**Compact PLC series**

# CPM2C

# A versatile controller for up to 192 I/O points in an ultra-compact package

## SYSMAC CPM2C

An extensive range of models assures efficient machine control in an ultracompact package. CPU Units (DC power supply only) are available with relay or transistor output, terminal block or various connector options, and an optional real-time clock function. Select the output type, number of I/O points and other specifications to meet your needs. Expansion I/O Units with 8 to 32 I/O points make it possible to configure a control system with a maximum of 192 I/O points.

## CPU Units Depth: 65 mm

### 10 I/O Points

■ Relay Output CPU Units
(Terminal-block type)
CPM2C-10CDR-D (No clock)
CPM2C-10C1DR-D (Clock)
● Input points: 6, DC input
● Output points: 4

■ Transistor Output (Sink) CPU Units
(Connector type)
CPM2C-10CDTC-D (No clock)
CPM2C-10C1DTC-D (Clock)
(MIL-connector type)
CPM2C-10CDTM-D (No clock)
CPM2C-10C1DTM-D (Clock)
■ Transistor Output (Source) CPU Units
(Connector type)
CPM2C-10CDT1C-D (No clock)
CPM2C-10C1DT1C-D (Clock)
(MIL-connector type)
CPM2C-10CDT1M-D (No clock)
CPM2C-10C1DT1M-D (Clock)
● Input points: 6, DC input
● Output points: 4

### 20 I/O Points

■ Relay Output CPU Units
(Terminal-block type)
CPM2C-20CDR-D (No clock)
CPM2C-20C1DR-D (Clock)
● Input points: 12, DC input
● Output points: 8

■ Transistor Output (Sink) CPU Units
(Connector type)
CPM2C-20CDTC-D (No clock)
CPM2C-20C1DTC-D (Clock)
(MIL-connector type)
CPM2C-20CDTM-D (No clock)
CPM2C-20C1DTM-D (Clock)
■ Transistor Output (Source) CPU Units
(Connector type)
CPM2C-20CDT1C-D (No clock)
CPM2C-20C1DT1C-D (Clock)
(MIL-connector type)
CPM2C-20CDT1M-D (No clock)
CPM2C-20C1DT1M-D (Clock)
● Input points: 12, DC input
● Output points: 8

### 32 I/O Points

■ Transistor Output (Sink) CPU Units
(Connector type)
CPM2C-32CDTC-D (No clock)
(MIL-connector type)
CPM2C-32CDTM-D (No clock)
■ Transistor Output (Source) CPU Units
(Connector type)
CPM2C-32CDT1C-D (No clock)
(MIL-connector type)
CPM2C-32CDT1M-D (No clock)
● Input points: 16, DC input
● Output points: 16

## Programmable DeviceNet Slaves

■ Transistor Output (Sink)
CPU Unit
(Connector type)
CPM2C-S100C-DRT (Clock)
■ Transistor Output (Source)
CPU Unit
(Connector type)
CPM2C-S110C-DRT (Clock)
● Input points: 6, DC input
● Output points: 4

## CPU Units with CompoBus/S Master Function

■ Transistor Output (Sink)
CPU Unit
(Connector type)
CPM2C-S100C (Clock)
■ Transistor Output (Source)
CPU Unit
(Connector type)
CPM2C-S110C (Clock)
● Input points: 6, DC input
● Output points: 4

## AC Power Supply Unit
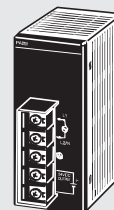
CPM2C-PA201
● 100- to 240-V AC input
● 24-V AC/600-mA output

# OMRON

## Analog I/O Units

**CPM2C-MAD11**
- Analog inputs: 2 (Resolution: 6,000)
- Analog output: 1 (Resolution: 6,000)

## Temperature Sensor Units

**CPM2C-TS001**
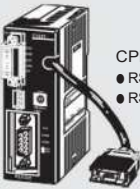- Thermocouple inputs: 2

**CPM2C-TS101**
- Platinum-resistance thermometer inputs: 2

## CompoBus/S I/O Link Unit

**CPM2C-SRT21**
- I/O Link inputs: 8
- I/O Link outputs: 8

## Simple Communications Unit

**CPM2C-CIF21**
- RS-485 component connection
- RS-232C

## Adapters

■ Peripheral/ RS-232C Adapter
CPM2C-CIF01-V1

■ RS-422/RS-485 + RS-232C Adapter
CPM2C-CIF11

## Expansion I/O Units Depth: 65 mm

### Input/Output Expansion I/O Units

■ Relay Output I/O Unit (Terminal-block type)
CPM2C-10EDR
- Input points: 6, DC input
- Output points: 4

■ Relay Output I/O Unit (Terminal-block type)
CPM2C-20EDR
- Input points: 12, DC input
- Output points: 8

■ Transistor Output (Sink) I/O Unit (Connector type)
CPM2C-24EDTC
■ Transistor Output (Source) I/O Unit (Connector type)
CPM2C-24EDT1C
■ Transistor Output (Sink) I/O Unit (MIL-connector type)
CPM2C-24EDTM
■ Transistor Output (Source) I/O Unit (MIL-connector type)
CPM2C-24EDT1M
- Input points: 16, DC input
- Output points: 8

■ Transistor Output (Sink) I/O Unit (Connector type)
CPM2C-32EDTC
■ Transistor Output (Source) I/O Unit (Connector type)
CPM2C-32EDT1C
■ Transistor Output (Sink) I/O Unit (MIL-connector type)
CPM2C-32EDTM
■ Transistor Output (Source) I/O Unit (MIL-connector type)
CPM2C-32EDT1M
- Input points: 16, DC input
- Output points: 16

### Input Expansion I/O Units

(Connector type)
CPM2C-8EDC

(MIL-connector type)
CPM2C-8EDM
- Input points: 8, DC input

CPM2C-8EDC

(Connector type)
CPM2C-16EDC

(MIL-connector type)
CPM2C-16EDM
- Input points: 16, DC input

CPM2C-16EDC

### Output Expansion I/O Units

■ Relay Output I/O Unit (Terminal-block type)
CPM2C-8ER
- Output points: 8

■ Transistor Output (Sink) I/O Unit (Connector type)
CPM2C-8ETC
■ Transistor Output (Source) I/O Unit (Connector type)
CPM2C-8ET1C
■ Transistor Output (Sink) I/O Unit (MIL-connector type)
CPM2C-8ETM
■ Transistor Output (Source) I/O Unit (MIL-connector type)
CPM2C-8ET1M
- Output points: 8

■ Transistor Output (Sink) I/O Unit (Connector type)
CPM2C-16ETC
■ Transistor Output (Source) I/O Unit (Connector type)
CPM2C-16ET1C
■ Transistor Output (Sink) I/O Unit (MIL-connector type)
CPM2C-16ETM
■ Transistor Output (Source) I/O Unit (MIL-connector type)
CPM2C-16ET1M
- Output points: 16

