



» Powerful all-in-one solution with analog and positioning built-in

» Flexible Ethernet connectivity

» Easy programming with Function Blocks

Think big... start small!

Omron's vast experience in the field of industrial automation has resulted in the creation of the right products for your applications, ranging from simple to more complex automation solutions. The CP1 family of micro programmable controllers provides you with a complete product line-up to automate a wide range of machines and perform many simple automation tasks, quickly and easily. Programming, configuration, and maintenance are all within the same software environment as other Omron PLCs. You are guaranteed the same high quality and reliability that you expect from any Omron product, ensuring that your equipment delivers continuous dependable performance.

Scalable solution

The CP1 family is scalable; this means that you can choose the products with the right level of sophistication to meet your automation needs in terms of functionality, flexibility and pricing. Each of the CP1 family models, the CP1E, CP1L and CP1H, offers the functionality required for complete machine control.

Benefits include:

- Easy expansion of I/O
- Fast and versatile communication
- Full positioning capabilities via ready-to-use function Blocks





FUNCTIONALITY



CP1H • The Ultimate High-performance Micro PLC

Three types of CPU units are available to meet applications requiring advanced functionality:

- The CP1H-X standard units with 4 axes 100kHz pulse output and counters
- The CP1H-Y high-speed positioning units with 1MHz pulse output and counters
- The CP1H-XA built-in analog I/O units including standard pulse output and counters

CP1L / CP1L-E • The Standard Mid-range Micro PLC

Maximum cost effectiveness within a minimal product footprint. CPUs are selectable from 10 I/O to 60 I/O, with select models featuring built-in Ethernet and Analog Inputs. Additional I/O, Analog, and Communication expansion available.

CP1E • The Economy Class Micro PLC

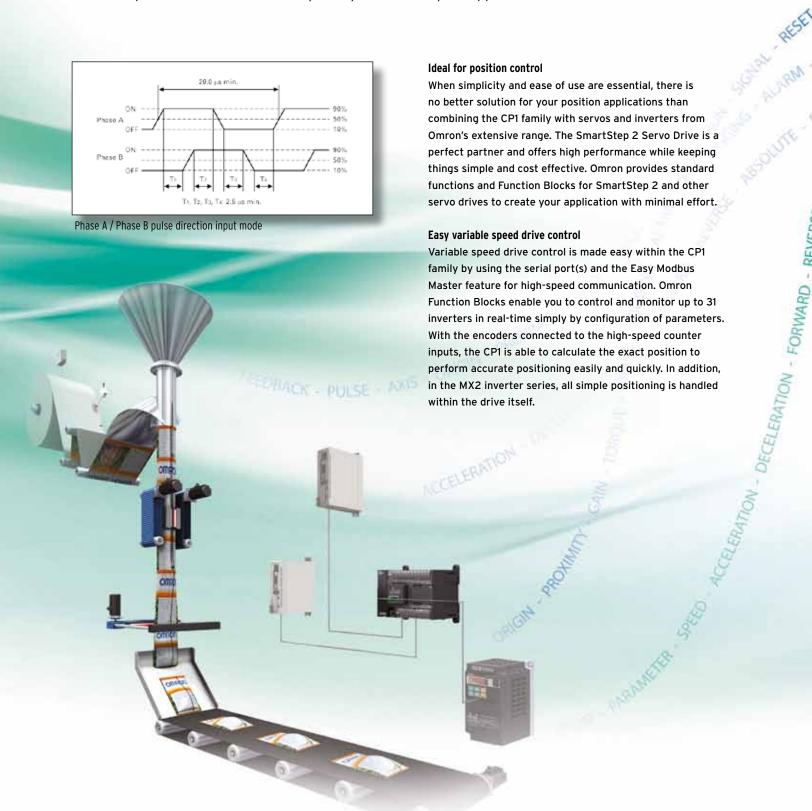
Satisfying entry-level requirements for basic applications. Select CPUs from 10 I/O to 60 I/O with basic expandability.

Common Applications

- High-speed feeding and positioning applications
- Conveyor and Spindle speed control
- Pressure control and forming machines
- Multi-connection Ethernet HMI and third party printer or barcode reader applications
- Temperature control applications with PID Auto-tuning
- Function Block heavy programming using expanded memory
- Stand-alone 2-axis positioning control applications
- Intelligent remote I/O stations on larger serial network systems

Easy positioning, quick results

The CP1 family is the perfect choice for any application that requires positioning. Whether for conveyor control, point-to-point position control, or non-interpolated pick-and-place systems, the combination of high-speed pulse outputs, variable speed drive control and position feedback will provide all the functionality that you need for your application.





