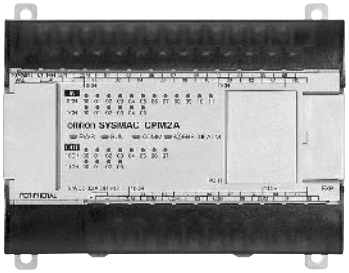
Compact PLC series

CPM2A

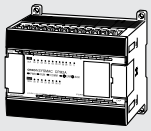
An extensive line-up lets you easily configure machines and production lines to meet your needs

SYSMAC CPM2A

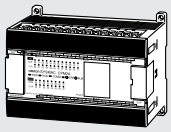


Every CPM2A CPU comes equipped with an RS-232C interface as standard, e.g. to provide easy connection with a Programmable Terminal for fast and easy machine monitoring, temperature setting, etc. Simple positioning with the pulse I/O function is another example of the many advanced functions and high 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.

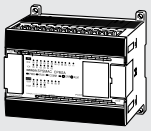
CPU Units with AC Power Supply Depth: 90 mm



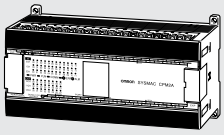
■Relay Output CPU Unit
CPM2A-20CDR-A
●Input points: 12, DC input
●Output points: 8



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

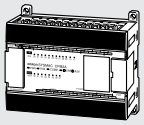


■Relay Output CPU Unit
CPM2A-30CDR-A
●Input points: 18, DC input
●Output points: 12

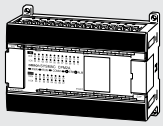


■Relay Output CPU Unit
CPM2A-60CDR-A
●Input points: 36, DC input
●Output points: 24

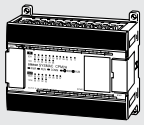
CPU Units with DC Power Supply Depth: 55 mm



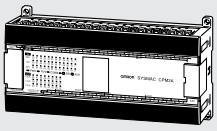
■Relay Output CPU Unit
CPM2A-20CDR-D
■Transistor Output CPU Units
CPM2A-20CDT-D (Sink)
CPM2A-20CDT1-D (Source)
●Input points: 12, DC input
●Output points: 8



■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

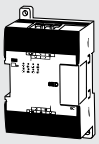


■Relay Output CPU Unit
CPM2A-30CDR-D
■Transistor Output CPU Units
CPM2A-30CDT-D (Sink)
CPM2A-30CDT1-D (Source)
●Input points: 18, DC input
●Output points: 12

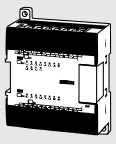


■Relay Output CPU Unit
CPM2A-60CDR-D
■Transistor Output CPU Units
CPM2A-60CDT-D (Sink)
CPM2A-60CDT1-D (Source)
●Input points: 36, DC input
●Output points: 24

Expansion I/O Units

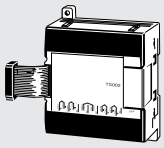


CPM1A-8ED
●Input points: 8, DC input
CPM1A-8ER
Output points: 8, RY output
CPM1A-8ET
●Output points: 8, TR output (Sink)
CPM1A-8ET1
●Output points: 8, TR output (Source)



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



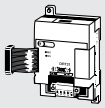
CPM1A-TS001
●Thermocouple inputs: 2
CPM1A-TS002
●Thermocouple inputs: 4
CPM1A-TS101
●Pt100 inputs: 2
CPM1A-TS-101-DA
●Pt100 inputs: 2,
Analog inputs: 1
CPM1A-TS102
●Pt100 inputs: 4

Analog I/O Units

CPM1A-MAD01
(Resolution: 256)
CPM1A-MAD11
(Resolution: 6,000)
●Analog inputs: 2
●Analog output: 1

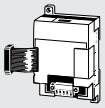
DeviceNet

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

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:250g max. Temperature Sensor Units250 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

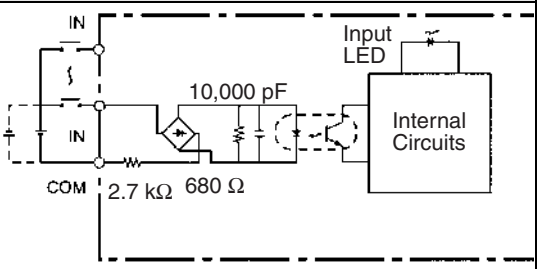
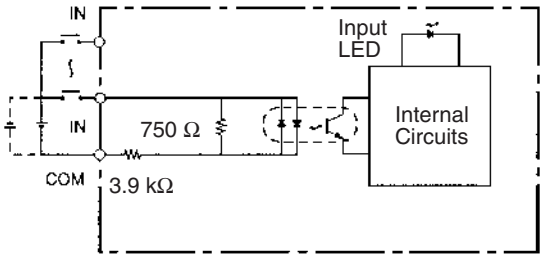
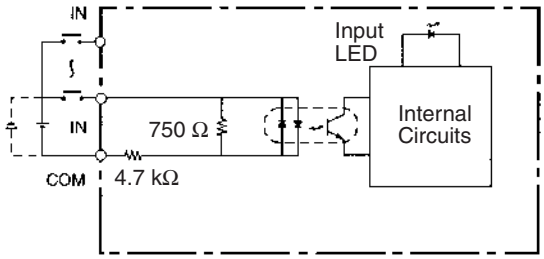
Note: When calculating the total power consumption, it is also necessary to include the power consumption of Programming Consoles, RS-232C Adapter Units, and other devices.

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.			

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.)	

