

Hitachi Automation Products



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ABOUT HITACHI EUROPE GMBH



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ABOUT HITACHI EUROPE LTD.

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Automation Products

- Programmable Logic / Automation Controller
 - Micro-EHV+
 - EHV+
 - HX
- Human Machine Interface
 - EH-TPS
 - EH-TP500
 - EH-TPJ
- Remote IO
 - EH-RIO2



Product Information

- Datasheets
- SharePoint & Website

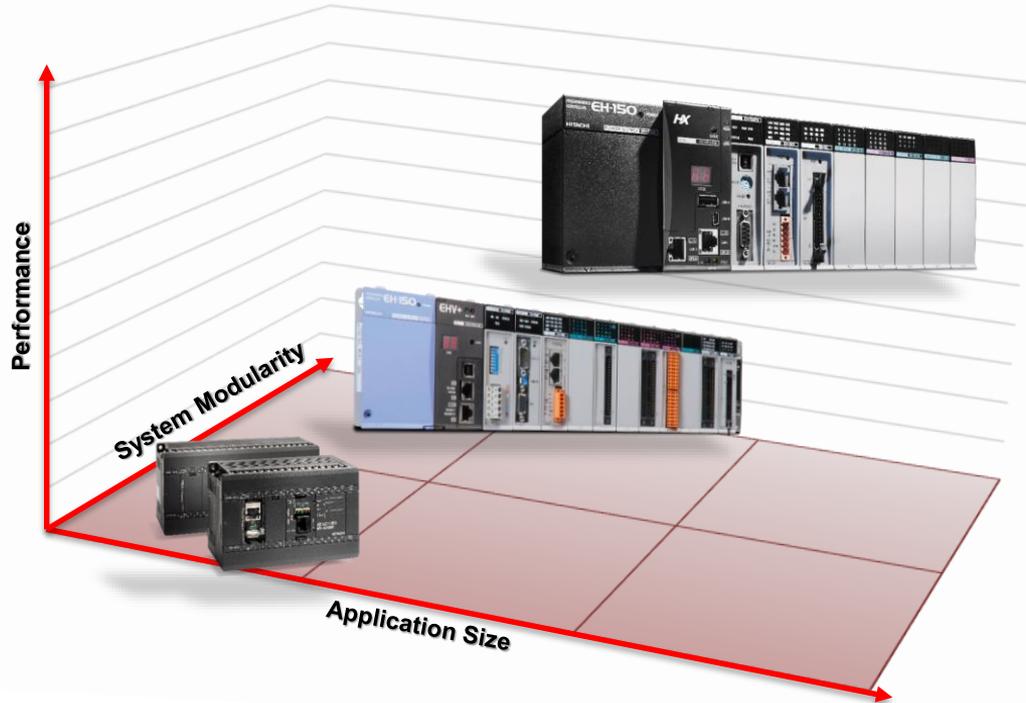


Programmable Logic Controller
Programmable Automation Controller

[PLC]
[PAC]

Programmable Logic / Automation Controller

Definition: A programmable logic controller (PLC) or programmable automation controller (PAC) is a small kind of industrial computer which enables the controlling and monitoring of industrial application by performing particular logical or complete automation tasks.



HX IoT Series

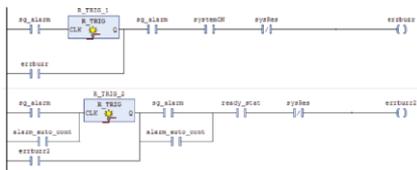
EHV+ Series

Micro-EHV+ Series

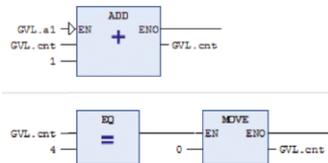


- ✓ CODESYS is the integrated development environment [IDE] from Company 3S⁽¹⁾
- ✓ CODESYS is the leading hardware-independent IEC 61131-3 automation software for engineering control systems.
- ✓ CODESYS can run on hardware from various manufactures (not a stand-alone solution like Siemens TIA Portal or Rockwell Automation Studio5000)
- ✓ Enables flexibility of integration of components from various vendors to get an full application with sensors, logics and actuators
- ✓ Enables flexibility of using independent programmers who are familiar with programming according to IEC 61131-3
- ✓ Enables flexibility of using “standard CODESYS” or “Hitachi Customized HX-CODESYS”⁽²⁾

Ladder Logic



Function Block Diagram



Structured Text

```

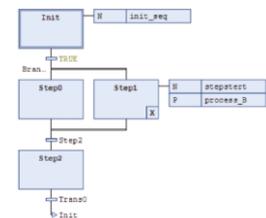
1 count_M3:=count_M3+1;
2 L2_wait_time (IN:=FALSE, PT:=T#3.6S);
3 L2_wait_time (IN:=TRUE);
4 FOR i:=0 TO count_I DO
5   K1_temp[i]:=B1_init; //Reset B1
6 END FOR
7 IF count_Nmax <24 THEN
8   WHILE vxcount<10 DO
9     T1max:=125; //Max.=125 digC
10  END WHILE
11 END_IF
12 B100status:=FALSE; //B100 complete
    
```

Instruction List

```

LD      sq_alarm
OR      TON_1.Q
ANDN   doorclose
AND    alw_d_open
)
AND    ready_start
OR     lampcheck
ST     spare5
CAL    R_TRIG_1(
      CLK:= sq_alarm)
LD     R_TRIG_1.Q
OR     erribuzr
AND    sq_alarm
    
```

Sequential Function Chart



(1) Smart Software Solutions

(2) HX-CODESYS includes device description files, dedicated libraries, pre-defined functionality



Programmable Logic Controller Micro-EHV+ Compact Series

Programmable Logic Controller – Micro-EHV+ Compact Series **HITACHI** Inspire the Next

Highlights

- ✓ Ideal for small and mid-size applications that requires a precise number of digital and analog I/O
- ✓ Simple Motion Control with PWM and pulse train outputs as well as Interrupt and High-Speed counter inputs
- ✓ Built-in communication Interfaces like Ethernet, USB and serial
- ✓ Offers wide range of fieldbus protocols like EtherCAT master and Modbus RTU master/slave
- ✓ Customized Web visualization and integrated Webserver enables remote maintenance, diagnosis and control
- ✓ USB Memory Storage allows data storing up to 32 GB and ease of use download/upload of the control program directly via USB
- ✓ Enables scalable solution due to available expansion modules



Programmable Logic Controller – Micro-EHV+ Compact Series **HITACHI** Inspire the Next

Memory capacity

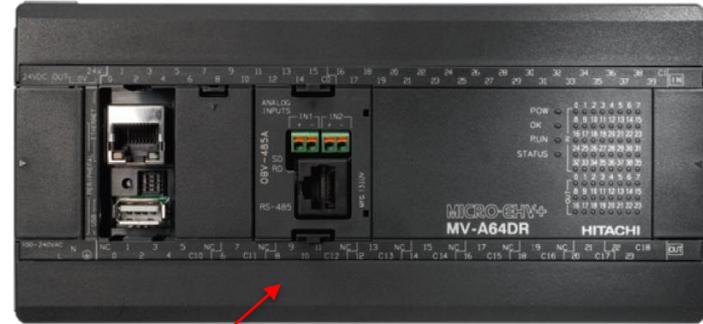
- ✓ User program (RAM) up to 1024kByte
- ✓ Boot project (FLASH) up to 1024kByte
- ✓ Source file (FLASH) up to 1024kByte
- ✓ Data memory 640kByte

Communication interfaces

- ✓ Ethernet (10BASE-T/100BASE-TX)
- ✓ USB interface (Ver. 2.0 Full speed 12Mbps)
- ✓ Serial interface (RS-232C/RS-422/RS-485)*

Communication protocols

- ✓ Modbus TCP Client/Server
- ✓ Modbus RTU Master / Slave
- ✓ EtherCAT Master



Plug-in option slot

OBV-NES:
OBV-485A:
OBV-485TAI:
OBV-485TAO:
OBV-AIO:
OVB-AIOG
OBV-AIG
OBV-RTD

RS-485, 1 port
RS-485, 1 port, Analog Input 2ch.
RS-485, 1 port, Analog Input 2ch.
RS-485, 1 port, Analog Output 2ch.
Analog Input 2ch, Analog Output 2ch.
12/14bit analog Input 2ch, 12bit analog Output 2ch.
12/14bit analog Input 4ch.
4ch (2-wire) or 2ch (3-wire) RTD input,
Pt100 (3-wire or 2-wire),



Programmable Logic Controller – Micro-EHV+ Compact Series **HITACHI** Inspire the Next

Communication ability

EtherCAT[®]



EtherCAT[®]
Technology Group



Modbus

CODESYS V3.5 (Ethernet)



Modbus
(RS-485)



Modbus
(RS-485)



Simple Motion Control...



- ✓ High-speed counter
- ✓ Pulse train output
- ✓ Interrupt input
- ✓ PWM output

Data logging...

- ✓ Program download/upload without programming software by using a USB Stick
- ✓ Long time PLC data logging on USB Stick (32GB/CSV, separated values)

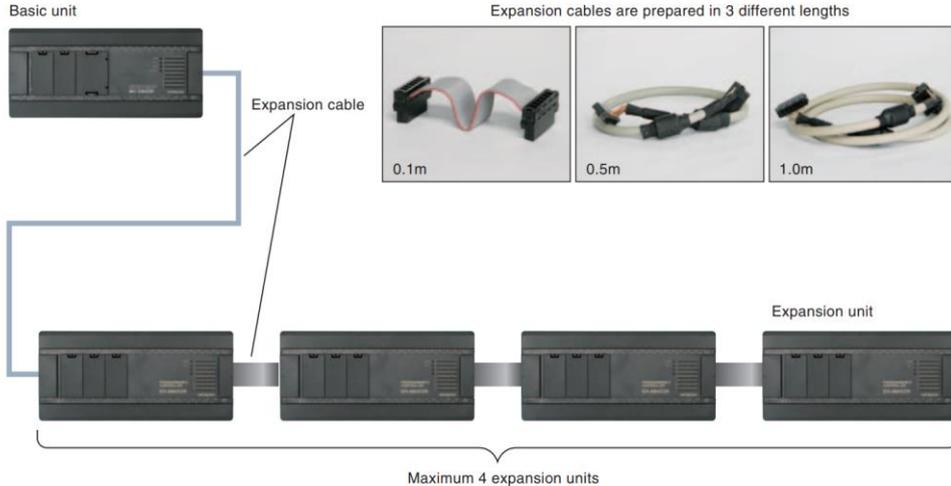


Web Visualization...

