

# Solution Selection Guide

2015-2016



Available from  
**BREWS**  
BREWSSUPPLY.COM

Automation Systems  
Motion & Drives  
Sensing  
Control Components  
Switching Components  
Safety

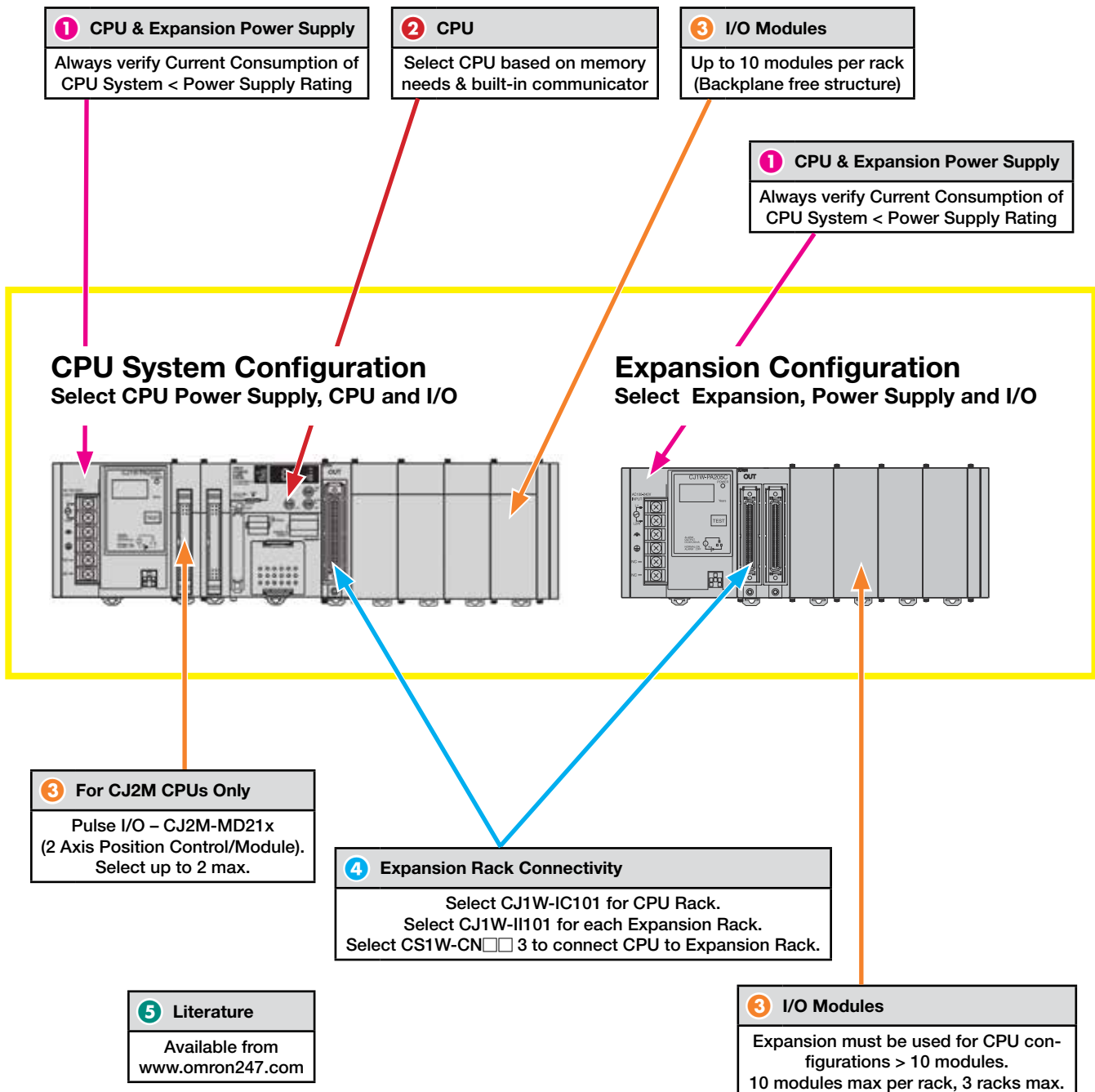
## Contents

<b>Modular PLC</b>		
CJ2- Series	Modular PLC	B-2
	Power Supplies & CPU Units	B-3
	Communication Units	B-4
	Digital I/O Units	B-5
	Digital analog Units	B-6
	Temperature Control Units	B-7
	Pulse I/O & Rack Connectivity	B-8
<b>Rack PLC</b>		
CS1- Series	Rack PLC	B-9
	CPU Units & Power Supplies	B-10
	Backplanes & Communication Units	B-11
	Digital I/O Units	B-12
	Analog and Process I/O Units	B-13
	Accessories	B-14
<b>Micro PLCs</b>		
CP1H	CPU Units	B-15
CP1L	CPU Units	B-16
CP1E	CPU Units	B-17
CP	Expansion Units, Options for CPU Units	B-18
<b>Programmable Relays</b>		
ZEN	CPU Units / Expansion Units	B-20

**B**

## Fast and Powerful CPUs for Any Task

The CJ2 platform is a scalable architecture that allows you to pick and choose the CPU and I/O based on your needs. Depending on your application, you have the ability for advanced motion control, multi-network communications and small scale systems.



## Ordering Information

### 1 CPU & Expansion Power Supply

Input range	Power consumption	Output capacity at 5 VDC	Output capacity at 24 VDC	Max. output power	Features	Width	Model
21.6 - 25.4 VDC	35 W max.	2.0 A	0.4 A	16.6 W	--	27 mm	CJ1W-PD022
19.2 - 28.8 VDC	50 W max.	5.0 A	0.8 A	25 W	--	60 mm	CJ1W-PD025
85 - 264 VAC 47 - 63 Hz	50 VA max.	2.8 A	0.4 A	14 W	--	45 mm	CJ1W-PA202
	100 VA max	5.0 A	0.8 A	25 W	Run output (SPST relay)	80 mm	CJ1W-PA205R
					Maintenance status display	80 mm	CJ1W-PA205C

Note: The CJ1W-PD022 has no galvanic isolation.

