OMRON

CP series CP1L CPU Unit CP1L-EMODD-D/CP1L-ELODD-D CP1L-MODR-A/CP1L-LODR-A

High Performing Programmable Controller with Embedded Ethernet

- "CP1L-EM" and "CP1L-EL" has a standard-feature Ethernet port.
- "CP1L-M" and "CP1L-L" has a standard-feature peripheral USB port.
- Function blocks (FB) allow you to build up modular structure and programming of ladder diagrams.









CP1L-EL CPU Units with 20 Points

CP1L-EM CPU Units with 40 Points

CP1L-L CPU Units with 10 Points

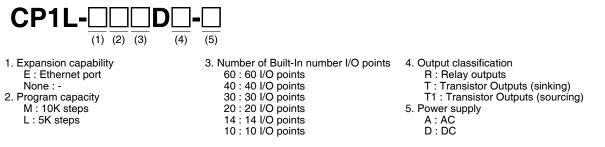
CP1L-M CPU Units with 60 Points

Features

- "CP1L-EM" and "CP1L-EL" have complete with a Ethernet port.
- Pulse output for two axes. Advanced power for high-precision positioning control.
- High-speed Counters. Single-phase for four axes.
- Six interrupt inputs are built in. Faster processing of instructions speeds up the entire system.
- Serial Communications. Two ports. Select Option Boards for either RS-232C or RS-485 communications.
- "CP1L-M" and "CP1L-L" have a peripheral USB port.
- The Structured Text (ST) Language. Makes math operations even easier.
- Can be used for the CP1W series Unit. The extendibility of it is preeminently good.
- LCD displays and settings. Enabled using Option Board.

Model Number Structure

■ Model Number Legend(Not all models that can be represented with the model number legend can necessarily be produced.)



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.

■ CPU Units

Built-in Ethernet port

CPU Unit		Specifications				Model	Standards
CFO UNIT	CPU type Power supply Output method Inputs Outputs				Woder	Stanuarus	
CP1L-EM CPU Units with 40 Points	Memory capacity: 10K steps		Relay output			CP1L-EM40DR-D	
	High-speed counters: 100 kHz, 4 axes	supply	Transistor output (sinking)	24 16	16	CP1L-EM40DT-D	UC1, N, L, CE
	Pulse outputs: 100 kHz, 2 axes (Models with transistor outputs only)		Transistor output (sourcing)			CP1L-EM40DT1-D	
CP1L-EM CPU Units with 30 Points	Memory capacity: 10K steps		Relay output			CP1L-EM30DR-D	
	High-speed counters: 100 kHz, 4 axes Bules sutaute: 100 kHz, 2 axes (Med.	lod-	Transistor output (sinking)	18	12	CP1L-EM30DT-D	UC1, N, L, CE
	Pulse outputs: 100 kHz, 2 axes (Models with transistor outputs only)		Transistor output (sourcing)			CP1L-EM30DT1-D	
CP1L-EL CPU Units with 20 Points	Memory capacity: 5K steps		Relay output			CP1L-EL20DR-D	
	High-speed counters: 100 kHz, 4 axes Pulse outputs: 100 kHz, 2 axes (Mod-	DC power supply	Transistor output (sinking)	12	8	CP1L-EL20DT-D	UC1, N, L, CE
	els with transistor outputs only)		Transistor output (sourcing)			CP1L-EL20DT1-D	

Built-in USB port

CPU Unit		Specifications				Model	Standards						
CF0 blitt	CPU type	Power supply	Output method	Inputs	Outputs	Woder	Stanuarus						
		AC power	Relay output			CP1L-M60DR-A							
CP1L-M CPU Units with 60 Points	Memory capacity: 10K steps High-speed counters:	supply	Transistor output (sinking)			CP1L-M60DT-A							
	100 kHz, 4 axes			Relay output	36	24	CP1L-M60DR-D	UC1, N, L, CE, KC					
	(Models with transistor outputs only)	DC power supply	Transistor output (sinking)			CP1L-M60DT-D							
			Transistor output (sourcing)			CP1L-M60DT1-D							
CP1L-M CPU Units with 40 Points		AC power	Relay output						CP1L-M40DR-A				
	Memory capacity: 10K steps High-speed counters: 100 kHz, 4 axes Pulse outputs: 100 kHz, 2 axes (Models with transistor outputs only)	High-speed counters: 100 kHz, 4 axes Pulse outputs: 100 kHz, 2 axes	High-speed counters: 100 kHz, 4 axes Pulse outputs: 100 kHz, 2 axes	High-speed counters: 100 kHz, 4 axes Pulse outputs: 100 kHz, 2 axes	High-speed counters: 100 kHz, 4 axes Pulse outputs: 100 kHz, 2 axes	High-speed counters: 100 kHz, 4 axes Pulse outputs: 100 kHz, 2 axes	emory capacity: 10K steps (sinking)	Transistor output (sinking)			CP1L-M40DT-A		
							100 kHz, 4 axes Pulse outputs: 100 kHz, 2 axes	100 kHz, 4 axes Pulse outputs: 100 kHz, 2 axes	Relay output	24	16 CP1L-M40DR	CP1L-M40DR-D	UC1, N, L, CE, KC
											Transistor output (sinking)		
		Transistor output (sourcing)			CP1L-M40DT1-D								
		AC power	Relay output			CP1L-M30DR-A							
CP1L-M CPU Units with 30 Points	Memory capacity: 10K steps	supply	Transistor output (sinking)			CP1L-M30DT-A							
	High-speed counters: 100 kHz, 4 axes Pulse outputs: 100 kHz, 2 axes (Models with transistor outputs only)	100 kHz, 4 axes	100 kHz, 4 axes	100 kHz, 4 axes		Relay output	18	12	CP1L-M30DR-D	UC1, N, L, CE, KC			
		DC power supply	Transistor output (sinking)			CP1L-M30DT-D							
			Transistor output (sourcing)			CP1L-M30DT1-D							

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		Specificatior	IS										
CPU Unit	CPU type	CPU type Power supply Output method Inputs Outputs				Model	Standards						
		AC power	Relay output			CP1L-L20DR-A							
CP1L-L CPU Units with 20 Points	Memory capacity: 5K steps High-speed counters: 100 kHz, 4 axes			lemory capacity: 5K steps	Transistor output (sinking)			CP1L-L20DT-A					
			Relay output	12	8	CP1L-L20DR-D	UC1, N, L, CE, KC						
	Pulse outputs: 100 kHz, 2 axes (Models with transistor outputs only)	DC power supply	Transistor output (sinking)		İ	CP1L-L20DT-D							
			Transistor output (sourcing)			CP1L-L20DT1-D							
	S Memory capacity: 5K steps High-speed counters: 100 kHz, 4 axes Pulse outputs: 100 kHz, 2 axes (Models with transistor outputs only) DC power supply	AC power	Relay output			CP1L-L14DR-A	_						
CP1L-L CPU Units with 14 Points			nory capacity: 5K steps (sinking)			CP1L-L14DT-A							
		100 kHz, 4 axes Pulse outputs: 100 kHz, 2 axes	100 kHz, 4 axes Pulse outputs: 100 kHz, 2 axes	100 kHz, 4 axes Pulse outputs: 100 kHz, 2 axes	100 kHz, 4 axes Pulse outputs: 100 kHz, 2 axes	100 kHz, 4 axes Pulse outputs: 100 kHz, 2 axes	100 kHz, 4 axes Pulse outputs: 100 kHz, 2 axes		Relay output	8	6	CP1L-L14DR-D	UC1, N, L, CE, KC
										Transistor output (sinking)			CP1L-L14DT-D
		Transistor output (sourcing)			CP1L-L14DT1-D								
		AC power	Relay output			CP1L-L10DR-A							
CP1L-L CPU Units with 10 Point	Memory capacity: 5K steps High-speed counters: 100 kHz, 4 axes Pulse outputs: 100 kHz, 2 axes (Models with transistor outputs only)		mory capacity: 5K steps supply Transistor output (sinking)			CP1L-L10DT-A							
			Relay output	6	4	CP1L-L10DR-D	UC1, N, L, CE, KC						
		(Models with transistor outputs only)	(Models with transistor outputs only)	(Models with transistor outputs only)		(Models with transistor outputs only)		Transistor output (sinking)			CP1L-L10DT-D		
			Transistor output (sourcing)			CP1L-L10DT1-D							

Note: 1. Refer to "Models and Software Versions" about supported software.2. Refer to "Option Unit Specifications" about supported Option Units.

■ Options for CPU Units

Name		Specifications	Model	Standards
RS-232C Option Board			CP1W-CIF01	
RS-422A/485 Option Board	• • •	Can be mounted in either CPU Unit Option Board slot 1 or 2. *1	CP1W-CIF11	
RS-422A/485 (Isolated-type) Option Board			CP1W-CIF12	
Ethernet Option Board	6	Can be mounted in either CPU Unit Option Board slot 1 or 2. *1 *2 *4	CP1W-CIF41	UC1, N,
Analog Input Option Board	讀讀	Can be mounted in either CPU Unit Option Board slot 1 or 2. *3 2 analog inputs. 0-10V(Resolution:1/4000), 0-20mA (Resolution:1/2000).	CP1W-ADB21	L, CE, KC
Analog Output Option Board		Can be mounted in either CPU Unit Option Board slot 1 or 2. *3 2 analog outputs. 0-10V (Resolution:1/4000).	CP1W-DAB21V	
Analog I/O Option Board		Can be mounted in either CPU Unit Option Board slot 1 or 2. *3 2 analog inputs. 0-10V(Resolution:1/4000), 0-20mA(Resolution:1/2000). 2 analog outputs. 0-10V (Resolution:1/4000).	CP1W-MAB221	
LCD Option Board		Can be mounted only in the CPU Unit Option Board slot 1. *1	CP1W-DAM01	
Memory Cassette		Can be used for backing up programs or auto-booting.	CP1W-ME05M	UC1, N, L, CE

*1. Cannot be used for the CP1L-L10.
*2. When using CP1W-CIF41 Ver.1.0, one Ethernet port can be added.
*3. CP1L-EM / EL only.
*4. Cannot be used for the CP1L-EM / EL.

■ Programming Devices

	Specifications				
Name		Media	Model	Standards	
FA Integrated Tool Package CX-One Lite Version 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 8.1 (32-bit/64-bit version) / Windows 10 (32-bit/64-bit version) 	1 license	DVD *1	CXONE-LT01D-V4	
	CX-One Lite Ver. 4. includes Micro PLC Edition CX- Programmer Ver. 9.				
FA Integrated Tool Package CX-One Ver. 4.⊡	 CX-One is a package that integrates the 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 8.1 (32-bit/64-bit version) / Windows 10 (32-bit/64-bit version) 	1 license *2	DVD	CXONE-AL01D-V4	
	CX-One Ver. 4.□ includes CX-Programmer Ver. 9.□.				
Programming Device	Connects Personal Computers, D-Sub 9-pin (Length: 2.0 m)	For anti-static	connectors	XW2Z-200S-CV	
Connecting Cable for	Connects Personal Computers, D-Sub 9-pin (Length: 5.0 m)	i or anti-static	CONNECTORS	XW2Z-500S-CV	
CP1W-CIF01 RS-232C	Connects Personal Computers, D-Sub 9-pin (Length: 2.0 m)			XW2Z-200S-V	
Option Board *3	Connects Personal Computers, D-Sub 9-pin (Length: 5.0 m)		XW2Z-500S-V		
USB-Serial Conver- sion Cable *3	USB-RS-232C Conversion Cable (Length: 0.5 m) and PC drive included. Complies with USB Specification 2.0 On personal computer side: USB (A plug connector, male) On PLC side: RS-232C (D-sub 9-pin, male) Driver: Supported by Windows 98, Me, 2000, XP(32bit), Vista(and 8(32bit/64bit)	·	CS1W-CIF31	Ν	

Note: 1. Refer to "Models and Software Versions" about supported software.

 $\label{eq:constant} \textbf{2. The CX-One and CX-One Lite cannot be simultaneously installed on the same computer.}$

*1. The CX-One Lite is also available on CD (CXONE-LT $\Box\Box$ C-V4).

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

*3. Cannot be used with a peripheral USB port.

To connect to a personal computer via a peripheral USB port, use commercially-available USB cable (A or B type, male).

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

Support Software in CX-One		CX-One Lite Ver.4.	CX-One Ver.4.⊡	Support Software in CX	-One	CX-One Lite Ver.4.□	CX-One Ver.4.□
Micro PLC Edition CX-Programmer	Ver.9.	Yes	No	CX-Drive	Ver.2.	Yes	Yes
CX-Programmer	Ver.9.	No	Yes	CX-Process Tool	Ver.5.	No	Yes
CX-Integrator	Ver.2.	Yes	Yes	Faceplate Auto-Builder for NS	Ver.3.	No	Yes
Switch Box Utility	Ver.1.	Yes	Yes	CX-Designer	Ver.3.	Yes	Yes
CX-Protocol	Ver.1.	No	Yes	NV-Designer	Ver.1.	Yes	Yes
CX-Simulator	Ver.1.	Yes	Yes	CX-Thermo	Ver.4.	Yes	Yes
CX-Position	Ver.2.	No	Yes	CX-ConfiguratorFDT	Ver.1.	Yes	Yes
CX-Motion-NCF	Ver.1.	No	Yes	CX-FLnet	Ver.1.	No	Yes
CX-Motion-MCH	Ver.2.	No	Yes	Network Configurator Ver.3.		Yes	Yes
CX-Motion	Ver.2.	No	Yes	CX-Server	Ver.4.	Yes	Yes

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

Models and Software Versions

The following versions of the CX-One, CX-Programmer are required.

Model		CX-One	CX-Programmer
CP1L-EM40 CP1L-EM30 CP1L-EL20	*1	Ver. 4.25 or higher	Ver. 9.40 or higher
CP1L-M60	*2	Ver. 2.11 or higher	Ver. 7.20 or higher
CP1L-M40 CP1L-M30 CP1L-M20 CP1L-L14	*2	Ver. 2.10 or higher	Ver. 7.10 or higher
CP1L-L10	*2	Ver. 2.13 or higher	Ver. 7.30 or higher

*1. Update The CX-Programmer version automatically from the website using CX-Programmer version 9.0 (included with CX-One version 4.0).
*2. Update The CX-Programmer version automatically from the website using CX-Programmer version 7.0 (included with CX-One version 2.0).

