Explore Hitachi’s World of Automation

Powerful Features and Efficiency
In 1910, Hitachi was founded as a mining machinery repair shop. At a time when Japan was relying on imported products and technology, one team chose to rely on a different resource – themselves.

With unrelenting effort and enduring passion, the team created, developed and delivered original products and technologies.

The Hitachi Group in Europe is a leading global technology and engineering conglomerate. Founded in Japan in 1910, Hitachi has grown to become a well recognised and well respected global industrial brand with more than 100 years experience in motor-related business.

Our mission is to rapidly grasp the changes in society and support our customers with all our strength, with creativity and flexible ideas around the world. We will keep on pushing forward to the next challenge, to provide our customers with products and services that deliver high added value and meet their needs.

Hitachi products are renowned for being extremely reliable. All functional parts are manufactured in-house.

As with all Hitachi products, quality and reliability are its main USPs (Unique Selling Points), as well as its low TCO (Total Cost of Ownership). Environmental considerations are also of core importance, and Hitachi continuously strives to provide more efficient, environmentally sound solutions.

Have a look at Hitachi partners and softwares:

**GLOBAL KEY FIGURES**

- 76.4 billion euros or revenues
- 303,000 Employees
- 864 Companies
- 28 Languages spoken
- 5 Regional Headquarters
- Over 100 years in the innovation business
- 3.5% of total revenues in R&D

Source: The European House — Ambrosati elaboration on Hitachi data, 2017
NE-S1 Series

The Hitachi NE-S1 is our economical and simple to use inverter solution in the popular 0.2 kW to 4.0 kW range. The NE-S1 is designed with both OEM’s and System Integrators needs in mind, with its ultra-compact design and out of the box integration in most applications.

HIGHLIGHTS

- Side by side installation to save panel space
- RS-485 Modbus RTU standard
- Energy saving function standard
- Keypad/Terminal switching
- Pre-configured Parameters
- 3 wire Start Stop compatible
- PID, Logic and time delay functions built in
- Arithmetic operation and delay functions
- 2nd motor function
- Analog input disconnection detect function
- CE/UL/c-Tick approvals
- Optional door mounted operator display
- Sink or source input compatible
- Energy saving function

Applications

Optimal performance for energy saving applications such as fans and pumps

- Fans and air conditioners
  - Air conditioning systems
  - Fans and blowers
  - Clean rooms

- Pumps
  - Water and washwater pump systems
  - Tankless water supply and drainage systems

- Food Processing Machines
  - Slicers
  - Mixers
  - Confectionary machines
  - Fruit sorters

Technical Information

<table>
<thead>
<tr>
<th>Model Line-up</th>
</tr>
</thead>
<tbody>
<tr>
<td>Applicable motor kW</td>
</tr>
<tr>
<td>1-phase 200V</td>
</tr>
<tr>
<td>3-phase 400V</td>
</tr>
</tbody>
</table>

Model Name Indication

<table>
<thead>
<tr>
<th>NES1 - 002 S BE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Series name</td>
</tr>
<tr>
<td>Applicable motor capacity</td>
</tr>
<tr>
<td>002: 0.2 kW – 040: 4.0 kW</td>
</tr>
<tr>
<td>European version</td>
</tr>
<tr>
<td>S: 1-phase 200V class</td>
</tr>
<tr>
<td>H: 3-phase 400V class</td>
</tr>
</tbody>
</table>

Global standards

- Conformity to global standards
  - CE, UL, c-UL, c-Tick approvals.
- Sink / source logic is standard
  - Logic input and output terminals can be configured for sink or source logic.
- Wide input power voltage range
  - Input voltage of 240 V for 200 V class and 480 V for 400 V class as standard.
WL200 / WJ200 Series

With our WL200/WJ200 Series we present a generation of compact inverters, ideally suited for a variety of applications — designed for excellent performance and user friendliness.

**HIGHLIGHTS**
- EzCOM (peer to peer communication) using RS485
- Direct communication with HMI
- Best quality and reliability
- Very good standard equipment
- Easy to setup and operate (Mini USB port)
- WOP LCD operator (optional)
- Integrated safety
- Safety stop function (WJ200) (ISO13849-1 category 3 / IEC60204-1 STOP category 0)

**WL200 / WJ200 Series**

**Induction motor & permanent magnet motor** with one inverter series
* The permanent magnet motor control function is only suitable for variable torque applications such as fan and pump.

