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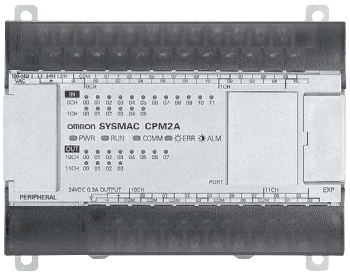
Find the *OMRON CPM2A-30CDT-D* at our website: ***Click HERE***

Compact PLC series

CPM2A

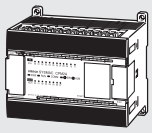
An extensive line-up lets you easily configure machines and production lines to meet your needs

SYSMAC CPM2A

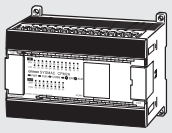


Every CPM2A CPU comes equipped with an RS-232C interface as standard, e.g. to provide easy connection with a Programmable Terminal for fast and easy machine monitoring, temperature setting, etc. Simple positioning with the pulse I/O function is another example of the many advanced functions and high added value that the CPM2A brings to compact machines. Removable terminal blocks ensure easy maintenance, and the CPM2A uses the same Expansion I/O Units as the CPM1A for easy and economical sharing of system components.

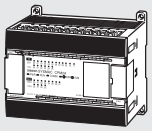
CPU Units with AC Power Supply Depth: 90 mm



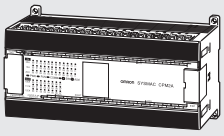
■Relay Output CPU Unit
CPM2A-20CDR-A
●Input points: 12, DC input
●Output points: 8



■Relay Output CPU Unit
CPM2A-40CDR-A
●Input points: 24, DC input
●Output points: 16

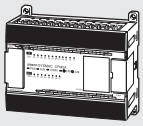


■Relay Output CPU Unit
CPM2A-30CDR-A
●Input points: 18, DC input
●Output points: 12

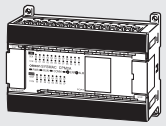


■Relay Output CPU Unit
CPM2A-60CDR-A
●Input points: 36, DC input
●Output points: 24

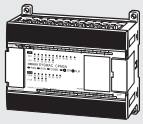
CPU Units with DC Power Supply Depth: 55 mm



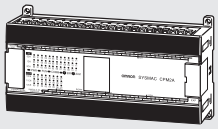
■Relay Output CPU Unit
CPM2A-20CDR-D
■Transistor Output CPU Units
CPM2A-20CDT-D (Sink)
CPM2A-20CDT1-D (Source)
●Input points: 12, DC input
●Output points: 8



■Relay Output CPU Unit
CPM2A-40CDR-D
■Transistor Output CPU Units
CPM2A-40CDT-D (Sink)
CPM2A-40CDT1-D (Source)
●Input points: 24, DC input
●Output points: 16

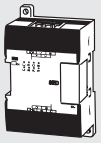


■Relay Output CPU Unit
CPM2A-30CDR-D
■Transistor Output CPU Units
CPM2A-30CDT-D (Sink)
CPM2A-30CDT1-D (Source)
●Input points: 18, DC input
●Output points: 12

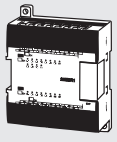


■Relay Output CPU Unit
CPM2A-60CDR-D
■Transistor Output CPU Units
CPM2A-60CDT-D (Sink)
CPM2A-60CDT1-D (Source)
●Input points: 36, DC input
●Output points: 24

Expansion I/O Units

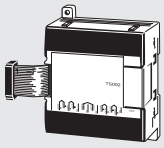


CPM1A-8ED
●Input points: 8, DC input
CPM1A-8ER
Output points: 8, RY output
CPM1A-8ET
●Output points: 8, TR output (Sink)
CPM1A-8ET1
●Output points: 8, TR output (Source)



CPM1A-20EDR1
●Input points: 12, DC input
●Output points: 8, RY output
CPM1A-20EDT
●Input points: 12, DC input
●Output points: 8, TR output (Sink)
CPM1A-20EDT1
●Input points: 12, DC input
●Output points: 8, TR output (Source)

Temperature Sensor Units



CPM1A-TS001
●Thermocouple inputs: 2
CPM1A-TS002
●Thermocouple inputs: 4
CPM1A-TS101
●Pt100 inputs: 2
CPM1A-TS-101-DA
●Pt100 inputs: 2,
Analog inputs: 1
CPM1A-TS102
●Pt100 inputs: 4