Omron's software is renowned for its ease of use and intuitive style and CX-One is no exception. For many standard functions Omron provides ready-to-use and tested Function Blocks that allow you to reduce your programming and testing time. With Function Blocks you achieve faster, easier and more structured programming that can also increase machine functionality. Ladder programming still remains the easiest language for many people to use, but for more complex mathematical calculations 'Structured Text' (ST) offers greater flexibility. These languages are supported in the CP1L and CP1H.



Flexible Embedded Ethernet connectivity

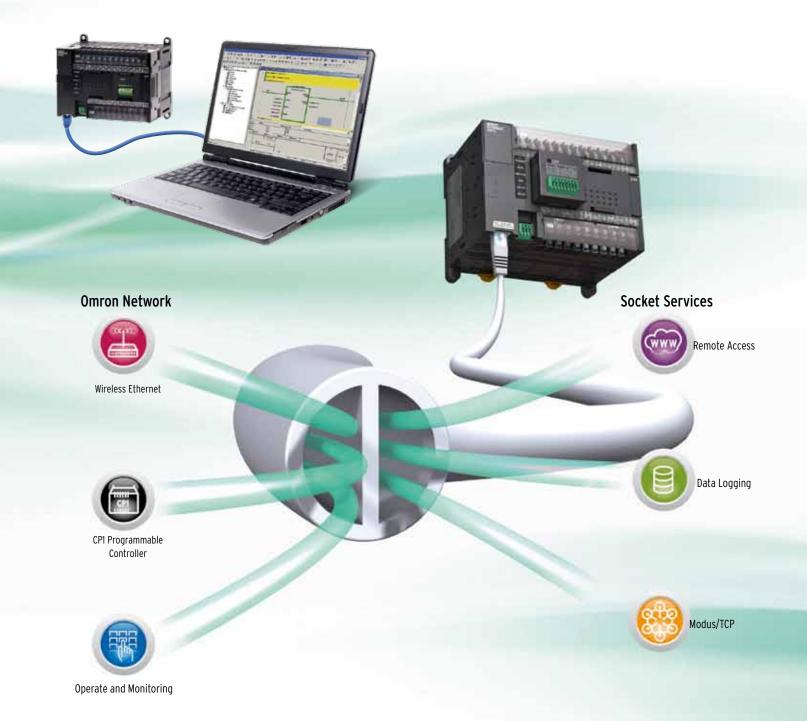
As simple and quick as USB!

Thanks to the CP1L-EM's or CP1L-EL's Automatic-Connect function, programming over Ethernet is as simple as using USB on the other models in the CP1 family. You no longer need to waste time adjusting the Ethernet settings on the PC, simply plug and connect, just like USB.

The Automatic-Connect function connects instantly over a default IP address to the CP1L, saving you valuable setup time.

Versatile communication

Omron's CP1L Ethernet models are equipped as standard with Socket Services. This facilitates the easy exchange of data with other Ethernet devices supporting a dedicated protocol. The Socket Services reduce effort and simplify programming and allow Ethernet protocols to be used directly from your programmable controller program. Ethernet can also be used for applications that require remote access functionality, such as a secure VPN connection with a standard router.



More options - greater possibilities!

More analog I/O

In addition to the two standard embedded analog inputs, Omron's CP1L with embedded Ethernet also supports three dedicated analog I/O option boards. These enable you to add extra analog inputs and outputs, and mixed inputs/outputs at minimum cost without the need for more cabinet space. With its analog I/O modules, auto-tuning PID function, the CP1 is ideal for accurate process control.

CP1 family features at a glance

- 10 to 60 I/O base models, expandable to 320 I/O points
- Digital, analog and temperature sensor I/O expansion units
- 4 to 6 high-speed encoder inputs and 2 to 4 high-speed pulse outputs
- Modbus Master feature for easy inverter or temperature control
- Analog I/O option boards and auto-tuning PID for accurate process control
- Optional boards for RS-232/RS-422/485/ Ethernet or LCD display
- Ladder diagram, Function Block or Structured Text programming
- Powerful instructions common within Omron's modular programmable controller series
- USB or Ethernet port no special cables needed
- No-Battery operation mode retains the program and data



CP1 Expansion Units



Note: The functions that are supported depend on the CPU model.

