Micro PLC designed to support data collection and Machine to Machine communication
Diverse range of functions for your machine

Efficient solution for a flexible production, traceability and monitoring of machine key assets, to respond to operational excellence.

Improved connectivity to networking and serial devices.

Reduced development time with function blocks (FBs) programming.

Battery-free operation increases robustness and reduces maintenance. The extended operating temperature range increase reliability for special applications.

Note: Please check datasheet (Cat. No. P145) to select your controller. Available functions differ model by model.
Improved connectivity for ethernet and serial devices \( \text{P.4-5} \)

- Built-in Ethernet switching function
- Serial open protocols and Modbus communication

Reduced effort to realize complex machines \( \text{P.6-7} \)

- 4-axis positioning function with linear interpolation

Install and forget: reliable solution for all environmental conditions \( \text{P.7} \)

- Extended operational temperature range
- Battery-free operation*
- Input/output terminal LED indicators for quick troubleshooting
- Normal operation continues
- Automatic Recovery by electric interferences

* Needed only in case Real Time Clock is used.
Improved connectivity for ethernet and serial devices

Ready for Machine to Machine communication

Connect machines to networks to collect field data.
Two built-in Ethernet ports eliminate the need for switching hubs. One port is connected to the host, and another can be connected to an HMI, PLC, or PC running support software or reserved.

Host and HMI connectivity

MES connection

Ethernet

CP2E-N

NB

Machine to Machine connectivity

Ethernet

CP2E-N

CP2E-N

Note: The L2 Switching Hub function is built in.
Two Ethernet ports on the CP2E share the same IP address.

Ethernet Send/Receive Data

Reduce programming time by Ethernet Send/Receive Data FB to easily exchange data between controllers.

Assembling lines

Improve design efficiency and productivity reducing development time with a modular conception of the machine.
Open connectivity to serial devices  

CP2E-N can use up to 3 serial ports by mounting option boards. Data collection, Control and Monitoring of serial devices is easy and flexible.

- Ethernet
- RS-232C (2)
- RS-485

- Bar code reader
- Measurement device (air leak tester, weigher, etc.)
- Inverter

FB Modbus RTU master

Reduce programming time by Modbus FB to easily communicate with serial devices.

Semiautomatic assembling machines

Connect bar code readers for traceability and monitor state of machine.
Reduced effort to realize complex machines

Up to 4-axis linear interpolation

Linear interpolation
Simplified positioning: 4-axis can operate simultaneously for a faster positioning.

Pick and Place
Operate with 4-axis simultaneously to reduce machine cycle time

Positioning on mark for Packaging Machines

Fixed positioning on interrupt (IFEED instruction)
With one instruction you can execute a fixed positioning on Interrupt input (mark) independently by PLC cycle time.

Stop after a defined amount of pulses
Speed control
Position control
Interrupt input (Time)

Packaging machine
Constant movement from mark detection to seal position
Stable temperature control with autotuning function

CP2E-N/CP2E-S/CP2E-E

Extended operational temperature range

-20 to 60°C

Increase reliability in special applications

Multi-level parking
Waste disposal equipment
Grain storage facility

Battery-free operation*

Cost reduction in maintenance, logistic/stock

* Needed only in case Real Time Clock is used.

I/O LED indicators

Reduce installation time and easily check wiring errors by LED indicators

Automatic Recovery by electric interferences.

CP2E detects and recovers in real-time operation a bit corruption. Increase machine efficiency avoiding CPU stops.

Install and forget: reliable solution for all environmental conditions

CP2E-N/CP2E-S/CP2E-E

PID Control with auto tuning

PID with Autotuning function enable stable temperature control reducing start-up time. Connection with stand alone temperature control is also available.

Small extrusion machine
Stable multipoint temperature control, setting via NB series HMI

FB

PID Control with auto tuning

Hunting
Overshooting

Temperature control (PID)
(Time)

Increase reliability in special applications

-20 to 60°C

Extended operational temperature range

Normal operation continues

Reduce installation time and easily check wiring errors by LED indicators

Automatic Recovery by electric interferences.