## Specifications

### General

| Item | CPU Unit Specification | | | | | |
|---|---|---|---|---|---|---|
| | CPU Units with 10 I/O points (relay outputs) | CPU Units with 10 I/O points (transistor outputs) | CPU Units with 20 I/O points (relay outputs) | CPU Units with 20 I/O points (transistor outputs) | CPU Units with 32 I/O points (transistor outputs) | CPM2C-S CPU Unit with 10 I/O points (transistor outputs) |
| Supply voltage | 24 V DC | | | | | |
| Operating voltage range | 20.4 to 26.4 V DC | | | | | |
| Power consumption (Add Expansion Unit consumption from following tables.) | 4 W | 3 W | 4 W | 3 W | 3 W | 3 W |
| Inrush current | 25 A max. | | | | | |
| Insulation resistance | 20 MΩ min. (at 500 V DC) between isolated circuits | | | | | |
| Dielectric strength | 2,300 V AC for 1 min (between isolated circuits) | | | | | |
| Noise immunity | Conforms to IEC61000-4-4, 2 kV (power lines) | | | | | |
| Vibration resistance | Conforming to IEC 60068-2-6, JIS C0040: 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 | Conforming to IEC 60068-2-27, JIS C0041: 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 (except for the battery) | | | | | |
| Humidity | 10% to 90% (with no condensation) | | | | | |
| Atmosphere | Must be free from corrosive gas | | | | | |
| I/O interface | Terminal block | Connector | Terminal block | Connector | | |
| Power interrupt time | 2 ms min. | | | | | |
| Weight | 200 g max. | 200 g max. | 250 g max. | 200 g max. | 200 g max. | 160 g max. |
| | Expansion I/O Unit with 10 I/O points (relay outputs) | | | 200 g max. | | |
| | Expansion I/O Unit with 20 I/O points (relay outputs) | | | 200 g max. | | |
| | Expansion I/O Units with 24 I/O points (transistor outputs) | | | 200 g max. | | |
| | Expansion I/O Unit with 32 I/O points (transistor outputs) | | | 200 g max. | | |
| | Expansion I/O Unit with 8 input points | | | 150 g max. | | |
| | Expansion I/O Unit with 16 input points | | | 150 g max. | | |
| | Expansion I/O Units with 8 output points (transistor outputs) | | | 150 g max. | | |
| | Expansion I/O Units with 16 output points (transistor outputs) | | | 150 g max. | | |
| | Expansion I/O Unit with 8 output points (relay outputs) | | | 200 g max. | | |
| | Simple Communications Unit | | | 150 g max. | | |
| | Peripheral/RS232C Adapter Unit | | | 150 g max. | | |
| | RS422/RS232C Adapter Unit | | | 150 g max. | | |
| | AC Power Supply Unit | | | 250 g max. | | |
| | Analog I/O Unit | | | 200 g max. | | |
| | Temperature Sensor Unit | | | 200 g max. | | |
| | CompoBus/S I/O Link Unit | | | 150 g max. | | |

### CPM2C Power Consumption

Use the following power consumption tables to calculate the total power capacity required when using a CPM2C PLC. The rated output for the CPM2C-PA201 AC Power Supply Unit is 15 W. Any surplus power not required for the PLC directly can be used as service power supply for sensors and other devices.

| CPU Unit | Power consumption (W) |
|---|---|
| CPM2C-10C(1)DR-D | 4 |
| CPM2C-20C(1)DR-D | 4 |
| CPM2C-S1@0C-DRT1 | 3 |
| CPM2C-S1@0C | 3 |
| CPM2C-10C(1)DT(1)@-D | 3 |
| CPM2C-20C(1)DT(1)@-D | 3 |
| CPM2C-32C(1)DT(1)@-D | 3 |

The power consumption of the CPU Unit includes power for the Programming Consoles and Adapter Units.

Add the following consumptions when using Expansion I/O Units.

| Expansion I/O Unit | Power consumption (W) |
|---|---|
| CPM2C-10EDR | 1 |
| CPM2C-20EDR | 2 |
| CPM2C-24EDT(1)@ | 1 |
| CPM2C-32EDT(1)@ | 1 |
| CPM2C-MAD11 | 3.5 |
| CPM2C-SRT21 | 1 |
| CPM2C-TS001/002 | 1.5 |
| CPM2C-8ED@/16ED@ | 1 |
| CPM2C-8ER | 2 |
| CPM2C-8ET(1)@/16ET(1)@ | 1 |

## CPM2C Characteristics

| Item | CPU Unit Specification | | | | | |
|---|---|---|---|---|---|---|
| | CPU Units with 10 I/O points (relay outputs) | CPU Units with 10 I/O points (transistor outputs) | CPU Units with 20 I/O points (relay outputs) | CPU Units with 20 I/O points (transistor outputs) | CPU Units with 32 I/O points (transistor outputs) | CPM2C-S CPU Unit with 10 I/O points (transistor outputs) and CompoBus/S Master function |
| 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<br>Special instructions:105 instructions, 185 variations | | | | | |
| Execution time | Basic instructions: 0.64 $\mu$s (LD instruction)<br>Special instructions:7.8 $\mu$s (MOV instruction) | | | | | |
| Program capacity | 4,096 words | | | | | |
| I/O capacity — CPU Unit only | 10 points | | 20 points | | 32 points | 10 points |
| I/O capacity — With Expansion I/O Units | 170 points max. | | 180 points max. | | 192 points max. | 362 points max. (106 local + 256 remote) |
| 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.) | | | | | |
| CompoBus/S input bits | --- | | | | 128 inputs: IR 02000 to IR 02715 | I/O bits not used for I/O be used as work bits. |
| CompoBus/S output bits | --- | | | | 128 outputs: IR 03000 to IR 03715 | |
| 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) | | | | | 672 bits: IR 02800 to IR 02915 (Words IR 028 to IR 029), IR 03800 to IR 04915 (Words IR 038 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 SR 228 to SR 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)<br>1-ms timers: TMHH(—)<br>10-ms timers: TIMH(15)<br>100-ms timers: TIM<br>1-s/10-s timers: TIML(—)<br>Decrementing counters: CNT<br>Reversible counters: CNTR(12) | | | | | |
| Data memory | Read/Write: 2,048 words (DM 0000 to DM 2047)*<br>Read-only: 456 words (DM 6144 to DM 6599)<br>PC Setup: 56 words (DM 6600 to DM 6655)<br>*The Error Log is contained in DM 2000 to DM 2021. | | | | | |
| CompoBus/S master functions | --- | | --- | | | Connects to up to 32 slaves with up to 256 I/O link points |
| DeviceNet slave functions | --- | | --- | | | DeviceNet remote I/O link (DRT model only)<br>Up to 1,024 I/O link points<br>Explicit messages<br>Read/write of specified areas from PLC with Master Unit |
| Basic interrupts — Interrupt processing | 2 interrupts | 2 interrupts | 4 interrupts | 4 interrupts | 4 interrupts | 2 interrupts |
| Basic interrupts — Interrupt processing | Shared by the external interrupt inputs (counter mode) and the quick-response inputs. | | | | | |
| Basic interrupts — 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)<br>Counter interrupt: 1 (set value comparison or set-value range comparison) | | | | | |
| High-speed counter — Interrupt inputs (Counter mode) | 2 inputs | 2 inputs | 4 inputs | 4 inputs | 4 inputs | 2 inputs |
| High-speed counter — Interrupt inputs (Counter mode) | Shared by the external interrupt inputs and the quick-response inputs. | | | | | |
| High-speed counter — Counter interrupts | 2 inputs | 2 inputs | 4 inputs | 4 inputs | 4 inputs | 2 inputs |
| High-speed counter — Counter interrupts | Shared by the external interrupt inputs and the quick-response inputs. | | | | | |
| Pulse output | Two points with no acceleration/deceleration, 10 Hz to 10 kHz each, and no direction control.<br>One point with trapezoid acceleration/deceleration, 10 Hz to 10 kHz, and direction control.<br>Two points with variable duty-ratio outputs (using PWM(—)).<br>(Pulse outputs can be used with transistor outputs only, they cannot be used with relay outputs.) | | | | | |
| Synchronized pulse control | One point:<br>A pulse output can be created by combining the high-speed counter with pulse outputs and multiplying the frequency of the input pulses from the high-speed counter by a fixed factor.<br>(This output is possible with transistor outputs only, it cannot be used with relay outputs.) | | | | | |
| Quick-response inputs | 2 inputs | 2 inputs | 4 inputs | 4 inputs | 4 inputs | 2 inputs |
| Quick-response inputs | Shared by the external interrupt inputs and the interrupt inputs (counter mode).<br>Min. input pulse width: 50 $\mu$s max. | | | | | |
| Input time constant (ON response time = OFF response time) | Can be set for all input points.<br>(1 ms, 2 ms, 3 ms, 5 ms, 10 ms, 20 ms, 40 ms, or 80 ms) | | | | | |
| Clock function | Shows the year, month, day of the week, day, hour, minute, and second. (Battery backup) | | | | | |