- ✓ Visualization via Internet /Intranet
- ✓ Remote Maintenance
- ✓ Diagnostics
- ✓ Remote Control

Programmable Logic Controller – Micro-EHV+ Compact Series **HITACHI** Inspire the Next

Expansion Units



Expansion units, DC power supply

EH-D8ED	8DC IN
EH-D8ETPS	8DC OUT Source, short circuit protected
EH-D8ER	8Relay OUT
EH-D8EDTPS	4DC IN, 4DC OUT Source, short circuit protected
EH-D8EDR	4DC IN, 4Relay OUT
EH-D14EDT	8DC IN, 6DC OUT Sink
EH-D14EDTPS	8DC IN, 6DC OUT Source, short circuit protected
EH-D14EDR	8DC IN, 6Relay OUT
EH-D16ED	16DC IN
EH-D16ETPS	16DC OUT Source, short circuit protected
EH-D16ER	16Relay OUT
EH-D28EDTPS	16DC IN, 12DC OUT Source, short circuit protected
EH-D28EDR	16DC IN, 12Relay OUT
EH-D64EDTPS	16DC IN, 12DC OUT Source, short circuit protected
EH-D64EDR	16DC IN, 12Relay OUT
EH-D6EAN	4 analog IN, 2 analog OUT
EH-D4ERTD	4 x PT100 analog IN
EH-D6ERTD	4 x PT100 analog IN, 2 analog OUT
EH-D4ETC	4 x Thermocouple analog IN
EH-D6ETC	4 x Thermocouple analog IN, 2 analog OUT

Expansion unit, AC power supply

EH-A14EDR	8DC IN, 6Relay OUT
EH-A28EDR	16DC IN, 12Relay OUT
EH-A64EDR	40DC IN, 24Relay OUT
EH-A6EAN	4 analog IN, 2 analog OUT
EH-A4ERTD	4 x PT100 analog IN
EH-A6ERTD	4 x PT100 analog IN, 2 analog OUT

Programmable Logic Controller – Micro-EHV+ Compact Series **HITACHI** Inspire the Next

Type	MV-*								
	A20DR	D20DR	D20DTPS	A40DR	D40DR	D40DTPS	A64DR	D64DR	D64DTPS
Power Supply	100/240 VAC	24 VDC	24 VDC	100/240 VAC	24 VDC	24 VDC	100/240 VAC	24 VDC	24 VDC
Number of Inputs DI	12			24			40		
Input spec.	DC Input 24 VDC								
Number of Outputs DO	8			16			24		
Output spec.	Relay	Relay	Transistor	Relay	Relay	Transistor	Relay	Relay	Transistor
No. of expansion units	4								
No. of I / O (using 64 pts exp. units)	276 (input 172 / output 104)			296 (input 184 / output 112)			320 (input 200 /output 120)		
Boolean executive speed	0.54 µs / instruction								

Programmable Logic Controller – Micro-EHV+ Compact Series **HITACHI** Inspire the Next

Type	MV-*								
	A20DR	D20DR	D20DTPS	A40DR	D40DR	D40DTPS	A64DR	D64DR	D64DTPS
User program memory	1 MB								
Source file memory	1 MB								
Data memory (non-retain)	640 kB								
Data memory (retain)	256 kB								
I / O updating cycle	Refresh processing (depends on each task cycle)								
USB Device	Programming (built-in USB 2.0, full speed)								
USB Host	USB stick (up to 32 GB) can be used for project copies and data logging								
Ethernet	UDP/ IP, TCP/ IP for Programming, general purpose, Modbus / TCP Client and Server, EtherCAT master								
Serial	RS-232C (built-in), RS-485 (option) for general purpose, Modbus / RTU master and slave								
RTC	Built-in								
Battery	Optional (MV-BAT: 3.0 V / 1.750 mAh)								

Questions





Programmable Logic Controller EHV+ Modular Series

Highlights

- ✓ Open standards PLC controller fully compliant with IEC61131-3, PLCopen and OPC DA
- ✓ Programming flexibility due to built-in Ethernet, USB and serial interface
- ✓ Offers wide range of fieldbus protocols like EtherCAT master and Profibus-DP master functionality
- ✓ Easy & efficient programming by using Hitachi & user specific library's led to reduced programming time
- ✓ Expansion modules allows a flexible structure by adding local and remote I/O
- ✓ Integrated display that allows for enhanced diagnostics and troubleshooting
- ✓ Enables fast and convenient debugging / testing during commissioning



Memory capacity

- ✓ User program (RAM) up to 2048kByte
- ✓ Boot project (FLASH) up to 2048kByte
- ✓ Source file (FLASH) up to 5MByte
- ✓ Data memory 512kByte

Communication Interfaces

- ✓ Ethernet (10BASE-T/100BASE-TX)
- ✓ USB interface (Ver. 2.0 Full speed 12Mbps)
- ✓ Serial interface (RS-232C/RS-422/RS-485)

Communication protocols

- ✓ Modbus TCP Client/Server
- ✓ Modbus RTU Master
- ✓ EtherCAT Master

EHV+ CPU Module

The EHV+ series consists of 2 powerful CPUs. The models differ through memory capacities (512, 2048 kByte) whilst maintaining a consistently high performance. The EHV+ CPU is compatible with a variety of open networks through use of the onboard Ethernet interface.

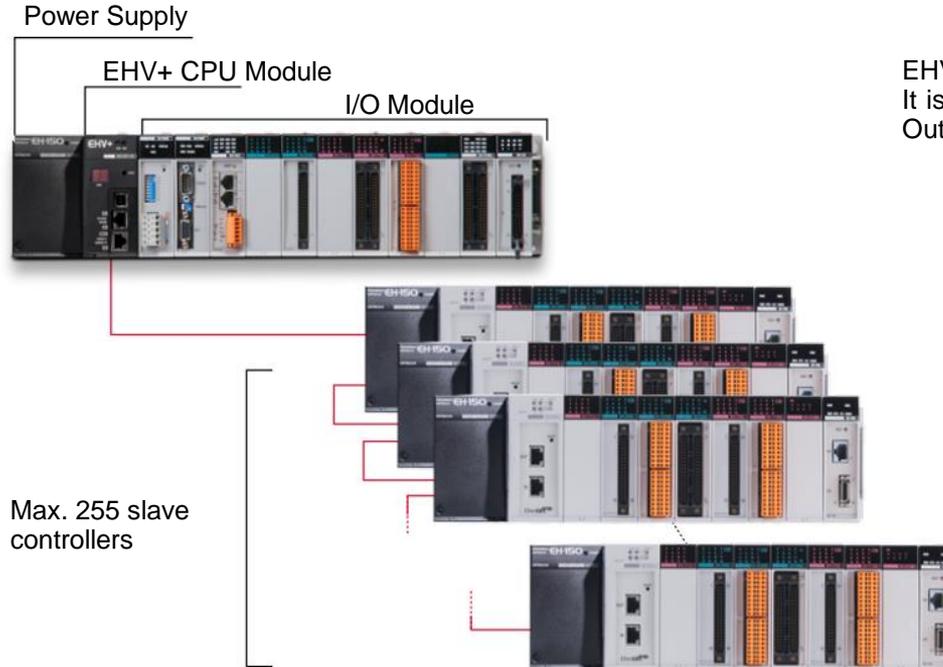


EHV-CPU1025

EHV-CPU1102



IO expandable by using expansion bases



EHV+ CPU module is supporting the EtherCAT master function. It is possible to control up to 11472 bytes I/O (Input 5736bytes, Output 5736bytes).

- ✓ IO expansion within **same cabinet** utilizing expansion cable and slave controller unit
- ✓ IO expansion within **distributed cabinet** utilizing ethernet cable and EtherCAT slave controller unit

Programmable Logic Controller – EHV+ Modular Series

Type	EHV-CPU1025	EHV-CPU1102	
Processing speed	80 ns / instruction	80 ns / instruction	
Memory	User program (RAM)	512 kByte	2048 kByte
	Boot project (FLASH)	512 kByte	2048 kByte
	Source file (FLASH)	5 MByte	5 MByte
	Data memory	384 kByte	384 kByte
	Retain data memory	128 kByte	128 kByte
Fieldbus memory	16kByte (2kByte × 8 units)		
Processing method	Refresh		
Programming languages	LD, IL, FBD, ST, SFC, CFC (Continous Function Chart)		
Communication port	CODESYS V3 protocol		
USB	2.0, Full speed	Programming	
Ethernet	UDP/IP, TCP/IP	Programming/ General purpose / Modbus TCP Client / Modbus TCP server / EtherCAT Master	
Serial	RS232C/422/485	General purpose / Modbus RTU Master	
User Interface	Display	RUN LED, ERR LED, 7-segment LED	
	Run switch	Remote RUN/STOP (RUN position)	
	E.CLR switch	Clear error indication in 7-segment LED	
RTC	Supported (access by RTC FB)		
Battery	Built-in (LIBAT-H)		



Programmable Automation Controller HX Modular IoT Series



General Information & Product Line Up

**Programmable Automation Controller
HX Modular IoT Series**

Programmable Automation Controller – HX Modular IoT Series

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Highlights

- ✓ Open standards IoT PAC controller fully compliant with IEC61131-3, PLCopen and OPC UA
- ✓ Up to 3 build-in, independent Ethernet ports enable high-speed communications, I/O, and motion control based on PLCopen
- ✓ Offers wide range of fieldbus protocols like EtherCAT master and PROFINET master functionality
- ✓ Offers edge computing solution with embedded C/C++ development environment within HX Hybrid
- ✓ Integrated SD card slot for large capacity data logging up to 32GB
- ✓ High performance processing speed up to 1.0 ns per binary operation
- ✓ Customized Web visualization and integrated Webserver enables remote maintenance, diagnosis and control
- ✓ Expansion modules allows a flexible structure by adding local and remote I/O



Programmable Automation Controller – HX Modular IoT Series **HITACHI** Inspire the Next

Communication Control

Discreet Control



Motion Control

Sequence Control

Open Technologies

OPC UA



CODESYS
EtherCAT

Industrie4.0
Protocol
PLC
Programming
Software
Field level
Network

High performance

3 ports
Ethernet



USB
(High
speed)



SD card
32GB



Simple Configuration

Software PLC function

IEC61131-3, PLC open, Soft Motion

Field bus capability



Programmable Automation Controller – HX Modular IoT Series **HITACHI** Inspire the Next



Technical Information

Type	Hardware Specifications					Functional features			
Standard Model HX-CP1S08	Program data memory 8 MB	Ethernet port 2	USB Host, device			EtherCAT master			
Full Function Model HX-CP1H16	Program data memory 16 MB	Ethernet port 3	USB Host, device	SD card	Serial comm. RS-485	EtherCAT master	Web Visualization		
Motion Model HX-CP1S08M	Program data memory 8 MB	Ethernet port 2	USB Host, device			EtherCAT master		Soft Motion	
CNC Motion Model HX-CP1H16M	Program data memory 16 MB	Ethernet port 3	USB Host, device	SD card	Serial comm. RS-485	EtherCAT master	Web Visualization	Soft Motion	CNC g codes
Hybrid Model HX-CP1H16	Program data memory 16 MB	Ethernet port 3	USB Host, device	SD card	Serial comm. RS-485	EtherCAT master	Web Visualization		C/C ++ program
Redundant Model HX-CP1H16R	Program data memory 16 MB	Ethernet port 3	USB Host, device	SD card	Serial comm. RS-485	EtherCAT master	CPU Redundancy	UNDER DEVELOPMENT	