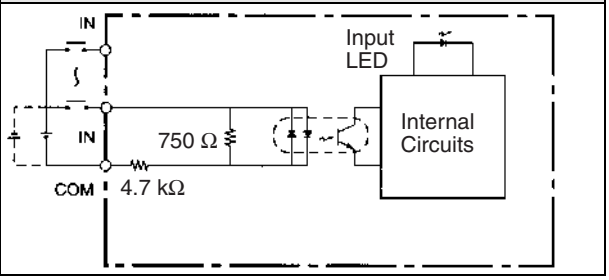
Note: The input time constant can be set to 1, 2, 3, 5, 10, 20, 40, or 80 ms in the PC Setup.

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.

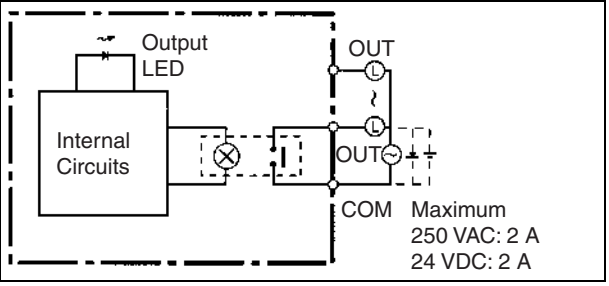
2. Expansion I/O Unit Input Specifications

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.)	

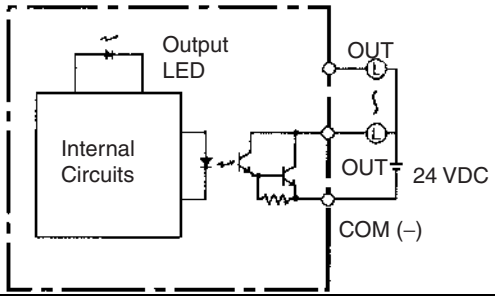
Note: The input time constant can be set to 1, 2, 3, 5, 10, 20, 40, or 80 ms in the PC Setup.

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

Relay Output

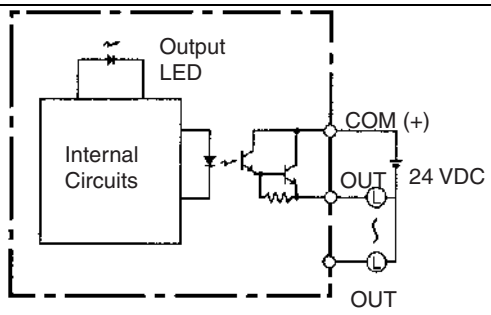
Item	Specification	Circuit configuration
Max. switching capacity	2 A, 250 V AC (cosϕ = 1) 2 A, 24 V DC (4 A/common)	
Min. switching capacity	10 mA, 5 V DC	
Service life of relay	Electrical:150,000 operations (24- V DC resistive load) 100,000 operations (240- V AC inductive load, cosϕ = 4) Mechanical:20,000,000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

CPM1A-MAD□1

Analog I/O units

Add analog I/O to CPM1A and CPM2A compact PLC's.

Specifications

General

Item		CPM1A-MAD01		CPM1A-MAD11	
		Voltage I/O	Current I/O	Voltage I/O	Current I/O
Analog inputs	Number of inputs	2		2 (allocated 2 words)	
	Input signal ranges	0 to 10 V or 1 to 5 V	4 to 20 mA	0 to 5 V, 1 to 5 V, 0 to 10 V, –10 to 10 V	0 to 20 mA, 4 to 20 mA
	Maximum rated input	±15 V	±30 mA	±15 V	±30 mA
	External input impedance	1 MΩ min.	250 Ω rated	1 MΩ min.	250 Ω
	Resolution	1/256		1/6,000 (full scale)	
	Overall precision	1.0% of full scale		25°C:±0.3% of full scale	25°C:±0.4% of full scale
				0 to 55°C:±0.6% of full scale	0 to 55°C:±0.8% of full scale
	Converted A/D data	8-bit binary		Binary data (4-digit hexadecimal) –10 to 10 V: F448 to 0BB8 Hex full scale Other:0000 to 1770 Hex full scale	
Analog output (See note 1.)	Averaging	---		Supported (set for each input with DIP switch)	
	Disconnected line detection	---		Supported	
	Number of outputs	1		1 (allocated 1 word)	
	Output signal ranges	0 to 10 V or –10 to 10 V	4 to 20 mA	1 to 5 V, 0 to 10 V, –10 to 10 V	0 to 20 mA, 4 to 20 mA
	External output max. current	5 mA	---	---	---
	External output allowed load resistance	---	350 Ω	1 kΩ min.	600 Ω max.
	External output impedance	---		0.5 Ω max.	---
	Resolution	1/256 (1/512 when the output signal range is –10 to 10 V.)		1/6,000 (full scale)	
	Overall precision	1.0% of full scale		25°C:±0.4% of full scale	
				0 to 55°C:±0.8% of full scale	
	Data setting	8-bit binary with sign bit		---	
	D/A data setting	---		Binary data (4-digit hexadecimal) –10 to 10 V: F448 to 0BB8 Hex full scale Other:0000 to 1770 Hex full scale	
Conversion time (See note 2.)		10 ms/Unit max.		2 ms/point (6 ms/all analog I/O)	
Isolation method		Photocoupler isolation between I/O terminals and PC (There is no isolation between the analog I/O signals.)		Photocoupler isolation between analog I/O and internal circuits. (Individual analog I/O signals are not isolated.)	