| Item | CPU Unit Specification | | | | | |
|------|------------------------|---|---|---|---|---|
| | CPU Units with 10 I/O points (relay outputs) | CPU Units with 10 I/O points (transistor outputs) | CPU Units with 20 I/O points (relay outputs) | CPU Units with 20 I/O points (transistor outputs) | CPU Units with 32 I/O points (transistor outputs) | CPM2C-S CPU Unit with 10 I/O points (transistor outputs) and CompoBus/S Master function |
| Communications functions | Peripheral port:<br>Supports Host Link, peripheral bus, no-protocol, or Programming Console connections.<br>RS-232C port:<br>Supports Host Link, no-protocol, 1:1 Slave Unit Link, 1:1 Master Unit Link, or 1:1 NT Link connections.<br>A CPM2C-CN111, CS1W-CN114, or CS1W-CN118 Connecting Cable, or an Interface Unit (CPM2C-CIF01-V1 or CPM2C-CIF11) is required to connect to the CPM2C's communications port. | | | | | |
| Memory protection | HR area, AR area, program contents, read/write DM area contents, and counter values are maintained during power interruptions. | | | | | |
| Memory backup | Flash memory:<br>Program, read-only DM area, and PC Setup<br>Memory backup:<br>The read/write DM area, HR area, AR area, and counter values are backed up. With CPU Units that are equipped with a clock, the battery will backup memory for 2 years at 25° C. With CPU Units that are not equipped with a clock, if a battery is not installed, the internal capacitor will backup memory for 10 days at 25° C. If a battery (optional CPM2C-BAT01 Battery) is installed, it will backup memory for 5 years at 25° C. | | | | | |
| Self-diagnostic functions | CPU Unit failure (watchdog timer), I/O bus error, battery error, and memory failure | | | | | |
| Program checks | No END instruction, programming errors (checked when operation is started) | | | | | |

## CPM2C I/O Specifications

### 1. CPU Unit Input Specifications

| Item | Specifications | | | Circuit configuration |
|------|----------------|---|---|----------------------|
| | Units with 10 I/O points | Units with 20 I/O points | Units with 32 I/O points | |
| Input voltage | 24 V DC $^{+10\%}/_{-15\%}$ | | | |
| Input impedance | IN00000 to IN00001: 2.7 k Ω<br>IN00002 to IN00004: 3.9 k Ω<br>IN00005: 4.7 k Ω | IN00000 to IN00001: 2.7 k Ω<br>IN00002 to IN00006: 3.9 k Ω<br>IN00007 and up: 4.7 k Ω | IN00000 to IN00001: 2.7 k Ω<br>IN00002 to IN00006: 3.9 k Ω<br>IN00007: 4.7 k Ω<br>IN00100 to IN00107: 4.7 k Ω | |
| Input current | IN00000 to IN00001: 8 mA<br>IN00002 to IN00004: 6 mA<br>IN00005: 5 mA | IN00000 to IN00001: 8 mA<br>IN00002 to IN00006: 6 mA<br>IN00007 and up: 5 mA | IN00000 to IN00001: 8 mA<br>IN00002 to IN00006: 6 mA<br>IN00007: 5 mA<br>IN00100 to IN00107: 5 mA | |
| ON voltage/current | IN00000 to IN00001:17 V DC min., 5 mA<br>IN00002 and up:14.4 V DC min., 3.5 mA | | | |
| OFF voltage/current | 5.0 V DC max., 1.1 mA | | | |
| ON delay | 1 to 80 ms max. Default: 10 ms (See note.) | | | |
| OFF delay | 1 to 80 ms max. Default: 10 ms (See note.) | | | |

Circuit configuration notes:
- Input numbers: 00000 to 00001
- Units with 10 I/O points: 00002 to 00004
- Units with 20/32 I/O points: 00002 to 00006
- Units with 10 I/O points: 00005
- Units with 20 I/O points: 00007 to 00011
- Units with 32 I/O points: 00007 to 00011, 00100 to 00107

**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
The following CPU Unit input bits can be used as high-speed counter inputs. The maximum count frequency is 5 kHz in differential phase mode and 20 kHz in the other modes.

| Input | Function | | | |
|-------|----------|---|---|---|
| | Differential phase mode | Pulse plus 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 or hardware reset input (IN00002 can be used as a normal input when it is not used as a high-speed counter input.) | | | |

#### Interrupt Inputs
CPM2C PCs have inputs that can be used as interrupt inputs (interrupt input mode or counter mode) and quick-response inputs. The minimum pulse width for these inputs is 50 μs.
In CPU Units with 10 I/O points, inputs IN00003 and IN00004 can be used as interrupt inputs. In CPU Units with 20 or 32 I/O points, inputs IN00003 through IN00006 can be used as interrupt inputs.

Programmable Controllers

## 2. Expansion I/O Unit Input Specifications

| Item | Specification |
|---|---|
| Input voltage | 24 V DC $^{+10\%}/_{-15\%}$ |
| Input impedance | 4.7 k$\Omega$ |
| Input current | 5 mA |
| ON voltage/current | 14.4 V DC min., 3.5 mA |
| OFF voltage/current | 5.0 V DC max., 1.1 mA |
| ON delay | 1 to 80 ms max. Default: 10 ms (See note.) |
| OFF delay | 1 to 80 ms max. Default: 10 ms (See note.) |
| Circuit configuration |  |

**Note:** The input time constant can be set to 1, 2, 3, 5, 10, 20, 40, or 80 ms in the PC Setup.
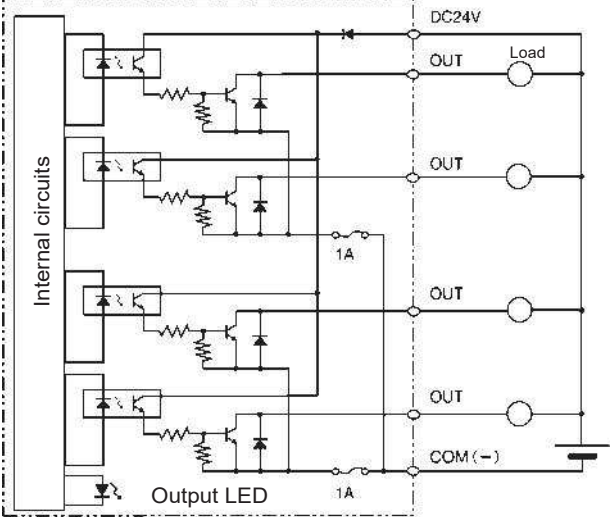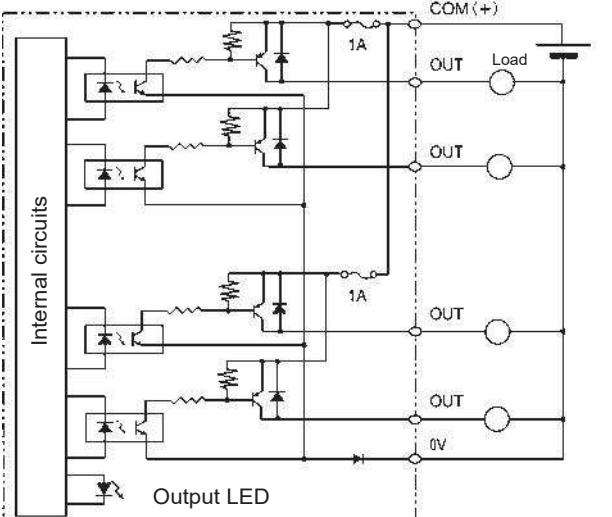
## 3. CPM2C Output Specifications (CPU Units and Expansion I/O Units)

