Line-Up SYSMAC CPM2A

Expansion I/O Units

■ **CPM1A-8ED**
8 input points
DC inputs

■ **CPM1A-8ET**
8 input points
Transistor outputs (sinking)

■ **CPM1A-8ER**
8 output points
Relay outputs

■ **CPM1A-8ET1**
8 output points
Transistor outputs (sourcing)

■ **CPM1A-20EDR1**
12 DC inputs
8 relay outputs

■ **CPM1A-20EDT**
12 DC inputs
8 transistor outputs (sinking)

■ **CPM1A-20EDT1**
12 DC inputs
8 transistor outputs (sourcing)

NEW

■ **CPM1A-40EDR**
24 DC inputs
16 relay outputs

■ **CPM1A-40EDT**
24 DC inputs
16 transistor outputs (sinking)

■ **CPM1A-40EDT1**
24 DC inputs
16 transistor outputs (sourcing)

DeviceNet I/O Link Unit

■ **DeviceNet I/O Link Unit**
CPM1A-DRT21
32 input points
32 output points

CompoBus/S I/O Link Unit

■ **CompoBus/S I/O Link Unit**
CPM1A-SRT21
8 input points
8 output points

Analog I/O Unit

■ **Analog I/O Unit**
CPM1A-MAD11
2 analog inputs (resolution: 6,000)
1 analog output (resolution: 6,000)

■ **Analog I/O Unit**
CPM1A-MAD01
2 analog inputs (resolution: 256)
1 analog output (resolution: 256)

NEW

■ **Analog I/O Unit**
CPM1A-AD041
4 analog inputs
(resolution: 6,000)

NEW

■ **Analog I/O Unit**
CPM1A-DA041
4 analog outputs
(resolution: 6,000)

Model Numbers

Name	Model number	Specifications
Expansion I/O Units	**CPM1A-8ED**	8 DC inputs
	CPM1A-8ER	8 relay outputs
	CPM1A-8ET	8 transistor outputs (sinking)
	CPM1A-8ET1	8 transistor outputs (sourcing)
	CPM1A-20EDR1	12 DC inputs, 8 relay outputs
	CPM1A-20EDT	12 DC inputs 8 transistor outputs (sinking)
	CPM1A-20EDT1	12 DC inputs 8 transistor outputs (sourcing)
	CPM1A-40EDR	24 DC inputs, 16 relay outputs
	CPM1A-40EDT	24 DC inputs 16 transistor outputs (sinking)
	CPM1A-40EDT1	24 DC inputs 16 transistor outputs (sourcing)
DeviceNet I/O Link Unit	**CPM1A-DRT21**	32 inputs, 32 outputs
CompoBus/S I/O Link Unit	**CPM1A-SRT21**	8 inputs, 8 output
Analog I/O Units	**CPM1A-MAD11**	2 analog inputs (resolution: 6,000) 1 analog output (resolution: 6,000)
	CPM1A-MAD01	2 analog inputs (resolution: 256) 1 analog output (resolution: 256)
	CPM1A-AD041	4 analog inputs (resolution: 6,000)
	CPM1A-DA041	4 analog outputs (resolution: 6,000)
Temperature Sensor Units	**CPM1A-TS001**	2 thermocouple inputs
	CPM1A-TS002	4 thermocouple inputs
	CPM1A-TS101	2 platinum resistance thermometer inputs
	CPM1A-TS102	4 platinum resistance thermometer inputs

Temperature Sensor Units

■ **Temperature Sensor Units**
CPM1A-TS001
2 thermocouple inputs

CPM1A-TS002
4 thermocouple inputs

■ **Temperature Sensor Units**
CPM1A-TS101
2 platinum resistance thermometer inputs

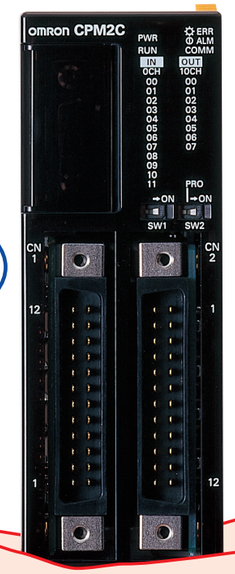
CPM1A-TS102
4 platinum resistance thermometer inputs

CPM2C

SYSMAC

Despite its ultra-slim design, a CPM2C system can provide up to 192 I/O points!

