OMRON

SYSMAC
CP1E

Package PLCs with Exceptional Cost

» Easy

» Economy

» Efficient

realizing

Cost-Effective, Easy Application, Application to Many Systems

Exceptional Cost

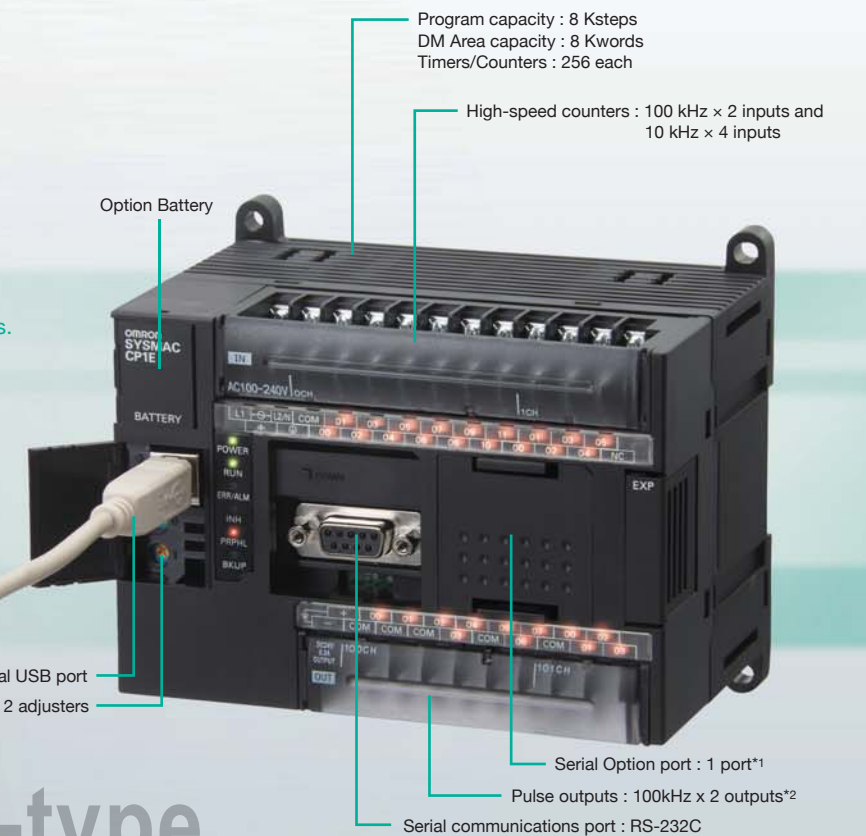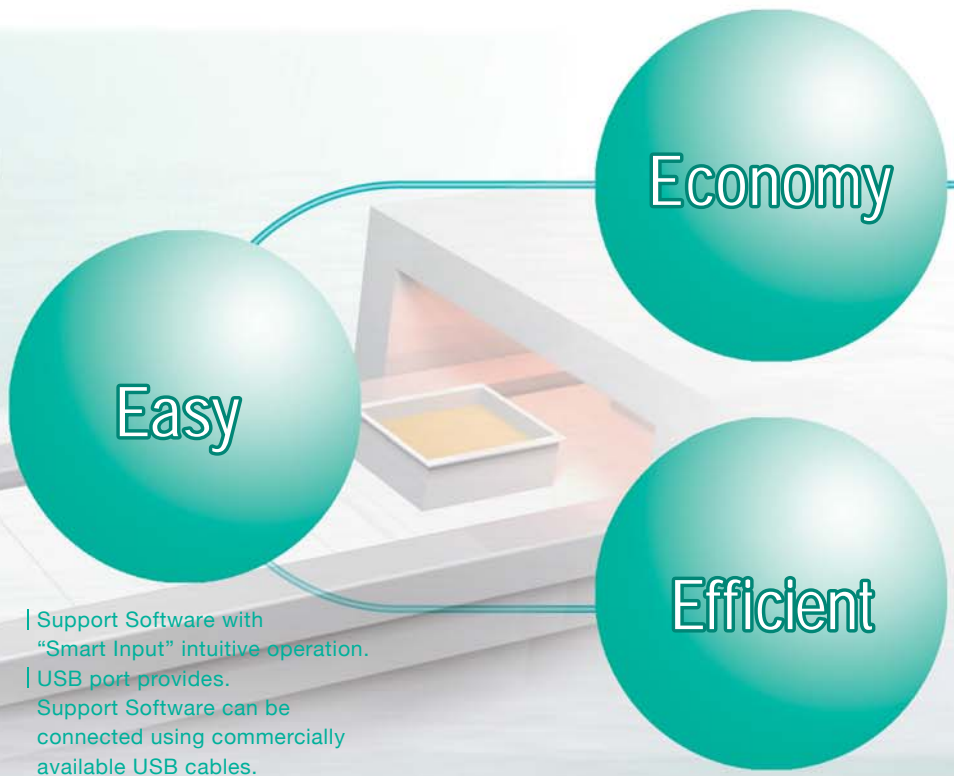### Responding to Global Competition with More Device Control Possibilities

