

Programmable Logic Controllers

# MICRO-EHV+

**HITACHI**  
Inspire the Next

Full compliance with  
the IEC61131-3 International Standard



# Hitachi compact PLC MICRO-EHV+



“MICRO-EHV+” is an all-in-one type compact PLC packed with powerful functions.

## Full IEC compliant 3S CODESYS V3.5 platform

Standardized programming style with 5 programming languages (LD, FBD, IL, ST, SFC)

**LD**  
Ladder Diagram

**FBD**  
Function Block Diagram

**IL**  
Instruction List

```
LD 0.0
OR 0.1
AND 0.2
CALL TON
END
```

**ST**  
Structured Text

```
IF 0.0 THEN
  TON(T1, 10s)
ELSE
  TON(T1, 0s)
END IF
```

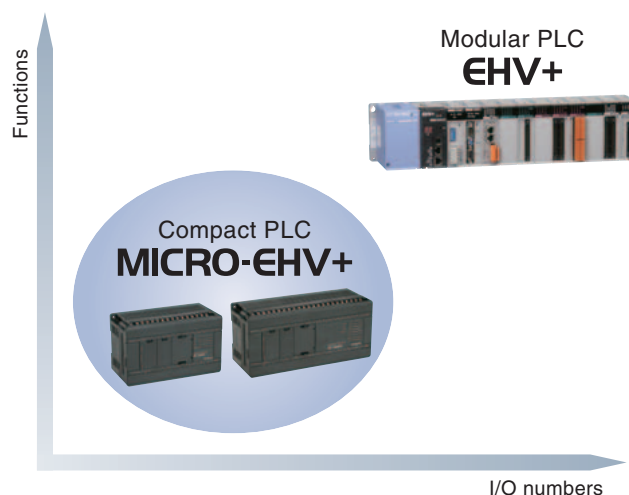
**SFC**  
Sequential Function Chart

- No proprietary programming languages
- Easy start-up for users with;
  - no PLC experience or
  - experience of other manufacturer's programming language or
  - experience of high level programming languages
- Variable names for PLC, HMI, SCADA, and other I/O devices can be consolidated.
- Features Offline simulation function

## Powerful communication performance in one CPU

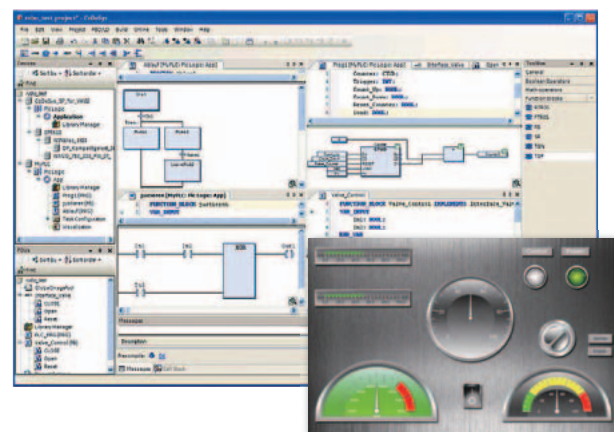
All models have Ethernet, serial, USB (host & device) communication ports as standard.  
Additional communication ports can be realized by option boards.

## Wide range of expansion units are available



## HX-CODESYS

Hitachi version of CODESYS  
by 3S-Smart Software Solutions GmbH



## MICRO-EHV+ Basic unit

User program memory 1,024kB  
Data memory (non-retain) 640kB  
Data memory (retain) 256kB

### 3 communication ports

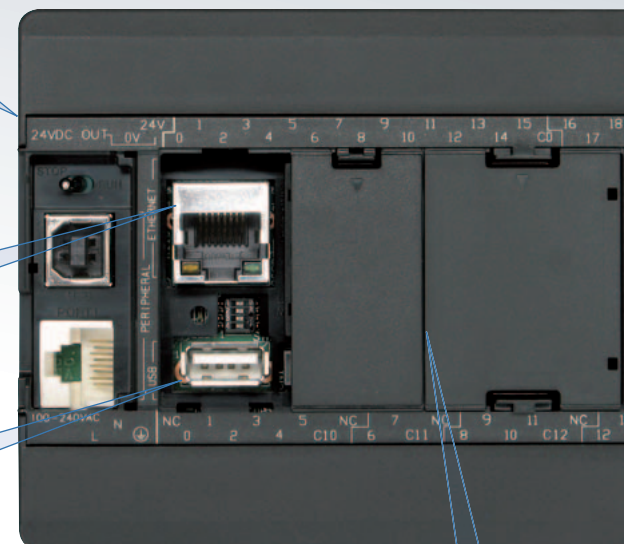
- Ethernet port (10BASE-T/100BASE-T)
- USB port (Ver.2.0 Full Speed 12Mbps)
- Serial port (RS-232C)

### USB host function

- Memory storage can be used for data logging, program upload/download.

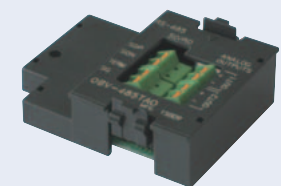
### User program is stored in non-volatile FLASH memory

Data is stored in volatile RAM memory Retained by battery.



