CP1E CPU units

Easy, efficient & economic

Omron's CP1E series targets a 'lean' automation solution, but still offers all functionality you need to control relatively simple application, including outstanding positioning capability. The CP1E comes with 20, 30 or 40 I/O built-in and can be expanded with a wide range of CP1W or CPM1A expansion units up to 160 I/O points. It uses a standard USB port for programming and monitoring. It comes standard with a serial communication port, and the E-N type offers an optional plug-in serial communication port. As the CP1E series shares the same architecture as the CP1L, CP1H, CJ1, and CS1 series, programs are compatible for memory allocations and instructions.

Ordering information

CP1E-E CPU types (basic model)

Input/output points	Expandable up to [1]	Program Capacity	Data Memory capacity	Logic execution speed	Power supply	Output type	Built-in functions	Order code
12/8	20 points	2 kSteps	2 kWords	1.1 µs	85 to 264 VAC	Relay	6x10 kHz inputs	CP1E-E20DR-A
18/12	150 points	2 kSteps	2 kWords	1.1 µs	85 to 264 VAC	Relay	6x10 kHz inputs	CP1E-E30DR-A
24/16	160 points	2 kSteps	2 kWords	1.1 µs	85 to 264 VAC	Relay	6x10 kHz inputs	CP1E-E40DR-A

[1] CP1E CPU series can be expanded with CP1W-, or CPM1A expansion units

CP1E-N CPU types (application model)

Input/output points	Expandable up to [1]	Program Capacity	Data Memory capacity	Logic execution speed	Power supply	Output type	Built-in functions	Order code
12/8	20 points	8 kSteps	8 kWords	1.1 µs	85 to 264 VAC	Relay	4x10 kHz & 2x100 kHz inputs; 1x10 kHz & 1x100 kHz outputs	CP1E-N20DR-A
						Transistor (sinking)	4x10 kHz & 2x100 kHz inputs; 1x10 kHz & 1x100 kHz outputs	CP1E-N20DT-A
						Transistor (sourcing)	4x10 kHz & 2x100 kHz inputs; 1x10 kHz & 1x100 kHz outputs	CP1E-N20DT1-A
18/12	150 points	8 kSteps	8 kWords	1.1 µs	85 to 264 VAC	Relay	4x10 kHz & 2x100 kHz inputs; 1x10 kHz & 1x100 kHz outputs	CP1E-E30DR-A
						Transistor (sinking)	4x10 kHz & 2x100 kHz inputs; 1x10 kHz & 1x100 kHz outputs	CP1E-E30DT-A
						Transistor (sourcing)	4x10 kHz & 2x100 kHz inputs; 1x10 kHz & 1x100 kHz outputs	CP1E-E30DT1-A
24/16	160 points	8 kSteps	8 kWords	1.1 µs	85 to 264 VAC	Relay	4x10 kHz & 2x100 kHz inputs; 1x10 kHz & 1x100 kHz outputs	CP1E-E40DR-A
						Transistor (sinking)	4x10 kHz & 2x100 kHz inputs; 1x10 kHz & 1x100 kHz outputs	CP1E-E40DT-A
						Transistor (sourcing)	4x10 kHz & 2x100 kHz inputs; 1x10 kHz & 1x100 kHz outputs	CP1E-E40DT1-A

[1] CP1E CPU series can be expanded with CP1W-, or CPM1A expansion units

Accessories

Type	Remarks	Order code
RS-232C Option Board	Plug-in board (D-Sub, 9 pins, female) E-N 30p and 40p types only	CP1W-CIF01
RS-422A/485 Option board	Plug-in board (Terminal block)	CP1W-CIF11
RS422A/485 (isolated) option board	Plug-in board (D-Sub, 9 pins, female) E-N 30p and 40p types only	CP1W-CIF12
USB Programming cable	A-type male to B-type male (length: 1.8m)	CP1W-CN221

The compact machine controller

When it comes to controllers for compact machines, Omron's CP1L series offers the compactness of a micro-PLC with the capability of a modular PLC. It provides all the functionality you need to control your machine, including outstanding positioning capability. The CP1L comes with 14, 20, 30, 40, or 60 I/O built-in and can be expanded with a wide range of CP1W or CPM1A expansion units up to 180 I/O points. It uses a standard USB port for programming and monitoring and offers two optional plug-in serial communication ports, of which one can be used for a display or Ethernet option as well. As the CP1L series shares the same architecture as the CP1E, CP1H, CJ1, and CS1 series, programs are compatible for memory allocations and instructions.