Select the optimum CPU for your application





			CP1E											
							N-type							
			CP1E -E10D	CP1E -E14DR-A	CP1E -E20DR-A	CP1E -E30DR-A	CP1E -E40DR-A	CP1E -N14D	CP1E -N20D□-□	CP1E -NA20D□-□	CP1E] -N30D	CP1E -N40D□-□	CP1E -N60D□-□	
	Digital Ir	nputs	6	8	12	18	24	8	12	12	18	24	36	
	Digital 0	•	4	6	8	12	16	6	8	8	12	16	24	
		ble Terminals	No			No	No							
		Capacity	10	14	20	150	160	14	20	140	150	160	180	
	CP1W E	xpansion Units	No			Yes (3 max.)		No		Yes (3 max.)				
	CJ-Series Special I/O and CPU Bus Units		No				No							
	Interrupt/Quick/ Counter Inputs		4 6				6							
	High-sp Inputs	eed Counter	5 (10 kHz max.)				2 (100 kHz max.) and 4 (10 kHz max.)							
	Pulse Ou (transist models	or outputs	No			2 axes (100 kHz max.)								
	Analog I/O (embedded)		No					No		2 inputs, 1 output	No			
	Analog Adjuster (0-255)		Yes (2)				Yes (2)							
	External Analog Settings Input (resolution 1/256)		No					No						
Optional boards	Number supporte	imber of boards 0 pported				0 1								
	Serial Communications (CP1W-CIF01/11/12)		No					No Yes						
	Ethernet (CP1W–CIF41)		No					No Yes						
	LCD Dis (CP1W-	DAM01)	No			No								
	_	I/O boards No					No USD							
CPU details		iming port	USB					USB Vec (1)						
ucialis	RS-232C port (embedded							Yes (1)						
	Function Blocks support (Ladder diagrams or ST language)		No No						NO					
	Processing Speed (minimum)							1.19 µs / Basic instruction, 7.9 µs / Special instruction						
	Program Capacity		2K words 8K ste						sk steps Sk words					
	Data Memory Capacity Memory Cassette							No						
	(CP1W–ME05M)		IVO					NO						
	Real-Time Clock		No					Yes (with optional battery)						
	Battery		No					Optional						
	7-Segment Display		No					No						
Relay Outputs		er Supply	CP1E -E10DR-A	CP1E -E14DR-A	CP1E -E20DR-A	CP1E -E30DR-A	CP1E -E40DR-A	CP1E -N14DR-A	CP1E -N20DR-A	CP1E -NA20DR-A	CP1E -N30DR-A	CP1E -N40DR-A	CP1E -N60DR-A	
	DC Power Supply		CP1E -E10DR-D	-	-	_	-	CP1E -N14DR-D	CP1E -N20DR-D	-	CP1E -N30DR-D	CP1E -N40DR-D	CP1E -N60DR-D	
Transistor Outputs	Туре	AC Power Supply	–E10DT–A	-	-	-	-	CP1E -N14DT-A	CP1E -N20DT-A	-	CP1E -N30DT-A	CP1E -N40DT-A	CP1E -N60DT-A	
		DC Power Supply	–E10DT–D		-		-	CP1E -N14DT-D	CP1E -N20DT-D	CP1E -NA20DT-D	CP1E -N30DT-D	CP1E -N40DT-D	CP1E -N60DT-D	
	Туре	AC Power Supply	-E10DT1-A		_		-	CP1E -N14DT1-A	CP1E -N20DT1-A	-	CP1E -N30DT1-A	CP1E— N14DT1—A	CP1E -N60DT1-A	
		DC Power Supply	E10DT1-D	ila matan i ili o		- No Door	- OD41 data-ht	CP1E -N14DT1-D	CP1E -N20DT1-D	CP1E -NA20DT1-D	CP1E -N30DT1-D	CP1E -N40DT1-D	CP1E -N60DT1-D	

Note: This table is a general overview only. For details, refer to the CP1E datasheet (Cat. No. P061), CP1L datasheet (Cat. No. P081) or CP1H datasheet (Cat. No. P080).