**Relay Output**

| Item | Specification |
|---|---|
| Max. switching capacity | 2 A, 250 V AC (cos$\phi$ = 1)<br>2 A, 24 V DC<br>(4 A/common) |
| Min. switching capacity | 10 mA, 5 V DC |
| Service life of relay | Electrical:150,000 operations (24- V DC resistive load)<br>100,000 operations (240- V AC inductive load, cos$\phi$ = 0.4)<br>Mechanical:20,000,000 operations |
| ON delay | 15 ms max. |
| OFF delay | 15 ms max. |
| Circuit configuration |  |

**Transistor Outputs (Sinking or Sourcing) for CPU Units and Expansion I/O Units**

| Item | Specification |
|---|---|
| Max. switching capacity | CPU Units with 10 or 20 I/O Points<br>01000 to 01007: 40 mA at 4.5 V DC to 300 mA at 20.4 V DC, 300 mA (20.4 to 26.4 V)<br>CPU Units with 32 I/O Points<br>01000 to 01007: 40 mA at 4.5 V DC to 300 mA at 20.4 V DC, 300 mA (20.4 to 26.4 V)<br>01100 to 01107: 40 mA at 4.5 V DC to 100 mA at 20.4 V DC, 100 mA (20.4 to 26.4 V) (See note.)<br>Expansion I/O Units<br>01@00 to 01@07: 40 mA at 4.5 V DC to 300 mA at 20.4 V DC, 300 mA (20.4 to 26.4 V)<br>01@08 to 01@15: 40 mA at 4.5 V DC to 100 mA at 20.4 V DC, 100 mA (20.4 to 26.4 V) (See note.) |
| Min. switching capacity | 0.5 mA |
| Max. inrush current | 0.9 A for 10 ms (charging and discharging waveform) |
| Leakage current | 0.1 mA max. |
| Residual voltage | 0.8 V max. |
| ON delay | OUT01000 and OUT01001:20 $\mu$s max.<br>OUT01002 and up:0.1 ms max. |
| OFF delay | OUT01000 and OUT01001:40 $\mu$s max. for 4.5 to 26.5 V, 10 to 300 mA<br>0.1 ms max. for 4.5 to 30 V, 0.5 to 10 mA<br>OUT01002 and up:1 ms max. |
| Fuse | 1 fuse for each 2 outputs (The fuse cannot be replaced by the user.) |

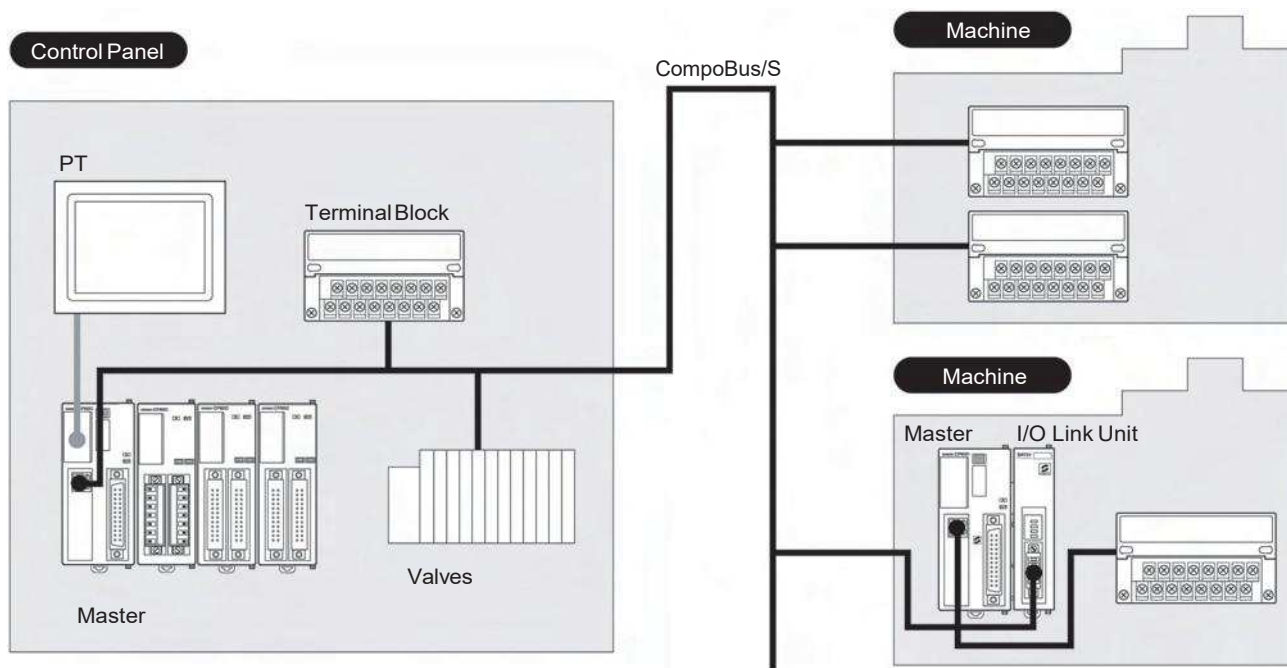| Item | Specification |
|---|---|
| Circuit configuration | **Sinking Outputs**  **Sourcing Outputs**  |

**Note:** Connect dummy resistance as required and maintain the load current between 10 and 150 mA when using 01000 and 01001 for pulse outputs. The ON/OFF response time will increase if the load current is below 10 mA, preventing outputting high-speed pulses. The transistors will heat if the output current is greater than 150 mA, possibly destroying the elements.

# OMRON

## CPM2C-S1@0C
# CPU Units with CompoBus/S Master



**Ultra-compact CPM2C CPU unit with CompoBus/S master offering high speed remote I/O communication.**

- The compact design makes this unit ideal for local control applications.
  At 40 x 90 x 65 mm (W x H x D) with 10 I/O points and CompoBus/S master offering versatile expand-ability it is possible to fullfill constrol systems needs.

- A large number of expansion I/O points reduces system construction cost.
  Up to three Expansion Up to three expansion termi-nals can be connected to the CPU unit.
  Furthermore, CompoBus/S remote I/O terminals can be used for expansion I/O points.
  Not only in-panel wiring but also external wiring is simplified. The miniaturization of the control panel reduces cable, terminal block, and wiring cost.

- Easy system designing, modification, and expan-sion by CompoBus/S remote I/O terminals.
  With this high-speed communication bus and no complicated wiring they can be used as expansion terminal blocks with minimal modifications to the system layout as long as room for expansion is reserved at the first designing stage.

- A calendar/clock ensures timed machine control, including data collection and error logs with date and time stamps.

