Programmable Logic Controllers
All-in-one type Compact PLC

MICRO-EHV Series

HITACHI
Inspire the Next

Double USB port for programming and USB flash device
Ethernet communication port
Easy connection with Hitachi inverters

All-in-one type Compact PLC

MICRO-EHV

Compact Body with great features

High Function model (MVH)

Standard model (MVL)

■USB port for programming (MVH/MVL)

■Ethernet communication port (MVH)

■Program up/downloading from/to USB flash device (MVH)

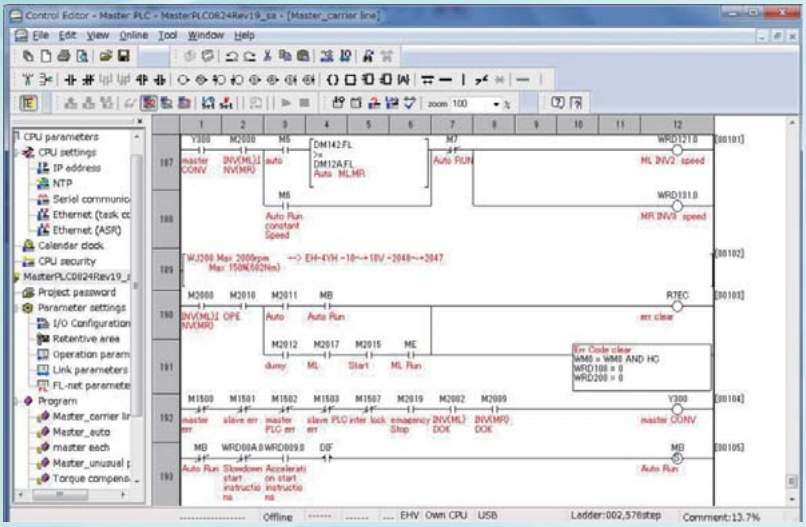
User program can be copied directly from/to USB flash device without PC.

■Easy connection with Hitachi inverters (MVH/MVL)

Easy connection, controlling and monitoring with Hitachi inverters NE-S1, WJ200 and SJ700.

■Same programming software with EHV series (MVH/MVL)

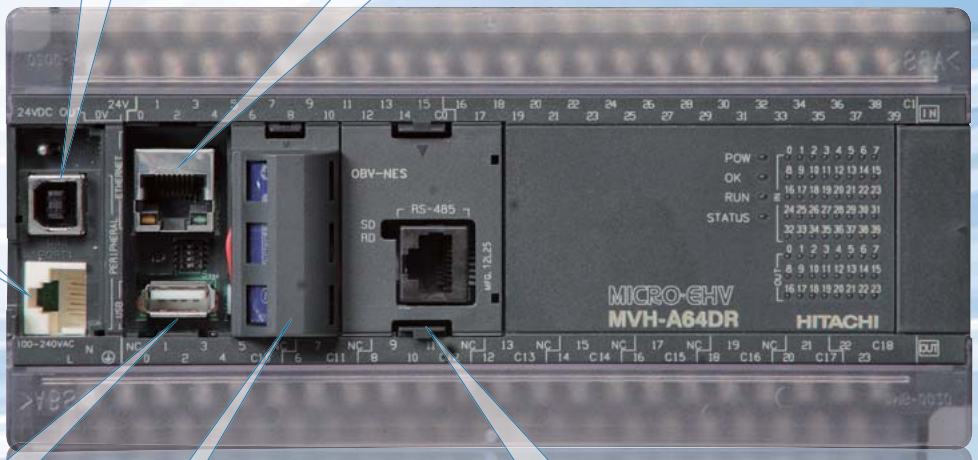
Control Editor ver.4 supports both MICRO-EHV and EHV series.



Ethernet port*
- Programming software (PC)
- HMI / SCADA
- ASR connection
- Modbus-TCP slave
- Gateways

USB port (programming)
- Programming software (PC)

Serial port (RS-232C)
- Programming software
- HMI / SCADA
- General communication



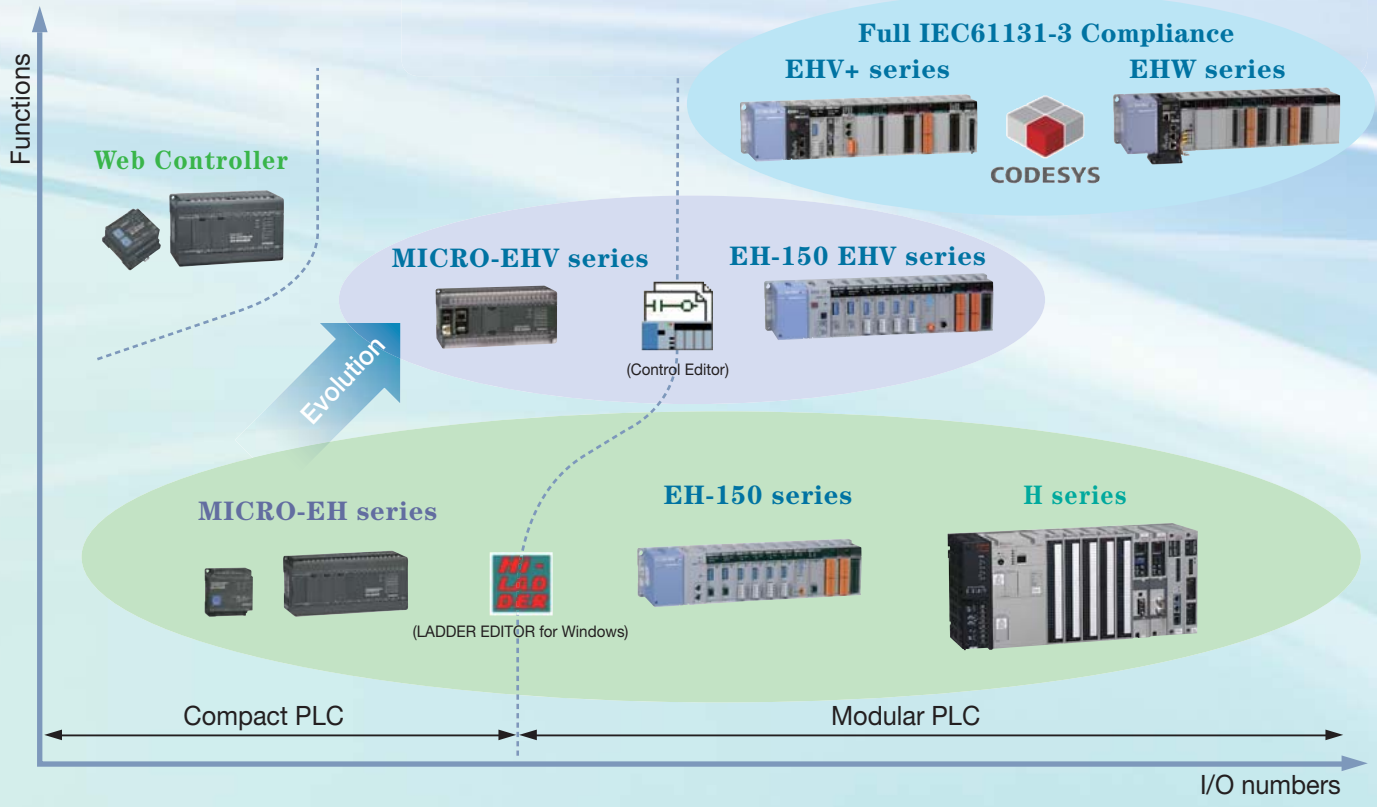
USB memory port
- USB flash device

Option board
(Option boards are incompatible with existing MICRO-EH)

