

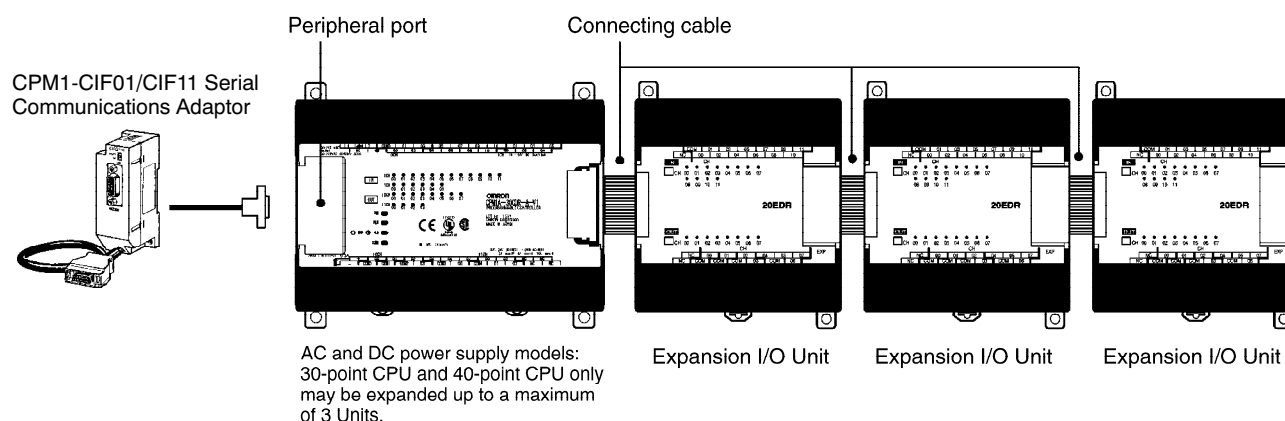
Micro Programmable Controller CPM1A

The CPM1A series micro controllers solve both basic and semi-complex applications. The brick style models include DC inputs/transistor or relay outputs to meet your design requirements. The base I/O for the CPUs ranges from 10, 20, 30, and 40 I/O points with maximum expansion to 100 I/O. Specialized expansion modules include mixed analog I/O, temperature sensor inputs and serial communications.



- 10, 20, 30 and 40 point I/O CPUs
- Expandable up to 100 I/O points
- Peripheral communications port built in
- DC input models
- Analog expansion modules available
- Temperature sensor input expansion modules available
- Auxiliary 24 VDC supply (AC type only)
- Relay or Transistor outputs
- UL, CSA, CE approvals

Basic Configuration



Ordering Information

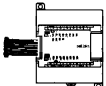
■ CPU

Stock Note: Shaded models are normally stocked.

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-V1	CPM1A-10CDT-A-V1	CPM1A-10CDT1-A-V1
			DC	CPM1A-10CDR-D-V1	CPM1A-10CDT-D-V1	CPM1A-10CDT1-D-V1
20	12 DC points	8 points	AC	CPM1A-20CDR-A-V1	CPM1A-20CDT-A-V1	CPM1A-20CDT1-A-V1
			DC	CPM1A-20CDR-D-V1	CPM1A-20CDT-D-V1	CPM1A-20CDT1-D-V1
30	18 DC points	12 points	AC	CPM1A-30CDR-A-V1	CPM1A-30CDT-A-V1	CPM1A-30CDT1-A-V1
			DC	CPM1A-30CDR-D-V1	CPM1A-30CDT-D-V1	CPM1A-30CDT1-D-V1
40	24 DC points	16 points	AC	CPM1A-40CDR-A-V1	CPM1A-40CDT-A-V1	CPM1A-40CDT1-A-V1
			DC	CPM1A-40CDR-D-V1	CPM1A-40CDT-D-V1	CPM1A-40CDT1-D-V1

■ EXPANSION I/O MODULES

Stock Note: Shaded models are normally stocked.

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-20EDR1	
		24 VDC	Sinking transistors	CPM1A-20EDT	
		24 VDC	Sourcing transistors	CPM1A-20EDT1	
		8 inputs	24 VDC	—	CPM1A-8ED
		—	Relays	CPM1A-8ER	
		—	Sinking transistors	CPM1A-8ET	
		—	Sourcing transistors	CPM1A-8ET1	
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.