### Option board

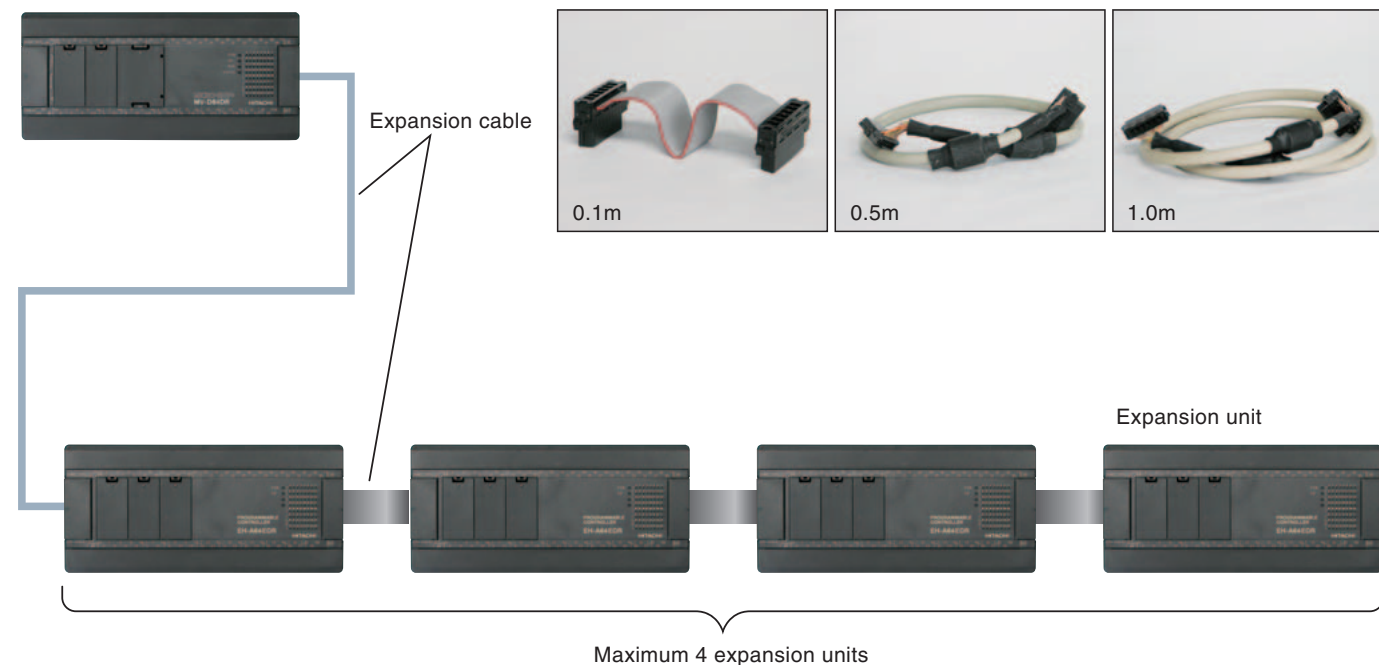
- RS-485 port can be added as option



## No. of I/O is Max. 320 (using 64 pts expansion unit)

Basic unit

Expansion cables are prepared in 3 different lengths





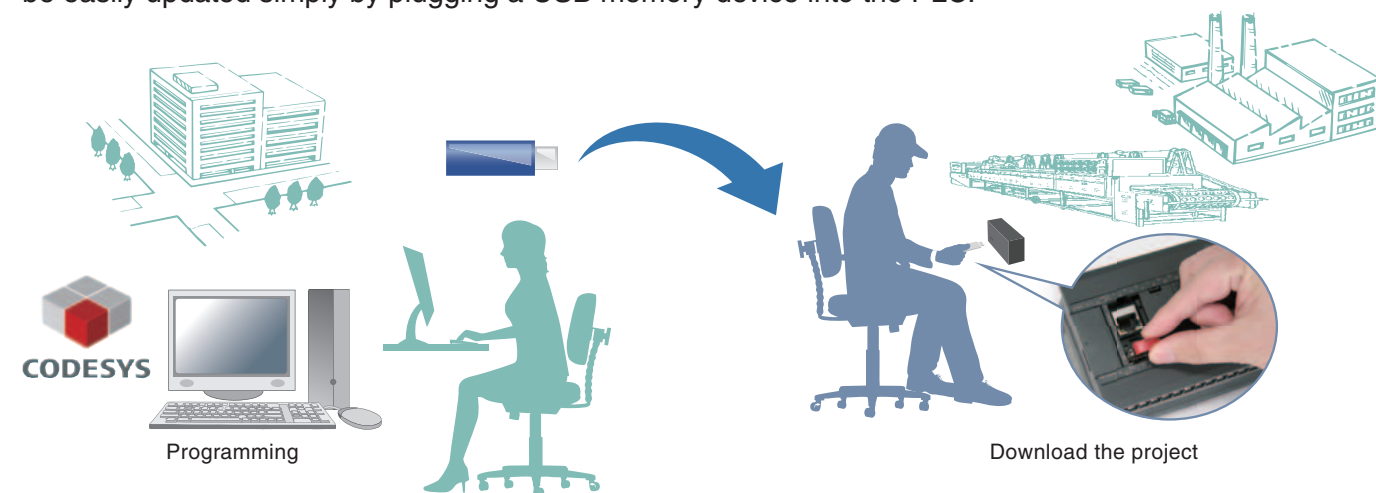
## Advantage in your application

### USB storage



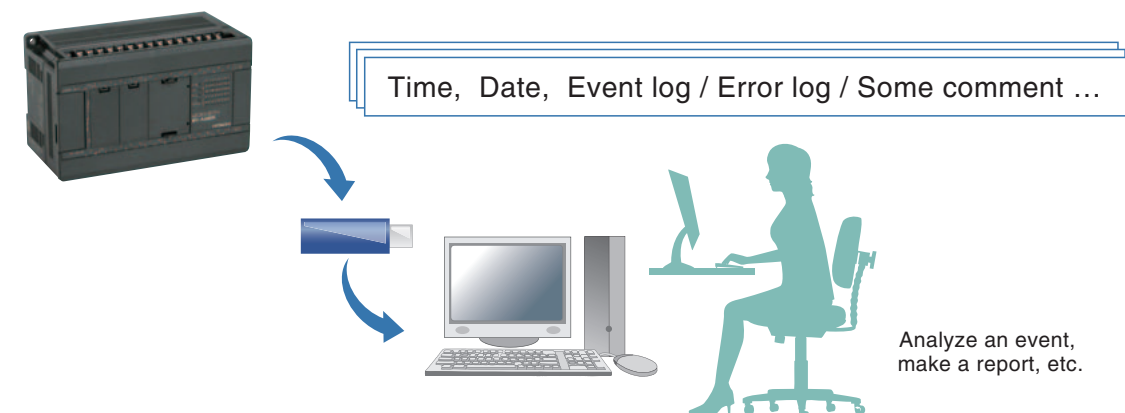
### Program Download/Upload without a PC connection

If end users don't have HX-CODESYS or are not familiar with PLC programming, the user-program can be easily updated simply by plugging a USB memory device into the PLC.



### Data logging to USB storage

Logging data can be stored on to a USB memory device using a specific library. Logging data can then be analyzed or edited remotely.