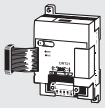
Analog I/O Units

CPM1A-MAD01
(Resolution: 256)
CPM1A-MAD11
(Resolution: 6,000)
2 inputs + 1 output
CPM1A-AD041 (4 inputs)
CPM1A-DA041 (4 outputs)



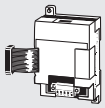
DeviceNet

CPM1A-DRT21
●I/O Link
inputs: 32
●I/O Link o
utputs: 32



PROFIBUS-DP

CPM1A-PRT21
●I/O Link
inputs: 16
●I/O Link
outputs: 16



CompoBus/S

CompoBus/S
I/O Unit
CPM1A-SRT21
●I/O Link inputs: 8
●I/O Link outputs: 8



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Specifications

General

Item		CPU Units with 20 I/O points	CPU Units with 30 I/O points	CPU Units with 40 I/O points	CPU Units with 60 I/O points
Supply voltage	AC power	100 to 240 V AC, 50/60 Hz			
	DC power	24 V DC			
Operating voltage range	AC power	85 to 264 V AC			
	DC power	20.4 to 26.4 V DC			
Power consumption	AC power	60 VA max.			
	DC power	20 W max. (See separate table following this one for details.)			
Inrush current	AC power	60 A max.			
	DC power	20 A max.			
External power supply (AC power supplies only)	Supply voltage	24 V DC			
	Output capacity	300 mA (See note)			
Insulation resistance		20 MΩ min. (at 500 V DC) between the external AC terminals and protective earth terminals			
Dielectric strength		2,300 V AC 50/60 Hz for 1 min between the external AC and protective earth terminals, leakage current: 10 mA max.			
Noise immunity		Conforms to IEC61000-4-4, 2 kV (power lines)			
Vibration resistance		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		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			
Humidity		10% to 90% (with no condensation)			
Atmosphere		Must be free from corrosive gas			
Terminal screw size		M3			
Power interrupt time		AC power supply: 10 ms min. DC power supply: 2 ms min.			
CPU Unit weight	AC power	650 g max.	700 g max.	800 g max.	1,000 g max.
	DC power	550 g max.	600 g max.	700 g max.	900 g max.
Expansion Unit weight		Units with 20 I/O Points: 300 g max. Units with 8 Output Points: 250 g max. Units with 8 Input Points: 200 g max. MAD01 Analog I/O Unit: 150 g max. MAD11 Analog I/O Unit: 250 g max. AD041/DA041 Analog I/O units: 200 g max. Temperature Sensor Units 250 g max. CompoBus/S I/O Link Units: 200 g max. DeviceNet I/O Link Unit: 200 g max. PROFIBUS-DP I/O Link Unit: 150 g max.			

Note: Use the external power supply as the power supply for input devices only. (It cannot be used as to drive output devices.) If the external power supply current exceeds the rated current, or there is a short-circuit, the external power supply voltage will drop and PC operation will stop. If there are 3 CPM1A-MAD11 Units mounted to a CPM2A-60CDR-A, the current for the external power supply must not exceed 200 mA.

Power Consumption for CPM2A CPU Units with DC Power Supplies

Use the following information when computing CPM2A power capacities.

CPM2A CPU Unit	Power consumption (W)
CPM2A-20CDR-D	4
CPM2A-30CDR-D	4.5
CPM2A-40CDR-D	6
CPM2A-60CDR-D	7.5
CPM2A-20CDT/T1-D	3.5
CPM2A-30CDT/T1-D	4
CPM2A-40CDT/T1-D	4.5
CPM2A-60CDT/T1-D	5

CPM1A Expansion I/O Unit or Expansion Unit	Power consumption (W)
CPM1A-20EDR1	2.5
CPM1A-20EDT/T1	1.5
CPM1A-8ED	1
CPM1A-8ER	2
CPM1A-8ET/T1	1
CPM1A-DRT21	1
CPM1A-SRT21	1
CPM1A-MAD01/MAD11	3.5
CPM1A-TS001/TS101	3
CPM1A-TS002/TS102	3
CPM1A-PRT21	1
CPM1A-TS101-DA	1.5
CPM1A-AD041	3
CPM1A-DA041	3.3

Note: When calculating the total power consumption, it is also necessary to include the power consumption of Programming Consoles, RS-232C Adapter Units, and other devices.

