

CP1E

Cost-effective CP1E with Enhanced Expandability for Analog and Temperature Control



» Easy to use

» Economical

» Efficient

Cost-Effective, Easy Application, Application to Many Systems



Analog Option Board

Note: Can be mounted to

the CP1F-N□□ only.

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Analog I/O Units

Temperature Sensor Units

Up to 8 analog I/O per Unit, high resolution of 1/12,000

Multi-inputs: thermocouple and analog inputs, up to 12 thermocouple inputs per Unit

Economical

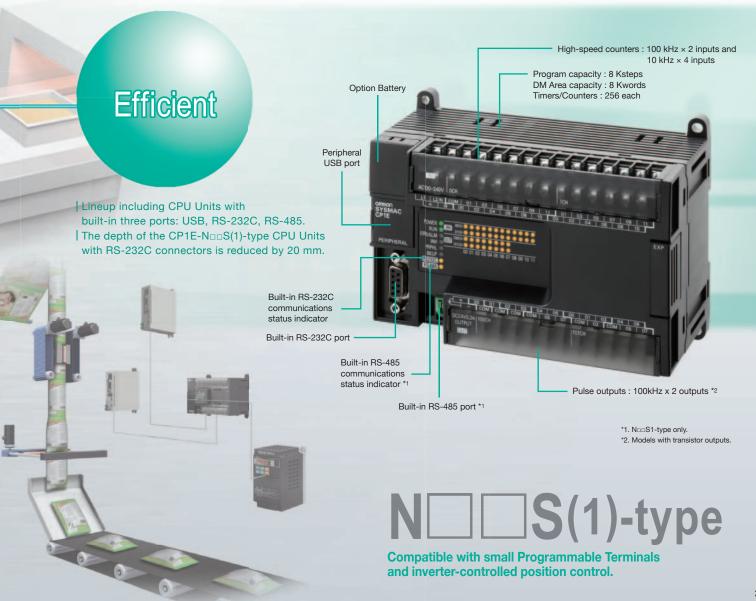
Exceptional Cost

Responding to Global Competition with More Device Control Possibilities

The CP1E provide high cost performance to further reduce costs by allowing you to select the optimal CPU Unit from the $E \square S$ -type Basic Models or $N/\square S(1)$ -type Application Models.



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



Simple and User Friendly

Leasy to use input editor with smart input function

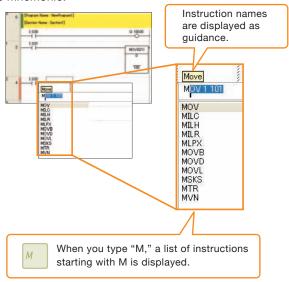
When you begin typing an instruction from the keyboard in Ladder Editor Mode, suggested instructions are displayed and the addresses are automatically entered. Connecting lines are added automatically based on the cursor position, enabling intuitive ladder programming.

All Models

Easy Input Editor

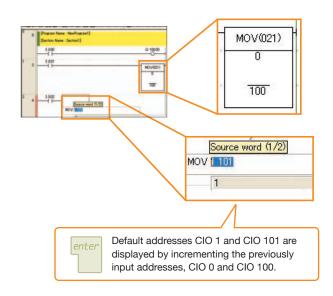
Instruction and Address Input Assist Functions

When you begin typing an instruction from the keyboard while in the Ladder Editor Window, suggested instructions are displayed. All you have to do is select the instruction from the list for easy input even if you do not remember the entire mnemonic.



Address Incrementing

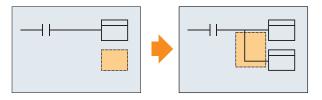
The address of the next operand, including input bits and output bits, is incremented by one and displayed as the default. This enables easily inputting consecutive addresses.



User-friendly Ladder Program Input

Automatic Connecting Line Insertion

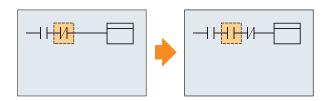
With the automatic connecting line insertion function the necessary connection is added automatically based on the curser position.



When an instruction is input at the curser, 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.

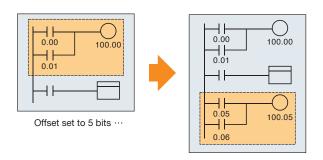


When an instruction is input at the curser, a column is automatically inserted for the instruction.