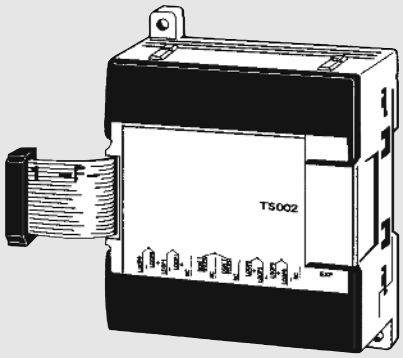
Note: 1. The voltage output and current output can be used at the same time, but the total output current cannot exceed 21 mA.

2. The conversion time is the total time for 2 analog inputs and 1 analog output.

CPM1A-TS□0□

Temperature Sensor Units

- By connecting a Temperature Sensor Unit (CPM1A-TS001/TS002/TS101/TS102, TS101-DA) to the CPM2A, inputs can be received from thermocouples or temperature-resistance thermometers.
- Inputs converted to binary data (4-digit hexadecimal) and stored in the IR area. Refer to page 71 for details on the maximum number of connectable Units.



Specifications

General

Item	Specification		
Model	CPM1A-TS001/002	CPM1A-TS101/102	CPM1A-TS101-DA
Number of inputs	TS001: 2; TS002: 4	TS101: 2; TS102: 4	2
Input types	K or J selectable (The same input type must be used for all inputs.)	Pt100, JPt1100 selectable (The same input type must be used for all inputs.)	Pt100 only
Accuracy	±0.5% or ±2% of the stored value whichever is larger (see note) ± 1 digit max.	±0.5% or ±1% of the stored value whichever is larger (see note) ± 1 digit max.	1% of full scale
Conversion cycle	250 ms/2 points (TS001 or TS101) or 250 ms/4 points (TS002 or TS102)		60 ms (for all points)
Converted temperature data	Binary data (4-digit hexadecimal)		
Isolation method	Photocoupler isolation between input signals		
Number of outputs	---		one point
Output range	---		0 to 10 V, -10 to 10 V, 4 to 20 mA
Accuracy	---		1% of full scale

Note: Accuracy for K thermocouples at temperatures less than –100°C: ±4°C ± 1 digit max.

Input Temperature Ranges for CPM1A-TS001/002

The input type is selected with a rotary switch. The ranges for each of the input types are shown in the following table.

Item	Range in °C	Range in °F
K	–200 to 1,300	–300 to 2,300
	0.0 to 500.0	0.0 to 900.0
J	–100 to 850	–100 to 1,500
	0.0 to 400.0	0.0 to 750.0

Input Temperature Ranges for CPM1A-TS101/102

The input type is selected with a rotary switch. The ranges for each of the input types are shown in the following table.

Item	Range in °C	Range in °F
Pt100	–200.0 to 650.0	–300 to 1,200.0
JPt100	–200.0 to 650.0	–300 to 1,200.0

Input Temperature Ranges for CPM1A-TS101-DA

The input type is selected with a rotary switch. The ranges for each of the input types are shown in the following table.

Item	Range in °C
Pt100	–40.0 to 250.0

CPM1A-DRT21

DeviceNet I/O Link Unit

I/O Link Unit for CPM2A/CPM1A PLCs

- Functions as a slave for DeviceNet.
- Provides 32 input points and 32 output points for I/O exchange with the master.
- International standards: UL, CSA, CE.

Ordering Information

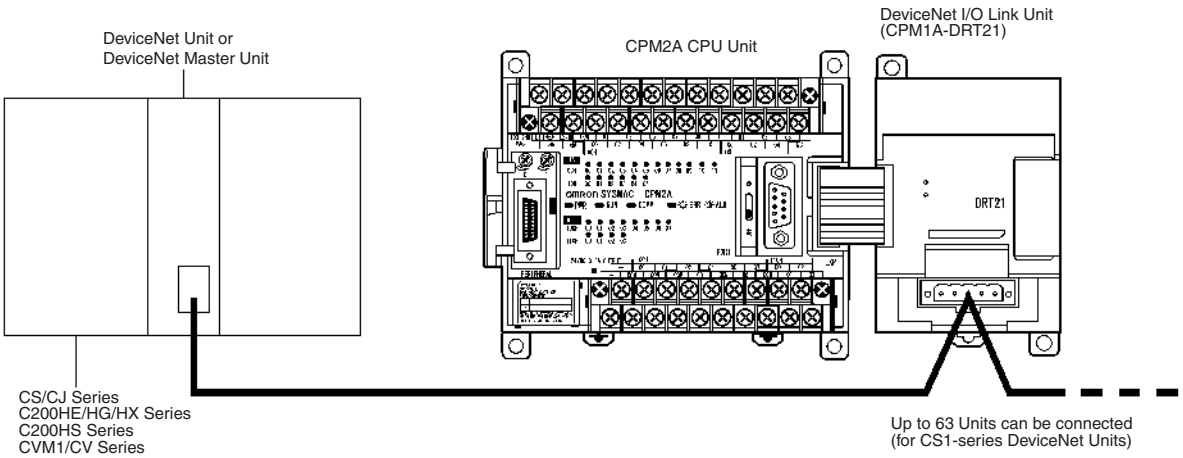
Name	Max. number of I/O points	Model
I/O Link Unit (for CPM2A and CPM1A PLCs)	32 inputs/32 outputs	CPM1A-DRT21

Specifications

Communications power supply voltage	11 to 25 V DC
Current consumption	10 mA max. at 24 V DC
Max. number of I/O points	Inputs: 32; Outputs: 32
Number of allocated words in CPM2A I/O memory	Input: 2 words; Output: 2 words (Same allocation as for other Expansion Units.)
Node address setting method	Set using DIP switch.
Max. number of connectable Units	3 max.