EtherCAT

OPC UA

PROFI
BUS

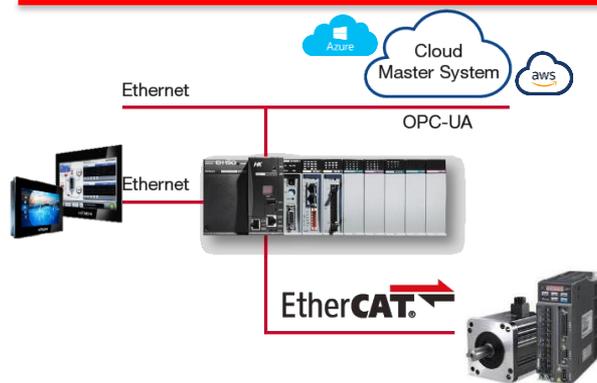
PROFI
NET

Modbus DeviceNet

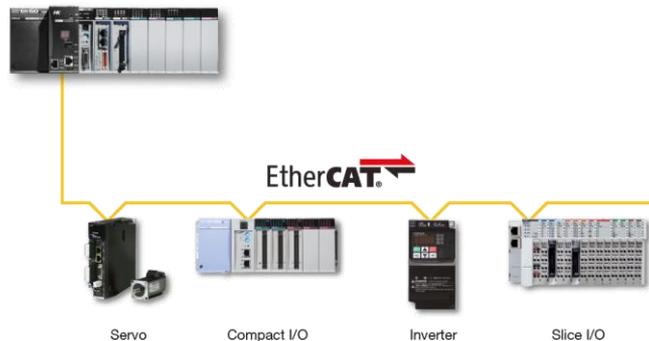
PLCopen
motion control

Programmable Automation Controller – HX Modular IoT Series **HITACHI** Inspire the Next

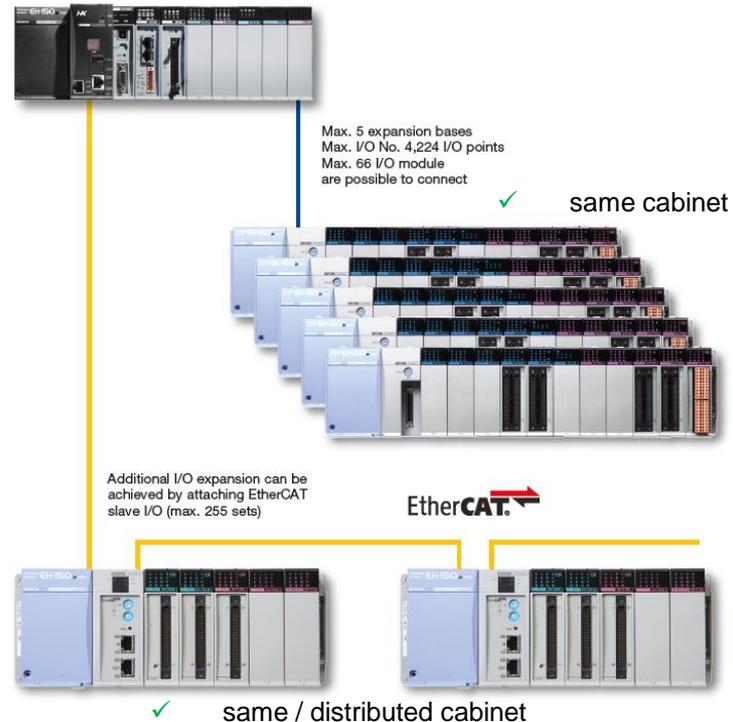
2/3 way communication



EtherCAT Master



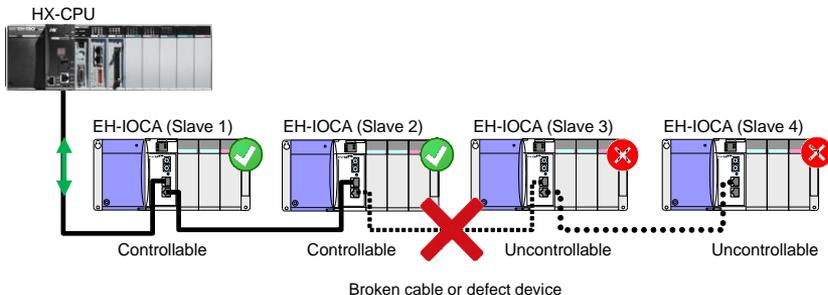
IO expandable by using expansion bases



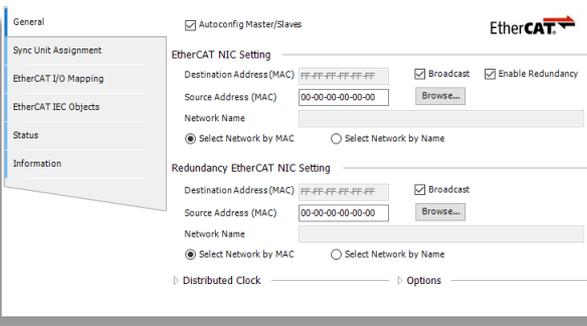
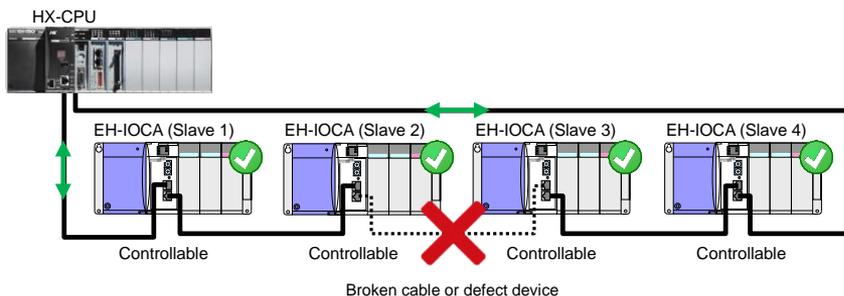
EtherCAT® Redundancy

- ✓ Increased reliability and availability of your EtherCAT application
- ✓ Usage of ring topology instead of line topology
- ✓ Communication stack will be monitored
- ✓ Two ethernet ports configured with EtherCAT protocol monitoring and controlling each other
- ✓ Connected slave devices have to support EtherCAT redundancy technology
- ✓ Easy to set up within CODESYS programming environment

Standard EtherCAT communication line topology



Redundancy EtherCAT communication ring topology





Long term data logging (SD Card)

Removable SD Card provides a secure and simple way to maintain large data volumes for data logging up to 32 GB



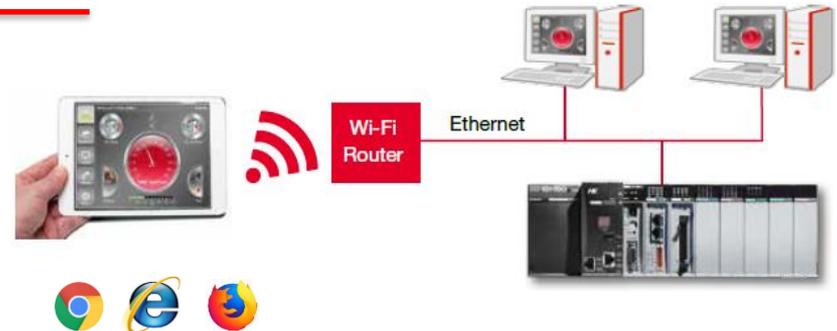
Hitachi customized function blocks supports the ease of use of data storage.



Web visualization (Monitoring via Web Browser)

Easy remote access to the controller's web server to monitor the application status without preparing a customized HMI. Potential cost reduction for hardware and on site resources through off site monitoring.

- ✓ Web server function prepared as standard
- ✓ No requirement of customized HMI
- ✓ Availability of monitoring via standard web browser
- ✓ Remote maintenance, diagnosis and control can be also achieved





HXC-CP1H16 - IoT Hybrid Controller

**Programmable Automation Controller
HX Modular IoT Series**

HX Series Hybrid PAC

HX Controller Hybrid Model adapts to Industrial IoT

- ✓ Executing both Control and Information Program
- ✓ Control and Information can share Control data
- ✓ Information Program On-line change is possible

Industrial IoT Ready Controller realizes ...

- ✓ Connecting to IoT platform
- ✓ Data forming for valuable usage
- ✓ Edge computing at the field side

- **High productivity**
- **Real-time monitoring**
- **Predictive diagnostic**

results in
results in
results in

cost reduction
enhanced quality control
reduced downtime



Programmable Automation Controller – HX Modular IoT Series **HITACHI** Inspire the Next

HX Series Hybrid PAC

✓ Hitachi HX Hybrid IoT Controller breaks down boundaries between the physical and the cyber world

Cyber Layer
Information Technology [IT]

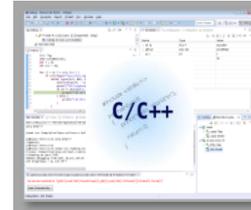
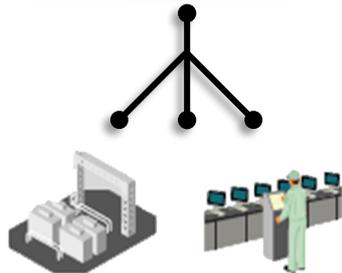


CONNECTIVITY



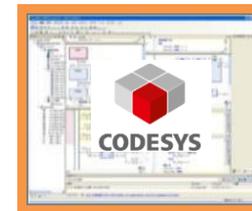
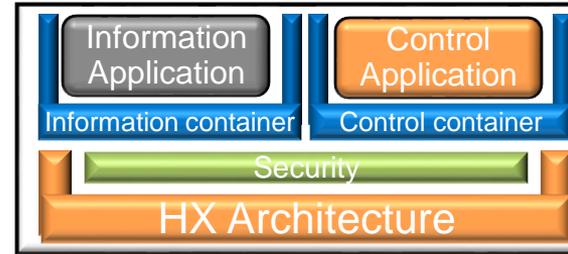
RESPONSIBILITY

Physical Layer
Operational Technology [OT]



HX Studio for C/C++

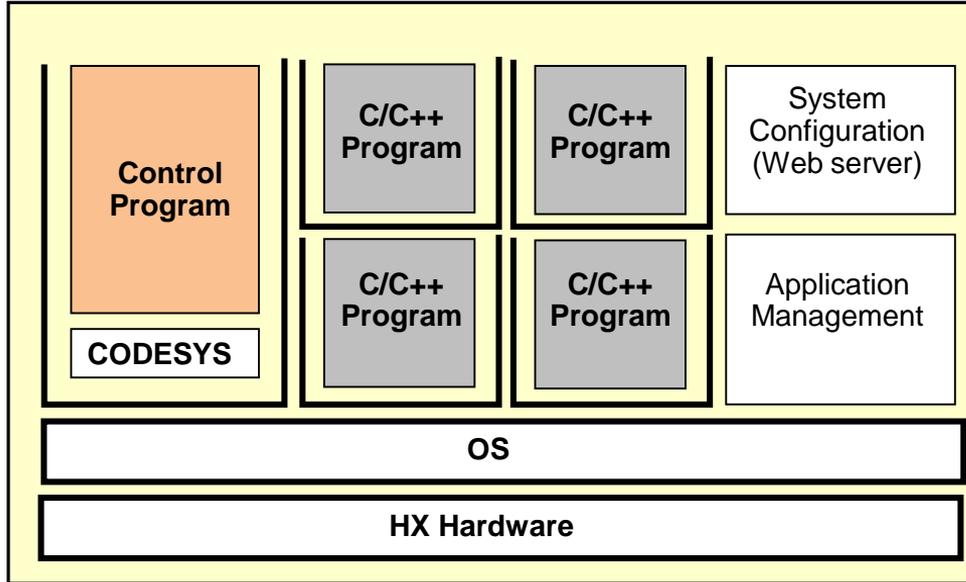
Editing, Compile, Monitoring and Debugging



HX CODESYS for IEC61131-3

Editing, Compile, Monitoring and Debugging

HX Series Hybrid PAC



- ✓ Maximum 32MB program area is available for information processing program files. Up to 4 C language programs can be installed, each program is executed independently and asynchronously in parallel.
- ✓ Hybrid Model CPU can operate implemented C/C++ Program parallel with Control Program without impact and keep controller operation stable in the control system.
- ✓ C/C++ Program can also access control data via shared data memory with real-time.
- ✓ Adjust the C/C++ Program during Control Program operation
- ✓ It is even possible to use just the control program or just the C/C++ program

Programmable Automation Controller – HX Modular IoT Series **HITACHI** Inspire the Next

HX Series Hybrid PAC – Use Case



- ✓ HX Hybrid monitor and adjust the speed of the production line by controlling the WJ inverters via the control program
- ✓ Gathering inspection data from a vision system (controlling print quality of an inkjet printer) using the IT program capability
- ✓ The HX Hybrid processes the inspection data and send them to a cloud solution by using a wireless modem (WLAN, 3G)
- ✓ Inspection data are visualized on a user friendly dashboard.