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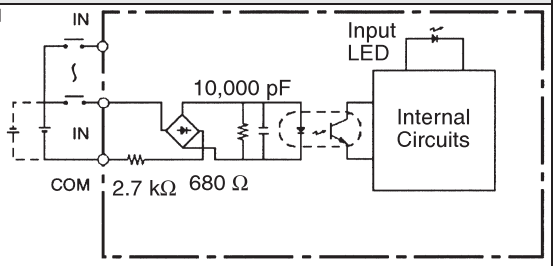
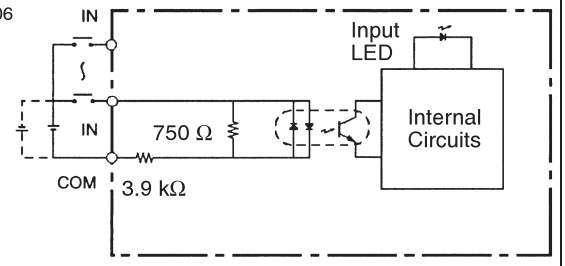
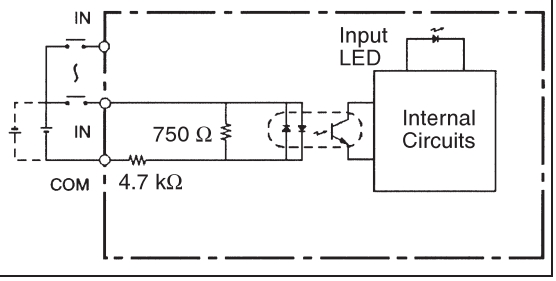
CPM2A Characteristics

Item		Specification			
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	20 points	30 points	40 points	60 points
	With Expansion I/O Units	80 points max.	90 points max.	100 points max.	120 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.)			
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)			
Special bits (SR area)		448 bits: SR 22800 to SR 25515 (Words IR 228 to IR 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.			
Basic interrupts	Interrupt processing	External interrupts: 4 (Shared by the external interrupt inputs (counter mode) and the quick-response inputs.)			
	Interval timer interrupts	1 (Scheduled Interrupt Mode or Single Interrupt Mode)			
High-speed counter	High-speed counter	One high-speed counter: 20 kHz single-phase or 5 kHz two-phase (linear count method) Counter interrupt: 1 (set value comparison or set-value range comparison)			
	Interrupt Inputs (counter mode)	Four inputs (Shared with external interrupt inputs (counter mode) and quick-response inputs.) Counter interrupts: 4 (Shared by the external interrupt inputs and quick-response inputs.)			
Pulse output		Two points with no acceleration/deceleration, 10 Hz to 10 kHz each, and no direction control. One point with waveform acceleration/deceleration, 10 Hz to 10 kHz, and direction control. Two points with variable duty-ratio outputs using PWM(—). (Pulse outputs can be used with transistor outputs only, they cannot be used with relay outputs.)			
Synchronized pulse control		One point: A pulse output can be created by combining the high-speed counter with the pulse output and multiplying the frequency of the input pulses from the high-speed counter by a fixed factor. (This output is possible with transistor outputs only, it cannot be used with relay outputs.)			
Quick-response inputs		Four points (Min. input pulse width: 50 μs min.)			
Analog controls		2 controls, setting range: 0 to 200			
Input time constant		Can be set for all input points. (1 ms, 2 ms, 3 ms, 5 ms, 10 ms, 20 ms, 40 ms, or 80 ms; default setting: 10 ms)			
Clock function		Shows the year, month, day of the week, day, hour, minute, and second. (Battery backup)			
Communications functions		Built-in peripheral port: Supports host link, peripheral bus, no-protocol, or Programming Console connections. Built-in RS-232C port: Supports host link, no-protocol, 1:1 Slave Unit link, 1:1 Master Unit link, or 1:1 NT Link connections.			
Functions provided by Expansion Units		Analog I/O Unit: Provides 2 analog inputs and 1 analog output. CompoBus/S I/O Link Unit: Provides 8 inputs and 8 outputs as a CompoBus/S Slave. Temperature Sensor Units: Provide 2 or 4 thermocouple inputs, or 2 or 4 temperature-resistance thermometer inputs.			
Memory protection		HR area, AR area, program contents, read/write DM area contents, and counter values maintained during power interruptions.			
Memory backup		Flash memory: Program, read-only DM area, and PC Setup Battery backup: The read/write DM area, HR area, AR area, and counter values are backed up by a battery. (Battery life is approximately 5 years at an ambient temperature of 25°C.)			
Self-diagnostic functions		CPU Unit failure (watchdog timer), I/O bus error, and memory failure, battery error			
Program checks		No END instruction and programming errors are checked at the start of operation.			