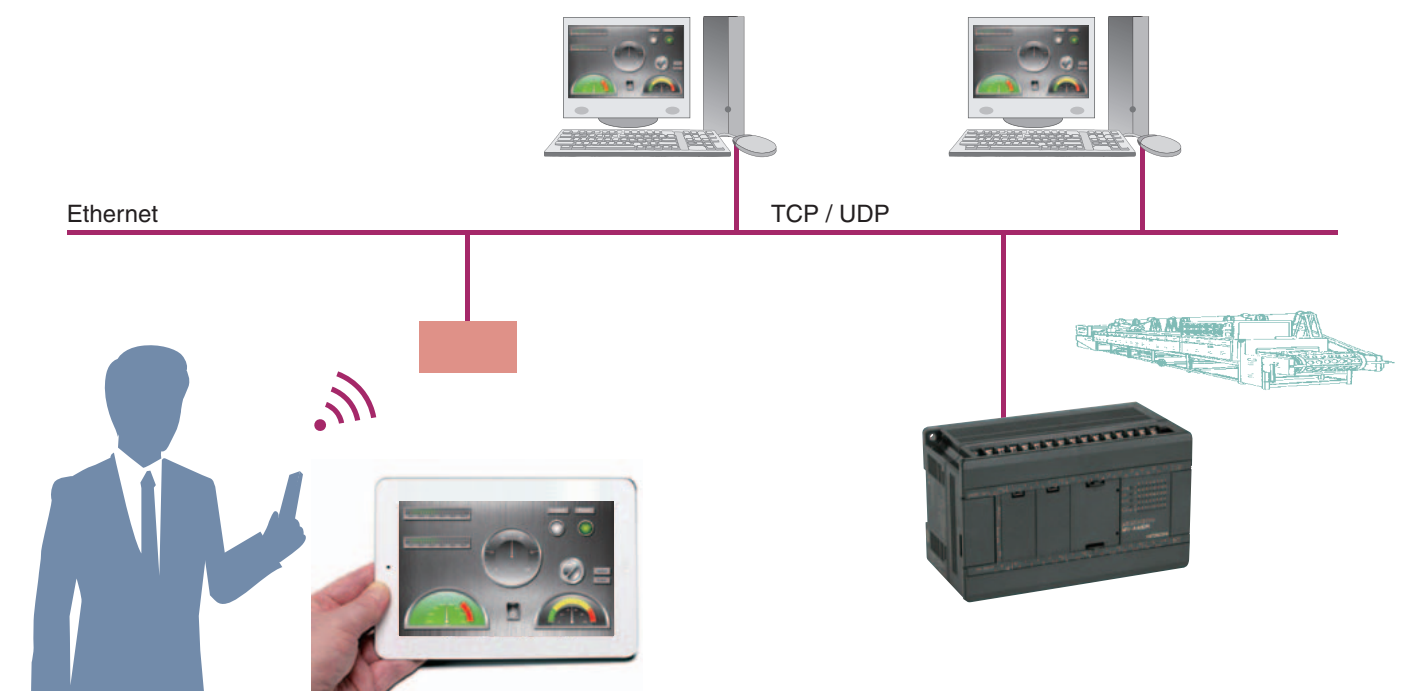


Note : Using USB memory does not mean to expand MICRO-EHV+ CPU memory .

### Web visualization



Worldwide access to MICRO-EHV+ via an Internet browser.  
I/O data can be monitored like HMI via a PC, Smartphone or Tablet.



#### Functionality

- Visualization over Internet / Intranet
- Web Server is adopted as standard
- JavaScript Execution

#### Purpose

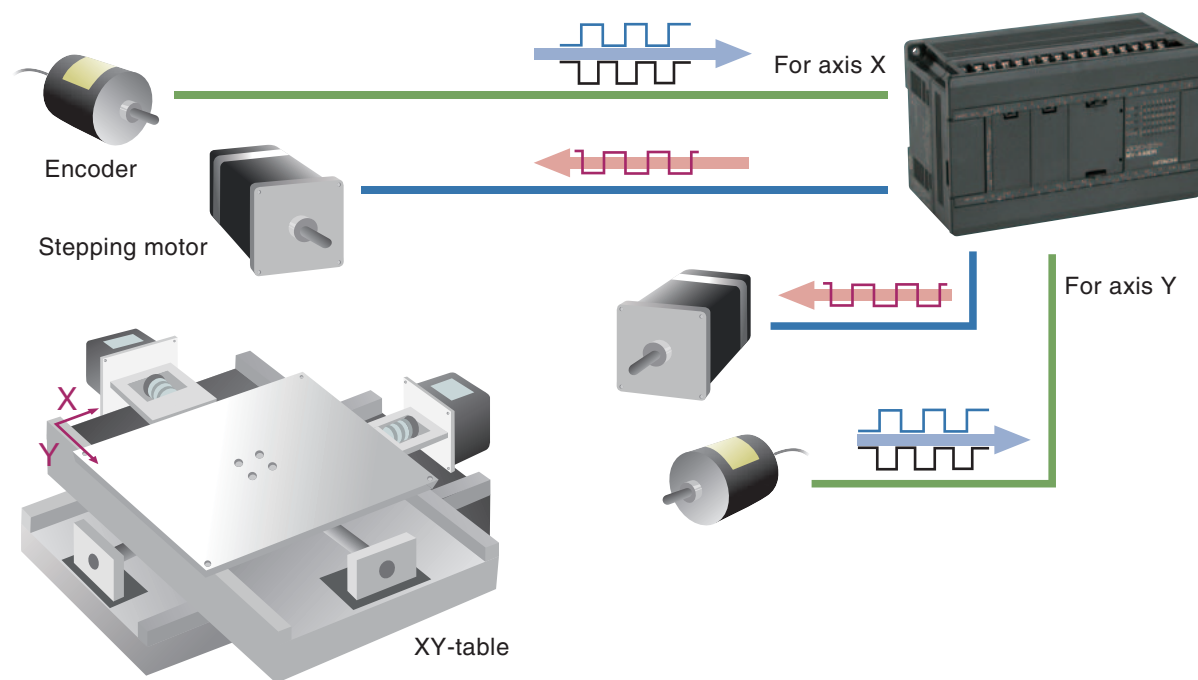
- Remote maintenance
- Diagnostics
- Remote control

## Simple automation system



### Application Example – Position control

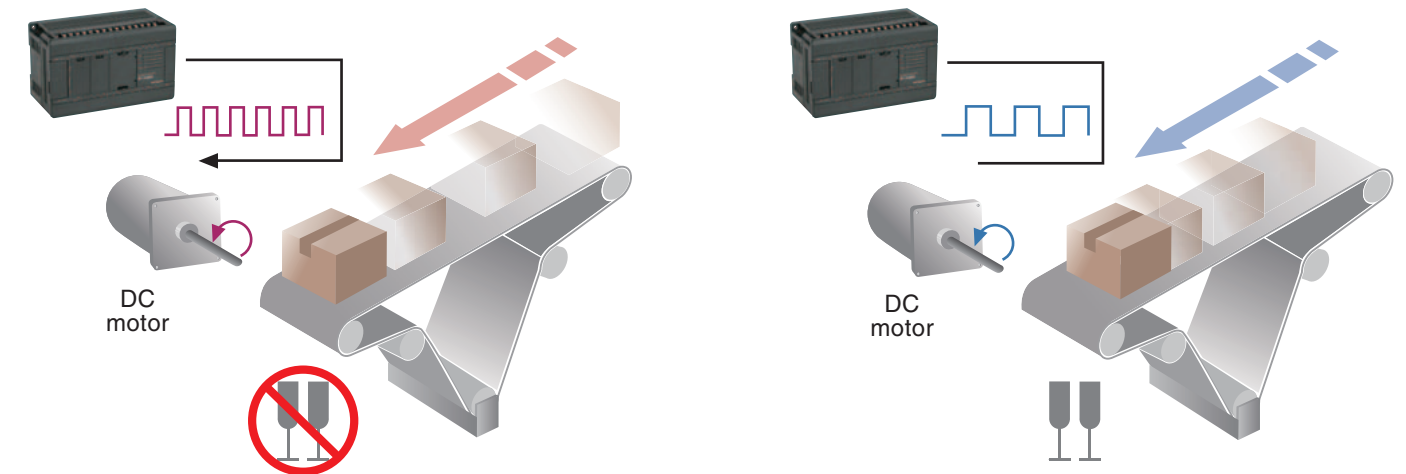
Using the built in High-speed counter and pulse train output a simple position control system can be achieved without the need for a dedicated motion controller.



- High-speed counter Single counter / Max. 5ch, 100kHz, 32bits  
2 phase counter / Max. 2ch, 60kHz, 32bits
- Pulse train output Max. 3ch, 65kHz

### Application Example – Speed control using PWM output

Speed control can be achieved without a dedicated speed control unit.