The CP1E all-in-one package PLCs provide high cost performance to further reduce costs by allowing you to select the optimal CPU Unit from the E-type Basic Models or N-type Application Models.

Program capacity : 2 Ksteps
DM Area capacity : 2 Kwords
Timers/Counters : 256 each

High-speed counters : 10 kHz × 6 inputs

Peripheral USB port
Analog adjusters : 2 adjusters

E-type

The Basic Models provide cost performance and easy application.

Economy

| Exceptional Cost.
| Optimal cost with a selection of two types of CP1E CPU Units.

Easy

Efficient

| Support Software with "Smart Input" intuitive operation.
| USB port provides. Support Software can be connected using commercially available USB cables.

| N-type CPU Units for small-scale systems.
| Option Units for increased expandability.

Program capacity : 8 Ksteps
DM Area capacity : 8 Kwords
Timers/Counters : 256 each

High-speed counters : 100 kHz × 2 inputs and 10 kHz × 4 inputs

Option Battery

The optimal cost can be achieved efficiently with two types CP1E CPU Units.

Program capacity			
N-type CP1E CPU Units Application Models			
8K steps	90 / 86 / 85 CP1E-N20D -	90 / 130 / 85 CP1E-N30D -	90 / 150 / 85 CP1E-N40D -
E-type CP1E CPU Units Basic Models			
2K steps	90 / 86 / 85 CP1E-E20DR-A	90 / 130 / 85 CP1E-E30DR-A	90 / 150 / 85 CP1E-E40DR-A
	20	30	40 Number of I/O points

Peripheral USB port
Analog adjusters : 2 adjusters

N-type

Compatible with small Programmable Terminals and inverter-controlled position control.

Serial Option port : 1 port*1
Pulse outputs : 100kHz x 2 outputs*2
Serial communications port : RS-232C

*1 : Models with 30 or 40 I/O points.
*2 : Models with transistor outputs.

Intuitive control with "Smart Input."
Visual decision making is supported with the display of terminal locations.

Easy

Simple and User Friendly

Easy Ladder Programming with "Smart Input."

Easy Input Editor

Instruction and Address Input Assist Functions

When you begin typing an instruction from the keyboard in Ladder Editor Mode, suggested instructions are displayed and the addresses are automatically entered. Connecting lines are added automatically based on the cursor position, enabling intuitive ladder programming.