Actual Size

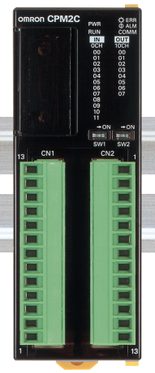


A wide variety of models are available to provide very effective machine control in a surprisingly compact PLC.
CPU Units feature DC power supply and a wide range of model variations: Relay/transistor outputs, terminal blocks/connectors, clock functions, etc. I/O capacity can be selected according to the need of the application.
And select from Expansion I/O Units with 8, 10, 16, 20, 24, or 32 I/O points to build a PLC with an I/O capacity of up to 192 points.

10 I/O Points
CPM2C-10CDR-D
CPU Unit
(I/O terminal block)

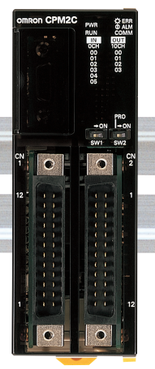
33 mm

20 I/O Points
CPM2C-20CDR-D
CPU Unit
(I/O terminal block)



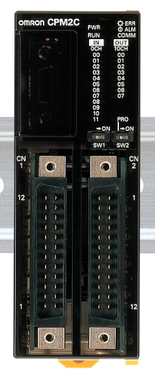
33 mm

10 I/O Points
CPM2C-10CDTC-D
CPU Unit
(I/O connector)



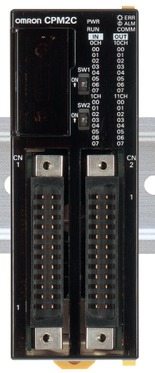
33 mm

20 I/O Points
CPM2C-20CDTC-D
CPU Unit
(I/O connector)



33 mm

32 I/O Points
CPM2C-32CDTC-D
CPU Unit
(I/O connector)



33 mm

CPM2C Specifications

■ CPM2C General Specifications

Item	CPU Unit Specification					
	CPU Units with 10 I/O points (relay outputs)	CPU Units with 10 I/O points (transistor outputs)	CPU Units with 20 I/O points (relay outputs)	CPU Units with 20 I/O points (transistor outputs)	CPU Units with 32 I/O points (transistor outputs)	CPM2C-S CPU Unit with 10 I/O points (transistor outputs)
Supply voltage	24 VDC					
Operating voltage range	20.4 to 26.4 VDC					
Power consumption (Add Expansion Unit consumption from following tables.)	4 W	3 W	4 W	3 W	3 W	3 W
Inrush current	25 A max.					
Insulation resistance	20 MΩ min. (at 500 VDC) between isolated circuits					
Dielectric strength	2,300 VAC for 1 min (between isolated circuits)					
Noise immunity	Conforms to IEC61000-4-4, 2 kV (power lines)					
Vibration resistance	Conforming to JIS C0040: 10 to 57 Hz, 0.075-mm amplitude, 57 to 150 Hz, acceleration: 9.8 m/s^2 in X, Y, and Z directions for 80 minutes each (Time coefficient; 8 minutes × coefficient factor 10 = total time 80 minutes)					
Shock resistance	Conforming to JIS C0041: 147 m/s^2 three times each in X, Y, and Z directions					
Ambient temperature	Operating: 0° to 55°C Storage: –20° to 75°C (except for the battery)					
Humidity	10% to 90% (with no condensation)					
Atmosphere	Must be free from corrosive gas					
I/O interface	Terminal block	Connector	Terminal block	Connector		
Power interrupt time	2 ms min.					
Weight	200 g max.	200 g max.	250 g max.	200 g max.	200 g max.	160 g max.
	Expansion I/O Unit with 10 I/O points (relay outputs)			200 g max.		
	Expansion I/O Unit with 20 I/O points (relay outputs)			200 g max.		
	Expansion I/O Units with 24 I/O points (transistor outputs)			200 g max.		
	Expansion I/O Unit with 32 I/O points (transistor outputs)			200 g max.		
	Expansion I/O Unit with 8 input points			150 g max.		
	Expansion I/O Unit with 16 input points			150 g max.		
	Expansion I/O Units with 8 output points (transistor outputs)			150 g max.		
	Expansion I/O Units with 16 output points (transistor outputs)			150 g max.		
	Expansion I/O Unit with 8 output points (relay outputs)			200 g max.		
	Simple Communications Unit			150 g max.		
	Peripheral/RS232C Adapter Unit			150 g max.		
	RS422/RS232C Adapter Unit			150 g max.		
	AC Power Supply Unit			250 g max.		
	Analog I/O Unit			200 g max.		
	Temperature Sensor Unit			200 g max.		
	CompoBus/S I/O Link Unit			150 g max.		