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CPM2A I/O Specifications

1. CPU Unit Input Specifications

Item	Inputs	Specification	Circuit configuration
Input voltage	All	24 V DC $^{+10\%}/_{-15\%}$	IN00000 to IN00001 
Input impedance	IN00000 to IN00001	2.7 kΩ	
	IN00002 to IN00006	3.9 kΩ	
	IN00007 and up	4.7 kΩ	
Input current	IN00000 to IN00001	8 mA	IN00002 to IN00006 
	IN00002 to IN00006	6 mA	
	IN00007 and up	5 mA	
ON voltage/current	IN00000 to IN00001	17 V DC min., 5 mA	
	IN00002 and up	14.4 V DC min., 3 mA	IN00007 and up 
OFF voltage/current	All	5.0 V DC max., 1 mA	
ON delay	All	1 to 80 ms max. Default: 10 ms (See note.)	
OFF delay	All	1 to 80 ms max. Default: 10 ms (See note.)	

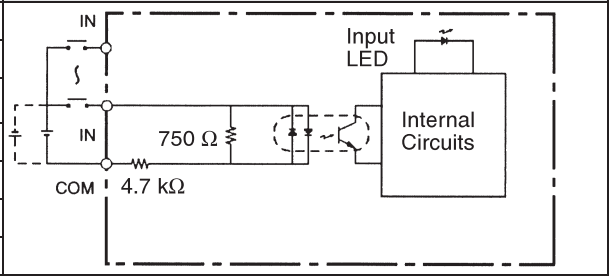
Note: The input time constant can be set to 1, 2, 3, 5, 10, 20, 40, or 80 ms in the PC Setup.

High-speed Counter Inputs
Inputs IN00000 through IN00002 can be used as high-speed counter inputs, as shown in the following table. The maximum count frequency is 5 kHz in differential phase mode and 20 kHz in the other modes.

Input	Function			
	Differential phase mode	Pulse + direction input mode	Up/down input mode	Increment mode
IN00000	A-phase pulse input	Pulse input	Increment pulse input	Increment pulse input
IN00001	B-phase pulse input	Direction input	Decrement pulse input	Normal input
IN00002	Z-phase pulse input/Hardware reset input (IN00002 can be used as a normal input when it is not used as a high-speed counter input.)			

Interrupt Inputs
Inputs IN00003 through IN00006 can be used as interrupt inputs (interrupt input mode or counter mode) and quick-response inputs. The minimum pulse width for these inputs is 0.05 ms.

2. Expansion I/O Unit Input Specifications

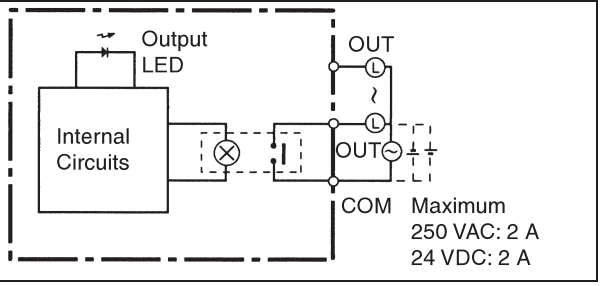
Item	Specification	Circuit configuration
Input voltage	24 V DC $^{+10\%}/_{-15\%}$	
Input impedance	4.7 kΩ	
Input current	5 mA	
ON voltage	14.4 V DC min.	
OFF voltage	5.0 V DC max.	
ON delay	1 to 80 ms max. Default: 10 ms (See note.)	
OFF delay	1 to 80 ms max. Default: 10 ms (See note.)	