Ladder Programming
30% Faster

Note. In the case of program capacity 1.5 Ksteps

■ **Easy Input Editor with Smart Input Function**
When you begin typing an instruction in Ladder Editor Mode, suggested instructions are displayed.
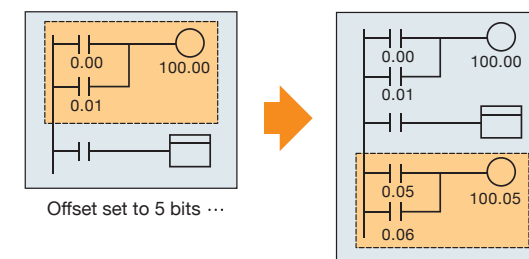
Smart Input Function

Guidance display

When you begin typing an instruction in Ladder Editor Mode, suggested instructions are displayed.

enter Select the desired instruction and the addresses will be set to one higher than the addresses that were previously entered.

enter Enter the operands. I/O comments can also be entered at the same time.

User-friendly Ladder Program Input

Automatic Connecting Line Insertion

With the automatic connecting line insertion function the necessary connection is added automatically based on the curser position.
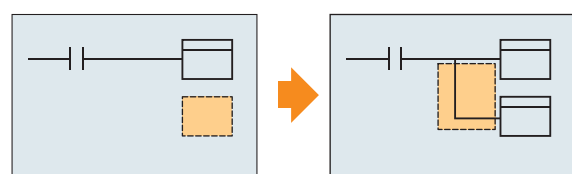
When an instruction is input at the cursor, a connecting line is automatically inserted.

Automatic Column Insertion When Inserting Instructions

The column is automatically inserted when an instruction is added even if the curser is above another instruction.

When an instruction is input at the cursor, a column is automatically inserted for the instruction.

Easily Reuse Ladder Programming

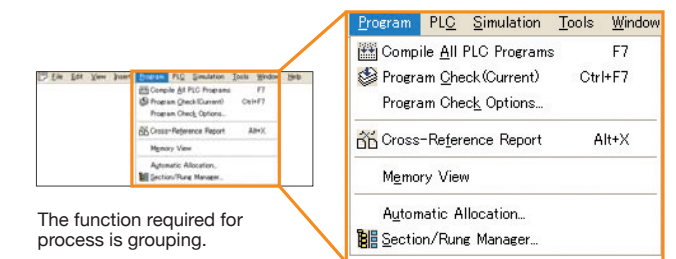### Copying with Address Incrementing

To create the same group of ladder instructions more than once, with the address addition copy function, the instructions can be reused simply by inputting an address offset.

0.00 100.00
0.01

Offset set to 5 bits …

0.00 100.00
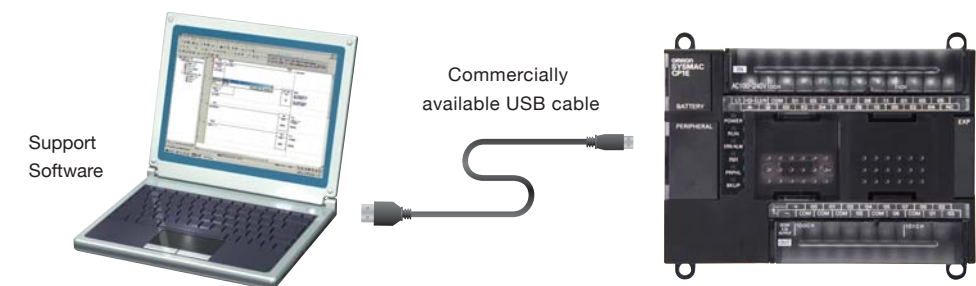0.01

0.05 100.05
0.06

Intuitive Menu Structure

Intuitive Menu Display

An intuitively designed menu structure makes it easy to see the overall system simply by looking at the menu for smooth operation without referring to a manual.

Program PLC Simulation Tools Window
Compile All PLC Programs   F7
Program Check (Current)   Ctrl+F7
Program Check Options...
Cross-Reference Report   Alt+X
Memory View
Automatic Allocation...
Section/Rung Manager...

The function required for process is grouping.