Easy to reuse ladder programming

Copying with Address Incrementing

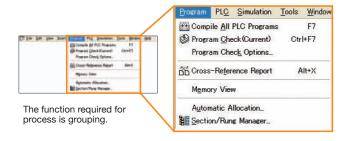
To create the same group of ladder instructions more than once with the address addition copy function, the instructions can be reused simply by inputting an address offset.



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.



I Only commercially available USB cables required

All CP1E CPU Units use high-speed USB for the peripheral port. Support software (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.

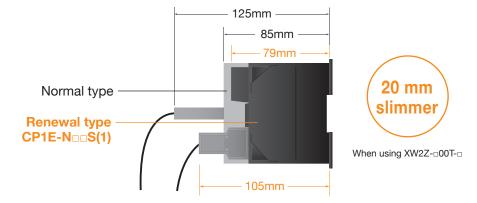




The depth of CPU Units with RS-232C connectors is reduced by 20 mm

6 mm slimmer than the normal type.

Renewal type



Efficient and Effective

More Applications with AdvancedControl Capabilities and Functionality

Application Models

The Application Models (CP1E-N \Box \Box /N \Box S(1)) are equipped with high-speed counters, pulse outputs, and a built-in serial port(s).

In addition, using the Expansion Unit and Option Board, you can control a wide range of devices.



Pulse Outputs



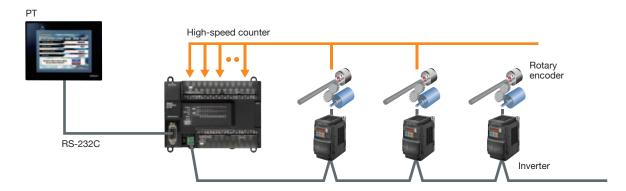
Two 100kHz pulse outputs for high-precision position control.



High-speed Counters*

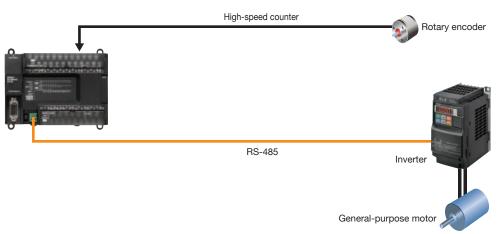
Control multiple axes with one PLC using the two 100kHz and four 10kHz, single-phase high-speed counters.

* The Basic Models are equipped with six 10kHz, single-phase high-speed counters.



Modbus-RTU easy master

Specify Inverter speeds via RS-485

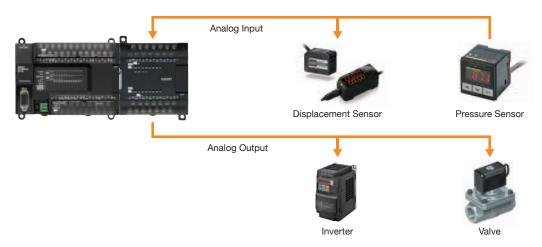


Efficient and Effective

Analog I/O Control

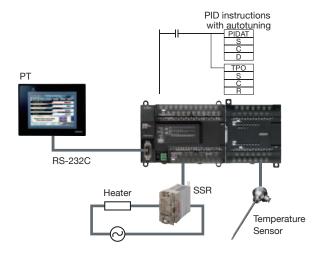
High-accuracy analog I/O control with a resolution 1/12,000.

You can add up to 4 analog I/O by mounting an Analog Option Board and up to 24 analog I/O by connecting Expansion Units.



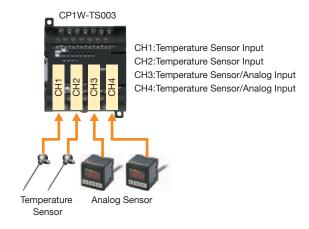
Temperature Control

The combination of the Temperature Input Unit with the PID instructions enables temperature control. Up to 12 thermocouple inputs per Unit for CP1W-TS004.



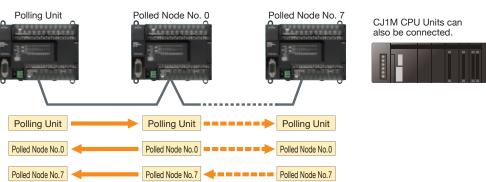
The CP1W-TS003 has two inputs that can be used for temperature sensor or analog inputs.