### 2 CPU

Max digital I/O points	Program capacity	Data memory capacity	Logic execution speed	Max. I/O units	Width	5 V Current consumption	Built-in functions	Model			
2,560	400 K	832 K	16 ns	40	80 mm	820 mA	USB + Ethernet/IP + RS-232C	CJ2H-CPU68-EIP			
	250 K	512 K						CJ2H-CPU67-EIP			
	150 K	352 K						CJ2H-CPU66-EIP			
	100 K	160 K						CJ2H-CPU65-EIP			
	50 K	160 K						CJ2H-CPU64-EIP			
	60 K	160 K	40 ns		62 mm	700 mA	USB + Ethernet/IP, serial comm. option slot	CJ2M-CPU35			
	30 K	160 K						CJ2M-CPU34			
	20 K	64 K						CJ2M-CPU33			
	10 K	64 K						CJ2M-CPU32			
	5 K	64 K						CJ2M-CPU31			
	60 K	160 K						31 mm	500 mA	USB + RS-232C	CJ2M-CPU15
	30 K	160 K									CJ2M-CPU14
	20 K	64 K									CJ2M-CPU13
	10 K	64 K	CJ2M-CPU12								
	5 K	64 K	CJ2M-CPU11								

B

## 3 Communication/Networks

Type	Ports	Data transfer	Protocols	Unit class	Width	Connection type	Model
Serial	2 x RS-232C		CompoWay/F, Host link, NT link, Modbus, User-defined	CPU bus unit	31 mm	9-pin D-Sub	CJ1W-SCU21-V1
Serial	2 x RS-232C	High-speed	CompoWay/F, Host link, NT link, Modbus, User-defined	CPU bus unit	31 mm	9-pin D-Sub	CJ1W-SCU22
Serial	2 x RS-422A/RS-485		CompoWay/F, Host link, NT link, Modbus, User-defined	CPU bus unit	31 mm	9-pin D-Sub	CJ1W-SCU31-V1
Serial	2 x RS-422A/RS-485	High-speed	CompoWay/F, Host link, NT link, Modbus, User-defined	CPU bus unit	31 mm	9-pin D-Sub	CJ1W-SCU32
Serial	1 x RS-232C + 1 x RS-422/RS-485		CompoWay/F, Host link, NT link, Modbus, User-defined	CPU bus unit	31 mm	9-pin D-Sub	CJ1W-SCU41-V1
Serial	1 x RS-232C + 1 x RS-422/RS-485	High-speed	CompoWay/F, Host link, NT link, Modbus, User-defined	CPU bus unit	31 mm	9-pin D-Sub	CJ1W-SCU42
Ethernet	1 x 100 Base-Tx		UDP, TCP/IP, FTP server,SMTP (e-mail), SNTP (time adjust), FINS routing, socket service	CPU bus unit	31 mm	RJ45	CJ1W-ETN21
EtherNet/IP	1 x 100 Base-Tx		EtherNet/IP, UDP, TCP/IP, FTP server, SNTP, SNMP	CPU bus unit	31 mm	RJ45	CJ1W-EIP21
DeviceNet	1 x CAN		DeviceNet	CPU bus unit	31 mm	5-p detachable	CJ1W-DRM21
PROFIBUS-DP	1 x RS-485 (Master)		DP, DPV1	CPU bus unit	31 mm	9-pin D-Sub	CJ1W-PRM21
PROFIBUS-DP	1 x RS-485 (Slave)		DP	Special I/O unit	31 mm	9-pin D-Sub	CJ1W-PRT21
PROFINET-IO	1 x 100 Base-Tx		PROFINET-IO Controller, FINS/UDP	CPU bus unit	31 mm	RJ45	CJ1W-PNT21
CAN	1 x CAN		User-defined, supports 11-bit and 29-bit identifiers	CPU bus unit	31 mm	5-p detachable	CJ1W-CORT21
CompoNet	4-wire, data + power to slaves (Master)		CompoNet (CIP-based)	Special I/O unit	31 mm	4-p detachable IDC or screw	CJ1W-CRM21
CompoBus/S	2-wire (Master)		Omron proprietary	Special I/O unit	20 mm	2-wire screw + 2-wire power	CJ1W-SRM21

## 3 Digital I/O

Points	Type	Rated voltage	Rated current	Width	Remarks	Connection type <sup>1</sup>	Model
16	AC input	120 VAC	7 mA	31 mm	--	M3	CJ1W-IA111
8	AC input	240 VAC	10 mA	31 mm	--	M3	CJ1W-IA201
8	DC input	24 VDC	10 mA	31 mm	--	M3	CJ1W-ID201
16	DC input	24 VDC	7 mA	31 mm	--	M3	CJ1W-ID211
16	DC input	24 VDC	7 mA	31 mm	Fast-response (15 μs ON, 90 μs OFF)	M3	CJ1W-ID212
16	DC input	24 VDC	7 mA	31 mm	Inputs start interrupt tasks in PLC program	M3	CJ1W-INT01
16	DC input	24 VDC	7 mA	31 mm	Latches pulses down to 50 μs pulse width	M3	CJ1W-IDP01
32	DC input	24 VDC	4.1 mA	20 mm	--	1 x Fujitsu	CJ1W-ID231
32	DC input	24 VDC	4.1 mA	20 mm	--	1 x MIL <sup>1</sup> (40 pt)	CJ1W-ID232
32	DC input	24 VDC	4.1 mA	20 mm	Fast-response (15 μs ON, 90 μs OFF)	1 x MIL <sup>1</sup> (40 pt)	CJ1W-ID233
64	DC input	24 VDC	4.1 mA	31 mm	--	2 x Fujitsu	CJ1W-ID261
64	DC input	24 VDC	4.1 mA	31 mm	--	2 x MIL <sup>1</sup> (40 pt)	CJ1W-ID262
8	Triac output	250 VAC	0.6 mA	31 mm	--	M3	CJ1W-OA201
8	Relay output	250 VAC	2 A	31 mm	Independent response	M3	CJ1W-OC201
16	Relay output	250 VAC	2 A	31 mm	--	M3	CJ1W-OC211
8	DC output (sink)	12 to 24 VDC	2 A	31 mm	--	M3	CJ1W-OD201
8	DC output (source)	24 VDC	2 A	31 mm	With short-circuit protection, alarm	M3	CJ1W-OD202
16	DC output (sink)	12 to 24 VDC	0.5 A	31 mm	--	M3	CJ1W-OD211
16	DC output (source)	24 VDC	0.5 A	31 mm	With short-circuit protection, alarm	M3	CJ1W-OD212
16	DC output (sink)	24 VDC	0.5 A	31 mm	Fast-response (15 μs ON, 80 μs OFF)	M3	CJ1W-OD213
32	DC output (sink)	12 to 24 VDC	0.5 A	20 mm	--	1 x Fujitsu	CJ1W-OD231
32	DC output (source)	24 VDC	0.3 A	20 mm	With short-circuit protection, alarm	1 x MIL <sup>1</sup> (40 pt)	CJ1W-OD232
32	DC output (sink)	24 VDC	0.5 A	20 mm	Fast-response (15 μs ON, 90 μs OFF)	1 x MIL <sup>1</sup> (40 pt)	CJ1W-OD234
64	DC output (sink)	12 to 24 VDC	0.3 A	31 mm	--	2 x Fujitsu	CJ1W-OD261
64	DC output (source)	24 VDC	0.3 A	31 mm	--	2 x MIL <sup>1</sup> (40 pt)	CJ1W-OD262
16 + 16	DC in+out (source)	24 VDC	0.5 A	31 mm	--	2 x MIL <sup>1</sup> (20 pt)	CJ1W-MD232
32 + 32	DC in+out (sink)	24 VDC	0.3 A	31 mm	--	2 x MIL <sup>1</sup> (40 pt)	CJ1W-MD263
32 + 32	DC in+out (TLL)	5 VDC	35 mA	31 mm	--	2 x MIL <sup>1</sup> (40 pt)	CJ1W-MD563