Application Examples

Configuration Example



Note: Up to 3 DeviceNet I/O Link Units and other Expansion I/O Units can be mounted to CPM1A/CPM2A CPU Units.

Precautions

Refer to the relevant catalog for details on CPM1A and CPM2A PLCs (CPM1: Cat. No. P035; CPM2A/CPM2C: Cat. No. P049).

CPM1A-PRT21

PROFIBUS-DP I/O Link Unit

I/O Link Unit for CPM2A/CPM1A PLCs

- Functions as a slave for PROFIBUS-DP.
- Provides 16 input points and 16 output points for I/O exchange with the PROFIBUS-DP master.

Ordering Information

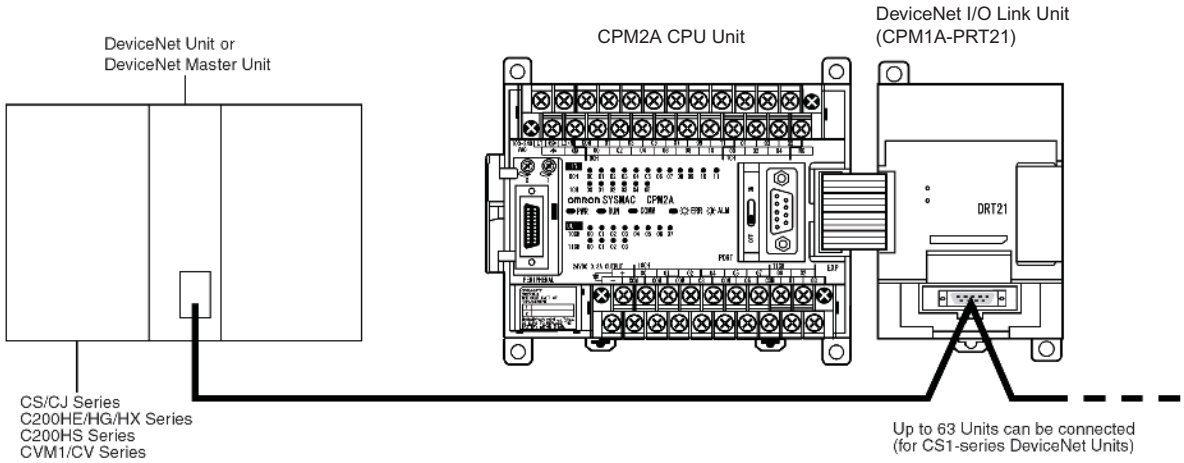
Name	Max. number of I/O points	Model
I/O Link Unit (for CPM2A and CPM1A PLCs)	16 inputs/16 outputs	CPM1A-PRT21

Specifications

Item	Specification
Model number	CPM1A-PRT21
Master/slave	PROFIBUS-DP slave (OC_0658.GSD)
I/O capacity to master	16 input und 16 output points (no consistency), Intel/Motorola format selectable by DIP switch.
I/O memory allocated in CPM2A	1 input word and 1 output word (allocated in the same as other Expansion Units)
Node address setting	2 rotary switches (00-99)
Maximum number of nodes per PROFIBUS network	C200H master, CS1 / CJ1 master: 125 nodes

Application Examples

Configuration Example



Note: Up to 3 PROFIBUS DP I/O Link Units and other Expansion I/O Units can be mounted to CPM1A/CPM2A CPU Units.

Precautions

Refer to the relevant catalog for details on CPM1A and CPM2A PLCs (CPM1: Cat. No. P035; CPM2A/CPM2C: Cat. No. P049).

I/O Link Unit CPM1A-SRT21

CompoBus/S I/O Link Unit

I/O Link Unit for CPM2A/CPM1A

- Operates as a Slave of the CompoBus/S Master Unit.
- Exchanges eight inputs and eight outputs with the Master.
- Approved by UL and CSA standards, and bears the CE marking.

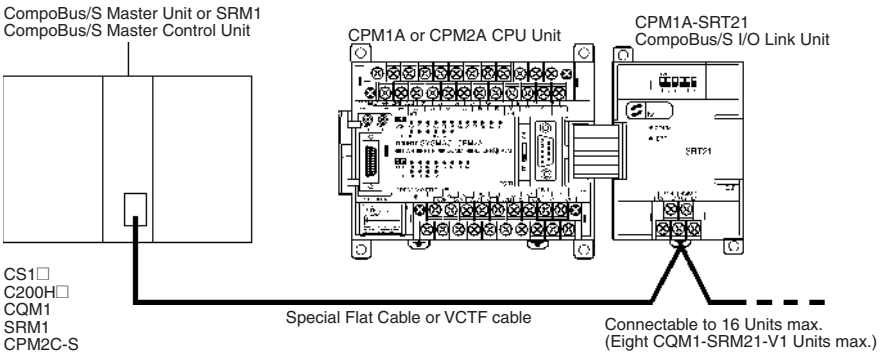
Specifications

Master/Slave	CompoBus/S Slave
Number of I/O points	8 inputs and 8 outputs
Number of words occupied in CPM2A's I/O memory	1 input word and 1 output word (allocated in the same way as for other Expansion Units)
Node address setting	DIP switch

Note: For details of CPM1A PLCs, refer to the CPM1A catalog (Cat. No. P039). For details of CPM2A PLCs, refer to the CPM2A catalog (Cat. No. P049)