Battery
(Specially designed for MICRO-EHV)

*Only available for MVH model

Hitachi PLC Lineups



Basic unit EHV

EHV :for MICRO-EHV EH :for MICRO-EH

High Function model (MVH)

64-point type
(Input 40 points / Output 24 points)

40-point type
(Input 24 points / Output 16 points)

Standard model (MVL)

64-point type
(Input 40 points / Output 24 points)

40-point type
(Input 24 points / Output 16 points)

■High Function model

Model	Spec
MVH-A64DR	AC power supply, DC input 40 points, Relay output 24 points
MVH-D64DR	DC power supply, DC input 40 points, Relay output 24 points
MVH-D64DT	DC power supply, DC input 40 points, Transistor output 24 points (sink)
MVH-D64DTPS	DC power supply, DC input 40 points, Transistor output 24 points (source) (20 points with short-circuit protection)
MVH-A40DR	AC power supply, DC input 24 points, Relay output 16 points
MVH-D40DR	DC power supply, DC input 24 points, Relay input 16 points
MVH-D40DT	DC power supply, DC input 24 points, Transistor output 16 points (sink)
MVH-D40DTPS	DC power supply, DC input 24 points, Transistor output 16 points (source) (12 points with short-circuit protection)

■Standard model

Model	Spec
MVL-A64DR	AC power supply, DC input 40 points, Relay output 24 points
MVL-D64DR	DC power supply, DC input 40 points, Relay output 24 points
MVL-D64DT	DC power supply, DC input 40 points, Transistor output 24 points (sink)
MVL-D64DTPS	DC power supply, DC input 40 points, Transistor output 24 points (source) (20 points with short-circuit protection)
MVL-A40DR	AC power supply, DC input 24 points, Relay output 16 points
MVL-D40DR	DC power supply, DC input 24 points, Relay input 16 points
MVL-D40DT	DC power supply, DC input 24 points, Transistor output 16 points (sink)
MVL-D40DTPS	DC power supply, DC input 24 points, Transistor output 16 points (source) (12 points with short-circuit protection)

Option

■Battery

EHV

・MV-BAT

In case of memorizing the internal output as the retentive area, using calendar clock, Battery is necessary.

■Expansion cable

EHV EH

・EH-MCB01 (10cm)*
・EH-MCB05 (0.5m)
・EH-MCB10 (1m)

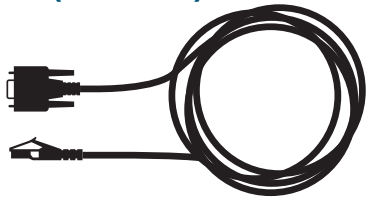
*1 piece of 0.1 m expansion cable is attached to each expansion unit.

■Connection cable (RS-232C)

EH

・EH-VCB02 (2m)

One side: RJ-45
One side: D-Sub 9pin



Option board EHV

OBV-NES
RS-485 (2-wire)

OBV-485A
RS-485 (4-wire),
10bit Analog (voltage) input 2ch.

Expansion unit EHV EH

8 Points Expansion unit

- DC input x 8
- Relay output x 8
- Transistor x8
- DC input x 4/Relay x 4
- DC input x 4/Transistor x 4
  (Power : 24V DC)

14 Points Expansion unit

- DC input x 8/
  Relay output x 6
  (Power : 24V DC or 100/200V AC)
- DC input x 8/Transistor x 6
  (Power : 24V DC)

16 Points Expansion unit

- DC input x 16
- Relay output x 16
- Transistor x16
  (Power : 24V DC)

28 Points Expansion unit

- DC input x 16/
  Relay output x 12
  (Power : 24V DC or 100/200V AC)
- DC input x 16/Transistor x 12
  (Power : 24V DC)

64 Points Expansion unit

- DC input x 40/
  Relay output x 24
  (Power : 24V DC or 100/200V AC)
- DC input x 40/Transistor x 24
  (Power : 24V DC)

Analog Expansion unit

- Analog input 4ch.
  switch current / voltage
- Analog output 2ch.
  switch current / voltage
  (Power : 24V DC or 100/200V AC)

RTD(Resistance Temperature Detective) Expansion unit

- Resistance Temperature Detective input 4ch.
  (Power : 24V DC or 100/200V AC)
  Analog output 2ch.
  switch current / voltage
  (Power : 24V DC or 100/200V AC)

Thermocouple Expansion unit

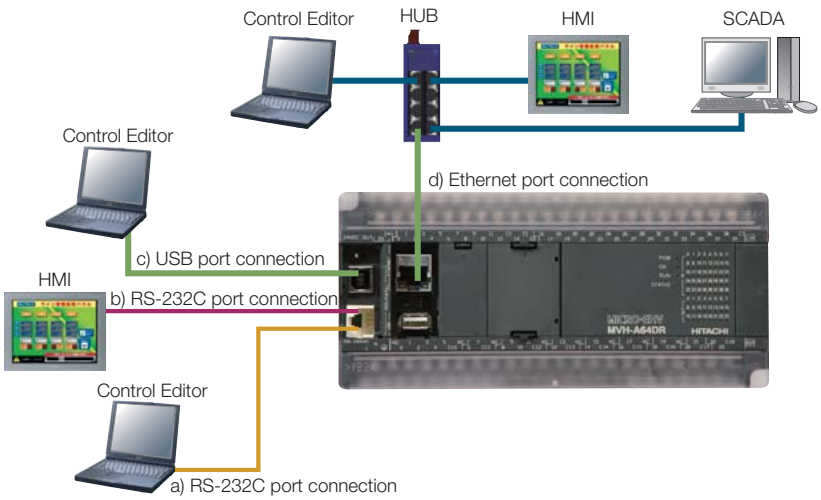
- Thermocouple input 4ch.
  Analog output 2ch.
  current / voltage
  (Power : 24V DC)

Up to 4 expansion units

Expandable up to 320 pts. I/O (200 inputs and 120 outputs) with 64-pts. unit and 4 times of 64-pts. expansion units.

Expansion cable length : Max. 2m in total

Variety of network connectivity



a) Connection to Programming software (Control Editor) by RS-232C :
EH-VCB02(2m)

b) Connection to HMI by RS-232C :
EH-VCB02(2m)
a) or b) Either one

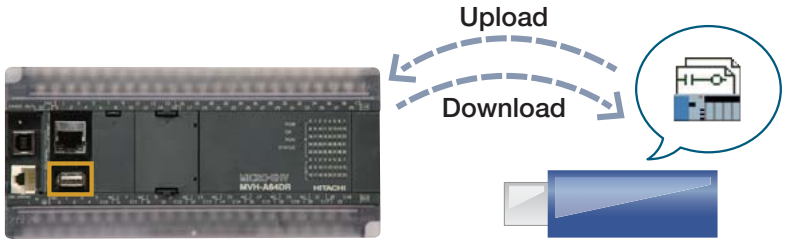
c) Connection to Programming software (Control Editor) by USB :
Please prepare the USB cable
(A type - B type)

d) Connection to Programming software (Control Editor), or HMI, or Personal computer :
Please prepare the LAN cable (Straight) and HUB

FEATURE 1 MVH

Program up/downloading from/to USB flash device (MVH)

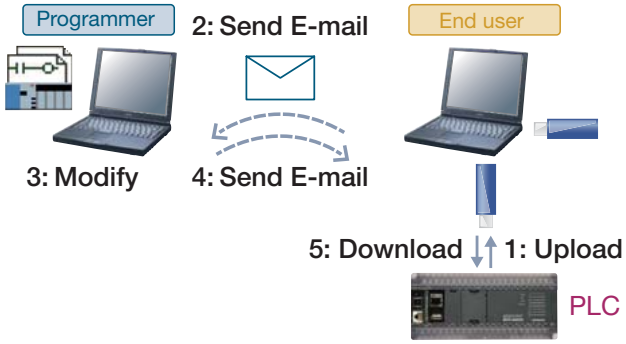
User program can be copied directly from/to USB flash device without PC.



