



## 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. All CPUs have one dedicated board slot with a direct CPU-bus connection, in which a serial communication board or a loop control board can be mounted. All CPU units support IEC61131-3 structured text and ladder language.

Omron's extensive function block library helps to reduce your programming effort, while you can create your own function blocks to suit your specific needs.

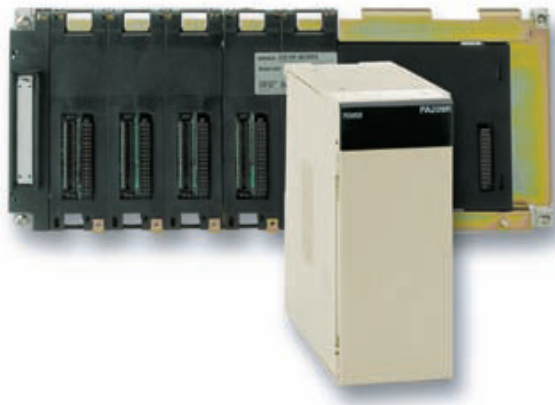


### Ordering information

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

### Accessories

Description	Remarks	Order code
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
Industrial grade CompactFlash memory card, 128 MB, for all models (not required for operation)	–	HMC-EF183
CompactFlash PC-Card adapter	–	HMC-AP001
CX-One, integrated software for programming and configuration of all Omron control system components	–	CX-ONE-AL__C-E
Connection cable, D-Sub 9-pin PC serial port to PLC peripheral port	length: 2.0 m	CS1W-CN226
Connection cable, D-Sub 9-pin PC serial port to PLC peripheral port	length: 6.0 m	CS1W-CN626
USB to serial conversion cable	–	CS1W-CIF31



## Expand with up to 7 racks

CS1 systems can operate on 24 VDC power supply, or on 100-240 VAC mains. 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.

PLC racks are available in several sizes, from 2 to 10 slots wide. Special backplanes are required for duplex systems. Depending on the CPU type, up to 7 expansions can be connected to the CPU rack, giving a total capacity of 80 I/O units. The total length of the expansion cables of one system may be up to 12 m.

## Ordering information

### Power supplies

Input range	Power consumption	Output capacity 5 VDC	Output capacity 26 VDC	Max. output power	Extra functions	Order code
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
85 to 264 VAC 50/60 Hz	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 85 to 132 VAC, 170 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
180 VA max.	9.0 A	1.3 A	45 W	–	–	
150 VA max.	7.0 A	1.3 A	35 W	Power supply for dual-redundant system	CS1D-PA207R	

### Specifications

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

Type	Remarks	Order code
I/O Expansion cable to connect CS1 CPU backplane or Expansion backplane to next Expansion backplane.	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
	10.0 m	CS1W-CN133
	12.0 m	CS1W-CN133-B2



## 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	Order code <sup>*1</sup>
16	AC or DC input	120 VAC or VDC	10 mA	–	M3	CS1W-IA111
16	AC input	240 VAC	10 mA	–	M3	CS1W-IA211
16	DC input	24 VDC	7 mA	–	M3	CS1W-ID211
16	DC input	24 VDC	7 mA	Inputs start interrupt tasks in PLC program	M3	CS1W-INT01
16	DC input	24 VDC	7 mA	Latches pulses down to 50 µs pulse width	M3	CS1W-IDP01
32	DC input	24 VDC	6 mA	–	1×40 pt Fujitsu	CS1W-ID231
64	DC input	24 VDC	6 mA	–	2×40 pt Fujitsu	CS1W-ID261
96	DC input	24 VDC	5 mA	–	2×56 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	–	1×40 pt Fujitsu	CS1W-OD231
32	DC output (source)	24 VDC	0.5 A	With short-circuit protection, alarm	1×40 pt Fujitsu	CS1W-OD232
64	DC output (sink)	12 to 24 VDC	0.3 A	–	2×40 pt Fujitsu	CS1W-OD261
64	DC output (source)	24 VDC	0.3 A	With short-circuit protection, alarm	2×40 pt Fujitsu	CS1W-OD262
96	DC output (sink)	12 to 24 VDC	0.1 A	–	2×56 pt Fujitsu	CS1W-OD291
96	DC output (source)	24 VDC	0.1 A	–	2×56 pt Fujitsu	CS1W-OD292
32+32	DC output (sink)	12 to 24 VDC	0.3 A	–	2×40 pt Fujitsu	CS1W-MD261
32+32	DC in+out (source)	24 VDC	0.3 A	With short-circuit protection, alarm	2×40 pt Fujitsu	CS1W-MD262
48+48	DC output (sink)	12 to 24 VDC	0.1 A	–	2×56 pt Fujitsu	CS1W-MD291
48+48	DC in+out (source)	12 to 24 VDC	0.1 A	–	2×56 pt Fujitsu	CS1W-MD292