## Ordering Information

| Unit | | Inputs | Outputs | Clock | Model |
|---|---|---|---|---|---|
| 10 points (6 inputs/4 outputs) | Connector model | 6 points at 24 V DC | 4 transistor sinking outputs | Yes | CPM2C-S100C |
| | | | 4 transistor sourcing outputs | Yes | CPM2C-S110C |

## Specifications

### General Specifications

| Item | | Specification |
|---|---|---|
| Control method | | Stored program method |
| I/O control method | | Cyclic scan method<br>(Immediate refreshing can be performed with IORF(97).) |
| Programming language | | Ladder diagram |
| Instruction length | | 1 step per instruction<br>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 |
| Max. I/O capacity | | CPU Unit only: 10 points<br>Expansion I/O Unit: 96 points (32-point Expansion I/O Unit x 3)<br>(Up to 3 Expansion Units can be connected.)<br>CompoBus/S: 256 points (362 points in total) |
| Input bits | | IR 00000 to IR 00915<br>(Bits not used for input bits can be used for work bits.) |
| Output bits | | IR 01000 to IR 01915<br>(Bits not used for output bits can be used for work bits.) |
| CompoBus/S input bits | | 128 bits: IR 02000 to IR 02715 (words IR 020 to IR 027) |
| CompoBus/S output bits | | 128 bits: IR 03000 to IR 03715 (words IR 030 to IR 037) |
| Work bits | | 672 bits: IR 02800 to IR 02915 (words IR 028 to IR 029)<br>IR 03800 to IR 03915 (words IR 038 to IR 039)<br>IR 04000 to IR 04915 (words IR 040 to IR 049)<br>IR 20000 to IR 22715 (words IR 200 to IR 227) |
| Special bits (SR area) | | 440 bits: SR 22800 to SR 25507 (words SR 228 to SR 255) |
| Temporary bits (TR area) | | 8 bits: (TR 0 to TR 7) |
| 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)<br>These include CompoBus/S slave status flags (words AR 04 to AR 07). |
| Link bits (LR area) | | 256 points: LR 0000 to LR 1515 (words LR 00 to LR 15) |
| Timers/Counters | | 256 timers/counters: TIM/CNT 000 to TIM/CNT 255<br>1-ms timers: TMHH (--)<br>10-ms timers: TIMH (15)<br>100-ms timers TIM<br>1-s/10-s timers: TIML (--)<br>Decrementing counters: CNT<br>Reversible counters: CNTR (12) |
| Data memory | Read/Write | 2,048 words (DM 0000 to DM 2047)<br>The Error Log is contained in DM 2000 to DM 2021. |
| | Read only | 456 words (DM 6144 to DM 6599) |
| | PC Setup | 56 words (DM 6600 to DM 6655) |
| Basic interrupt functions | Interrupt inputs | 2 interrupts (Used for both counter mode interrupts inputs and quick-response inputs. |
| | Scheduled interrupts | 1 interrupt |
| High-speed counter functions | High-speed counters | 1 counter (single phase at 20 kHz or 2 phases at 5 kHz) |
| | Counter interrupts | 1 interrupt (set value comparison or set-value range comparison) |
| | Interrupt inputs (counter mode) | 2 interrupts (Used for both external interrupts inputs and quick-response inputs.) |
| | Count-up interrupts | 2 interrupts (Used for both external interrupts inputs and quick-response inputs.) |
| Quick-response inputs | | 2 points (Used for both external interrupts inputs and counter mode interrupt inputs.)<br>Min. input pulse width: 50 μs max. |
| Pulse output | | 2 points with no acceleration/deceleration,<br>10 Hz to 10 kHz each, and no direction control: 1 point with trapezoid acceleration/deceleration,<br>10 Hz to 10 kHz with direction control: or 2 points with variable duty-ratio outputs |
| Synchronized pulse control | | 1 point |
| Input time constant<br>(ON response time = OFF response time) | | Can be set for CPU Unit inputs and Expansion Unit inputs only<br>(1, 2, 3, 5, 10, 20, 40, or 80 ms) |
| Clock | | Equipped with clock (built-in RTC) |
| Communications functions | | Peripheral port: Supports Host Link, peripheral bus, no-protocol communications, and Programming Console connections.<br>RS-232C port: Supports Host Link, no-protocol communications, 1-to-1 Link, or 1-to-1 NT Link connections. |
| Power failure backup function | | Data in HR, AR, Counter (CNT), and Data Memory (DM) areas is held. |
| Memory backup | | Non-volatile (flash) memory: Program, read-only DM area, and PC Setup |
| | | Memory backup (lithium battery: 2 years lifetime): DM area, HR area, AR area, and counter values |
| Self-diagnostic functions | | CPU error (watchdog timer), memory errors, communications errors, setting errors, battery errors, and expansion I/O bus errors |
| Program check | | No END instruction, programming errors (checked when operation is started) |

| Item | | Specification |
|---|---|---|
| Programming devices | Programming Console | C200H-PRO27, CQM1-PRO01, or CQM1H-PRO01 |
| | CX-One | Windows 2000 / XP |

**Note:** Connecting Cable (CPM2C-CN111, CS1W-CN114, or CS1W-CN118) is required to connect to the communications peripheral /RS-232C port.
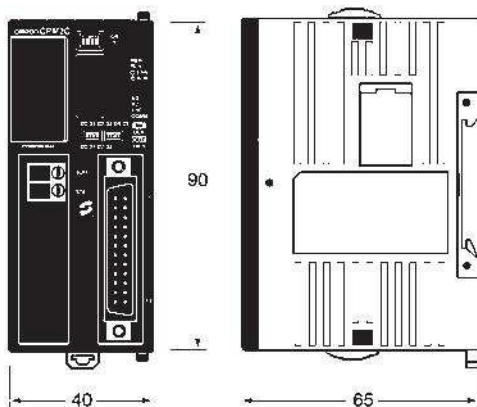
## Communications Specifications

| Communications method | | Special CompoBus/S protocol |
|---|---|---|
| Coding method | | Manchester coding |
| Connection form | | Combination of multi-drop method and T-branch connections (see note 1) |
| Baud rate | | High-speed Communications Mode: 750 kbps<br>Long-distance Communications Mode: 93.75 kbps (see note 2) |
| Communications cycle time | High-speed Communications Mode | 0.5 ms (with 8 input and 8 output slaves connected) |
| | | 0.8 ms (with 16 input and 16 output slaves connected) |
| | Long-distance Communications Mode | 4.0 ms (with 8 input and 8 output slaves connected) |
| | | 6.0 ms (with 16 input and 16 output slaves connected) |
| Communications media | | 2-conductor cable (VCTF 0.75 x 2), 4-conductor cable (VCTF 0.75 x 4),<br>or Special Flat Cable |
| Communications distance | High-speed Communications Mode | 2-conductor VCTF cable:<br>Main line length:100 m max.<br>Branch line length:3 m max.<br>Total branch line length:50 m max.<br>Special Flat Cable, 4-conductor VCTF cable:<br>Main line length:30 m max.<br>Branch line length:3 m max.<br>Total branch line length:30 m max.<br>(When Special Flat Cable is used to connect fewer than 16 Slaves, the main line can be up to 100 m long and the total branch line length can be up to 50 m.) |
| | Long-distance Communications Mode | 2-conductor VCTF cable:<br>Main line length:500 m max.<br>Branch line length:6 m max.<br>Total branch line length:120 m max.<br>Special Flat Cable, 4-conductor VCTF cable:<br>Variable branch wiring (total cable length 200 m max.)<br>(There are no limits on the branching format or main, branch, or total line lengths.<br>The terminator must be connected to the point in the system farthest from the master.) |
| Maximum number of nodes | | 32 |
| Error control checks | | Manchester code check, frame length check, and parity check |

**Note: 1.** A terminator must be connected to the point in the system farthest from the Master.
**2.** The baud rate is switched using DM settings (default setting is 750 kbps).