■Advantage of USB memory connection

If troubles happen and end-users do not have programming tool or are not familiar with PLC, user-program can be easily uploaded to usb flash device without PC and sent to experts over email.

→ Easy maintenance & aftercare available!!



FEATURE 2 MVH

Ethernet port (MVH model)

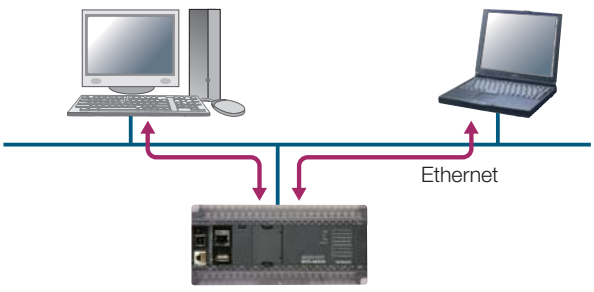
■Configure-less Ethernet connection

MICRO-EHV can be easily connected with PC/devices which support Hitachi PLC protocol.

MVH MODEL

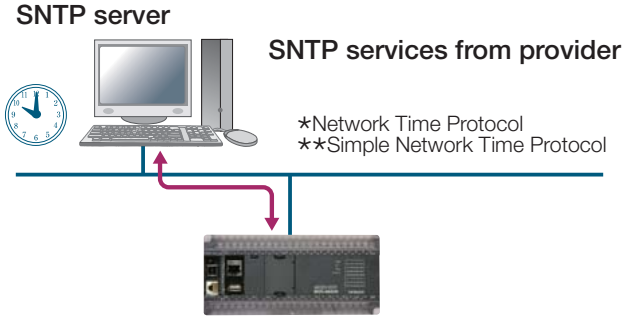
■Ethernet ASR function

ASR stands for Automatic Sending & Receiving function. MICRO-EHV can send or receive data message with other PLC or PC in cyclic or event invoked.



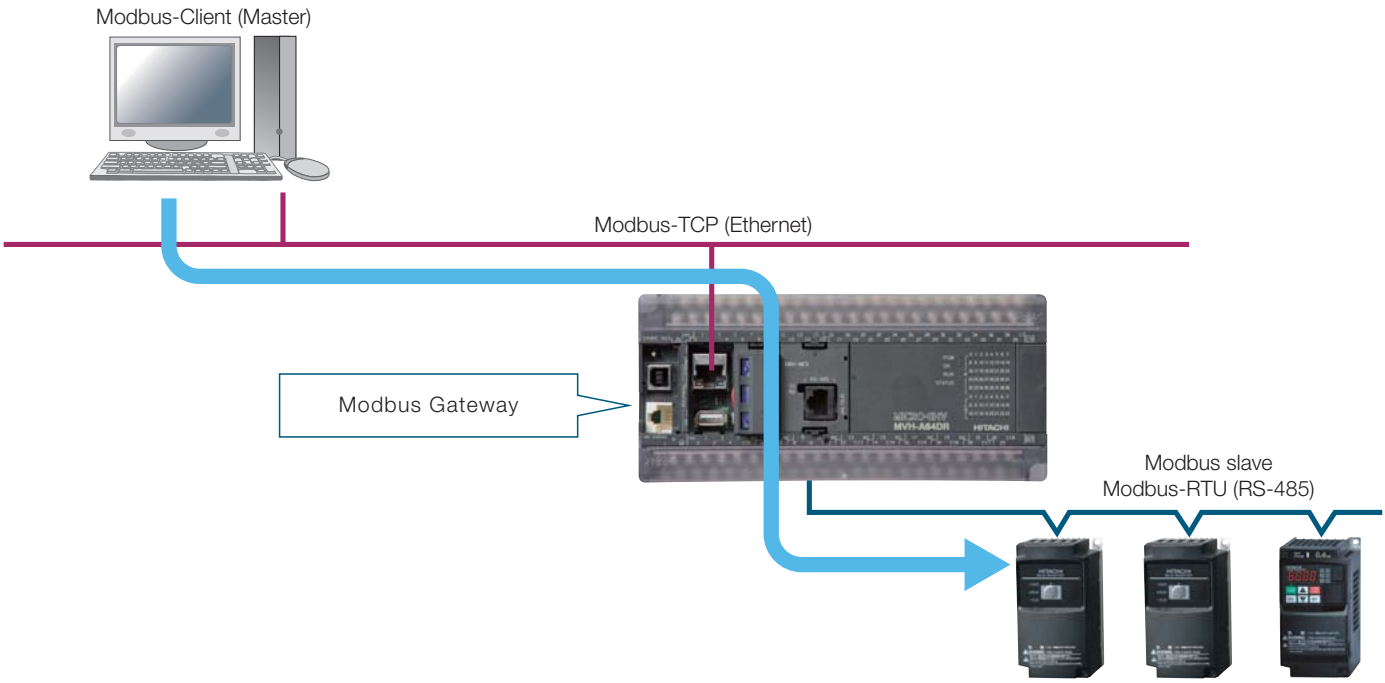
■NTP client function

If NTP or SNTP server is in the network, time information can be read out with NTP/SNTP protocol.



Modbus Gataway function

"Modbus Gateway function" of MICRO-EHV is client (master) on Modbus-TCP network be able to communicate with the slave device on serial network (Modbus-RTU), through the MICRO-EHV.

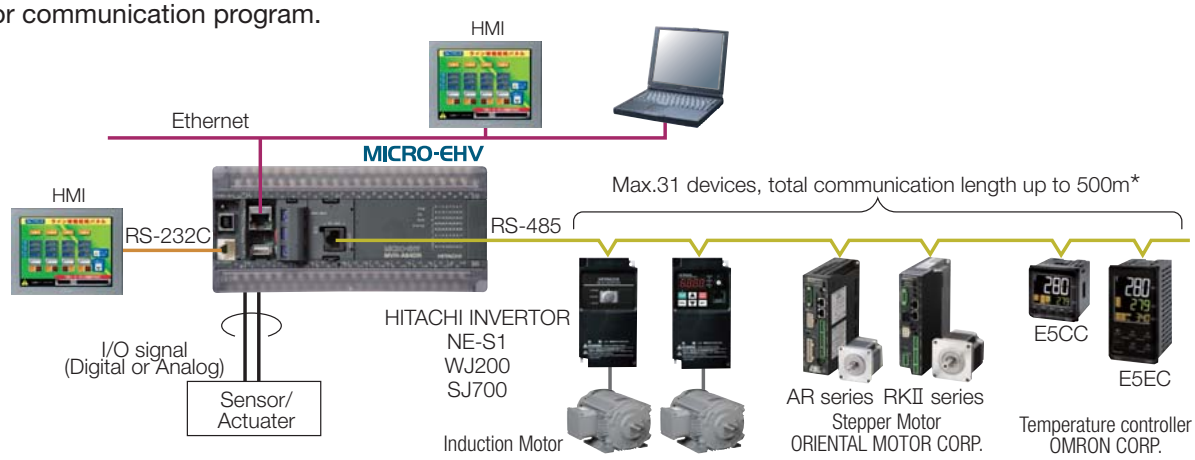


FEATURE 3

MVH MVL

Easy connection with Hitachi's inverters and Oriental motor's stepper motor, Omron's temperature controller.