Both temperature sensor and analog inputs can be achieved with only one Unit.



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.



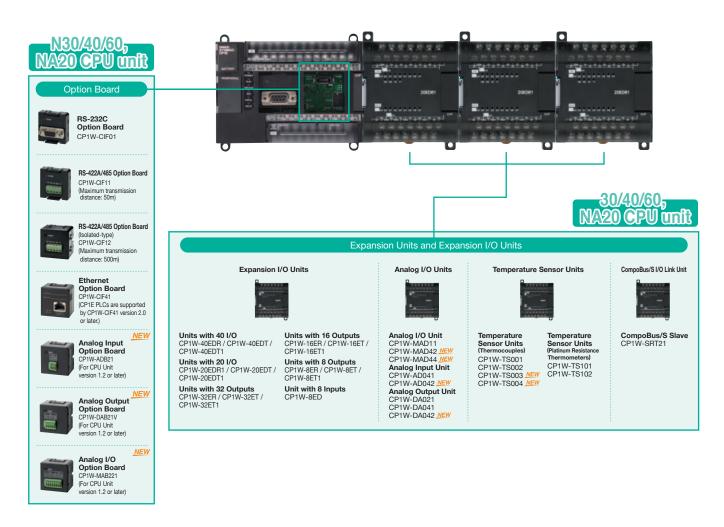
Ethernet Communications

Mount a CP1W-CIF41 Ethernet Option Board to an option board slot on the CP1E-N/NA type CPU Unit. Perform monitoring and programming with CX-Programmer, or communicate with a host computer via Ethernet.(server function only)



I Optional units for more flexibility

An option board for an additional Serial or Ethernet communication port can be added to the N30/40/60 and NA20 CPU Unit. Three expansion units are available. *The Option Board cannot be mounted to the CP1E-NaaS/NaaS1.



Line up/Variation

I Selecting the best CPU Unit for your system helps minimize and optimize costs.

Line up



Basic Models

	ı	Eoo CF	PU Uni	t	EnnS CPU Unit					
	Relay	outputs	out	Transistor outputs (sinking/sourcing)		outputs	Transistor outputs (sinking/sourcing			
Power supply	AC DC		AC	DC	AC	DC	AC	DC		
10 I/O points	•	•	•	•	_	_	_	_		
14 I/O points	•	-	_	_	•	_	_	-		
20 I/O points	•	_	_	_	•	_	_	-		
30 I/O points	•	-	_	_	•	_	_	-		
40 I/O points	•	_	_	_		_	_	_		
60 I/O points			_	_		_	_	-		

Application Models

	1	RS-2	PU Uni 32C+1 1 slot*	t		l□□S C uilt-in					□S1 CPU Unit n RS-232C+RS-485		
	Relay outputs Transistor outputs (sinking/sourcing)		Relay	Relay outputs Transistor outputs (sinking/sourcing)		puts	Relay outputs		Transistor outputs (sinking/sourcing)				
Power supply	AC	DC	AC	DC	AC	DC	AC	DC	AC	DC	AC	DC	
10 I/O points	_	_	_	_	_	_	_	_	_	_	_	_	
14 I/O points	•	•	•	•	_	_	_	_	_	_	_	_	
20 I/O points	•	•			_	_	_	_	_	_	_	_	
30 I/O points	•	•		•	•	_	_	•	•	_	_	•	
40 I/O points	•	•		•	•	_	_	•	•	_	_	•	
60 I/O points	•	•	•	•	•	_	_	•	•	_	_	•	
20 I/O points (Built-in Analog)	•	ı	_	•	_	_	_	_	_	_	_	_	