CP2E detects and recovers in real-time operation a bit corruption. Increase machine efficiency avoiding CPU stops.
**Product lineup**

**CP2E-N**  
Network Model: Ethernet connectivity, 4-axis positioning, FB programming

![CPU unit with 30, 40, or 60 I/O points](image)

- **2 Ethernet ports**
- **3 Up to serial ports**
- **4-axis positioning**
- **2 option boards**
- **3 expansion units**
- **Memory 10K steps**
- **Clock**
- **Battery-free**
- **-20 to 60℃**
- **USB port**

![CPU unit with 14 or 20 I/O points](image)

- **1 Ethernet port**
- **2 Up to serial ports**
- **2-axis positioning**
- **1 option board**
- **Expansion unit**
- **Memory 10K steps**
- **Clock**
- **Battery-free**
- **-20 to 60℃**
- **USB port**

**CP2E-S**  
Standard Model: 2 serial ports, 2-axis positioning, FB programming

![CPU unit with 30, 40, or 60 I/O points](image)

- **Ethernet**
- **1 x RS-232C port**
- **2-axis positioning**
- **option board**
- **3 expansion units**
- **Memory 8K steps**
- **Clock**
- **Battery-free**
- **-20 to 60℃**
- **USB port**

**CP2E-E**  
Essential Model: 1 serial port, FB programming

![CPU unit with 30, 40, or 60 I/O points](image)

- **Ethernet**
- **1 x RS-232C port**
- **positioning**
- **option board**
- **3 expansion units**
- **Memory 4K steps**
- **Clock**
- **Battery-free**
- **-20 to 60℃**
- **USB port**

![CPU unit with 14 or 20 I/O points](image)

- **Ethernet**
- **1 x RS-232C port**
- **positioning**
- **option board**
- **Expansion unit**
- **Memory 4K steps**
- **Clock**
- **Battery-free**
- **-20 to 60℃**
- **USB port**

*1. RS-232C: Screwless terminal block (6 terminals), RS-485: Screwless terminal block (3 terminals)
Option Board (for CP2E-N-type CPU Units)

1-port Serial Option Board
- RS-232C
- RS-422A/485
- RS-422A/485 (isolated)

Analog Option Board *2
- 2 analog inputs
  0 to 10 V
  0 to 20 mA
- 2 analog outputs
  0 to 10 V

2-port Serial Option Board *2
- RS-232C
- RS-232C
- RS-485 (isolated)

*2. Two 2-port serial option boards cannot be mounted in a CPU unit. Two analog option boards also cannot be mounted in a CPU unit.

Expansion I/O Unit and Expansion Unit

- 40-point I/O Unit
- 32-point Output Unit
- 20-point I/O Unit
- 16-point Output Unit
- 8-point Input Unit
- 8-point Output Unit
- Analog Input Unit
- Analog Output Unit
- Analog I/O Unit
- 4-ch Temperature Sensor Unit
- 2-ch Temperature Sensor Unit
- 12-ch Temperature Sensor Unit
- I/O Connecting Cable

Battery

Battery: only for Real time Clock function
CP2E-N/CP2E-S CPU Unit
## Ordering Information

### CPU Units

#### CP2E-N/Network Models

<table>
<thead>
<tr>
<th>I/O points</th>
<th>Power supply</th>
<th>Inputs</th>
<th>Outputs</th>
<th>Output type</th>
<th>Program capacity</th>
<th>DM Area capacity</th>
<th>Model</th>
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<tbody>
<tr>
<td>14</td>
<td>100 to 240 VAC</td>
<td>8</td>
<td>6</td>
<td>Relay</td>
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<td>24 VDC</td>
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<td>Transistor (sinking)</td>
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<td>12</td>
<td>Relay</td>
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<td>16K words</td>
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<td>CP2E-N30DT-A</td>
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<td>CP2E-N60DT-A</td>
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#### CP2E-S/Standard Models

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<tr>
<th>I/O points</th>
<th>Power supply</th>
<th>Inputs</th>
<th>Outputs</th>
<th>Output type</th>
<th>Program capacity</th>
<th>DM Area capacity</th>
<th>Model</th>
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<tr>
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<td>Transistor (sinking)</td>
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<td>CP2E-S30DT-D</td>
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<td>8K steps</td>
<td>8K words</td>
<td>CP2E-S40DR-A</td>
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<td>Transistor (sinking)</td>
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<td>CP2E-S40DT-D</td>
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<td>24</td>
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<td>CP2E-S60DR-A</td>
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<td></td>
<td>24 VDC</td>
<td></td>
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<td>Transistor (sinking)</td>
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<td>CP2E-S60DT-D</td>
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#### CP2E-E/Essential Models