Easy connection with Hitachi's inverters, Oriental Motor's stepper motor and Omron's temperature controller in Modbus-RTU(RS-485), operation control and status monitoring can be able to easily. (Inverter, stepper motor, temperature controller are able be mixed in same communication line.)
MICRO-EHV have prepared communication command of each device, user be able to read and write data in the memory map image by directly specifying the internal output of the PLC from the ladder program, there is not required for communication program.



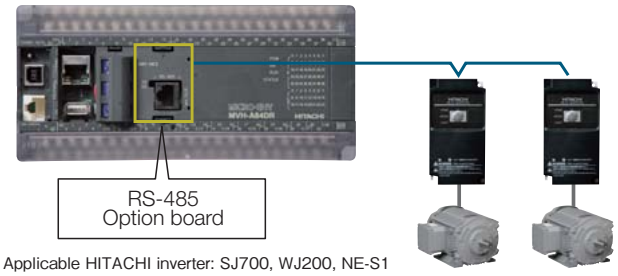
✶ In case of combine with stepper motor by ORIENTAL MOTOR CORP., total communication length is up to 50m

Connection only communication line to the slave device. It's "omit wiring" and "smart control".
(1) Inexpensive because it does not require a dedicated cable.
(2) Only wiring of communicate. Not require of I/O wiring to each slave .
(3) Possible to multiple remote control, and communicate up to 31 slave units, total communication length up to 500m*

✶ In case of combine with stepper motor by ORIENTAL MOTOR CORP., total communication length is up to 50m

Dedicated command of control and monitoring for Hitachi inverter.

Example



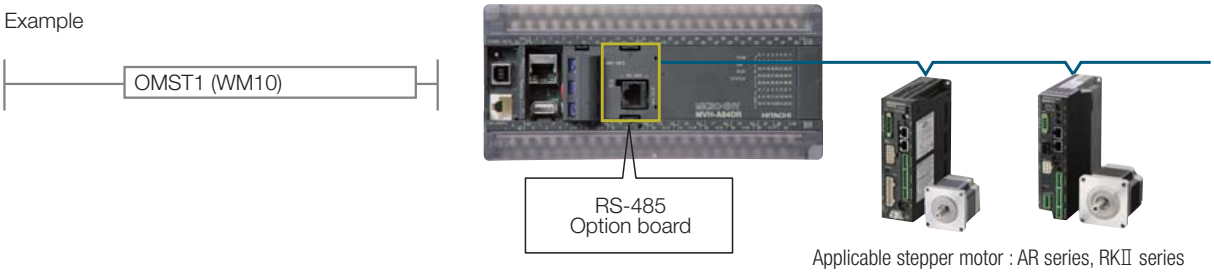
Applicable HITACHI inverter: SJ700, WJ200, NE-S1

"INV1" command is dedicated command of control and monitoring for Hitachi inverter. (Applicable HITACHI inverter : SJ-700, WJ200, NE-S1)
This command to be assign to communication area with PLC's internal output a total of 8 words (3 words to write, 5 words to read), in the ladder program. Through the set or reset of each bit or word of writing area be able to run / stop, forward rotation / reverse rotation and set to output frequency of the inverter. And be able to monitoring for output frequency value, output current, the other operating state and error of inverter in the reading area.

		F	E	D	C	B	A	9	8	7	6	5	4	3	2	1	0
WM0	W	EXE	SJ	IT8	IT7	IT6	IT5	IT4	IT3	IT2	IT1	–	FQL	FQE	RST	REV	FWD
WM1	W	Node address (0 to 247)															
WM2	W	Output frequency set (0.01 to 400.00 Hz)															
WM3	R	ERR	–	–	–	–	–	–	–	–	–	–	AL	ARF	RDY	DIR	RUN
WM4	R	–	–	MI8	MI7	MI6	MI5	MI4	MI3	MI2	MI1	MO6	MO5	MO4	MO3	MO2	MO1
WM5	R	Output frequency monitor (0.01 to 400.00 Hz)															
WM6	R	Output current monitor (0.00 to 655.30 A)															
WM7	R	Communication error code															

Dedicated command of control and monitoring for Stepper motor.

Example



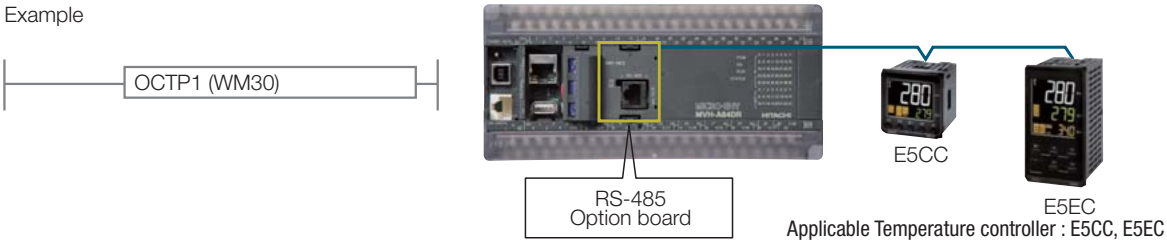
Applicable stepper motor : AR series, RKⅡ series

"OMST1" command is dedicated command of control and monitoring for ORIENTAL MOTOR's stepper motor. (Applicable motor : AR series, RK-Ⅱ series)
This command to be assign to communication area with PLC's internal output a total of 32 words (16 words to write, 16 words to read) , in the ladder program.
Through the set or reset to positioning data (velocity, position, etc.) of each bit or word of writing area, be able to positioning.
And be able to monitoring for moving velocity value, current position, the other operating state and error of stepper motor in the reading area.

		F	E	D	C	B	A	9	8	7	6	5	4	3	2	1	0
WM10	W	EXE	ECR	—	—	ALM	FBV	FBP	CV	CP	—	—	—	—	ALR	PV	PD
WM11	W	Node address (0～247)															
WM12	W	RVS	FWD	−JOG	+JOG	SSTART	MS2	MS1	MS0	—	FREE	STOP	HAME	START	M2	M1	M0
WM13	W	Positioning Number set (0 to 7)															
WM14	W	Position set (Lower 16bits)															
WM15	W	Position set (Upper 16bits)															
WM16	W	Velocity set (Lower 16bits)															
WM17	W	Velocity set (Upper 16bits)															
WM18	W	Alarm Reset															
WM19 –WM1F		undefined															
WM20	R	REX	ERR	—	—	RAL	RFV	RFP	RCV	RCP	—	—	—	—	RAR	RPV	RPD
WM21	R	Communication error code															
WM22	R	Communication status (Least significant bit is 0/1 inversion in every communication cycle)															
WM23	R	Communication cycle time (Units: ms)															
WM24	R	TLC	END	MOVE	TIM	AREA3	AREA2	AREA1	S-BSY	ALM	WNG	READY	HOME-P	STAR-R	M2-R	M1-R	M0-R
WM25	R	Setting position (Lower 16bits)															
WM26	R	Setting position (Upper 16bits)															
WM27	R	Setting velocity (Lower 16bits)															
WM28	R	Setting velocity (Upper 16bits)															
WM29	R	Feedback position (Lower 16bits)															
WM2A	R	Feedback position (Upper 16bits)															
WM2B	R	Feedback velocity (Lower 16bits)															
WM2C	R	Feedback velocity (Upper 16bits)															
WM2D	R	Alarm code (H00 to HFF)															
WM2E -WM2F		undefined															

Dedicated command of control and monitoring for Temperature controller.