Expansion Units

Product name	Inputs	Outputs	Output type		Model	Standards	
Input Unit	8		24 VDC Input		CP1W-8ED		
Output Units			Relay		CP1W-8ER		
		8	Transistor (sinking)		CP1W-8ET	U, C, N, L, CE, KC	
			Transistor (sourcing)		CP1W-8ET1	_	
ā			Relay	CP1W-16ER			
		16	Transistor (sinking)		CP1W-16ET	N, L, CE, KC	
Eveneve -			Transistor (sourcing)		CP1W-16ET1		
			Relay		CP1W-32ER		
		32	Transistor (sinking)		CP1W-32ET	N, L, CE, KC	
			Transistor (sourcing)		CP1W-32ET1		
/O Units			Relay		CP1W-20EDR1		
	12	8	Transistor (sinking)		CP1W-20EDT	U, C, N, L, CE, KC	
A VIGANORNA			Transistor (sourcing)		CP1W-20EDT1		
Amunumu .			Relay		CP1W-40EDR		
	24	16	Transistor (sinking)		CP1W-40EDT	N, L, CE, KC	
Planateroung			Transistor (sourcing)	CP1W-40EDT1			
Analog Input Unit	4011		Input range: 0 to 5 V, 1 to 5 V, 0 to 10 V, ±10 V, 0 to 20	Resolution: 1/6000	CP1W-AD041	UC1, N, L, CE, KC	
	4CH		mA, or 4 to 20 mA.	Resolution: 1/12000	CP1W-AD042	UC1, N, CE, KC	
Analog Output Unit		2CH		Resolution: 1/6000	CP1W-DA021	UC1, N, L,	
			1011	Output range: 1 to 5 V, 0 to 10 V, ±10 V, 0 to 20 mA, or 4 to 20 mA.	Resolution: 1/6000	CP1W-DA041	CE, KC
		4CH	+ 10 20 mm.	Resolution: 1/12000	CP1W-DA042	UC1, N, CE, KC	
n.	4CH	4CH	Input range: 0 to 5 V, 1 to 5 V, 0 to 10 V, ±10 V, 0 to 20	Resolution: 1/12000	CP1W-MAD44		
Analog I/O Unit	4CH	2CH	mA, or 4 to 20 mA. Output range:	Resolution: 1/12000	CP1W-MAD42	— UC1, N, CE, KC	
<u>Entertarian d</u>	2CH	1CH	1 to 5 V, 0 to 10 V, ±10 V, 0 to 20 mA, or 4 to 20 mA.	Resolution: 1/6000	CP1W-MAD11	UC1, N, L, CE, KC	
Temperature Sensor Unit	2CH		Sensor type: Thermocouple (J or K)		CP1W-TS001		
0	4CH		Sensor type: Thermocouple (J or K)		CP1W-TS002		
	2CH		Sensor type: Platinum resistance therm (Pt100 or JPt100)	ometer	CP1W-TS101	UC1, N, L, CE, KC	
	4CH		Sensor type: Platinum resistance therm (Pt100 or JPt100)	ometer	CP1W-TS102		
			Resolution: 1/12000	CP1W-TS003	UC1, N, CE, KC		
	12CH		Sensor type: Thermocouple (J or K)		CP1W-TS004		
CompoBus/S I/O Link Unit	8	8	CompoBus/S slave		CP1W-SRT21	UC1, N, L, CE, KC	

Note: CP1L (L Type) CPU Units with 10 points do not support Expansion Units.

■ I/O Connecting Cable

Name	Specifications	Model	Standards
I/O Connecting Cable	80 cm (for CP1W Expansion Units)	CP1W-CN811	UC1, N, L, CE

Note: An I/O Connecting Cable (approx. 6 cm) for horizontal connection is provided with CP1W Expansion Units.

■ Optional Products, Maintenance Products and DIN Track Accessories

Name	Specifications	Model	Standards
Battery Set	For CPU Units (Use batteries within two years of manufacture.)	CJ1W-BAT01	
	Length: 0.5 m; Height: 7.3 mm	PFP-50N	
DIN Track	Length: 1 m; Height: 7.3 mm	PFP-100N	
	Length: 1 m; Height: 16 mm	PFP-100N2	
End Plate	A stopper to secure the Units on the DIN Track.	PFP-M	

Industrial Switching Hubs

		Specification	Specifications			Current		
Product name	Appearance	Functions	No. of ports	Failure detection	Accesories	consumption (A)	Model	Standards
Industrial		Quality of Service (QoS): EtherNet/IP TM control data priority	3	No	Power supply connector	0.22	W4S1-03B	UC, CE, KC
Switching Hubs		Failure detection:	5	No		0.22	W4S1-05B	
		Broadcast storm and LSI error detection 10/100BASE-TX, Auto-Negotiation	5	Yes	 Power supply connector Connector for informing error 	0.22	W4S1-05C	CE, KC

General Specifications

Туре	AC power supply models	DC power supply models
Item Model	CP1L-□□-A	CP1L-O-D
Power supply	100 to 240 VAC 50/60 Hz	24 VDC
Operating voltage range	85 to 264 VAC	20.4 to 26.4 VDC
Power consumption	50 VA max. (CP1L-M60/-M40/-M30□-A) 30 VA max. (CP1L-L20/-L14/-L10□-A)	20 W max. (CP1L-EM40/-EM30/-M60/-M40/-M30 - D) 13 W max. (CP1L-EL20/-L20/-L14/-L10 - D)
Inrush current *	 100 to 120 VAC inputs: 20 A max. (for cold start at room temperature) 8 ms max. 200 to 240 VAC inputs: 40 A max. (for cold start at room temperature), 8 ms max. 	30 A max. (for cold start at room temperature) 20 ms max.
External power supply	300 mA at 24 VDC (CP1L-M60/-M40/-M30A) 200 mA at 24 VDC (CP1L-L20/-L14/-L10A)	None
Insulation resistance	$20\ \text{M}\Omega$ min. (at 500 VDC) between the external AC terminals and GR terminals	No insulation between primary and secondary for DC power supply
Dielectric strength	2,300 VAC at 50/60 Hz for 1 min between the external AC and GR terminals, leakage current: 5 mA max.	No insulation between primary and secondary for DC power supply
Noise immunity	Conforms to IEC 61000-4-4. 2 kV (power supply line)	
Vibration resistance	80 minutes each. Sweep time: 8 minutes × 10 sweeps = total tin CP1L-EL/EM:	/ n/s² in X, Y, and Z directions for 100 minutes each (time coefficient
Shock resistance	Conforms to JIS C60068-2-27. 147 m/s ² three times each in X, `	Y, and Z directions
Ambient operating tempera- ture	0 to 55°C	
Ambient humidity	10% to 90% (with no condensation)	
Ambient operating environ- ment	No corrosive gas	
Ambient storage temperature	-20 to 75°C (Excluding battery.)	
Power holding time	10 ms min.	2 ms min.

* The above values are for a cold start at room temperature for an AC power supply, and for a cold start for a DC power supply.

A thermistor (with low-temperature current suppression characteristics) is used in the inrush current control circuitry for the AC power supply. The thermistor will
not be sufficiently cooled if the ambient temperature is high or if a hot start is performed when the power supply has been OFF for only a short time. In those cases
the inrush current values may be higher (as much as two times higher) than those shown above. Always allow for this when selecting fuses and breakers for
external circuits.

• A capacitor charge-type delay circuit is used in the inrush current control circuitry for the DC power supply. The capacitor will not be charged if a hot start is performed when the power supply has been OFF for only a short time, so in those cases the inrush current values may be higher (as much as two times higher) than those shown above.

Performance Specifications

• CP1L CPU Unit (EM/EL Type)

