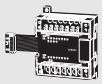
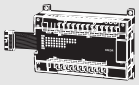
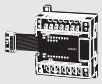
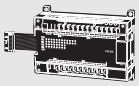
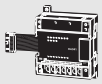
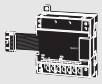
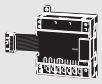
Expansion I/O Units and Expansion Units (for E30/40/60, S30/40/60, or N30/40/60 CPU Units)

E14/20 or N14/20 CPU Units do not support Expansion I/O Units and Expansion Units.

Unit type	Product name	Specifications				Current consumption (A)		Model
		Inputs	Outputs	Output type		5 V	24 V	
CP1W Expansion I/O Units	Input Unit 	8	---	24 VDC Input		0.018	---	CP1W-8ED
	Output Units 	---	8	Relay		0.026	0.044	CP1W-8ER
				Transistor (sinking)		0.075	---	CP1W-8ET
				Transistor (sourcing)		0.075	---	CP1W-8ET1
		---	16	Relay		0.042	0.090	CP1W-16ER
				Transistor (sinking)		0.076	---	CP1W-16ET
				Transistor (sourcing)		0.076	---	CP1W-16ET1
		---	32	Relay		0.049	0.131	CP1W-32ER
				Transistor (sinking)		0.113	---	CP1W-32ET
				Transistor (sourcing)		0.113	---	CP1W-32ET1
	I/O Units 	12	8	Relay		0.103	0.044	CP1W-20EDR1
				Transistor (sinking)		0.130	---	CP1W-20EDT
				Transistor (sourcing)		0.130	---	CP1W-20EDT1
		24	16	Relay		0.080	0.090	CP1W-40EDR
				Transistor (sinking)		0.160	---	CP1W-40EDT
				Transistor (sourcing)		0.160	---	CP1W-40EDT1
CP1W Expansion Units	Analog Input Unit 	4CH	---	Input range: 0 to 5 V, 1 to 5 V, 0 to 10 V, ±10 V, 0 to 20 mA, or 4 to 20 mA.	Resolution: 1/6000	0.100	0.090	CP1W-AD041
					Resolution: 1/12000	0.100	0.050	CP1W-AD042
	Analog Output Unit 	---	2CH	Output range: 1 to 5 V, 0 to 10 V, ±10 V, 0 to 20 mA, or 4 to 20 mA.	Resolution: 1/6000	0.040	0.095	CP1W-DA021
		---	4CH		Resolution: 1/6000	0.080	0.124	CP1W-DA041
					Resolution: 1/12000	0.070	0.160	CP1W-DA042
	Analog I/O Unit 	4CH	4CH	Input range: 0 to 5 V, 1 to 5 V, 0 to 10 V, ±10 V, 0 to 20 mA, or 4 to 20 mA. Output range: 1 to 5 V, 0 to 10 V, ±10 V, 0 to 20 mA, or 4 to 20 mA.	Resolution: 1/12000	0.120	0.170	CP1W-MAD44
		4CH	2CH		Resolution: 1/12000	0.120	0.120	CP1W-MAD42
		2CH	1CH		Resolution: 1/6000	0.083	0.110	CP1W-MAD11
	Temperature Sensor Unit 	2CH	---	Sensor type: Thermocouple (J or K)		0.040	0.059	CP1W-TS001
		4CH	---	Sensor type: Thermocouple (J or K)		0.040	0.059	CP1W-TS002
		2CH	---	Sensor type: Platinum resistance thermometer (Pt100 or JPt100)		0.054	0.073	CP1W-TS101
		4CH	---	Sensor type: Platinum resistance thermometer (Pt100 or JPt100)		0.054	0.073	CP1W-TS102
		4CH	---	Sensor type: Thermocouple (J or K) 2channels can be used as analog input. Input range: 1 to 5 V, 0 to 10 V, 4-20 mA	Resolution: 1/12000	0.070	0.030	CP1W-TS003
		12CH	---	Sensor type: Thermocouple (J or K)		0.080	0.050	CP1W-TS004

I/O Connecting Cable

Product name	Specifications	Model
I/O Connecting Cable	80 cm (for CP1W Expansion I/O Units and Expansion Units) Only one I/O Connecting Cable can be used in each PLC.	CP1W-CN811