Example



"OCTP1" command is dedicated command of control and monitoring for OMRON's temperature controller. (Applicable temperature controller : E5CC, E5EC)
This command to be assign to communication area with PLC's internal output a total of 32 words (16 words to write, 16 words to read) , in the ladder program.
Through the set or reset to control data (temperature, PID parameters, etc.) of each bit or word of writing area, be able to temperature control.
And be able to monitoring for current temperature value, heater current, the other operating state and error of communication in the reading area.

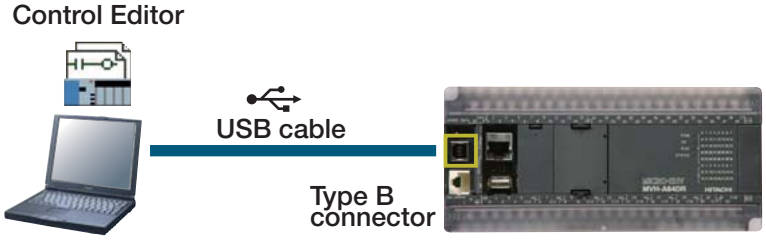
		F	E	D	C	B	A	9	8	7	6	5	4	3	2	1	0
WM30	W	EXE	ECR	—	C12	C11	C10	C9	C8	C7	C6	C5	C4	C3	C2	C1	C0
WM31	W	Node address (0 to 247)															
WM32	W	Target temperature set															
WM33	W	PID parameter (P)															
WM34	W	PID parameter (I)															
WM35	W	PID parameter (D)															
WM36	W	Alarm 1															
WM37	W	Upper limit of alarm 1															
WM38	W	Lower limit of alarm 1															
WM39	W	Alarm 2															
WM3A	W	Upper limit of alarm 2															
WM3B	W	Lower limit of alarm 2															
WM3C	W	Heater burnout detection															
WM3D	W	PV input correction															
WM3E	W	SP lump setting value															
WM3F		undefined															
WM40	R	Communication error value															
WM41	R	REX	ERR	—	—	—	—	—	—	—	—	—	—	—	—	—	STS
WM42	R	Communication cycle time (Units: ms)															
WM43	R	Controller status (Lower 16bits)															
WM44	R	Controller status (Upper 16bits)															
WM45	R	Controller status 2 (Upper 16bits)															
WM46	R	Decimal point position															
WM47	R	Current temperature															
WM48	R	Setting temperature															
WM49	R	Heater current															
WM4A	R	Output current (Heating)															
WM4B	R	undefined															

FEATURE 4

MVH MVL

USB communication port for programming software (Control Editor)

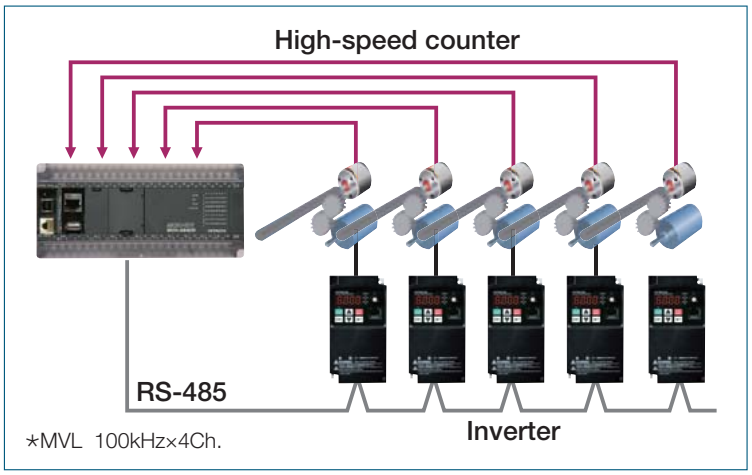
This is a maintenance port for programming software.
Programming software can be used in the notebook without RS-232C serial port.



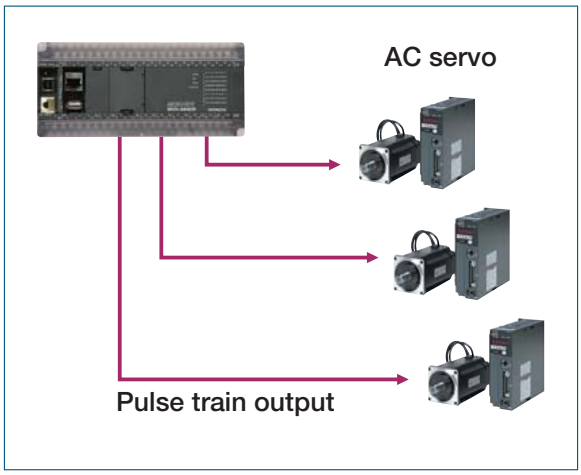
FEATURE 5 MVH MVL

High-speed counter input, Pulse train / PWM output.

5ch.* 100kHz high-speed counter



3ch. 65kHz Pulse train / PWM output



FEATURE 6 MVH MVL

Simple programming and plain command description.

■Numerical substitution

The numerical substitution is described in a numerical formula and connected in "=".
It is not required to describe an exclusive command.

■Arithmetic operation

Addition, subtraction, multiplication, and division arithmetical operations (+, - ,*, /) can be expressed by expression using every day.
Plural arithmetic operations can be described in a processing box.
Data handling is convenient, simply and proud.

```
WR0   = WR1 + WR2
WR10  = WR0 * WR4
WR20  = WR8 / WR6
...
```

Singed integer arithmetic operations, floating point arithmetic operations can be expressed equally.
The visibility of the program can be improved.

Integer

```
WR0 = 12345 + WR1
WR0 = WN0 / 256
```

Singed integer

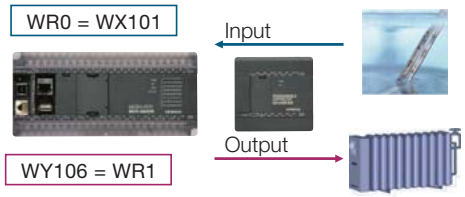
```
WR0.S = –12345
DM0.S = DN100.S * (–27)
```

Floating point

```
DR0.FL = –1.234567
DN0.FL = DN2.FL * 3.14
```

■The analog input/output is not require for both the special setting and command.

The analog input value is stored by applicable "WX".
The analog output value is outputted by substituting the analog value for applicable "WY".
Analog value can be treated without the special setting and command.