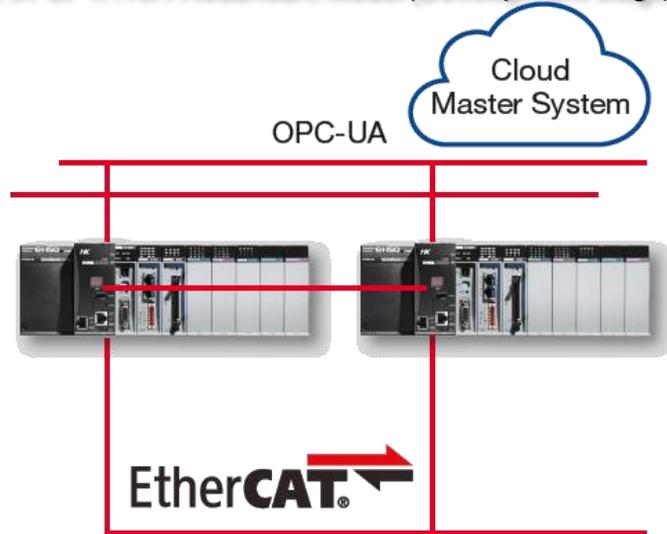


HX Series CPU & Power Redundant System

**Programmable Automation Controller
HX Modular IoT Series**

Hitachi's contribution to high availability application demands

HX-CP1H16R Redundant Model (Development Stage)



- ✓ CPU redundancy by direct Ethernet based connection between 2 redundant CPU's
- ✓ Applications which requires high availability can be realized
- ✓ Local and remote I/O can be used and will be controlled by the active CPU
- ✓ Continuous checking of active and stand-by CPU
- ✓ Additional 2 LAN ports are available for general purpose such as EtherCAT or communication to OPC clients



The CPU redundancy does not comply with functional safety requirements.
No safety level according to the functional safety standards ISO13849 and IEC61508 can be achieved with this module.

Programmable Automation Controller – HX Modular IoT Series **HITACHI** Inspire the Next

Hitachi's contribution to high availability application demands

EH-BS8R & EH-PSR – Redundant Power Supply



- ✓ Increased reliability due to redundant power supply
- ✓ Wide input voltage range 85 to 264 V AC
- ✓ Instantaneous power failure guarantee
 - ✓ > 5 ms (85 to 100 V AC)
 - ✓ > 20 ms (100 to 264 V AC)
- ✓ Relay Error output
- ✓ Operating status can be monitored as input data

Product series	Model type	Specifications
Redundant power supply module	EH-PSR	5 V DC, 5.6A Output. Error output and operation monitor function
Redundant base unit	EH-BS8R	Base Rack for two redundant power supply modules



HX Standalone Unit - Edge Computing Solution

**Programmable Automation Controller
HX Modular IoT Series**

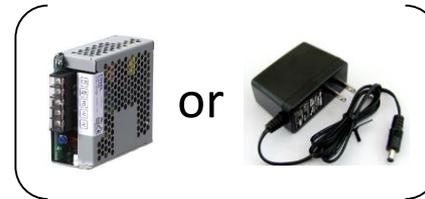
Programmable Automation Controller – HX Modular IoT Series **HITACHI** Inspire the Next

HX Standalone Unit

- ✓ Enables the opportunity to use the HX CPU Unit without the needs of an separate base rack and power supply
- ✓ Ideal for IoT applications and solutions, with no demands on directly connected I/O modularity, such as....
 - ✓ IoT gateway capability
 - ✓ High power and reliable edge computing solution
 - ✓ Communication master on the field level network
 - ✓ Web server application
 - ✓ Motion Controller using EtherCat Master
- ✓ Easy integration with less demand on cabinet space
- ✓ Use of 24VDC or 12VDC power supply



Base Rack + Power Supply + HX CPU + 3x Dummy Modules



or



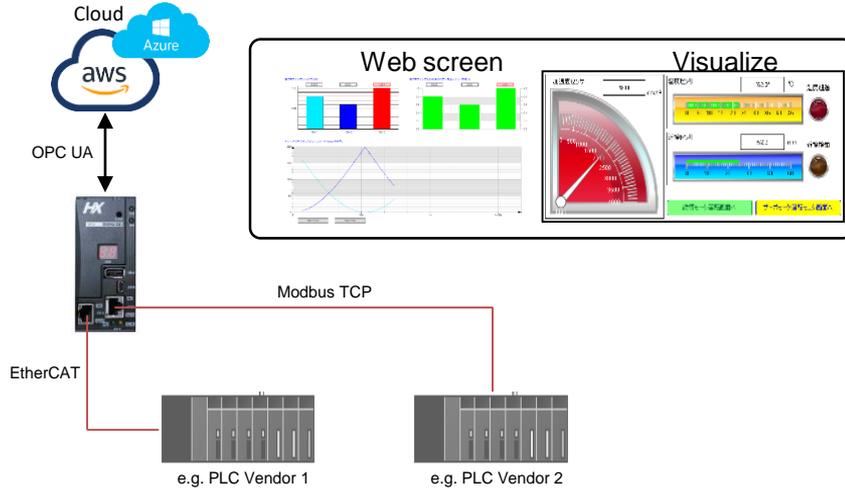
Power supply unit or AC adapter + HX Standalone Unit

Programmable Automation Controller – HX Modular IoT Series **HITACHI** Inspire the Next

HX Standalone Unit

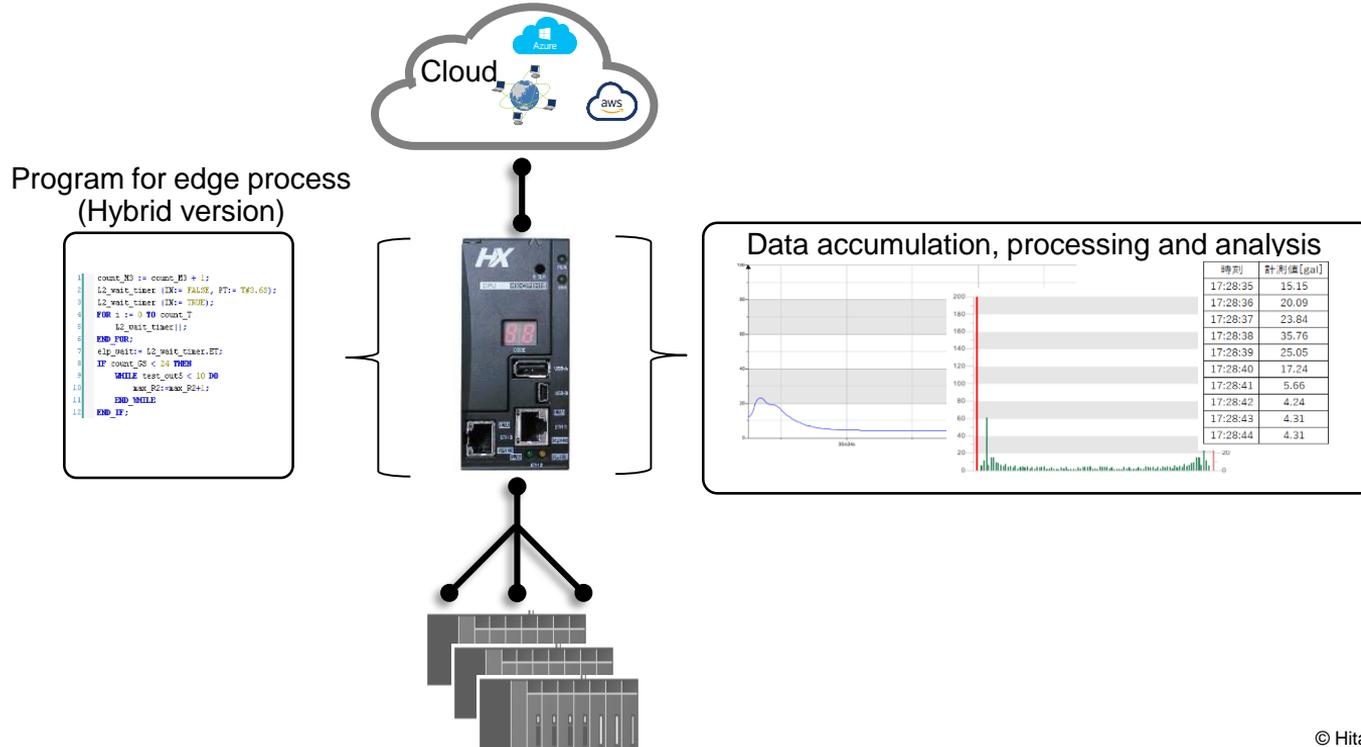
✓ IoT gateway capability

Collect data from existing facilities using various open networks and each communication protocol in PLC. The collected data can be stored as digital data, making it possible to visualize and having on site maintenance. It's also possible to upload collected data on the cloud via HX CPU.



HX Standalone Unit

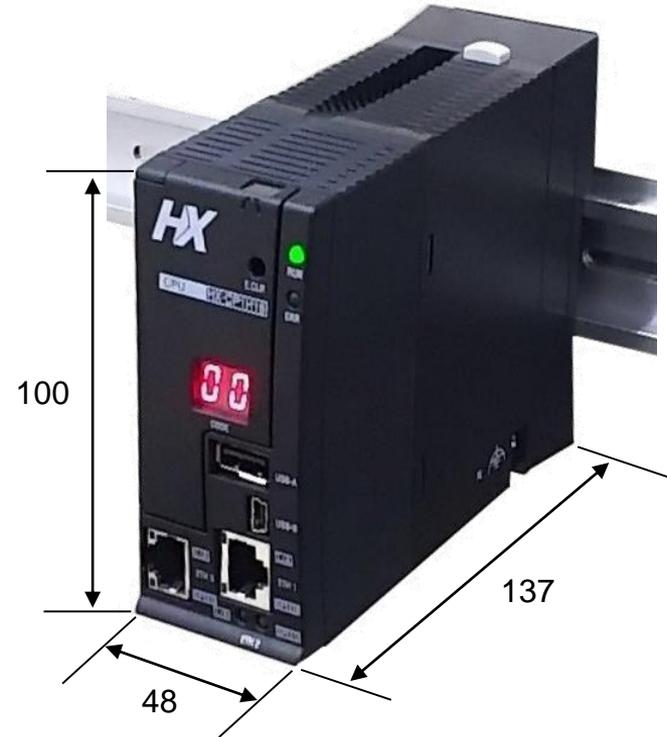
- ✓ High power and reliable edge computing solution



Programmable Automation Controller – HX Modular IoT Series **HITACHI** Inspire the Next