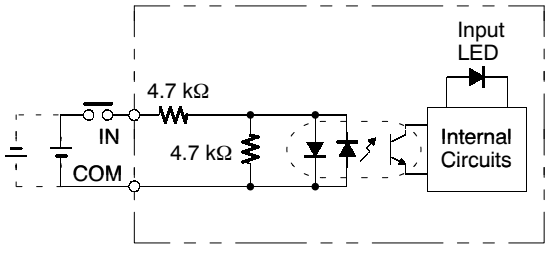
Specifications

■ GENERAL SPECIFICATIONS

Input type		DC input			
CPU type		10-point I/O	20-point I/O	30-point I/O	40-point I/O
Power supply voltage/fre- quency	AC power supply	100 to 240 VAC, 50/60 Hz			
	DC power supply	24 VDC			
Operating voltage range	AC power supply	85 to 264 VAC			
	DC power supply	20.4 to 26.4 VDC			
Power consumption	AC power supply	30 VA max.		60 VA max.	
	DC power supply	6 W max.		20 W max.	
Inrush current		30 A max.		60 A max.	
External power supply (AC only)	Power supply voltage	24 VDC			
	Power supply output capacity	200 mA		300 mA	
Insulation resistance		20 MΩ min. at 500 VDC between the AC terminals and the protective earth terminal.			
Dielectric strength		2,300 VAC at 50/60 Hz for one minute with a leakage current of 10 mA max. between all the external AC terminals and the protective earth terminal.			
Noise resistance		Conforms to IEC61000-4-4, 2 kV (power lines) 1500 Vp-p, pulse width 0.1 to 1 μs, rise time: 1 ns (via noise simulation)			
Vibration resistance		10 to 57 Hz with an amplitude of 0.075 mm, and 57 to 150 Hz with an acceleration of 1.5 G in the X, Y, and Z directions for 10 sweeps of minutes each.			
Shock resistance		147 m/s² 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 no condensation			
Ambient environment	Operating	With no corrosive gas			
Terminal screw size		M3			
Power supply holding time		10 ms min. for AC models, and 2 ms min. for DC models			
CPU Weight	AC models	400 g max.	500 g max..	600 g max..	700 g max.
	DC models	300 g max.	400 g max.	500 g max.	600 g max.
Expansion 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.	
		Temperature sensor units:		250 g max.	
		CompoBus/S I/O link unit:		200 g max.	
		DeviceNet I/O link unit:		200 g max.	
		Profibus-DP slave unit:		125 g	

I/O SPECIFICATIONS

CPU DC Input

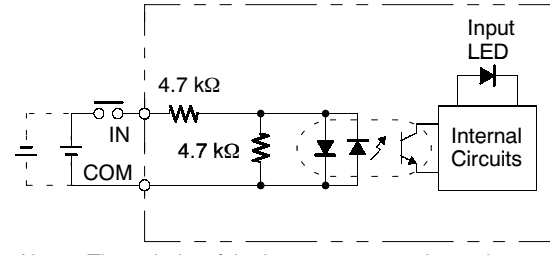
Item	Specifications	Circuit
Input voltage	24 VDC +10%/−15%	 Note: The polarity of the input power supply can be either positive or negative.
Input impedance	IN0000 to IN0002: 2 kΩ Others: 4.7 kΩ	
Input current (typical)	IN0000 to IN0002: 12 mA Others: 5 mA	
ON voltage	14.4 VDC min.	
OFF voltage	5.0 VDC max.	
ON delay (See Note 1)	1 to 128 ms max. (default: 8 ms) (See Note 1)	
OFF delay (See Note 1)	1 to 128 ms max. (default: 8 ms) (See Note 1)	

Note: 1. The actual ON/OFF delay includes an input constant of 1, 2, 4, 8, 16, 32, 64, or 128 ms (default: 8 ms).

2. When IN0000 to IN0006 are used for the high-speed counter inputs, the delays are as shown below:

Input	Increment mode	Differential phase mode
IN0000 (A-phase)	5 kHz	2.5 kHz
IN0001 (B-phase)	Normal input	
IN0002 (Z-phase)	ON: 100 μs max. OFF: 500 μs max.	
IN0003 to IN0006	0.3 ms max. (From the time of input ON until the interrupt subroutine is executed.)	

Expansion I/O Unit

Item	Specifications	Circuit
Input voltage	24 VDC, +10%/−15%	 Note: The polarity of the input power supply can be either positive or negative.
Input impedance	4.7 kΩ	
Input current (typical)	5 mA	
ON voltage	14.4 VDC min.	
OFF voltage	5.0 VDC max.	
ON delay	1 to 128 ms max. (default: 8 ms) (See Note)	
OFF delay	1 to 128 ms max. (default: 8 ms) (See Note)	

Note: The actual ON/OFF delay includes an input constant of 1, 2, 4, 8, 16, 32, 64, or 128 ms (default: 8 ms).

OUTPUT SPECIFICATIONS (CPU AND EXPANSION I/O MODULES)

Relay Output

Item			Specifications	Circuit
Maximum switching capacity			2 A, 250 VAC (cos ϕ = 1) 2 A, 24 VDC (4 A/common)	