FEATURE 7

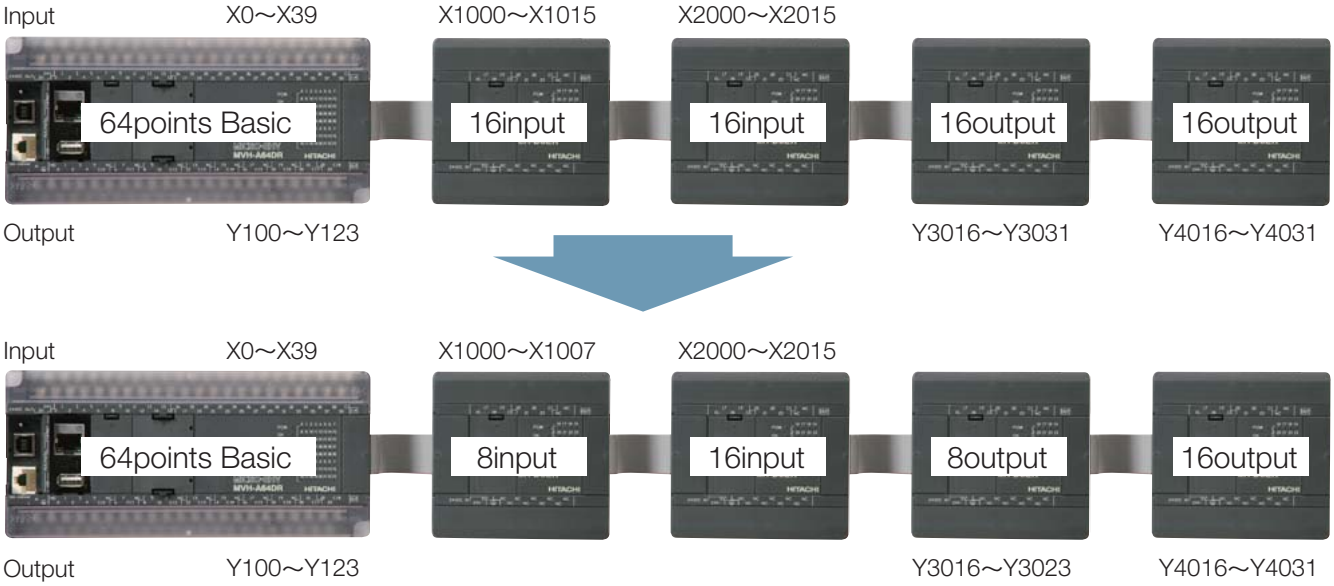
MVH MVL

Fixed address system to recognize a mounting position by I/O No.

Even if an input and output unit is changed, I/0 No. of other units is not influenced.
Because an implementation position from an input and output number is known, the change and maintenance of the ladder program is easy.

X □ □ □ □ ← External Input
Y □ □ □ □ ← External Output
Bit number in unit (0 - 39)
Slot number (X:0 Y:1)
Unit number (0 - 4)

■Example of I/O No.



FEATURE 8

MVH MVL

Removable terminal block in compatible with MICRO-EH

Adopted the removable terminal block compatible with MICRO-EH (40 points, 64 points type).
So be able to replace MICRO-EH to MICRO-EHV without removing existing wiring.

FEATURE 9

MVH MVL

External I/O - refresh inhibiting function

Inhibiting external input - refresh

Regardless of an ON/OFF state of the external input signal (X/WX), can let external input data have ON with "set / reset function" of touch panel and Control Editor. This function is convenient for non-wired external inputs or a program check at the time of debugging. (The input LED of the unit does not turn on.)

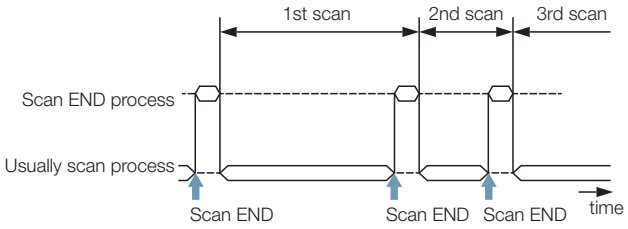
Inhibiting external output – refresh

When an external output data is let have ON with "set / reset function" of touch panel and Control Editor, its real external output signal is not reflected. Please use it for the cases that do not want to operate real external equipment at the time of debugging. (The output LED of the unit does not turn on.)

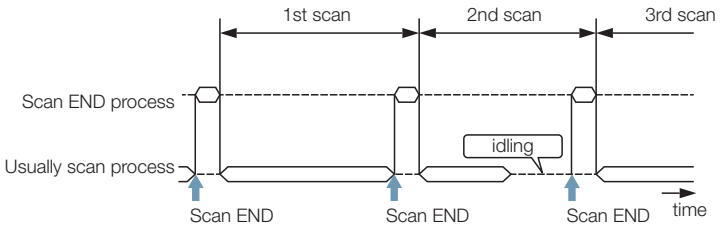
Constant scanning function

PLC repeats execution, external I/O process → ladder program by external I/O process → external I/O process → . "Scan time" is one time that "execution takes by input-output process → ladder program from beginning to end". By a state of the instruction execution / non-execution used in a program, "the scan thyme" changes. Therefore the timeliness that "input-output process" is carried out changes. After program execution, become the idling state to a set point of "the constant scan thyme" by using a "constant scan" function. As a result, "input-output process" comes to be always carried out in (e.g., in every 6msec) in the same period. Please use it for in replacement from a case to prevent you from influencing it by the increase and decrease of the program in response time and other PLC knowing the scan time.

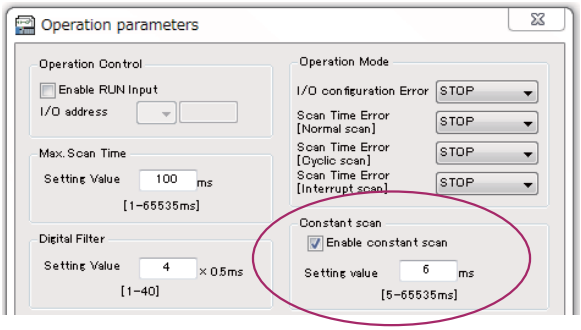
Disabled Constant scan function (Usually)



Enabled Constant scan function



Set in "Operation parameters" window of the Control Editor

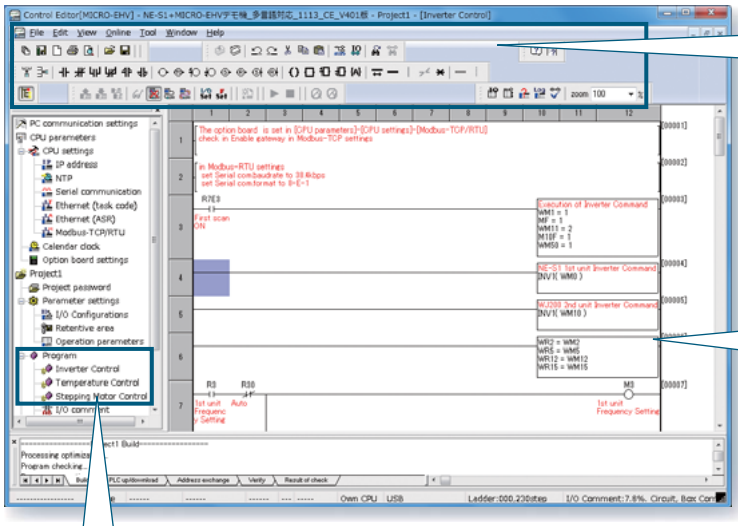


FEATURE 10 MVH MVL

The programming software is easy to use. “Control Editor”

■The function which supports the improvement in efficiency of program development.