Ordering information

Input points	Output points	Expandable up to[1]	Program Capacity	Data Memory capacity	Logic execution speed	Power supply	Output type	Built-in functions	Order code
6 points	4 points	10 points	5 kSteps	10 kWords	0.55 µs	84 to 264 VAC	Relay output	4 Encoder inputs (100 kHz) 2 Interrupts/counters	CP1L-L10DR-A
						20.4 to 26.4 VDC	Relay output	4 Encoder inputs (100 kHz) 2 Interrupts/counters	CP1L-L10DR-D
							Transistor output (sink type)	4 Encoder inputs (100 kHz) 2 Pulse outputs (100 kHz) 2 Interrupts/Counters	CP1L-L10DT-D
							Transistor output (source type)		CP1L-L10DT1-D
8 points	6 points	54 points	5 kSteps	10 kWords	0.55 µs	85 to 264 VAC	Relay output	4 Encoder inputs (100 kHz) 4 Interrupts/counters	CP1L-L14DR-A
						20.4 to 26.4 VDC	Relay output	4 Encoder inputs (100 kHz) 4 Interrupts/counters	CP1L-L14DR-D
							Transistor ouput (sink type)	4 Encoder inputs (100 kHz) 2 Pulse outputs (100kHz) 4 Interrupts/Counters	CP1L-L14DT-D
							Transistor output (source type)		CP1L-L14DT1-D
12 points	8 points	60 points	5 kSteps	10 kWords	0.55 µs	85 to 264 VAC	Relay output	4 Encoder inputs (100 kHz) 6 Interrupts/counters	CP1L-L20DR-A
						20.4 to 26.4 VDC	Relay output	4 Encoder inputs (100 kHz) 6 Interrupts/counters	CP1L-L20DR-D
							Transistor ouput (sink type)	4 Encoder inputs (100 kHz) 2 Pulse outputs (100kHz) 6 Interrupts/Counters	CP1L-L20DT-D
							Transistor output (source type)		CP1L-L20DT1-D
18 points	12 points	150 points	10 kSteps	32 kWords	0.55 µs	85 to 264 VAC	Relay output	4 Encoder inputs (100 kHz) 6 Interrupts/counters	CP1L-M30DR-A
						20.4 to 26.4 VDC	Relay output	4 Encoder inputs (100 kHz) 6 Interrupts/counters	CP1L-M30DR-D
							Transistor ouput (sink type)	4 Encoder inputs (100 kHz) 2 Pulse outputs (100kHz) 6 Interrupts/Counters	CP1L-M30DT-D
							Transistor output (source type)		CP1L-M30DT1-D
24 points	16 points	160 points	10 kSteps	32 kWords	0.55 µs	85 to 264 VAC	Relay output	4 Encoder inputs (100 kHz) 6 Interrupts/counters	CP1L-M40DR-A
						20.4 to 26.4 VDC	Relay output	4 Encoder inputs (100 kHz) 6 Interrupts/counters	CP1L-M40DR-D
							Transistor ouput (sink type)	4 Encoder inputs (100 kHz) 2 Pulse outputs (100kHz) 6 Interrupts/Counters	CP1L-M40DT-D
							Transistor output (source type)		CP1L-M40DT1-D
36 points	24 points	180 points	10 kSteps	32 kWords	0.55 µs	85 to 264 VAC	Relay output	4 Encoder inputs (100 kHz) 6 Interrupts/counters	CP1L-M60DR-A
						20.4 to 26.4 VDC	Relay output	4 Encoder inputs (100 kHz) 6 Interrupts/counters	CP1L-M60DR-D
							Transistor output (sink type)	4 Encoder inputs (100 kHz) 2 Pulse outputs (100 kHz) 6 Interrupts/Counters	CP1L-M60DT-D
							Transistor output (source type)		CP1L-M60DT1-D

[1] CP1L CPU series can be expanded with CP1W-, or CPM1A expansion units

Accessories

Type	Remarks	Order code
RS-232C Option Board	Plug-in board (D-Sub, 9 pins, female)	CP1W-CIF01
RS-422A/485 Option board	Plug-in board (Terminal block)	CP1W-CIF11
RS422A/485 (isolated) option board	Plug-in board (D-Sub, 9 pins, female)	CP1W-CIF12
Ethernet option board	Plug-in board (not for 10 points CPU)	CP1W-CIF41
Memory cassette	512 kWords (upload/download program)	CP1W-ME05M
USB Programming cable	A-type male to B-type male (length: 1.8m)	CP1W-CN221
LCD display	4 rows x 12 characters	CP1W-DAM01