Installation

Connection Examples

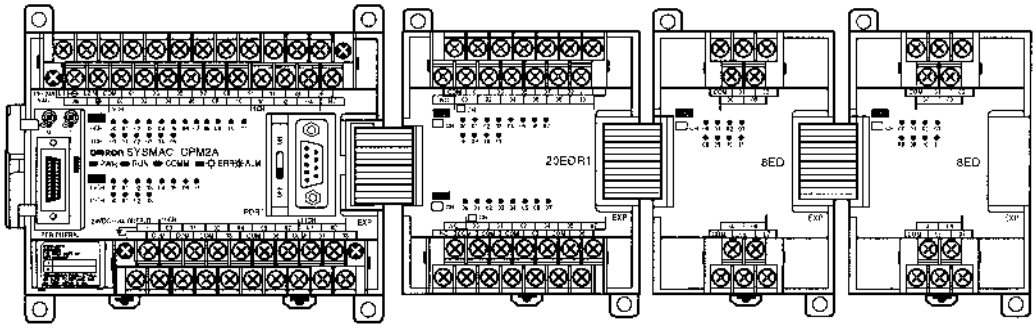


Note: A single CompoBus/S I/O Link Unit together with a maximum of two other Expansion I/O Units can be connected to the CPM1A or CPM2A CPU Unit.

CPM2A General Information

System Configuration

Up to three Expansion I/O Units or Expansion Units other than the CPM1A-TS002/102 Temperature Sensor Units can be connected to a CPM2A CPU Unit. If a CPM1A-TS002/102 is connected to the CPU Unit, only one other Unit (and not a CPM1A-TS002/102) can be connected.



CPU Unit | Expansion Unit or Expansion I/O Unit | Expansion Unit or Expansion I/O | Expansion Unit or Expansion I/O

Expansion Unit Connection Groups

Group 1 (G1)	Group 2 (G2)
Expansion I/O Units Analog I/O Units CompoBus/S I/O Link Units CPM1A-TS001/TS101(-DA) Temperature Sensor Units DeviceNet I/O Link Unit PROFIBUS-DP I/O Link Unit	CPM1A-TS002/TS102 Temperature Sensor Units

The sequences in which Units in the above groups can be connected to the CPU Unit are shown in the following table.

Expansion Unit Group Combinations

Expansion sequence 1	Expansion sequence 2	Expansion sequence 3
G1	G1	G1
G2	G1	G2 Units cannot be connected after a G1 Unit.

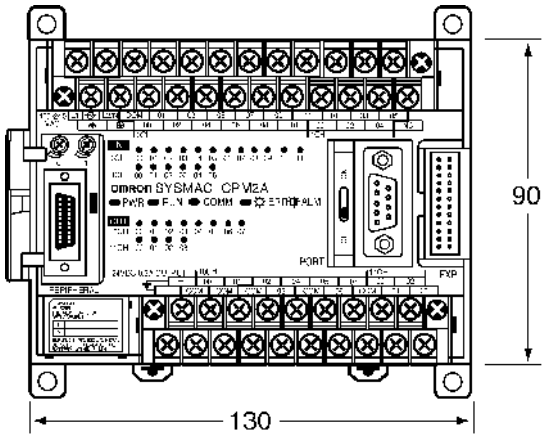
Note: 1. The mounting sequence does not affect the number of Units that can be mounted.

2. If the NT-AL001 RS-422 Adapter is connected to the RS-232C port, only one Expansion Unit or Expansion I/O Unit can be added.

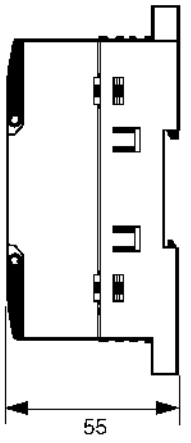
3. If three CPM1A-MAD11/MAD01 Analog I/O Units are connected to a CPM2A-60CDR-A CPU Unit, keep the output capacity of the external power supply (24 V DC) to 200 mA or less.