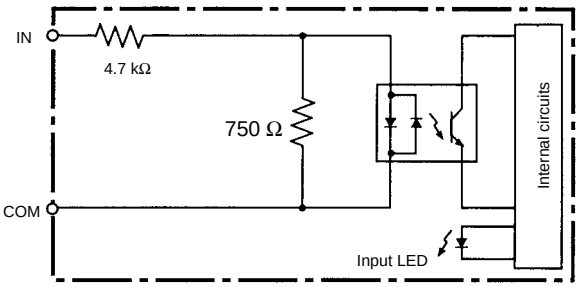
CPM2C Specifications

■ CPM2C Characteristics

Item		CPU Unit Specification					
		CPU Units with 10 I/O points (relay outputs)	CPU Units with 10 I/O points (transistor outputs)	CPU Units with 20 I/O points (relay outputs)	CPU Units with 20 I/O points (transistor outputs)	CPU Units with 32 I/O points (transistor outputs)	CPM2C-S CPU Unit with 10 I/O points (transistor outputs)
Control method		Stored program method					
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		Basic instructions: 14 Special instructions: 105 instructions, 185 variations					
Execution time		Basic instructions: 0.64 μs (LD instruction) Special instructions: 7.8 μs (MOV instruction)					
Program capacity		4,096 words					
I/O capacity	CPU Unit only	10 points		20 points		32 points	10 points
	With Expansion I/O Units	170 points max.		180 points max.		192 points max.	362 points max.
Input bits		IR 00000 to IR 00915 (Words not used for input bits can be used for work bits.)					
Output bits		IR 01000 to IR 01915 (Words not used for output bits can be used for work bits.)					
CompoBus/S input bits		---				128 inputs: IR 02000 to IR 02715	I/O bits not used for I/O be used for work bits.
CompoBus/S output bits		---				128 outputs: IR 03000 to IR 03715	
Work bits		928 bits: IR 02000 to IR 04915 (Words IR 020 to IR 049) and IR 20000 to IR 22715 (Words IR 200 to IR 227)					672 bits: IR 02800 to IR 02915 (Words IR 028 to IR 029), IR 03800 to IR 04915 (Words IR 038 to IR 049)and IR 20000 to IR 22715 (Words IR 200 to IR 227
Special bits (SR area)		448 bits: SR 22800 to SR 25515 (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)					
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 timers: TMHH(—) 10-ms timers: TIMH(15) 100-ms timers: TIM 1-s/10-s timers: TIML(—) Decrementing counters: CNT Reversible counters: CNTR(12)					
Data memory		Read/Write: 2,048 words (DM 0000 to DM 2047)* Read-only: 456 words (DM 6144 to DM 6599) PC Setup: 56 words (DM 6600 to DM 6655) *The Error Log is contained in DM 2000 to DM 2021.					