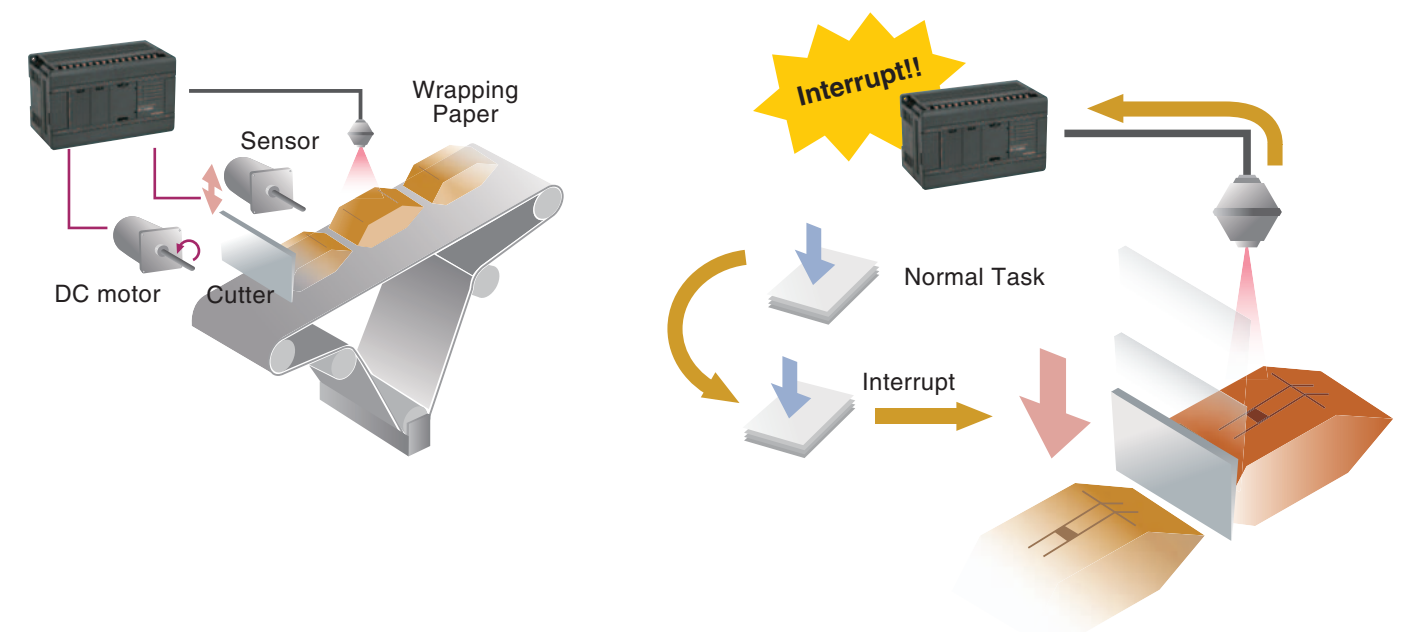


Conveyor speed can be changed depending on the contents of packages.

- PWM output Max. 3ch, 65kHz

### Application Example – Interrupt input

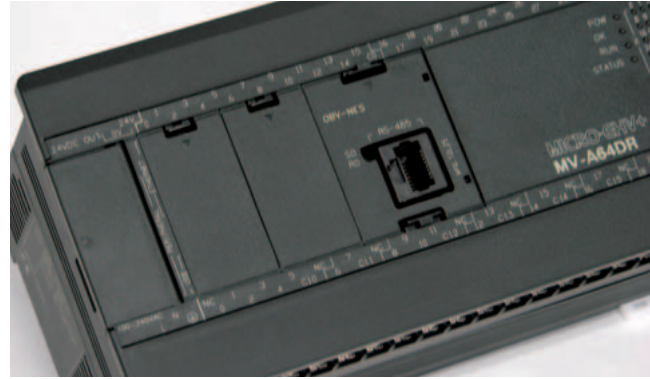
Specific processing can be executed without jitter.



- Interrupt input Max. 5ch



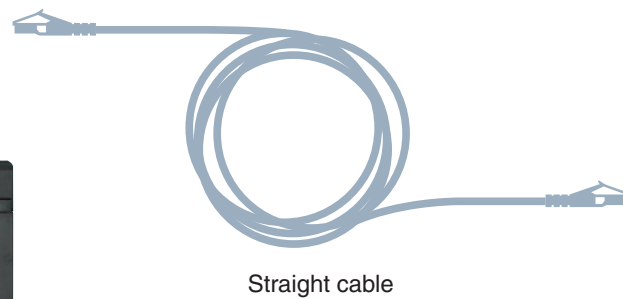
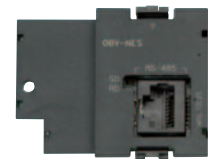
## Easy communication with Hitachi Inverter



Economical Inverter  
**NE-S1**

MICRO-EHV+ can be used as a controller for multiple Hitachi inverters. The new option board OBV-NES can turn the MICRO-EHV+ into the ideal controller for the Hitachi NE-S1 series inverter. Communication is achieved using a standard Cat. 5 LAN cable.

OBV-NES



Straight cable



**NE-S1**

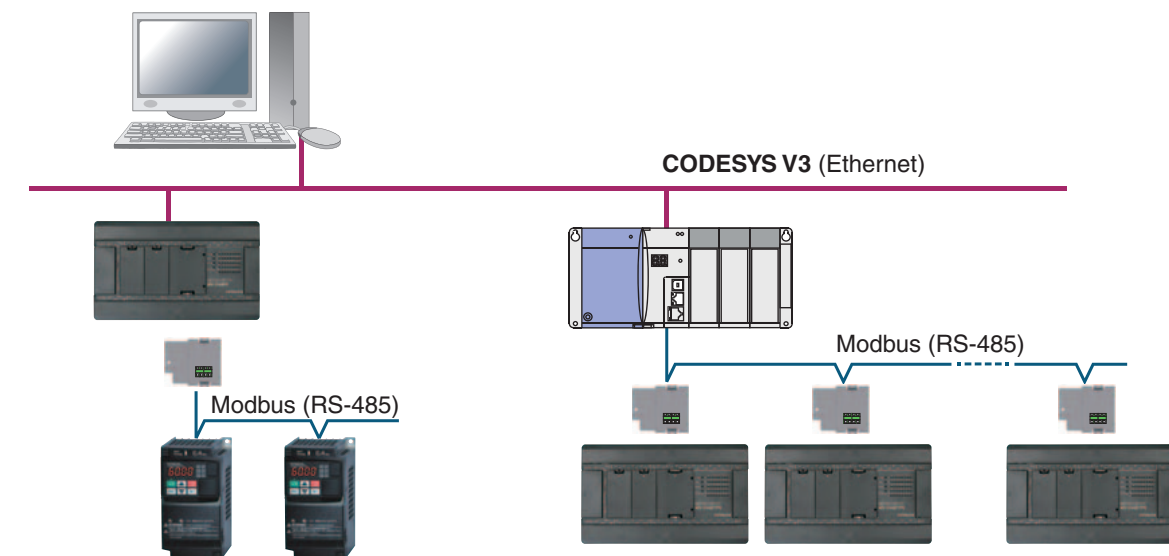
By using RJ-45 splitter, multi-drop connection will be achieved easily.