HX Standalone Unit

Type / Model	Product code	Model name
Standard	1969-0721	HX-CP1S08-0
Full function	1969-0722	HX-CP1H16-0
Motion	1969-0725	HX-CP1S08M-0
CNC	1969-0723	HX-CP1H16-0
Hybrid	1969-0728	HXC-CP1H16-0



Unit : mm

Programmable Automation Controller – HX Modular IoT Series **HITACHI** Inspire the Next

HX Standalone Unit



Items	Specifications
Input voltage range	24 V DC \pm 10% / 12 V DC \pm 10% *1
Input current	400mA max. (24 V DC) 700mA max (12 V DC)
Output overcurrent protection	Output short circuit protection 5VDC voltage drop
Input connector (24 V DC)	BLF 5.08HC / 03 / 180F SN BK BX
Input connector (12 V DC)	ϕ 5.5 x 2.1 Center plus
Mounting	DIN rail





HX Series Specification

**Programmable Automation Controller
HX Modular IoT Series**

Programmable Automation Controller – HX Modular IoT Series **HITACHI** Inspire the Next

Items	Standard	Motion	Full function	CNC motion	Hybrid
	HX-CP1S08	HX-CP1S08M	HX-CP1H16	HX-CP1H16M	HXC-CP1H16
CPU	32bit RISC processor				
Processing method	Stored program cyclic processing				
Control user program memory	8MB		16MB		
Control source file memory	8MB		16MB		
Control data memory	8MB		16MB		
Control data memory(Retain memory)	250KB				1MB
Control data memory(Retain Persistent)	250KB				1MB
Field bus memory	48KB(6KB/slot × 8)				
Expansion units number	5				
Expansion cable length	0.5m, 1m, 2m				
Maximum distance for expansion	Between bases max.2m, Total length max.8m				
Basic unit module number	Max.11units (without Power supply and CPU module)				
I/O number (64pts module used)	4,224 pts				

Programmable Automation Controller – HX Modular IoT Series **HITACHI** Inspire the Next

Items		Standard	Motion	Full function	CNC motion	Hybrid
		HX-CP1S08	HX-CP1S08M	HX-CP1H16	HX-CP1H16M	HXC-CP1H16
Control program language		IEC61131-3 standard 5 languages + CFC				
		LD : Ladder logic diagram				
		FBD : Function block diagram				
		SFC : Sequential function chart				
		IL : Instruction list				
		ST : Structured text				
		CFC : Continuous function chart				
C language program	Embedded C/C++ program	NA			X	
	Data sharing	NA			X	
	Web management tool	NA			X	
Input Output processing method		Refresh processing				
Command processing time	Bit operation	1.0ns and more				
	Double precision real operation	6.6ns and more				

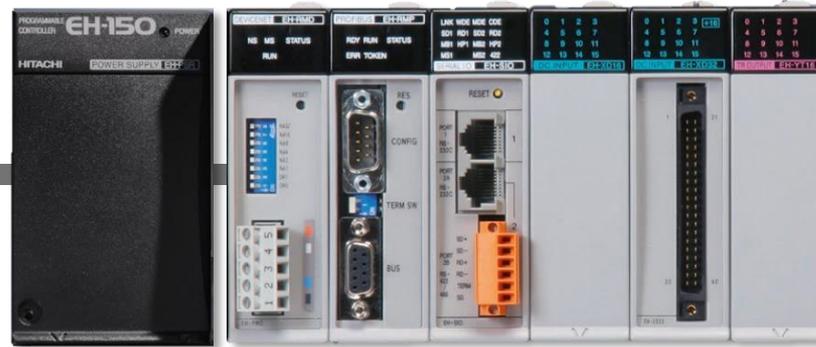
Programmable Automation Controller – HX Modular IoT Series **HITACHI** Inspire the Next

Items		Standard	Motion	Full function	CNC motion	Hybrid
		HX-CP1S08	HX-CP1S08M	HX-CP1H16	HX-CP1H16M	HXC-CP1H16
Libraries	PLC Standard libraries	X	X	X	X	X
	SM3_Basic (motion)	—	X	—	X	—
	SM3_CNC (motion)	—	—	—	X	—
Communications	EtherCAT master	X	X	X	X	X
	Modbus-TCP client	X	X	X	X	X
	Modbus-TCP server	X	X	X	X	X
	Modbus-RTU master	X*	X*	X	X	X
	Modbus-RTU slave	X*	X*	X	X	X
	OPC UA(server)	X	X	X	X	X
	WebVisualization	—	—	X	X	X
	NTP (getting data and time)	X	X	X	X	X
FTP sever	X	X	X	X	X	

Programmable Automation Controller – HX Modular IoT Series **HITACHI** Inspire the Next

Items		Standard	Motion	Full function	CNC motion	Hybrid
		HX-CP1S08	HX-CP1S08M	HX-CP1H16	HX-CP1H16M	HXC-CP1H16
Libraries	PLC Standard libraries	X	X	X	X	X
Communication Interface	Ethernet	2 ports (10/100BASE-T/TX)		3 ports (10/100BASE-T/TX)		
	Original hardening ※	X	X	X	X	X
	Certification and coding ※	—	—	—	—	X (LAN3)
	Serial	—*	—*	1 port (RS-485)		
	USB Device	1 port (Mini-B type connector, USB 2.0 High speed) : for programming PC connecting				
USB host	1 port (Type A connector, USB 2.0 High speed) : for USB memory connecting					
SD card slot	—		1 slot (SD / SDHC)			
Indication	RUN LED, ERR LED, ' segment LED (2 digits)					
RUN / STOP switch	STOP / RUN (RUN / STOP operation remotely is possible at STOP position of RUN /STOP switch)					
Error clear switch	7 segment LED error indication clear					
2 bits piano switch	Default setting at factory shipment					
Calendar and time	Built-in RTC, +/- 60 sec/month under 25degree					
Battery model name	HX-BAT (for RTC)					
Starting processing time	~ 20 to 30 sec					
Self diagnostic	Self diagnostic (Micro processor error, watch dog timer error, memory error, battery error etc)					

* Optional with EH-SIO module



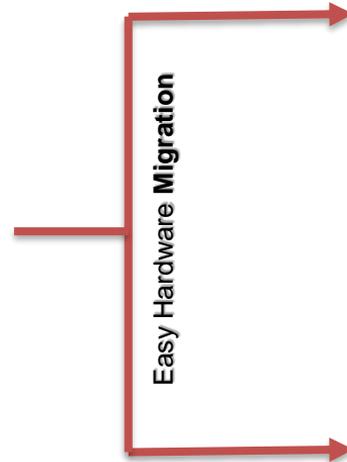
Programmable Controller Modular IO Device

Programmable Controller – Modular IO Device

- ✓ I/O Modules can be utilized for both HX and EHV+ CPU
- ✓ Easy replacement of outdated Hitachi CPU by interchanging only the CPU module. I/O hardware rack can continue to be used



EH-150 or EHV Series



Easy Hardware Upgrade



Programmable Controller – Modular IO Device

Power supplies

HX-PSA	Input AC 100 - 240 V, Output DC 5V, 3.8A, external DC 24V, 0.4 A
HX-PSD	Input DC 24V, Output DC 5V, 4A, 24V - 0.2 A
EH-PSR	Input AC 100 - 240 V, Output DC 5V, 5.6A, redundant power supply, error output and operation monitor function

Base racks

EH-BS3A	Slot number for I/O module is 3, expansion possible
EH-BS5A	Slot number for I/O module is 5, expansion possible
EH-BS6A	Slot number for I/O module is 6, expansion possible
EH-BS8A	Slot number for I/O module is 8, expansion possible
EH-BS11A	Slot number for I/O module is 11, expansion possible
EH-BS8R	Slot number for I/O module is 8, expansion possible, suitable for redundant power supply module

DC Input modules

EH-XD8	8 points, DC 24 V Input, Source/Sink, Photocoupler isolation, LED display, Removal terminal block
EH-XD16	16 points, DC 24 V Input, Source/Sink, Photocoupler isolation, LED display, Removal terminal block
EH-XD32	32 points, DC 24 V Input, Source/Sink, Photocoupler isolation, LED display, Connector type
EH-XD32E	32 points, DC 24 V Input, Source/Sink, Photocoupler isolation, LED display, European connector type
EH-XD64	64 points, DC 24 V Input, Source/Sink, Photocoupler isolation, LED display, Connector (2x) type

AC Input modules

EH-XA16	16 points, AC 85 - 132V Input, Photocoupler isolation, LED display, Removal terminal block
EH-XAH16	16 points, AC 170 - 264V Input, Photocoupler isolation, LED display, Removal terminal block

AC Output modules

EH-YS16	16 points, AC 100 - 240V, 0,3A, SSR, Photocoupler isolation, LED display, Removal terminal block
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DC Output modules

EH-YT8	8 points, DC 12/24V, Transistor Output, LED display, Removal terminal block, Sink type, 0.5A
EH-YT16	16 points, DC 12/24V, Transistor Output, LED display, Removal terminal block, Sink type, 0.5A
EH-YT32	32 points, DC 12/24V, Transistor Output, LED display, Connector type, Sink type, 0.2A
EH-YT32E	32 points, DC 12/24V, Transistor Output, LED display, European Connector type, Sink type, 0.2A
EH-YT64	64 points, DC 12/24V, Transistor Output, LED display, Connector (2x) type, Sink type, 0.1A
EH-YTP8	8 points, DC 12/24V, Transistor Output, LED display, Removal terminal block, Source type, 0.5A
EH-YTP16	16 points, DC 12/24V, Transistor Output, LED display, Removal terminal block, Source type, 0.5A
EH-YTP16S	16 points, DC 12/24V, Transistor Output, LED display, Removal terminal block, Source type, 0.8A, Short circuit protection
EH-YTP32	32 points, DC 12/24V, Transistor Output, LED display, Connector type, Source type, 0.2A
EH-YTP32E	32 points, DC 12/24V, Transistor Output, LED display, European Connector type, Source type, 0.2A
EH-YTP64	64 points, DC 12/24V, Transistor Output, LED display, Connector (2x) type, Source type, 0.1A

Relay Output module

EH-YR12	12 points, AC 100 - 240 / DC 24V, Relay Output 2A, Photocoupler isolation, LED display, Removal terminal block
EH-YR16	16 points, AC 100 - 240 / DC 24V, Relay Output 2A, Photocoupler isolation, LED display, Removal terminal block
EH-YR8B	8 points, AC 100 - 240 / DC 24V, Relay Output 2A, Photocoupler isolation, LED display, Removal terminal block, potential free contacts

Analog Input modules

EH-AX44	Analog Input, 12 bits resolution 4ch current (4 - 20 mA) + 4ch voltage (0 - 10 V)
EH-AX8V	Analog Input, 12 bits resolution 8ch voltage (0 - 10 V)
EH-AX8H	Analog Input, 12 bits resolution 8ch voltage (- 10 to + 10 V)
EH-AX8I	Analog Input, 12 bits resolution 8ch current (4 - 20 mA)
EH-AX8IO	Analog Input, 12 bits resolution 8ch current (0 - 22 mA)
EH-AXH8M	Analog Input, 14 bits resolution, 8ch [voltage (0 - 10V, -10V to + 10V) or current (0 - 22 mA, 4 - 22mA)]
EH-AXG5M	Analog Input, 16 bits resolution, 5ch [voltage (0 - 10V, -10V to + 10V) or current (0 - 22 mA, 4 - 22mA)], galvanic isolation
EH-PT4	PT100/1000 Input, 4ch
EH-RTD8	PT100/1000 Input 2/3 wire, 8/6ch
EH-TC8	Thermocouple Input module, 8 channels

