

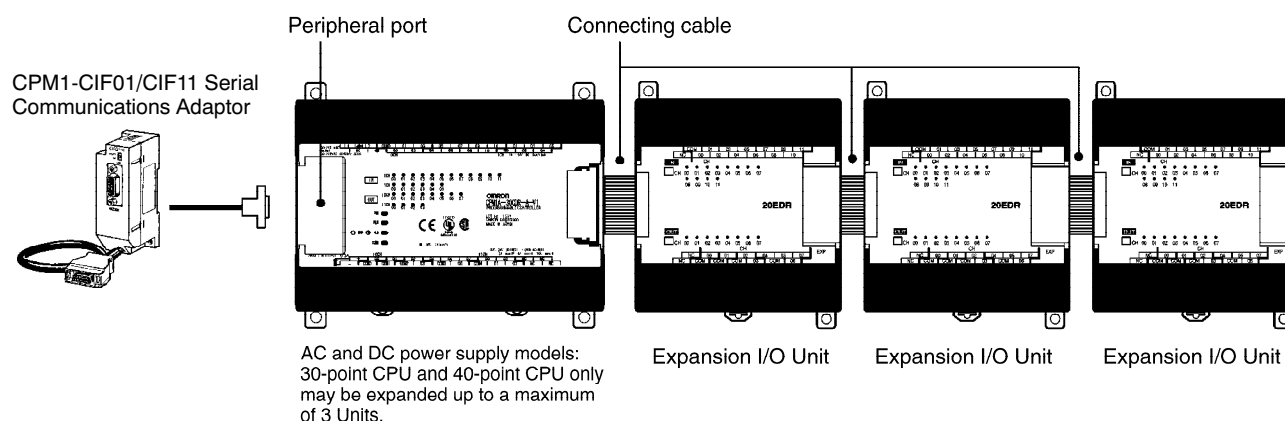
# Micro Programmable Controller CPM1A

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

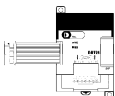
**Stock Note:** Shaded models are normally stocked.

| Description                              | Max. number of modules | Inputs | Outputs              | Part number  |
|------------------------------------------|------------------------|--------|----------------------|--------------|
| 20 I/O points<br>12 inputs,<br>8 outputs | 3 max.<br>(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    |
| 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.

## ■ DEDICATED I/O MODULES

**Stock Note:** Shaded models are normally stocked.

| Description                                                                                                                                                     |                                        | Max. number of modules | Inputs                               | Outputs                             | Part number                                                               |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------|------------------------|--------------------------------------|-------------------------------------|---------------------------------------------------------------------------|
| Analog I/O Module<br>2 analog inputs (2 words)<br>1 analog output (1 word)<br> |                                        | 3 max.                 | 2 analog inputs                      | 1 analog output                     | CPM1A-MAD01                                                               |
|                                                                                                                                                                 |                                        |                        |                                      |                                     | CPM1A-MAD11                                                               |
| Temperature Sensor Input Modules<br>                                           | Thermocouple inputs                    | 3 max.                 | 2 inputs (Types J and K)             | —                                   | CPM1A-TS001                                                               |
|                                                                                                                                                                 |                                        | 1 max.<br>(See Note.)  | 4 inputs (Types J and K)             |                                     | CPM1A-TS002                                                               |
|                                                                                                                                                                 | Platinum resistance thermometer inputs | 3 max.                 | 2 inputs (Pt100, JPt100)             | 1 analog output                     | CPM1A-TS101                                                               |
|                                                                                                                                                                 |                                        | 3 max.                 | 2 inputs (Pt100, JPt100)             |                                     | CPM1A-TS101-DA                                                            |
|                                                                                                                                                                 |                                        | 1 max.<br>(See Note.)  | 4 inputs (Pt100, JPt100)             | —                                   | CPM1A-TS102                                                               |
|                                                                                                                                                                 |                                        | 1 max.<br>(See Note.)  | 4 inputs (Pt100, JPt100)             |                                     | CPM1A-TS102                                                               |
| CompoBus/S I/O Link Module<br>8 inputs and 8 outputs<br>                       |                                        | 3 max.                 | 8 bits<br>(Inputs from the Master.)  | 8 bits<br>(Outputs to the Master.)  | CPM1A-SRT21                                                               |
|                                                                                                                                                                 |                                        |                        |                                      |                                     | Flat cable, 4-core, 0.75 mm <sup>2</sup> ; 100 m length                   |
|                                                                                                                                                                 |                                        |                        |                                      |                                     | Twisted pair cable, 2-core, 0.75 mm <sup>2</sup> ; available commercially |
| DeviceNet I/O Link Module<br>32 inputs and 32 outputs<br>                      |                                        | 3 max.                 | 32 bits<br>(Inputs from the Master.) | 32 bits<br>(Outputs to the Master.) | CPM1A-DRT21                                                               |
|                                                                                                                                                                 |                                        |                        |                                      |                                     | Omron connector with screws<br>(included with DeviceNet I/O Link Module). |
|                                                                                                                                                                 |                                        |                        |                                      |                                     | Omron Connector for multidrop connections using thick cables.             |
| Profibus-DP Slave Module<br>16 inputs and 16 outputs<br>                       |                                        | 3 max.                 | 16 bits<br>(Inputs from the Master.) | 16 bits<br>(Outputs to the Master.) | CPM1A-PRT21                                                               |
|                                                                                                                                                                 |                                        |                        |                                      |                                     | Shielded twisted pair cable, available commercially                       |