**High starting torque of 200 % or greater achieved using sensorless vector control (when sized for heavy duty)**

**Dual rating**
- Heavy duty: Conveyor, Lift Hoist, etc.
  - 7.5kW
  - overload capacity: 150 %, 60 sec
- Normal duty: Fan, Pump, etc.
  - 11kW
  - overload capacity: 120 %, 60 sec

**Network compatibility & external ports**
The WL200 / WJ200 Series is particularly suitable for easy integration into various networks using optional fieldbus modules.
- RS485-Modbus (built-in)
- RS422 port (built-in)
- DeviceNet
- Profibus-DP
- PROFINET
- EtherCAT

One network expansion card can be installed inside the inverter.

**Micro surge voltage suppress function**
Hitachi original PWM control method limits motor terminal voltage to less than twice inverter DC bus voltage. This system significantly protects the life of the electric motor.
The new SJ Series, Type P1 is at the cutting edge of technology for premium inverters. Highly flexible, it is suitable for a wide variety of demanding applications. SJ-P1 has premium drive characteristics to achieve instantaneous force and efficient operation.

### HIGHLIGHTS
- PID sleep mode function and loss of pressure function
- PID, Logic and time delay functions built in
- EzCOM for drive to drive master-less communications
- PM/IM motor compatible
- RS-485 Modbus RTU standard
- Arithmetic operation and delay functions
- User friendly display
- Heat sink extraction (easy to place the cooling to the outside)
- Starting torque 200% at 0.3Hz
- Main power 380Vac to 500Vac
- RoHS compliant
- Improved efficiency with 24V DC supply
- Error codes in text
- Analog input disconnection detect function
- CE/UL/cUL/c-Tick approvals
- 10-year MTBF life design
- Loss of signal protection
- Build in LCD color operator
- Multi-rating to support space and cost savings
- Trip avoidance functions
- PID sleep mode function and loss of pressure function
- PID, Logic and time delay functions built in
- EzCOM for drive to drive master-less communications
- PM/IM motor compatible
- RS-485 Modbus RTU standard
- Arithmetic operation and delay functions
- User friendly display
- Heat sink extraction (easy to place the cooling to the outside)
- Starting torque 200% at 0.3Hz
- Main power 380Vac to 500Vac
- RoHS compliant
- Improved efficiency with 24V DC supply
- Error codes in text
- Analog input disconnection detect function
- CE/UL/cUL/c-Tick approvals
- 10-year MTBF life design
- Loss of signal protection
- Build in LCD color operator
- Multi-rating to support space and cost savings
- Trip avoidance functions

### Special Functions
- Gain mapping function (decreasing overshoot and undershoot contributes to smooth and stabilized operation with less shock)
- Induction motor & permanent magnet motor can be controlled with one inverter series

### Technical Information

<table>
<thead>
<tr>
<th>Option slots</th>
<th>Hitachi original cassette option for flexible use.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Up to 3 options can be used simultaneously!</td>
</tr>
<tr>
<td></td>
<td>Easy access from the inverter front</td>
</tr>
<tr>
<td></td>
<td>Various fieldbus and I/O options available</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Option modules</th>
<th>Ethernet</th>
<th>EtherCAT</th>
<th>Profinet-DB</th>
<th>Feedback</th>
<th>Safety</th>
<th>Analog input and output</th>
<th>Relay output</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Technical Information</th>
<th>3-phase 200V class</th>
<th>3-phase 400V class</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.4 (1/2)</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>0.75 (1)</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>1.5 (2)</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>2.2 (3)</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>4 (5)</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>5.5 (7.5)</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>7.5 (10)</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>11 (15)</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>16 (20)</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>18.5 (25)</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>22 (30)</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>30 (40)</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>37 (50)</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>46 (60)</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>56 (70)</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>75 (100)</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>90 (120)</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>110 (150)</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>132 (170)</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>160 (200)</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>185 (250)</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>220 (300)</td>
<td>●</td>
<td>●</td>
</tr>
</tbody>
</table>
The new Hitachi HX series PAC Controller combines powerful features and efficiency to meet the demands of a global supply chain in manufacturing industries.

**HX Series**

- Supports OPC-UA, an interface for connecting information with industries
- Supports information communications (Ethernet) and control communications (EtherCAT)
- Supports data logging for sites using SD memory
- Integrates sequence control with motion control, achieving high performance
- Supports programming languages compatible with IEC 61131-3: (LD, IL FBD, ST, SFC) + CFC
- Supports data logging using SD memory
- Sensor and actuator control (Various sensors and actuators including Hitachi inverters)

**HIGHLIGHTS**

- Supports OPC-UA for communication with higher level information systems
- ERP linkage, MES connection, SCADA system connection, etc.
- Supports information communications Ethernet (TCP/IP), IP communications, web support, etc.
- Connection with various control equipment and HMI
- Field network support (Partially combined use with dedicated master modules)