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CP1W/CPM1A Expansion Units
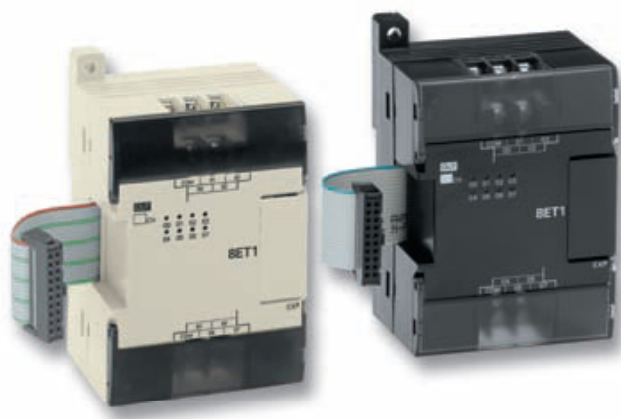
Compact PLC

Expand the capacity of your compact PLC

A wide variety of expansion units such as Digital I/O, Analog I/O and Remote I/O are available to create the application you need. These CP1W / CPM1A expansion units can be used for CPM1A-, CPM2A-, CP1L-, and CP1H series PLC.

Ordering information

Unit	Size in mm (HxWxD)	Output type	Inputs	Outputs	Order code	
					CP1W model	CPM1A model
Expansion I/O units	90x66x50	–	8	–	CP1W-8ED	CPM1A-8ED
		Relay	–	8	CP1W-8ER	CPM1A-8ER
		Transistor (sinking)			CP1W-8ET	CPM1A-8ET
		Transistor (sourcing)			CP1W-8ET1	CPM1A-8ET1
	90x86x50	Relay	–	16	CP1W-16ER	–
	90x86x50	Relay	12	8	CP1W-20EDR1	CPM1A-20EDR1
		Transistor (sinking)			CP1W-20EDT	CPM1A-20EDT
		Transistor (sourcing)			CP1W-20EDT1	CPM1A-20EDT1
	90x150x50	Relay	24	16	CP1W-40EDR	CPM1A-40EDR
		Transistor (sinking)			CP1W-40EDT	CPM1A-40EDT
		Transistor (sourcing)			CP1W-40EDT1	CPM1A-40EDT1
Analog I/O units	90x66x50	Analog (resolution 1/256)	2	1	–	CPM1A-MAD01
	90x86x50	Analog (resolution 1/6000)	2	1	CP1W-MAD11	CPM1A-MAD11
	90x86x50	Analog (resolution 1/6000)	4	–	CP1W-AD041	CPM1A-AD041
	90x86x50	Analog (resolution 1/6000)	–	4	CP1W-DA041	CPM1A-DA041
Temperature sensor units	90x86x50	Thermocouple input	2	–	CP1W-TS001	CPM1A-TS001
		Thermocouple input	4	–	CP1W-TS002	CPM1A-TS002
		Platinum resistance input	2	–	CP1W-TS101	CPM1A-TS101
		Platinum resistance input	4	–	CP1W-TS102	CPM1A-TS102
		Platinum resistance input and voltage/current output	2	1	–	CPM1A-TS101-DA
DeviceNet I/O link unit	90x66x50	–	I/O link of 32 input bits and 32 output bits		–	CPM1A-DRT21
PROFIBUS-DP I/O link unit	90x66x50	–	I/O link of 16 input bits and 16 output bits		–	CPM1A-PRT21
CompoBus/S I/O link unit	90x66x50	–	I/O link of 8 input bits and 8 output bits		CP1W-SRT21	CPM1A-SRT21

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The versatile slim-line controller

An extensive range of models ensures efficient machine control in an ultra-compact package. CPU units are available with relay or transistor output, terminal block or various connector options, and an optional real-time clock function. Select the output type, number of I/O points and other specifications to meet your needs. Expansion I/O units with 8 to 32 I/O points make it possible to configure a control system with a maximum of 192 I/O points.