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<th>I/O points</th>
<th>Power supply</th>
<th>Inputs</th>
<th>Outputs</th>
<th>Output type</th>
<th>Program capacity</th>
<th>DM Area capacity</th>
<th>Model</th>
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<tbody>
<tr>
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<td>8</td>
<td>6</td>
<td>Relay</td>
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<td>12</td>
<td>Relay</td>
<td></td>
<td></td>
<td>CP2E-E30DR-A</td>
</tr>
<tr>
<td>40</td>
<td>100 to 240 VAC</td>
<td>24</td>
<td>16</td>
<td>Relay</td>
<td></td>
<td></td>
<td>CP2E-E40DR-A</td>
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<tr>
<td>60</td>
<td>100 to 240 VAC</td>
<td>36</td>
<td>24</td>
<td>Relay</td>
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<td>CP2E-E60DR-A</td>
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For details, refer to datasheet of CP2E (Cat.No. P145).
Optional Products

Battery: only for Real time Clock function- CP2E-N/CP2E-S CPU Unit

<table>
<thead>
<tr>
<th>Product name</th>
<th>Specifications</th>
<th>Model</th>
</tr>
</thead>
<tbody>
<tr>
<td>Battery</td>
<td>CP2E-N, CP2E-S dedicated battery. Install when using the clock function</td>
<td>CP2W-BAT02</td>
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</tbody>
</table>

Option Boards for CP2E-N

<table>
<thead>
<tr>
<th>Product name</th>
<th>Specifications</th>
<th>Model</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-port Serial Option Board</td>
<td>RS-232C</td>
<td>CP1W-CIF01</td>
</tr>
<tr>
<td>RS-422A/485</td>
<td>CP1W-CIF12-V1</td>
<td></td>
</tr>
<tr>
<td>RS-422A/485 (isolated)</td>
<td>CP1W-CIF12-V1</td>
<td></td>
</tr>
<tr>
<td>2-port Serial Option Board</td>
<td>RS-232C 2port</td>
<td>CP2W-CIF02</td>
</tr>
<tr>
<td>RS-232C, RS-485 (isolated)</td>
<td>CP2W-CIF02</td>
<td></td>
</tr>
<tr>
<td>RS-485 (isolated) 2port</td>
<td>CP2W-CIF02</td>
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</tr>
<tr>
<td>Analog Option Board <strong>1</strong></td>
<td>2 analog inputs. 0 to 10 V (resolution: 1/4000), 0 to 20 mA (resolution: 1/2000)</td>
<td>CP1W-ADB21</td>
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<tr>
<td>2 analog outputs. 0 to 10 V (resolution: 1/4000)</td>
<td>CP1W-ADB21V</td>
<td></td>
</tr>
<tr>
<td>2 analog inputs. 0 to 10 V (resolution: 1/4000), 0 to 20 mA (resolution: 1/2000)</td>
<td>CP1W-ADB21V</td>
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<tr>
<td>2 analog outputs. 0 to 10 V (resolution: 1/4000)</td>
<td>CP1W-ADB21V</td>
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</table>

**1. Two 2-port serial option boards cannot be mounted in a CPU unit. Two analog option boards also cannot be mounted in a CPU unit.**