Analog I/O Units

Model			CP1W-MAD42/CP1W-MAD44		CP1W-MAD11	
Item			Voltage I/O	Current I/O	Voltage I/O	Current I/O
Analog Input Section	Number of inputs		4 inputs (4 words allocated)		2 inputs (2 words allocated)	
	Input signal range		0 to 5 V, 1 to 5 V, 0 to 10 V, or –10 to 10 V	0 to 20 mA or 4 to 20 mA	0 to 5 V, 1 to 5 V, 0 to 10 V, or –10 to 10 V	0 to 20 mA or 4 to 20 mA
	Max. rated input		±15 V	±30 mA	±15 V	±30 mA
	External input impedance		1 MΩ min.	Approx. 250 Ω	1 MΩ min.	Approx. 250 Ω
	Resolution		1/12000 (full scale)		1/6000 (full scale)	
	Overall accuracy	25°C	0.2% full scale	0.3% full scale	0.3% full scale	0.4% full scale
		0 to 55°C	0.5% full scale	0.7% full scale	0.6% full scale	0.8% full scale
		-20 to 0°C	0.7% full scale	0.9% full scale	0.8% full scale	1% full scale
	A/D conversion data		16-bit binary (4-digit hexadecimal) Full scale for –10 to 10 V: E890 to 1770 hex Full scale for other ranges: 0000 to 2EE0 hex		16-bit binary (4-digit hexadecimal) Full scale for –10 to 10 V: F448 to 0BB8 hex Full scale for other ranges: 0000 to 1770 hex	
	Averaging function		Supported		Supported (Settable for individual inputs via DIP switch)	
	Open-circuit detection function		Supported			
Analog Output Section	Number of outputs		CP1W-MAD42: 2 outputs (2 words allocated) CP1W-MAD44: 4 outputs (4 words allocated)		1 output (1 word allocated)	
	Output signal range		1 to 5 V, 0 to 10 V, or –10 to 10 V	0 to 20 mA or 4 to 20 mA	1 to 5 V, 0 to 10 V, or –10 to 10 V	0 to 20 mA or 4 to 20 mA
	Allowable external output load resistance		2 kΩ min.	350 Ω max.	1 kΩ min.	600 Ω max.
	External output impedance		0.5 Ω max.	---	0.5 Ω max.	---
	Resolution		1/12000 (full scale)		1/6000 (full scale)	
	Overall accuracy	25°C	0.3% full scale		0.4% full scale	
		0 to 55°C	0.7% full scale		0.8% full scale	
		-20 to 0°C	0.9% full scale		1% full scale	
	Set data (D/A conversion)		16-bit binary (4-digit hexadecimal) Full scale for –10 to 10 V: E890 to 1770 hex Full scale for other ranges: 0000 to 2EE0 hex		16-bit binary (4-digit hexadecimal) Full scale for –10 to 10 V: F448 to 0BB8 hex Full scale for other ranges: 0000 to 1770 hex	
Conversion time			CP1W-MAD42: 1 ms/point (6 ms/all points) CP1W-MAD44: 1 ms/point (8 ms/all points)		2 ms/point (6 ms/all points)	
Isolation method			Photocoupler isolation between analog I/O terminals and internal circuits. No isolation between analog I/O signals.			
Current consumption			CP1W-MAD42: 5 VDC: 120 mA max., 24 VDC: 120 mA max. CP1W-MAD44: 5 VDC: 120 mA max., 24 VDC: 170 mA max.		5 VDC: 83 mA max., 24 VDC: 110 mA max.	

Temperature Sensors Units

Item		CP1W-TS001	CP1W-TS002	CP1W-TS101	CP1W-TS102
Temperature sensors		Thermocouples		Platinum resistance thermometer	
		Switchable between K and J, but same type must be used for all inputs.		Switchable between Pt100 and JPt100, but same type must be used for all inputs.	
Number of inputs		2	4	2	4
Allocated input words		2	4	2	4
Accuracy	25°C	(The larger of ±0.5% of converted value or ±2°C) ±1 digit max.		(The larger of ±0.5% of converted value or ±1°C) ±1 digit max.	
	0 to 60°C	(The larger of ±1% of converted value or ±4°C) ±1 digit max.		(The larger of ±1% of converted value or ±2°C) ±1 digit max.	
	-20 to 0°C	(The larger of ±1.3% of converted value or ±5°C) ±1 digit max. ✻1		(The larger of ±1.3% of converted value or ±3°C) ±1 digit max.	
Conversion time		250 ms for 2 or 4 input points			
Converted temperature data		16-bit binary data (4-digit hexadecimal)			
Isolation		Photocouplers between all temperature input signals			
Current consumption		5 VDC: 40 mA max., 24 VDC: 59 mA max.		5 VDC: 54 mA max., 24 VDC: 73 mA max.	

✻1. Accuracy for a K-type sensor at -100°C or less is ±4°C ±1 digit max.

The rotary switch is used to set the temperature range.

Setting		CP1W-TS001/TS002			CP1W-TS101/TS102		
		Input type	Range (°C)	Range (°F)	Input type	Range (°C)	Range (°F)
	0	K	–200 to 1,300	–300 to 2,300	Pt100	–200.0 to 650.0	–300.0 to 1,200.0
	1		0.0 to 500.0	0.0 to 900.0	JPt100	–200.0 to 650.0	–300.0 to 1,200.0
	2	J	–100 to 850	–100 to 1,500	---	Cannot be set.	
	3		0.0 to 400.0	0.0 to 750.0	---		
	4 to F	---	Cannot be set.		---		