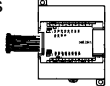




Ordering Information

■ CPU UNITS




Number of I/O terminals	Inputs	Outputs	Power supply	Part number		
				Relay output	Transistor output	
					Sink type	Source type
10	6 DC points	4 points	AC	CPM1A-10CDR-A	CPM1A-10CDT-A	CPM1A-10CDT1-A
			DC	CPM1A-10CDR-D	CPM1A-10CDT-D	CPM1A-10CDT1-D
20	12 DC points	8 points	AC	CPM1A-20CDR-A	CPM1A-20CDT-A	CPM1A-20CDT1-A
			DC	CPM1A-20CDR-D	CPM1A-20CDT-D	CPM1A-20CDT1-D
30	18 DC points	12 points	AC	CPM1A-30CDR-A	CPM1A-30CDT-A	CPM1A-30CDT1-A
			DC	CPM1A-30CDR-D	CPM1A-30CDT-D	CPM1A-30CDT1-D
40	24 DC points	16 points	AC	CPM1A-40CDR-A	CPM1A-40CDT-A	CPM1A-40CDT1-A
			DC	CPM1A-40CDR-D	CPM1A-40CDT-D	CPM1A-40CDT1-D
20	12 AC points	8 points	AC	CPM1A-20CAR-A	—	—
32	20 AC points	12 points	AC	CPM1A-32CAR-A	—	—

■ EXPANSION I/O MODULES

Description	Max. number of modules	Inputs	Outputs	Part number
20 I/O points 12 inputs, 8 outputs 	3 max. (See Note.)	24 VDC	Relays	CPM1A-20EDR
		24 VDC	Sinking transistors	CPM1A-20EDT
		24 VDC	Sourcing transistors	CPM1A-20EDT1
8 inputs 	3 max. (See Note.)	24 VDC	—	CPM1A-8ED
8 outputs 		—	Relays	CPM1A-8ER
		—	Sinking transistors	CPM1A-8ET
		—	Sourcing transistors	CPM1A-8ET1

Note: A maximum of 3 expansion modules can be used with the following CPUs: 30-point and 40-point with DC inputs; 20-point and 32-point with AC inputs.

■ DEDICATED I/O MODULES

Description	Max. number of modules	Inputs	Outputs	Part number
Analog I/O Module 2 analog inputs (2 words) 1 analog output (1 word) 	3 max.	2 analog inputs	1 analog output	CPM1A-MAD01
Temperature Sensor Input Modules 	3 max.	2 inputs (Types J and K)	—	CPM1A-TS001
		1 max. (See Note.)		4 inputs (Types J and K)
	3 max.	2 inputs (Pt100, JPt100)	1 analog output	CPM1A-TS101
		3 max.		2 inputs (Pt100, JPt100)
1 max. (See Note.)	4 inputs (Pt100, JPt100)	—	CPM1A-TS102	
	CompoBus/S I/O Link Module 8 inputs and 8 outputs 	3 max.	8 bits (Inputs from the Master.)	8 bits (Outputs to the Master.)
Flat cable, 4-core, 0.75 mm ² ; 100 m length			SCA1-4F10	
Twisted pair cable, 2-core, 0.75 mm ² ; available commercially			Belden #9409 cable	

Note: Only one CPM1A-TS002/TS102 Temperature Sensor Input Module can be connected to the CPU. If a CPM1A-TS002/102 is connected to the CPU, only one additional Special I/O Module (other than a CPM1A-TS002/102) or one Expansion I/O Module can be connected to the CPU.

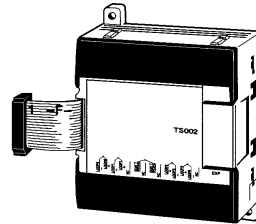
■ ANALOG I/O MODULE

Item		Specification	
Model		CPM1A-MAD01	
I/O type		Voltage	Current
Analog inputs	Number of inputs	2	
	Input signal range	0 to 10 V or 1 to 5 V	4 to 20 mA
	Maximum rated input	±15 V	±30 mA
	External input impedance	1 MΩ min.	250 Ω rated
	Resolution	1/256	
	Overall precision	1.0% of full scale	
	Converted A/D data	8-bit binary	
Analog output (See Note 1.)	Number of outputs	1	
	Output signal range	0 to 10 V or -10 to 10 V	4 to 20 mA
	External output max. current	5 mA	—
	External output allowed load resistance	—	350 Ω
	Resolution	1/256 (1/512 when the output signal range is -10 to 10 V.)	
	Overall precision	1.0% of full scale	
	Data setting	8-bit binary with sign bit	
Conversion time (See Note 2.)		10 ms/Unit max.	
Isolation method		Photocoupler isolation between I/O terminals and PC (There is no isolation between the analog I/O signals.)	