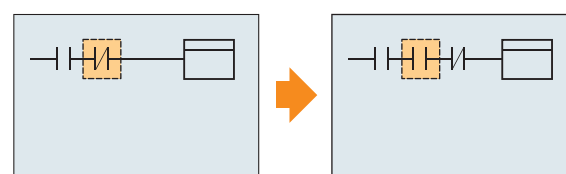## Commercially Available USB Cables Can Be Connected

CP1E CPU Units use USB for the peripheral port. Computers can be connected using commercially available USB cables. Without the need for USB conversion cables or special cables, connection is easier and cable cost is low.

Support Software

Commercially available USB cable

I/O Status at a Glance

The terminal layout display features I/O indicators. The indicators are in the same position as the terminals to let you see the I/O status at a glance. You can easily identify I/O status or perform status checks at startup or during operation.

ON ON OFF ON

Sensors

Visible Status
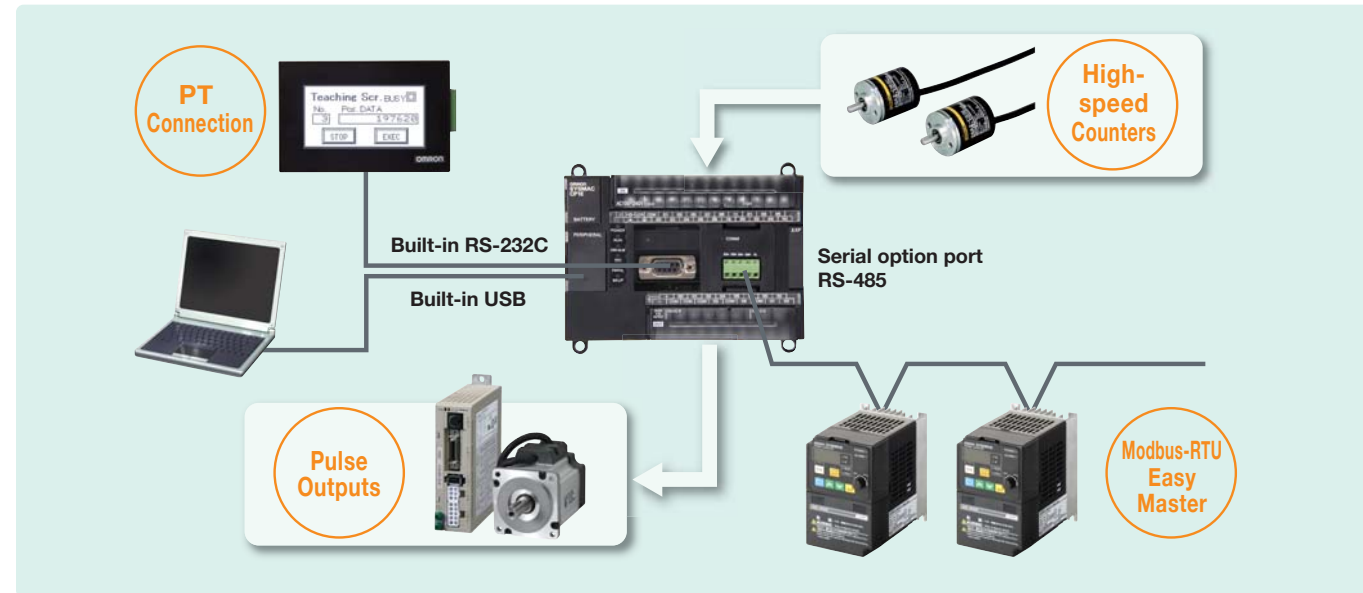
Efficient and Effective

Flexibly handle even small-scale systems.
Various Option Units available for increased expandability.