Control method Extra drogsm method Extra drogsm method Vice control method Cycle can with immediate infersions Extra drogsm method Program language Ladder diagram Extra drogsm method Function blocks Maximum number of instances: 255 Languages usable in function block definitions: Ladder diagrams, structured text (ST) Instruction sequenting 10 7 Steps per instructions: 6.3 lg isin Extra drogsm method Fig pagma memory TOK steps [SK steps Program capedity Fig pagma memory TOK steps [SK steps Fig pagma memory TOK steps [SK steps [SK steps Fig pagma memory TOK steps [SK steps [SK steps Fig pagma memory TOK steps [SK steps [SK steps Fig pagma memory ZSK Steps [SK steps [SK steps Fig pagma memory ZSK Steps [SK steps [SK steps Fig pagma memory ZSK Steps [SK steps [SK steps Fig pagma memory ZSK Steps [SK steps [SK steps Fig pagma memory ZSK Steps [SK steps <		-	Туре	CP1L-EM40 (40 points)	CP1L-EM30 (30 points)	CP1L-EL20 (20 points)
U0 control method Cyclic fram with immediate interactions; Cyclic fram with immediate interactions; Function blocks Ladder diagram Maximum number of function block definitions; Ladder diagram, Function blocks Ladder diagram Maximum number of functions; Ladder diagram, Subscriptions; Instructions Approx: 0.55 jus min. Special instructions; Approx: 0.55 jus min. Special instructions;<	Item		Models	CP1L-EM40DD-D	CP1L-EM30D	CP1L-EL20D
Pergent language Lindox diagram Function blocks Maximum number of function block definitions: 1:28 Maximum number of instances: 2:60 Languages usable in function block definitions: 1:28 Maximum number of instances: 2:60 Languages usable in functions: 0:65 µs min: Special instructions: 4.1 µs min. Instruction langth 10 7 Step par instruction Approx: 500 (function codes: 3 digits) instructions: 4.1 µs min. Common processing time 0.4ms Approx: 500 (function codes: 3 digits) instructions: 4.1 µs min. Pergent caped/ Pergent caped/				1 0		
Function blocks Maximum number of function block definitions: 1:28 Maximum number of instructions 2:56 Ladder disprans, structured test (ST) Instruction length 19.7 steps per instruction 19.7 steps per instruction block definitions: 1:39 Maximum number of instructions 2:41 µs min. Common processing time 0.4 ns 54.8 steps 54.8 steps Number of tasks EB rogram emerory 105.4 steps 54.8 steps Number of tasks Scheduled interrupt tasks 61.0 fterrupt tasks. 55.8 steps Maximum number of tasks Scheduled interrupt tasks. 56.8 steps 54.8 steps Number of tasks Scheduled interrupt tasks. 61.0 fterrupt tasks. 56.8 steps 56.8 steps Maximum number of tasks Scheduled interrupt tasks. 61.0 fterrupt tasks. 61.0 fterrupt tasks. 10.0 fterrupt ta					ig	
Function blocks Languages usable in function block definitions: Ladder diagrams, structured text (ST) Instruction S Approx. 509 (unclose 0.663) sile) Texturedin execution Time Gala Sep pari instructions: 0.663 ps min. Special instructions: 4.1 µs min. Common processing time 0.4ms Program capedy 10K steps Special Coll Control Stateps Program capedy 10K steps Special Coll Control 2828 (2xy clos tasks and 256 interrupt tasks Number of tasks 1 (interrupt tasks Input Interrupt tasks 1 (interrupt tasks Input Interrupt tasks 1 (interrupt tasks Maximum subbord 265 Maximum jump number 256 Special PLC Link Area 1,600 bits (100 words) CIO 100 CIO 18 bits: CIO 100.00 CIO 0.11 and CIO 100.00 CIO 0.11 and CIO 100.00 CIO 0.11 and CIO 100.00 CIO 0.11 and CIO 100.00 CIO 10.03 18 bits: CIO 100.00 CIO 100.01 and CIO 10.00 CIO 10.03 18 bits: CIO 100.00 CIO 100.01 and CIO 10.00 CIO 100.01 and CIO 100.00 CIO 100.03 18 bits: CIO 100.00 CIO 100.01 and CIO 100.00 CIO 100.03 18 bits: CIO 100.00 CIO 100.01 and CIO 100.00 CIO 100.03 18 bits: CIO 100.00 CIO 100.01 and CIO 100.00 CIO 100.03 18 bits: CIO 100.00 CIO 100.01 and CIO 100.00 CIO 100.03 18 bits: CIO 100.00 CIO 100.03	Program language					
Instructions Approx. 500 (uncloin codes: 3 digits) Common processing time 0.4ms Program capacity 10K steps Number of tasks Stream Scheduled Interrupt tasks 10K steps Input Interrupt tasks 10K steps Maximum subcontine number 256 Scheduled Interrupt tasks 100 to ClO 0.11 and ClO to ClO 0.00 to ClO 0.11 and ClO to ClO 0.10 clO 0.11 and ClO to ClO 0.10 clO 0.11 and ClO to ClO 0.10 clO 0.10 clO 0.10 and ClO 10.00 clO 0.10 clO 0.10 clO 0.10 and ClO 10.00 clO 0.10 clO 0.10 clO 0.10 and ClO 10.00 clO 0.10 c	Function blocks			Languages usable in function block of		
Instruction execution time biolog in the section of the sectin of the section of the section of	Instruction length			1 to 7 steps per instruction		
Common processing time 0.4ms 5K steps Program capacity 10K steps 5K steps Number of tasks Scheduled interrupt tasks 1 (Interrupt tasks) 5K steps Scheduled interrupt tasks 1 (Interrupt tasks) 1 (Interrupt tasks) 1 (Interrupt tasks) Maximum subtroutine number 255 1 (Add Dist (IO number) 255 Maximum subtroutine number 255 1 (Add Dist (IO number) 1 (Dist CIO 100 to CIO 111 and CIO 100 to CIO 110 and CIO 100 to CIO 10					•	
Program capacity IOK steps BK steps Number of tasks EB program memory 10K steps 286 (32 cyclic tasks and 256 interrupt tasks) Enterrupt tasks Input interrupt tasks 6 interrupt tasks 6 interrupt tasks 6 interrupt tasks 10K steps Maximum subroutine number 256 256 128 bits: CIO 0.00 to CIO 9.11 and GAD to to CIO 1.05 12 bits: CIO 0.00 to CIO 0.11 and GAD to to CIO 1.05 12 bits: CIO 0.00 to CIO 0.01 and GAD to to CIO 1.05 12 bits: CIO 0.00 to CIO 0.01 and GAD to to CIO 1.05 12 bits: CIO 0.00 to CIO 0.01 and GAD to to CIO 1.05 12 bits: CIO 0.00 to CIO 1.00 and CIO 1.05 coO 0.01 to CIO 0.01 and GAD to to CIO 1.05 12 bits: CIO 0.00 to CIO 1.00 and CIO 1.05 coO 0.01 to CIO 0.01 CIO 0.01 CIO 0.01 CIO 0.00 to CIO 1.00 and CIO 1.05 coO 0.01 to CIO 0.01 CIO 0.00 to CIO 1.00 and CIO 0.00 to CIO 0.00 to CIO 0.01 CIO 0.00 to CI					cial instructions: 4.1 μs min.	
FFB program memory 10K stops Number of tasks Scheduled interrupt tasks 1 (interrupt tasks 1 (interrupt tasks Input interrupt tasks 1 (interrupt tasks 1 (interrupt tasks 1 (interrupt tasks Maximum subtrownoll me number 256 Maximum subtrownoll me number 256 Maximum subtrownoll me number 256 Input Area 1 (bits CIO 0 to CIO 0 to CIO 0 10 to CIO 10 to C		g time				1
Number of tasks 288 (22 cpclc tasks and 256 interrupt task) Scheduled interrupt task 6 (interrupt task) Maximum subroutine number 255 V0 areas input interrupt task 140 bit 145, fame) Maximum jump number 255 V0 areas input Area 1500 bits (100 words) CiO 0 to CiO 10.0 12 bits: CiO 0.00 to CiO 1.10 V0 areas input Area 1500 bits (100 words) CiO 10 to CiO 1.65 12 bits: CiO 0.00 to CiO 0.11 V0 areas input Area 1500 bits (100 words) CiO 10 to CiO 1.65 12 bits: CiO 10.00 to CiO 1.00 11 ta ka ces 255 bits (16 words): CiO 3100 to CiO 3185, 15 (CiO 3000 to CiO 0.130) 8 bits: CiO 100.00 to CiO 1.00 12 ta ka ces 256 bits (16 words): CiO 3100 to CiO 3185, 15 (CiO 3000 to CiO 0.130) 8 bits: CiO 100.00 to CiO 3189 Work bits 1.440 bits (160 words): CiO 3200 to CiO 3185, 15 (words CiO 2200 to CiO 3489, 15 (words CiO 3200 to CiO 3489, 15 (words CiO 3800 to CiO 3447, 15 (words CiO 10 200 05, 10 CiO 3				•		5K steps
Scheduled interrupt tasks 1 (nimerupt task No. 2, fixed) Input interrupt tasks 6 (nimerupt task No. 2, fixed) Maximum aubroattine number 256 Maximum (and the task in the task is the ta		FB prog	gram memory			
Input Interrupt tasks 6 (interrupt tasks No. 140 to 145, fixed) Maximum subroutine number 256 Maximum jump number 256 Maximum jump number 256 VO areas Built-in Input Area 1.600 bits (100 words) CIO 0 to CIO 99 Built-in Input Area 1.600 bits (100 words) CIO 0 to CIO 101 and Input Area 12 bits: CIO 100 to CIO 101 55 VO areas Built-in Input Area 1.600 bits (100 words) CIO 100 to CIO 1000 to CIO 100.07 and CIO 101.00 to CIO 101.03 B bits: CIO 100.00 to CIO 3015 15 (CO 3000 to CIO 3015 15 (CO 3010 to CIO 3015 15 (CO 1000 to CIO 3015 15 (CO 1000 to CIO 3015 15 (CO 3000 to CIO 3015 15 (CO 1000 to CIO 3015 15 (CO 3000 to CIO 3000 to CIO 3015 15 (CO 300 to CIO 300 to CIO 3015 15 (CO 3		<u></u>		· · ·	ot tasks)	
Input metrup tasks Prigh-speed counter interrupts and interrupt tasks specified by external interrupts can also be executed.) Maximum surpure mether 256 Maximum surpure mether 1500 bits (100 words) CIO 0 to CIO 0.9 Imput Area 1500 bits (100 words) CIO 0 to CIO 0.9 Dutput Area 1500 bits (100 words) CIO 0 to CIO 1000 T 12 bits: CIO 0.00 to CIO 0.01 T Dutput Area 1500 bits (100 words) CIO 0 to CIO 1000 T 12 bits: CIO 100.00 to CIO 1000 T 12 bits: CIO 100.00 to CIO 1000 T Strint PLC Link Area 256 bits (100 words): CIO 1000 to CIO 1000 T 12 bits: CIO 100.00 to CIO 1000 T 12 bits: CIO 100.00 to CIO 1000 T Work bits Strint PLC Link Area 256 bits (100 words): CIO 1000 to CIO 1000 T 12 bits: CIO 100.00 to CIO 1000 T 12 bits: CIO 100.00 to CIO 1000 T Mork bits Strint PLC Link Area 256 bits (100 words): CIO 1000 to CIO 1000 T 12 bits: CIO 1000 to CIO 1000 T 12 bits: CIO 1000 to CIO 1000 T Area Estima PLC Link Area 256 bits (100 words): CIO 1000 to CIO 300 to CIO 300 to CIO 300 T 16 bits: TFO 1000 T Mork bits Strint PLC Link Area 16 bits: TFO to TRIS 16 bits: TFO to TRIS Mork bits Strint PLC Link Area 16 bits: TFO to TRIS 16 bi	_	Schedu	led interrupt tasks		D.	
Maximum subroutine number 256 Maximum jump number 1.600 bits (100 words) CiO 0 to CiO 9.9 1.800 bits (100 words) CiO 0 to CiO 9.9 VO areas Input Area 1.600 bits (100 words) CiO 0 to CiO 9.9 12 bits: CiO 0.00 to CiO 0.0.11 VO areas Built-In input Area 1.800 bits (100 words) CiO 100 to CiO 100 to CiO 100.00 to CiO 00.00 to CiO 00		Input in	terrupt tasks			
Maximum jump number 256 Input Area 1.600 bits (CIO 0 to CIO 10 Built-in input Area 1.600 bits (CIO 0 to CIO 1.11 Output Area 1.600 bits (CIO 0.00 to CIO 1.00 Built-in Output 1.600 bits (CIO 0.00 to CIO 1.00 Serial PLC Link Area 1.600 bits (CIO 0.00 to CIO 10.00 11.1 Link Area 256 bits (CIO 0.000 to CIO 10.00 Serial PLC Link Area 24.800 bits (CIO 0.000 to CIO 10.00 to CIO 10.00.00 Serial PLC Link Area 4.400 bits (000 words) CIO 100.00 to CIO 10.00 to CIO 10.00.00 4.800 bits (300 words): CIO 100.00 to CIO 110.00 to CIO 10.00 to					nterrupt tasks specified by external in	terrupts can also be executed.)
Input Area 1.800 bits (100 words) CIO 010 CIO 99 Built-in Input Area 1.800 bits (100 words) CIO 010 to CIO 0.010 to CIO 0.011 and CIO 1.00 to CIO 1.00 [13 bits: CIO 0.00 to CIO 0.00.07 (10 to 100 to CIO 100.00 12 bits: CIO 0.00 to CIO 100.07 and CIO 100.00 to CIO 100.07 and CIO 100.00 to CIO 100.07 and CIO 100.00 to CIO 100.00 12 bits: CIO 100.00 to CIO 100.07 and CIO 100.00 to CIO 100.00 8 bits: CIO 100.00 to CIO 100.07 and CIO 100.00 to CIO 100.00 8 bits: CIO 100.00 to CIO 100.07 and CIO 100.00 to CIO 100.00 8 bits: CIO 100.00 to CIO 100.00 11 Link Area 256 bits (16 words): CIO 3000.00 to CIO 3000.00 to CIO 399.15 (CIO 3000 to CIO 399.15) 8 bits: CIO 100.00 to CIO 1499.15 (words CIO 1200 to CIO 1499.15 (words CIO 1200 to CIO 2000 to CIO 299.15) Work bits 1.440 bits (300 words): CIO 3200.00 to CIO 399.15 (words CIO 2000 to CIO 299.15) 9.600 bits (600 words): CIO 3200.00 to CIO 399.15 (words CIO 3000 to CIO 399.15) The Area 16 bits: TD to TR15 16 bits: TD to TR15 16 words: CIO 3200.00 to CIO 399.15 (words CIO 3200 to CIO 399.15) Timers 4.096 counter numbers: TO to 74095 10 Kwords: D0 to D999.03 (to D32767 10 Kwords: D0 to D999.03 (to D32767 Task Flag Area 16 registers (20 bits): IR0 to DR15 10 Kwords: D0 to D32767 10 Kwords: D0 to D32767 Task Flag Area 16 registers (20 bits): IR0 to DR15 10 Kwords: D0 to D3999.03 (to D32767 10 Kwords: D0 to			er			
I/O areas Built-in input Area (0 1 00 to C10 0 1.11 mod (0 1 00 to C10 0 1.11 mod (0 1 00 to C10 0 1.01 mod med C10 101 0.00 to C10 101.03 med C10 100 to C10 100 to C10 101.03 med C10 100 to C10 100 to C10 101.03 med C10 100 to C10 101.03 med C10 100 to C10 100 to C10 100 to C10 101.03 med C10 100 to C10 1					00	
Wo areas Built-in put Area (10 tool to Cio 1.01 to Cio 1.00 to Cio 1.01 to Cio 1.05 Built-in Output Area (10 tool to Cio 100 to Cio 100.07 and Cio 10.00 to Cio 100.07 bis 15 (Cio 3000 to Cio 3015) Work bits Serial PLC Link Area 5.300 bits (600 words): Cio 3000.00 to Cio 318.15 (Cio 3000 to Cio 2189) 6.400 bits (600 words): Cio 2000.00 to Cio 1399.15 (words Cio 12000 to Cio 1499) 6.400 bits (600 words): Cio 2000.00 to Cio 2390.51 (words Cio 2000 to Cio 2399) 9.600 bits (600 words): Cio 2000.00 to Cio 3390.00 to Cio 16.143.15 (words Cio 3000 to Cio 16.143.15 (words Cio 3000 to Cio 16.143.15 (words Cio 3000 to 10.16 (words): A04.00 to A95.15 (A448 to A95.91 (Xia 214 words): Cio 00 to 23767 The Area 16 bis: TR0 to TR15 Head-Write: spretz bits (512 words): A448.00 to A95.91 (words): Cio 30.20 (words):		input Ai	rea		-	1
VO areas Output Area 1.600 bits (100 words) CIO 100 to CIO 199 Work bits Built-in Output Area 16 bits: CIO 100.00 to CIO 100.07 and CIO 101.00 to CIO 101.00 to CIO 101.00 and CIO 101.00 to CIO 101.00 to CIO 101.00 bits (300 words): CIO 1200.00 to CIO 1499.15 (words CIO 1200 to CIO 1499) (5.400 bits (400 words): CIO 2000.00 to CIO 2499.15 (words CIO 2300.00 to CIO 3799) 37.504 bits (200 words): CIO 2300.00 to CIO 3799.15 (words CIO 2300 to CIO 6143.01 CIO 1499) (5.800 bits (600 words): CIO 2300.00 to CIO 3799.15 (words CIO 3800.00 to CIO 3799) 37.504 bits (2.344 words): AL408 bits (448 words): AL00 to A477.15 (A0 to A4477) Read/Write: 5122 bits (512 words): H0.00 to H511.15 (H0 to H511.15 (H0 to H511.15 (H0 to H511.15 (H0 to H551.15 (H0 to H			Built-in Input Area			12 bits: CIO 0.00 to CIO 0.11
Work bits Built-in-Output Area 16 bits: CIO 100.00 to CIO 100.07 and CIO 101.00 to CIO 101.00 to CIO 101.00 to and CIO 101.00 to CIO 101.00 to CIO 101.00 to And CIO 101.00 to CIO 101.00 to CIO 101.00 to And CIO 101.00 to CIO 101.00 to CIO 101.00 to And CIO 101.00 to CIO 101.00 to CIO 101.00 to And CIO 101.00 to CIO 101.00 to CIO 101.00 to And CIO 101.00 to CIO 101.00 to CIO 101.00 to And CIO 101.00 to CIO 101.00 to CIO 101.00 to And CIO 101.00 to CIO 3189.15 (Words CIO 100 to CIO 3189.15 bits) Work bits Internet Markan 4300 bits (400 words): CIO 2000 to CIO 1389.15 (words CIO 2000 to CIO 3789.15 bits) TR Area 16 bits: TR0 to TR15 Holding Area 8192 bits (12 words): Holdo to CIO 3789.15 (words CIO 2000 to CIO 3789.15 bits) Area 16 bits: TR0 to TR15 Holding Area 8192 bits (12 words): Holdo to 161.31.5 (Words CIO 3200 to CIO 1643.35 Area Fead-only (Write-prohibited): 7168 bits (448 words): A00 to A04.71.5 (A0 to A44.7) Read/Write: 201 bits (12 words): Holdo to A44.71.5 (A0 to A44.7) Read/Write: 201 bits (12 words): Holdo to A00 to A01.31.5 (words CIO 3200 to 10 CIO 32767 Timers 4.096 counter numbers: TO to 1499.5 Counters 4.096 counter numbers: CIO to CA095 DM Area 32 fags (22 bits): TR0 to TR15 Task Flag Area 32 fags (22 bits): TR0 to TR15 Task Flag Area 16 register (16 bits): DR0 to DR15 Cock function Supported Accuracy (monthy Weislight): - 4 to no (ambient temperature: 55°C); -2.0 min to -2.0 min (ambient temperature:		Output	Area			1