<sup>\*1</sup> 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 choice of analog input units, fit for any application, from low-speed, multi-channel temperature measurement to high-speed, high-accuracy data acquisition. Analog 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	Connection type	Order code	
4	Analog input	0 to 5 V, 0 to 10 V,	1/8,000	V: 0.2% of PV I: 0.4% of PV	250 µs/point	Offset/gain adjustment, peak hold, moving average, alarms	M3	CS1W-AD041-V1	
8	Analog input	-10 to 10 V, 1 to 5 V, 4 to 20 mA		0.2% of PV			M3	CS1W-AD081-V1	
18	Analog input						2 x MIL (34p.)	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% of PV I: 0.5% of PV	1 ms/point	Offset/gain adjustment	M3	CS1W-DA041	
8	Voltage output	0 to 5 V, 0 to 10 V, -10 to 10 V, 1 to 5 V		0.3% of PV			Offset/gain adjustment, output hold	M3	CS1W-DA08V
8	Current output	4 to 20 mA		0.5% of PV				M3	CS1W-DA08C
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% of PV I in: 0.4% of PV out: 0.3% of PV	1 ms/point	Offset/gain adjustment, scaling, peak hold, moving average, alarms, output hold	M3	CS1W-MAD44	
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% of PV	5 ms/point	Configurable alarms, maintenance functions, user-defined scaling, zero/span adjustment, square root, totaliser.	M3	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	M3	CS1W-PDC55	
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% of PV	5 ms/point	Configurable alarms (absolute + rate-of-change), peak hold, maintenance functions	M3	CS1W-PTS11	
4	Resistance thermometer input	Pt50, Pt100 JPt100, Ni508.4	1/64,000	0.05% of PV	5 ms/point	Configurable alarms (absolute + rate-of-change), peak hold, maintenance functions	M3	CS1W-PTS12	
4	Thermocouple input	B, J, K, L, R, S, T	0.1°C	0.3% of PV	62.5 ms/point	4 configurable alarm outputs	M3	CS1W-PTS51	
4	Resistance thermometer input	Pt100, JPt100	0.1°C	0.3% of PV	62.5 ms/point	4 configurable alarm outputs	M3	CS1W-PTS52	
8	Thermocouple input	B, J, K, L, R, S, T	0.1°C	0.3% of PV	31.2 ms/point	Configurable alarms per channel	M3	CS1W-PTS55	
8	Resistance thermometer input	Pt100, JPt100	0.1°C	0.3% of PV	31.2 ms/point	Configurable alarms per channel	M3	CS1W-PTS56	
4	2-Wire transmitter input	1 to 5 V, 4 to 20 mA	1/4,096	0.2% of FS	25 ms/point	Built-in power supply for transmitter, configurable alarms, square root, rate-of-change, etc.	M3	CS1W-PTW01	
8	Power transducer input	-1 to 1 mA, 0 to 1 mA	1/4,096	0.2% of FS	25 ms/point	Inrush current limiter, configurable alarms, averaging, etc.	M3	CS1W-PTR01	
8	Power transducer input	-100 to 100 mV, 0 to 100 mV	1/4,096	0.2% of FS	25 ms/point	Inrush current limiter, configurable alarms, averaging, etc.	M3	CS1W-PTR02	
4	Pulse rate input	20000 pps, voltage, open collector, contact	up to 1/32,000	—	25 ms/point	Averaging, totaliser	M3	CS1W-PPS01	

Points	Type	Ranges	Resolution	Accuracy <sup>*1</sup>	Conversion time	Remarks	Connection type	Order code
4	Isolated control output	1 to 5 V, 4 to 20 mA	1/4,000	I: 0.1% of FS V: 0.2% of FS	25 ms/point	Output readback, high/low/rate limiting, disconnection alarm, zero/span adjustment	M3	CS1W-PMV01
4	Isolated control output	-10 to 10 V, 0 to 10 V, -5 to 5 V, 0 to 5 V, -1 to 1 V, 0 to 1 V	1/4,000	0.1% of FS	10 ms/point	High/low/rate limiting, output hold, zero/span adjustment	M3	CS1W-PMV02

<sup>\*1</sup> Accuracy for Voltage and Current Inputs/Outputs as percentage of full scale and typical value at 25°C ambient temperature (Consult the operation manual for details)  
Accuracy for Temperature Inputs/Outputs as percentage of process value and typical value at 25°C ambient temperature (Consult the operation manual for details)

Note: All analog I/O units are designated as special I/O units

## Add motion control to any CS1 PLC

From simple position measurement to multi-axis synchronised motion control, CS1 offers a full range of units:

- Counter units gather position information from SSI- or incremental encoders. Actual positions are compared with internally stored target values.
- Position control units are used for point-to-point positioning with servo drives or stepper motors. Target data and acceleration/deceleration curves can be adjusted on-the-fly.
- Position- and motion control units equipped with MECHATROLINK-II interface can control multiple drives through a single high-speed link. Message routing through multiple communication layers allows the attached drives to be configured from any point in the control network.