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

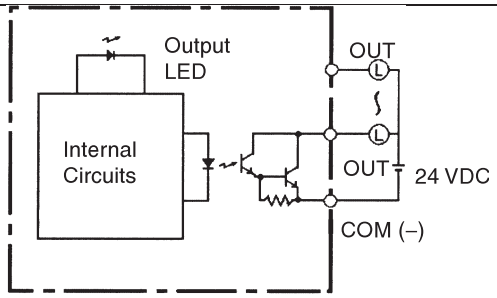
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3. CPM2A Output Specifications (CPU Units and Expansion I/O Unit)

Relay Output

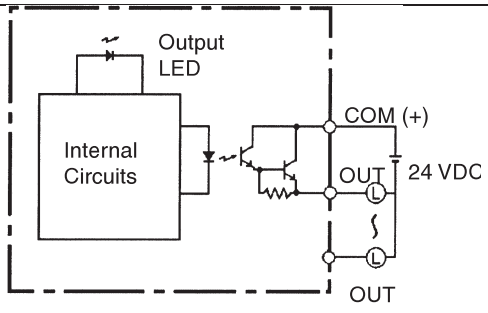
Item	Specification	Circuit configuration
Max. switching capacity	2 A, 250 V AC (cosϕ = 1) 2 A, 24 V DC (4 A/common)	
Min. switching capacity	10 mA, 5 V DC	
Service life of relay	Electrical:150,000 operations (24- V DC resistive load) 100,000 operations (240- V AC inductive load, cosϕ = 4) Mechanical:20,000,000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

Transistor Output (Sinking)

Item	Specification					
	CPM2A-20CDT-D	CPM2A-30CDT-D	CPM2A-40CDT-D	CPM2A-60CDT-D	CPM1A-8ET	CPM1A-20EDT
Max. switching capacity	OUT01000, 01001: 4.5 to 30 V DC, 0.2 A/output OUT01002 and up: 4.5 to 30 V DC, 0.3 A/output					24 V DC$^{+10\%}_{-5\%}$, 0.3 A/output
	0.8 A/common 1.6 A/Unit	0.8 A/common 2.4 A/Unit	0.8 A/common 3.2 A/Unit	0.8 A/common 4.8 A/Unit	0.9 A/common 1.8 A/Unit	0.9 A/common 1.8 A/Unit
Leakage current	0.1 mA max.					
Residual voltage	1.5 V max.					
ON delay	OUT01000 and OUT01001:20 μs max. OUT01002 and up:0.1 ms max.					0.1 ms max.
OFF delay	OUT01000 and OUT01001:40 μs max. (4.5 to 26.4 V, 10 to 100 mA) 0.1 ms max. (4.5 to 30 V, 10 to 200 mA) OUT01002 and up:1 ms max. (4.5 to 30 V, 10 to 300 mA)					1 ms max. (24 V DC$^{+10\%}_{-5\%}$, 5 to 300 mA)
Fuse (see note)	1 fuse/output					1 fuse/common
Circuit configuration	4.5 to 30 VDC, 0.3 A/output 					

Note: Cannot be replaced by the user.

Transistor Output (Sourcing)

Item	Specification					
	CPM2A-20CDT1-D	CPM2A-30CDT1-D	CPM2A-40CDT1-D	CPM2A-60CDT1-D	CPM1A-8ET1	CPM1A-20DET1
Max. switching capacity	OUT01000, 01001: 4.5 to 30 V DC, 0.2 A/output OUT01002 and up: 4.5 to 30 V DC, 0.3 A/output					24 V DC$^{+10\%}_{-5\%}$, 0.3 A/output
	0.8 A/common 1.6 A/Unit	0.8 A/common 2.4 A/Unit	0.8 A/common 3.2 A/Unit	0.8 A/common 4.8 A/Unit	0.9 A/common 1.8 A/Unit	0.9 A/common 1.8 A/Unit
Leakage current	0.1 mA max.					
Residual voltage	1.5 V max.					
ON delay	OUT01000 and OUT01001:20 μs max. OUT01002 and up:0.1 ms max.					0.1 ms max.
OFF delay	OUT01000 and OUT01001:40 μs max. (4.5 to 26.4 V, 10 to 100 mA) 0.1 ms max. (4.5 to 30 V, 10 to 200 mA) OUT01002 and up:1 ms max. (4.5 to 30 V, 10 to 300 mA)					1 ms max. (24 V DC$^{+10\%}_{-5\%}$, 5 to 300 mA)
Fuse (see note)	1 fuse/output					1 fuse/common
Circuit configuration	4.5 to 30 VDC, 0.3 A/output 					

Note: Cannot be replaced by the user.

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