Area and ClO 10.00 to ClO 101.07 and ClO 10.00 to ClO 101.03 B bits: ClO 100.00 to ClO 100.03 11 Link Area 256 bits (16 words): ClO 30000 to ClO 3015 : 51 (ClO 3000 to ClO 3189) Work bits 1.440 bits (90 words): ClO 1200.00 to ClO 3189.15 (ClO 3000 to ClO 3189) Work bits 4.800 bits (300 words): ClO 2000.00 to ClO 3189.15 (words ClO 2000 to ClO 2989) 9.600 bits (900 words): ClO 2000.00 to ClO 349.15 (words ClO 2000 to ClO 2989) 9.600 bits (900 words): ClO 2000.00 to ClO 349.15 (words ClO 2000 to ClO 3490) 9.600 bits (900 words): ClO 2000.00 to ClO 349.15 (words ClO 2000 to ClO 3490) 9.600 bits (900 words): ClO 2000.00 to ClO 349.15 (words ClO 2000 to ClO 3490) 7.604 bits (2.344 words): ClO 2000.00 to ClO 349.15 (words ClO 2000 to ClO 3490) 7.604 bits (2.344 words): All 000 to H511.15 (H0 to H511) Area 8.192 bits (512 words): A448.00 to 3493.15 (A448 to A959) Timers 4.096 torunter numbers: To 104095 Counters 4.096 counter numbers: To 104095	I/O areas	Juiput	1	, , ,		
1:1 Link Area 256 bits (16 words): CIO 3000 00 CIO 3015 15 (CIO 30100 to CIO 3015) Serial PLC Link Area 1.440 bits (300 words): CIO 1200 00 to CIO 1499.15 (words CIO 1200 to CIO 1499) Kork bits 4.800 bits (400 words): CIO 1200.00 to CIO 1499.15 (words CIO 1200 to CIO 1499) Kork bits 5.560 bits (600 words): CIO 2000.00 to CIO 3499.15 (words CIO 3200 to CIO 3799.9) YT. Area 16 bits: TR0 to TR15 Holding Area 6.192 bits (12 words): H0.00 to H511.15 (H0 to H511) AR Area 16 bits: TR0 to TR15 Holding Area 4.096 bits (12 words): H0.00 to H511.15 (H0 to A447.15 (A0 to A447.7) Read-only (Write-prohibited): 7168 bits (448 words): A0.00 to A447.15 (A0 to A447.7) Read-only (Write-prohibited): 7168 bits (448 words): A0.00 to A447.15 (A0 to A447.7) Read-only (Write-prohibited): 7168 bits (A48 words): A0.00 to A447.15 (A0 to A447.7) Read-Write: 812 bits (12 words): N0 to D32767 Data Register Area 16 registers (16 bits): D0 to D815 Index Register Area 16 registers (32 bits): IR0 to IR15 Index Register Area 16 registers (32 bits): IR0 to IR15 Index Register Area 16 registers (32 bits): IR0 to IR15 Index Register Area 16 registers (32 bits): IR0 to IR15 Index Register Area <td< th=""><th></th><th></th><th></th><th></th><th></th><th>8 bits: CIO 100.00 to CIO 100.07</th></td<>						8 bits: CIO 100.00 to CIO 100.07
Serial PLC Link Area 1.440 bits (90 words): CIO 3100.0 CIO 3180.15 (CIO 1300 bc CIO 3180.15 (CIO 1300 bc CIO 3180.15 (CIO 1499.15 (words CIO 1200 bc CIO 1499.15 (words CIO 1200.0 bc CIO 1499.15 (words CIO 2000 bc CIO 2959.15 (words CIO 2000 bc CIO 399.15 (words CIO 300 bc CIO 6143) TR Area E bits: TFIO to TRI5 Holding Area 8.192 bits (612 words): CIO 200.0 bc CIO 2959.15 (words CIO 2000 bc CIO 6143) TImers 4.096 counter numbers: TO to 1409.5 Counters 4.096 filter words): CIO 200.0 bc CIO 2959.5 DM Area 32 kwords: D0 to D32767 Trake Hagister Area 16 registers (16 bits): DR0 to DR15 Trake Hagister Area 16 registers (16 bits): DR0 to DR15 Trake Hagister Area 16 registers (16 bits): DR0 to DR15 Trake Hagister Area 16 registers (16 bits): CP1W-MEGN), and a to-boding. Aspecial Memory Cassette (CP1W-MEGN) can be mounted. Aspecial Memory Cassette (CP1W-MEGN) can be mounted. Note: Can be used for program backups and auto-boding. 2.0 min to -1.5 min (ambient temperature: 5°C), -2.0 min to +1.5 min (ambient temperature: 0°C) Communications functio		1:1 Link)
4.800 bits (200 words): CIO 1200.01 to CIO 1499.15 (words CIO 1200.10 to CIO 1899.19) 8.400 bits (200 words): CIO 2000.00 to CIO 2899.15 (words CIO 2800.00 to CIO 2899.19) 9.600 bits (600 words): CIO 2000.00 to CIO 2799.15 (words CIO 2800.00 to CIO 3799.19) 9.7504 bits (2.344 words): CIO 2800.00 to CIO 6143.15 (words CIO 2800.00 to CIO 3799.19) 9.7504 bits (2.344 words): CIO 2800.00 to CIO 6143.15 (words CIO 3800.00 to CIO 3799.19) 9.7504 bits (2.344 words): CIO 2800.00 to CIO 6143.15 (words CIO 3800.00 to CIO 3799.19) 9.7504 bits (2.344 words): CIO 3800.00 to CIO 6143.15 (words CIO 3800.00 to CIO 3799.19) 7 Read-only (Write-prohibited): 7168 bits (448 words): A0.00 to A447.15 (A0 to A447) Read-only (Write-prohibited): 7168 bits (448.00 to 3959.15 (A448 to A959) 7 Timers 4.096 counter numbers: T0 to 1409.5 7 Data Register Area 10 forgisters (12 bits): DO to DR15 10 data Register Area 16 registers (12 bits): TR000 to TK031 Tase Hemory 4.000 words (500 samples for the trace data maximum of 31 bits and 6 words.) A special Memory Cassette (CP1 WWEG5M) can be mounted. Memory Cassette A special Memory Cassette (CP1 WWEG5M) can be mounted. Memory Lackup A special Communications Option Boards can be amounted. Memory backup A maximum of two Serial Communicatons Option Boa		Serial P	LC Link Area		, ,	
Work bits 6,400 bits (400 words): CIO 1500.00 to CIO 1899:15 (words CIO 22050 to CIO 22059) 15,360 bits (600 words): CIO 2200.00 to CIO 2379.15 (words CIO 2200 to CIO 2379.9) 37,504 bits (2,344 words): CIO 2300.00 to CIO 6143.15 (words CIO 2300 to CIO 6143.9) Th Area 16 bits: TR0 to TR15 Holding Area 8,192 bits (512 words): H0.00 to H511.15 (H0 to H511.1) AR Area Read-OW (Write - problem): 748 bits (448 words): CIO 0 to A447.15 (A0 to A447) Read Write: 8192 bits (512 words): A448 bo to A959.15 (A448 to A959) Timers 4.096 counter numbers: C0 to C4095 0 to S2767 DM Area 32 Kwords: D0 to D32767 10 Kwords: D0 to D999, D3: to 32767 Index Register Area 16 registers (16 bits): CP0 to DR15 Task Flag Area 32 flag register (16 bits): CP0 to DR15 Task Flag Area 32 kwords (32 bits): TK000 to TK0031 Task Flag Area 32 flag register (22 bits): TK000 to TK0031 Communications function 4.096 counter numbers: C0 to C4095 I0 Kwords: CO, -2.0 min to -0.5 min (ambient temperature: 5°C), -2.0 min to +2.0 min to +2.0 min (ambient temperature: 5°C), -2.0 min to +2.0 min (ambient temperature: 5°C), -2.0 min to +2.0 min to +2.0 min (ambient temperature: 5°C), -2.0 min to +2.0 min (ambient temperature: 5°C), -2.0						
TR Area 16 bits: TP0 to TR15 Holding Area 8,192 bits (512 words): H0.00 to H511.15 (H0 to H511) AR Area Read-Write: 8192 bits (512 words): A448.00 to A959.15 (A448 to A959) Timers 4,096 timer numbers: T0 to T4095 Counters 4,096 counter numbers: C0 to C4095 DM Area 32 Kwords: D0 to D32767 Task Flag Area 16 registers (16 bits): DR0 to DR15 Index Register Area 16 registers (22 bits): IR0 to IR15 Trace Memory 4,000 words (500 samples for the trace data maximum of 31 bits and 6 words.) A special Memory Cassette A special Memory Cassette (CP1W-MEO5M) cabe mounted. Note: Can be used for program backups and auto-booting. Supported. Accuracy (monthly deviation): -4.5 min (ambient temperature: 55°C). Clock function Supported. Accuracy (monthly deviation): -4.5 min (ambient temperature: 55°C). 2.0 min to +2.0 min (ambient temperature: 55°C). Memory backup Built-in Ethernet Port (Connecting Support Software, Message Communications, Socket Service) A maximum of two Serial Communications Option Boards can be mounted. Memory backup Cel file expectancy is 5 years and auto-booting. Cortex (16 expectancy is 5 years and counter values (flags, PV) are backed up by a battery. Battery service life Service life expectancy is 5 years and counter values (flags, PV) are back	Work bits			15,360 bits (960 words): CIO 2000.0 9,600 bits (600 words): CIO 3200.00	0 to CIO 2959.15 (words CIO 2000 to to CIO 3799.15 (words CIO 3200 to	o CIO 2959) CIO 3799)
Holding Area 8,192 bits (512 words): H0.00 to H511.15 (H0 to H511) AR Area Read-only (Write-prohibited): 7168 bits (448 words): A0.00 to A447, 15 (A0 to A447) Financial Control 4,096 timer numbers: T0 to T4095 Counters 4,096 timer numbers: C0 to C4095 DM Area 32 Kwords: D0 to D32767 Data Register Area 16 registers (16 bits): IR0 to IR15 Index Register Area 16 registers (22 bits): IR0 to IR15 Trace Memory 4,000 words (500 samples for the trace data maximum of 31 bits and 6 words.) Memory Cassette Aspecial Memory Cassette (CP IW-ME05M) can be mounted. Note: Can be used for program backups and auto-booting. Clock function Supported. Accuracy (monthly deviation): -4.5 min to -0.5 min (ambient temperature: 55°C), -2.0 min to +2.0 min (ambient temperature: 25°C), -2.0 min to +0.5 min (ambient temperature: 55°C), -2.0 min to +2.0 min (ambient temperature: 25°C), -2.0 min to +0.5 min (ambient temperature: 55°C), -2.0 min to +2.0 min (ambient temperature: 25°C), -2.0 min to +2.0 min (ambient temperature: 25°C), -2.0 min to +0.5 min (ambient temperature: 25°C), -2.0 min to +0.5 min (ambient temperature: 55°C), -2.0 min to +0.5 min (ambient temperature					.00 to CIO 6143.15 (words CIO 3800	to CIO 6143)
AR Area Read-only (Write-prohibited): 7168 bits (448 words): A0.00 to A447.15 (A0 to A447) Read/Write: 8192 bits (512 words): A448.00 to A959) Imers Counters 4.096 counter numbers: T0 to T4095 DM Area 32 Kwords: D0 to D32767 Data Register Area 16 registers (16 bits): DR0 to DR15 Index Register Area 16 registers (16 bits): DR0 to DR15 Trace Memory 4.000 words (500 samples for the trace data maximum of 31 bits and 6 words.) A special Memory Cassette (CPI-W-MEGSM) can be mounted. Note: Can be used for program backups and auto-booting. Nemory Cassette Note: Can be used for program backups and auto-booting. Clock function Supported. Accuracy (monthly deviation): -4.2.6 min to -0.5 min (ambient temperature: C°C.) Built-in Ethernet Port (Connecting Support Software, Message Communications, Socket Service) A maximum of two Serial Communications Option Boards can be mounted. Memory backup Flash memory: User programs, parameters (such as the PLC Setup), comment data, and the entire DM can be saved to flash memory as initial values. Battery service life Service life expansion Units and Expansion U/O Units: 3 max. Battery service life Communications Option Boards can be incounted. Number of Loo points 40 (24 inputs, 16 outputs) 30 (18 inputs, 12 outputs) 20 (12 inputs, 8 outp						
AH Area Read/Write: 8192 bits (512 words): A448.00 to A959.15 (A448 to A959) Timers 4,096 timer numbers: T0 to T4095 Counters 4,096 counter numbers: C0 to C4095 DM Area 32 Kwords: D0 to D32767 Data Register Area 16 registers (16 bits): DR0 to DR15 Index Register Area 16 registers (32 bits): IR0 to IR15 Trace Memory 4,000 words (500 samples for the trace data maximum of 31 bits and 6 words.) Memory Cassette A special Memory Cassette (CP1W-ME05M) can be mounted. Note: Can be used for program backups and auto-booting. Clock function Suported. Accuracy (monthly deviation): -4.5 min to -0.5 min (ambient temperature: 55°C), -2.0 min to +2.0 min (ambient temperature: 25°C), -2.5 min to +1.5 min (ambient temperature: 0°C) Memory backup Buill-in Ethernet Port (Connecting Support Software, Message Communications, Socket Service) Memory backup Flash memory: User programs, parameters (such as the PLC Setup), comment data, and the entire DM / can be saved to flash memory as initial values. Battery backup: The Holding Area, DM Area, and counter values (flags, PV) are backed up by a battery. Built-in input terminals 40 (24 inputs, 16 outputs) 30 (18 inputs, 12 outputs) 20 (12 inputs, 8 outputs) Number of I/O points CP-series Expansion Unit and Expansion I/O Units 3 max. Expansion I/O Units 1 max. Expansion I/O Units 1 max. <tr< th=""><th>Holding Area</th><th></th><th></th><th></th><th>,</th><th></th></tr<>	Holding Area				,	
Counters 4,096 counter numbers: C0 to C4095 DM Area 32 Kwords: D0 to D32767 10 Kwords: D0 to D9999, D3; to D32767 Data Register Area 16 registers (16 bits): DR0 to DR15 Index Register Area 16 registers (32 bits): IR0 to IR15 Task Flag Area 32 flags (32 bits): TK0000 to TK0031 Taree Memory 4,000 words (500 samples for the trace data maximum of 31 bits and 6 words.) Memory Cassette A special Memory Cassette (CP1W-MECSM) can be mounted. Note: Can be used for program backups and auto-booting. Clock function Supported. Accuracy (monthly deviation): -4.5 min to -0.5 min (ambient temperature: C°C). -2.0 min to +2.0 min (ambient temperature: 25°C), -2.5 min to +1.5 min (ambient temperature: 0°C) Built-in Ethernet Port (Connecting Support Software, Message Communications, Socket Service) A maximum of one Serial Communications functions Memory backup Flash memory: User programs, parameters (such as the PLC Setup), comment data, and the entire DM / can be saved to flash memory as initial values. Battery backup: The Holding Area, DM Area, and counter values (flags, PV) are backed up by a battery. Built-in input terminals 40 (24 inputs, 16 outputs) 30 (18 inputs, 12 outputs) 20 (12 inputs, 8 outputs) Number of connectable Expansion Units and Expansion I/O Units CP-series Expansion Unit and Expansion I/O Units: 3 max. CP-series Expansion Units: 1 max. Expansion I/O Units: 4 oper Expansion (I/				Read/Write: 8192 bits (512 words): A	. , ,	0 to A447)
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Task Flag Area 32 flags (32 bits): TK0000 to TK0031 Trace Memory 4,000 words (500 samples for the trace data maximum of 31 bits and 6 words.) Memory Cassette A special Memory Cassette (CP1W-ME05M) can be mounted. Note: Can be used for program backups and auto-booting. Clock function Supported. Accuracy (monthly deviation): -4.5 min to -0.5 min (ambient temperature: 55°C), -2.0 min to +2.0 min (ambient temperature: 25°C), -2.5 min to +1.5 min (ambient temperature: 0°C) Built-in Ethernet Port (Connecting Support Software, Message Communications, Socket Service) A maximum of two Serial Communications Option Boards can be mounted. A maximum of none Serial Communications Option Boards can be Memory backup Flash memory: User programs, parameters (such as the PLC Setup), comment data, and the entire DM / can be saved to flash memory as initial values. Battery backup: The Holding Area, DM Area, and counter values (flags, PV) are backed up by a battery. Built-in input terminals 40 (24 inputs, 16 outputs) 30 (18 inputs, 12 outputs) 20 (12 inputs, 8 outputs) Number of connectable Expansion Units and Expansion I/O Units CP-series Expansion Unit and Expansion I/O Units: 3 max. CP-series Expansion Units and Expansion I/O Units 1 max. Max. number of I/O points 160 (40 built in + 40 per Expansion I(/O) Unit x 3 Units) 150 (30 built in + 40 per Expansion I(/O) Unit x 1 Unit) 60 (20 built in + 40 per Expansion I(/O) Unit x 1 Unit) Interrupt inputs 6 inputs (Respo	Data Register Area			16 registers (16 bits): DR0 to DR15		
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Scheduled interrupts 1 4 inputs/2 axes (24 VDC) 4						
4 inputs/2 axes (24 VDC)					13 max.j	
High-speed counters Single-phase (pulse plus direction, up/down, increment), 100 kHz Value range: 32 bits, Linear mode or ring mode Interrupts: Target value comparison or range comparison				4 inputs/2 axes (24 VDC) Differential phases (4x), 50 kHz Single-phase (pulse plus direction, u Value range: 32 bits, Linear mode or	ring mode	