<sup>1</sup> MIL = connector according to MIL-C-83503 (compatible with DIN 41651/IEC 60603-1).

Note: All digital I/O unit are designated as basic I/O units.

**B**

## 3 Analog I/O

Points	Type	Ranges	Resolution	Accuracy (Note 2)	Conversion time	Remarks	Model				
4	Universal analog input	DC voltage, DC current, Thermocouple Pt100/Pt1000, potentiometer	1/256,000	0.05%	60 ms/4 points	All inputs individually isolated, configurable alarms, maintenance functions, user-defined scaling, zero/span adjustment	CJ1W-PH41U				
4		<table border="1"> <tr> <td>0 to 1 to 0 to 0 to 4 to</td> <td>5 V 5 V 10 V 20 mA 20 mA</td> </tr> <tr> <td colspan="2">T/C: K, J, T, L, R, S, B, Pt100, Pt1000, JPt100</td> </tr> </table>	0 to 1 to 0 to 0 to 4 to	5 V 5 V 10 V 20 mA 20 mA	T/C: K, J, T, L, R, S, B, Pt100, Pt1000, JPt100		V/I: 1/12,000 T/C: 0.1 °C RTD: 0.1 °C	V: 0.3% I: 0.3% T/C: 0.3% RTD: 0.3%	250 ms/4 points	Universal inputs, with zero/span adjustment, configurable alarms, scaling, sensor error detection	CJ1W-AD04U
0 to 1 to 0 to 0 to 4 to	5 V 5 V 10 V 20 mA 20 mA										
T/C: K, J, T, L, R, S, B, Pt100, Pt1000, JPt100											
4	Analog input	<table border="1"> <tr> <td>0 to 1 to 0 to -10 to 4 to</td> <td>5 V 5 V 10 V 10 V 20 mA</td> </tr> </table>	0 to 1 to 0 to -10 to 4 to	5 V 5 V 10 V 10 V 20 mA	1/8,000	V: 0.2% I: 0.4%	250 µs/point	Offset/gain adjustment, peak hold, moving average, alarms	CJ1W-AD041-V1		
0 to 1 to 0 to -10 to 4 to			5 V 5 V 10 V 10 V 20 mA								
8	CJ1W-AD081-V1										
2	Analog output	<table border="1"> <tr> <td>0 to 1 to 0 to -10 to 4 to</td> <td>5 V 5 V 10 V 10 V 20 mA</td> </tr> </table>	0 to 1 to 0 to -10 to 4 to	5 V 5 V 10 V 10 V 20 mA	1/4,000	V: 0.02% I: 0.05%	1 ms/point	Offset/gain adjustment, output hold	CJ1W-DA021		
0 to 1 to 0 to -10 to 4 to			5 V 5 V 10 V 10 V 20 mA								
4	CJ1W-DA041										
4 + 2	Analog input + output		1/8,000	In: 0.2% Out: 0.3%	1 ms/point	Offset/gain adjustment, scaling, peak hold, moving average, alarms, output hold	CJ1W-MAD42				
4	High-speed input		1/40,000	V: 0.2% I: 0.4%	35 µs/4 points	Direct conversion (CJ2 special instruction)	CJ1W-AD042				
4	High-speed output	1 to 0 to -10 to	5 V 10 V 10 V	1/40,000	0.3%	35 µs/4 points	Direct conversion (CJ2 special instruction)	CJ1W-DA042V			
8	Voltage output	0 to 0 to -10 to 1 to	5 V 10 V 10 V 5 V	1/8,000	0.3%	250 µs/point	Offset/gain adjustment, output hold	CJ1W-DA08V			
8	Current output	4 to	20 mA		0.5%		CJ1W-DA08C				
2	Process input	4 to 0 to 0 to -10 to 0 to -5 to 1 to 0 to 1.25 to	20 mA 20 mA mA 10 V 10 V 5 V 5 V 5 V 1.25 V 1.25 V	1/64,000	0.05%	5/ms point	Configurable alarms, maintenance functions, user-defined scaling, zero/span adjustment, square root, totalizer	CJ1W-PDC15			

**Notes:**

All Analog I/O units are designated as Special I/O units, except CJ1W-TS561/-TS562, which are Basic I/O units (cannot be used with CP1H).

Accuracy for Voltage and Current Inputs/Outputs as percentage of full scale and typical value at 25°C ambient temperature. Accuracy for Temperature Inputs/Outputs as percentage of process value and typical value at 25°C ambient temperature. (Consult the operation manual for details.)

### 3 In-panel Temperature Controller

Inputs	Input type	Ranges	Resolution	Accuracy (Note 2)	Conversion time	Remarks	Model
2	Thermocouple input	B, E, J, K, L, N, R, S, T, U, WRe5-26, PLII, -100 to 100 mV	1/64,000	0.05%	5 ms/ point	Configurable alarms, (absolute + rate-of-change), peak hold, maintenance functions	CJ1W-PTS15
4		B, J, K, L, R, S, T	0.1°C	0.03% 0.05%	62.5 ms/ point	4 configurable alarm outputs	CJ1W-PTS51
6					40 ms/ point		CJ1W-TS561
2	Resistance thermometer input	Pt50, Pt100, JPt100, Ni508.4	1/64,000	0.05%	5 ms/ point	Configurable alarms (absolute + rate-of-change), peak hold, maintenance functions	CJ1W-PTS16
4		Pt100, JPt100	0.1°C	0.03% 0.05%	62.5 ms/ point	4 configurable alarm outputs	CJ1W-PTS52
6					40 ms/ point		CJ1W-TS562

**Notes:**

All Analog I/O units are designated as Special I/O units, except CJ1W-TS561/-TS562, which are Basic I/O units. (cannot be used with CP1H).