- Program sheet structure which makes easy management, appropriation, combination, and division of a program.
- The interface which employed the merit of Windows® software in the maximum efficiently and which is easy to use.



Easy and Visual interface for other brands’ PLC users

Off-line On-line Circuit monitor

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The usability of interface

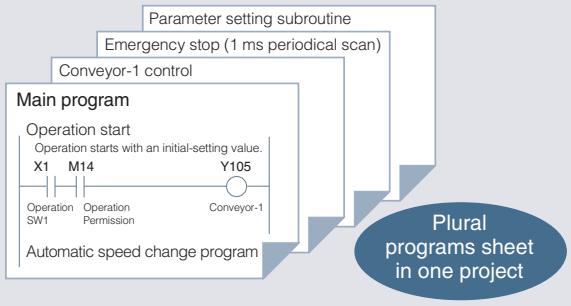
1. The usability of input screen of a contact, a coil, and a processing box.
2. The usability of the screen of I/O configuration, I/O monitor, etc.
3. The usability of the setting screens of network setting, etc.

Program sheet structure

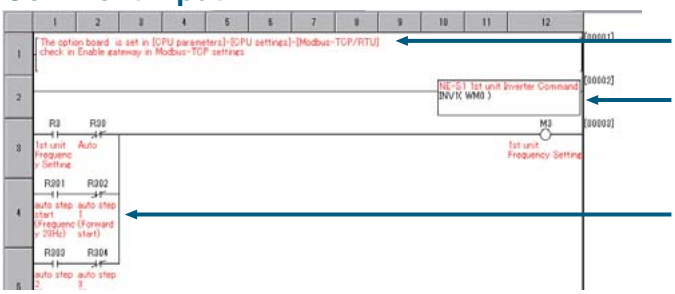
Multiple program sheets for multi-purpose and multi-programmers.

The ease of management, appropriation, combination, and division of a program.
Program sheet can be copied easily by right mouse click after opening multiple Control Editor.

Project : EHV production line control system



Comment input



Each type of comment can be downloaded to CPU.

Program convert tool

The Ladder program of MICRO-EH can be convert. Convertible for ladder program file to Control Editor with program convert tool.

Basic unit Specifications

Item				High Function model	Standard model
I/O Lineups				40pts(Input 24pts,output 16pts) 64pts(Input 40pts,output 24pts)	40pts(Input 24pts,output 16pts) 64pts(Input 40pts,output 24pts)
Control specifications	Program memory			16ksteps	
	Comment memory		I/O comment	128kB	
			Box, Circuit comment	19kB	
	CPU			32-bit CISC processor	
	Processing method			Stored program cyclic method	
	Processing speed		Basic commands	0.30μs ~	
			Substitution commands	1.2μs ~	
Calculation processing specifications	Basic commands			55 types	
	Arithmetic / Application commands			170 types	
External I/O specifications	I/O processing method			Refresh processing	
	External I/O points (64points Basic +64 points Expansion x4)			320 points (Input : 200 points /Output : 120points)	
	Expansion			Max. 4 units	
	Special I/O	High Speed Counter		100kHz×5 ch. (32bit)	100kHz×4 ch. (32bit)
		Pulse train output / PWM output		65kHz×3 ch.	
		Interruption input		5 ch.	4 ch.
Communication specifications	built-in communication port	USB port (for programming)		Yes	
		Serial port (RS-232C)	programming / HMI	Yes	
			General communication	Yes	
		USB memory port		Yes (USB 2.0)	—
		Ethernet port	programming / HMI	Yes (TCP/IP)	—
			ASR communication	Yes	—
			Modbus-TCP Slave	Yes	—
			Modbus Gateway	Yes	—
	Option board communication port (RS-485) (RS-232C coming soon)		programming / HMI	Yes	
			ASR communication	Yes	
			Modbus-TCP Master	Yes	
			Modbus-TCP Slave	Yes	
Internal output specifications	Date memory	R (bits)		1984 points (R0 – R7BF)	
		WR (Word)		32k (WR0 – WR7FFF)	
		M/WM (Bit / word shared)		2k (WM0 – WM7FF) (2K)	
	Timer (include counter 512 points)			2,048 points (TD0 ～ 2047)	
	Counter			512 points (CU0 ～ 511)	
	Edge detection	DIF (up)		512 points	
		DFN (down)		512 points	
		Edge coil (up)		1024 points	
		Edge coil (down)		1024 points	
		Edge Processing Box (up)		1024 points	
		Edge Processing Box (down)		1024 points	
	Clock function (*1)			Yes	
	Retentive area (*1)			Yes	
Programming specifications	Program method			Ladder	
	Program seat			32	
	constant scan			Yes	
	Refresh prohibition			Yes	