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.

## ■ PERIPHERAL DEVICES

**Stock Note:** Shaded models are normally stocked.

| Product             | Description                                                        | Part number   |
|---------------------|--------------------------------------------------------------------|---------------|
| Programming console | Hand-held programming console with cable attached, 2 m length      | CQM1-PRO01-E  |
|                     | Hand-held programming console with back light (cable not included) | C200H-PRO27-E |
| Connecting cable    | Connects C200H programming console to peripheral port, 2 m length  | C200H-CN222   |
|                     | Connects C200H programming console to peripheral port, 4 m length  | C200H-CN422   |

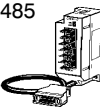
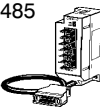
## ■ SUPPORT SOFTWARE

**Stock Note:** Shaded models are normally stocked.

| Product           | Functions                                                                            | Part number       |
|-------------------|--------------------------------------------------------------------------------------|-------------------|
| CX-Programmer Jr. | Windows-based programming software; reduced instruction set and networking commands. | WS02-CXPC1-EJ-V__ |
| CX-Programmer     | Full programming software package programs micro, small and larger controllers.      | WS02-CXPC1-E-V__  |

## ■ COMMUNICATIONS ADAPTERS AND CABLES

**Stock Note:** Shaded models are normally stocked.

| Description                                                                                                | Function                                                                     | Part number          |
|------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------|----------------------|
| RS-232C adapter<br>       | Converts data communications from peripheral port for RS-232C devices.       | CPM1-CIF01           |
| RS-232C cable<br>         | RS-232C to RS-232C; PC connection for program download; cable length 2 m     | C200H-CN229-EU       |
|                                                                                                            |                                                                              | CBL-202*             |
|                                                                                                            | RS-232C to RS-232C for PLC communication; cable length 2 m                   | C200H-CN320-EU       |
|                                                                                                            |                                                                              | CBL-804*             |
|                                                                                                            | Communication cable for NT31C (port B only)                                  | 50 cm NT31C-CN510-EU |
|                                                                                                            |                                                                              | 3 m NT31C-CN320-EU   |
|                                                                                                            |                                                                              | 5 m NT31C-CN520-EU   |
| RS-422/RS-485 adapter<br> | Converts data communications from peripheral port for RS-422/RS-485 devices. | CPM1-CIF11           |

\* Available in Canada only.

## ■ PROGRAM TRANSFER EQUIPMENT

**Stock Note:** Shaded models are normally stocked.

| Product               | Description                                                                      | Part number       |
|-----------------------|----------------------------------------------------------------------------------|-------------------|
| Expansion Memory Unit | Uploads and downloads program and setup memory areas to and from the controller. | CPM1-EMU01-V1     |
| EEPROM (256 kbits)    | Used with the Expansion Memory Unit                                              | EEPROM-CPM1-EMU01 |

## ■ MANUALS

| Product            | Description                                          | Part number |
|--------------------|------------------------------------------------------|-------------|
| Operation manual   | CPM1A programmable controllers operation manual      | W317        |
| Programming manual | CPM1/CPM1A/CPM2A/CPM2C/SRM1 (-V2) programming manual | W353        |

# 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-<br>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)<br>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/s <sup>2</sup> 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        |              |