Accuracy for Voltage and Current Inputs/Outputs as percentage of full scale and typical value at 25°C ambient temperature.  
Accuracy for Temperature Inputs/Outputs as percentage of process value and typical value at 25°C ambient temperature.  
(Consult the operation manual for details)

### 3 Temperature Control Units

Specifications			Model
No. of loops	Temperature sensor inputs	Control outputs	
4 loops	Thermocouple input (R, S, K, J, T, B, L)	Open collector NPN outputs (pulses)	CJ1W-TC001
4 loops		Open collector PNP outputs (pulses)	CJ1W-TC002
2 lops, heater burnout detection function		Open collector NPN outputs (pulses)	CJ1W-TC003
2 lops, heater burnout detection function		Open collector PNP outputs (pulses)	CJ1W-TC004
4 loops	Platinum resistance thermometer input (JPt100, Pt100)	Open collector NPN outputs (pulses)	CJ1W-TC101
4 loops		Open collector PNP outputs (pulses)	CJ1W-TC102
2 lops, heater burnout detection function		Open collector NPN outputs (pulses)	CJ1W-TC103
2 lops, heater burnout detection function		Open collector PNP outputs (pulses)	CJ1W-TC104



### 3 Pulse I/O for CJ2M Only

Product name	Specifications	Current consumption (A)		Standards	Model
		5 V	24 V		
Pulse I/O Module	Sinking outputs, MIL connector 10 inputs (4 interrupt/quick response inputs, 2 high-speed counter inputs) 6 outputs (2 pulse outputs and 2 PWM outputs)	0.08	---	UC1, N, L, CE	CJ2M-MD211
	Sourcing outputs, MIL connector 10 inputs (4 interrupt/quick response inputs, 2 high-speed counter inputs) 6 outputs (2 pulse outputs, 2 PWM outputs)	0.08	---		CJ2M-MD212

**Note:** Connectors are not provided with Pulse I/O Modules. Purchase the following Connector, an OMRON Cable with Connectors for Connector Terminal Block Conversion Units, or an OMRON Cable with Connectors for Servo Relay Units.

### 4 Expansion Rack Connectivity

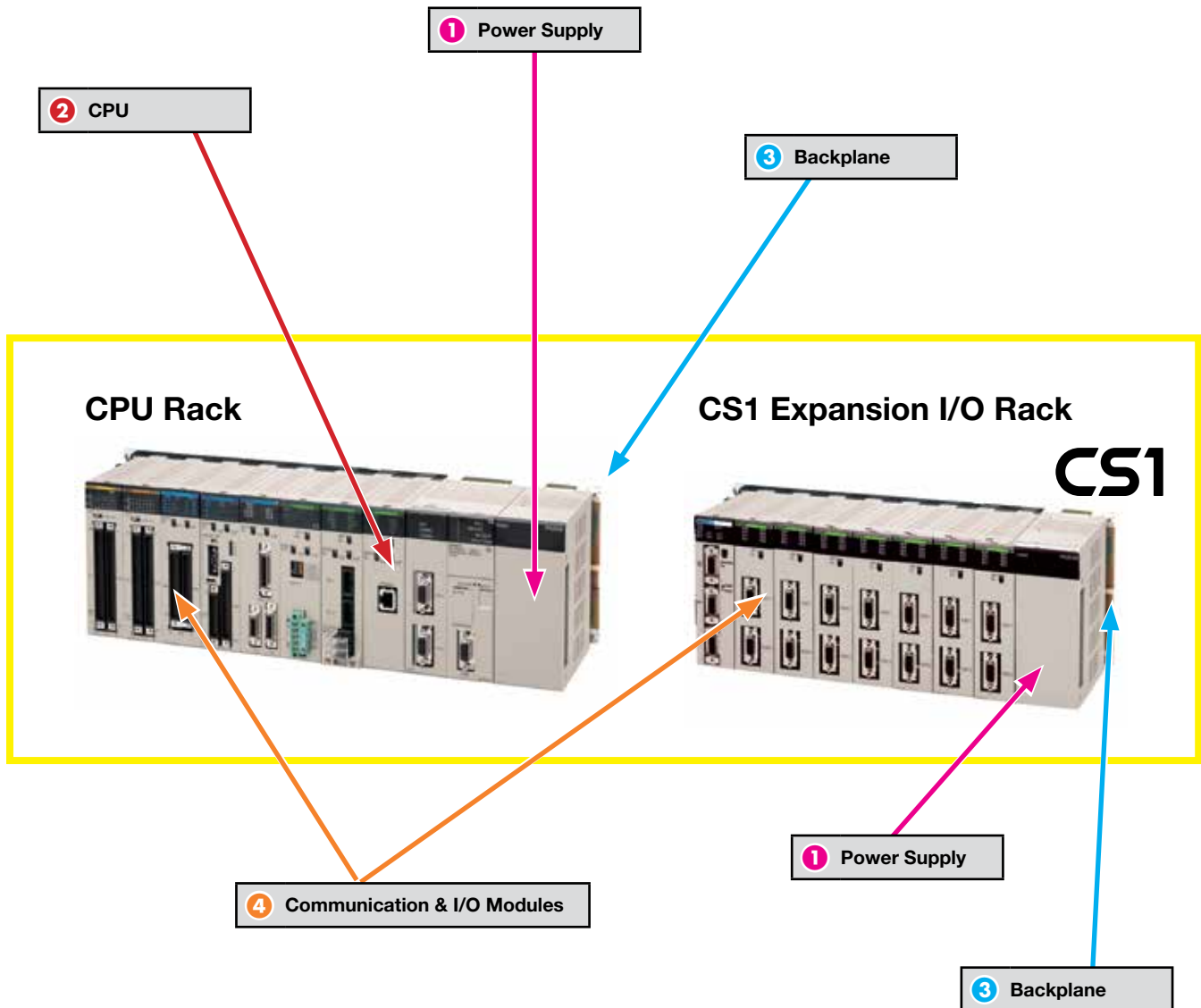
Type	Description	Width, length	Model
I/O control unit	Required unit on CPU 'rack' to connect I/O expansions	20 mm	CJ1W-IC101
I/O interface unit	Start unit for each I/O expansion 'rack'. Requires a power supply unit.	31 mm	CJ1W-II101
I/O expansion cable	Connects CJ1W-IC101 or -II101 to the next expansion rack's -II101	0.3 m	CS1W-CN313
		0.7 m	CS1W-CN713
		2.0 m	CS1W-CN223
		3.0 m	CS1W-CN323
		5.0 m	CS1W-CN523
		10 m	CS1W-CN133
		12 m	CS1W-CN133-B2

## Fast and Powerful CPUs for Any Task

The CS1 Series gives you superior control performance and optimal power capacity to handle any application. The Series offers redundant CPUs, diverse I/O selection and wide variety of communication platforms to solve your control needs.