Efficient

## More Applications with Advanced Control Capabilities and Functionality

N-type only

The CP1E N-type CPU Units are equipped with high-speed counters, pulse outputs, and a built-in serial port. These features enable controlling a wide range of devices.
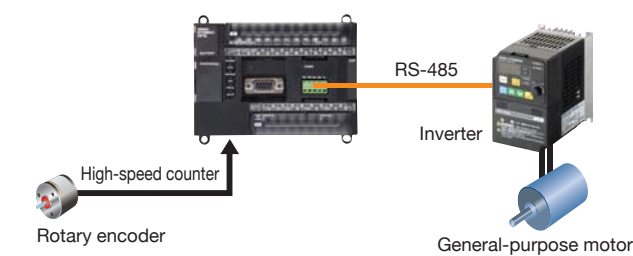
- PT Connection
- Built-in RS-232C
- Built-in USB
- Serial option port RS-485
- High-speed Counters
- Pulse Outputs
- Modbus-RTU Easy Master

More Applications with Option Units

Three expansion units / expansion I/O units can be added to a cpu unit with 30 or 40 I/O points.
A serial option board can be added to N-type CPU Unit with 30 or 40 I/O points.

Option Units
N-type CPU Unit with 30 or 40 I/O Points

- **RS-232C Option Board** CP1W-CIF01
- **RS-422A/485 Option Board** CP1W-CIF11 (Maximum transmission distance: 50m)
- **RS-422A/485 Option Board** (Isolated-type) CP1W-CIF12 (Maximum transmission distance: 500m)

Expansion Units and Expansion I/O Units
E-type / N-type CPU Unit with 30 or 40 I/O Points

Expansion I/O Units
- Units with 40 I/O CP1W-40EDR / CP1W-40EDT / CP1W-40EDT1
- Units with 20 I/O CP1W-20EDR1 / CP1W-20EDT / CP1W-20EDT1
- Units with 32 Outputs CP1W-32ER / CP1W-32ET / CP1W-32ET1
- Units with 16 Outputs CP1W-16ER / CP1W-16ET / CP1W-16ET1
- Units with 8 Outputs CP1W-8ER / CP1W-8ET / CP1W-8ET1
- Unit with 8 Inputs CP1W-8ED

Analog I/O Units
- Analog I/O Unit CP1W-MAD11
- Analog Input Unit CP1W-AD041
- Analog Output Unit CP1W-DA041

Temperature Sensor Units
- Temperature Sensor Units (Thermocouples) CP1W-TS001 CP1W-TS002
- Temperature Sensor Units (Platinum Resistance Thermometers) CP1W-TS101 CP1W-TS102

CompoBus/S I/O Link Unit
- CompoBus/S Slave CP1W-SRT21

Pulse Outputs

Two 100kHz pulse outputs for high-precision position control.

Note : Models with transistor outputs.

- Pulse outputs
- Servomotor / Driver
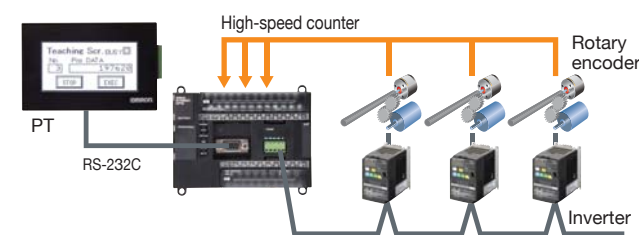- RS-232C
- PT
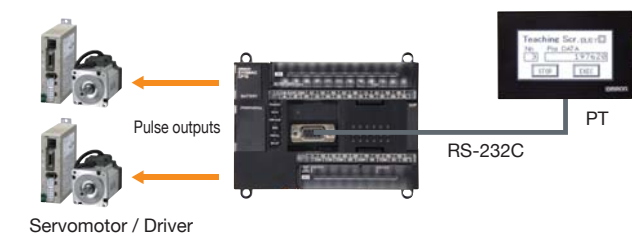
Modbus-RTU Easy Master

Specify Inverter speeds via RS-485.