Variation

	Basic I	Models		Application	on Models	
	Renewal type	Normal type	Renew	al type	Normal type	Normal type (Built-in Analog)
Model	Ems	E00	Nos	N=S1	Non	NA20
Program capacity	2K steps	2K steps	8K steps	8K steps	8K steps	8K steps
DM Area capacity	2K words	2K words	8K words	8K words	8K words	8K words
USB port	USB	USB	USB	USB	USB	USB
Built-in Serial port	_	_	RS- 232C	RS- 232C RS- 485	RS- 232C	RS- 232C
Option Board *1	_	_	_	-	RS- 232C RS-422A RS-485 Ether net Analog	RS-1222 RS-422A RS-485 Ether net Analog
Battery *2 (Optional)	_	_	Battery	Battery	Battery	Battery
Clock	_	_	Clock	Clock	Clock	Clock
High-speed counters (Single-phase)	10kHz ×6	10kHz ×6	100kHz ×2 10kHz ×4	100kHz ×2 10kHz ×4	100kHz x2 10kHz x4	100kHz x2 10kHz x4
High-speed counters (Differential Phase)	5kHz ×2	5kHz ×2	50kHz ×1 5kHz ×1	50kHz SkHz ×1	50kHz 5kHz ×1	50kHz SkHz ×1
Pulse outputs (transistor output type)	_	_	100kHz ×2	100kHz ×2	100kHz ×2	100kHz ×2
Analog adjusters	_	Analog adjusters	_	_	Analog adjusters	Analog adjusters
Built-in analog	_	_	_	_	_	AD 2 DA 1

^{*1.} For CP1E N30/40/60 or NA20 CPU Units only.

 $[\]ensuremath{^{\star}}\xspace$ 2. The CP1W-BAT01 Battery (sold separately) can be mounted

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, KC: KC Registration, and CE: EU Directives.
 Contact your OMRON representative for further details and applicable conditions for these standards.

Application models

■Renewal type (N□□S1-type) CP1E CPU Units: Built-in 3 ports

Product name				Specifications			Model	Standards				
Product name	Power Supply	Inputs	Outputs	Outputs Output type Program capacity Data memory capacity		Model	Standards					
N□□S1-type	100 to 240 VAC		Relay		CP1E-N30S1DR-A							
with 30 I/O Points	24VDC	18	12	Transistor (sinking)			CP1E-N30S1DT-D					
With 30 1/O Points	24000			Transistor (sourcing)			CP1E-N30S1DT1-D					
N□□S1-type	100 to 240 VAC	24						Relay			CP1E-N40S1DR-A	
with 40 I/O Points	24VDC		16	Transistor (sinking)	8K steps	8K words	CP1E-N40S1DT-D	CE, KC				
With 40 1/O Points				Transistor (sourcing)			CP1E-N40S1DT1-D					
N□□S1-type with 60 I/O Points	100 to 240 VAC			Relay			CP1E-N60S1DR-A					
	041/DC	36	24	Transistor (sinking)			CP1E-N60S1DT-D					
	24VDC			Transistor (sourcing)			CP1E-N60S1DT1-D					

■Renewal type (N□□S-type) CP1E CPU Units: Built-in 2 ports

Product name				Specifications			Model	Standards
Froduct name	Power Supply	Inputs	Outputs	outputs Output type Program capacity Data memory capacity		Model	Otandards	
NC tuno	100 to 240 VAC			Relay			CP1E-N30SDR-A	
N□□S-type with 30 I/O Points	24VDC	18	12	Transistor (sinking)			CP1E-N30SDT-D]
With 30 I/O Points	24000			Transistor (sourcing)	8K steps		CP1E-N30SDT1-D]
NC tuno	100 to 240 VAC			Relay			CP1E-N40SDR-A	
N□□S-type with 40 I/O Points	24VDC	24	16	Transistor (sinking)		8K words	CP1E-N40SDT-D	CE
With 40 1/O Points				Transistor (sourcing)			CP1E-N40SDT1-D]
N. China	100 to 240 VAC			Relay	,		CP1E-N60SDR-A	
N□□S-type with 60 I/O Points	24VDC	36	24	Transistor (sinking)			CP1E-N60SDT-D]
	24VDC			Transistor (sourcing)			CP1E-N60SDT1-D	