B



## Ordering Information

### 1 Power Supplies

Input range	Power consumption	Output capacity 5VDC	Output capacity 26 VDC	Max. output power	Extra functions	Model
19.2 to 28.8 VDC	40 W max.	6.6 A	0.62 A	30 W	-	C200HW-PD024
		4.3 A	0.56 A	28 W	Power supply for dual-redundant system	CS1D-PD024
	55 VA max.	5.3 A	1.3 A	40 W	-	C200HW-PD025
					Power supply for dual-redundant system	CS1D-PD025
85 to 264 VAC 50/60 Hz	120 VA max.	4.6 A	0.62 A	30 W	Maintenance status display	C200HW-PA204C
85 to 132 VAC, 170 to 264 VAC, 50/60 Hz					-	C200HW-PA204
					Service output 24 VDC, 0.8 A	C200HW-PA204S
					Run status output (SPST relay)	C200HW-PA204R
					Run status output (SPST relay)	C200HW-PA209R
180 VA max.					9.0 A	1.3 A
150 VA max.	7.0 A	1.3 A	35 W	Power supply for dual-redundant system	CS1D-PA207R	

### 2 CPU

Max. Digital I/O points	Program capacity	Data memory capacity	Logic execution speed	Max. I/O units	Additional functions	Model	
5120	250K steps	448K words	20 ns	80	-	CS1H-CPU67H	
				71	Supports duplex power supply and I/O hot-swapping	CS1D-CPU67S	
				68	CPU for full dual-redundancy	CS1D-CPU67H	
					CPU for full dual-redundancy, with loop control board	CS1D-CPU67P	
	120K steps	256K words		80	-	CS1H-CPU66H	
	60K steps	128K words		80	-	CS1H-CPU65H	
				71	Supports duplex power supply and I/O hot-swapping	CS1D-CPU65S	
				68	CPU for full dual-redundancy	CS1D-CPU65H	
					CPU for full dual-redundancy, with loop control board	CS1D-CPU65P	
	30K steps	64K words		40 ns	80	-	CS1H-CPU64H
	20K steps				-	CS1H-CPU63H	
	60K steps				-	CS1G-CPU45H	
	1280	30K steps			40	-	CS1G-CPU44H
					35	Supports duplex power supply and I/O hot-swapping	CS1D-CPU44S
960	20K steps	30	-		CS1G-CPU43H		
	10K steps	-	-		CS1G-CPU42H		
		26	Supports duplex power supply and I/O hot-swapping		CS1D-CPU42S		

### 3 Backplanes

Type	Slots	Expansion connector	Width	Special functions	Model
CPU	2	No	200 mm	–	CS1W-BC023
CPU	3	Yes	260 mm	–	CS1W-BC033
CPU	5	Yes	330 mm	–	CS1W-BC053
CPU	8	Yes	435 mm	–	CS1W-BC083
CPU	10	Yes	505 mm	–	CS1W-BC103
Expansion	3	Yes	260 mm	–	CS1W-BI033
Expansion	5	Yes	330 mm	–	CS1W-BI053
Expansion	8	Yes	435 mm	–	CS1W-BI083
Expansion	10	Yes	505 mm	–	CS1W-BI103
CPU	5	Yes	505 mm	For Duplex CPU + Power supplies	CS1D-BC052
CPU	8	Yes	505 mm	For Duplex Power supplies	CS1D-BC082S
Expansion	9	Yes	505 mm	For Duplex Power supplies	CS1D-BI092

### 4 Communication/Networks

Type	Ports	Protocols	Unit class	Connection type	Model
Serial	2 x RS-232C	CompoWay/F, Host Link, NT link, Modbus, User-defined	CPU bus unit	9-pin D-Sub	CS1W-SCU21-V1
Serial	2 x RS-232C/RS-485	CompoWay/F, Host Link, NT link, Modbus, User-defined	CPU bus unit	9-pin D-Sub	CS1W-SCU31-V1
Serial	2 x RS-232C	CompoWay/F, Host Link, NT link, Modbus, User-defined	CPU option board	9-pin D-Sub	CS1W-SCB21-V1
Serial	1 x RS-232C + 1 x RS-422/RS-485	CompoWay/F, Host Link, NT link, Modbus, User-defined	CPU option board	9-pin D-Sub	CS1W-SCB41-V1
GP-IB	Master/Slave selectable	GP-IB instrument communication	Special I/O unit	GP-IB	CS1W-GPI01
Ethernet	1 x 100 Base-Tx	UDP, TCP/IP, FTP server, SMTP (e-mail), SNTP (time adjust), FINS routing, socket service	CPU bus unit	RJ45	CS1W-ETN21
Controller link	2-wire twisted pair	Omron proprietary	CPU bus unit	2-wire screw+GND	CS1W-CLK21-V1
	Optical HPCF			2 x HPCF connector	CS1W-CLK12-V1
	Optical graded-index fiber			4 x ST connector	CS1W-CLK52-V1
EtherNet/IP	1 x 100 Base-Tx	EtherNet/IP, UDP, TCP/IP, FTP server, SNTP, SNMP	CPU Bus unit	RJ45	CS1W-EIP21
DeviceNet	1 x CAN	DeviceNet	CPU bus unit	5-p detachable	CS1W-DRM21-V1
CompoNet	4-wire, data + power to slaves (Master)	CompoNet (CIP-based)	Special I/O unit	4-p detachable IDC or screw	CS1W-CRM21
PROFIBUS-DP	1 x RS-485 (Master)	DP, DPV1	CPU bus unit	9-pin D-Sub	CS1W-PRM21
CAN	1 x CAN	CANopen, User-defined	CPU bus unit	5-p detachable	CS1W-CORT21
PROFIBUS-DP	1 x RS-485 (Slave)	DP	C200H special I/O unit; cannot be used on CS1D systems	9-pin D-Sub	C200HW-PRT21
CompoBus/S	2-wire (Master)	Omron proprietary		2-wire screw + 2-wire power	C200HW-SRM21-V1