Dimensions

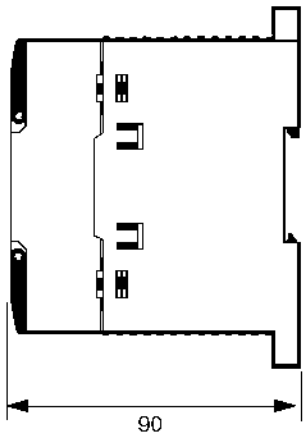
CPM2A-20CD□-□/30CD□-□ CPU Units



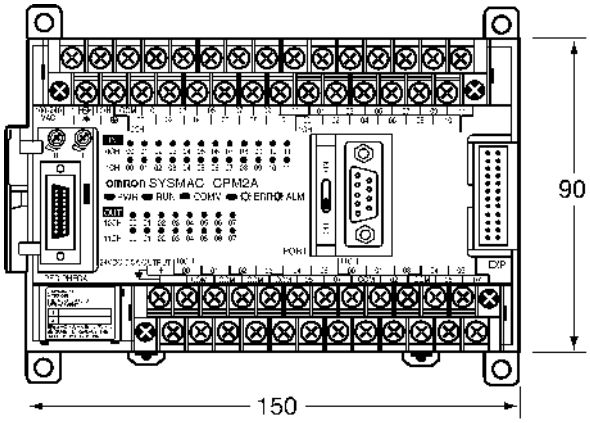
CPU Units with DC Power



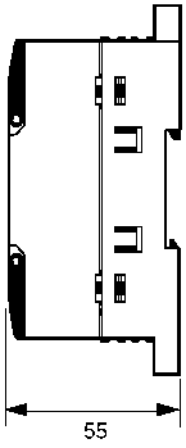
CPU Units with AC Power



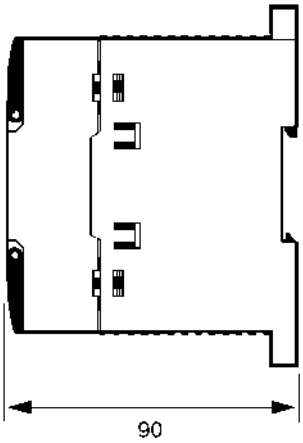
CPM2A-40CD□-□ CPU Units



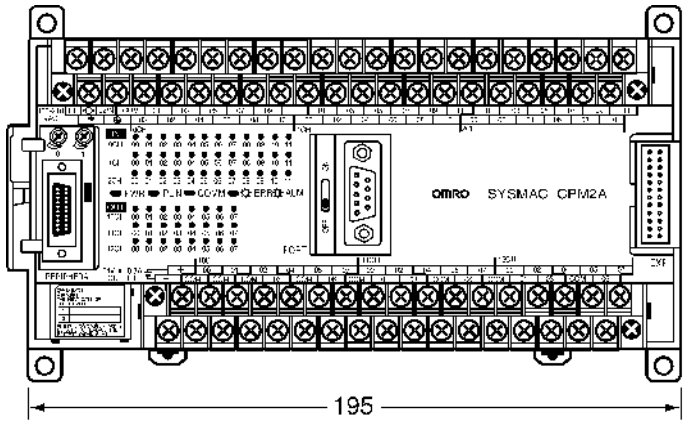
CPU Units with DC Power



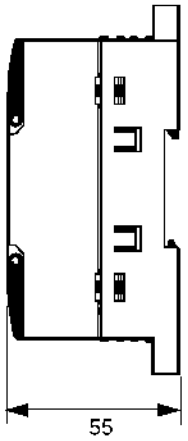
CPU Units with AC Power



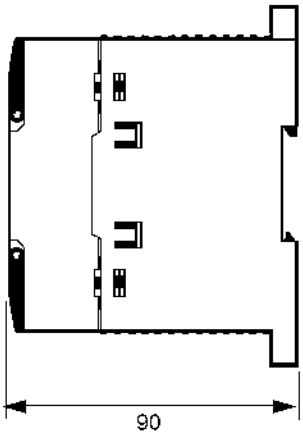
CPM2A-60CD□-□ CPU Units



CPU Units with DC Power

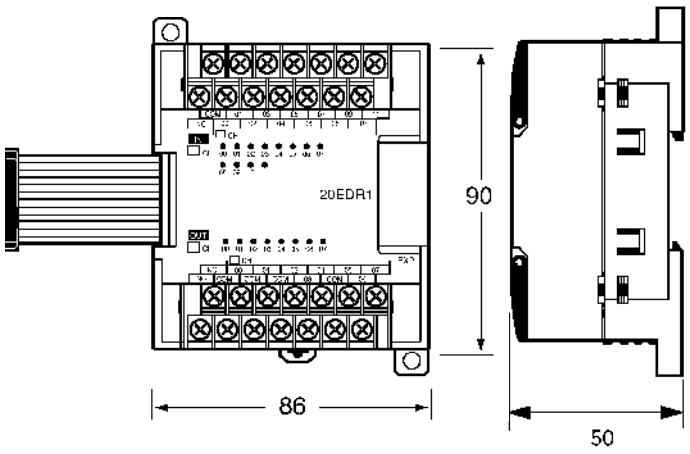


CPU Units with AC Power

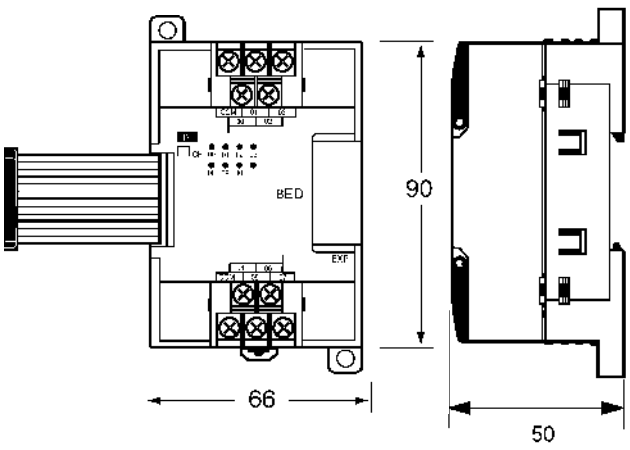


Note: All dimensions are in mm.