- RS-485
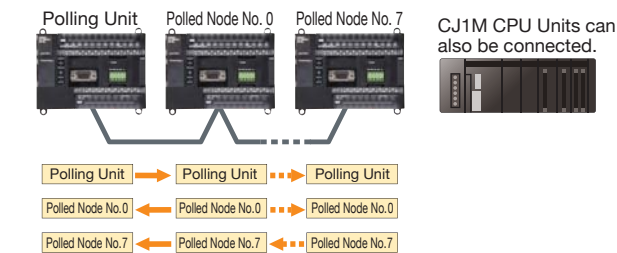- Inverter
- High-speed counter
- Rotary encoder
- General-purpose motor

High-speed Counters

Control multiple axes with one PLC using the two 100kHz and four 10kHz, single-phase high-speed counters.
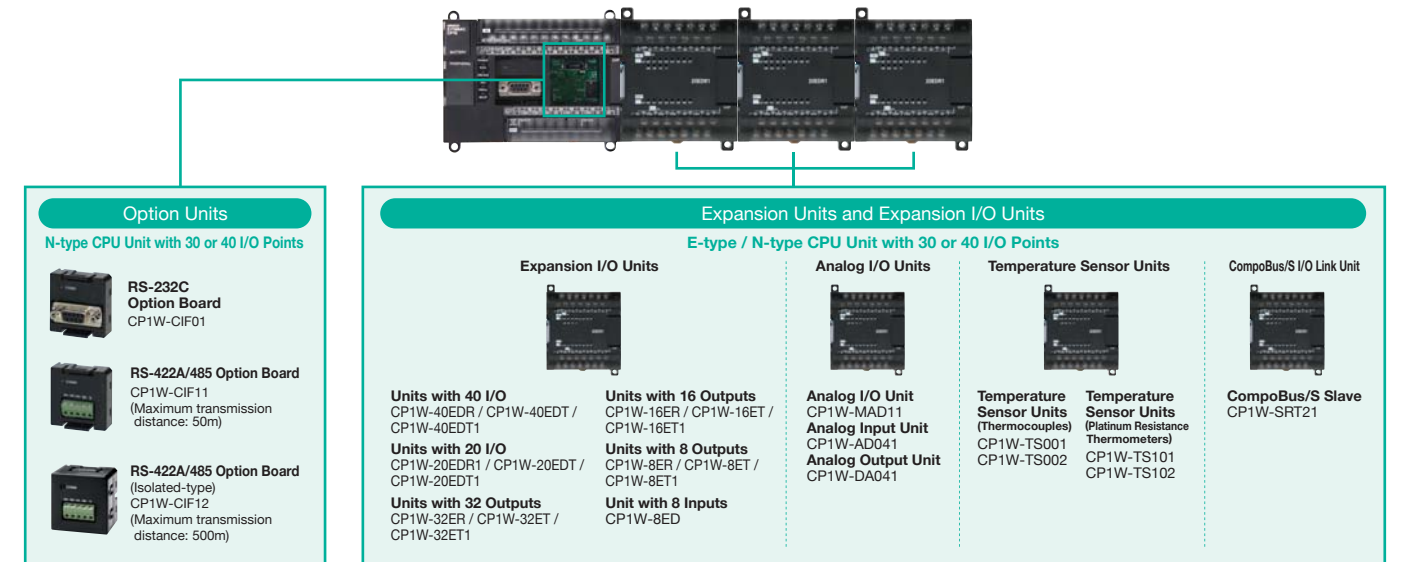
- High-speed counter
- Rotary encoder
- PT
- RS-232C
- Inverter

Serial PLC Links

Link data with up to 10 words between up to nine CP1E-N CPU Units when controlling a device with multiple CP1E-N PLCs.

CJ1M CPU Units can also be connected.

- Polling Unit
- Polled Node No. 0
- Polled Node No. 7
- Polling Unit / Polling Unit
- Polled Node No.0 / Polled Node No.0
- Polled Node No.7 / Polled Node No.7

Ordering information

International Standards

- The standards are abbreviated as follows: U: UL, U1: UL(Class I Division 2 Products for Hazardous Locations), C: CSA, UC: cULus, UC1: cULus (Class I Division 2 Products for Hazardous Locations), CU: cUL, N: NK, L: Lloyd, and CE: EC Directives.
- Contact your OMRON representative for further details and applicable conditions for these standards.