## 4 Digital I/O

Points	Type	Rated voltage	Rated current	Remarks	Connection type	Model <sup>1)</sup>
16	AC input	120 VAC	10 mA	--	M3	CS1W-IA111
16	AC input	240 VAC	10 mA	--	M3	CS1W-IA211
16	DC input	24 VDC	7mA	--	M3	CS1W-ID211
16	DC input	24 VDC	7mA	Inputs start interrupt tasks in PLC program	M3	CS1W-INT01
16	DC input	24 VDC	7mA	Latches high speed units	M3	CS1W-IDP01
32	DC input	24 VDC	6mA	--	1 x 40 pt Fujitsu	CS1W-ID231
64	DC input	24 VDC	6mA	--	2 x 40 pt Fujitsu	CS1W-ID261
96	DC input	24 VDC	5mA	--	2 x 56 pt Fujitsu	CS1W-ID291
8	Triac output	250 VAC	1.2 A	--	M3	CS1W-OA201
16	Triac output	250 VAC	0.5 A	--	M3	CS1W-OA211
8	Relay output	250 VAC	2.0 A	--	M3	CS1W-OC201
16	Relay output	250 VAC	2.0 A	--	M3	CS1W-OC211
16	DC output (sink)	12 to 24 VDC	0.5 A	--	M3	CS1W-OD211
16	DC output (source)	24 VDC	0.5 A	With short-circuit protection, alarm	M3	CS1W-OD212
32	DC output (sink)	12 to 24 VDC	0.5 A	--	1 x 40 pt Fujitsu	CS1W-OD231
32	DC output (source)	24 VDC	0.5 A	With short-circuit protection, alarm	1 x 40 pt Fujitsu	CS1W-OD232
64	DC output (sink)	12 to 24 VDC	0.3 A	--	2 x 40 pt Fujitsu	CS1W-OD261
64	DC output (source)	24 VDC	0.3 A	With short-circuit protection, alarm	2 x 40 pt Fujitsu	CS1W-OD262
96	DC output (sink)	12 to 24 VDC	0.1 A	--	2 x 56 pt Fujitsu	CS1W-OD291
96	DC output (source)	24 VDC	0.1 A	--	2 x 56 pt Fujitsu	CS1W-OD292
32+32	DC output (sink)	12 to 24 VDC	0.3 A	--	2 x 40 pt Fujitsu	CS1W-MD261
32+32	DC in+out (source)	24 VDC	0.3 A	With short-circuit protection, alarm	2 x 40 pt Fujitsu	CS1W-MD262
48+48	DC output (sink)	12 to 24 VDC	0.1 A	--	2 x 56 pt Fujitsu	CS1W-MD291
48+48	DC in+out (source)	12 to 24 VDC	0.1 A	--	2 x 56 pt Fujitsu	CS1W-MD292

Note: All Digital I/O units are designated as Basic I/O units.

## 4 Analog I/O

Points	Type	Ranges	Resolution	Accuracy*1	Conversion time	Remarks	Model
4	Analog input	0 to 5 V, 0 to 10 V, -10 to 10 V, 1 to 5 V, 4 to 20 mA	1/8,000	V: 0.2% I: 0.4%	250 μs/point	Offset/gain adjustment, peak hold, moving average, alarms	CS1W- AD041-V1
8				CS1W- AD081-V1			
16				0.2%			CS1W-AD161
4	Analog output	0 to 5 V, 0 to 10 V, -10 to 10 V, 1 to 5 V, 4 to 20 mA	1/4,000	V: 0.3% I: 0.5%	1 ms/point	Offset/gain adjustment	CS1W-DA041
4 + 4	Analog in + output	0 to 5 V, 0 to 10 V, -10 to 10 V, 1 to 5 V (4 to 20 mA input)	1/8,000	V in: 0.2% I in: 0.4% out: 0.3%		Offset/gain adjustment, scaling, peak hold, moving average, alarms, output hold	CS1W- MAD44
8	Voltage output	0 to 5 V, 0 to 10 V, -10 to 10 V, 1 to 5 V	1/4,000	0.3%	1 ms/point	Offset/gain adjustment, output hold	CS1W-DA08V
8	Current output	4 to 20 mA		0.5%			CS1W-DA08C
4	Process input	4 to 20 mA, 0 to 20 mA, 0 to 10 V, -10 to 10 V, 0 to 5 V, -5 to 5 V, 1 to 5 V, 1 to 1.25 V, -1.25 to 1.25 V	1/64,000	0.05%	5 ms/point	Configurable alarms, maintenance functions, user-defined scaling, zero/ span adjustment, square root, totalizer	CS1W-PDC11
8	Process input	-10 to 10 V, 0 to 5 V, 1 to 5 V, 4 to 20 mA	1/16,000	0.3% of PV	62.5 ms/ point	Configurable alarms, zero/ span adjustment, square root	CS1W-PDC55
4	2-Wire transmitter input	1 to 5 V, 4 to 20 mA	1/4,096	0.2%	25 ms/point	Built-in power supply for transmitter, configurable alarms, square root, rate- of-change, etc.	CS1W- PTW01
8	Power transducer input	-1 to 1 mA, 0 to 1 mA -100 to 100 mV, 0 to 100 mV	1/4,096	0.2%	25 ms/point	Inrush current limiter, configurable alarms, averaging, etc.	CS1W-PTR01
			1/4,096	0.2%	25 ms/point		CS1W-PTR02
4	Pulse rate input	20000 pps, voltage, open collector, contact	up to 1/32,000	--	25 ms/point	Averaging, totalizer	CS1W-PPS01

(continued on next page)

## 4 Analog I/O (continued)

Temperature Input Units								
4	Thermocouple input	B, E, J, K, L, N, R, S, T, U, WRe5-26, PLII, -100 to 100 mV	1/64,000	0.05%	5 ms/point	Configurable alarms, (absolute + rate-of-change), peak hold, maintenance functions	CS1W-PTS11	
4		B, J, K, L, R, S, T	0.1°C	0.3%	62.5 ms/point	4 configurable alarm outputs	CS1W-PTS51	
8					31.2 ms/point		CS1W-PTS55	
4	Resistance thermometer input	Pt50, Pt100, JPt100, Ni508.4	1/64,000	0.05%	5 ms/point	Configurable alarms (absolute + rate-of-change), peak hold, maintenance functions	CJ1W-PTS12	
4		Pt100, JPt100	0.1°C	0.3%	62.5 ms/point	4 configurable alarm outputs	CS1W-PTS52	
8					31.2 ms/point		CS1W-PTS56	
Isolated Control Output Units								
4	Isolated control output	1 to 4 to	5 V 20 mA	1/4,000	I: 0.1% V: 0.2%	25 ms/point	Output read back, high/low/rate limiting, disconnection alarm, zero/span adjustment	CS1W-PMV01
4		-10 to 0 to -5 to 0 to -1 to 0 to	10 V 10 V 5 V 5 V 1 V 1 V	1/4,000	0.1%	10 ms/point	High/low/rate limiting, output hold, zero/span adjustment	CS1W-PMV02

### Notes:

Accuracy for Voltage and Current Inputs/Outputs as percentage of full scale and typical value at 25°C ambient temperature.