L-type	15 output words Yes (2 max.) 6 2 (100 kHz	CP1H -X40DD—— 24 16 320 15 input words as max.)	24 16 320
L-type	CP1HY20DT_D 12 8 Yes 300 Yes (7 units or 1 15 output words Yes (2 max.) 6 2 (100 kHz	24 16 320 15 input words dis max.)	_XA40D□_= 24 16 320
CP1LL10D -L14D -L20D -M30D -M40D -M40D -M60D -EL20D -EM30D -EM40D -EM40D _		24 16 320 15 input words dis max.)	_XA40D□_= 24 16 320
4 6 8 12 16 24 8 12 16 8 No Yes Yes No Yes Yes 10 54 60 150 160 180 60 150 160 30 No Yes (3 max.) Yes (3 max.) Yes (3 max.) Yes (3 max.) Yes (1 max.) Yes (3 max.) Yes (1 max.) Yes (3 max.)	8 Yes 300 Yes (7 units or 1 15 output words Yes (2 max.) 6 2 (100 kHz	320 15 input words as max.)	16 320
No Yes Yes No Yes Yes Yes 10 54 60 150 160 180 60 150 160 30 No Yes (1 max.) Yes (3 max.) Yes (1 max.) Yes (3 max.) Yes (1	Yes 300 Yes (7 units or 1 15 output words Yes (2 max.) 6 2 (100 kHz	320 15 input words . ds max.)	320
10 54 60 150 160 180 60 150 160 3 No Yes (1 max.) Yes (3 max.) Yes (3 max.) Yes (3 max.) Yes (3 max.) Yes (1	300 Yes (7 units or 1 15 output words Yes (2 max.) 6 2 (100 kHz	15 input words and the max.)	
No Yes (1 max.) Yes (3 max.) Yes (1 max.) Ye	Yes (7 units or 1 15 output words Yes (2 max.) 6 2 (100 kHz	15 input words and the max.)	
No No No You are also as a second of the sec	15 output words Yes (2 max.) 6 2 (100 kHz	ds max.)	/
2 4 6 6 6 4 (100 kHz max.) 4 (100 kHz max.) 2 m 2 axes (100 kHz max.) 2 axes (100 kHz max.) 2 m 2 axes (100 kHz max.) 2 axes (100 kHz max.) 2	6 2 (100 kHz	8	
4 (100 kHz max.) 4 (100 kHz max.) 2 axes (100 kHz max.)	2 (100 kHz	8	
2 axes (100 kHz max.) 2		6 8	
	2 (100 kHz max.) and 2 Line–driver (1 MHz)		
	2 (100 kHz max.) and 2 Line–driver (1 MHz)	4 axes (100 kł	·
No 2 inputs	No		4 inputs, 2 outputs
Yes (1)	Yes (1)		
Yes (0–10V) No Yes	Yes (0-10V)		
0 1 2 1 2 2	2		
No Yes Yes Yes	Yes		
No Yes No You	No Yes		
No Yes Yes Yes	Yes		
No Yes N	No		
USB Ethernet U	USB		
No No	No		
Yes Yes	Yes		
	0.10 μs / Basic instruction, 0.15 μs / Special instruction		
	20K steps		
	32K words		
Yes Yes Yes	Yes		
Yes Yes Yes	Yes		
	Yes		
	Yes		
CD11 CD11 CD11 CD11 CD11 CD11	_	CP1H -X40DR-A	CP1H -XA40DR-
CP1L CP1L CP1L CP1L CP1L CP1L CP1L CP1L	-	-	-
CP1L	_	-	-
	CP1H –Y20DT–D	CP1H -X40DT-D	CP1H -XA40DT-I
	-	-	-
		CP1H	CP1H -XA40DT1-

Expansion I/O Units



CP1W-8ED

DC inputs: 8

CP1W-8ER

Relay outputs: 8

CP1W-8ET

Transistor outputs (sinking): 8

Transistor outputs (sourcing): 8



CP1W-16ER

Relay outputs: 16

CP1W-16ET

Transistor outputs (sinking): 16

CP1W-16ET1

Transistor outputs (sourcing): 16

CP1W-20EDR1

DC inputs: 12 Relay outputs: 8



CP1W_20FDT

DC inputs: 12

Transistor outputs (sinking): 8

CP1W-20EDT1

DC inputs: 12

Transistor outputs (sourcing): 8

CP1W-32ER

Relay outputs: 32

CP1W-32ET

Transistor outputs (sinking): 32

CP1W-32ET1

Transistor outputs (sourcing): 32

CP1W-40EDR DC inputs: 24

Relay outputs: 16

CP1W-40EDT

DC inputs: 24

Transistor outputs (sinking): 16

CP1W-40EDT1

DC inputs: 24

Transistor outputs (sourcing): 16

Analog I/O Units



Analog Input Unit

CP1W-AD041

Analog inputs: 4 (resolution: 6,000)