### Technical Information

#### Programming languages according to IEC 61131-3: (LD, IL FBD, ST, SFC) + CFC:
- Ladder Logic Diagram (LD)
- Function Block Diagram (FBD)
- Structured Text (ST)
- Instruction List (IL)
- Sequential Function Chart (SFC)
- Continuous Function Chart (CFC)

#### Type | Hardware Specifications | Functional features
---|---|---
**Standard Model** HX-CP1B38 | Program data memory: 8 MB | EtherCAT master
**Full Function Model** HX-CP1H16 | Program data memory: 16 MB | USB: Host, device | SD card | Serial comm. RS-485 | EtherCAT master | Web Visualization
**Motion Model** HX-CP1B38M | 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 | | | 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 | | | Serial comm. RS-485 | EtherCAT master | Web Visualization | Soft Motion | C/C ++ program
**Redundant Model** HX-CP1H16R | Program data memory: 16 MB | Ethernet port: 3 | USB: Host, device | | | Serial comm. RS-485 | EtherCAT master | CPU Redundancy

### Programming languages according to IEC 61131-3:
- Ladder Logic Diagram (LD)
- Function Block Diagram (FBD)
- Structured Text (ST)
- Instruction List (IL)
- Sequential Function Chart (SFC)
- Continuous Function Chart (CFC)

### Technical Information

- Ladder Logic Diagram (LD)
- Function Block Diagram (FBD)
- Structured Text (ST)
- Instruction List (IL)
- Sequential Function Chart (SFC)
- Continuous Function Chart (CFC)

### Technical Information

- Ladder Logic Diagram (LD)
- Function Block Diagram (FBD)
- Structured Text (ST)
- Instruction List (IL)
- Sequential Function Chart (SFC)
- Continuous Function Chart (CFC)
Communication interfaces
- Ethernet (10BASE-T / 100BASE-TX)
- USB interface (Ver. 2.0 Full speed 12 Mbps)
- Serial interface (RS-232C / RS-422 / RS-485)

Programming
- Communication protocol CODESYS V3
- Programming languages according to IEC 61131-3: (LD, IL, FBD, ST, SFC) + CFC

Communication protocols
- Modbus TCP Client / Server
- Modbus RTU Master
- EtherCAT Master

Core of the new powerful general purpose EHV+ CPU series is the CODESYS V3 runtime system. The result is an open and flexible system which is completed through various Hitachi I/O modules.

EHV+ Series

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 ProfinetDP 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

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 ProfinetDP 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

Technical Information

<table>
<thead>
<tr>
<th>Type</th>
<th>EHV-CPU1025</th>
<th>EHV-CPU1102</th>
</tr>
</thead>
<tbody>
<tr>
<td>Processing Speed</td>
<td>80 ns / Instruction</td>
<td></td>
</tr>
<tr>
<td>Memory</td>
<td></td>
<td></td>
</tr>
<tr>
<td>User program (RAM)</td>
<td>512 kByte</td>
<td>2048 kByte</td>
</tr>
<tr>
<td>Boot project (FLASH)</td>
<td>512 kByte</td>
<td>2048 kByte</td>
</tr>
<tr>
<td>Source File (FLASH)</td>
<td>5 kByte</td>
<td>5 kByte</td>
</tr>
<tr>
<td>Data memory</td>
<td>256 kByte</td>
<td>256 kByte</td>
</tr>
<tr>
<td>Retain data memory</td>
<td>16 kByte</td>
<td>16 kByte</td>
</tr>
<tr>
<td>Support expansion bases</td>
<td>5</td>
<td>5</td>
</tr>
</tbody>
</table>
Hitachi's PLC series MICRO-EHV+ is an all-in-one type compact PLC, packed with powerful functions. It offers easy start-up for users with no experience with PLC as well as for users of other manufacturers or even high-level programming languages.

Micro EHV+ Series

HIGHLIGHTS

Memory Capacity
- User program (RAM) up to 1024 kB
- Boot project (FLASH) up to 1024 kB
- Source file (FLASH) up to 1024 kB
- Data memory 640 kB

Communication Interfaces
- Ethernet (10BASE-T/100BASE-TX)
- USB interface (ver. 2.0, full speed 12 Mbps)
- Serial interface (RS-232C)

Programming
- Communication protocol CODESYS V3.5
- Programming languages according to IEC 61131-3: (LD, IL, FBD, ST, SFC) + CFC

Communication Protocols
- Modbus TCP Client / Server
- Modbus RTU Master / Slave
- EtherCAT Master