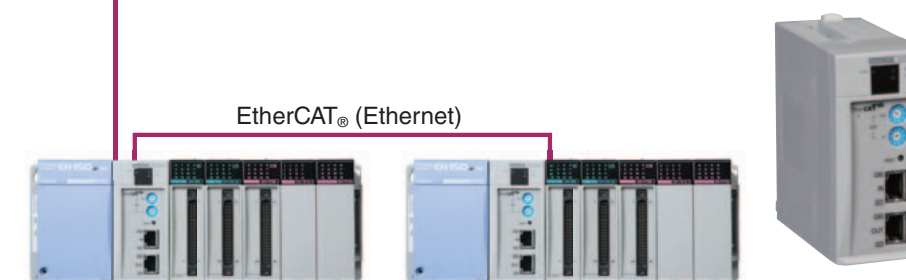
## Compliance with Fieldbus Standards



MICRO-EHV+ supports Modbus-TCP (master / slave), Modbus-RTU (master / slave) and EtherCAT® master.



I/O extension using Hitachi EH-150 series I/O modules in combination with the EH-IOCA EtherCAT® slave module.



### EH-IOCA

- EtherCAT® slave controller for EHV+
- Supported EH-150 I/O modules are DI/O, AI/O, Counter and POS.
  - Available base units are EH-BS3A/5A/6A/8A/11A. (total 22 slots)

EtherCAT is registered trade mark and patented technology, licenced by Beckhoff Automation GmbH, Germany.

# Overview of products lineup

## Basic units

### 40 points type

DC power supply (24V),  
DC input 24pts,  
TR output 16pts (source)  
with short circuit protection

#### MV-D40DTPS



DC power supply (24V),  
DC input 24pts,  
TR output 16pts (sink)

#### MV-D40DT



DC power supply (24V),  
DC input 24pts,  
RY output 16pts

#### MV-D40DR



AC power supply (100/200V),  
DC input 24pts,  
RY output 16pts

#### MV-A40DR



### 64 points type

DC power supply (24V),  
DC24V input 40pts,  
TR output 24pts (source)  
with short circuit protection

#### MV-D64DTPS



DC power supply (24V),  
DC24V input 40pts,  
TR output 24pts (sink)

#### MV-D64DT



DC power supply (24V),  
DC24V input 40pts,  
RY output 24pts

#### MV-D64DR



AC power supply (100/200V),  
DC24V input 40pts,  
RY output 24pts

#### MV-A64DR



## Expansion units (Digital I/O)

### 8 points type



- EH-D8ED** : DC power supply (24V), DC input 8pts
- EH-D8ER** : DC power supply (24V), RY output 8pts
- EH-D8ETPS** : DC power supply (24V),  
TR output 8pts (source) with short circuit protection
- EH-D8ET** : DC power supply (24V), TR output 8pts (sink)
- EH-D8EDR** : DC power supply (24V), DC input 4pts, RY output 4pts
- EH-D8EDTPS** : DC power supply (24V), DC input 4pts,  
TR output 4pts (source) with short circuit protection
- EH-D8EDT** : DC power supply (24V), DC input 4pts, TR output 4pts (sink)

### 14 points type



- EH-D14EDT** : DC power supply (24V), DC input 8pts, TR output 6pts (sink)
- EH-D14EDTP** : DC power supply (24V), DC input 8pts, TR output 6pts (source)
- EH-D14EDTPS** : DC power supply (24V), DC input 8pts,  
TR output 6pts (source) with short circuit protection
- EH-D14EDR** : DC power supply (24V), DC input 8pts, RY output 6pts
- EH-A14EDR** : AC power supply (100/200V), DC input 8pts, RY output 6pts

### 16 points type



- EH-D16ED** : DC power supply (24V), DC input 16pts
- EH-D16ER** : DC power supply (24V), RY output 16pts
- EH-D16ETPS** : DC power supply (24V),  
TR output 16pts (source) with short circuit protection
- EH-D16ET** : DC power supply (24V), TR output 16pts (sink)

### 28 points type



- EH-D28EDT** : DC power supply (24V), DC input 16pts,  
TR output 12pts (sink)
- EH-D28EDTP** : DC power supply (24V), DC input 16pts,  
TR output 12pts (source)
- EH-D28EDTPS** : DC power supply (24V), DC input 16pts,  
TR output 12pts (source) with short circuit protection
- EH-D28EDR** : DC power supply (24V), DC input 16pts,  
RY output 12pts
- EH-A28EDR** : AC power supply (100/200V), DC input 16pts,  
RY output 12pts

### 64 points type



- EH-D64EDT** : DC power supply (24V), DC input 40pts,  
TR output 24pts (sink)
- EH-D64EDTPS** : DC power supply (24V), DC input 40pts,  
TR output 24pts (source) with short circuit protection
- EH-D64EDR** : DC power supply (24V), DC input 40pts,  
RY output 24pts
- EH-A64EDR** : AC power supply (100/200V), DC input 40pts,  
RY output 24pts



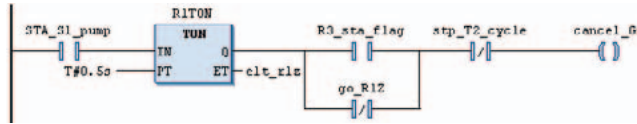
# Programming software “HX-CODESYS”

