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CPM2C-S1□0C

CPM2C-S1□0C offers high-speed local control, remote expandability in a very compact package.

This new member of Omron's CPM2C programmable controller family combines high-speed control functions with distribution of up to 256 I/O over Omron's high-speed "flexible back-plane" bus, CompoBus/S. The result is an ultra compact (shirt-pocket-size), high-performance device that can control up to 362 I/O points, and support local operator interface devices. Local expansion options include digital, analog and temperature as well as a 20 kHz pulse input capability. The built-in remote I/O capability supports a total of 32 I/O modules that can be positioned anywhere within 500 meters of the controller.

Simple expansion capabilities using built-in CompoBus/S master

Machinery frequently requires the addition of I/O after it has been built and wired. The CPM2C-S1□0C allows up to 256 additional I/O points (in addition to the 106 local I/O) for later expansion or remote I/O use. These additional I/O can be located anywhere the customer needs them, within 500 meters of the CPM2C CPU location, using simple twisted pair cable. This unique solution simplifies adding I/O to any machine.



CPM2C Programmable Controller Functions:

- High-speed counters and interrupt outputs
- Position control for simple 2-axis applications
- Synchronized pulse outputs
- 10 I/O included with CPU
- Up to 106 local I/O
- Up to 362 total I/O points
- Local HMI support
- Serial inputs
- 3 local expansion I/O modules

Remote I/O Functions:

- 32 remote slaves
- 500 meters total distance possible
- 256 I/O total expansion
- 0.8 ms update time for 256 I/O points

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Ordering Information

For a complete system see System Configuration on last page.

■ CPU Units

Unit	Inputs	Outputs	Clock	Part Number
10-point input type 6 inputs 4 outputs	Connector type 24 VDC 6 points	Transistor (sinking) 4 points	○	CPM2C-S100C
10-point input type 6 inputs 4 outputs	Connector type 24 VDC 6 points	Transistor (sourcing) 4 points	○	CPM2C-S110C

Specifications

■ General and Performance Specifications

Item	Specifications				
Control method	Stored program control				
I/O control method	Cyclic scan with direct output – Immediate refreshing can be performed with IORF (97)				
Programming language	Ladder diagram				
Instruction length	1 step per instruction, 1 to 5 words per instruction				
Instructions	<table border="1"> <tr> <td>Basic instructions</td> <td>14</td> </tr> <tr> <td>Special instructions</td> <td>105 instructions, 185 variations</td> </tr> </table>	Basic instructions	14	Special instructions	105 instructions, 185 variations
Basic instructions	14				
Special instructions	105 instructions, 185 variations				
Execution time	<table border="1"> <tr> <td>Basic instructions</td> <td>0.64 µs (LD instruction)</td> </tr> <tr> <td>Special instructions</td> <td>7.8 µs (MOV instruction)</td> </tr> </table>	Basic instructions	0.64 µs (LD instruction)	Special instructions	7.8 µs (MOV instruction)
Basic instructions	0.64 µs (LD instruction)				
Special instructions	7.8 µs (MOV instruction)				
Program capacity	4,096 words				
Maximum I/O capacity	CPU Unit only: 10 points Expanded system: 72 points (24-point Unit X 3) (Up to 3 Expansion I/O Units can be connected) CompoBus/S: 256 points (total 338)				
Input bits	IR 00000 to 00915 (Bits not used for input bits can be used for work bits)				
Output bits	IR 01000 to IR 01915 (Bits not used for output bits can be used for work bits)				
CompoBus/S input bits	128 bits: IR 02000 to IR 02715 (words IR 020 to IR 027)				
CompoBus/S output bits	128 bits: IR 03000 to IR 03715 (words IR 030 to IR 037)				
Work bits	672 bits: IR 02800 to IR 02915 (words IR 028 to IR 029) IR 03800 to IR 03915 (words IR 038 to IR 039) IR 04000 to IR 04915 (words IR 040 to IR 049) IR 20000 to IR 22715 (words IR 200 to IR 227)				
Dedicated bits (SR area)	440 bits: SR 22800 to SR 25507 (words SR 228 to SR 255)				
Temporary bits (TR area)	8 bits (TR0 to TR7)				
Holding bits (HR area)	320 bits: HR 0000 to HR 1915 (words HR 00 to HR 19)				
Auxiliary bits (AR area)	384 bits: AR 0000 to AR 2315 (words AR 00 to AR 23) Including CompoBus/S Slave Status Area (AR 04 to AR 07)				
Link bits (LR area)	256 bits: LR 0000 to LR 1515 (words LR 00 to LR 15)				
Timers/Counters	256 timers/counters (TIM/CNT 000 to TIM/CNT 255) 1-ms timer: TMHH(--) 10-ms timer: TIMH(15) 100-ms timer: TIM 1-s/10-s timer: TIM(--) Decrementing counter: CNT Reversible counter: CNTR(12)				