### Ordering information

Channels/Axes	Type	Signal type	Unit class	Remarks	Connection type	Order code
2	SSI inputs (absolute position data)	Synchronous serial protocol	Special I/O unit	Baud rate, encoding type, data length, etc. can be set per channel 2 digital outputs, NPN/PNP selectable.	M3 screw	CS1W-CTS21
2	500 kHz Counter	24 V, 12V, line driver	Special I/O unit	4 configurable digital inputs + 4 configurable digital outputs Target values trigger interrupt to CPU	1 x Fujitsu (40 pt)	CS1W-CT021
4					2 x Fujitsu (40 pt)	CS1W-CT041
1	Position control unit	24V open collector	Special I/O unit	500 kpps pulse outputs, inputs for origin, limit switches, stop, interrupt	1 x Fujitsu (40 pt)	CS1W-NC113
2	Position control unit	24V open collector	Special I/O unit	500 kpps pulse outputs, inputs for origin, limit switches, stop, interrupt	1 x Fujitsu (40 pt)	CS1W-NC213
4	Position control unit	24V open collector	Special I/O unit	500 kpps pulse outputs, inputs for origin, limit switches, stop, interrupt	2 x Fujitsu (40 pt)	CS1W-NC413
1	Position control unit	Line driver	Special I/O unit	500 kpps pulse outputs, inputs for origin, limit switches, stop, interrupt	1 x Fujitsu (40 pt)	CS1W-NC133
2	Position control unit	Line driver	Special I/O unit	500 kpps pulse outputs, inputs for origin, limit switches, stop, interrupt	1 x Fujitsu (40 pt)	CS1W-NC233
4	Position control unit	Line driver	Special I/O unit	500 kpps pulse outputs, inputs for origin, limit switches, stop, interrupt	2 x Fujitsu (40 pt)	CS1W-NC433
2	Motion control unit	Analog	Special I/O unit	Closed loop with automatic trapezoid or S-curve acceleration/deceleration	Snap-on connectors (3M)	CS1W-MC221-V1
4	Motion control unit	Analog	Special I/O unit	Closed loop with automatic trapezoid or S-curve acceleration/deceleration	Snap-on connectors (3M)	CS1W-MC421-V1
32	Motion control unit	MECHATROLINK-II	CPU bus unit	Electronic cam profiles and axis synchronisation. Registration inputs. Access to all drive parameters.	ML-II	CS1W-MCH71

### Accessories

Description	Connection type	Order code
General purpose I/O terminal block (40×M3 screw)	MIL (40 pt)	XW2D-40G6
General purpose I/O connection cable for I/O units with 40-pt. Fujitsu connector (___ = length in cm)	Fujitsu (40 pt.) to MIL (40 pt.)	XW2Z-___B
Servo interface block for 2- or 4-Axis position control unit (without communications support)	–	XW2B-40J6-2B
Servo interface block for 2- or 4-Axis position control unit (with communications support)	–	XW2B-40J6-4A
Cable connecting CS1W-NC113 to W Series, cable length: 1.0 m	–	XW2Z-100J-A14
Cable connecting CS1W-NC213/413 to W Series, cable length: 1.0 m	–	XW2Z-100J-A15
Cable connecting CS1W-NC113 to SmartStep, cable length: 1.0 m	–	XW2Z-100J-A16
Cable connecting CS1W-NC213/413 to SmartStep, cable length: 1.0 m	–	XW2Z-100J-A17
Cable connecting CS1W-NC133 to W Series, cable length: 1.0 m	–	XW2Z-100J-A18
Cable connecting CS1W-NC233/433 to W series, cable length: 1.0 m	–	XW2Z-100J-A19
Cable connecting CS1W-NC133 to SmartStep, cable length: 1.0 m	–	XW2Z-100J-A20
Cable connecting CS1W-NC233/433 to SmartStep, cable length: 1.0 m	–	XW2Z-100J-A21



## Open to any communication, standard or user-defined

CS1 provides both standardised open networks 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 2 major field networks, DeviceNet and PROFIBUS-DP. For high-speed field I/O, Omron's own CompoBus/S offers an unsurpassed ease of installation. 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	Remarks	Connection type	Order code
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), SNMP (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, SNMP, SNMP	CPU Bus unit	31 mm	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	C200H units cannot be used on CS1D systems	9-pin D-Sub	C200HW-PRT21
CompoBus/S	2-wire (Master)	Omron proprietary	C200H special I/O unit		2-wire screw + 2-wire power	C200HW-SRM21-V1

### Accessories

Description	Connection type	Order code
RS-232C to RS-422/RS-485 signal converter. Mounts directly on serial port.	9-pin D-sub to screw clamp terminals	CJ1W-CIF11
Controller link PCI board with support software	PCI, wired CLK	3G8F7-CLK21-EV1
Controller link PCI board with support software	PCI, HPCF connectors	3G8F7-CLK12-EV1
Controller link PCI board with support software	PCI, ST connectors	3G8F7-CLK52-EV1
Controller link repeater unit (wire to wire)	Screw - Screw	CS1W-RPT01
Controller link repeater unit (wire to HPCF fiber)	Screw - HPCF connector	CS1W-RPT02
Controller link repeater unit (wire to graded-index glass fiber)	Screw - ST connector	CS1W-RPT03