## 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.

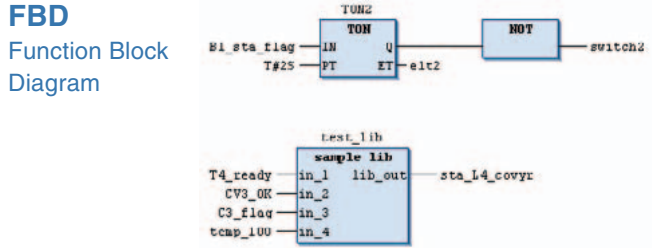
### LD

#### Ladder Diagram



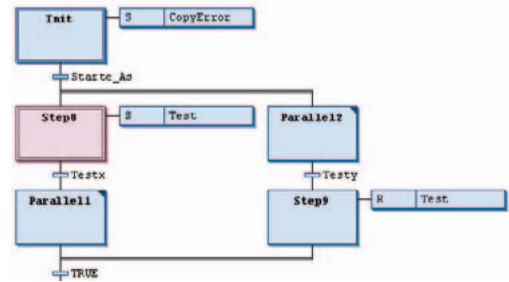
### FBD

#### Function Block Diagram



### SFC

#### Sequential Function Chart



### IL

#### Instruction List

|      |            |
|------|------------|
| LD   | bVar       |
| ST   | inst1.IN   |
| JMPC | m1         |
| CAL  | inst1(     |
|      | PT:=t1,    |
|      | 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 < 6 DO
9      value:=value+1;
10   END_WHILE;
11  END_IF;

```

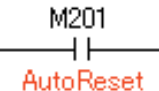
## Easy and efficient programming

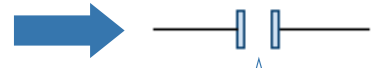
### Structured Programming

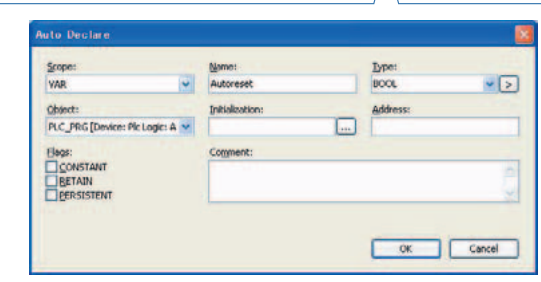
Task configuration and structured-based editors on POU (Program Organization Unit) enable flexible programming.

### Programming with variable names

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







## Expansion units (Analog I/O)

### Analog



**EH-D6EAN** : DC power supply (24V), Analog input 4pts, Analog output 2pts  
**EH-A6EAN** : AC power supply (100/200V), Analog input 4pts, Analog output 2pts

### RTD



**EH-D6ERTD** : DC power supply (24V), RTD input 4pts, Analog output 2pts  
**EH-D4ERTD** : DC power supply (24V), RTD input 4pts  
**EH-A6ERTD** : AC power supply (100/200V), RTD input 4pts, Analog output 2pts  
**EH-A4ERTD** : AC power supply (100/200V), RTD input 4pts

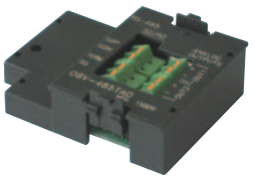
### Thermocouple



**EH-D6ETC** : DC power supply (24V), Thermocouple input 4pts, Analog output 2pts  
**EH-D4ETC** : DC power supply (24V), Thermocouple input 4pts

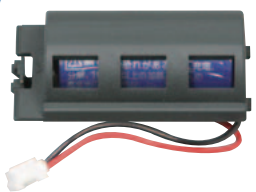
## Options

### Communication board



**OBV-NES** : RS-485, 1 port  
**OBV-485A** : RS-485, 1 port and Analog input, 2ch.  
**OBV-AIO** : Analog Input, 2ch. and Analog Output, 2ch.  
**OBV-485TAI** : RS-485, 1 port and Analog Input, 2ch.  
**OBV-485TAO** : RS-485, 1 port and Analog Output, 2ch.

### Battery



**MV-BAT**  
For data memory retention. 1750mAh.

● Debugging and commissioning features

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

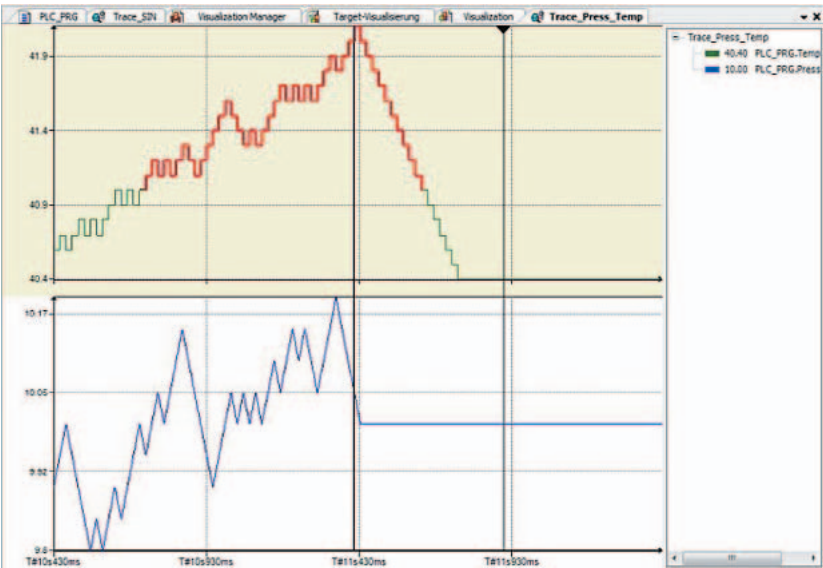
- Monitoring
- Forcing of variables
- Break points
- Single step execution
- Single cycle execution
- Flow control
- Online change
- Incremental compile
- Incremental download
- Sampling trace
- Simulation
- and much more.

| Expression | Type     | Value              | Prepared value |
|------------|----------|--------------------|----------------|
| StartTime  | TIME     | T#0ms              |                |
| MODE       | GEN_MODE | GEN_MODE.SAWTOO... |                |
| BASE       | BOOL     | FALSE              | TRUE           |
| PERIOD     | TIME     | T#1s               |                |
| CYCLES     | INT      | 100                | 15             |
| AMPLITUDE  | INT      | 1000               |                |
| RESET      | BOOL     | FALSE              |                |
| OUT        | INT      | -280               |                |

|    |                                                          |
|----|----------------------------------------------------------|
| 13 | D(IN:=INT_TO_REAL(S6.Out 440) , TM:=10 , RESET:=FALSE ); |
| 14 | B(ENABLE:=TRUE, TIMELOW:=t#4s , TIMEHIGH:=t#8s);         |
| 15 | Ispecialsinus -833 :- S12.Out 639 - S11.OUT 1472 ;       |
| 16 | RETURN                                                   |

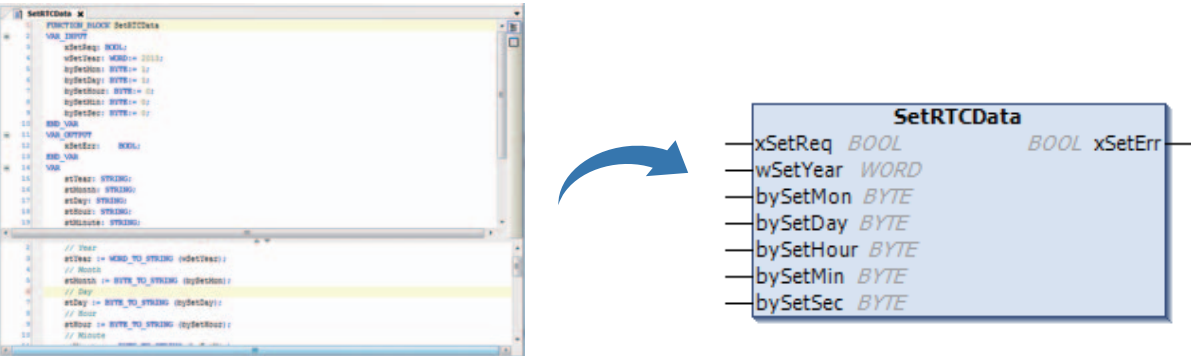
Forcing of variables



Sampling trace

● Library

For efficient programming, libraries are a convenient tool. Through the use of libraries, overall programming time can be shortened. HX-CODESYS already contains many built-in libraries for various purposes. The user can create their own library from a collection of commonly used sub-routines. Re-use of such objects can save time in programming and testing.



Specifications

■ Basic units

40 points type



64 points type



I/O external connection : Removable type screw terminal block (M3)

[CPU specification]

| Item                                | 40 points type                                          | 64 points type                                                           |
|-------------------------------------|---------------------------------------------------------|--------------------------------------------------------------------------|
| Platform                            | CODESYS Runtime V3.5 SP3 Patch4                         |                                                                          |
| Boolean execution speed             | 0.54μs/instruction                                      |                                                                          |
| User Program memory                 | 1MB                                                     |                                                                          |
| Source file memory                  | 1MB                                                     |                                                                          |
| Data memory (non retain)            | 640KB                                                   |                                                                          |
| Data memory (retain)                | 256KB                                                   |                                                                          |
| Programming languages               | IEC61131-3 compliant 5 languages (LD, FBD, SFC, IL, ST) |                                                                          |
| No. of expansion unit               | 4                                                       |                                                                          |
| No. of I/O (using 64pts exp. units) | 296 ( In 184 / Out 112 )                                | 320 ( In 200 / Out 120 )                                                 |
| Special I/O                         | Single phase counter                                    | Max. 5ch, 100kHz                                                         |
|                                     | 2 phase counter                                         | Max. 2ch, 60kHz                                                          |
|                                     | Pulse train output                                      | Max. 3ch, 65kHz                                                          |
|                                     | PWM output                                              | Max. 3ch, 65kHz                                                          |
|                                     | Interrupt                                               | Max. 5 ch                                                                |
| I/O updating cycle                  | Refresh processing (depends on each task cycle)         |                                                                          |
| USB                                 | Device function                                         | For programming. Built-in USB 2.0 Full speed                             |
|                                     | Host function                                           | USB stick can be used for a copy of project and data logging             |
| Ethernet                            | UDP/IP, TCP/IP                                          | Programming, General purpose, Modbus-TCP server/client, EtherCAT® master |
| Serial                              | RS-232C (Built-in)                                      | General purpose, Modbus-RTU master and slave                             |
|                                     | RS-485 (Option)                                         | General purpose, Modbus-RTU master and slave                             |
| Web visualization function          | Support                                                 |                                                                          |
| RTC                                 | Built-in                                                |                                                                          |
| Battery                             | Optional                                                |                                                                          |



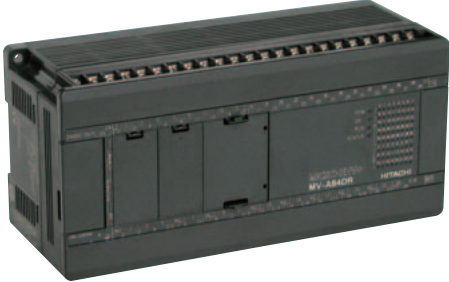
Components list

[Basic units]

40 points type



64 points type



| No. | Class     | Model Name | Specification |            |                                            |         | Mass (g) | Power consumption (A) |         |        |
|-----|-----------|------------|---------------|------------|--------------------------------------------|---------|----------|-----------------------|---------|--------|
|     |           |            | Power         | Input      | Output                                     | Remarks |          | 100V AC               | 264V AC | 24V DC |
| 1   | 40 points | MV-D40DTPS | 24V DC        | DC24V x 24 | Transistor x 16 (short circuit protection) | Source  | 460      | –                     | –       | 0.4    |