Accuracy for Temperature Inputs/Outputs as percentage of process value and typical value at 25°C ambient temperature.

(Consult the operation manual for details)

All Analog I/O units are designated as Special I/O units, except CJ1W-TS561/-TS562, which are Basic I/O units.

## Accessories

Description	Remarks	Model
Duplex unit, required for CS1D-CPU6_H systems	-	CS1D-DPL01
Serial communication option board, 2 x RS-232C	-	CS1W-SCB21-V1
Serial communication option board, 1 x RS-232C + 1 x RS422/RS-485	-	CS1W-SCB41-V1
Loop control option board	50 control blocks max.	CS1W-LCB01
Loop control option board	300 control blocks max.	CS1W-LCB05
Replacement battery set, for all CS1 CPUs	-	CS1W-BAT01
CS1 I/O connecting cable	0.3, 0.7, 2, 3, 5, 10, 12 m	CS1W-CN□□□□
Compact Flash memory card, 128 MB, for all models (not required for operation)	Industrial grade flash	HMC-EF183
Compact Flash memory card, 256 MB, for all models (not required for operation)	Industrial grade flash	HMC-EF283
Compact Flash memory card, 512 MB, for all models (not required for operation)	Industrial grade flash	HMC-EF583
Compact Flash PC-Card adapter	-	HMC-AP001

## High Performance Micro PLC

The CP1H series combines the compactness of a micro PLC and the power of a modular PLC. It is ideal for multi-axis positioning control and suitable for simple loop control. The CP1H can be expanded with CP-series I/Os and supports up to two CJ1 special I/O units.



B

## Ordering Information

Built-in functions: E = Encoder inputs; I/C = Interrupts/counters; P = Pulse outputs

Input points	Output points	Expandable up to*	Program capacity	Data memory capacity	Power supply	Output method	Built-in functions			Model
							E	I/C	P	
<b>CP1H-X with pulse outputs for 4 axes</b>										
24	16	320 points	20K steps	32K words	85 to 264 VAC	Relay output	4	8	--	CP1H-X40DR-A
						Transistor output (sink type)	4	8	4	CP1H-X40DT-D
						Transistor output (source type)	4	8	4	CP1H-X40DT1-D
<b>CP1H-XA with built-in analog I/O (4 analog inputs/2 analog outputs; 1/12,000 resolution)</b>										
24	16	320 points	20K steps	32K words	85 to 264 VAC	Relay output	4	8	--	CP1H-XA40DR-A
						Transistor output (sink type)	4	8	4	CP1H-XA40DT-D
						Transistor output (source type)	4	8	4	CP1H-XA40DT1-D
<b>CP1H-Y with 1-MHz pulse I/O</b>										
12	8	300 points	20K steps	32K words	20.4 to 26.4 VDC	Transistor output (sink type)	4**	6	4**	CP1H-Y20DT-D

\*CP1H CPU series can be expanded with CP-series Expansion Units and CJ1 Special I/O Units.

\*\* Encoder inputs: 2x 1 MHz + 2x 100 kHz; Pulse outputs: 2x 1 MHz + 2x 100 kHz.

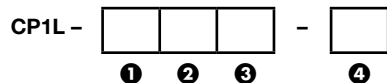


## The Compact Machine Controller

The CP1L series offers maximum cost effectiveness within a minimal product footprint. It is ideal for stand alone machine position control, temperature control and multi-connection Ethernet applications. The CP1L is selectable from 10 I/O to 60 I/O, with select models featuring built-in Ethernet and analog inputs. Additionally, can be expanded up to 180 I/O using CP-series expansion units offering a variety of I/O, analog and communication options.



## Ordering Information



Designator	Description
<b>① Program/Data Capacity/Embedded Communications</b>	
L	5k steps/10k words
M	10k steps/32k words
EL	5k (+10k FB) steps/10k words/Ethernet
EM	10k (+10k FB) steps/32k words/Ethernet
<b>② Digital I/O (Total I/O Capacity)</b>	
10D	6 inputs, 4 outputs (10)
14D	8 inputs, 6 outputs (54)
20D	12 inputs, 8 outputs (60)
30D	18 inputs, 12 outputs (150)
40D	24 inputs, 16 outputs (160)
60D	36 inputs, 24 outputs (180)
<b>③ Output Type</b>	
R	Relay
T	Transistor (sinking)
T1	Transistor (sourcing)
<b>④ Voltage</b>	
A	85 to 264 VAC
D	20.4 to 26.4 VDC

Built-in Functions	Number	Model
Encoder Inputs	4 (100 kHz)	All
Interrupts/Counters	2	-L10D Type
	4	-L14D Type
	6	-20D thru -60D Type
Pulse Outputs	2 (100 kHz)	Transistor Output Type
Analog Inputs	2	-EL & -EM Type

Note: Not all configuration are available. Please refer to the website for a full list of models and complete specifications.

## Easy, Efficient and Economic

The CP1E is an economy class micro PLC that satisfies entry-level requirements for basic applications. Select CPUs from 10 I/O to 60 I/O with basic expandability.



B

## Ordering Information

CP1E -     -   
 ① ② ③ ④ ⑤

Designator	Description
<b>① Program/Data Capacity/Embedded Communications</b>	
E	2k steps/2k words
N	8k steps/8k words, RS-232C
<b>② Analog I/O</b>	
A	2 inputs, 1 output
<b>③ Digital I/O (Total I/O Capacity)</b>	
10D	6 inputs, 4 outputs (10)
14D	8 inputs, 6 outputs (14)
20D	12 inputs, 8 outputs (20, except -NA type: 140)
30D	18 inputs, 12 outputs (150)
40D	24 inputs, 16 outputs (160)
60D	36 inputs, 24 outputs (180)
<b>④ Output Type</b>	
R	Relay
T	Transistor (sinking)
T1	Transistor (sourcing)
<b>⑤ Voltage</b>	
A	100 to 240 VAC
D	24 VDC

Built-in Functions	Number	Model
Pulse Outputs	2 (100 kHz)	Only -N Type Transistor Models
Interrupts/Counters	4	-E10 Type
	6	-E/N14 thru -E/N60 Type

Note: Not all configuration are available. Please refer to the website for a full list of models and complete specifications.

### Expand the Capacity of Your Micro PLC

A wide variety of expansion units that can be used with CP1E, CP1L, and CP1H series PLC.