Expansion I/O Units and Expansion Units

<table>
<thead>
<tr>
<th>Unit type</th>
<th>Product name</th>
<th>Inputs</th>
<th>Outputs</th>
<th>Specifications</th>
<th>Model</th>
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<tbody>
<tr>
<td>CP1W Expansion I/O Unit</td>
<td>Input Unit</td>
<td>8</td>
<td>24 VDC input</td>
<td>CP1W-8ED</td>
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<tr>
<td></td>
<td>8 Relay</td>
<td>8</td>
<td>Relay</td>
<td>CP1W-8ER</td>
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<tr>
<td></td>
<td>8 Transistor (sinking)</td>
<td>8</td>
<td>Transistor (sinking)</td>
<td>CP1W-8ET</td>
<td></td>
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<tr>
<td></td>
<td>8 Transistor (sourcing)</td>
<td>8</td>
<td>Transistor (sourcing)</td>
<td>CP1W-8ET1</td>
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<td>16 Relay</td>
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<td>Relay</td>
<td>CP1W-16ER</td>
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<td>16</td>
<td>Transistor (sinking)</td>
<td>CP1W-16ET</td>
<td></td>
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<tr>
<td></td>
<td>16 Transistor (sourcing)</td>
<td>16</td>
<td>Transistor (sourcing)</td>
<td>CP1W-16ET1</td>
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<tr>
<td></td>
<td>32 Relay</td>
<td>32</td>
<td>Relay</td>
<td>CP1W-32ER</td>
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<td>32 Transistor (sinking)</td>
<td>32</td>
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<td></td>
<td>32 Transistor (sourcing)</td>
<td>32</td>
<td>Transistor (sourcing)</td>
<td>CP1W-32ET1</td>
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<td>CP1W I/O Unit</td>
<td>Output Unit</td>
<td>4 ch</td>
<td>Input range: 0 to 5 V, 0 to 10 V, 0 to 20 mA, or 4 to 20 mA. Resolution: 1/6000</td>
<td>CP1W-AD041</td>
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<tr>
<td></td>
<td>4 ch</td>
<td>4 ch</td>
<td>Input range: 0 to 5 V, 0 to 10 V, 0 to 20 mA, or 4 to 20 mA. Resolution: 1/12000</td>
<td>CP1W-AD042</td>
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<tr>
<td></td>
<td>Analog Output Unit</td>
<td>2 ch</td>
<td>Output range: 1 to 5 V, 0 to 10 V, 0 to 20 mA, or 4 to 20 mA. Resolution: 1/6000</td>
<td>CP1W-DA021</td>
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<td></td>
<td>Analog Input Unit</td>
<td>4 ch</td>
<td>Output range: 1 to 5 V, 0 to 10 V, 0 to 20 mA, or 4 to 20 mA. Resolution: 1/12000</td>
<td>CP1W-DA041</td>
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<tr>
<td></td>
<td>4 ch</td>
<td>4 ch</td>
<td>Output range: 1 to 5 V, 0 to 10 V, 0 to 20 mA, or 4 to 20 mA. Resolution: 1/6000</td>
<td>CP1W-DA042</td>
<td></td>
</tr>
<tr>
<td></td>
<td>4 ch</td>
<td>4 ch</td>
<td>Output range: 1 to 5 V, 0 to 10 V, 0 to 20 mA, or 4 to 20 mA. Resolution: 1/12000</td>
<td>CP1W-DA042</td>
<td></td>
</tr>
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<td></td>
<td>Analog I/O Unit</td>
<td>2 ch</td>
<td>Input range: 0 to 5 V, 0 to 10 V, 0 to 20 mA, or 4 to 20 mA. Output range: 1 to 5 V, 0 to 10 V, 0 to 20 mA, or 4 to 20 mA. Resolution: 1/6000</td>
<td>CP1W-MAD11</td>
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<td></td>
<td>4 ch</td>
<td>4 ch</td>
<td>Input range: 0 to 5 V, 0 to 10 V, 0 to 20 mA, or 4 to 20 mA. Output range: 1 to 5 V, 0 to 10 V, 0 to 20 mA, or 4 to 20 mA. Resolution: 1/12000</td>
<td>CP1W-MAD42</td>
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<td>4 ch</td>
<td>4 ch</td>
<td>Input range: 0 to 5 V, 0 to 10 V, 0 to 20 mA, or 4 to 20 mA. Output range: 1 to 5 V, 0 to 10 V, 0 to 20 mA, or 4 to 20 mA. Resolution: 1/6000</td>
<td>CP1W-MAD44</td>
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<td>Temperature Sensor Unit</td>
<td>2 ch</td>
<td>Sensor type: Thermocouple (K or J)</td>
<td>CP1W-TS001</td>
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<tr>
<td></td>
<td>4 ch</td>
<td>4 ch</td>
<td>Sensor type: Platinum resistance thermometer (Pt100 or JPt100)</td>
<td>CP1W-TS002</td>
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<td></td>
<td>4 ch</td>
<td>4 ch</td>
<td>Sensor type: Thermocouple (K or J). 4 ch or 2 analog inputs. Input range: 0 to 10 V, 1 to 5 V, or 4 to 20 mA. Resolution: 1/12000</td>
<td>CP1W-TS003</td>
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<td>12 ch</td>
<td>12 ch</td>
<td>Sensor type: Thermocouple (K or J)</td>
<td>CP1W-TS004</td>
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<tr>
<td>I/O Connecting Cable</td>
<td>800 mm extension cable for CP1W Expansion I/O Units and CP1W Expansion Units. Only one I/O Connecting Cable can be used in each PLC</td>
<td>CP1W-CN811</td>
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<td></td>
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</table>

Software

<table>
<thead>
<tr>
<th>Product name</th>
<th>Specifications</th>
<th>License</th>
<th>Media</th>
<th>Model</th>
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<tbody>
<tr>
<td>CX-One Lite Ver4.</td>
<td>A subset of the complete CX-One package that provides only the support software required for compact PLC applications</td>
<td>1</td>
<td>DVD</td>
<td>CXONE-LT01D-V4</td>
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<tr>
<td>Cx-One Ver4.</td>
<td>A comprehensive software package that integrates support software for Omron PLCs and components</td>
<td>1</td>
<td>DVD</td>
<td>CXONE-AL01D-V4</td>
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</tbody>
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