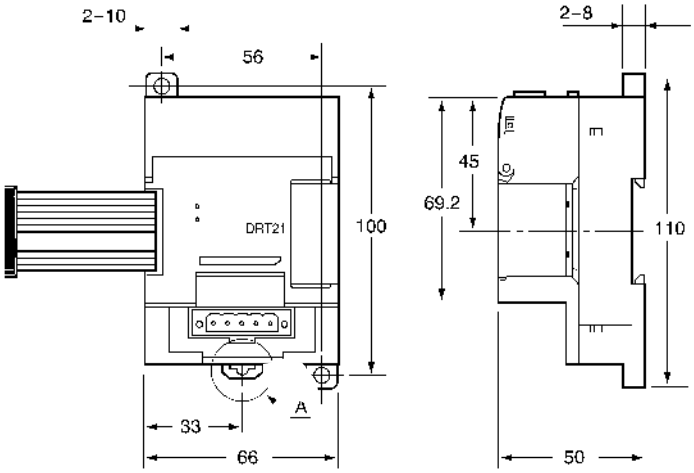
CPM1A-20ED□ Expansion I/O Units



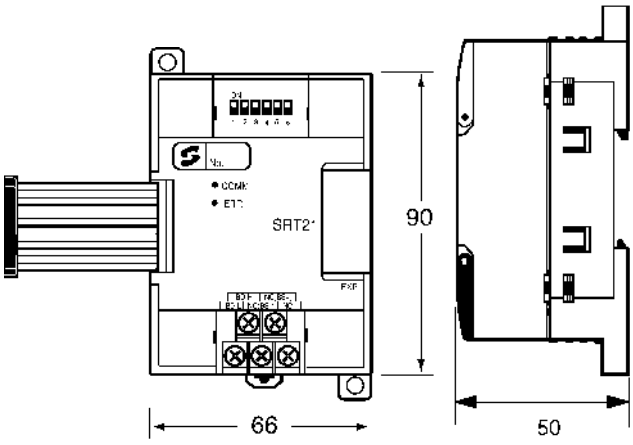
CPM1A-8□□□ Expansion I/O Units



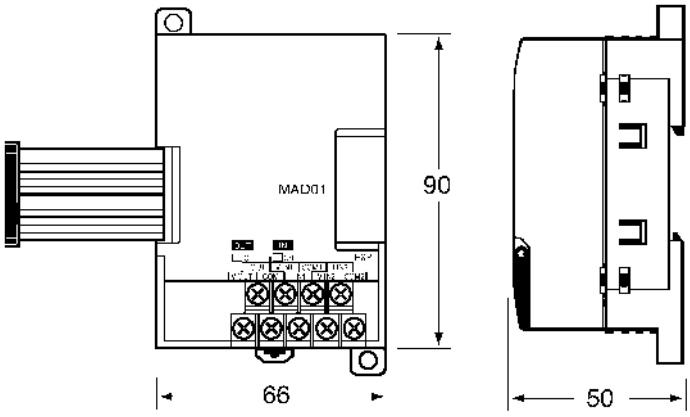
CPM1A-DRT21 DeviceNet I/O Link Unit
CPM1A-PRT21 PROFIBUS-DP I/O Link Unit



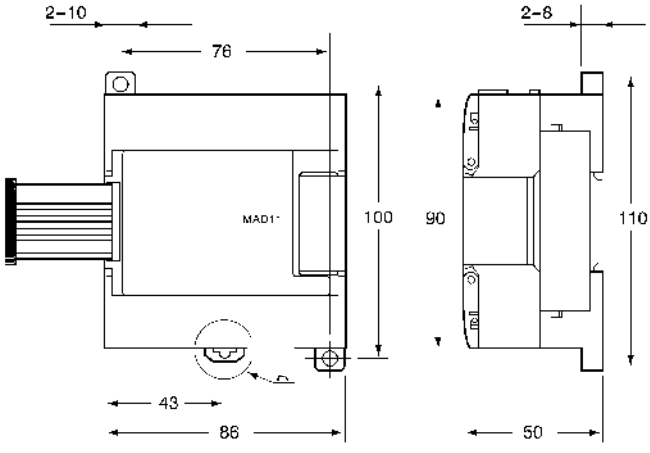
CPM1A-SRT21 CompoBus/S I/O Link Unit



CPM1A-MAD01 Analog I/O Unit

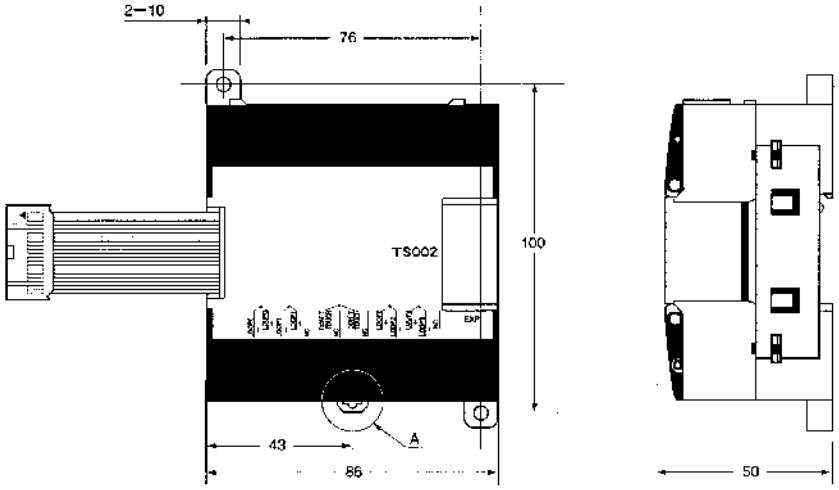


CPM1A-MAD11 Analog I/O Unit



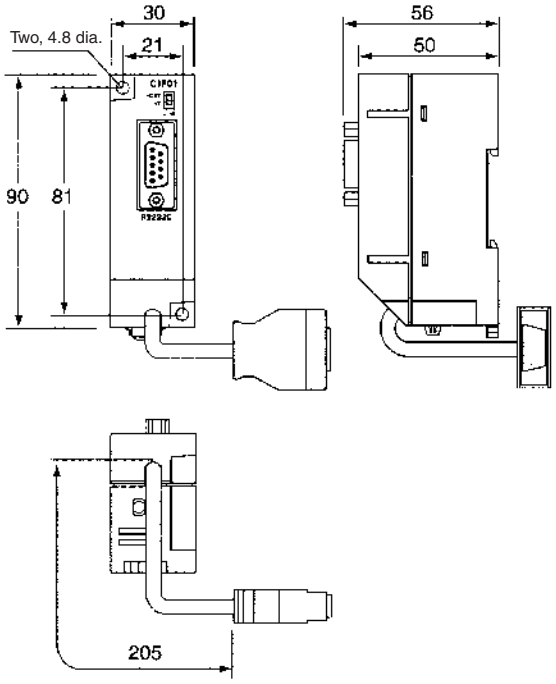
Note: All dimensions are in mm.