## ■ CHARACTERISTICS

|                                          |                           |                                                                                                                                                                                                                                                                                                       |                                             |                                                    |                                                     |
|------------------------------------------|---------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------|----------------------------------------------------|-----------------------------------------------------|
| Input type                               |                           | DC input                                                                                                                                                                                                                                                                                              |                                             |                                                    |                                                     |
| CPU type                                 |                           | 10-point I/O                                                                                                                                                                                                                                                                                          | 20-point I/O                                | 30-point I/O                                       | 40-point I/O                                        |
| Control method                           |                           | Stored program method                                                                                                                                                                                                                                                                                 |                                             |                                                    |                                                     |
| I/O control method                       |                           | Combination of the cyclic scan and immediate refresh processing methods.                                                                                                                                                                                                                              |                                             |                                                    |                                                     |
| Programming language                     |                           | Ladder diagram                                                                                                                                                                                                                                                                                        |                                             |                                                    |                                                     |
| Instruction word                         |                           | 1 step per instruction, 1 to 5 words per instruction                                                                                                                                                                                                                                                  |                                             |                                                    |                                                     |
| Types of instructions                    | Basic instructions        | 14 types                                                                                                                                                                                                                                                                                              |                                             |                                                    |                                                     |
|                                          | Special instructions      | 79 types, 139 instructions                                                                                                                                                                                                                                                                            |                                             |                                                    |                                                     |
| Instruction execution time               | Basic instructions        | 0.72 to 16.2 μs                                                                                                                                                                                                                                                                                       |                                             |                                                    |                                                     |
|                                          | Special instructions      | MOV instruction = 16.3 μs                                                                                                                                                                                                                                                                             |                                             |                                                    |                                                     |
| Program capacity                         |                           | 2,048 words                                                                                                                                                                                                                                                                                           |                                             |                                                    |                                                     |
| User data memory                         |                           | 1,024 words                                                                                                                                                                                                                                                                                           |                                             |                                                    |                                                     |
| Maximum I/O points                       | CPU only                  | 10 points<br>(6 input/<br>4 output points)                                                                                                                                                                                                                                                            | 20 points<br>(12 input/<br>8 output points) | 30 points<br>(18 input/<br>12 output points)       | 40 points<br>(24 input/<br>16 output points)        |
|                                          | With Expansion I/O Module | —                                                                                                                                                                                                                                                                                                     | —                                           | Up to 90 points<br>(54 input/<br>36 output points) | Up to 100 points<br>(60 input/<br>40 output points) |
| Memory protection                        |                           | Maintains the contents of the HR, AR, Counter and Data Memory Areas.                                                                                                                                                                                                                                  |                                             |                                                    |                                                     |
| Memory backup                            |                           | Flash memory: User program, data memory (Read only) and PLC setup area are backed up without a battery.<br>Super capacitor: Data memory (Read/Write), holding bits, auxiliary memory bits, counter values, error log area are backed up by a capacitor for 20-days at an ambient temperature of 25°C. |                                             |                                                    |                                                     |
| Self-diagnostic function                 |                           | CPU error (watchdog timer), memory errors, I/O bus errors                                                                                                                                                                                                                                             |                                             |                                                    |                                                     |
| Program check                            |                           | No END instruction programming errors (constantly checked during operation)                                                                                                                                                                                                                           |                                             |                                                    |                                                     |
| Pulse output                             |                           | 1 point: 2 kHz                                                                                                                                                                                                                                                                                        |                                             |                                                    |                                                     |
| High-speed counter                       |                           | 1 point: Single phase at 5 kHz or two-phase at 2.5 kHz (linear counting method)<br>Incremental mode: 0 to 65535 (16-bit)<br>Decremental mode: -32767 to 32767 (16-bit)                                                                                                                                |                                             |                                                    |                                                     |
| Quick-response inputs                    |                           | Together with the external interrupt input (minimum pulse width of 0.2 ms)                                                                                                                                                                                                                            |                                             |                                                    |                                                     |
| Input time constant                      |                           | Can be set at 1 ms, 2 ms, 4 ms, 8 ms, 16 ms, 32 ms, 64 ms, or 128 ms.                                                                                                                                                                                                                                 |                                             |                                                    |                                                     |
| Interrupt processing: External interrupt |                           | 2 points (Response time of 0.3 ms max.)                                                                                                                                                                                                                                                               | 4 points (Response time of 0.3 ms max.)     |                                                    |                                                     |
| Analog settings                          |                           | 2 points: (0 to 200 BCD)                                                                                                                                                                                                                                                                              |                                             |                                                    |                                                     |