E-type CP1E CPU Units (Basic models)

Product name	Specifications						Model	Standards
	Power Supply	Inputs	Outputs	Output type	Program capacity	Data memory capacity		
E-type with 20 I/O Points	100 to 240 VAC	12	8	Relay	2K steps	2K words	CP1E-E20DR-A *NEW*	CE
E-type with 30 I/O Points		18	12	Relay			CP1E-E30DR-A *NEW*	
E-type with 40 I/O Points		24	16	Relay			CP1E-E40DR-A *NEW*	

Note: There are no accessories included with E-type CP1E CPU Units. A Battery (CP1W-BAT01) cannot be used.

N-type CP1E CPU Units (Application models)

Product name	Specifications						Model	Standards
	Power Supply	Inputs	Outputs	Output type	Program capacity	Data memory capacity		
N-type with 20 I/O Points	100 to 240 VAC	12	8	Relay	8K steps	8K words	CP1E-N20DR-A *NEW*	CE
				Transistor (sinking)			CP1E-N20DT-A *NEW*	
				Transistor (sourcing)			CP1E-N20DT1-A *NEW*	
	24 VDC			Relay			CP1E-N20DR-D *NEW*	
				Transistor (sinking)			CP1E-N20DT-D *NEW*	
				Transistor (sourcing)			CP1E-N20DT1-D *NEW*	
N-type with 30 I/O Points	100 to 240 VAC	18	12	Relay	8K steps	8K words	CP1E-N30DR-A *NEW*	
				Transistor (sinking)			CP1E-N30DT-A *NEW*	
				Transistor (sourcing)			CP1E-N30DT1-A *NEW*	
	24 VDC			Relay			CP1E-N30DR-D *NEW*	
				Transistor (sinking)			CP1E-N30DT-D *NEW*	
				Transistor (sourcing)			CP1E-N30DT1-D *NEW*	
N-type with 40 I/O Points	100 to 240 VAC	24	16	Relay	8K steps	8K words	CP1E-N40DR-A *NEW*	
				Transistor (sinking)			CP1E-N40DT-A *NEW*	
				Transistor (sourcing)			CP1E-N40DT1-A *NEW*	
	24 VDC			Relay			CP1E-N40DR-D *NEW*	
				Transistor (sinking)			CP1E-N40DT-D *NEW*	
				Transistor (sourcing)			CP1E-N40DT1-D *NEW*	
Battery Set	For N-type CP1E CPU Units Note: Mount a Battery to an N-type CP1E CPU Unit if the data in the following areas must be backed up for power interruptions. • DM Area (D) (except backed up words in the DM Area), Holding Area (H), Counter Completion Flags (C), Counter Present Values (C), Auxiliary Area (A) , and Clock Function.(Use batteries within two years of manufacture.)						CP1W-BAT01 *NEW*	CE

Note: There are no accessories included with N-type CP1E CPU Units.   RS-232C connectors for the built-in RS-232C port and the Battery (CP1W-BAT01) are not included.

"One Software" for our Compact PLCs
CX-One Lite

We've upgraded the CX-One Lite Software Package which is designed specifically for low end systems.
When using Compact PLCs only, the CX-One Lite is your cost effective programming and configuration tool.

- Micro PLC Edition CX-Programmer provides a Smart Input function for intuitive software operation to simplify programming.
- Support Software applications for the NS-series HMIs, NV-series HMIs, and Temperature Controllers are also included for simple setup operations.
- Total lead time until the system is up and running is reduced.