Analog Output modules

EH-AY22	Analog Output, 12 bits resolution 2ch current (4 - 20 mA) + 2ch voltage (0 - 10 V)
EH-AY2H	Analog Output, 12 bits resolution 2ch voltage (- 10 to + 10 V)
EH-AY4V	Analog Output, 12 bits resolution 4ch voltage (0 - 10 V)
EH-AY4H	Analog Output, 12 bits resolution 4ch voltage (- 10 to + 10 V)
EH-AY4I	Analog Output, 12 bits resolution 4ch current (4 to 20 mA)
EH-AYH8M	Analog Output, 14 bits resolution, 8ch [voltage (0 - 10V), or current (0 - 22 mA, 4 - 22mA)]
EH-AYG4M	Analog Output, 16 bits resolution, 4ch [voltage (0 - 10V), or current (0 - 22 mA, 4 - 22mA)], galvanic isolation

High function modules

EH-CU	Counter Input module, max. 100 kHz, 32 bits, 2ch, 1slot width
EH-CUE	Counter Input module, max. 100 kHz, 32 bits, 1ch, 1 slot width
EH-POS	1 axis positioning module, Maximum frequency 400k pulse, 1 slot width
EH-POS4	4 axis positioning module, Maximum frequency 400k pulse, 1 slot width

Communication modules

EH-SIO	Serial communication module (RS-232C/RS-422/485,Hi-Protocol, MODBUS protocol)
EH-RMP2	Profibus-DP, Master module
EH-RMD2	DeviceNet scanner module
EH-LNK	CPU link module, coaxial cable



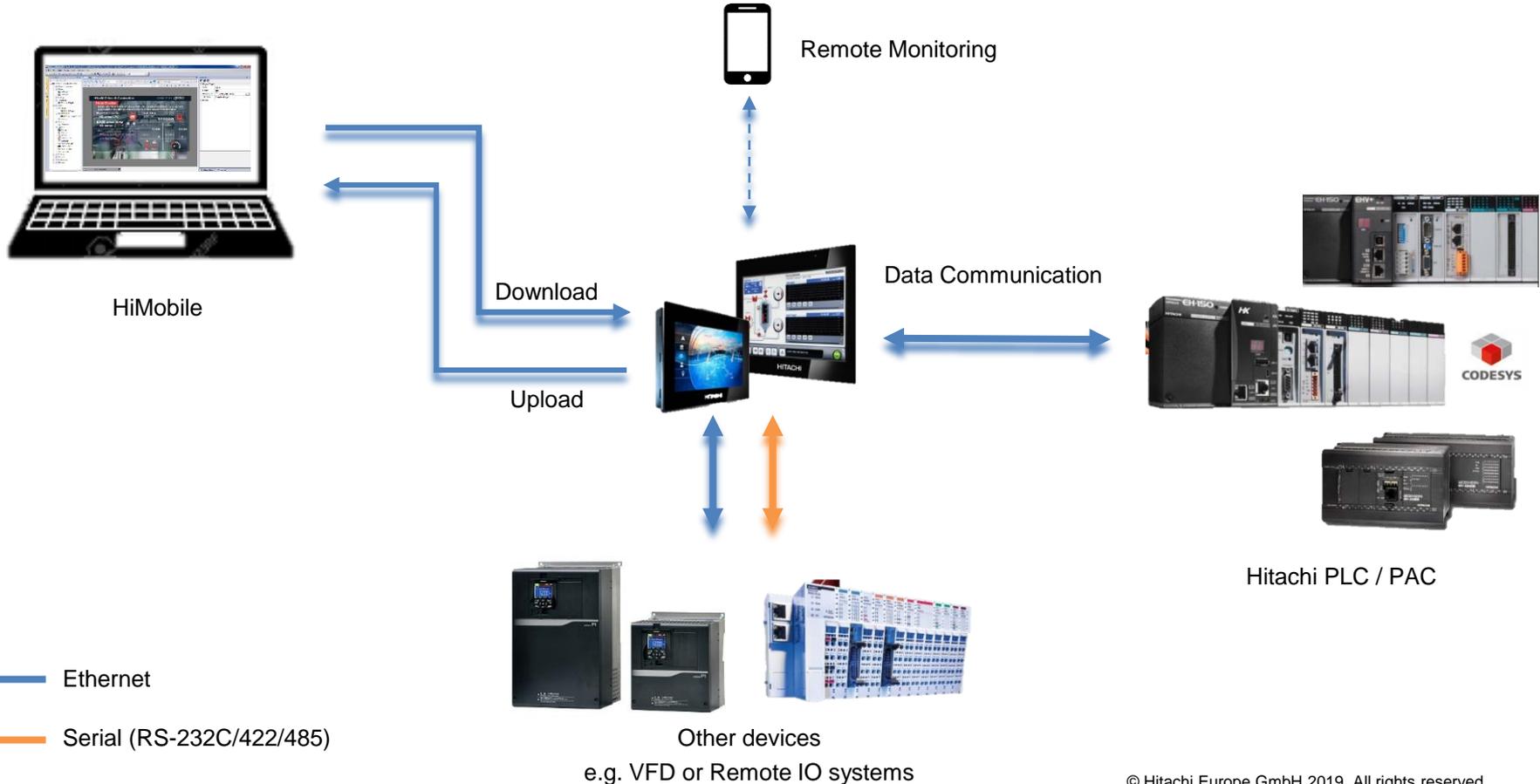
Human Machine Interface



Definition: A human-machine interface (HMI) is the user interface that connects an operator to the controller for an industrial system.

- ✓ Hitachi's HMIs can be used in applications of various industrial sectors
- ✓ Intuitive and easy to use programming software HiMobile
- ✓ One software allows programming of all HMI series.
- ✓ Support of various standard industrial communication protocols
- ✓ Linux and WinCE operating system

Human Machine Interface - HiMobile



HiMobile is the Hitachi HMI Software Platform



HiMobile Studio:

HiMobile Client:

HMI Runtime:

an application for designing custom HMI projects in a user-friendly manner, along with a variety of objects in its built-in library, the Widget Gallery.

a light-weight application that can be used on Windows computers to remotely view and manage a project running on an HMI device.

a standalone application that runs on the HMI devices. The HMI Runtime is installed via HiMobile Studio.

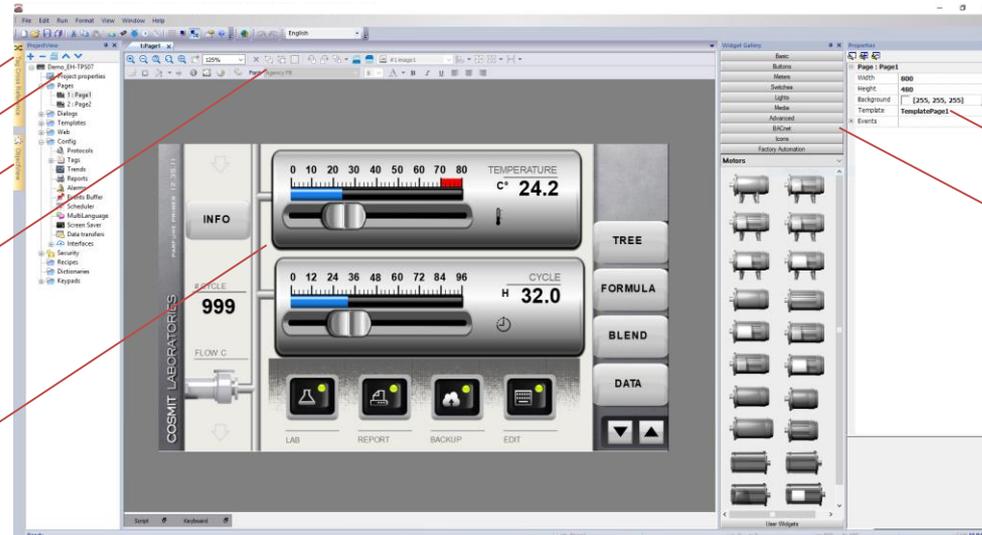
Tag Cross Reference

Project Tree

Object View

Quick Access Toolbar

Project Pane



Property Editor

Widget Gallery

EH-TPS

- ✓ Hitachi's EH-TPS series has been designed for high reliability and cost sensitive applications
 - ✓ Widescreen display with available sizes up to 10"
 - ✓ Resistive touchscreen
 - ✓ Linux operating system
 - ✓ Ethernet, USB and serial connection capability
 - ✓ IP66 (front) and IP20 (rear) allows flexible installation within cabinets



Available display size



EH-TP500

- ✓ Hitachi's EH-TP500 series has been designed for high reliability and advanced IoT applications
 - ✓ Robust metal enclosure
 - ✓ Widescreen display with available sizes up to 15"
 - ✓ Resistive touchscreen
 - ✓ WinCE operating system
 - ✓ 2x Ethernet, 2x USB and serial connection capability and SD Card slot
 - ✓ IP66 (front) and IP20 (rear) allows flexible installation within cabinets



Available display size



- ✓ Hitachi Human Machine Interface from EH-TPS and EH-TP500 series are designed to be used “built-in” a cabinet.

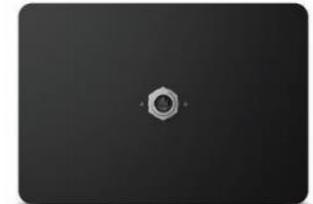


EH-TPJ



Highlights

- ✓ High resolution up to 1920x1080 pixel with 16M colors, dimmable backlight
- ✓ PCAP Touchscreen Multitouch with swiping and zooming
- ✓ 10/100 Ethernet port PoE single cable for power and ethernet
- ✓ Wi-Fi Connection
- ✓ up to a ARM Cortex-A9 quad core CPU
- ✓ Full IP67 protection; ideal for mounting-arm installation right at the machine
- ✓ Mounts on 22 mm hole
- ✓ Includes environment and motion sensors
- ✓ Can be used with cable up to 100 m distance from source

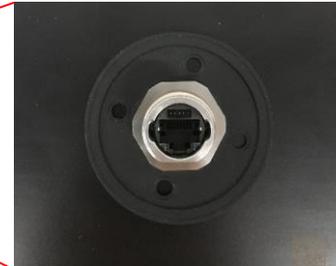


Available display size



EH-TPJ

- ✓ Special PoE connection cable enables the usage of a USB socket to connect a mouse or charge USB devices.
- ✓ Standard M22 hole allows flexible and easy installation
- ✓ Full IP67 protection & robust glass front



Available display size



EH-TPS / TP500 / TPJ

IoT Gateway Capability

- ✓ Data transfer allows you transferring variable data from one device to another. Using this feature an HMI device can operate as a gateway between two devices, even if they do not use the same communication protocol.

