the exception of input module)</li> <li>○ Static noise: 3,000 V at metal exposed area</li> </ul> |
| Insulation resistance                 |                    | 20 MΩ or more between the AC external terminal and case ground (FE) terminal<br>(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



## Network



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**ISO 14001**  
JQA-EM5428



**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.