### Ordering Information

Description	Output type	Input points	Output points	Size in mm (HxWxD)	Model
Expansion I/O units	--	8	--	90x66x50	CP1W-8ED
	Relay	--	8	90x66x50	CP1W-8ER
	Transistor (sinking)	--	8	90x66x50	CP1W-8ET
	Transistor (sourcing)	--	8	90x66x50	CP1W-8ET1
	Relay	--	16	90x86x50	CP1W-16ER
	Relay	12	8	90x96x50	CP1W-20EDR1
	Transistor (sinking)	12	8	90x96x50	CP1W-20EDT
	Transistor (sourcing)	12	8	90x96x50	CP1W-20EDT1
	Relay	24	16	90x150x50	CP1W-40EDR
	Transistor (sinking)	24	16	90x150x50	CP1W-40EDT
	Transistor (sourcing)	24	16	90x150x50	CP1W-40EDT1
Analog I/O units	Analog (resolution 1/256)	2	1	90x66x50	CPM1A-MAD01
	Analog (resolution 1/6000)	2	1	90x86x50	CP1W-MAD11
	Analog (resolution 1/6000)	4	--	90x86x50	CP1W-AD041
	Analog (resolution 1/6000)	--	4	90x86x50	CP1W-DA041
Temperature sensor input units	Thermocouple input	2	--	90x86x50	CP1W-TS001
	Thermocouple input	4	--	90x86x50	CP1W-TS002
	Platinum resistance input	2	--	90x86x50	CP1W-TS101
	Platinum resistance input	4	--	90x86x50	CP1W-TS102

### Options for CPU Units

Name	Specifications	Model
RS-232C Option Board	Can be mounted in either CPU Unit Option Board slot 1 or 2. Note: Cannot be used for the CP1L-L10.	CP1W-CIF01
RS-422A/485 Option Board	Can be mounted in either CPU Unit Option Board slot 1 or 2. Note: Cannot be used for the CP1L-L10. Maximum transmission distance: 50m	CP1W-CIF11
RS-422A/485 Isolated-type Option Board	One RS-422A/485 port (Isolated) Note: Cannot be used for the CP1L-L10. Maximum transmission distance: 500m	CP1W-CIF12
LCD Option Board	Can be mounted only in the CPU Unit Option Board slot 1. Note: Cannot be used for the CP1L-L10.	CP1W-DAM01
Memory Cassette	Can be used for backing up programs or auto-booting	CP1W-ME05M
Economical Ethernet Option Board	Two can be mounted in either of CPU Unit Option Board slot 1 and 2. Note: Cannot be used for the CP1L-L10.	CP1W-ETN61
Advanced Ethernet Option Board	One can be mounted in either CPU Unit Option Board slot 1 or 2. Note: Cannot be used for the CP1E or the CP1L-L10.	CP1W-CIF41
Ethernet/IP Slave Option Board	One can be mounted in either CPU Unit Option Board slot 1 or 2. Note: Cannot be used for the CP1E or the CP1L-L10.	CP1W-EIP61
Modbus/TCP Slave Option Board	One can be mounted in either CPU Unit Option Board slot 1 or 2. Note: Cannot be used for the CP1E or the CP1L-L10.	CP1W-MODTCP61
2 Point Thermocouple Option Board	J/K thermocouple, can be mounted in either CPU Unit Option Board slot 1 or 2. Note: Cannot be used for the CP1E.	CP1W-GCTS2
2 Analog Input Option Board	0-10 V, 0-20 mA Note: Only for the CP1L-E	CP1W-ADB21
2 Analog Output Option Board	0-10 V Note: Only for the CP1L-E	CP1W-DAB21V
2 In/2 Out Analog Option Board	Input: 0-10 V, 0-20 mA, Output: 0-10 V Note: Only for the CP1L-E	CP1W-MAB221

**Easy to Use for Small Scale Control Applications, Offers Precision and Space Savings**



## Ordering Information

Description	Inputs/power supply	Outputs	Analog input/comparators	8-digit counter/comparators	Model		
<b>10-POINT CPU PROGRAMMABLE RELAY UNITS</b>							
10 I/O CPU Expandable up to 34 I/O	6	100 to 240 VAC	4	Relays	— 2 Ch. 0 - 10V / 4	Yes / 4	ZEN-10C1AR-A-V2
		12 to 24 VDC		Transistors			ZEN-10C1DR-D-V2
10 I/O CPU Economy model (non-expandable)		100 to 240 VAC	4	Relays	— 2 Ch. 0 - 10V / 4		ZEN-10C1DT-D-V2
		12 to 24 VDC		Transistors			ZEN-10C3AR-A-V2
9 I/O CPU with RS-485 Communications Expandable up to 33 I/O		100 to 240 VAC	3	Relays	— 2 Ch. 0 - 10V / 4		ZEN-10C3DR-D-V2
		12 to 24 VDC		Transistors			ZEN-10C4AR-A-V2
							ZEN-10C4DR-D-V2
<b>20-POINT CPU PROGRAMMABLE RELAY UNITS</b>							
20 I/O CPU Expandable up to 44 I/O	12	100 to 240 VAC	8	Relays	— 2 Ch. 0 - 10V / 4	Yes / 4	ZEN-20C1AR-A-V2
		12 to 24 VDC		Transistors			ZEN-20C1DR-D-V2
20 I/O CPU Economy model (non-expandable)		100 to 240 VAC	8	Relays	— 2 Ch. 0 - 10V / 4		ZEN-20C1DT-D-V2
		12 to 24 VDC		Transistors			ZEN-20C3AR-A-V2
							ZEN-20C3DR-D-V2
<b>I/O EXPANSION UNITS</b>							
8 I/O Expansion units	4	100 to 240 VAC 12 to 24 VDC	4	Relays	—	—	ZEN-8E1AR
				Relays	—	—	ZEN-8E1DR
				Transistors	—	—	ZEN-8E1DT
<b>ZEN ACCESSORIES</b>							
ZEN Support Software						ZEN-SOFT01V4	
ZEN Programming cable - Serial to ZEN (2 m)						ZEN-CIF01	
Memory cassette – Copies program to multiple units						ZEN-ME01	
ZEN Battery – Use with controller CPU to provide 10 years of memory protection to prevent data loss in the event of an extended power outage (45 H x 17.5 W x 44 D mm)						ZEN-BAT01	

## ZEN Starter Kit

The kit includes: 10 I/O CPU, PC programming cable (RS-232 to Zen), Support Software, Manuals and Simulator Switches:

Description	Model
AC I/O Kit with ZEN-10C1AR-A-V2	ZEN-STARTER01-V2
DC I/O Kit with ZEN-10C1DR-D-V2	ZEN-STARTER02-V2