

Programmable Controllers CP1H



High-Speed, High-Performance Compact PLC with 40 I/O Built In

System Advantages




- Brick style controller features powerful position control and communications capabilities
- Built-in functions include digital I/O, high-speed counters, pulse outputs and analog input/outputs integrate process data with sequential control
- Integrated communications gateway functions make CP1H the first compact PLC in Omron's Smart Platform concept
- All Omron devices connected to CP1H by Ethernet, DeviceNet or Serial link can be configured, programmed and monitored through a single connection, using CX-One software suite
- CX-Programmer Jr. software, economical package for simple ladder diagram programming
- Built-in USB and peripheral ports and two plug-in serial comm boards for RS-232C and RS-422/485 simplify direct connection to serial devices and programming tools






- Network communication capabilities via serial Modbus-RTU Master, Profibus-DP and Omron's CompoBus/S, PLC Link and DeviceNet I/O Link help integrate process or machine activity with other plant floor operations
- 40 I/O point CPU, Expandable up to 320 I/O points using CPM1A expansion I/O units and CJ1 Special I/O modules
- UL, cUL and CE;UL Class I, Division 2, Groups A, B, C and D for use in hazardous locations; contact Omron for rating details

CP1H Programmable Controllers

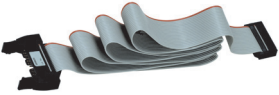

CP1H Controller CPU

No. of I/O points	Appearance/ dimensions (H x W x D mm)	Input voltage	Built-in capabilities	No. of inputs	No. of outputs	Output type	Model
40	 110 x 150 x 85	100-240 VAC, 50/60 Hz	4 encoder inputs (100 kHz) 8 Interrupts/Counters	24 DC	16	Relay	CP1H-X40DR-A
		24 VDC	4 encoder inputs (100 kHz) 4 Pulse outputs: 4 x 100 kHz	24 DC	16	NPN transistor (sinking)	CP1H-X40DT-D
		24 VDC	8 interrupts/counters	24 DC	16	PNP transistor (sourcing)	CP1H-X40DT1-D
40	 110 x 150 x 85	100-240 VAC, 50/60 Hz	4 Analog inputs, 2 Analog outputs (1/12,000 resolution); 4 encoder inputs (100 kHz) 8 Interrupts/Counters	24 DC	16	Relay	CP1H-XA40DR-A
		24 VDC	4 Analog inputs, 2 Analog outputs (1/12,000 resolution)	24 DC	16	NPN transistor (sinking)	CP1H-XA40DT-D
		24 VDC	4 encoder inputs (100 kHz) 4 Pulse outputs: 4 x 100 kHz 8 interrupts/counters	24 DC	16	PNP transistor (sourcing)	CP1H-XA40DT1-D
20	 110 x 150 x 85	24 VDC	4 encoder inputs: 2 x 1 MHz, 2 x 100 kHz 4 Pulse outputs 2 x 1 MHz, 2 x 50 kHz 4 Line driver inputs: 2 input side; 2 output side 6 interrupts/counters	12 DC	8	NPN transistor (sinking)	CP1H-Y20DT-D

Communications Option Boards

Item	Appearance	Description	Model
RS-232C option board		Converts CPU unit option port for RS-232C devices; use up to 2 per CPU	CP1W-CIF01
RS-422/RS-485 option board		Converts CPU unit option port for RS-422/RS-485 devices; use up to 2 per CPU	CP1W-CIF11
Memory cassette		Use to back up programs or auto-booting	CP1W-ME05M

I/O Expansion Tools

Item	Appearance	Description	Cable length	Model
I/O Connecting Cable		Use the cable to connect CPM1A Expansion I/O Units when using a CJ Unit Adapter	80 cm	CP1W-CN811
CJ Unit Adapter		Connects 2 CJ1W Special I/O or CPU Bus modules to CP1H.	—	CP1W-EXT01