- Space-saving slim outline, high-density I/O
- 10-32 I/O points per CPU, transistor or relay outputs
- 20 kHz counter input, two 10 kHz pulse outputs integrated
- Two communication ports built-in, freely accessible
- Digital, analog, and fieldbus expansion units

Ordering information

Input points	Output points	Program capacity	Data memory capacity	Logic execution speed	Size in mm (HxWxD)	I/O Connectors	Output method	Built-in functions	Real time clock	Order code
6 points	4 points	4 kWords	2 kWords	0.64 µs	90x33x65	2 Terminal blocks	Relay	1 Encoder input (20 kHz)	–	CPM2C-10CDR-D
									Yes	CPM2C-10C1DR-D
						2 Fujitsu (24 pt)	Transistor (source type)	1 Encoder input (20 kHz) 2 Pulse output (10 kHz)	–	CPM2C-10CDT1C-D
									Yes	CPM2C-10C1DT1C-D
						2 MIL (20 pt)	Transistor (source type)	1 Encoder input (20 kHz) 2 Pulse output (10 kHz)	–	CPM2C-10CDT1M-D
									Yes	CPM2C-10C1DT1M-D
12 points	8 points	4 kWords	2 kWords	0.64 µs	90x33x65	2 Terminal blocks	Relay	1 Encoder input (20 kHz)	–	CPM2C-20CDR-D
									Yes	CPM2C-20C1DR-D
						2 Fujitsu (24 pt)	Transistor (source type)	1 Encoder input (20 kHz) 2 Pulse output (10 kHz)	–	CPM2C-20CDT1C-D
									Yes	CPM2C-20C1DT1C-D
						2 MIL (20 pt)	Transistor (source type)	1 Encoder input (20 kHz) 2 Pulse output (10 kHz)	–	CPM2C-20CDT1M-D
									Yes	CPM2C-20C1DT1M-D
16 points	16 points	4 kWords	2 kWords	0.64 µs	90x33x65	2 Fujitsu (24 pt)	Transistor (source type)	1 Encoder input (20 kHz) 2 Pulse output (10 kHz)	–	CPM2C-32CDT1C-D
						2 MIL (20 pt)	Transistor (source type)	1 Encoder input (20 kHz) 2 Pulse output (10 kHz)	–	CPM2C-32CDT1M-D
6 points	4 points	4 kWords	2 kWords	0.64 µs	90x40x65	1 Fujitsu (24 pt)	Transistor (source type)	1 Encoder input (20 kHz) 2 Pulse output (10 kHz) Programmable Slave with DeviceNet slave and CompoBus/S Master	Yes	CPM2C-S110C-DRT
6 points	4 points	4 kWords	2 kWords	0.64 µs	90x40x65	1 Fujitsu (24 pt)	Transistor (source type)	1 Encoder input (20 kHz) 2 Pulse output (10 kHz) CompoBus/S Master	Yes	CPM2C-S110C

Note: All CPU's are available only with DC supply voltage (CPM2C-PA201 can be used as power supply).
   CPU's with sourcing transistor outputs are also available with sinking transistor outputs.
   MIL = connector according to MIL-C-83503 (compatible with DIN 41651/IEC 60603-1).

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Expand the capacity of your CPM2C PLC

Expansion I/O units with 8 to 32 I/O points make it possible to configure a control system with a maximum of 192 I/O points

Ordering information

Unit	Output type	I/O Connectors	Inputs	Outputs	Order code
Expansion I/O units	–	1 Fujitsu (24 pt)	8	–	CPM2C-8EDC
		1 MIL (20 pt)			CPM2C-8EDM
	–	1 Fujitsu (24 pt)	16	–	CPM2C-16EDC
		1 MIL (20 pt)			CPM2C-16EDM
	Relay	1 Terminal block	–	8	CPM2C-8ER
	Transistor output (source type)	1 Fujitsu (24 pt)			CPM2C-8ET1C
		1 MIL (20 pt)			CPM2C-8ET1M
	Transistor output (source type)	1 Fujitsu (24 pt)	–	16	CPM2C-16ET1C
		1 MIL (20 pt)			CPM2C-16ET1M
	Relay	2 Terminal blocks	6	4	CPM2C-10EDR
	Relay	2 Terminal blocks	12	8	CPM2C-20EDR
	Transistor output (source type)	2 Fujitsu (24 pt)	16	8	CPM2C-24EDT1C
		2 MIL (20 pt)			CPM2C-24EDT1M
	Transistor output (source type)	2 Fujitsu (24 pt)	16	16	CPM2C-32EDT1C
		2 MIL (20 pt)			CPM2C-32EDT1M
Analog I/O units	Analog (resolution 1/6000)	2 Terminal blocks	2	1	CPM2C-MAD11
Temperature sensor units	Thermocouple input	1 Terminal block	2	–	CPM2C-TS001
	Platinum resistance input	1 Terminal block	2	–	CPM2C-TS101
CompoBus/S I/O link unit	–	1 Terminal block	I/O link of 8 input bits and 8 output bits		CPM2C-SRT21
RS-232C and RS422 adapter units	–	1 D-sub 9-pin	RS-232C		CPM2C-CIF01-V1
		1 Terminal block and 1 D-sub 9-pin	RS-232C and RS422		CPM2C-CIF11