■ General and Performance Specifications (continued)

Item		Specifications
Data Memory	Read/Write	2,048 words (DM 0000 to DM 2047) The Error Log is contained in DM 2000 to DM 2021
	Read-only	456 words (DM 6144 to DM 6599)
	PC Setup	56 words (DM 6600 to DM 6655)
Basic interrupt functions	Input interrupts	2 interrupts (shared by input interrupt counter mode and the quick-response inputs)
	Scheduled interrupts	1 interrupt
High-speed counter functions	High-speed counter	1 counter (20 kHz single-phase or 5 kHz two-phase)
	Counter interrupt	1 interrupt
	Input interrupts (counter mode)	2 interrupts (shared by input interrupt counter mode and the quick-response inputs)
	Count-up interrupt	2 interrupts (shared by input interrupt counter mode and the quick-response inputs)
Quick-response inputs		2 inputs Minimum pulse input: 50 µs Shared by input interrupts and input interrupt counter mode
Pulse outputs		Either 2 points with no acceleration/deceleration, 10 Hz to 10 kHz each, and no direction control, 1 point with trapezoid acceleration/deceleration, 10 Hz to 10 kHz, and direction control, or 2 points with variable duty-ratio outputs
Synchronized pulse control		1 point
Input time constant (ON response time = OFF response time)		Can be set for CPU Unit inputs and Expansion Unit input points (1, 2, 3, 5, 10, 20, 40, or 80 ms)
Clock function		Built-in RTC
Communications functions	Peripheral port:	Supports Host Link, peripheral bus, no protocol, or Programming Console connections
	RS-232C port:	Supports Host Link, no protocol, 1:1 Slave Unit Link, 1:1 Master Unit Link, or 1:1 NT Link connections
Memory protection		HR area, AR area, counter values, read/write DM area contents, and counter values maintained during power interruptions
Memory backup		Non-volatile memory, user programs, read-only DM area and PC setup are backed up
		Lithium battery (2-year) DM area, HR area, AR area and counter values are backed up
Self-diagnostic functions		CPU Unit failure (watchdog timer), memory failure, communications error, setting error, battery error, and I/O bus error
Program checks		No END instruction, programming errors (checked when operation is started)
Connection tools	Programming console	C200H-PRO27, CQM1-PRO01, CQM1H-PRO01
	SSS	IBM PC/AT or compatible (SYSMAC Support Software V1.1)
	CPT	Windows
	CX-P	Windows

■ Communication Specifications

Item		Specifications
Communications method		CompoBus/S protocol
Coding method		Manchester coding method
Connection method		Multi-drop method and T-branch method (See note 1)
Communications baud rate		High-speed communications mode: 750 kbps Long-distance communications mode: 93.75 kbps (See note 2)
Communications cycle time	High-speed communications mode	0.5 ms. (No. of connected Slaves: 8 input, 8 output) 0.8 ms. (No. of connected Slaves: 16 input, 16 output)
	Long-distance communications mode	4.0 ms. (No. of connected Slaves: 8 input, 8 output) 6.0 ms. (No. of connected Slaves: 16 input, 16 output)
Communications cable		2-conductor VCTF cable (0.75 x 2) 4-conductor VCTF cable (0.75 x 4) Special flat cable
Communications distance	2-conductor VCTF cable	High-speed communications mode Main line length: 100 m max. Branch line length: 3 m max. Total branch line length: 50 m max. Long-distance communications mode Main line length: 500 m max. Branch line length: 6 m max. Total branch line length: 120 m max.
	Flat cable or 4-conductor VCTF cable	High-speed communications mode (see note 3) Main line length: 30 m max. Branch line length: 3 m max. Total branch line length: 30 m max. Long-distance communications mode (see note 4) Variable branch wiring (total cable length 200 m max.)
Maximum number of connecting nodes		32
Error control checks		Manchester code check, frame length check, and parity check

Note: 1. An external terminator must be connected.