Support Software in CX-One
The following tables lists the Support Software that can be installed from CX-One

Support Software in CX-One		CX-One Lite Ver.4.0	CX-One Ver.3.2
Micro PLC Edition CX-Programmer	Ver.9.	Yes	No
CX-Programmer	Ver.8.	No	Yes
CX-Integrator	Ver.2.	Yes	Yes
Switch Box Utility	Ver.1.	Yes	Yes
CX-Protocol	Ver.1.	No	Yes
CX-Simulator	Ver.1.	Yes	Yes
CX-Position	Ver.2.	No	Yes
CX-Motion-NCF	Ver.1.	No	Yes
CX-Motion-MCH	Ver.2.	No	Yes
CX-Motion	Ver.2.	No	Yes

Support Software in CX-One		CX-One Lite Ver.4.0	CX-One Ver.3.2
CX-Drive	Ver.1.	Yes	Yes
CX-Process Tool	Ver.5.	No	Yes
Faceplate Auto-Builder for NS	Ver.3.	No	Yes
CX-Designer	Ver.3.	Yes	Yes
NV-Designer	Ver.1.	Yes	Yes
CX-Thermo	Ver.4.	Yes	Yes
CX-ConfiguratorFDT	Ver.1.	Yes	Yes
CX-FLnet	Ver.1.	No	Yes
Network Configurator	Ver.3.	Yes	Yes
CX-Server	Ver.4.	Yes	Yes

Note: For details, refer to the CX-One Catalog (Cat. No. R134).

Ordering Information

Product name	Specifications	Number of licenses	Media	Model	Standards
FA Integrated Tool Package CX-One Lite Ver.4.0	CX-One Lite is a subset of the complete CX-One package that provides only the Support Software required for micro PLC applications. CX-One Lite runs on the following OS. Windows 2000 (Service Pack 3 or higher), XP, or Vista CX-One Lite Ver. 4.0 includes Micro PLC Edition CXProgrammer Ver.9.0. The Smart Input function is provided.	1 license	CD	CXONE-LT01C-V4 **NEW**	—
	Micro PLC Edition CX-Programmer can still be ordered individually with the following model number.				
Micro PLC Edition CX-Programmer Ver.9.0	Micro PLC Support Software The Smart Input function is provided. OS: Windows 2000 (Service Pack 3 or higher), XP, or Vista Applicable models: CP1 , CPM , SRM1	1 license	CD	WS02-CXPC2-V9 **NEW**	—
CX-One FA Integrated Tool Package Ver.3.	CX-One is a package that integrates the Support Software for OMRON. PLCs and components. CX-One runs on the following OS. OS: Windows 2000(Service Pack3 or higher),XP, or Vista CX-One Ver. 3. includes CX-Programmer Ver. 8. .	1 license*1	CD	CXONE-AL01C-V3 *4	—
			DVD*2	CXONE-AL01D-V3 *4	—
	CX-Programmer can still be ordered individually in the following model number.				
CX-Programmer Ver.8.	PLC Support Software OS: Windows 2000 (Service Pack 3 or higher), XP, or Vista	1 license*3	CD	WS02-CXPC1-V8	—

Note : The Smart Input function is supported only by Micro PLC Edition CX-Programmer version 9.0 or higher and CX-Programmer for CP1E version 1.0.
*1 Site licenses are available for the CX-One (3, 10, 30 or 50 licenses).
*2 When purchasing the DVD format, verify the computer model and DVD drive specifications before purchasing.
*3 Site licenses are available for the CX-Programmer (3 or 10 licenses).
*4 CX-Programmer version.8.2 or higher is required for CP1E PLCs. CX-Programmer version 8.2 is available via a CX-One V3 auto update.

For details, refer to the CP1E Data Sheet (Cat. No. P061).

- The application examples provided in this catalog are for reference only. Check functions and safety of the equipment before use.
- Never use the products for any application requiring special safety requirements, such as nuclear energy control systems, railroad systems, aviation systems, medical equipment, amusement machines, vehicles, safety equipment, or other application involving serious risk to life or property, without ensuring that the system as a whole has been designed to address the risks, and that the OMRON products are properly rated and installed for the intended use within the overall equipment or system.

Note: Do not use this document to operate the Unit.

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