Expansion I/O and Special I/O Modules

Name	Output method	Inputs	Outputs	Model
Expansion I/O units	Relay	24	16	CPM1A-40EDR
	Transistor (sinking)			CPM1A-40EDT
	Transistor output (sourcing)			CPM1A-40EDT1
	Relay	12	8	CPM1A-20EDR1
	Transistor (sinking)			CPM1A-20EDT
	Transistor output (sourcing)			CPM1A-20EDT1
	—	8	—	CPM1A-8ED
	Relay	—	8	CPM1A-8ER
	Transistor (sinking)	—	8	CPM1A-8ET
Transistor output (sourcing)	—	8	CPM1A-8ET1	
Analog input unit	Analog (resolution: 1/6000)	4	—	CPM1A-AD041
Analog output unit	Analog (resolution: 1/6000)	—	4	CPM1A-DA041
Analog I/O units	Analog (resolution: 1/256)	2	1	CPM1A-MAD01
	Analog (resolution: 1/6000)	2	1	CPM1A-MAD11
DeviceNet I/O link unit	—	32 I/O link input bits	32 I/O link output bits	CPM1A-DRT21
CompoBus/S I/O link unit	—	8 I/O link input bits	8 I/O link output bits	CPM1A-SRT21
Temperature sensor units	2 thermocouple inputs			CPM1A-TS001
	4 thermocouple inputs			CPM1A-TS002
	2 platinum resistance thermometer inputs			CPM1A-TS101
	4 platinum resistance thermometer inputs			CPM1A-TS102

CJ-series Special I/O Units and CPU Bus Units

Category	Name	Specification	Model	
CJ-series special I/O units	Analog input units	8 inputs (1 to 5 V, 0 to 5 V, 0 to 10 V, -10 to 10 V, 4 to 20 mA) Resolution: 1/8,000; Conversion speed: 250 μ s/input max. (Can be set to 1/4,000 resolution and 1 ms/input.)	CJ1W-AD081-V1	
		4 inputs (1 to 5 V, 0 to 5 V, 0 to 10 V, -10 to 10 V, 4 to 20 mA) Resolution: 1/8,000; Conversion speed: 250 μ s/input max. (Can be set to 1/4,000 resolution and 1 ms/input.)	CJ1W-AD041-V1	
	Analog output units	8 outputs (1 to 5 V, 0 to 5 V, 0 to 10 V, -10 to 10 V) Resolution: 1/4,000; Conversion speed: 1 ms/output max. (Can be set to 1/8,000, 250 μ s/output.)	CJ1W-DA08V	
		8 outputs (4 to 20 mA) Resolution: 1/4,000; Conversion speed: 1 ms/output max. (Can be set to 1/8,000, 250 μ s/output.)	CJ1W-DA08C	
		4 outputs (1 to 5 V, 0 to 5 V, 0 to 10 V, -10 to 10 V, 4 to 20 mA) Resolution: 1/4,000; Conversion speed: 1 ms/output max.	CJ1W-DA041	
		2 outputs (1 to 5 V, 0 to 5 V, 0 to 10 V, -10 to 10 V, 4 to 20 mA) Resolution: 1/4,000; Conversion speed: 1 ms/output max.	CJ1W-DA021	
	Analog I/O unit	4 inputs, 2 outputs (1 to 5 V, 0 to 5 V, 0 to 10 V, -10 to 10 V, 4 to 20 mA) Resolution: 1/4,000; Conversion speed: 1 ms/point max. (Can be set to 1/8,000, 250 μ s/point)	CJ1W-MAD42	
	Process input units	4 inputs, B, J, K, L, R, S, T; Conversion speed: 250 ms/4 inputs	CJ1W-PTS51	
		4 inputs, Pt100 Ω (JIS, IEC), JPt100 Ω , Conversion speed: 250 ms/4 inputs	CJ1W-PTS52	
		2 inputs, B, E, J, K, L, N, R, S, T, U, W, Re5-26, PL \pm 100 mV, Resolution: 1/64,000; Conversion speed: 10 ms/2 inputs	CJ1W-PTS15	
		2 inputs, Pt100, JPt100, Pt50, Ni508.4; Resolution: 1/64,000; Conversion speed: 10 ms/2 inputs	CJ1W-PTS16	
		2 inputs, 0 to 1.25 V, -1.25 to 1.25 V, 0 to 5 V, 1 to 5 V, -5 to 5 V, 0 to 10 V, -10 to 10 V, \pm 10-V selectable range, 0 to 20 mA, 4 to 20 mA	CJ1W-PDC15	
	Temperature control units	4 loops, thermocouple input, NPN output	CJ1W-TC001	
		4 loops, thermocouple input, PNP output	CJ1W-TC002	
		2 loops, thermocouple input, NPN output, heater burnout detection function	CJ1W-TC003	
		2 loops, thermocouple input, PNP output, heater burnout detection function	CJ1W-TC004	
		4 loops, platinum resistance thermometer input, NPN output	CJ1W-TC101	
		4 loops, platinum resistance thermometer input, PNP output	CJ1W-TC102	
		22 loops, platinum resistance thermometer input, PNP output, heater burnout detection function	CJ1W-TC103	
		2 loops, platinum resistance thermometer input, PNP output, heater burnout detection function	CJ1W-TC104	
	CompoBus/S master unit	CompoBus/S remote I/O, 256 points max.	CJ1W-SRM21	
	CJ-series CPU bus units	Controller link units	Wired (Shielded twisted-pair cable)	CJ1W-CLK21-V1
		Serial communications units	1 RS-232C port and 1 RS-422A/485 port	CJ1W-SCU41-V1
2 RS-232C ports			CJ1W-SCU21-V1	
Ethernet unit		100Base-TX	CJ1W-ETN21	
DeviceNet unit		Functions as master and/or slave; allows control of 32,000 points max. per master.	CJ1W-DRM21	
Profibus-DP master unit		Provides data exchange, diagnostics and message communications at 12 Mbps; 1200 m distance; 125 modes; shielded twisted pair cable; allows 7,168 words of I/O data per PLL.	CJ1W-PRM21	
Profibus-DP slave unit	Max. 180 words of input and output	CJ1W-PRT21		