## Dimensions

**Note:** All units are in millimeters unless otherwise indicated.

**CPM2C-S100C**
**CPM2C-S110C**



**Note:** Refer to *CPM2C-S Programmable Controller Operation Manual* (W377) for detailed specifications.

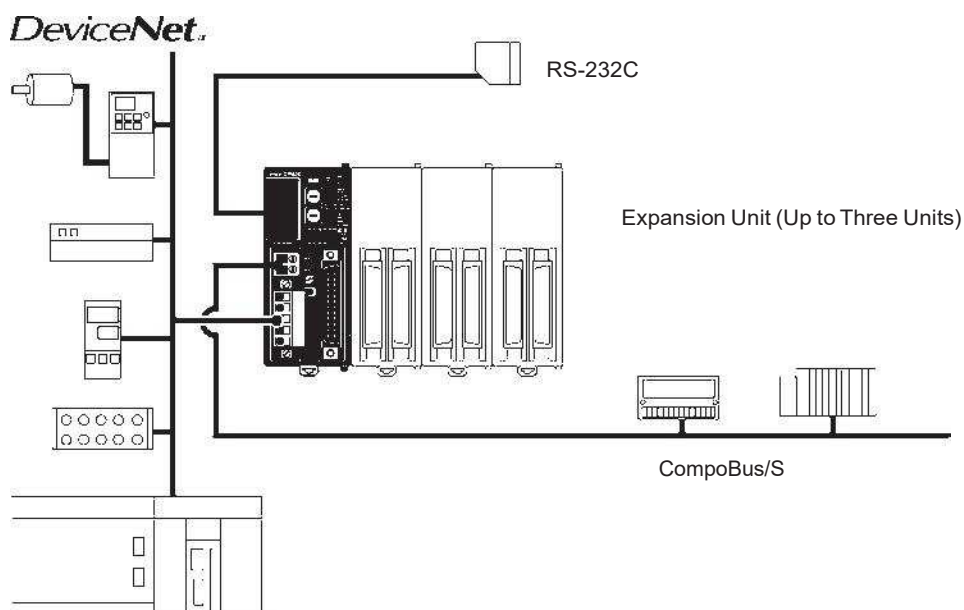**CPM2C-S1@0C-DRT**

# Programmable Slave PLC

## Multi-functional programmable slave for distributed control

A part of an installation consisting of sensors, actuators and control is handled as one DeviceNet slave.

The distribution of device control enables the production of standard units with standardized programs and decreasing the load on the system master PLC. Conventional distributed I/O control networks do not allow I/O checks or operation checks until all devices on the networks are assembled and connected. Programmable slaves, however, allow I/O and operation checks

on any distributed unit independently.

- DeviceNet slave functionality
  Supports multi-word I/O links and explicit message communication, making it possible for the master to control the data of all the slaves on the network. Data that does not need immediate transmission, such as log data, can be transmitted in blocks using explicit message communication.
- CompoBus/S master functionality
  Connects to remote signal lights, pushbutton switches, terminal blocks, and pneumatic valves from other companies over VCTF or easy-to-branch flat cable.
- RS-232C Communications
  Barcodereaders and PTs can be connected to serial port. The data then will be processed locally and thus reduces the load on the central controlling PLC.
- Expansion unit (Up to three units)
  A wide variaty of different expansion units is available to fit the application needs.



**DeviceNet.**

RS-232C

Expansion Unit (Up to Three Units)

CompoBus/S

# Ordering Information

| Unit | | Inputs | Outputs | Clock | Model |
|---|---|---|---|---|---|
| 10 points (6 inputs/4 outputs) | Connector model | 6 points at 24 V DC | 4 transistor sinking outputs | Yes | CPM2C-S100C-DRT |
| | | | 4 transistor sourcing outputs | Yes | CPM2C-S110C-DRT |

# Specifications

## General Specifications

| Item | | Specification |
|---|---|---|
| Control method | | Stored program method |
| I/O control method | | Cyclic scan method<br>(Immediate refreshing can be performed with IORF(97).) |
| Programming language | | Ladder diagram |
| Instruction length | | 1 step per instruction<br>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 |
| Max. I/O capacity | | CPU Unit only: 10 points<br>Expansion I/O Unit: 96 points (32-point Expansion I/O Unit x 3)<br>(Up to 3 Expansion Units can be connected.)<br>CompoBus/S: 256 points (362 points in total) |
| Input bits | | IR 00000 to IR 00915<br>(Bits not used for input bits can be used for work bits.) |
| Output bits | | IR 01000 to IR 01915<br>(Bits not used for output bits can be used for work bits.) |
| CompoBus/S input bits | | 128 bits: IR 02000 to IR 02715 (words IR 020 to IR 027) |
| CompoBus/S output bits | | 128 bits: IR 03000 to IR 03715 (words IR 030 to IR 037) |
| Work bits | | 672 bits:IR 02800 to IR 02915 (words IR 028 to IR 029)<br>IR 03800 to IR 03915 (words IR 038 to IR 039)<br>IR 04000 to IR 04915 (words IR 040 to IR 049)<br>IR 20000 to IR 22715 (words IR 200 to IR 227) |
| Special bits (SR area) | | 440 bits: SR 22800 to SR 25507 (words SR 228 to SR 255) |
| Temporary bits (TR area) | | 8 bits: (TR 0 to TR 7) |
| 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)<br>These include CompoBus/S slave status flags (words AR 04 to AR 07). |
| Link bits (LR area) | | 256 points: LR 0000 to LR 1515 (words LR 00 to LR 15) |
| Timers/Counters | | 256 timers/counters: TIM/CNT 000 to TIM/CNT 255<br>1-ms timers: TMHH (--)<br>10-ms timers: TIMH (15)<br>100-ms timers TIM<br>1-s/10-s timers: TIML (--)<br>Decrementing counters: CNT<br>Reversible counters: CNTR (12) |
| Data memory | Read/Write | 2,048 words (DM 0000 to DM 2047)<br>The Error Log is contained in DM 2000 to DM 2021. |
| | Read only | 456 words (DM 6144 to DM 6599) |
| | PC Setup | 56 words (DM 6600 to DM 6655) |
| DeviceNet slave functions | | DeviceNet Remote I/O Link<br>No. of I/O Link points: 1,024 max.<br>Explicit message communications<br>Any PC data area can be accessed from the master. |
| Basic interrupt functions | Interrupt inputs | 2 interrupts (Used for both counter mode interrupts inputs and quick-response inputs. |
| | Scheduled interrupts | 1 interrupt |

| Item | | Specification |
|---|---|---|
| High-speed counter functions | High-speed counters | 1 counter (single phase at 20 kHz or 2 phases at 5 kHz) |
| | Counter interrupts | 1 interrupt (set value comparison or set-value range comparison) |
| | Interrupt inputs (counter mode) | 2 interrupts (Used for both external interrupts inputs and quick-response inputs.) |
| | Count-up interrupts | 2 interrupts (Used for both external interrupts inputs and quick-response inputs.) |
| Quick-response inputs | | 2 points (Used for both external interrupts inputs and counter mode interrupt inputs.) Min. input pulse width: 50 $\mu$s max. |
| Pulse output | | 2 points with no acceleration/deceleration, 10 Hz to 10 kHz each, and no direction control: 1 point with trapezoid acceleration/deceleration, 10 Hz and 10 kHz with no direction control: or 2 points with variable duty-ratio outputs |
| Synchronized pulse control | | 1 point |
| Input time constant (ON response time = OFF response time) | | Can be set for CPU Unit inputs and Expansion Unit inputs only (1, 2, 3, 5, 10, 20, 40, or 80 ms) |
| Clock | | Equipped with clock (built-in RTC) |
| Communications functions | | Peripheral port: Supports Host Link, peripheral bus, no-protocol communications, and Programming Console connections. RS-232C port: Supports Host Link, no-protocol communications, 1-to-1 Link, or 1-to-1 NT Link connections. |
| Power failure backup function | | Data in HR, AR, Counter (CNT), and Data Memory (DM) areas is held. |
| Memory backup | | Non-volatile (flash) memory: Program, read-only DM area, and PC Setup |
| | | Memory backup (lithium battery: 2 years lifetime): DM area, HR area, AR area, and counter values |
| Self-diagnostic functions | | CPU error (watchdog timer), memory errors, communications errors, setting errors, battery errors, and expansion I/O bus errors |
| Program check | | No END instruction, programming errors (checked when operation is started) |
| Programming devices | Programming Console | C200H-PRO27, CQM1-PRO01, or CQM1H-PRO01 |
| | CX-One | Windows 2000 / XP |

**Note:** Connecting Cable (CPM2C-CN111, CS1W-CN114, or CS1W-CN118) is required to connect to the communications peripheral /RS-232C port.