## ■ I/O ALLOCATION

|                          |            |                                                                                                                                           |
|--------------------------|------------|-------------------------------------------------------------------------------------------------------------------------------------------|
| Input bits               |            | 00000 to 00915; words not used for input or output bits can be used for work bits.                                                        |
| Output bits              |            | 01000 to 01915; words not used for input or output bits can be used for work bits.                                                        |
| Work bits (IR Area)      |            | 512: IR 20000 to IR 23115 (IR 200 to IR 231)                                                                                              |
| Special bits (SR Area)   |            | 384: SR 23200 to SR 25515 (SR 232 to SR 255)                                                                                              |
| Temporary bits (TR Area) |            | 8: TR 0 to TR 7                                                                                                                           |
| Holding bits (HR Area)   |            | 320: HR 0000 to HR 1915 (HR 00 to HR 19)                                                                                                  |
| Auxiliary bits (AR Area) |            | 256: AR 0000 to AR 1515 (AR 00 to AR 15)                                                                                                  |
| Link bits (LR Area)      |            | 256: LR 0000 to LR 1515 (LR 00 to LR 15)                                                                                                  |
| Timers/Counters          |            | 128: TIM/CNT 000 to 127<br>100-ms timer: TIM 000 to TIM 127<br>10-ms timer: TIM 000 to TIM 127<br>Decremental counter, reversible counter |
| Data memory              | Read/Write | 1,024 words (DM 0000 to DM 1023)                                                                                                          |
|                          | Read only  | 512 words (DM 6144 to DM 6655)                                                                                                            |

## ■ I/O SPECIFICATIONS

### CPU DC Input

| Item                    | Specifications                                   | Circuit |
|-------------------------|--------------------------------------------------|---------|
| Input voltage           | 24 VDC +10%/−15%                                 |         |
| Input impedance         | IN0000 to IN0002: 2 kΩ<br>Others: 4.7 kΩ         |         |
| Input current (typical) | IN0000 to IN0002: 12 mA<br>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.<br>(default: 8 ms) (See Note 1) |         |
| OFF delay (See Note 1)  | 1 to 128 ms max.<br>(default: 8 ms) (See Note 1) |         |

**Note:** The polarity of the input power supply can be either positive or negative.

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

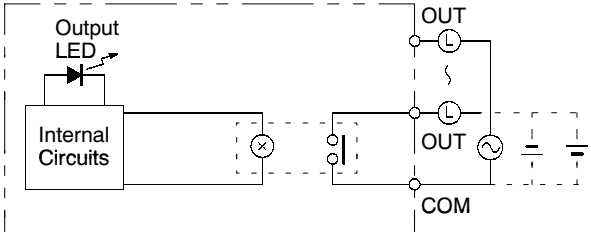
| Item                    | Specifications                                 | Circuit |
|-------------------------|------------------------------------------------|---------|
| Input voltage           | 24 VDC, +10%/−15%                              |         |
| Input impedance         | 4.7 kΩ                                         |         |
| Input current (typical) | 5 mA                                           |         |
| ON voltage              | 14.4 VDC min.                                  |         |
| OFF voltage             | 5.0 VDC max.                                   |         |
| ON delay                | 1 to 128 ms max.<br>(default: 8 ms) (See Note) |         |
| OFF delay               | 1 to 128 ms max.<br>(default: 8 ms) (See Note) |         |

Note: The polarity of the input power supply can be either positive or negative.

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)

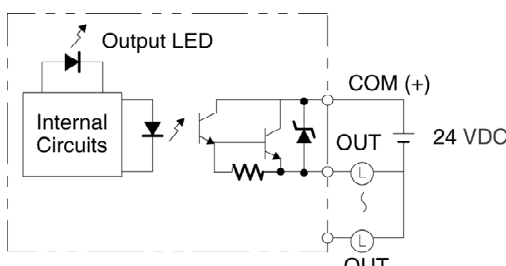
## Relay Output

| Item                       |            |                 | Specifications                                               | Circuit                                                                              |
|----------------------------|------------|-----------------|--------------------------------------------------------------|--------------------------------------------------------------------------------------|
| Maximum switching capacity |            |                 | 2 A, 250 VAC (cos $\phi$ = 1)<br>2 A, 24 VDC<br>(4 A/common) |  |
| Minimum switching capacity |            |                 | 10 mA, 5 VDC                                                 |                                                                                      |
| Relay service life         | Electrical | Resistance load | 150,000 times                                                |                                                                                      |
|                            |            | Inductive load  | 100,000 times                                                |                                                                                      |
|                            | Mechanical |                 | 20 million times                                             |                                                                                      |
| ON delay                   |            |                 | 15 ms max.                                                   |                                                                                      |
| OFF delay                  |            |                 | 15 ms max.                                                   |                                                                                      |