CPM2C Specifications

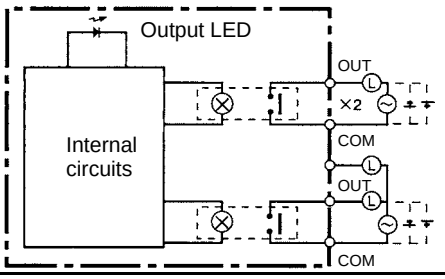
2. Expansion I/O Unit Input Specifications

Item	Specification
Input voltage	24 VDC $^{+10\%}/_{-15\%}$
Input impedance	4.7 kΩ
Input current	5 mA typical
ON voltage/current	14.4 VDC min., 3.5 mA
OFF voltage/current	5.0 VDC max., 1.1 mA
ON delay	1 to 80 ms max. Default: 10 ms (See note.)
OFF delay	1 to 80 ms max. Default: 10 ms (See note.)
Circuit configuration	

Note: The input time constant can be set to 1, 2, 3, 5, 10, 20, 40, or 80 ms in the PC Setup.

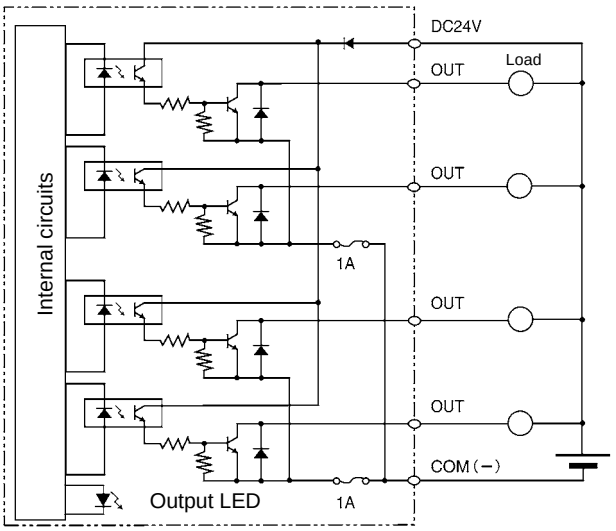
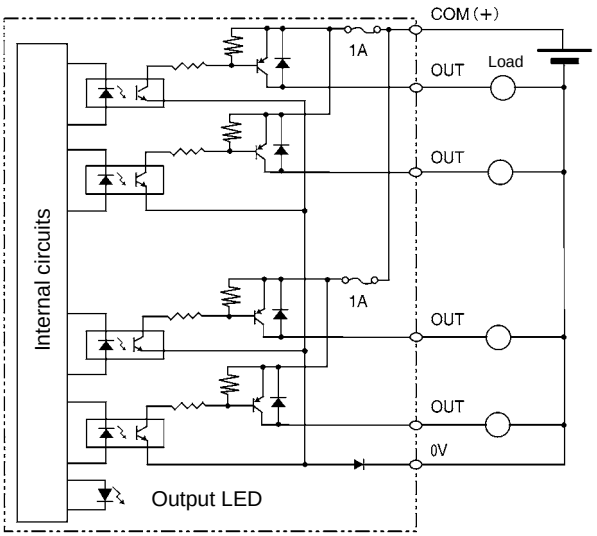
■ CPM2C Output Specifications (CPU Units and Expansion I/O Units)

1. Relay Output

Item	Specification
Max. switching capacity	2 A, 250 VAC (cosϕ = 1) 2 A, 24 VDC (4 A/common)
Min. switching capacity	10 mA, 5 VDC
Service life of relay	Electrical: 150,000 operations (24-VDC resistive load) 100,000 operations (240-VAC inductive load, cosϕ = 0.4) Mechanical: 20,000,000 operations
ON delay	15 ms max.
OFF delay	15 ms max.
Circuit configuration	

2. Transistor Outputs (Sinking or Sourcing) for CPU Units and Expansion I/O Units

Item	Specification
Max. switching capacity	CPU Units with 10 or 20 I/O Points 01000 to 01007: 40 mA at 4.5 VDC to 300 mA at 20.4 VDC, 300 mA (20.4 to 26.4 V) CPU Units with 32 I/O Points 01000 to 01007: 40 mA at 4.5 VDC to 300 mA at 20.4 VDC, 300 mA (20.4 to 26.4 V) 01100 to 01107: 40 mA at 4.5 VDC to 100 mA at 20.4 VDC, 100 mA (20.4 to 26.4 V) (See note.) Expansion I/O Units 01□00 to 01□07: 40 mA at 4.5 VDC to 300 mA at 20.4 VDC, 300 mA (20.4 to 26.4 V) 01□08 to 01□15: 40 mA at 4.5 VDC to 100 mA at 20.4 VDC, 100 mA (20.4 to 26.4 V) (See note.)