- 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.

■ TEMPERATURE SENSOR MODULES

By connecting a Temperature Sensor Module (CPM1A-TS001/TS002/TS101/TS101A/TS102) to the CPM1A, inputs can be received from thermocouples or temperature-resistance thermometers. Inputs converted to binary data (4-digit hexadecimal) and stored in the IR area.



Specifications

Item	Specification		
Model	CPM1A-TS001/TS002	CPM1A-TS101/TS102	CPM1A-TS101-DA
Number of inputs	TS001: 2; TS002: 4	TS101: 2; TS102: 4	2
Input types (See Note 1)	Thermocouple types K or J, selectable	Platinum resistance thermometer types Pt100 and JPt1100, selectable	
Input resolution	0.1°C in 2's complement format	0.1°C in 2's complement format	
Input accuracy	±0.5% or ±2% of the stored value whichever is larger ±1 digit max. (See Note 2)	±0.5% or ±1% of the stored value whichever is larger ±1 digit max. (See Note 2)	1.0% max. full scale
Number of outputs	None	None	1
Output types	—	—	Voltage or current output
Output resolution	—	—	1/256 (0 to 10 V) 1/512 (-10 to +10 V) 1/256 (4 to 20 mA)
Output accuracy	—	—	1.0% max. full scale
Conversion cycle	250 ms for all points		60 ms max. for all points
Converted temperature data	Binary data (4-digit hexadecimal)		Binary data (8-digit hexadecimal)
Isolation method	Photocoupler isolation between I/O terminals and the PLC		

- Note: 1. The same input type must be used for all inputs.
2. Accuracy for K thermocouples at temperatures less than -100°C: ±4°C ± 1 digit max.

Input Temperature Ranges for CPM1A-TS001/TS002

The rotary switch can be used to make of the following range and input type settings for CPM1A-TS001/002 models.

Thermocouple input	Range (°C)	Range (°F)
Type K	-200 to 1300	-300 to 2300
	0.0 to 500.0	0.0 to 900.0
Type J	-100 to 850	-100 to 1500
	0.0 to 400.0	0.0 to 750.0

Input Temperature Ranges for CPM1A-TS101/TS101DA/TS102

The rotary switch can be used to make of the following range and input type settings for CPM1A-TS101/102 models.

Platinum RTD input	Range (°C)	Range (°F)
Pt100	-200.0 to 650.0	-300 to 1200.0
JPt100	-200.0 to 650.0	-300 to 1200.0

■ COMMUNICATIONS ADAPTER

RS-232C Adapter and RS-422 Adapter

Model	CPM1-CIF01	CPM1-CIF11
Functions	Level conversion between the CMOS level (CPU side) and the RS-232C (peripheral device side)	Level conversion between the CMOS level (CPU side) and the RS-422 (peripheral device side)
Insulation	The RS-232C (peripheral device side) is insulated by a DC/DC converter and photocoupler.	The RS-422 (peripheral device side) is insulated by a DC/DC converter and photocoupler.
Power supply	Power is supplied by the CPU.	
Power consumption	0.3 A max.	
Transmission speed	38.4 kbits/s max.	
Vibration resistance	10 to 57 Hz with an amplitude of 0.075 mm, and 57 to 150 Hz with an acceleration of 1 G in the X, Y and Z directions for 80 minutes each (i.e. for 8 minutes each, 10 times).	
Shock resistance	1.5 G in the X, Y and Z directions 3 times each.	
Ambient temperature	Operating	0°C to 55°C (32°F to 131°F)
	Storage	-20°C to 75°C (-4°F to 167°F)
Ambient humidity	Operating	10% to 90% RH (with no condensation)
Ambient environment	Operating	With no corrosive gas
Weight	200 g max.	