Analog Output Unit

CP1W-DA021

Analog outputs: 2 (resolution: 6,000)

CP1W-DA041

Analog outputs: 4 (resolution: 6,000)

Analog I/O Unit

CP1W-MAD11

Analog inputs: 2 (resolution: 6,000) Analog outputs: 1 (resolution: 6,000)

Temperature Sensor Unit



CP1W-TS001

Thermocouple inputs: 2

CP1W-TS002

Thermocouple inputs: 4

CP1W-TS101

Platinum-resistance thermometer inputs: 2

CP1W-TS102

Platinum-resistance thermometer inputs: 4

CompoBus/S I/O Link Unit



CP1W-SRT21

Inputs: 8 bits Outputs: 8 bits

DeviceNet I/O Link Unit



CPM1A-DRT21

Inputs: 32 bits Outputs: 32 bits

Ethernet Optional Boards for CP1L, CP1L-E & CP1H Only

CP1W-EIP61



EtherNet/IP Slave, 5 total connections (1 EIP Slave, 4UDP)

CP1W-MODTCP61

Modbus/TCP Slave or Master

(1 Modbus Slave & 4 UDP connections) or (1 Modbus Master)

For CP1L-E Only

Ethernet, 8 total connections (4TCP, 4UDP)

Optional Boards



CP1W-CIF01 RS-232C (15 m max.)



CP1W-CIF11 RS-422A/485 (50 m max.)



CP1W-CIF12 RS-422A/485 (Isolated-type) (500 m max.)



CP1W-CIF41 Ethernet (Cannot be used with CP1L-E)



CP1W-DAM01 Display 4 rows, 12 characters





CP1W-ADB21 Analog 2 inputs, 0-10 V, 0-20 mA



CP1W-DAB21V Analog 2 outputs, 0-10 V



CP1W-MAB221 Analog 2 inputs 0-10 V, 0-20 mA & 2 outputs 0-10 V

USB Programming Cable



USB-AB-6BLK A-type male to B-type male,

Memory Cassette



CP1W-ME05M 512K words (upload/download program)

Switch Input Board



CP1W-SWB06



CP1W-BAT01 (CP1E) CJ1W-BAT01 (CP1L/H)

CJ Unit Adapter



CP1W-EXT01 CJ Unit adapter for use with CP1H Includes CJ endplate.

I/O Connecting Cable



Length: 80 cm

CP1W/CPM1A Expansion Units include I/O Connection Cables (in lengths of approx. 6 cm) for side-by-side connection.

Note 1: This table is a general overview only. For details, refer to the CP1E datasheet (Cat. No. P061), CP1L datasheet (Cat. No. P081) or CP1H datasheet (Cat. No. P080). Note 2: CPM1A Expansion Unit and Expansion I/O Units can be used with CP1H, CP1L or CP1E CPU Units under the same conditions as for the CP1W.

Software

Software	License	Media	Model
CX-One	Standard License, ** user	DVD	CXONE-AL**D-V4
	Upgrade License, ** user	DVD	CXONE-AL**D-V4-UP
	Standard License, ** user	CD	CXONE-AL**D-V4
	Upgrade License, ** user	CD	CXONE-AL**D-V4-UP
CX-One LITE	Standard License, 1 user	CD	CXONE-LT01C-V4
	Upgrade License, 1 user	CD	CXONE-LT01C-V4-UP

^{**} Indicates number of users, either 01, 03, 10, 30, 50, or XX (Site)

CX-One LITE includes: CX-Programmer, CX-Designer, CX-Simulator, CX-Drive,

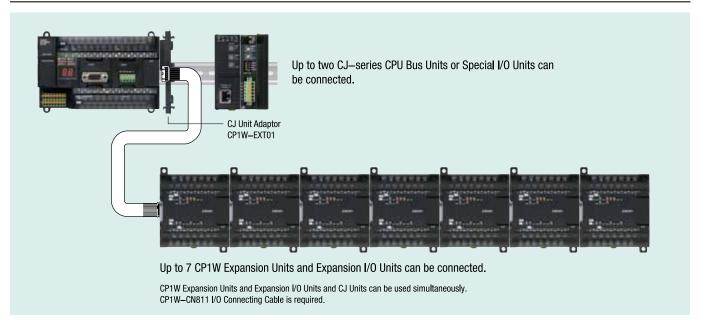
CX-Thermo, CX-Sensor, CX-Integrator, CX-Server, CX-ConfiguratorFDT, NV-Designer, FB/SAP, PLC Tools/Utilities.