CP1L

	Тур	e CP1L-EM40 (40 points)	CP1L-EM30 (30 points)	CP1L-EL20 (20 points)							
Item	Mode	s CP1L-EM40D□-□	CP1L-EM30D	CP1L-EL20D							
Pulse outputs	Pulse outputs		and deceleration (Duty ratio: 50% fixed N or pulse plus direction)	3)							
Puise outputs (models with transistor outputs only) Puise outputs 2 outputs, 1 Hz to 100 kHz (CCW/CW or pulse plus direction) PWM outputs Duty ratio: 0.0% to 100.0% (specified in increments of 0.1% or 1%) 2 outputs, 0.1 to 6553.5 Hz or 1 to 32,800 Hz (Accuracy: +1%/0% at 0.1 Hz to 10,000 Hz and +5%/0% at 10,000 Hz to 32,800 Hz)											
Analog input	-	2 input (Resolution: 1/1000, Input rat	nge: 0 to 10 V). Not isolated.								

• CP1L CPU Unit (M/L Type)

		Туре	CP1L-M60 (60 points)	CP1L-M40 (40 points)	CP1L-M30 (30 points)	CP1L-L20 (20 points)	CP1L-L14 (14 points)	CP1L-L10 (10 points)
ltem		Models	CP1L-M60	CP1L-M40	CP1L-M30	CP1L-L20	CP1L-L14	CP1L-L10
Control n	nethoo	ł	Stored program meth	od				
I/O contro	ol met	hod	Cyclic scan with imm	ediate refreshing				
Program	langu	age	Ladder diagram					
Function	block	s			ons: 128 Maximum nur ons: Ladder diagrams,		3	
Instructio	on leng	gth	1 to 7 steps per instru	uction				
Instructio	ons		Approx. 500 (function	codes: 3 digits)				
Instructio	on exe	cution time	Basic instructions: 0.	55 μs min. Special ins	tructions: 4.1 μs min.			
Common	proce	essing time	0.4 ms					
Program	capac	ity	10K steps			5K steps		
Number	of task	s	288 (32 cyclic tasks a	nd 256 interrupt tasks	5)			
		duled inter- tasks	1 (interrupt task No. 2	2, fixed)				
	Input tasks	t interrupt	6 (interrupt task No. 1	40 to 145, fixed)			4 (interrupt task No. 140 to 143, fixed)	2 (interrupt task No. 140 to 141, fixed)
	lasks	5	(Interrupt tasks can a	lso be specified and e	executed for high-spee	d counter interrupts a	nd executed.)	
Maximun	n subr	outine number	256					
Maximun	n jump	number	256					
	Input	t Area	1,600 bits (100 words) CIO 0 to CIO 99				
		Built-in Input Area	36 bits: CIO 0.00 to CIO 0.11 and CIO 1.00 to CIO 1.11 and CIO 2.00 to CIO 2.11	24 bits: CIO 0.00 to CIO 0.11 and CIO 1.00 to CIO 1.11	18 bits: CIO 0.00 to CIO 0.11 and CIO 1.00 to CIO 1.05	12 bits: CIO 0.00 to CIO 0.11	8 bits: CIO 0.00 to CIO 0.07	6 bits: CIO 0.00 to CIO 0.05
	Outp	ut Area	1,600 bits (100 words) CIO 100 to CIO 199			Щ.	1
I/O areas		Built-in Output Area	24 bits: CIO 100.00 to CIO 100.07 and CIO 101.00 to CIO 101.07 and CIO 102.00 to CIO 102.07	16 bits: CIO 100.00 to CIO 100.07 and CIO 101.00 to CIO 101.07	12 bits: CIO 100.00 to CIO 100.07 and CIO 101.00 to CIO 100.03	8 bits: CIO 100.00 to CIO 100.07	6 bits: CIO 100.00 to CIO 100.05	4 bits: CIO 100.00 to CIO 100.03
	1:1 L	ink Area	256 bits (16 words): 0	CIO 3000.00 to CIO 30	015.15 (CIO 3000 to C	IO 3015)		
	Seria Area	I PLC Link	. ,		3189.15 (CIO 3100 to	,		
Work bits	s			s): W000.00 to W511. s (2,344 words): CIO 3	15 (W0 to W511) 8800.00 to CIO 6143.1	5 (CIO 3800 to CIO 6	143)	
TR Area			16 bits: TR0 to TR15					
Holding /	Area			s): H0.00 to H511.15 (
AR Area					8 words): A0.00 to A4 0 to A959.15 (A448 to			
Timers			4,096 timer numbers:	T0 to T4095				
Counters	6		4,096 counter numbe					
DM Area			32 Kwords: D0 to D3			10 Kwords: D0 to D9	9999, D32000 to D327	67
Data Reg	jister A	Area	16 registers (16 bits):	DR0 to DR15				
Index Re	gister	Area	16 registers (32 bits):	IR0 to IR15				
Task Flag	g Area		32 flags (32 bits): TK	0000 to TK0031				
Trace Me	emory		4,000 words (500 sar	nples for the trace dat	a maximum of 31 bits	and 6 words.)		
Memory	Casse	tte	A special Memory Ca	ssette (CP1W-ME05M	I) can be mounted. No	ote: Can be used for p	program backups and	auto-booting.
Clock fur	nction				4.5 min to –0.5 min (a 25°C), –2.5 min to +1			
			One built-in periphera	al port (USB 1.1): For o	connecting Support So	oftware only.		
			A maximum of two Se	rial Communications (Option Boards can be	A maximum of one S	erial Communications	Not supported.
Commun	icatio	ns functions		hernet Option Board o IF41 Ver.1.0, one Etho		Option Board can be A maximum of one E can be mounted.	e mounted. Ethernet Option Board	Not supported.
Memory	backu	p	Flash memory: User memory as initial value	ies.	(such as the PLC Set a, and counter values			can be saved to flash
Battery s	ervice	life	Service life expectant rate, and ambient ten		less at higher tempera	tures. (From 0.75 to 5	years depending on r	nodel, power supply

	Туре	CP1L-M60 (60 points)	CP1L-M40 (40 points)	CP1L-M30 (30 points)	CP1L-L20 (20 points)	CP1L-L14 (14 points)	CP1L-L10 (10 points)
Item	Models	CP1L-M60	CP1L-M40	CP1L-M30	CP1L-L20	CP1L-L14	CP1L-L10
Built-in input te	rminals	60 (36 inputs, 24 outputs)	40 (24 inputs, 16 outputs)	30 (18 inputs, 12 outputs)	20 (12 inputs, 8 outputs)	14 (8 inputs, 6 outputs)	10 (6 inputs, 4 outputs)
Number of con Expansion Unit Expansion I/O U	s and	CP-series Expansion	Unit and Expansion I	/O Units: 3 max.	CP-series Expansior I/O Units: 1 max.	Units and Expansion	Not supported.
Max. number of	I/O points	180 (60 built in + 40 per Expansion (I/O) Unit \times 3 Units)	160 (40 built in + 40 per Expansion (I/O) Unit \times 3 Units)	150 (30 built in + 40 per Expansion (I/O) Unit × 3 Units)	60 (20 built in + 40 per Expansion (I/O) Unit × 1 Unit)	54 (14 built in + 40 per Expansion (I/O) Unit × 1 Unit)	10 (10 built in)
Interrupt inputs	;	6 inputs (Response ti	ime: 0.3 ms)			4 inputs (Response time: 0.3 ms)	2 inputs (Response time: 0.3 ms)
Interrupt inputs mode	counter	6 inputs (Response fi Up or down counters	requency: 5 kHz max.	for all interrupt inputs)	, 16 bits	4 inputs (Response frequency: 5 kHz max. for all interrupt inputs), 16 bits Up or down counters	2 inputs (Response frequency: 5 kHz max. for all interrupt inputs), 16 bits Up or down counters
Quick-response	e inputs	6 points (Min. input p	ulse width: 50 μs max	.)		4 points (Min. input pulse width: 50 μs max.)	2 points (Min. input pulse width: 50 μs max.)
Scheduled inter	rrupts	1					•
High-speed cou	inters	4 inputs/2 axes (24 V	Value range: 32	ses (4x), 50 kHz bulse plus direction, up 2 bits, Linear mode or r et value comparison o	ring mode	0 kHz	
Pulse outputs (models with	Pulse outputs	Trapezoidal or S-curv 2 outputs, 1 Hz to 10		celeration (Duty ratio: ulse plus direction)	50% fixed)		
transistor out- puts only)	PWM outputs			prements of 0.1% or 1% Hz (Accuracy: +1%/0%		Hz and +5%/0% at 10,0	000 Hz to 32,800 Hz)
Analog control		1 (Setting range: 0 to	,				
Analog input		1 input (Resolution: 1	/256, Input range: 0 to	o 10 V). Not isolated.			

CP1L

Built-in Inputs

■ Input Terminal Block Arrangement (Top Block)

CP1L (60 Inputs)

· AC Power Supply Models

L1 L2/NCOM (1 03	3 05	07	7 09	11	01	03	0	5 0	7 ()9 ·	11	01	03	05	07	09	11
♠ ⊕ ∞	02	04	06	08	10	00	02	04	06	08	10	00	02	0	4 0	6 0	08 1	0
Inputs (CIO 0) Inputs (CIO 1) Inputs (CIO 2) DC Power Supply Models																		
+ - COM (_	1	6 07	7 09	11	01	03	0	5 0	7 ()9 ·	11	01	03	05	07	09	11
NC 🕀 00	02	04	06	08	10	00	02	04	06	08	10	00	02	0	4 0	6 0	08 1	0
Input	s (CIO		Ir	puts	CIO	1)				Inpu	uts (C	IO 2])					

● CP1L (40 Inputs)

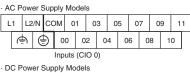
·А	C Pov	ver S	Sup	ply I	Model	ls															
L	.1 L	2/N	СС	м	01	03	05	0	7	09	1	1	01	0	3	05		07	0	9	11
	(Å	E	Ð	00		02 (04 0)6	08	B 1	0	0	0 ()2	0	4	06	0	8	10	Γ
	Inputs (CIO 0) Inputs (CIO 1)																				
٠D	Inputs (CIO 0) Inputs (CIO 1) DC Power Supply Models																				
	+	-	СС	м	01	03	05	0	7	09	1	1	01	0	3	05		07	0	9	11
_	NC	6	Ð	00)2 (04 0	6	08	8 1	0	0	0 ()2	0	4	06	0	8	10	
				Inpu	uts (C	IO 0)						Inp	uts (C	10	1)						-

• CP1L (30 inputs)

· AC Power Supply Models

	-	-		· · P				-																
L	1	L2	/N	СС	м	0.	1	03	3	0	5	0	7	0	9	1	1	0	1	0	3	0	5	
	G	Ь	C	Ð	0	0	0	2	0	4	0	6	0	8	1	0	0	0	0	2	0	4	N	с
					Inp	uts	(CI	0 0)								Inp	uts	(CI	0 1)			
٠D	DC Power Supply Models																							
-	-	-	-	СС	м	0.	1	03	3	0	5	0	7	0	9	1	1	0	1	0	3	0	5	
													0	0	0	2	0	4	N	С				
	NC (=) 00 02 04 06 Inputs (CIO 0)																Inp	uts	(CI	0 1)			

● CP1L (20 Inputs)





• CP1L (14 Inputs)

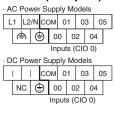
· AC Power Supply Models

L	1	L2	/N	СС	М	0	1	0	3	0	5	0	7	Ν	С	N	С
	6	þ	6	<u> </u>		0	0	2	0	4	0	6	N	С	N	С	
		⊕ 00 02 04 06 Inputs (CIO 0) 0															

DC Power Supply Models

	- ·				P-7			-									
-	F	-	-	СС	ОМ	0	1	0	3	0	5	0	7	N	С	N	С
	N	С		5	0	0	0	2	0	4	0	6	N	С	N	с	
					Inp	uts	(CI	0 0))								

• CP1L (10 Inputs)



Built-in Input Area Input terminal block Origin search Input operation High-speed counter operation **Operation settings** Origin searches enabled for High-speed counters enabled pulse outputs 0 and 1 Number of Phase-Z signal reset Normal Interrupt inputs Word Bit Quick-response inputs Two-phase inputs inputs CPU Units CPU Units CPU Units Single-phase (differential phase x4, (increment pulse with 20 to with 14 with 10 up/down, or pulse input) 60 points points points plus direction) High-speed High-speed counter 0 Normal 00 --counter 0 (phase-A, increment, -----input 0 or count input) (increment) High-speed High-speed counter 0 Normal 01 -----counter 1 (phase-B, decrement, --------input 1 (increment) or direction) Pulse output 0: High-speed High-speed counter 1 Normal Origin 02 counter 2 (phase-A, increment, --input 2 proximity (increment) or count input) input signal 10 Pulse Pulse output 1: output 0: High-speed High-speed counter 1 Normal Origin Origin counter 3 (phase-B, decrement, 03 input 3 proximity proximity (increment) or count input) input input signal signal Normal Interrupt Counter 0, phase-High-speed counter 0 04 Quick-response input 0 ---------input 4 input 0 (phase-Z/reset) Z/reset input Pulse output 0: Normal Interrupt Counter 1, phase-High-speed counter 1 05 Quick-response input 1 ------Origin CIO 0 input 1 (phase-Z/reset) input 5 Z/reset input input signal-Normal Interrupt Counter 2, phase-Pulse output 0: 06 Quick-response input 2 --input 2 Origin input signal input 6 Z/reset input 14 Normal Interrupt Counter 3, phase-Pulse output 1: Quick-response input 3 ---07 input 7 input 3 Z/reset input Origin input signal Normal Interrupt 08 Quick-response input 4 ------------input 4 input 8 Normal Interrupt ---------09 Quick-response input 5 --input 9 input 5 Pulse output 0: Normal Origin ---10 -----input 10 proximity 20 input signal Pulse output 1: Normal Origin 11 -----------input 11 proximity input signal Normal 00 --------------input 12 to to to to to to 30 to to to Normal ----------------------05 input 17 CIO 1 Normal ------------------------06 input 18 40 to to to to to to to to to Normal --------------------11 --input 23 Normal 00 ---------------------input 24 60 CIO 2 to to to to to to to to to Normal 11 --------------------input 35

CP1L

Built-in Outputs

■ Output Terminal Block Arrangement (Bottom Block)

• CP1L (60 Outputs)

● CP1L (60 Outputs)
· AC Power Supply Models
+ 00 01 02 04 05 07 00 02 04 05 07 00 02 04 05 07 00 02 04 05 07
- COMCOMCOM 03 COM 06 COM 01 03 COM 06 COM 01 03 COM 06
CIO 100 CIO 101 CIO 102
NC 00 01 02 04 05 07 00 02 04 05 07 00 02 04 05 07
NC COMCOM 03 COM 06 COM 01 03 COM 06 COM 01 03 COM 06
CIO 100 CIO 101 CIO 102
● CP1L (40 Outputs)
· AC Power Supply Models
+ 00 01 02 03 04 06 00 01 03 04 05
- COM COM COM 05 07 COM 02 COM 05 07
CIO 100 CIO 101 · DC Power Supply Models
CP1L-EM40DR-D/CP1L-M40D□-D
NC 00 01 02 03 04 06 00 01 03 04 06
NC COM COM COM 05 07 COM 02 COM 05 07
CIO 100 CIO 101
CP1L-EM40DT-D
V+ 00 01 02 03 04 06 00 01 03 04 06
V- COM(V-) COM 05 07 COM 02 COM 05 07
CIO 100 CIO 101
CP1L-EM40DT1-D
V+ 00 01 02 03 04 06 00 01 03 04 06
V- COM(V+) COM 05 07 COM 02 COM 05 07
CIO 100 CIO 101
● CP1L (30 Outputs)
- AC Power Supply Models
+ 00 01 02 04 05 07 00 02
- COM COM 03 COM 06 COM 01 03 CIO 100 CIO 101 CIO 101 CIO 101 CIO 101 CIO 101
DC Power Supply Models
CP1L-EM30DR-D/CP1L-M30D□-D
NC 00 01 02 04 05 07 00 02
NC COM COM 03 COM 06 COM 01 03
CIO 100 CIO 101
CP1L-EM30DT-D
V+ 00 01 02 04 05 07 00 02
V- COM(V-) 03 COM 06 COM 01 03

CP1L-EM30DT1-D V+ 00 01 02 04 05 07 00 02

	V-	Г	CON	1(V+)	03	3	CON	1 0	16	СС	м	0	1	0;	3
ĺ		CIC	D 100							CIC	0 10)1			

● CP1L (20 Outputs)

· A	СР	ow	er S	Sup	ply	Mc	del	s							
		-	÷	0	0	0	1	0	2	0	4	0	5	0	7
	– СОМ СОМ СОМ 03 СОМ 06														
	+ 00 01 02 04 05 07														
٠D	C F	ow	er S	Sup	ply	Mo	odel	s							

				• •)/CF		-L2	0D[<u> </u>)				
	N	С	C 00 01 02 04 05 07											
N	С	С	DM	СС	DM	СС	DM	0	3	СС	ОМ	0	6	
		CIO 100												

CP1L-EL20DT-D

0		I L-L		001-0									
		V	/+	00	01	0	2	0	4	0	5	0	7
	\	/-		CON	Л(V-)		0	3	СС	ОМ	0	6	
		CIO 100											

CP1L-EL20DT1-D

	L-L		20011-0									
	V	/+	00	01	0	2	0	4	0	5	0	7
٧	<i>'</i> -		CON	/(V+)		0	3	СС	DM	0	6	
	CIO 100											

• CP1L (14 Outputs)

· A	СР	ow	er S	Sup	ply	Mc	del	s								
		-	÷	0	0	0	1	0	2	0	4	0	5	N	С	
	-	-	СС	ЭМ	СС	DM	СС	DM	0	3	СС	ЭМ	N	С		'
	CI		CIC	D 10	00											
٠D	· DC Power Supply Models															

,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		000	erv	Sup	ріу	IVIC	Jue	15								
		N	С	0	0	0	1	0	2	0	4	0	5	N	С	
	N	~	~		~		~		0	2	~	204	N	~		