TAG A	TAG B	Direction	Update method	Trigger	Low limit	High limit	on Startup
1 COIL_1	2_COIL_1	A->B	On update		0	0	<input type="checkbox"/>
2 COIL_2	2_COIL_2	A->B	On update		0	0	<input type="checkbox"/>
3 ANALOG_1	2_ANALOG_1	A<->B	On update		0	0	<input type="checkbox"/>
4 ANALOG_2	2_ANALOG_2	A->B	On trigger	Enable_Transfer 1	0	0	<input type="checkbox"/>
5 ANALOG_3	2_ANALOG_3	A->B	On trigger	Enable_Transfer 1	0	0	<input type="checkbox"/>
6 ANALOG_4	2_ANALOG_4	A->B	On trigger	Enable_Transfer 2	-2	20	<input type="checkbox"/>



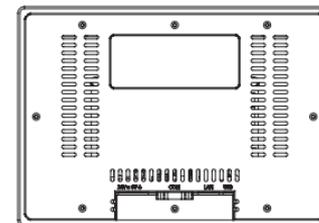
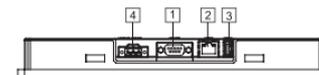
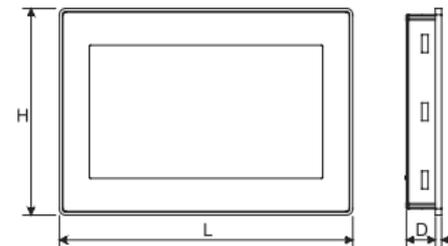
Human Machine Interface – EH-TPS

EH-TPS Specification



System Resources	EH-TPS04	EH-TPS07	EH-TPS10
Display - Colors	4.3" TFT 16:9 - 64K	7" TFT 16:9 - 64K	10.1" TFT 16:9 - 64K
Resolution	480x272	800x480, WVGA	1024x600, WVGA
Brightness	200 Cd/m2 typ.		
Dimming	Yes		
Touchscreen	Resistive		
CPU	ARM Cortex-A8 - 300 MHz	ARM Cortex-A8 - 1 GHz	ARM Cortex-A8 - 1 GHz
Operating System	Linux		
Flash	2GB	4 GB	4 GB
RAM	256 MB	512 MB	512 MB
Real Time Clock, RTC Back-up	Yes		
Interface			
Ethernet port	1 (port 0 - 10/100)		
USB port	1 (Host v. 2.0, max. 500 mA)		
Serial port	1 (RS-232, RS-485, RS-422, software configurable)		
SD Card	No		
Ratings			
Power supply	24 VDC (10 to 32 VDC)		
Power Consumption	0.25 A max. at 24 VDC	0.3 A at 24 VDC	0.38 A at 24 VDC
Battery	Yes (Supercapacitor)		
Environment Conditions			
Operating Temp	0 to 50 ° C (vertical installation)		
Storage Temp	-20° C to +70° C		
Operating /Storage Humidity	5-85% RH, non condensing		
Protection Class	IP66, Type 2 and 4X (front); IP20 (rear)		
Dimensions and Weights			
Faceplate LxH	147x107 mm (5.78x4.21")	187x147 mm (7.36x5.79")	282x197 mm (11.10x7.80")
Depth D+T	29+5 mm (1.14+0.19")	29+5 mm (1.14+0.19")	29+6 mm (1.14+0.23")
Weight	Approx 0.4 Kg	Approx 0.6 Kg	Approx 1.0 Kg

e.g. EH-TPS101



- 1 Serial Port
- 2 Ethernet Port
- 3 USB port (version 2.0 - 1.1)
- 4 Power Supply

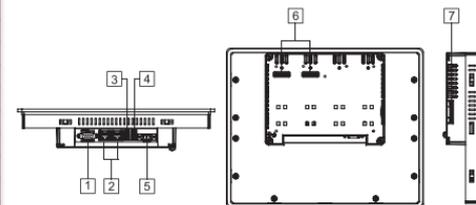
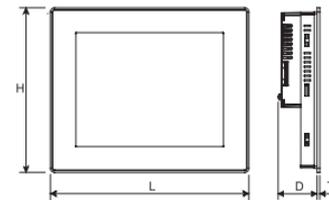
Human Machine Interface – EH-TP500

EH-TP500 Specification



System Resources	EH-TP504	EH-TP507	EH-TP510	EH-TP513	EH-TP515
Display - Colors	4.3" TFT 16:9 LED - 64K	7" TFT 16:9 LED - 64K	10"4 TFT LED - 64K	13"3 TFT 16:9 LED - 64K	15" TFT LED - 64K
Resolution	480x272, WQVGA	800x480, WVGA	800x600, SVGA	1280x800, WXGA	1024x768, XGA
Brightness	150 Cd/m ² typ.	300 Cd/m ² typ.	300 Cd/m ² typ.	300 Cd/m ² typ.	300 Cd/m ² typ.
Dimming	to 0%				
Touchscreen	Resistive				
CPU	ARM Cortex-A8 - 600 MHz	ARM Cortex-A8 - 1 GHz	ARM Cortex-A8 - 1 GHz	ARM Cortex-A8 - 1 GHz	ARM Cortex-A8 - 1 GHz
Operating System	Microsoft Windows CE				
Flash	128 MB	256 MB	256 MB	256 MB	256 MB
RAM	256 MB DDR				
Real Time Clock, RTC Back-up	Yes				
Interface					
Ethernet port	2 (port 0 - 10/100, port 1 - 10/100) with integrated Switch				
USB port	1 (port 1 - Host V2.0)	2 (port 1 - Host V2.0, port 2 - Host V2.0/1.1)			
Serial port	1 (RS-232, RS-485, RS-422, software configurable)				
SD Card	Yes				
Ratings					
Power supply	24 VDC (10 to 32 VDC)				
Power Consumption	0.55 A at 24 VDC	0.7 A at 24 VDC	1 A at 24 VDC	1.15 A at 24 VDC	1.25 A at 24 VDC
Battery	Rechargeable Lithium battery, not user-replaceable				
Environment Conditions					
Operating Temp	0 to +50 ° C				
Storage Temp	-20 to +70 ° C				
Operating /Storage Humidity	5-85% RH, non condensing				
Protection Class	IP66 (front), IP20 (rear)				
Dimensions and Weights					
Faceplate LxH	147x107 mm (5.78x4.21")	187x147 mm (7.36x5.79")	287x232 mm (11.3x9.13")	336x267 mm (13.22x10.51")	392x307 mm (15.43x12.08")
Depth D+T	56+4 mm (2.40+0.16")	47+4 mm (1.85+0.16")	56+4 mm (2.20+0.16")	56+4 mm (2.20+0.16")	60+4 mm (2.36+0.16")
Weight	Approx 1.0 Kg	Approx 1.0 Kg	Approx 2.0 Kg	Approx 2.8 Kg	Approx 3.5 Kg

e.g. EH-TP510



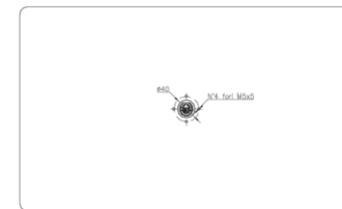
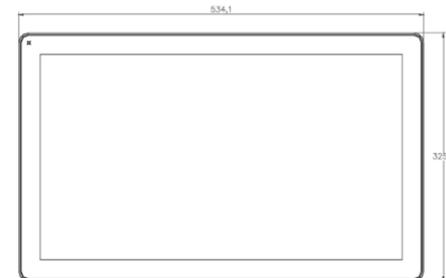
- 1 Serial Port
- 2 2x Ethernet Port
- 3 USB port (version 2.0 - 1.1)
- 4 USB port (version 2.0 High speed only)
- 5 Power Supply
- 6 2x Expansion slot for Plugin module
- 7 SD Card Slot

EH-TPJ Specification



System Resources	EH-TPJ07	EH-TPJ10	EH-TPJ15	EH-TPJ21
Display - Colors	7" TFT – 16M	10.1" TFT – 16M	15.6" TFT – 16M	21.5" TFT – 16M
Resolution	1024 x 600	1280x800	1366 x 768	1920 x 1080
Brightness	400 cd/m ² typ.			
Dimming	to 0%			
Touchscreen	Projected Capacitive – Multitouch			
CPU	ARM Cortex-A9 iMX.6 dual core - 800 MHz			
Operating System	Linux RT			
Flash	4 GB			8 GB
RAM	1 GB			2 GB
FRAM	64 KB			
Real Time Clock, RTC Back-up	Yes			
Interface				
Ethernet port	10/100 PoE			
USB port	1 (Host V2.0, max. 500 mA, available with special cable)			
LED	1 RGB			
Sensors	Temperature, 3-Axis Accelerometer			
Wi-Fi*	IEEE 802.11a/b/g			
Buzzer	Yes			
Ratings				
Power supply	IEEE 802.3af PoE		IEEE 802.3at PoE+	IEEE 802.3bt 4PPoE
Power Consumption	9 W	12 W	19 W	32 W
Battery	Yes (rechargeable)			
Environment Conditions				
Operating Temp	-20° to +55° C (vertical installation)			
Storage Temp	-30° C to +80° C			
Operating /Storage Humidity	5-85% RH, non-condensing			
Protection Class	IP67 (requires appropriate accessories and cables)			
Dimensions and Weights				
Faceplate LxH	195.2 x 131.6 mm	264.5 x 183.1 mm	398.6 x 248 mm	534.1 x 325.6 mm
Depth D+T+T	16.5 mm	16.5 mm	26.5 mm	26.5 mm
Weight	0.7 kg	1.2 kg	4 kg	6.0 kg

e.g. EH-TPJ21



Human Machine Interface – Distinguishing features



	EH-TPS	EH-TP500	EH-TPJ
CPU	up to ARM Cortex-A8 - 1 GHz	ARM Cortex-A8 - 1 GHz	ARM Cortex-A9 dual core - 800 MHz
Mounting	Cabinet	Cabinet	Cabinet / Standalone
Display size	4", 7", 10"	4", 7", 10", 13", 15"	7", 10", 15", 21.5"
Connection Ports	Ethernet, USB, Serial	2x Ethernet, 2x USB, Serial	Ethernet, Wireless LAN [WiFi]
Operating System	Linux RT	WinCE	Linux RT
Ingress Protection	IP66 (front), IP22 (rear)	IP66 (front), IP22 (rear)	IP67
Touchscreen	Analog Resistive	Analog Resistive	Projected Capacitive – Multitouch
Power Supply	24V DC	24V DC	24V DC PoE