| 2   |           | MV-D40DT   | 24V DC        | DC24V x 24 | Transistor x 16                            | Sink    | 460      | –                     | –       | 0.4    |
| 3   |           | MV-D40DR   | 24V DC        | DC24V x 24 | Relay x 16                                 |         | 500      | –                     | –       | 0.4    |
| 4   |           | MV-A40DR   | 100/200V AC   | DC24V x 24 | Relay x 16                                 |         | 570      | 0.2                   | 0.1     | –      |
| 5   | 64 points | MV-D64DTPS | 24V DC        | DC24V x 40 | Transistor x 24 (short circuit protection) | Source  | 600      | –                     | –       | 0.5    |
| 6   |           | MV-D64DT   | 24V DC        | DC24V x 40 | Transistor x 24                            | Sink    | 600      | –                     | –       | 0.5    |
| 7   |           | MV-D64DR   | 24V DC        | DC24V x 40 | Relay x 24                                 |         | 655      | –                     | –       | 0.5    |
| 8   |           | MV-A64DR   | 100/200V AC   | DC24V x 40 | Relay x 24                                 |         | 710      | 0.2                   | 0.1     | –      |

[Expansion units]

Expansion units



| No. | Class     | Model Name  | Specification |           |                                           |         | Mass (g) | Power consumption (A) |         |        |
|-----|-----------|-------------|---------------|-----------|-------------------------------------------|---------|----------|-----------------------|---------|--------|
|     |           |             | Power         | Input     | Output                                    | Remarks |          | 100V AC               | 264V AC | 24V DC |
| 1   | 8 points  | EH-D8ED     | 24V DC        | 24VDC x 8 | –                                         |         | 260      | –                     | –       | 0.16   |
| 2   |           | EH-D8ER     | 24V DC        | –         | Relay x 8                                 |         | 280      | –                     | –       | 0.16   |
| 3   |           | EH-D8ETPS   | 24V DC        | –         | Transistor x 8 (short circuit protection) | Source  | 260      | –                     | –       | 0.16   |
| 4   |           | EH-D8ET     | 24V DC        | –         | Transistor x 8                            | Sink    | 260      | –                     | –       | 0.16   |
| 5   |           | ED-D8EDTPS  | 24V DC        | 24VDC x 4 | Transistor x 4 (short circuit protection) | Source  | 260      | –                     | –       | 0.16   |
| 6   |           | EH-D8EDT    | 24V DC        | 24VDC x 4 | Transistor x 4                            | Sink    | 260      | –                     | –       | 0.16   |
| 7   |           | EH-D8EDR    | 24V DC        | 24VDC x 4 | Relay x 4                                 |         | 300      | –                     | –       | 0.16   |
| 8   | 14 points | EH-D14EDTPS | 24V DC        | 24VDC x 8 | Transistor x 6 (short circuit protection) | Source  | 300      | –                     | –       | 0.16   |
| 9   |           | EH-D14EDTP  | 24V DC        | 24VDC x 8 | Transistor x 6                            | Source  | 300      | –                     | –       | 0.16   |
| 10  |           | EH-D14EDT   | 24V DC        | 24VDC x 8 | Transistor x 6                            | Sink    | 300      | –                     | –       | 0.16   |
| 11  |           | EH-D14EDR   | 24V DC        | 24VDC x 8 | Relay x 6                                 |         | 400      | –                     | –       | 0.16   |
| 12  |           | EH-A14EDR   | 100/200V AC   | 24VDC x 8 | Relay x 6                                 |         | 400      | 0.2                   | 0.06    | –      |

[Expansion units]

| No. | Class           | Model Name  | Specification |                  |                                            |         | Mass (g) | Power consumption (A)                                                                  |         |        |
|-----|-----------------|-------------|---------------|------------------|--------------------------------------------|---------|----------|----------------------------------------------------------------------------------------|---------|--------|
|     |                 |             | Power         | Input            | Output                                     | Remarks |          | 100V AC                                                                                | 264V AC | 24V DC |
| 13  | 16 Points       | EH-D16ED    | 24V DC        | 24VDC x 16       | –                                          |         | 260      | –                                                                                      | –       | 0.13   |
| 14  |                 | EH-D16ER    | 24V DC        | –                | Relay x 16                                 |         | 300      | –                                                                                      | –       | 0.11   |
| 15  |                 | EH-D16ETPS  | 24V DC        | –                | Transistor x 16 (short circuit protection) | Source  | 260      | –                                                                                      | –       | 0.04   |
| 16  |                 | EH-D16ET    | 24V DC        | –                | Transistor x 16                            | Sink    | 260      | –                                                                                      | –       | 0.03   |
| 17  | 28 Points       | EH-D28EDTPS | 24V DC        | 24VDC x 16       | Transistor x 12 (short circuit protection) | Source  | 500      | –                                                                                      | –       | 0.2    |
| 18  |                 | EH-D28EDTP  | 24V DC        | 24VDC x 16       | Transistor x 12                            | Source  | 500      | –                                                                                      | –       | 0.2    |
| 19  |                 | EH-D28EDT   | 24V DC        | 24VDC x 16       | Transistor x 12                            | Sink    | 500      | –                                                                                      | –       | 0.2    |
| 20  |                 | EH-D28EDR   | 24V DC        | 24VDC x 16       | Relay x 12                                 |         | 500      | –                                                                                      | –       | 0.3    |
| 21  |                 | EH-A28EDR   | 100/200 V AC  | 24VDC x 16       | Relay x 12                                 |         | 600      | 0.2                                                                                    | 0.06    | –      |
| 22  | 64 Points       | EH-D64EDTPS | 24V DC        | 24VDC x 40       | Transistor x 24 (short circuit protection) | Source  | 640      | –                                                                                      | –       | 0.4    |
| 23  |                 | EH-D64EDT   | 24V DC        | 24VDC x 40       | Transistor x 24                            | Sink    | 640      | –                                                                                      | –       | 0.4    |
| 24  |                 | EH-D64EDR   | 24V DC        | 24VDC x 40       | Relay x 24                                 |         | 640      | –                                                                                      | –       | 0.5    |
| 25  |                 | EH-A64EDR   | 100/200 V AC  | 24VDC x 40       | Relay x 24                                 |         | 720      | 0.4                                                                                    | 0.2     | –      |
| 26  | Analog          | EH-D6EAN    | 24V DC        | Analog x 4       | Analog x 2                                 |         | 300      | –                                                                                      | –       | 0.16   |
| 27  |                 | EH-A6EAN    | 100/200 V AC  | Analog x 4       | Analog x 2                                 |         | 400      | 0.1                                                                                    | 0.06    | –      |
| 28  | RTD             | EH-D6ERTD   | 24V DC        | RTD x 4          | Analog x 2                                 |         | 300      | –                                                                                      | –       | 0.16   |
| 29  |                 | EH-D4ERTD   | 24V DC        | RTD x 4          | –                                          |         | 300      | –                                                                                      | –       | 0.16   |
| 30  |                 | EH-A6ERTD   | 100/200 V AC  | RTD x 4          | Analog x 2                                 |         | 400      | 0.1                                                                                    | 0.06    | –      |
| 31  |                 | EH-A4ERTD   | 100/200 V AC  | RTD x 4          | –                                          |         | 400      | 0.1                                                                                    | 0.06    | –      |