NC	СОМ	СОМ	СОМ	03	СОМ	NC
	CIO 10	00				

● CP1L (10 Outputs)

• A(Ρ	ow	/er	Su	ıрр	ly I	Мo	del	s		
	{ 00 01 02										
	сом сом сом 03										
_	CIO 100										

•	D	C F	ow	/er	Sı	ipp	ly	Мо	de	ls
		N	С	0	0	0	1	0	2	
	N	С	СС	ΣМ	co	ΣМ	co	ΣМ	0	3

CIO 100

		Output Te Bloo		When the instructions to the right are not executed		output instruction , or ORG) is executed	and an origin se	earch function is n the PLC Setup, arch is executed i instruction	When the PWM instruction is executed
 	ber of puts					Fixed duty ratio puls	e output		Variable duty ratio pulse output
-		Word	Bit	Normal output	000/2000		When the origin is u	search function sed	
					CW/CCW	Pulse plus direction	CPU Units with 14 to 60 points	CPU Units with 10 point	PWM output
			00	Normal output 0	Pulse output 0 (CW)	Pulse output 0 (pulse)			
			01	Normal output 1	Pulse output 0 (CCW)	Pulse output 0 (direction)			PWM output 0
	10		02	Normal output 2	Pulse output 1 (CW)	Pulse output 1 (pulse)			
			03	Normal output 3	Pulse output 1 (CCW)	Pulse output 1 (direction)		Origin search 0 (Error counter reset output)	PWM output 1
	14	CIO 100	04	Normal output 4			Origin search 0 (Error counter reset output)		
	14		05	Normal output 5			Origin search 1 (Error counter reset output)		
	20		06	Normal output 6					
	20		07	Normal output 7					
			00	Normal output 8					
	30		to	to	to	to	to	to	to
		CIO 101	03	Normal output 11					
			04	Normal output 12					
	40		to	to	to	to	to	to	to
			07	Normal output 15					
			01	Normal output 16					
6	0	CIO 102	to	to	to	to	to	to	to
			07	Normal output 23					

CP1L I/O Specifications for CPU Units

■ Input Specifications

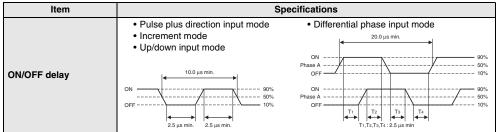
		Specifications	
ITEM	High-speed counter inputs (phases A and B) *1	Interrupt inputs and quick-response inputs *1	Normal inputs
	CIO 0.00 to CIO 0.03	CIO 0.04 to CIO 0.09 *2	CIO 0.10 to CIO 0.11, CIO 1.00 to CIO 1.11, and CIO 2.00 to 2.11 *2
Input voltage	24 VDC +10%/-15%		
Applicable sensors	2-wire sensors or 3-wire sensors		
Input impedance	3.0 kΩ		4.7 kΩ
Input current	7.5 mA typical		5 mA typical
ON voltage	17.0 VDC min.		14.4 VDC min.
OFF voltage/current	1 mA max. at 5.0 VDC		
ON delay *3	2.5 μs max.	50 μs max.	1 ms max.
OFF delay *3	2.5 μs max.	50 μs max.	1 ms max.
Circuit configuration	Input LED		Input LED ↓ Input LED ↓ Internal circuits

*1. High-speed counter inputs, interrupt inputs, and quick-response inputs can also be used as normal inputs.
*2. The bits that can be used depend on the model of CPU Unit.

*3. The response time is the hardware delay value. The delay set in the PLC Setup (0 to 32 ms, default: 8 ms) must be added to this value.

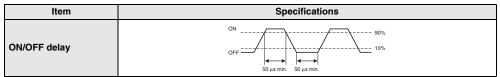
High-speed Counter Function Input Specifications

Input bits: CIO 0.00 to CIO 0.03



Interrupt Input Counter Mode

Input bits: CIO 0.04 to CIO 0.09



■ Output Specifications

• CPU Units with Relay Outputs

	Item		Specifications					
Max. s	witching	g capacity	2 A, 250 VAC (cos = 1), 2 A, 24 VDC 4 A/common)					
Min. sv	vitching	capacity	5 VDC, 10 mA					
Ser-	vice trical Induc-		100,000 operations (24 VDC)					
vice life of relay	trical	Induc- tive load	48,000 operations (250 VAC, cos					
,	Mecha	nical	20,000,000 operations					
ON del	ay		15 ms max.					
OFF de	elay		15 ms max.					
Circuit	configu	uration	Output LED OUT Internal circuits COM Maximum 250 VAC: 2 A, 24 VDC: 2 A					

Note: There are restrictions in the power supply voltage and output load current imposed by the ambient temperature for CPU Units with DC power. Refer to the CP1L CPU Unit Operation Manual (Cat. No. W462) or the CP Series CP1L-EL/EM CPU Unit Operation Manual (Cat. No. W516).

14

• CPU Units with Transistor Outputs (Sinking/Sourcing)

		Spe	cifications
lte	m	CIO 100.00 to CIO 100.03 *1	CIO 100.04 to CIO 100.07 *2
Max. switching	capacity	4.5 to 30 VDC, 300 mA/output, 0.9 A/common, EM40D-D 3 EM30D-D 2 EL20D-D 1. M60D-D 5.4 M40D-D 3.6 M30D-D 2.7 L20D-D 1.8 L14D-D 1.5 L10D-D 0.9	2.7 A/Unit 8 A/Unit 4 A/Unit 5 A/Unit 7 A/Unit A/Unit A/Unit
Min. switching	capacity	4.5 to 30 VDC, 1 mA	
Leakage curren		0.1 mA max.	
Residual voltag	е	0.6 V max.	1.5 V max.
ON delay		0.1 ms max.	
OFF delay		0.1 ms max.	1 ms max.
Fuse		CP1L-L/M CPU Unit: 1/common *3 CP1L-EL/EM CPU Unit: None	
Circuit configuration	CP1L-EL/EM CPU Unit	Sinking Outputs	Sourcing Outputs
	CP1L-L/M CPU Unit	Sinking Outputs	Sinking Outputs

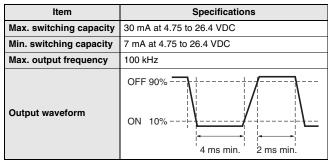
Note: Do not apply a voltage or connect a load to an output terminal exceeding the maximum switching capacity.

*1. Also do not exceed 0.9 A for the total of CIO 100.00 to CIO 100.03, which are different common.

- *2. The bits that can be used depend on the model of the CPU Unit.
- *3. The fuse cannot be replaced by the user.

Pulse outputs

Output bits CIO 100.00 to CIO 100.03

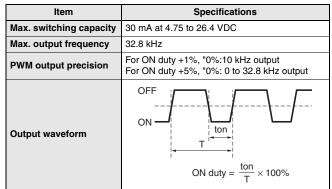


Note: 1. The above values assume a resistive load and do not consider the impedance of the cable connecting the load.

- 2. The pulse widths during actual use may be smaller than the ones shown above due to pulse distortion caused by connecting cable impedance.
- The OFF and ON refer to the output transistor. The output transistor is ON at level "L".

• PWM outputs

Output bits CIO100.01, CIO 100.03



Note: The OFF and ON refer to the output transistor. The output transistor is ON at level "L".

External Analog Setting Input Specifications

Item	Specifications
Number of analog inputs	1
Input signal range	0 to 10V
Resolution	1/256 (full scale)
Isolation method	None

Note: CP1L-L CPU Unit or CP1L-M CPU Unit only.

Analog Input Specifications

Item	Specifications
Number of inputs	2 inputs (2 words allocated in the AR Area)
Input signal range	Voltage input: 0 V to 10 V
Max. rated input	0 V to 15 V
External input impedance	100 KΩ min.
Resolution	1/1000 (full scale)
Overrall accuracy	25°C: ± 2.0% (full scale) 0 to 55°C: ± 3.0% (full scale)
A/D conversion data	0000 to 03E8 hex
Averaging function	Not supported
Conversion time	Same as PLC cycle time
Isolation method	None

Note: CP1L-EL CPU Unit or CP1L-EM CPU Unit only.

■ Built-in Ethernet Specifications (CP1H-EL CPU Units or CP1H-EM CPU Unit Only)

Item		Specifications
Protocol used		TCP/IP, UDP, ARP, ICMP (ping only), BOOTP
Applications		FINS, Socket, SNTP, DNS (client)
Media access method		CSMA/CD
Modulation method		Baseband
Transmission paths		Star form
Baud rate		100 Mbit/s (100Base-TX), 10 Mbit/s (10Base-T)
Transmission media	100 Mbit/s	 Unshielded twisted-pair (UDP) cable Categories: 5, 5e Shielded twisted-pair (STP) cable Categories: 100 Ω at 5, 5e
Transmission media	10 Mbit/s	 Unshielded twisted-pair (UDP) cable Categories: 3, 4, 5, 5e Shielded twisted-pair (STP) cable Categories: 100 Ω at 3, 4, 5, 5e
Transmission Distance		100 m (distance between hub and node)

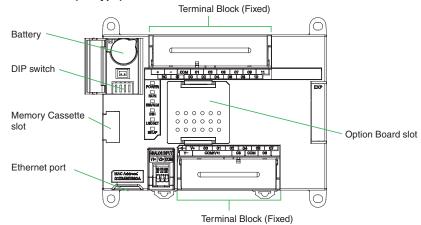
Ite	em	FINS Communications Service Specifications
Number of nodes		254
Message length		1016 bytes max.
Size of buffer		8k
Communications Function		FINS Communications Service (UDP/IP, TCP/IP)
	Protocol used	UDP/IP
FINS/UDP method	Port number	9600 (default) Can be changed.
	Protection	No
	Protocol used	TCP/IP
FINS/TCP method	Number of connections	Up to 2 simultaneous connections and only one connection can be set to client
Port number Protection		9600 (default) Can be changed.
		Yes (Specification of client IP addresses when unit is used as a server)

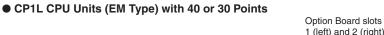
*1. CX-One version 4.3 or higher is required.
*2. To connect the CP1L CPUs with the NS-series Programmable Terminals via Ethernet, make sure that the system version of NS Series is 8.2 or higher.

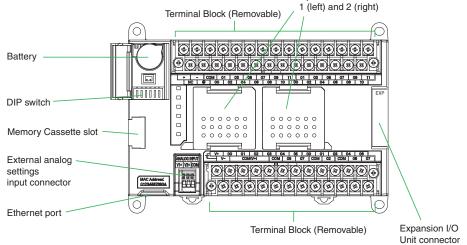
External Interfaces

CP1L CPU Unit Nomenclature

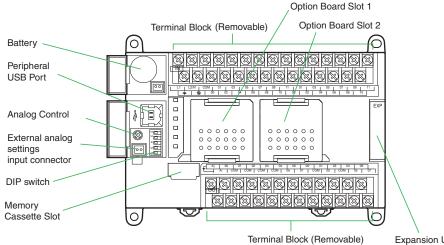
• CP1L CPU Units (EL Type) with 20 Points





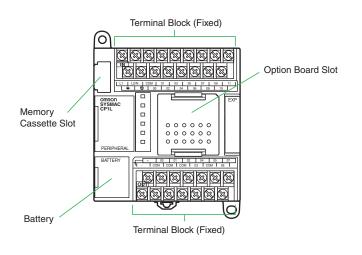


• CP1L CPU Units (MType) with 40 Points

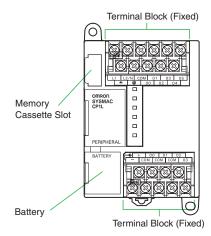


Expansion Unit and Expansion I/O Unit Connector

• CP1L CPU Units (L Type) with 20 or 14 Points



• CP1L CPU Units (L Type) with 10 Points



Connection Methods

■ Built-in Standard Features

				Y	es : Supported, N	o : Not supported
Item	Interface	Applicable CPU Units				
nem	interface	CP1L-EM Type	CP1L-EL Type	CP1L-M Type	CP1L-L14/L20	CP1L-L10
Ethernet port	Connecting Support Software, Message Communications, and the other.	Yes	Yes	No	No	No
Peripheral USB port	Bus for communications with various kinds of Support Software running on a personal computer.	No	No	Yes	Yes	Yes

■ Option Unit Specifications

Yes : Supported, No : Not supported

Item	Option Boards	Applicable CPU Units				
Option Boards		CP1L-EM Type	CP1L-EL Type	CP1L-M Type	CP1L-L14/L20	CP1L-L10
	Serial Communications Option Boards (CP1W-CIF01/CIF11/CIF12)	Yes	Yes	Yes	Yes	No
Serial port 1 *	Ethernet Option Boards (CP1W-CIF41)	No	No	Yes	Yes	No
(Option board slot 1)	Analog I/O Option Boards (CP1W-MAB21/ADB21/DAB21V)	Yes	Yes	No	No	No
	LCD Option Boards (CP1W-DAM01)	Yes	Yes	Yes	Yes	No
	Serial Communications Option Boards (CP1W-CIF01/CIF11/CIF12)	Yes	No	Yes	No	No
Serial port 2 * (Option board slot 2)	Ethernet Option Boards (CP1W-CIF41)	No	No	Yes	No	No
	Analog I/O Option Boards (CP1W-MAB21/ADB21/DAB21V)	Yes	No	No	No	No

* You can choose one from among "Yes".

■ Serial Communications Option Boards (CP1W-CIF01/CIF11/CIF12)

Product name	Model	Specifications	Serial communications mode
RS-232C Option Board	CP1W-CIF01	One RS-232C port Connector: D-Sub, 9 pin, female Maximum transmission distance: 15m One RS-232C connector (D-Sub, 9 pin, male) is included.	Host Link, 1:N NT Link, 1:1 NT Link, Noprotocol, Serial PLC Link Slave, Serial PLC Link Master, Serial Gateway converted to CompoWay/F, and Tool Bus,
RS-422A/485 Option Board	CP1W-CIF11	One RS-422A/485 port Terminal block: using ferrules Maximum transmission distance: 50m	
RS-422A/485 Isolated-type Option Board	CP1W-CIF12	One RS-422A/485 port (Isolated) Terminal block: using ferrules Maximum transmission distance: 500m	1:1 Link Master, and 1:1 Link Slave.

Note: 1. Serial PLC Link can be used with either serial port 1 or serial port 2.2. Cannot be used for the CP1L-L10.

■ Ethernet Communications Specifications (CP1W-CIF41)

Item		Specifications		
Applicable PLCs			CP1L CPU Units Note: The Ethernet Option Board cannot be used for the CP1L-EM/EL/L10.	
Number of Units that can be mounted		d	2 sets. (The CP1W-CIF41 Ver.1.0 and Ver.2.0 can be combined and used with one CPU Unit. When using CP1W-CIF41 Ver.1.0, only one unit can be mounted in an option board slot.)	
Protocol u	ised		TCP/IP, UDP	
Server/Clie	ent		Only server (Cannot be used as a client)	
Applicatio	ons		FINS	
	Media access method		CSMA/CD	
	Modulation method		Baseband	
	Transmission paths		Star form	
	Baud rate		100 Mbit/s (100Base-TX), 10 Mbit/s (10Base-T)	
Transfer		100 Mbit/s	 Unshielded twisted-pair (UDP) cable Categories: 5, 5e Shielded twisted-pair (STP) cable Categories: 100 Ω at 5, 5e 	
Transmission media	10 Mbit/s	 Unshielded twisted-pair (UDP) cable Categories: 3, 4, 5, 5e Shielded twisted-pair (STP) cable Categories: 100 Ω at 3, 4, 5, 5e 		
	Transmission Distance		100 m (distance between hub and node)	

Item		FINS Communications Service Specifications
Number of nod	les	254
Message lengt	h	1016 bytes max.
Size of buffer		8k
Communicatio	ns Function	FINS Communications Service (UDP/IP, TCP/IP)
	Protocol used	UDP/IP
FINS/UDP method	Port number	9600 (default) Can be changed.
mounou	Protection	No
	Protocol used	TCP/IP
FINS/TCP Number of connections		Up to 2 simultaneous connections and only one connection can be set to client
method	Port number	9600 (default) Can be changed.
	Protection	Yes (Specification of client IP addresses when unit is used as a server)

Note: 1. CX-Programmer version 8.1 or higher (CX-One version 3.1 or higher) is required.