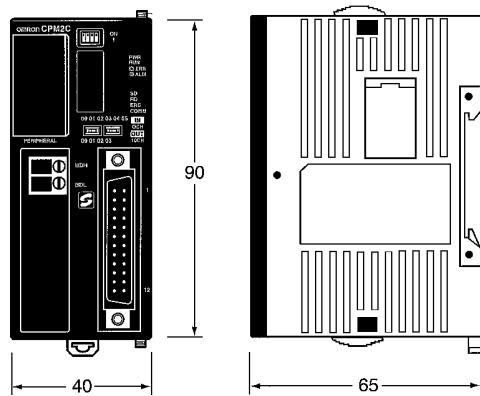
Note: 2. Controlled by DM area setting (default setting: 750 kbps).

Note: 3. When flat cable is used to connect fewer than 16 slaves, the main line can be up to 100 m long and the total branch line length can be up to 50 m.

Note: 4. There are no limits on the branching format or main, branch, or total line lengths. The terminator must be connected to the point in the system farthest from the master.

Dimensions

CPM2C-S1□C

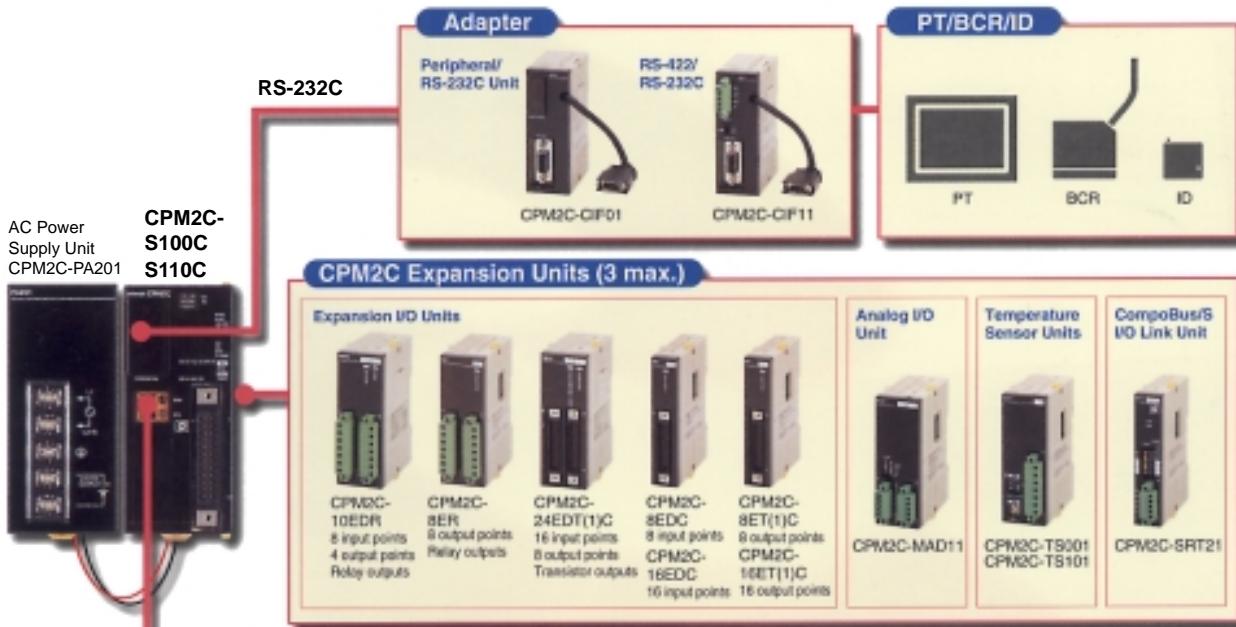


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■ System Configuration



CompoBus/S



NOTE: DIMENSIONS ARE SHOWN IN MILLIMETERS. To convert millimeters to inches divide by 25.4.

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