## Communications Specifications

### DeviceNet

| Communications protocol | | DeviceNet |
|---|---|---|
| Connection form | | Combination of multi-drop and T-branch connections (see note 1) |
| Baud rate | | 500, 250, or 125 kbps (switchable) |
| Communications media | | Special 5-conductor cable (2 signal lines, 2 power supply lines, and 1 shield line) |
| Communications distance | Baud rate | 500 kbps: Max. network length (see note 2):100 m max. (see note 3) Main line length:6 m max. Total branch line length:39 m max. 250 kbps: Max. network length (see note 2):250 m max. (see note 3) Main line length:6 m max. Total branch line length:78 m max. 125 kbps: Max. network length (see note 2):500 m max. (see note 3) Main line length:6 m max. Total branch line length:156 m max. |
| Max. number of connecting nodes | | 64 (63 slaves and 1 master) |
| Error control checks | | CRC error, node address duplication check, and scan list verification |

Note: 1. A terminator must be connected to both ends of the trunk line.
2. The maximum network length is the lenght of the trunk line.
3. When Thin Cable is used for the main line, the main line must be 100 m or less in length.

## CompoBus/S

| Communications method | | Special CompoBus/S protocol |
|---|---|---|
| Coding method | | Manchester coding |
| Connection form | | Combination of multi-drop method and T-branch connections (see note 1) |
| Baud rate | | High-speed Communications Mode: 750 kbps<br>Long-distance Communications Mode: 93.75 kbps (see note 2) |
| Communications cycle time | High-speed Communications Mode | 0.5 ms (with 8 input and 8 output slaves connected) |
| | | 0.8 ms (with 16 input and 16 output slaves connected) |
| | Long-distance Communications Mode | 4.0 ms (with 8 input and 8 output slaves connected) |
| | | 6.0 ms (with 16 input and 16 output slaves connected) |
| Communications media | | 2-conductor cable (VCTF 0.75 x 2), 4-conductor cable (VCTF 0.75 x 4),<br>or Special Flat Cable |
| Communications distance | High-speed Communications Mode | 2-conductor VCTF cable:<br>Main line length:100 m max.<br>Branch line length:3 m max.<br>Total branch line length:50 m max.<br>Special Flat Cable, 4-conductor VCTF cable:<br>Main line length:30 m max.<br>Branch line length:3 m max.<br>Total branch line length:30 m max.<br>(When Special Flat Cable is used to connect fewer than 16 Slaves, the main line can be up to 100 m long and the total branch line length can be up to 50 m.) |
| | Long-distance Communications Mode | 2-conductor VCTF cable:<br>Main line length:500 m max.<br>Branch line length:6 m max.<br>Total branch line length:120 m max.<br>Special Flat Cable, 4-conductor VCTF cable:<br>Variable branch wiring (total cable length 200 m max.)<br>(There are no limits on the branching format or main, branch, or total line lengths.<br>The terminator must be connected to the point in the system farthest from the master.) |
| Maximum number of nodes | | 32 |
| Error control checks | | Manchester code check, frame length check, and parity check |

Note: 1. A terminator must be connected to the point in the system farthest from the Master.

2. The baud rate is switched using DM settings (default setting is 750 kbps).

## Dimensions

Note: All units are in millimeters unless otherwise indicated.

**CPM2C-S100C-DRT**
**CPM2C-S110C-DRT**
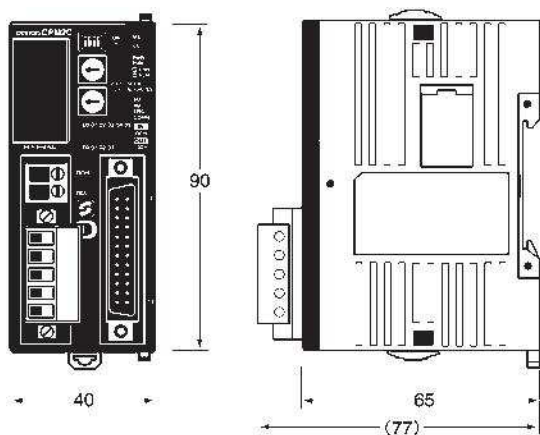


Note: Refer to *CPM2C-S Programmable Controller Operation Manual* (W377) for detailed specifications.
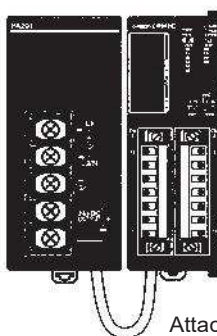
**CPM2C-PA201**

# AC Power Supply Unit

- The CPM2C-PA201 is a slim and compact AC Power Supply Unit of the same shape as the CPM2C's CPU Unit. It can be connected simply using the connecting cable (23 cm) provided. It can also be used for CPM1A and CPM2A CPU Units and as display power supply (wired by the user).
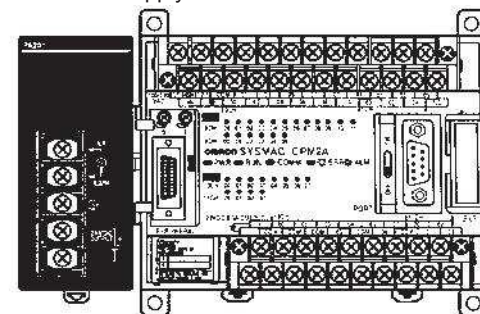
AC Power Supply Unit     AC Power Supply Unit
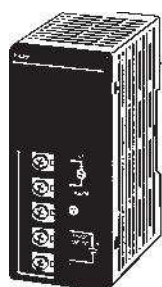
Service power supply for external devices such as sensors (24V).

Attached connecting cable

## Specifications

| Item | | | Specification |
|---|---|---|---|
| Rated output | | | 15 W |
| Output voltage | | | 24 V |
| Output current | | | 600 mA |
| Efficiency | | | 75% min. (at rated output) |
| Input conditions | Rated voltage | | 100 to 240 V AC |
| | Allowable voltage range | | 85 to 264 V AC |
| | Frequency | | 47 to 63 Hz |
| | Current | 100 V | 0.4 A |
| | | 200 V | 0.2 A |
| | Leakage current | 100 V | 0.5 mA max. (at rated output) |
| | | 200 V | 1 mA max. (at rated output) |
| | Inrush current | 100 V | 15 A max. (at 25°C cold start) |
| | | 200 V | 30 A max. (at 25°C cold start) |
| Output characteristics | Output voltage accuracy | | 10%/–15% (including input, load, and temperature fluctuations) |
| | Minimum output current | | 30 mA |
| | Ripple noise voltage | | 2% (p-p) max. |
| | Input fluctuation | | 0.75% max. |
| | Load fluctuation | | 4% max. |
| | Temperature fluctuation | | 0.05%/°C max. |
| | Startup time | | 300 ms max. (at input voltage of 100 V AC or 200 V AC and the rated output) |
| | Output hold time | | 10 ms (at input voltage of 100 V AC or 200 V AC and the rated output) |
| Overcurrent protection | | | Self-resetting, operates at 105% to 335% of the rated current, suspended and independent operation |
| Overvoltage protection | | | None |
| Ambient operating temperature | | | 0° to 55°C |
| Ambient storage temperature | | | –20° to 70°C (no condensation or icing) |
| Ambient operating humidity | | | 10% to 90% (no condensation) |
| Dielectric strength | | | 2,000 V for 1 min between all inputs and GR<br>Leakage current: 10 mA<br>3,000 V for 1 min between all inputs and all outputs<br>Leakage current: 10 mA<br>1,000 V for 1 min between all outputs and GR<br>Leakage current: 10 mA |
| Insulation resistance | | | 100 M$\Omega$ min. at 500 V DC between all outputs and any input, and between all outputs and GR |
| Vibration resistance | | | 10 to 57 Hz, amplitude, 57 to 150 Hz, acceleration: 9.8 m/s$^2$ in X, Y, and Z directions for 80 minutes according<br>(Time coefficient: 8 minutes × coefficient factor 10 = total time 80 min.) |
| Shock resistance | | | 147 m/s$^2$ 3 times each in X, Y, and Z directions |
| Noise terminal voltage | | | FCC class A |
| Weight | | | 250 g max. |