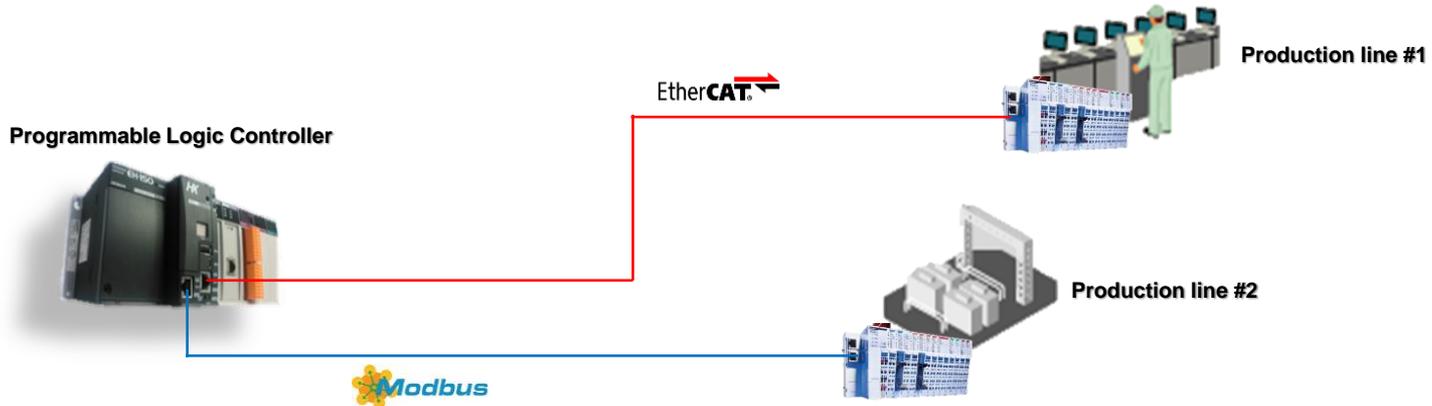
Questions

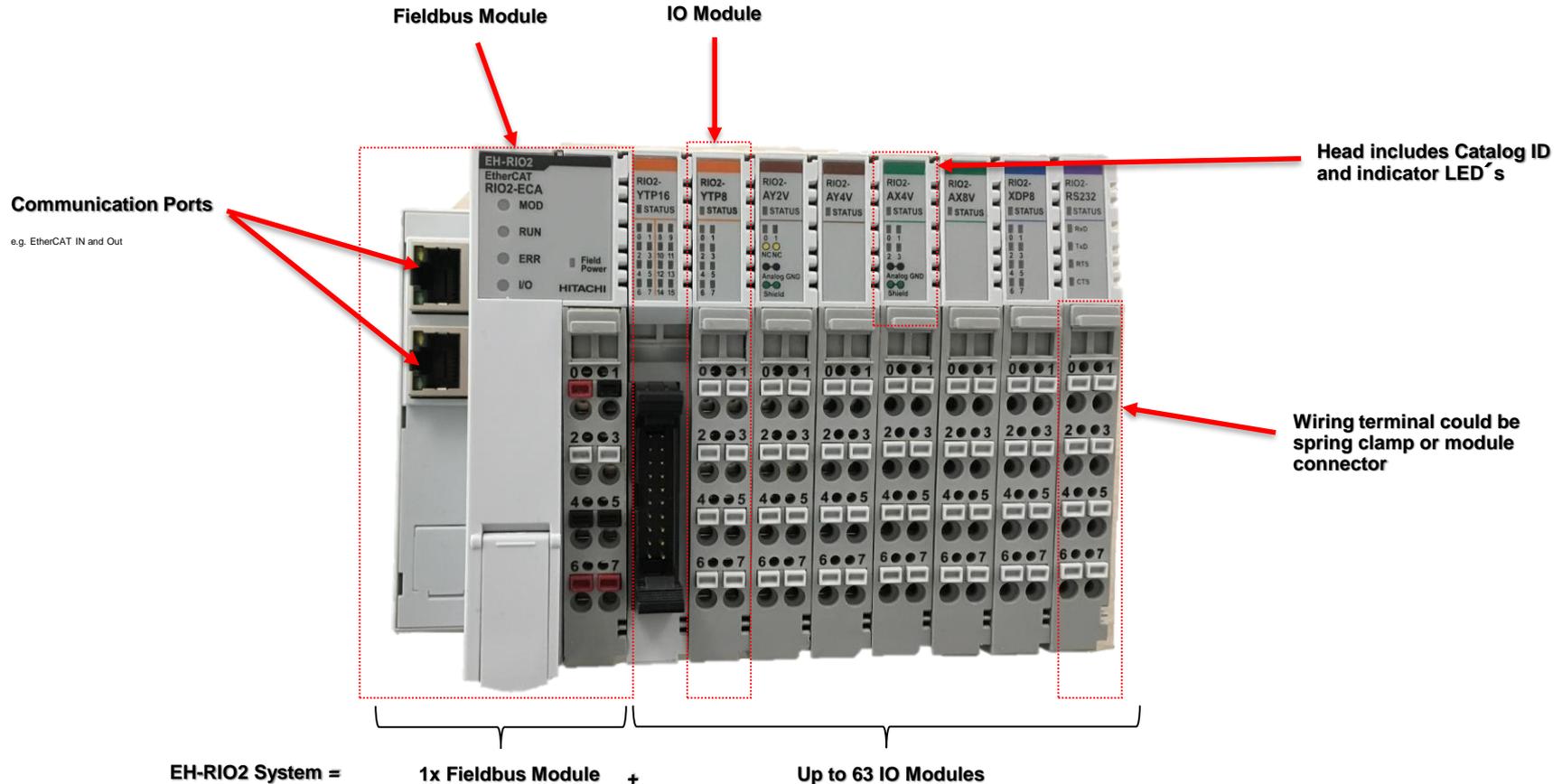


Remote I/O System

Remote I/O System

- ✓ Hitachi's Remote IO System EH-RIO2 has been designed for transferring process data / parameter from a remote place to a centralized controlling hub
- ✓ EH-RIO2 allows the flexible usage of a modular assembled input and outputs system for gathering and processing analog and digital parameters
- ✓ EH-RIO2 enables the connectivity to almost all standard industrial fieldbuses like EtherCAT, Modbus RTU/TCP, ProfiNET, PROFIBUS and DeviceNet
- ✓ Special function modules like **pulse width modulation [PWM]**, pulse outputs or counter modules are also available beside various number of digital and analog modules





✓ Design Concept



Each I / O assembly consists of the following two components:

1. The I / O modules convert field device signals to control status indicators. The LEDs indicate module-, network-, power- and calibration status as well as I / O point status (ON / OFF / Error or diagnostic). The I / O modules also provide the locations for the removable terminal blocks and forms the interconnection for the Fn-Bus communication and the field power distribution.
2. The removable terminal block provides 8 separate terminal locations for your field wiring. High density modules (16 DI / DO) and certain special function modules are equipped with a 20-pole socket which require the commercially available 20-pole connector.

The I / O modules are mounted on a standard DIN rail, providing easy installation by vertically inserting the modules, without using any additional tools. The modules can either be mounted separately or as a complete, pre-mounted system. Up to 63 I / O modules can be inserted in one fieldbus slave station.

✓ Mounting



✓ Easy Maintenance



Thanks to the incorporated unlock latch, it is possible to remove and replace individual I / O modules without reassembling the complete EH-RIO2 station. EH-RIO2 modules incorporate test pin holes for each terminal on the removable terminal block. The test pin hole allows to check the input or output value by a multimeter. This feature makes troubleshooting much easier.

The I / O Modules are equipped by default with the removable terminal block, so the module can be used out-of-the-box without the need of additional accessories. The removable terminal block can be removed easily, without having to remove the wiring or interfering with system communication.

✓ Ease of use





Fieldbus Interface modules

RIO2-DNA	DeviceNet Adapter
RIO2-PBA	Profibus Adapter
RIO2-PNA	Profinet Adapter
RIO2-ECA	EtherCAT Adapter
RIO2-MBR	Modbus RTU RS485 Adapter
RIO2-MBT	Modbus TCP Ethernet Adapter

Power supply modules

RIO2-SHD	Shield Module
RIO2-0VDC	Common 0V DC
RIO2-24VDC	Common 24V DC
RIO2-VDC	Common 0V/24V DC
RIO2-PSD	Expansion Power supply, Input 24V DC, Output 1,0A/5V
RIO2-PS	Field distributor 5V, 24V, 48V DC, 110V, 230V AC

Digital Input modules

RIO2-XDP4	24VDC 4-channel sink input module
RIO2-XDP8	24VDC 8-channel sink input module
RIO2-XDP16	24VDC 16-channel sink input module, connector type
RIO2-XAH4	230VAC 4 channel Input module

Digital Output modules

RIO2-YTP4	24VDC 4-channel source output module
RIO2-YTP8	24VDC 8-channel source output module
RIO2-YTP16	24VDC 16-channel source output module, connector type
RIO2-YTP4C	24VDC 4-channel source output module, 2A
RIO2-YR4	24VDC-coil N.O. DPST 4 channel relay module
RIO2-YR8	24VDC-coil N.O. DPST 8 channel relay module



Analog Output modules	
RIO2-AY2I	2-channel 4-20 mA current analog output module
RIO2-AY4I	4-channel 4-20 mA current analog output module
RIO2-AY2V	2-channel 0-10V voltage analog output module
RIO2-AY4V	4-channel 0-10V voltage analog output module
RIO2-AY2H	2-channel -10~+10V voltage analog output module

Analog Input modules	
RIO2-AX4I	4-channel 20 mA current analog input module
RIO2-AXH4I	4-channel 20 mA current analog input module, 14-Bit
RIO2-AX8I	8-channel 20 mA current analog input module
RIO2-AX4V	4-channel 0-10V voltage analog input module
RIO2-AX8V	8-channel 0-10V voltage analog input module
RIO2-AX4H	4-channel -10~+10V voltage analog input module
RIO2-RTD2	2-channel RTD input module
RIO2-RTD4	4-channel RTD input module
RIO2-RTD4H	4-channel RTD input module, high accuracy (+/-0,15° C)
RIO2-RTD8	8-channel RTD input module
RIO2-TC2	2-channel isolated thermocouple module
RIO2-TC4	4-channel isolated thermocouple module

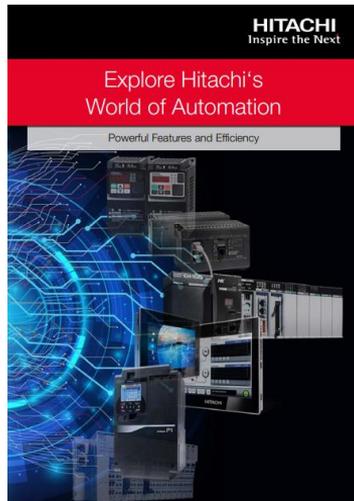
High Function modules	
RIO2-CU24	1-channel, 2-phase counter module 24V DC, 150kHz
RIO2-CU24L	2-channel, 1-phase counter module 24V DC, 100kHz
RIO2-RS232	1-channel, RS232 ASCII Communication module
RIO2-RS485	1-channel, RS485 ASCII Communication module
RIO2-PWM2	2-channel, PWM Output, 0,5A, 24VDC
RIO2-PO2	2-channel, Pulse Output, 0,5A, 24VDC
RIO2-SSI	1-channel SSI interface

Questions



Hitachi Automation Product Information

Hitachi Portfolio Catalogue ICEG



HX Series



EHV+ Series



Micro-EHV+ Series



Product Datasheets & User Manuals are available on our Website & SharePoint

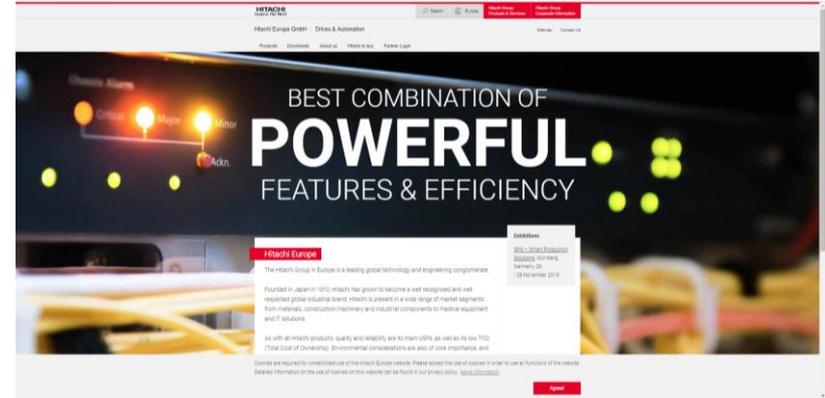
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