Supported PLCs: CP1E, CP1L, CP1H, CPM1, CPM1A,

CPM2A, CPM2C, SRM1.

CX-One supported OS: Wirdows 7, Windows Vista® or Windows XP (SP3 or higher).

Using CJ-series units and CP1W units with the CP1H



CJ-Series Units for use with CP1H

Description	Unit Name	Model	Description	Unit Name	Model
Analog I/O and	Universal Analog Input Unit	CJ1W-AD04U	Motion/Position	Position Control Units	CJ1W-NC113
Control Units	Analog Input Unit	CJ1W-AD041-V1	Control Units		CJ1W-NC133
		CJ1W-AD042			CJ1W-NC213
		CJ1W-AD081-V1			CJ1W-NC233
	Analog Output Unit	CJ1W-DA021			CJ1W-NC413
		CJ1W-DA041			CJ1W-NC433
		CJ1W-DA042V		MECHATROLINK—II Position Control Unit	CJ1W-NCF71
		CJ1W-DA08V			CJ1W-NCF71-MA
		CJ1W-DA08C			CJ1W-NC271
	Analog Input/Output Unit	CJ1W-MAD42			CJ1W-NC471
	Universal analog Input Unit	CJ1W-PH41U		MECHATROLINK—II Motion Control Unit	CJ1W-MCH71
	Process Input Unit	CJ1W-PDC15	Communication	Serial Communication Units	CJ1W-SCU21-V1
	Thermocouple Input Unit	CJ1W-PTS15	Units		CJ1W-SCU22
		CJ1W-PTS51			CJ1W-SCU31-V1
	Resistance Thermometer Input Unit	CJ1W-PTS16			CJ1W-SCU32
		CJ1W-PTS52			CJ1W-SCU41-V1
	Temperature Control Loops,	CJ1W-TC001			CJ1W-SCU42
	Thermocouple Unit	CJ1W-TC002		Ethernet Unit	CJ1W-ETN21
		CJ1W-TC003		EtherNet/IP Unit	CJ1W-EIP21
		CJ1W-TC004		High-speed Data Logging Unit	CJ1W-SPU01-V2
	Temperature Control Loops, RTD	CJ1W-TC101		DeviceNet Master Unit	CJ1W-DRM21
		CJ1W-TC102		CompoNet Master Unit	CJ1W-CRM21
		CJ1W-TC103		CompoBus/S Master Unit	CJ1W-SRM21
		CJ1W-TC104		PROFINET I/O Controller Unit	CJ1W-PNT21
Motion/Position	SSI Input Unit	CJ1W-CTS21-E		PROFIBUS DP-V1 Master Unit	CJ1W-PRM21
Control Units	High-speed Counter Unit	CJ1W-CT021		PROFIBUS DP Slave Unit	CJ1W-PRT21
	4-Channel Counter Unit	CJ1W-CTL41-E		Controller Link Unit	CJ1W-CLK23
	24VDC Motor Control Unit	CJ1W-DCM11-E		CAN Communication Unit	CJ1W-CORT21
Windows is a registered	d trademark of Microsoft Corporation in the United St	atoe and other countries	Control Units	RFID Sensor Controller Unit	CJ1W-V680C11
williaows is a registerer	a trademark of whorosoft corporation in the officed St	מנכס מווע טנווכו כטעוונוופס.			CJ1W-V680C12



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OMRON CANADA, INC. • HEAD OFFICE

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OMRON ELECTRONICS DE MEXICO • HEAD OFFICE

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- Counters Metering Devices Power Supplies

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- Safety Interlock Switches



Note: Specifications are subject to change.

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Authorized Distributor

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CP1W-MAB221 CP1L-EL20DR-D CP1L-EM30DT-D CP1L-EM40DT-D CP1L-EM40DT-D CP1L-EM40DT-D CP1L-EM40DT-D CP1L-EM20DT-D CP1L-EL20DT-D