Communications Adapters and Cables

Item	Appearance/dimensions (H x W x D mm)	Description	Cable length	Model
RS-232C cables		RS-232C to RS-232C; PC connector for program download	2 m	C200H-CN229-EU CBL-202 in Canada
		RS-232C to RS-232C; for serial communications from PLC to PC	2 m	C200H-CN320-EU CBL-804 in Canada
USB-serial conversion cable		Converts between USB and RS-232C; PC Driver included (CD-ROM); Applicable OS: Windows® 98, Me, 2000, or XP	0.5 m	CS1W-CIF31

Programming and Diagnostic Software and Tools

Software name	Description	Quantity	Model
CX-Programmer Jr.	Windows®-based programming software; reduced instruction set and networking commands, matched to CPM-series controller needs	1 license	WS02-CXPC1-EJ-V□□
CX-One	Programming and configuration management software that lets you build, configure and program networks, PLCs, HMIs, motion control systems, temperature controllers and sensors	1 license	CXONE-AL01C-E
		3 licenses	CXONE-AL03C-E
		10 licenses	CXONE-AL10C-E
DeviceNet Configurator	Set up and monitor a DeviceNet network	1 license	WS02-CFDC1-E

Manuals

Product	Description	Model
Operation manual	CP1H programmable controllers operation manual	W450
Programming manual	CP1H CPU unit programming manual	W451

Specifications

Controller	CP1H-XA CPU units	CP1H-X CPU units	CP1H-Y CPU unit
Type	Analog I/O built-in	Standard	High-speed positioning
CPU I/O	40 (24 inputs/16 outputs)		20 (12 inputs/8 outputs) Line driver inputs: Phases A, B, and Z for 2 axes Line driver outputs: CW and CCW for 2 axes
Effective system size	CPUs expandable to 320 I/O max. using CPM1A and CJ1 Special I/O or CPU Bus modules		CPU expandable to 300 I/O max. using CPM1A and CJ1 Special I/O or CPU Bus modules
Program capacity	20K steps (32K words data memory)		
Basic instruction execution time	0.1 μs		
No. of instructions	Approx. 400		
Power supply voltage	100 to 240 VAC, 50/60 Hz or 24 VDC		24 VDC
AC inputs	None		
DC inputs	Yes		
Max. # of inputs	192		180
Max. # of outputs	128		120
Max. # of relay outputs	128		120
Max. # of transistor outputs	128		120
High-speed counter	100 kHz (single-phase), 50 kHz (differential phases), 4 axes		1 MHz (single-phase), 500 kHz (differential phases) for 2 axes (line-driver input), 100 kHz (single-phase), 50 kHz (differential phases) for 2 axes (4 axes total)
Pulse output (transistor output models only)	100 kHz for 4 axes (4 axes total)		1 MHz for 2 axes (line-driver output), 50 kHz for 2 axes (4 axes total)
Analog I/O	4 analog inputs, 2 analog outputs built in	Use expansion I/O module	Use expansion I/O module
Real time clock	Yes		
Memory backup	Flash memory: User programs, parameters (such as the PLC Setup), comment data, and the entire DM Area 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.		
External interrupts	8 inputs		6 inputs
Network connectivity	RS-232C/RS-422, Host Link, NT Link 1:N (for HMI), DeviceNet master/slave, Profibus-DP master/ slave, CompoBus/S master/slave, PC Link 1:N, Ethernet, Controller Link, CompoWay/F master, Modbus-ASCII master, Modbus-RTU master/slave		
Built-in comm. ports	USB; option boards for RS-232C and RS-422/485		
Peripheral devices	NT/NS series HMI		
Programming software	CX-Programmer Jr. or CX-One		

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To convert millimeters into inches, multiply by 0.03937. To convert grams into ounces, multiply by 0.03527.



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