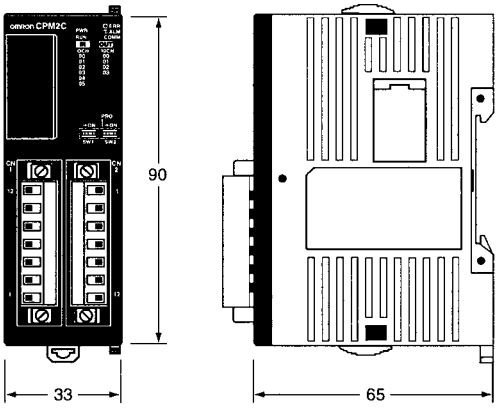
Item	Specification
Min. switching capacity	0.5 mA
Max. inrush current	0.9 A for 10 ms (charging and discharging waveform)
Leakage current	0.1 mA max.
Residual voltage	0.8 V max.
ON delay	OUT01000 and OUT01001: 20 μs max. OUT01002 and up: 0.1 ms max.
OFF delay	OUT01000 and OUT01001: 40 μs max. for 4.5 to 26.5 V, 10 to 300 mA 0.1 ms max. for 4.5 to 30 V, 0.5 to 10 mA OUT01002 and up: 1 ms max.
Fuse	1 fuse for each 2 outputs (The fuse cannot be replaced by the user.)
Circuit configuration	**Sinking Outputs**  **Sourcing Outputs** 

Note: Connect dummy resistance as required and maintain the load current between 10 and 150 mA when using 01000 and 01001 for pulse outputs. The ON/OFF response time will increase if the load current is below 10 mA, preventing outputting high-speed pulses. The transistors will heat if the output current is greater than 150 mA, possibly destroying the elements.

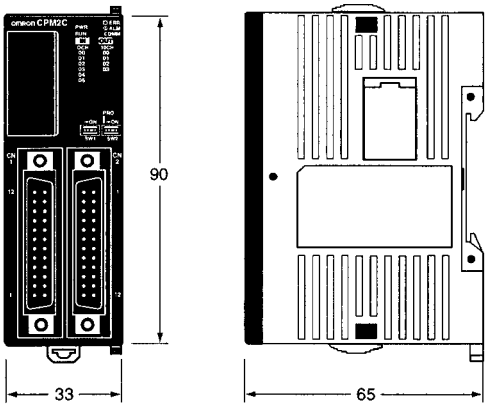
CPM2C Dimensions

CPU Units

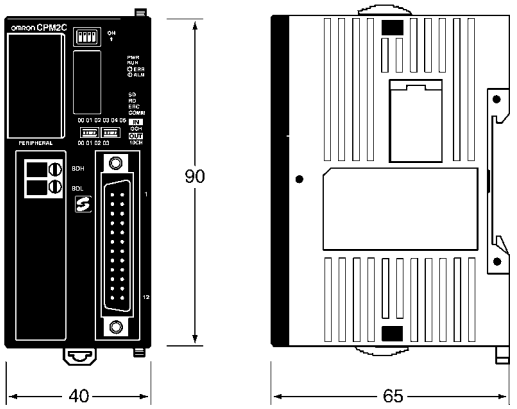
CPU Units with Relay Outputs (CPM2C-10C(1) DR-D, CPM2C-20C(1)DR-D)