Position control

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

Speed control using PWM output

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

Technical Information

<table>
<thead>
<tr>
<th>Type</th>
<th>MV-A20DR</th>
<th>MV-D20DR</th>
<th>MV-D20DTPS</th>
<th>MV-A40DR</th>
<th>MV-D40DR</th>
<th>MV-D40DTPS</th>
<th>MV-A64DR</th>
<th>MV-D64DR</th>
<th>MV-D64DTPS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power Supply</td>
<td>100 / 240 V AC</td>
<td>24 V DC</td>
<td>100 / 240 V AC</td>
<td>24 V DC</td>
<td>100 / 240 V AC</td>
<td>24 V DC</td>
<td>100 / 240 V AC</td>
<td>24 V DC</td>
<td></td>
</tr>
<tr>
<td>Number of Inputs (DI)</td>
<td>12</td>
<td>24</td>
<td>24</td>
<td>40</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Input Specification</td>
<td>DC input (24 V DC)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of output (DO)</td>
<td>8</td>
<td>16</td>
<td>24</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Output Specification</td>
<td>Relay</td>
<td>Transistor</td>
<td>Relay</td>
<td>Transistor</td>
<td>Relay</td>
<td>Transistor</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

No. of I/O is max. 320 (using 64 pts expansion unit)
Human Machine Interface

Operating can not get any easier. Hitachi offers a wide range of operator interfaces which allow you to choose the best solution for your application.

**EH-TP500**

EH-TP500 is Hitachi’s high performance touch screen series with innovative mechanical and metal enclosure.

**HIGHLIGHTS**

- 4.3” – 15” Touchscreen
- High performance touch screen with innovative IP 65 mechanical and metal enclosure
- Support of OPC UA protocol to meet future IoT demands
- HighCustomized for all Hitachi PLCs and inverters. Drives for Siemens S5/S7 is also included
- Gateway function, remote installation of application and remote assistance
- Multi-language programming
- Internal memory up to 256 MB Flash, 256 MB DDR
- Supported Protocols: Hi-Protocol Ethernet, CODESYS Ethernet, Modbus TCP, Modbus RTU, CANopen, Profinbus-DP, DeviceNet and more
- Interfaces: Ethernet, USB, serial ports and MPI integrated
- Programmable with HiMobile Studio

**Technical Information**

<table>
<thead>
<tr>
<th>Type</th>
<th>EH-TP504</th>
<th>EH-TP507</th>
<th>EH-TP510</th>
<th>EH-TP513</th>
<th>EH-TP515</th>
</tr>
</thead>
<tbody>
<tr>
<td>Display</td>
<td>4.3&quot; TFT 16:9 WQVGA</td>
<td>7&quot; TFT 16:9 WVGA</td>
<td>10.4&quot; TFT 16:9 SVGA</td>
<td>13.3&quot; TFT 16:9 WXGA</td>
<td>15&quot; TFT 16:9 XGA</td>
</tr>
<tr>
<td>Resolution</td>
<td>480 x 272</td>
<td>800 x 480</td>
<td>1280 x 800</td>
<td>1024 x 768</td>
<td></td>
</tr>
</tbody>
</table>

**EH-TPS**

The EH-TPS is designed for budget critical applications.

**HIGHLIGHTS**

- Display Size 4.3", 7" and 10.1"
- Widescreen Display
- Resistive Touchscreen
- Brilliant Display with LED Backlight
- Programmable with HiMobile Studio
- Ethernet, USB and Serial Port
- Lightweight and Low-power Design
- Highly reliable, Industrial Grade Components
- CE, cULus approval
The EH-RIO2 series of Remote I/O modules allows you the flexibility to distribute I/O throughout your application. Using EH-RIO2, you can precisely plan and expand your I/O and locate them right where they are needed: close to the sensors and actors.

**HIGHLIGHTS**

- Fieldbus adapters for PROFINET, EtherCAT, Modbus TCP / RTU, Profibus-DP, DeviceNet
- Separation of electronics module and terminal block for easy installation and maintenance
- Spring clamp terminals on connection wiring
- Large selection of I/O Modules
- Super slim design 16 I/O = 12 mm
- Standard DIN rail mounting

**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
2. The removable terminal block provides 8 separate terminal locations for your field wiring.

**Mounting**

The I/O modules are mounted on a standard DIN rail, providing easy installation by vertically inserting the modules, without using any additional tools.

**Easy Maintenance**

Thanks to the incorporated unlock latch, it is possible to remove and replace individual I/O modules without ressembling the complete EH-RIO2 station.

**Ease of use**

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.
All company and product names in this brochure are the property of the respective companies.

Hitachi Industrial Equipment Systems Co., Ltd. (Hitachi) shall not be liable for any manufacturing loss, or any product damage due to trouble. Hitachi continually improves products. The right, therefore, is reserved to alter the designs and/or specifications without giving prior notice. Information in this brochure is subject to change without notice.