| 32  | TC              | EH-D6ETC    | 24V DC        | Thermocouple x 4 | Analog x 2                                 |         | 300      | –                                                                                      | –       | 0.16   |
| 33  |                 | EH-D4ETC    | 24V DC        | Thermocouple x 4 | –                                          |         | 300      | –                                                                                      | –       | 0.16   |
| 34  | Expansion cable | EH-MCB10    |               |                  |                                            |         |          | 1.0 m                                                                                  |         |        |
| 35  |                 | EH-MCB05    |               |                  |                                            |         |          | 0.5 m                                                                                  |         |        |
| 36  |                 | EH-MCB01    |               |                  |                                            |         |          | 0.1 m                                                                                  |         |        |
| 37  | Option board    | OBV-NES     |               |                  |                                            |         |          | RS-485 (2wire, RJ-45), 1ch.                                                            |         |        |
| 38  |                 | OBV-485A    |               |                  |                                            |         |          | RS-485 (4wire, RJ-45), 1 port and 10-bit Analog input, 2ch. (terminal block)           |         |        |
| 39  |                 | OBV-AIO     |               |                  |                                            |         |          | 10-bit Analog Input, 2ch. And 10-bit Analog Output, 2ch. (terminal block)              |         |        |
| 40  |                 | OBV-485TAI  |               |                  |                                            |         |          | RS-485 (2wire, terminal block), 1 port and 10-bit Analog Input, 2ch. (terminal block)  |         |        |
| 41  |                 | OBV-485TAO  |               |                  |                                            |         |          | RS-485 (2wire, terminal block), 1 port and 10-bit Analog Output, 2ch. (terminal block) |         |        |
| 42  | Battery         | MV-BAT      |               |                  |                                            |         |          | For data memory back-up. 3.0V / 1,750mAh                                               |         |        |

[Programming software]

| Item                                             | Model  | Specifications                                                    | Remarks |
|--------------------------------------------------|--------|-------------------------------------------------------------------|---------|
| Integrated development environment<br>HX-CODESYS | HX-CDS | Integrated development environment in conformance with IEC61131-3 | *1      |

\*1: A cable for connecting the PC to the CPU (A-mini B type USB cable or LAN cable) must be obtained by the customer.

| Item                         | Specification                                                                                                                                                                                                                                                                           |                 |
|------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|
| Power supply type            | AC                                                                                                                                                                                                                                                                                      | DC              |
| Power voltage                | 100/110/120 V AC (50/60 Hz),<br>200/220/240 V AC (50/60 Hz)                                                                                                                                                                                                                             | 24 V DC         |
| Power voltage fluctuation    | 85 to 264 V AC wide range                                                                                                                                                                                                                                                               | 19.2 to 30 V DC |
| Operating ambient temp.      | 0 to 55 °C                                                                                                                                                                                                                                                                              |                 |
| Storage ambient humidity     | 5 to 95% RH ( no condensation)                                                                                                                                                                                                                                                          |                 |
| Vibration resistance         | Conforming to IEC(EN) 62231-2<br>(147m/s2, 3 times in each 3 directions X, Y, Z)                                                                                                                                                                                                        |                 |
| Noise resistance             | ○Noise voltage 1,500 Vpp, Noise pulse width 100ns, 1μs<br>(Noise input by a noise simulator across input terminal of a power module according to measuring method of Hitachi-IES.)<br>○Based on IEC 61131-2 ( not applied for input modules)<br>○Static noise: 3,000V at electrode part |                 |
| Certifications               | CE,RCM                                                                                                                                                                                                                                                                                  |                 |
| Insulation resistance        | 20MΩ minimum between AC terminal and frame ground (FE) terminal<br>(based on 500V DC megger)                                                                                                                                                                                            |                 |
| Dielectric withstand voltage | 1,500V AC for 1 minute between AC input terminal and frame ground (FE) terminal                                                                                                                                                                                                         |                 |
| Ground                       | Class D grounding ( grounding with the power supply module)                                                                                                                                                                                                                             |                 |
| Usage environment            | No corrosive gases, no excessive dust                                                                                                                                                                                                                                                   |                 |
| Structure                    | Attached on an open wall                                                                                                                                                                                                                                                                |                 |
| Cooling                      | Natural air cooling                                                                                                                                                                                                                                                                     |                 |

## [Unit : mm]

[illegible]

Technical drawings of the device showing front and side views with dimensions:

- Front View (Left):** Shows a rectangular device with a width of 95 mm and a height of 90 mm. The bottom section has a width of 85 mm and a height of 4.8 mm. The top section has a height of 80 mm. There are two circular ports on the top surface and a series of small circular ports on the front panel.
- Side View (Right):** Shows the side profile of the device with a width of 76 mm and a height of 8.4 mm. It features a series of vertical slots or vents on the side panel.



# Network



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## **Hitachi Industrial Equipment Systems Co., Ltd.**

*For further information, please contact your nearest sales representative.*



**ISO 14001**  
JQA-EM5428



**ISO 9001**  
JQA-1000

The MICRO-EHV+ 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.