# Transistor Outputs (Sinking)

|                         |                                                                                                                                                                             |                            |                            |                            |                                              |                                                             |
|-------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|----------------------------|----------------------------|----------------------------------------------|-------------------------------------------------------------|
| Item                    | Specifications                                                                                                                                                              |                            |                            |                            |                                              |                                                             |
|                         | CPM1A-10CDT-□(-V1)                                                                                                                                                          | CPM1A-20CDT-□(-V1)         | CPM1A-30CDT-□(-V1)         | CPM1A-40CDT-□(-V1)         | CPM1A-20EDT                                  | CPM1A-8ET                                                   |
| Max. switching capacity | 24 VDC +10%/-15%, 0.3 A/point (See note)                                                                                                                                    |                            |                            |                            |                                              | 4.5 to 30 VDC<br>0.2 A (See note 2.)<br>0.3 A (See note 3.) |
|                         | 0.9 A/Unit                                                                                                                                                                  | 0.9 A/common<br>1.8 A/Unit | 0.9 A/common<br>2.7 A/Unit | 0.9 A/common<br>3.6 A/Unit | 0.9 A/common<br>1.8 A/Unit                   |                                                             |
| Leakage current         | 0.1 mA max.                                                                                                                                                                 |                            |                            |                            |                                              |                                                             |
| Residual voltage        | 1.5 V max.                                                                                                                                                                  |                            |                            |                            |                                              |                                                             |
| ON delay                | 0.1 ms max.                                                                                                                                                                 |                            |                            |                            |                                              |                                                             |
| OFF delay               | OUT01000/01001: 0.2 ms max. (load current: 100 to 300 mA)<br>0.5 ms max. (load current: 5 to 100 mA)<br><br>Other than OUT01000/01001: 1 ms max. (load current 5 to 300 mA) |                            |                            |                            | 1 ms max.<br>(24 VDC +10%/-15%, 5 to 300 mA) |                                                             |
| Fuse                    | V1 CPUs: No fuse<br>Expansion I/O Units and Pre-V1 CPUs: 1.25 A/common (cannot be replaced by the user)                                                                     |                            |                            |                            |                                              |                                                             |
| Circuit configuration   |                                                                                                                                                                             |                            |                            |                            |                                              |                                                             |

# Transistor Outputs (Sourcing)

| Item                    | Specifications                                                                                                                                                              |                            |                            |                            |                                             |                                                             |
|-------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|----------------------------|----------------------------|---------------------------------------------|-------------------------------------------------------------|
|                         | CPM1A-10CDT1-□(-V1)                                                                                                                                                         | CPM1A-20CDT1-□(-V1)        | CPM1A-30CDT1-□(-V1)        | CPM1A-40CDT1-□(-V1)        | CPM1A-20EDT1                                | CPM1A-8ET1                                                  |
| Max. switching capacity | 24 VDC +10%/-15%, 0.3 A/point (See note)                                                                                                                                    |                            |                            |                            |                                             | 4.5 to 30 VDC<br>0.2 A (See note 2.)<br>0.3 A (See note 3.) |
|                         | 0.9 A/Unit                                                                                                                                                                  | 0.9 A/common<br>1.8 A/Unit | 0.9 A/common<br>2.7 A/Unit | 0.9 A/common<br>3.6 A/Unit | 0.9 A/common<br>1.8 A/Unit                  |                                                             |
| Leakage current         | 0.1 mA max.                                                                                                                                                                 |                            |                            |                            |                                             |                                                             |
| Residual voltage        | 1.5 V max.                                                                                                                                                                  |                            |                            |                            |                                             |                                                             |
| ON delay                | 0.1 ms max.                                                                                                                                                                 |                            |                            |                            |                                             |                                                             |
| OFF delay               | OUT01000/01001: 0.2 ms max. (load current: 100 to 300 mA)<br>0.5 ms max. (load current: 5 to 100 mA)<br><br>Other than OUT01000/01001: 1 ms max. (load current 5 to 300 mA) |                            |                            |                            | 1 ms max.<br>(24 VDC +10%/-5%, 5 to 300 mA) |                                                             |
| Fuse                    | V1 CPUs: No fuse<br>Expansion I/O Units and Pre-V1 CPUs: 1.25 A/common (cannot be replaced by the user)                                                                     |                            |                            |                            |                                             |                                                             |
| Circuit configuration   |                                                                                         |                            |                            |                            |                                             |                                                             |

Note: When using the OUT01000 or OUT01001 as a pulse output, connect dummy resistors as required to set the load current to 0.1 to 0.2 A. If the load current is below 0.1 A, the ON-to-OFF response time will become longer and high-speed pulse will not be output. On the other hand, if the load current is above 0.2 A, the transistor may generate heat and components may be damaged.