■Normal type (N/NA□□-type) CP1E CPU Units

Product name				Specifications			Model	Standards		
Product name	Power Supply	Inputs	Outputs	Output type	Program capacity	Data memory capacity	iviodei	Standards		
				Relay			CP1E-N14DR-A			
	100 to 240 VAC			Transistor (sinking)			CP1E-N14DT-A			
N□□-type		8	6	Transistor (sourcing)	01/ -+	8K words	CP1E-N14DT1-A			
with 14 I/O Points		0	0	Relay	8K steps	8K words	CP1E-N14DR-D			
	24VDC			Transistor (sinking)			CP1E-N14DT-D			
				Transistor (sourcing)			CP1E-N14DT1-D			
				Relay			CP1E-N20DR-A			
	100 to 240 VAC			Transistor (sinking)			CP1E-N20DT-A			
N□□-type		12	8	Transistor (sourcing)	01/	8K words	CP1E-N20DT1-A			
with 20 I/O Points		12	0	Relay	8K steps	8K words	CP1E-N20DR-D			
	24VDC			Transistor (sinking)			CP1E-N20DT-D			
				Transistor (sourcing)			CP1E-N20DT1-D			
	100 to 240 VAC			Relay			CP1E-N30DR-A			
				Transistor (sinking)	01/		CP1E-N30DT-A			
N□□-type		18	12	Transistor (sourcing)		01/	CP1E-N30DT1-A			
with 30 I/O Points	24VDC	24VDC		18	12	Relay	8K steps	8K words	CP1E-N30DR-D	UC1,
				24VDC	24VDC			Transistor (sinking)		
				Transistor (sourcing))		CP1E-N30DT1-D	CE, KC		
				Relay			CP1E-N40DR-A			
	100 to 240 VAC			Transistor (sinking)			CP1E-N40DT-A			
N□□-type		24	16	Transistor (sourcing)	01/ -1	01/	CP1E-N40DT1-A			
with 40 I/O Points		24	16	Relay	8K steps	8K words	CP1E-N40DR-D			
	24VDC			Transistor (sinking)			CP1E-N40DT-D			
				Transistor (sourcing)			CP1E-N40DT1-D			
				Relay			CP1E-N60DR-A			
	100 to 240 VAC			Transistor (sinking)			CP1E-N60DT-A			
N□□-type		36	24	Transistor (sourcing)	01/ -1	01/	CP1E-N60DT1-A			
with 60 I/O Points		36	24	Relay	8K steps	8K words	CP1E-N60DR-D			
	24VDC			Transistor (sinking)			CP1E-N60DT-D			
				Transistor (sourcing)			CP1E-N60DT1-D			
NA-type	100 to 240 VAC	12	8	Relay			CP1E-NA20DR-A	1		
with 20 I/O Points	041/100	(Built-in	(Built-in	Transistor (sinking)	8K steps	8K words	CP1E-NA20DT-D	7		
(Billt-in analog)	24VDC	`analog inputs : 2)	analog -	Transistor (sourcing)			CP1E-NA20DT1-D	1		

Basic models

■Renewal type (E□□S-type) CP1E CPU Units

Product name				Specifications			Madal	Standards
Product name	Power Supply	Inputs	Outputs	Output type	Program capacity	Data memory capacity	Model	
E□□S-type with 14 I/O Points		8 6 Relay			CP1E-E14SDR-A			
E□□S-type with 20 I/O Points		12	8	Relay			CP1E-E20SDR-A	
E□□S-type with 30 I/O Points	100 to 240 VAC	18	12	Relay	2K steps	2K words	CP1E-E30SDR-A	CE, KC
E□□S-type with 40 I/O Points		24	16	Relay			CP1E-E40SDR-A	
E□□S-type with 60 I/O Points		36	24	Relay			CP1E-E60SDR-A	

■Normal type (E□□-type) CP1E CPU Units

Product name				Specifications			Model	Standards						
1 Toduct Harrie	Power Supply	Inputs	Outputs	Output type Program capacity Data memory capaci		Data memory capacity	iviodei	Standards						
				Relay			CP1E-E10DR-A							
	100 to 240 VAC			Transistor (sinking)			CP1E-E10DT-A							
E□□-type		6	4	Transistor (sourcing)			CP1E-E10DT1-A							
with 10 I/O Points		0	4	Relay			CP1E-E10DR-D							
	24VDC	24VDC	24VDC	24VDC	24VDC	24VDC	24VDC			Transistor (sinking)			CP1E-E10DT-D	
				Transistor (sourcing)			CP1E-E10DT1-D	1101						
E _□ -type with 14 I/O Points		8	6	Relay	2K steps	2K words	CP1E-E14DR-A	UC1, N, L, CE. KC						
E□□-type with 20 I/O Points	100 +- 040 VAC	12	8	Relay			CP1E-E20DR-A	CE, KC						
E□□-type with 30 I/O Points	100 to 240 VAC	18	12	Relay			CP1E-E30DR-A							
E _□ -type with 40 I/O Points		24	16	Relay			CP1E-E40DR-A							

Optional Products

■Battery Set

Product name	Specifications	Model	Standards
	For N□□/NA-type CP1E CPU Units		
Battery Set	Note: Mount a Battery to an N□□/NA-type CP1E CPU Unit if the data in the following areas must be backed up for power interruptions.	CP1W-BAT01	_
	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.)		

