

# CS1-Series CPU Units

Quick Link  
H222

## Fast and Powerful CPUs for Any Task

Omron's CS1-series CPUs are available in two processor speeds, each in various memory capacities. Besides the basic CPU models, versions are available for dual redundant operation, supporting I/O hot-swapping.



## Ordering Information

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					
	80	-		CS1H-CPU66H			
	80	-		CS1H-CPU65H			
	71	120K steps	256K words	40 ns	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
	80	-	CS1H-CPU64H				
	-	20K steps	64K words		-	-	CS1H-CPU63H
	60K steps	-			CS1G-CPU45H		
30K steps	-	CS1G-CPU44H					
1280	30K steps			40	-	CS1G-CPU44H	
				35	Supports duplex power supply and I/O hot-swapping	CS1D-CPU44S	
960	20K steps			30	-	CS1G-CPU43H	
				-	-	CS1G-CPU42H	
				26	Supports duplex power supply and I/O hot-swapping	CS1D-CPU42S	
	10K steps						

## 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
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

### Expand with Up to 7 Racks

CS1 systems can operate on 24 VDC power supply, or on 100-240 VAC. For small-scale systems with mainly digital I/O a low cost, small capacity power supply can be used. For systems with many analog I/Os and control/communication units, it may be necessary to use a larger power supply unit.



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## Ordering Information

### 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
-					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	
85 to 132 VAC, 170 to 264 VAC, 50/60 Hz	180 VA max.	9.0 A	1.3 A	45 W	Run status output (SPST relay)	C200HW-PA209R
	150 VA max.	7.0 A	1.3 A	35 W	Power supply for dual-redundant system	CS1D-PA207R

### 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

For I/O Expansion Cables visit [www.omron247.com](http://www.omron247.com).

## Up to 96 I/O Points per Unit – Input, Output or Mixed

Digital I/O units serve as the PLC's interface to achieve fast, reliable sequence control. A full range of units, from high-speed DC inputs to relay outputs, let you adapt CS1 to your needs.

CS1 units are available with various I/O densities and connection technologies. Up to 16 I/O points can be wired to units with detachable M3 screw terminals directly. High-density 32- and 64- point I/O units are equipped with standard 40-pin connectors. Prefabricated



cables and wiring terminals are available for easy interfacing to high-density I/O units.

## Ordering Information

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 pulses down to 50 µs pulse width	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

\*1 C200H I/O units can also be mounted, except on CS1D systems. Note: All Digital I/O units are designated as Basic I/O units.

### From Basic Analog I/O to Process Control

CS1 offers a wide range of analog input units fit for any application, from low-speed, multi-channel temperature measurement to high-speed, high-accuracy data acquisition. Analogue outputs can be used for accurate control or external indication.

Advanced units with built-in scaling, filtering and alarm functions reduce the need for complex PLC programming. High-accuracy process I/O units support an extensive range of sensors, for fast and accurate data acquisition. All process and temperature I/O units provide isolation between all individual channels.



### Ordering Information

Points	Type	Ranges	Resolution	Accuracy <sup>1</sup>	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				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

# CS1-Series

## Analog and Process I/O Units (continued)



Points	Type	Ranges	Resolution	Accuracy <sup>1</sup>	Conversion time	Remarks	Model		
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		
<b>Temperature Input Units</b>									
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	
<b>Isolated Control Output Units</b>									
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 readback, 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.

## Open to Any Communication, Standard or User-Defined

CS1 provides both standardized open network interfaces, and cost-efficient, high-speed proprietary network links. Datalinks between PLCs, or to higher-level information systems can be made using Serial or Ethernet links, or the easy-to-use Controller Link network.



Omron supports the two major field networks – DeviceNet and PROFIBUS-DP. For high-speed field I/O, CompoNet offers unsurpassed ease of installation and a lower material costs than other networks. Fully user-configurable

serial and CAN-based communication can be used to emulate a variety of application-specific protocols.

## Ordering Information

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