2. Use CX-Integrator version 2.33 or higher (CX-One version 3.1 or higher) when the system needs to be set the routing tables. However, CX-Integrator does not support the other functions, using CP1W-CIF41, such as transferring the parameters and network structure. 3. To connect the CP1H/CP1L CPUs with the NS-series Programmable Terminals via Ethernet using CP1W-CIF41, make sure that the system version of NS

Series is 8.2 or higher.

■ Analog I/O Option Board (CP1W-ADB21/DAB21V/MAB221)

		Specifications			
	Model	Inj	Output		
Product name		Voltage Input 0V to 10V	Current Input 0mA to 20mA	Voltage Output 0V to 10V	
		Resolution:1/4000	Resolution:1/2000	Resolution:1/4000	
Analog Input Option Board	CP1W-ADB21	2CH		-	
Analog Output Option Board	CP1W-DAB21V	-		2CH	
Analog I/O Option Board	CP1W-MAB221	2CH		2CH	

Note: CP1L-EL CPU Unit or CP1L-EM CPU Unit only.

Analog Option Board Refresh Time

Analog Opiton Board	Cycle time (ms)				
Analog Opiton Board	1 ms	10 ms	20 ms		
CP1W-ADB21	40 ±30%	50 ±30%	80 ±30%		
CP1W-DAB21V	30 ±40%	40 ±50%	70 ±40%		
CP1W-MAB221(AD)	60 ±40%	80 ±60%	100 ±50%		
CP1W-MAB221(DA)	40 ±80%	60 ±60%	90 ±50%		

■ LCD Option board (CP1W-DAM01) ● Specifications

Item	Function
Mounting port	CP1L: Option board slot 1 Note: The LCD Option Board cannot be used for the CP1L-L10.
Communications protocol	Peripheral bus (Turn ON DIP switch pin 4.)
Weight	30 g max.
Number of display characters	4 rows × 12 characters: 48 characters max.
Display characters	5×7 dots (alphanumeric and symbols).
Backlight	Electroluminescence (EL): Normal: Lit green; Error: Flashing red

LCD Functions

(Operation	Description					
Changing o	perating modes	Change the PLC operating mode without usin	g the CX-Programmer.				
I/O memory		Read and change the present values in the m	emory areas and force-set or force-reset bits.				
PLC Setup of	operations	Read and change the PLC Setup.					
Analog I/O n	nonitor	Monitor the analog adjustment and present va	alue for the external analog setting input.				
Error log dis	splay	Read the log of errors that have occurred.					
Memory cas	sette operation	Transfer and verify user programs between the	e PLC and memory cassette.				
User monito	or settings	Read the status of up to 16 words and bits wit	th comments. You can use this setting to read data on the startup display.				
Message dis settings	splay function	Display a user-set message of up to 48 chara A maximum of 16 screens can be registered f	cters on the LCD Option Board when a specified bit turns ON. or display.				
		(Operation:				
	Day timer	Use this timer for ON/OFF switching at a specified times every day from the starting day of the week to the ending day of the week. Sixteen timers cam be set from timer 01 to timer 16.	Starting day of the week Example: Monday ON OFF Starting time Example: 9:00 Starting time Example: 17:00 Starting time Example: 17:00 Starting time Example: 17:00 Starting time Example: 17:00 Starting time Example: 17:00 Starting time Starting t				
Timers	Weekly timer	Use this timer for ON/OFF operation in intervals of one week that starts one day and ends another day. Sixteen timers cam be set from timer No. 01 to timer No. 16.	Deperation: Starting day of the week Ending day of the week Example: Monday ON OFF OFF Starting time Ending time Ending time Example: 12:00				
	Calendar timer	Use the calendar timers for ON or OFF operation in intervals of one year from the starting day to the ending day. Sixteen timers can be set from timer 01 to timer 16.	OPeration: OFF				
Saving setting		Save the various settings that you set with the LCD Option Board to the DM Area of the PLC. You can also write the settings saved in the PLC to the LCD Option Board.					
Language		Changing the display language (Japanese/En	Changing the display language (Japanese/English)				
Other functions		 Setting the time of the PLC's built-in clock Reading system data (e.g., unit version and Setting the backlight lighting time Adjusting LCD contrast Reading cycle time (e.g., average, maximun Clearing data for the LCD Option Board 					

Expansion I/O Unit Specifications

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

Expansion I/O Units can be connected to the CPU Unit to configure the required number of I/O points.

• DC Inputs (CP1W-40EDR/40EDT/40EDT1/20EDR1/20EDT1/20EDT1/8ED)

Item	Specifications			
Input voltage	24 VDC +10%/-15%			
Input impedance	4.7 kΩ			
Input current	5 mA typical			
ON voltage	14.4 VDC min.			
OFF voltage	5.0 VDC max.			
ON delay	0 to 32 ms max. (Default: 8 ms) (See note 1.)			
OFF delay	0 to 32 ms max. (Default: 8 ms) (See note 1.)			
Circuit configuration	Input LED			

● Relay Outputs (CP1W-40EDR/32ER/20EDR1/16ER/8ER)

	Item		Specifications			
Max. switching capacity		apacity	2 A, 250 VAC (cos = 1), 24 VDC 4 A/common			
Min. swit	ching c	apacity	5 VDC, 10 mA			
Service Elec- load		Resistive load	150,000 operations (24 VDC)			
life of relay	trical	Inductive load	100,000 operations (24 VAC cos = 0.4)			
	Mecha	nical	20,000,000 operations			
ON delay	,		15 ms max.			
OFF dela	y		15 ms max.			
Circuit configuration		ation	Output LED Internal circuits			

Note: 1. Do not apply a voltage exceeding the rated voltage to an input terminal.
2. Can be set in the PLC Setup to 0, 0.5, 1, 2, 4, 8, 16 or 32 ms. The CP1W-40EDR/EDT/EDT1 are fixed at 16 ms.

1ms min. (hardware delay value)

Note: There are restrictions in the power supply voltage and output load current imposed by the ambient temperature for CPU Units with DC power. Use the CPU Unit within the following ranges of power supply voltage and output load current.

Refer to the CP1L CPU Unit Operation Manual (Cat. No. W462) or the CP Series CP1L-EL/EM CPU Unit Operation Manual (Cat. No. W516).

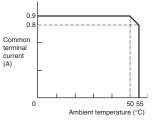
Transistor Outputs (Sinking/Sourcing) (CP1W-40EDT/-40EDT1/-32ET/-32ET1/-20EDT/-20EDT1/-16ET/-16ET1/-8ET/-8ET1)

			Specifications				
Item	CP1W-40EDT CP1W-40EDT1	CP1W-32E CP1W-32ET1	CP1W-20EDT CP1W-20EDT1	CP1W-16ET CP1W-16ET1	CP1W-8ET CP1W-8ET1		
Max. switching ca- pacity (See note 3.)	4.5 to 30 VDC: 0.3 A/point		24 VAC +10%/ -5%: 0.3 A/point	4.5 to 30 VDC: 0.3 A/point	 OUT00/01 4.5 to 30 VDC, 0.2 A/output OUT02 to 07 4.5 to 30 VDC, 0.3 A/output 		
	0.9 A/common 3.6 A/Unit	0.9 A/common 7.2 A/Unit	0.9 A/common 1.8 A/Unit	0.9 A/common 3.6 A/Unit	0.9 A/common 1.8 A/Unit		
Leakage current	0. 1mA max.						
Residual voltage	1.5 V max.						
ON delay	0.1ms max.						
OFF delay	1 ms max. at 24 +10%/-5%, 5 to						
Max. number of Simultaneosly ON Points of Output	imultaneosly ON 16 pts (100%) 24 pts (75%)		8 pts (100%)	16 pts (100%)	8 pts (100%)		
Fuse (See note 2.)	1/common						
	Sinking Outputs		Sourcing Outputs				
Circuit configura- tion	Output LED	1, 1 1001 ± 4.5	/DC/		COM (+) OUT 4.5 to 5 OUT 5 OUT 5		

Note: 1. Do not apply a voltage or connect a load to an output terminal exceeding the maximum switching capacity.
 2. The fuses cannot be replaced by the

2. The fuses cannot be replaced by the user.

3. A maximum of 0.9 A per common can be switched at an ambient temperature of 50°C.



CP1W-AD041/AD042/DA021/DA041/DA042/MAD11/MAD42/MAD44 Analog Units

Analog values that are input are converted to binary data and stored in the input area, or binary data is output as analog values.

Analog Input Units

Model		CP1W	/-AD041	CP1W	/-AD042		
Item		Voltage Input	Current Input	Voltage Input	Current Input		
Number of inputs		4 inputs (4 words allocated)	4 inputs (4 words allocated)				
Input signal range		0 to 5 VDC, 1 to 5 VDC, 0 to 10 VDC, or -10 to 10 VDC	0 to 20 mA or 4 to 20 mA	0 to 5 VDC, 1 to 5 VDC, 0 to 10 VDC, or -10 to 10 VDC	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 M Ω min.	Approx. 250 Ω		
Resolution	Resolution		1/6000 (full scale)		1/12000 (full scale)		
	25°C	0.3% full scale	0.4% full scale	0.2% full scale	0.3% full scale		
Overall accuracy	0 to 55°C	0.6% full scale	0.8% full scale	0.5% full scale	0.7% full scale		
A/D conversion data	A/D conversion data		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		ecimal) 890 to 1770 Hex 0000 to 2EE0 Hex		
Averaging function		Supported (Set in output words n+1 and n+2.)					
Open-circuit detection fur	nction	Supported					
Conversion time		2 ms/point (8 ms/all points)		1 ms/point (4 ms/all points)			
Isolation method		Photocoupler isolation betw	Photocoupler isolation between analog I/O terminals and internal circuits. No isolation between analog I/O signals.				
Current consumption		5 VDC: 100 mA max.; 24 VI	DC: 90 mA max.	5 VDC: 80 mA max.; 24 VDC: 40 mA max.			

Analog Output Units

Model		CP1W-DA021	/CP1W-DA041	CP1W	-DA042	
Item		Voltage Output	Current Output	Voltage Output	Current Output	
Number of outputs		CP1W-DA021: 2 outputs (2 words allocated) CP1W-DA041: 4 outputs (4 words allocated)		4 outputs (4 words allocated)	
	Output signal range		1 to 5 VDC, 0 to 10 VDC, or -10 to 10 VDC	0 to 20 mA or 4 to 20 mA	1 to 5 VDC, 0 to 10 VDC, or -10 to 10 VDC	0 to 20 mA or 4 to 20 mA
Analog	External out load resista	put allowable	2 kΩ min.	350 Ω max.	2 kΩ min.	350 Ω max.
output	External output impedance		0.5 Ω max.		0.5 Ω max.	
section	section Resolution		1/6000 (full scale)		1/12000 (full scale)	
	Overall	25°C	0.4% full scale	0.3% full scale		
	accuracy	0 to 55°C	0.8% full scale		0.7% full scale	
	D/A conversion data		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		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	
Conversion time		CP1W-DA021: 2 ms/point (4 ms/all points) CP1W-DA041: 2 ms/point (8 ms/all points)		1 ms/point (4 ms/all points)		
Isolation method		Photocoupler isolation between analog I/O terminals and i		internal circuits. No isolation between analog I/O signals.		
Current cons	sumption		CP1W-DA021: 5 VDC: 40 mA max.; 24 VDC: 95 mA max. CP1W-DA041: 5 VDC: 80 mA max.; 24 VDC: 124 mA max.		5 VDC: 80 mA max.; 24 VDC: 160 mA max.	

Analog I/O Units

Model			CP1W-MAD42/CP1W-MAD44		CP1W-MAD11	
Item			Voltage I/O	Current I/O	Voltage I/O	Current I/O
	Number of inputs		4 inputs (4 words allo	cated)	2 inputs (2 words allocated)	
	Input signal range		0 to 5 VDC, 1 to 5 VDC, 0 to 10 VDC, or -10 to 10 VDC	0 to 20 mA or 4 to 20 mA	0 to 5 VDC, 1 to 5 VDC, 0 to 10 VDC, or -10 to 10 VDC	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 M Ω min.	Approx. 250 Ω
Analog Input	Resolution		1/12000 (full scale)		1/6000 (full scale)	
Section		25°C	0.2% full scale	0.3% full scale	0.3% full scale	0.4% full scale
	Overall accuracy	0 to 55°C	0.5% full scale	0.7% full scale	0.6% full scale	0.8% full scale
	A/D conversion data	A/D conversion data		lexadecimal) 0 V: E890 to 1770 hex ges: 0000 to 2EE0 hex		nexadecimal) 0 V: F448 to 0BB8 hex nges: 0000 to 1770 hex
	Averaging function		Supported		Supported (Settable for individual inputs via DIP switch)	
	Open-circuit detection function		Supported			
	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 VDC, 0 to 10 VDC, or -10 to 10 VDC	0 to 20 mA or 4 to 20 mA	1 to 5 VDC, 0 to 10 VDC, or -10 to 10 VDC	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.
Analog Output Section	External output impedance		0.5 Ω max.		0.5 Ω max.	
Section	Resolution		1/12000 (full scale)		1/6000 (full scale)	
	Overall accuracy	25°C	0.3% full scale		0.4% full scale	
	Overall accuracy	0 to 55°C	0.7% full scale		0.8% 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.		cuits.	
Current consumption			CP1W-MAD42: 5 VDC: 90 mA max., 24		5 VDC: 83 mA max., 24 VDC: 110 mA max.	

■ Temperature Sensor Units: CP1W-TS001/TS002/TS101/TS102

By mounting a Temperature Sensor Unit to the PLC, inputs can be obtained from thermocouples or platinum resistance thermometers, and temperature measurements can be converted to binary data and stored in the input area of the CPU Unit.

Item	CP1W-TS001	CP1W-TS002	CP1W-TS101	CP1W-TS102	
item	Thermocouples		Platinum resistance thermometer		
Temperature sensors	· · · · · · · · · · · · · · · · · · ·		Switchable between Pt100 and JPt100, but same type m be used for all inputs.		
Number of inputs	2	4	2	4	
Allocated input words	2	4	2	4	
Accuracy	(The larger of $\pm 0.5\%$ of converted value or $\pm 2^\circ C) \pm 1$ digit max. *		(The larger of $\pm 0.5\%$ of converted value or $\pm 1^\circ C) \pm 1$ digit max.		
Conversion time	250 ms for 2 or 4 input points				
Converted temperature data	16-bit binary data (4-digit hexa	16-bit binary data (4-digit hexadecimal)			
Isolation	Photocouplers between all ten	nperature input signals			
Current consumption	5 VDC: 40 mA max., 24 VDC:	59 mA max.	5 VDC: 54 mA max., 24 VDC: 73 mA max.		

* Accuracy for a K-type sensor at -100°C or less is \pm 4°C \pm 1 digit max.

The rotary switch is used to set the temperature range.