■Option Boards (for CP1E N30/40/60 or NA20 CPU Units)

Product name	Specifications	Model	Standards
RS-232C Option Board	One RS-232C Option Board can be mounted to the Option Board slot. One RS-232C connector is included.	CP1W-CIF01	
RS-422A/485 Option Board	One RS-422A/485 Option Board can be mounted to the Option Board slot.	CP1W-CIF11	
RS-422A/485 Isolated-type Option Board	One RS-422A/485 Option Board can be mounted to the Option Board slot.	CP1W-CIF12	1101
Ethernet Option Board	One Ethernet Option Board can be mounted to the Option Board slot. CP1E CPU Units are supported by CP1W-CIF41 version 2.0 or later. When using CP1W-CIF41, CX-Programmer version 9.12 or higher is required.	CP1W-CIF41	UC1, N, L,
Analog Input Option Board	Can be mounted in CPU Unit Option Board slot. 2 analog inputs. 0-10V(Resolution:1/4000), 0-20mA (Resolution:1/2000).	CP1W-ADB21*	CE, KC
Analog Output Option Board	Can be mounted in CPU Unit Option Board slot. 2 analog outputs. 0-10V (Resolution:1/4000).	CP1W-DAB21V*	
Analog I/O Option Board	Can be mounted in CPU Unit Option Board slot. 2 analog inputs. 0-10V(Resolution:1/4000), 0-20mA(Resolution:1/2000). 2 analog outputs. 0-10V (Resolution:1/4000).	CP1W-MAB221*	

Note: It is not possible to use a CP-series Ethernet Option Board version 1.0 (CP1W-CIF41), LCD Option Board (CP1W-DAM01), or Memory Card (CP1W-ME05M) with a CP1E CPU Unit.
*. For CP1E CPU Unit version 1.2 or later

Ordering information

Optional Products

■Expansion I/O Units and Expansion Units (for CP1E N30/40/60 or NA20 CPU Units)

Unit type	Product name	Inputs	Outputs	Specifications		Model	Standards			
71.	Input Unit	8	_	DC24V Input		CP1W-8ED				
				Relay		CP1W-8ER	U, C, N,			
		_	8	Transistor(sinking)		CP1W-8ET	L, CE, KC			
				Transistor(sourcing)		CP1W-8ET1				
				Relay		CP1W-16ER				
	Output Units	_	16	Transistor(sinking)		CP1W-16ET				
CP1W				Transistor(sourcing)		CP1W-16ET1	N. L. CE. KC			
Expansion I/O				Relay		CP1W-32ER	N, L, CE, KC			
Units		_	32	32 Transistor(sinking)		CP1W-32ET				
Units				Transistor(sourcing)		CP1W-32ET1				
					Relay		CP1W-20EDR1	U, C, N,		
		12	8	Transistor(sinking)		CP1W-20EDT	L, CE, KC			
	I/O Units			Transistor(sourcing)		CP1W-20EDT1	L, CE, KC			
	I/O Offics			Relay		CP1W-40EDR				
		24	16	Transistor(sinking)		CP1W-40EDT	N, L, CE, KC			
				Transistor(sourcing)		CP1W-40EDT1				
	Analog Input	4CH	_	Input range: 0 to 5 V, 1 to 5 V, 0 to 10 V,	Resolution: 1/6000	CP1W-AD041	UC1, N, L, CE, KC			
	Unit	400		± 10 V, 0 to 20 mA, or 4 to 20 mA.	Resolution: 1/12000	CP1W-AD042	UC1, N, CE, KC			
	Analog Output	Analog Output	Analog Output	Analog Output	_	2CH	Output range: 1 to 5 V, 0 to 10 V, ±10 V,	Resolution: 1/6000	CP1W-DA021	UC1, N,
				Output range. I to 5 v, 0 to 10 v, \pm 10 v, 0 to 20 mA.	Resolution: 1/6000	CP1W-DA041	L, CE, KC			
	Onit	_	4CH	0 to 20 112 t, 01 1 to 20 112 ti	Resolution: 1/12000	CP1W-DA042	UC1, N, CE, KC			
		2CH	1CH	Input range: 0 to 5 V, 1 to 5 V, 0 to 10 V,	Resolution: 1/6000	CP1W-MAD11	UC1, N, L, CE, KC			
	Analog I/O Unit	4CH	2CH	±10 V, 0 to 20 mA, or 4 to 20 mA. Output range: 1 to 5 V, 0 to 10 V, ±10 V,	Resolution: 1/12000	CP1W-MAD42	UC1, N,			
CP1W	Onit	4CH	4CH	0 to 20 mA, or 4 to 20 mA.	Resolution: 1/12000	CP1W-MAD44	CE, KC			
Expansion		2CH	_	Sensor type: Thermocouple (J or K)	•	CP1W-TS001				
Units		4CH	_	Sensor type: Thermocouple (J or K)		CP1W-TS002	UC1, N,			
		2CH	_	Sensor type: Platinum resistance thermometer (Pt10	00 or JPt100)	CP1W-TS101	L, CE, KC			
	Temperature	4CH	_	Sensor type: Platinum resistance thermometer (Pt10	00 or JPt100)	CP1W-TS102				
	Sensor Unit	4CH	_	Sensor type: Thermocouple (J or K) 2 analog inputs* Input range: 1 to 5 V, 0 to 10 V, 4 to 20 mA.	Resolution: 1/12000	CP1W-TS003	UC1, N, CE, KC			
		12CH	_	Sensor type: Thermocouple (J or K)	1	CP1W-TS004				
	CompoBus/S I/O Link Unit	8	8	CompoBus/S slave		CP1W-SRT21	UC1, N, L, CE, KC			
I/O Connec	cting Cable			Expansion I/O Units and Expansion Units) necting Cable can be used in each PLC.		CP1W-CN811	UC1, N, L, CE			