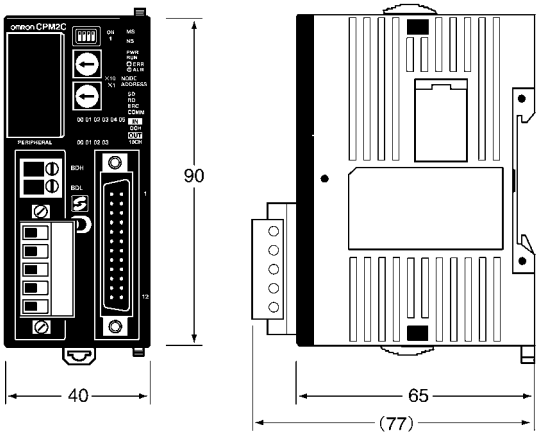
CPU Units with Transistor Outputs (CPM2C-10C(1)DT(1)C-D, CPM2C-10C(1)DT(1)M-D, CPM2C-20C(1)DT(1)C-D, CPM2C-20C(1)DT(1)M-D, CPM2C-32CDT(1)C-D, CPM2C-32CDT(1)M-D)



CPU Units with Relay Outputs (CPM2C-S1□0C)



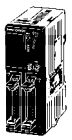
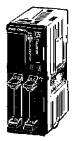
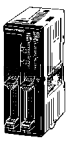
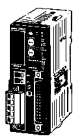
CPU Units with Transistor Outputs (CPM2C-S1□0C-DRT)



Note: All dimensions are in mm.

CPM2C Ordering Guide

■ CPM2C CPU Units

CPU Unit		Inputs	Outputs	Internal clock	Model	Standards
Units with 10 I/O points Inputs: 6 Outputs: 4 	I/O terminal block	6 inputs (24 VDC)	4 relay outputs	---	CPM2C-10CDR-D	U, C, CE
				Yes	CPM2C-10C1DR-D	U, C, CE
Units with 10 I/O points Inputs: 6 Outputs: 4 	2 Fujitsu connectors	6 inputs (24 VDC)	4 sinking transistor outputs	---	CPM2C-10CDTC-D	U, C, CE
				Yes	CPM2C-10C1DTC-D	U, C, CE
			4 sourcing transistor outputs	---	CPM2C-10CDT1C-D	U, C, CE
				Yes	CPM2C-10C1DT1C-D	U, C, CE
	2 MIL connectors	6 inputs (24 VDC)	4 sinking transistor outputs	---	CPM2C-10CDTM-D	U, C, CE
			4 sinking transistor outputs	Yes	CPM2C-10C1DTM-D	
			4 sourcing transistor outputs	---	CPM2C-10CDT1M-D	
			4 sourcing transistor outputs	Yes	CPM2C-10C1DT1M-D	
Units with 20 I/O points Inputs: 12 Outputs: 8 	2 terminal blocks	12 inputs (24 VDC)	8 relays	---	CPM2C-20CDR-D	U, C, CE
				Yes	CPM2C-20C1DR-D	
	2 I/O connector		8 sinking transistor outputs	---	CPM2C-20CDTC-D	U, C, CE
				Yes	CPM2C-20C1DTC-D	U, C, CE
			8 sourcing transistor outputs	---	CPM2C-20CDT1C-D	U, C, CE
				Yes	CPM2C-20C1DT1C-D	U, C, CE
	2 MIL connectors	12 inputs (24 VDC)	8 sinking transistor outputs	---	CPM2C-20CDTM-D	U, C, CE
			8 sinking transistor outputs	Yes	CPM2C-20C1DTM-D	
			8 sourcing transistor outputs	---	CPM2C-20CDT1M-D	
			8 sourcing transistor outputs	Yes	CPM2C-20C1DT1M-D	
Units with 32 I/O points Inputs: 16 Outputs: 16 	2 Fujitsu connectors	16 inputs (24 VDC)	16 sinking transistor outputs	---	CPM2C-32CDTC-D	U, C, CE
			16 sourcing transistor outputs	---	CPM2C-32CDT1C-D	
	2 MIL connectors	16 inputs (24 VDC)	16 sinking transistor outputs	---	CPM2C-32CDTM-D	U, C, CE
			16 sourcing transistor outputs	---	CPM2C-32CDT1M-D	
Programmable Slave with DeviceNet slave and CompoBus/S Master, 10 I/O points Inputs: 6 Outputs: 4 	1 Fujitsu connector	6 inputs (24 VDC)	4 sinking transistor outputs	Yes	CPM2C-S100C-DRT	U, C, CE
			4 sourcing transistor outputs	Yes	CPM2C-S110C-DRT	