Set	ting	CP1W-TS001/TS002			CP1W-TS101/TS102		
Set	ung	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	IN .	0.0 to 500.0	0.0 to 900.0	JPt100	-200.0 to 650.0	-300.0 to 1,200.0
	2	1	-100 to 850	-100 to 1,500			
681	3	5	0.0 to 400.0	0.0 to 750.0		Cannot be set.	
	4 to F		Cannot be set.	Cannot be set.			

Main Specifications

Ite	em	CP1W-TS003
Temperature sensors		Thermocouples or analog input *1
		Switchable between K and J, but same type must be used for all inputs.
Number of inputs		4
Number of inputs Thermocouple input		(The larger of $\pm 0.5\%$ of converted value or $\pm 2^{\circ}$ C) ± 1 digit max. *2
Accuracy at 25°C	Analog voltage inputs	0.5% full scale
-	Analog inputs	0.6% full scale
	Thermocouple inputs	(The larger of $\pm 1\%$ of converted value or $\pm 4^{\circ}$ C) ± 1 digit max. *3
Accuracy at 0 to 55°C	Analog voltage inputs	1.0 % full scale
55 C	Analog inputs	1.2 % full scale
	Thermocouple inputs	K: -200.0 to 1300.0°C or .300.0 to 2300.0°F J: -100.0 to 850.0°C or .100.0 to 1500.0°F
Input signal range	Analog voltage inputs	0 to 10V/1 to 5V
	Analog inputs	4 to 20mA
Resolution	Thermocouple inputs	0.1°C or 0.1°F
	Analog inputs	1/12000 (full scale)
Max. rated input	Analog voltage inputs	±15V
max. rated input	Analog inputs	±30mA
External input	Analog voltage inputs	1MΩ min.
impedance	Analog inputs	Approx. 250Ω
Open-circuit detection	on function	Supported
Averaging function		Unsupported
Conversion time		250 ms for 4 input points
Converted temperate	ure data	16-bit binary data (4-digit hexadecimal)
Converted AD data		16-bit binary data (4-digit hexadecimal)
Isolation		Photocouplers between all temperature and analog input signals
Current consumption	n	5 VDC: 70 mA max., 24 VDC: 30 mA max.

*1 Only last two channels can be used as analog input.
*2 Accuracy for a K-type sensor at -100°C or less is ±4°C ±1 digit max.
*3 Accuracy for a K-type sensor at -100°C or less is ±10°C ±1 digit max.

DIP Switch Settings

The DIP switch is used to set the input type (temperature or analog input), the input thermocouple type (K or J) and the temperature unit (°C or °F).

Note: Set the temperature range according to the type of temperature sensor connected to the Unit. Temperature data will not be converted correctly if the temperature range does not match the sensor.

SW		Setting			
	4	Thermocouple type of temperature sensor	ON	J	
	1		OFF	К	
	2	Temperature unit	ON	°F	
	2		OFF	℃	
SW 1 2 3 4 5 6	3	NC			
	4	Input type selection for the third input (Input 2)	ON	Analog input	
	4		OFF	Thermocouple	
	5	Input type selection for the fourth input (Input 3)	ON	Analog input	
	5		OFF	Thermocouple	
		Analog input signal range	ON	1 to 5V/4 to 20mA	
	6	Analog input signal fallge	OFF	0 to 10V	

Temperature input						
Input type Range (°C) Range (°F)						
К	-200.0 to 1300.0	-300 to 2300				
J	-100.0 to 850.0	-100.0 to 1500				

Main Specifications

Item		CP1W-TS004	
Temperature sensors		Thermocouples	
		Switchable between K and J, but same type must be used for all inputs.	
Number of inputs		12	
A	25°C	(The larger of $\pm 0.5\%$ of converted value or $\pm 2^{\circ}$ C) ± 1 digit max. *1	
Accuracy	0 to 55°C	(The larger of $\pm 1\%$ of converted value or $\pm 4^\circ$ C) ± 1 digit max. *2	
Conversion time		500 ms for 12 input points	
Converted temperature data		16-bit binary data (4-digit hexadecimal) 2-decimal-place mode is not supported	
Isolation		Photocouplers between any two input signals	
Current consumption		5 VDC: 80 mA max., 24 VDC: 50 mA max.	

*1 Accuracy for a K-type sensor at -100°C or less is ±4°C ±1 digit max. *2 Accuracy for a K-type sensor at -100°C or less is ±10°C ±1 digit max.

DIP Switch Settings

The DIP switch is used to set the temperature unit and to set the temperature input range.

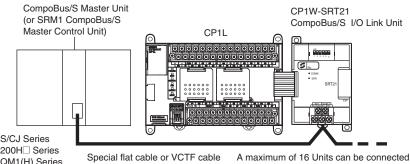
Note: Set the temperature range according to the type of temperature sensor connected to the Unit. Temperature data will not be converted correctly if the temperature range does not match the sensor.

SW		Setting		
SW 1 2	1	Input type	ON	J
	1	Input type	OFF	К
	0	Tomporatura unit	ON	°F
	2	Temperature unit	OFF	٥°C

Temperature input			
Input type	Range (°C)	Range (°F)	
К	-200.0 to 1300.0	-300 to 2300	
J	-100.0 to 850.0	-100.0 to 1500	

CP1W-SRT21 CompoBus/S I/O Link Unit

The CompoBus/S I/O Link Unit functions as a slave for a CompoBus/S Master Unit (or an SRM1 CompoBus/S Master Control Unit) to form an I/O Link with 8 inputs and 8 outputs between the CompoBus/S I/O Link Unit and the Master Unit.



Specifications

Item Model	CP1W-SRT21	
Master/Slave	CompoBus/S Slave	
Number of I/O bits	8 input bits, 8 output bits	
Number of words occupied in CP1L I/O memory	1 input word, 1 output word (Allocated in the same way as for other Expansion Units)	
Node number setting	Set using the DIP switch (before the CPU Unit is turned ON.)	

CS/CJ Series C200H Series CQM1(H) Series SRM1 Series CPM2C-S Series

A maximum of 16 Units can be connected to one CompoBus/S I/O Link Unit.

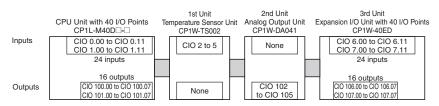
I/O Bits and I/O Allocations

With CP1L CPU Units, the beginning input and output words (CIO 0 and CIO 100) are allocated by the CPU Unit one or two words at a time. I/O bits are allocated in word units in order of connection to Expansion Units and Expansion I/O Units connected to a CPU Unit.

CPU Unit	Allocated words		
	Inputs	Outputs	
CP1L CPU Unit with 10, 14, or 20 I/O points	CIO 0	CIO 100	
CP1L CPU Unit with 30 or 40 I/O points	CIO 0 and CIO 1	CIO 100 and CIO 101	
CP1L CPU Unit with 60 I/O points	CIO 0, CIO 1, and CIO 2	CIO 100, CIO 101, and CIO102	

• Example: I/O Bit Allocations When Expansion Units Are Connected

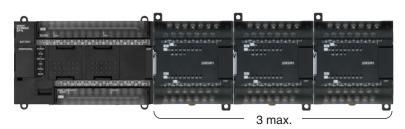
CPU Unit with 40 I/O Points + Temperature Sensor Unit + Analog Output Unit + Expansion I/O Unit with 40 I/O Points



The Number of the Maximum Connect of Expansion Unit

■ Maximum Number of CP1W Expansion Unit and Expansion I/O Units

• CP1L (EM, M) CPU Units



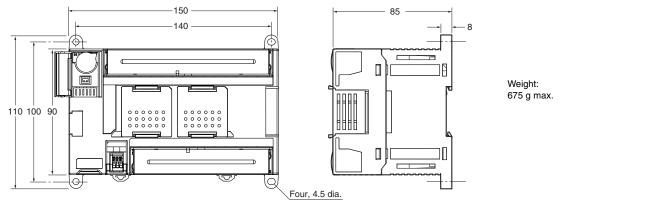
• CP1L (EL) CPU Units or CP1L (L) CPU Units with 20 or 14 Points



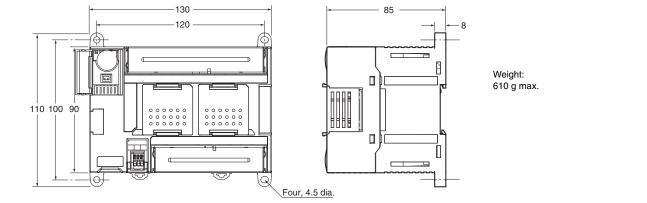
1 max. Note: CP1L (L Type) CPU Units with 10 points do not support Expansion Units.

Dimensions

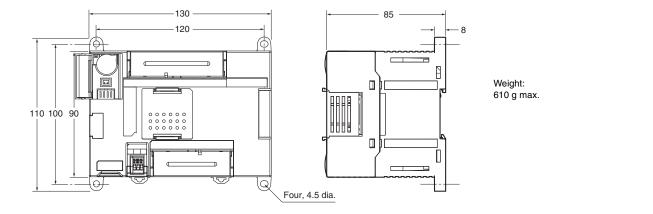
CPU Units

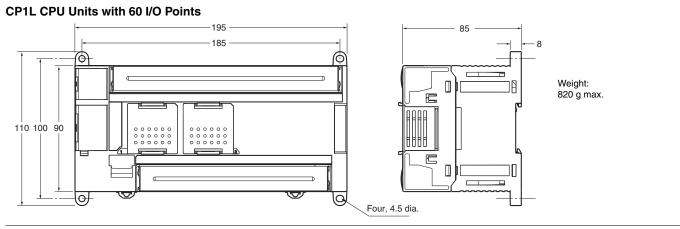


CP1L-EM CPU Units with 30 Points

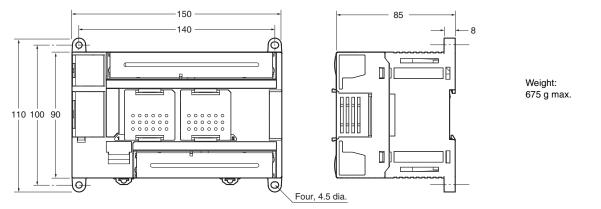


CP1L-EL CPU Units with 20 Points

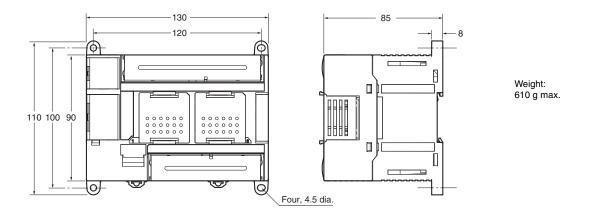




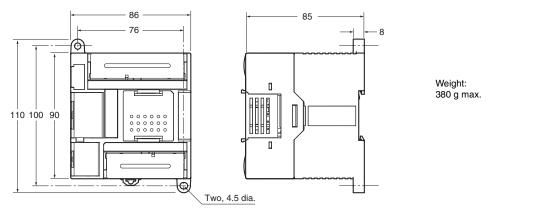
CP1L CPU Units with 40 I/O Points



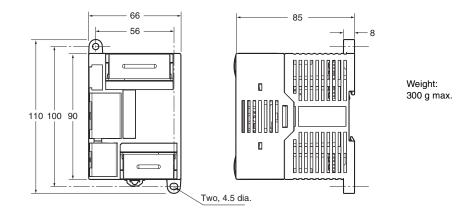
CP1L CPU Units with 30 I/O Points



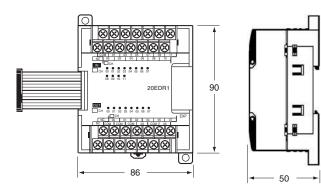
CP1L CPU Units with 14 or 20 I/O Points



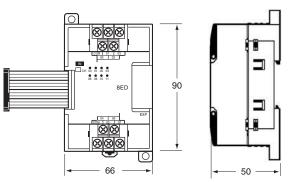
CP1L CPU Units with 10 I/O Points

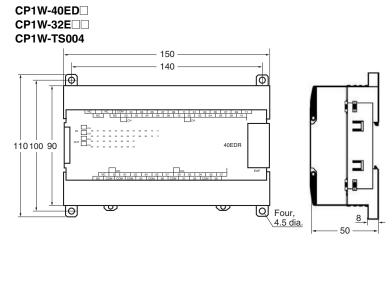


■ Expansion Units and Expansion I/O Units CP1W-20ED , CP1W-16E , CP1W-AD04 , CP1W-DA021/04 , CP1W-MAD , CP1W-TS 1/ 2/ 3



CP1W-8E





Unit name	Model number	Weight
	CP1W-40EDR	380 g
	CP1W-40EDT/-40EDT1	320 g
	CP1W-32ER	465 g
Francisco VO	CP1W-32ET/-32ET1	325 g
Expansion I/O Units	CP1W-20EDR1/-20EDT/-20EDT1	300 g
onno	CP1W-16ER	280 g
	CP1W-16ET/-16ET1	225 g
	CP1W-8ED	200 g
	CP1W-8ER/-8ET/-8ET1	250 g
	CP1W-AD041/-DA041/-DA021	200 g
Analog Units	CP1W-AD042/-DA042	250 g
Analog Units	CP1W-MAD11	150 g
	CP1W-MAD44/-MAD42	250 g
Temperature	CP1W-TS001/-TS002/ -TS101/-TS102	250 g
Sensor Units	CP1W-TS003	240 g
	CP1W-TS004	570 g
CompoBus/S I/O Link Unit	CP1W-SRT21	200 g

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CP1L

Related Manuals

Cat. No.	Model numbers	Manual name	Description
W516	CP1L-EL20D CP1L-EM30D CP1L-EM40D	CP Series CP1L-EL/EM CPU Unit Operation Manual	Provides the following information on the CP Series: • Overview, design, installation, maintenance, and other basic specifications
W462	CP1L-L10D CP1L-L14D CP1L-L20D CP1L-M30D CP1L-M40D CP1L-M60D	CP Series CP1L CPU Unit Operation Manual	 Features System configuration Mounting and wiring I/O memory allocation Troubleshooting Use this manual together with the <i>CP1H Programmable</i> <i>Controllers Programming Manual</i> (W451).
W451	CP1H-X40D CP1H-XA40D CP1H-Y20DT-D CP1L-L10D CP1L-L14D CP1L-L20D CP1L-M30D CP1L-M30D CP1L-M40D CP1L-M6	CP Series CP1H/CP1L CPU Unit Programming Manual	Provides the following information on programming the CP Series: • Programming methods • Tasks • Programming instructions
W461	CP1L-L10D CP1L-L14D CP1L-L20D CP1L-M30D CP1L-M40D CP1L-M60D	CP Series CP1L CPU Unit Introduction Manual	 Describes basic setup methods of CP1L PLCs: Basic configuration and component names Mounting and wiring Programming, data transfer, and debugging using the CX-Programmer Application program examples
W342	SYSMAC CS/CJ/CP/NSJ Series CS1G/H-CPU -EV1, CS1G/H-CPU CS1D-CPU H, CS1D-CPU S, CJ1H-CPU H, CS1D-CPU CJ1M-CPU H, CJ1G-CPU CJ1M-CPU CJ1G/H-CPU H, CJ2H-CPUB CJ1W-SCU V1, CS1W-SCB CJ1W-SCU V1, CS1W-SCB CJ1W-SCU CP1H-XA CP1L-M/L CP1E-N CP1 NSJ CB-M3D	CS/CJ/CP/NSJ Series Communications Commands REFERENCE MANUAL	Describes the communications commands used with CS-series, CJ-series, and CP-series PLCs and NSJ Controllers.

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