Note: An I/O Connecting Cable (approx. 6 cm) for horizontal connection is provided with CP1W Expansion I/O Units and Expansion Units. * Only last two channels can be used as analog input.

Programming Devices

■Support Software

Product name	Specifications	Number of licenses	Media	Model	Standards
FA Integrated Tool Package CX-One Lite Ver.4.	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. OS: Windows XP (Service Pack 3 or higher, 32-bit version) / Windows Vista (32-bit/64-bit version) / Windows 7 (32-bit/64-bit version) / Windows 8 (32-bit/64-bit version) / Windows 8.1 (32-bit/64-bit version) / Windows 10 (32-bit/64-bit version)	1 license	DVD *1	CXONE-LT01D-V4	_
FA Integrated Tool Package CX-One Ver.4.	CX-One Lite Ver. 4.□ includes Micro PLC Edition CXProgrammer Ver.9.□. CX-One is a comprehensive software package that integrates Support Software for OMRON PLCs and components. CX-One runs on the following OS. OS: Windows XP (Service Pack 3 or higher, 32-bit version) / Windows Vista (32-bit/64-bit version) / Windows 7 (32-bit/64-bit version) / Windows 8 (32-bit/64-bit version) / Windows 8.1 (32-bit/64-bit version) / Windows 10 (32-bit/64-bit version) CX-One Ver. 4.□ includes CX-Programmer Ver. 9.□.	1 license *2	DVD	CXONE-AL01D-V4	-

Note: 1.CP1E-E60SDR-A CPU Units are supported by CX-Programmer version 9.42 or higher. When Micro PLC Edition CX-Programmer is used, you need version 9.42 or higher.

The E20/30/40(S), N20/30/40(S $_{\odot}$) CPU Units are supported by CX-Programmer version 8.2 or higher. The E10/14(S), N14/60(S $_{\odot}$), and NA20 CPU Units are supported by CX-Programmer version 9.03 or higher.

When Micro PLC Edition CX-Programmer is used, you need version 9.03 or higher.

^{2.}When using CP1W-CIF41, CX-Programmer version 9. π12 or higher is required. N30/40/60, NA20 only.

^{3.}The CX-One and CX-One Lite cannot be simultaneously installed on the same computer.

^{*1.} The CX-One Lite is also available on CD (CXONE-LTDDC-V4).

^{*2.} Multi licenses (3, 10, 30, or 50 licenses) and DVD media without licenses are also available for the CX-One.

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CSM_14_3_1016 Cat. No. P060-E1-10

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