*1 Battery is necessary

Product Specifications

Classification	Type	Model Name	Specifications			
			Power	Input	Output	Remarks
Basic unit 64 Points	High Function model	MVH-A64DR	100/200 V AC	24V DC x 40	Relay x 24	
		MVH-D64DR	24V DC	24V DC x 40	Relay x 24	
		MVH-D64DT	24V DC	24V DC x 40	Transistor x 24	Sink
		MVH-D64DTPS	24V DC	24V DC x 40	Transistor x 24 (short circuit protection)	Souse
	Standard model	MVL-A64DR	100/200 V AC	24V DC x 40	Relay x 24	
		MVL-D64DR	24V DC	24V DC x 40	Relay x 24	
		MVL-D64DT	24V DC	24V DC x 40	Transistor x 24	Sink
		MVL-D64DTPS	24V DC	24V DC x 40	Transistor x 24 (short circuit protection)	Souse
Basic unit 40 Points	High Function model	MVH-A40DR	100/200 V AC	24V DC x 24	Relay x 16	
		MVH-D40DR	24V DC	24V DC x 24	Relay x 16	
		MVH-D40DT	24V DC	24V DC x 24	Transistor x 16	Sink
		MVH-D40DTPS	24V DC	24V DC x 24	Transistor x 16 (short circuit protection)	Souse
	Standard model	MVL-A40DR	100/200 V AC	24V DC x 24	Relay x 16	
		MVL-D40DR	24V DC	24V DC x 24	Relay x 16	
		MVL-D40DT	24V DC	24V DC x 24	Transistor x 16	Sink
		MVL-D40DTPS	24V DC	24V DC x 24	Transistor x 16 (short circuit protection)	Souse
Expansion units 8 Points		EH-D8ED	24V DC	24V DC x 8	—	
		EH-D8ER	24V DC	—	Relay x 8	
		EH-D8ETPS	24V DC	—	Transistor x 8 (short circuit protection)	Souse
		EH-D8ET	24V DC	—	Transistor x 8	Sink
		EH-D8EDR	24V DC	24V DC x 4	Relay x 4	
		EH-D8EDTPS	24V DC	24V DC x 4	Transistor x 8 (short circuit protection)	Souse
		EH-D8EDT	24V DC	24V DC x 4	Transistor x 4	Sink
Expansion units 14 Points		EH-D14EDT	24V DC	24V DC x 8	Transistor x 6	Sink
		EH-D14EDTP	24V DC	24V DC x 8	Transistor x 6	Souse
		EH-D14EDTPS	24V DC	24V DC x 8	Transistor x 6 (short circuit protection)	Souse
		EH-D14EDR	24V DC	24V DC x 8	Relay x 6	
		EH-A14EDR	100/200 V AC	24V DC x 8	Relay x 6	
Expansion units 16 Points		EH-D16ED	24V DC	24V DC x 16	—	
		EH-D16ER	24V DC	—	Relay x 16	
		EH-D16ETPS	24V DC	—	Transistor x 16 (short circuit protection)	Souse
		EH-D16ET	24V DC	—	Transistor x 16	Sink
Expansion units 28 Points		EH-D28EDT	24V DC	24V DC x 16	Transistor x 12	Sink
		EH-D28EDTP	24V DC	24V DC x 16	Transistor x 12	Souse
		EH-D28EDTPS	24V DC	24V DC x 16	Transistor x 12 (short circuit protection)	
		EH-D28EDR	24V DC	24V DC x 16	Relay x 12	
		EH-A28EDR	100/200 V AC	24V DC x 16	Relay x 12	
Expansion units 64 Points		EH-A64EDR	100/200 V AC	24V DC x 40	Relay x 24	
		EH-D64EDR	24V DC	24V DC x 40	Relay x 24	
		EH-D64EDT	24V DC	24V DC x 40	Transistor x 24	Sink
		EH-D64EDTPS	24V DC	24V DC x 40	Transistor x 24 (short circuit protection)	Souse
Analog Expansion units		EH-D6EAN	24V DC	Analog x 4	Analog x 2	
		EH-A6EAN	100/200 V AC	Analog x 4	Analog x 2	
RTD Expansion units		EH-A6ERTD	100/200 V AC	RTD4 x 4	Analog x 2	
		EH-A4ERTD	100/200 V AC	RTD4 x 4	—	
		EH-D6ERTD	24V DC	RTD4 x 4	Analog x 2	
		EH-D4ERTD	24V DC	RTD4 x 4	—	
Thermocouple Expansion unit		EH-D6ETC	24V DC	Thermocouple x 4	Analog x 2	
		EH-D4ETC	24V DC	Thermocouple x 4	—	
Expansion cable		EH-MCB10	Expansion cable for Expansion unit (1.0m)			
		EH-MCB05	Expansion cable for Expansion unit (50cm)			
		EH-MCB01	Expansion cable for Expansion unit (10cm)			
Option board		OBV-NES	RS-485 (2-wire) serial option board			
		OBV-485A	RS-485 (4-wire) , 10bit Analog (Voltage) input 2ch. serial option board			
Lithium battery		MV-BAT	For data memory back-up (for MICRO-EHV)			
Programming software		EH-CTE-E	Programming software (for EHV-CPU/MICRO-EHV) control editor for Windows® 7/XP*			
Connection cable		EH-VCB02	Direct connection between MICRO-EHV and a personal computer (2m)			

1 piece of 0.1 m expansion cable is attached to each expansion unit
*Please prepare the USB cable (A type - B type)
*Windows is a registered trademark of Microsoft Corp. in the U.S. and other countries.

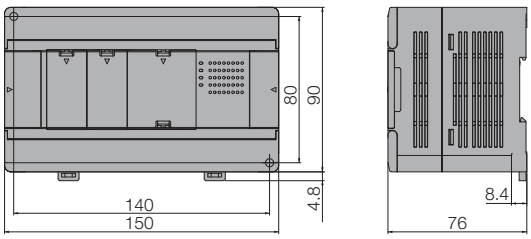
General Specifications

Item		Specification	
Power supply type		AC	DC
Power voltage		100/110/120 V AC (50/60 Hz), 200/220/240 V AC (50/60 Hz)	24 V DC
Allowable voltage range		85 to 264 V AC wide range	19.2 to 30 V DC
Hold-up		10 ms at 85 to 100 V AC, 20 ms at 100 to 264 V AC	10 ms at 19.2 to 30 V DC
Physical environment	Operating ambient temperature	0 to 55 °C	
	Storage ambient temperature	–10 to 75 °C	
	Operating ambient humidity	5 to 95 % RH (no condensation)	
	Storage ambient humidity	5 to 95 % RH (no condensation)	
	Pollution degree	Pollution degree 2 (IEC61131-2)	
	Usage environment	No corrosive gases. Not stained with organic solvents, No excessive dirt	
	Altitude/Atmospheric pressure	Altitude 2,000m max. (Transport condition: 70kPa min.)	
Mechanical operation condition	Vibration resistance	Complies with JIS C 60068-2-6 Constant Half amplitude : 0.15mm (vibration 10 to 57Hz), Constant acceleration : 19.6m/s^2(vibration 57 to 150Hz) 10 times each in X, Y, and Z directions	
	Shock resistance	Complies with JIS C 60068-2-27. 147 m/s^2, 11ms, 3 times in X, Y, and Z directions	
Electrical operation condition	Electrostatic discharge immunity	Complies with IEC61000-4-2 ±4kV Contact discharge, ±8kV Air discharge	
	Radiated electromagnetic field	Complies with IEC61000-4-3 10V/m (80 to 1,000MHz)	
	Noise resistance	Noise voltage 1,500 Vpp Noise pulse width 100 ns, 1 μs (noise simulator to power terminals) Based on NEMA ICS 3-304 Static noise: 3,000 V at metal exposed area Complies with EN50081-2 and EN50082-2	
Insulation resistance		20 MΩ or more between the AC external terminal and the protection earth (PE) terminal	
Withstand voltage		1,500 V AC for one minute between the AC external terminal and the protection earth (PE) terminal	
Grounding		Class D dedicated grounding	
Structure		Panel-mounted type, IP30	
Installation	Direction	Vertical	
	Mounting	Screws (M4) or DIN rail mounting	
Cooling		Natural air cooling	

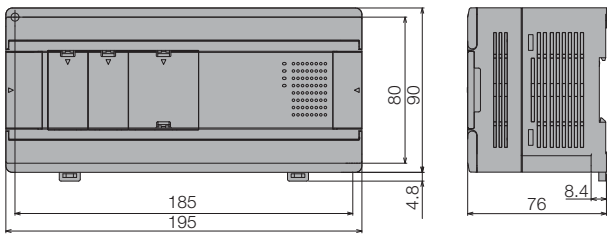
Dimensions

[Unit : mm]

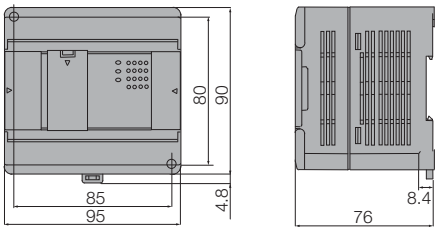
40-point type basic unit



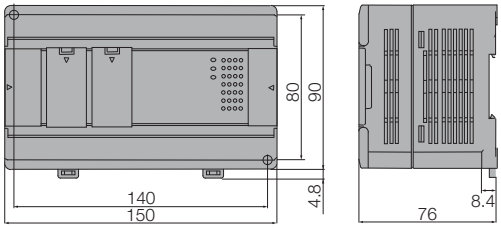
64-point type basic unit , 68-point expansion unit



8/14/16-point expansion unit, Analog Expansion unit
Thermocouple expansion unit , RTD expansion unit



28-point expansion unit



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Printed in Japan (H) **SI-E127** 1213