Note: Expansion I/O units with sourcing transistor outputs are also available with sinking transistor outputs.
   MIL = connector according to MIL-C-83503 (compatible with DIN 41651/IEC 60603-1).

The All-in-One PLC

Designed for compact machines, it combines the compactness of a micro-PLC and the power of a modular PLC. Four built-in high-speed counters and four pulse outputs are ideal for multi-axis positioning control. The CP1H-XA comes with 4 analog inputs and 2 analog outputs built-in. This makes it suitable for simple loop control, using the PLC's advanced PID control function with auto-tuning. The CP1H can be expanded with CPM1 I/Os and supports up to 2 CJ1 special I/O units. This means that it is open to popular fieldbuses and supports all communication units of the CJ1 series.

- Up to 1 MHz for inputs/outputs
- CJ1M-compatible instruction set and execution speed
- 4 analog inputs and 2 analog outputs for the XA model
- USB port for easy communication, programming and configuration
- Supports PROFIBUS, DeviceNet, CAN and Ethernet

Ordering information

Input points	Output points	Expandable up to (digital I/O)[*1]	Program capacity	Data memory capacity	Logic execution speed	Power supply	Output method	Built-in functions		Order code
24 points	16 points	320 points	20 kSteps	32 kWords	100 ns	85 to 264 VAC	Relay output	4 Encoder inputs (100 kHz) 8 Interrupts/Counters	–	CP1H-X40DR-A
						20.4 to 26.4 VDC	Transistor output (sink type)	4 Encoder inputs (100 kHz) 4 Pulse outputs (100 kHz) 8 Interrupts/counters		CP1H-X40DT-D
							Transistor (source type)			CP1H-X40DT1-D
24 points	16 points	320 points	20 kSteps	32 kWords	100 ns	85 to 264 VAC	Relay output	4 Encoder inputs (100 kHz) 8 Interrupts/Counters	4 Analog in 2 Analog out (res: 1/12000)	CP1H-XA40DR-A
						20.4 to 26.4 VDC	Transistor output (sink type)	4 Encoder inputs (100 kHz) 4 Pulse outputs (100 kHz) 8 Interrupts/Counters		CP1H-XA40DT-D
							Transistor (source type)			CP1H-XA40DT1-D
12 points	8 points	300 points	20 kSteps	32 kWords	100 ns	20.4 to 26.4 VDC	Transistor (sink type)	4 Encoder inputs (2×1 MHz + 2×100 kHz) 4 Pulse outputs (2×1 MHz + 2×100 kHz) 6 Interrupts/Counters	–	CP1H-Y20DT-D

[*1] CP1H CPU series can be expanded with CPM1A expansion units and CJ1 Special I/O units.

Accessories

Type	Remarks	Order code
RS-232C option board	Plug-in board (D-Sub, 9 pins, female)	CP1W-CIF01
RS-422A/485 option board	Plug-in board (Terminal block)	CP1W-CIF11
RS422A/485 (isolated) option board	Plug-in board (D-Sub, 9 pins, female)	CP1W-CIF12
Ethernet option board	Plug-in board (not for 10 points CPU)	CP1W-CIF41
Memory cassette	512 kWords (upload/download program)	CP1W-ME05M
Expansion I/O connecting cable	80 cm cable to connect CPM1A I/O	CP1W-CN811
CJ1 expansion unit adapter	Unit to connect CJ1 Special I/O units	CP1W-EXT01
LCD display	4 rows x 12 characters	CP1W-DAM01

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