CPM1A-TS□□□ Temperature Sensor Unit

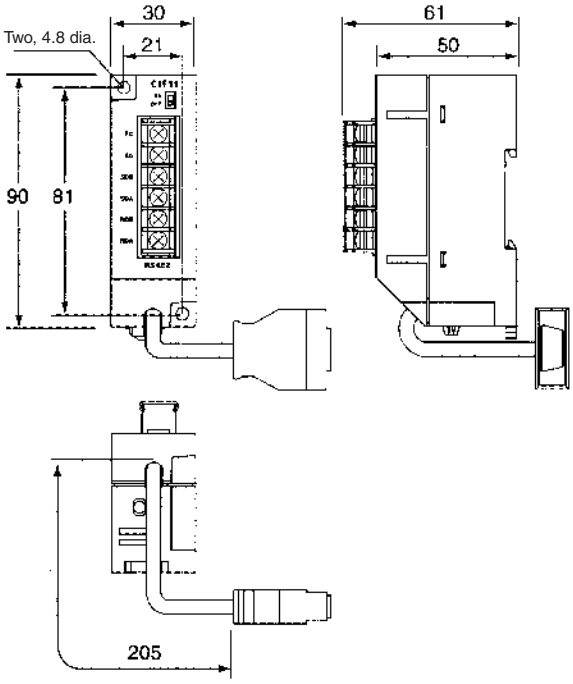


Note: All dimensions are in mm.

CPM1-CIF01 RS-232C Adapter



CPM1-CIF11 RS-422 Adapter



CPM2A Ordering Information

International Standards

The products shown in the attached tables are those that conform to the UL, CSA, cULus, cUL, NK, Lloyd's Register, and EC Directives as of September 2003.
(U: UL, C: CSA, UC: cULus, CU: cUL, N: NK, L: Lloyd, CE: EC Directives)
Please contact OMRON representative for application conditions.

CPM2A CPU Units

CPU Unit	Power supply	Output type	Inputs	Outputs	Model	Standards
20 I/O points	AC	Relay	12	8	CPM2A-20CDR-A	U, C, CE
	DC	Relay			CPM2A-20CDR-D	U, C, CE
		Transistor (sinking)			CPM2A-20CDT-D	U, C, CE
		Transistor (sourcing)			CPM2A-20CDT1-D	U, C, CE
30 I/O points	AC	Relay	18	12	CPM2A-30CDR-A	U, C, CE
	DC	Relay			CPM2A-30CDR-D	U, C, CE
		Transistor (sinking)			CPM2A-30CDT-D	U, C, CE
		Transistor (sourcing)			CPM2A-30CDT1-D	U, C, CE
40 I/O points	AC	Relay	24	16	CPM2A-40CDR-A	U, C, CE
	DC	Relay			CPM2A-40CDR-D	U, C, CE
		Transistor (sinking)			CPM2A-40CDT-D	U, C, CE
		Transistor (sourcing)			CPM2A-40CDT1-D	U, C, CE
60 I/O points	AC	Relay	36	24	CPM2A-60CDR-A	U, C, CE
	DC	Relay			CPM2A-60CDR-D	U, C, CE
		Transistor (sinking)			CPM2A-60CDT-D	U, C, CE
		Transistor (sourcing)			CPM2A-60CDT1-D	U, C, CE

Expansion Units and Expansion I/O Units

Unit	Output type	Inputs	Outputs	Model	Standards
Expansion I/O Units	Relay	12	8	CPM1A-20EDR1	U, C, CE
	Transistor (sinking)			CPM1A-20EDT	U, C, CE
	Transistor (sourcing)			CPM1A-20EDT1	U, C, CE
	---	8	---	CPM1A-8ED	U, C, CE
	Relay	---	8	CPM1A-8ER	U, C, CE
	Transistor (sinking)	---	8	CPM1A-8ET	U, C, CE
	Transistor (sourcing)			CPM1A-8ET1	U, C, L, CE
Analog I/O Unit	Analog (resolution: 1/256)	2	1	CPM1A-MAD01	U, C, CE
	Analog (resolution: 1/6,000)	2	1	CPM1A-MAD11	U, C, CE
DeviceNet I/O Link Unit	---	I/O Link of 32 input bits and 32 output bits		CPM1A-DRT21	U, C, CE
PROFIBUS-DP I/O Link Unit	---	I/O Link of 16 input bits and 16 output bits		CPM1A-PRT21	CE
CompoBus/S I/O Link Unit	---	I/O Link of 8 input bits and 8 output bits		CPM1A-SRT21	U, C, CE
Temperature Sensor Units	2 thermocouple inputs			CPM1A-TS001	U, C, CE
	4 thermocouple inputs			CPM1A-TS002	U, C, CE
	2 platinum resistance thermometer inputs			CPM1A-TS101	U, C, CE
	4 platinum resistance thermometer inputs			CPM1A-TS102	U, C, CE
	2 Platinum resistance thermometer inputs (-40 to 250 °C) and one output (-10 to 10V, 4 to 20 mA)			CPM1A-TS101-DA	U, C, L, CE