# CPM2C-MAD11

# Analog I/O Unit

- Up to four CPM2C-MAD11 Analog I/O Units can be connected to the CPM2C. Each Unit provides 2 analog inputs and 1 analog output, i.e., up to 8 analog inputs and 4 analog outputs can be supported by one CPM2C.
- Example Application: Packaging Machines

## Specifications

| Item | | Voltage I/O | Current I/O |
|---|---|---|---|
| Analog inputs | Number of inputs | 2 (allocated 2 words) | |
| | Input signal ranges | 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 |
| | External input impedance | 1 M$\Omega$ min. | Approx. 250 $\Omega$ |
| | Resolution | 1/6,000 (full scale) | |
| | Overall precision | 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 | Binary data (4-digit hexadecimal) −10 to 10 V: F448 to 0BB8 Hex full scale Other:0000 to 1770 Hex full scale | |
| | Averaging | Supported (set for each input with DIP switch) | |
| | Disconnected line detection | Supported | |
| Analog output | Number of outputs | 1 (allocated 1 word) | |
| | Output signal ranges | 1 to 5 V, 0 to 10 V, −10 to 10 V | 0 to 20 mA, 4 to 20 mA |
| | External output allowed load resistance | 1 k$\Omega$ min. | 600 $\Omega$ max. |
| | External output impedance | 0.5 $\Omega$ max. | --- |
| | Resolution | 1/6,000 (full scale) | |
| | Overall precision | 25° C:±0.4% of full scale | |
| | | 0 to 55° C:±0.8% of full scale | |
| | 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 | | 2 ms/point (6 ms/all analog I/O) | |
| Isolation method | | Photocoupler isolation between analog I/O and internal circuits. (Individual analog I/O signals are not isolated.) | |
| Power consumption | | 3.5 W | |
| Weight | | 200 g max. | |

**CPM2C-TS001/-TS101**

# Temperature Sensor Units

- Up to four CPM2C-TS001/TS101 Temperature Sensor Units can be connected to the CPM2C. Each Unit provides 2 input points for temperature sensors, including thermocouples or temperature resistance thermometers , i.e., up to 8 temperature sensors can be input to one CPM2C.
- Application Examples: Foodstuff Equipment and Packaging Machines



## Specifications

### General

| Item | CPM2C-TS001 | CPM2C-TS101 |
|---|---|---|
| Temperature sensor | Thermocouple | Temperature resistance thermometer |
| 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.) |
| Number of inputs | 2 (2 words allocated) | |
| Accuracy | ±0.5% or ±2° C of the stored value whichever is larger ± 1 digit max. (see note) | ±0.5% or ±1° C of the stored value whichever is larger (see note) ± 1 digit max. |
| Conversion cycle | 250 ms/2 inputs | |
| Converted temperature data | Binary data (4-digit hexadecimal) | |
| Isolation method | Photocoupler isolation between input signals | |
| Power consumption | 1.5 W | |
| Weight | 200 g max. | |

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

### Input Temperature Ranges for CPM2C-TS001

The input type is selected with a rotary switch. The ranges for each of the input types are shown in the following table.
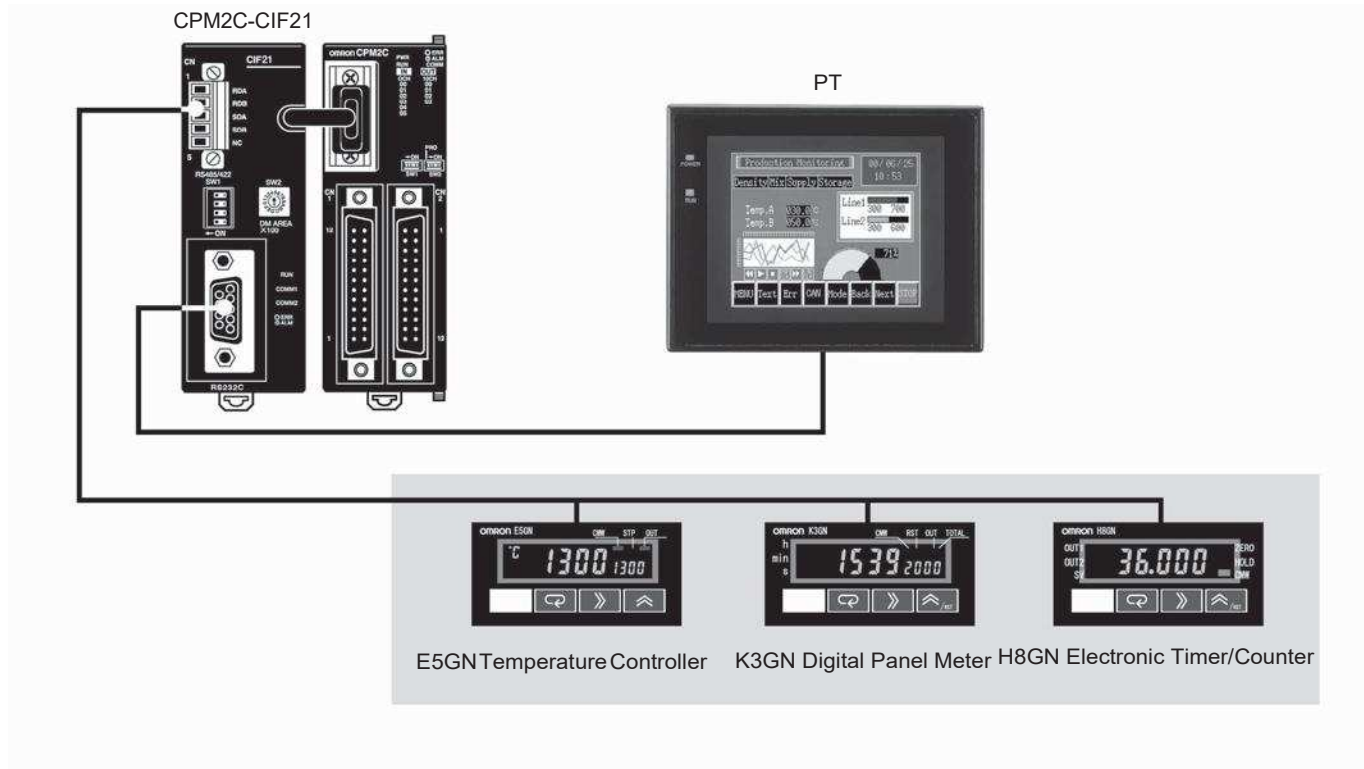
| Item | Range in ° C | Range in ° F |
|---|---|---|
| K | –200 to 1,300 | –300 to 2,300 |
| | 0.0 to 500.0 | 0.0 to 900.0 |
| J | –100 to 850 | –100 to 1,500 |
| | 0.0 to 400.0 | 0.0 to 750.0 |

### Input Temperature Ranges for CPM2C-TS101

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 |

**CPM2C-CIF21**

# Simple Communications Unit

Easy initial settings enable data exchange between the CPM2C and components.

## System Configuration



CPM2C-CIF21

PT

E5GN Temperature Controller    K3GN Digital Panel Meter    H8GN Electronic Timer/Counter

## Connectable Devices

### A Wide Range of Devices Supporting CompoWay/F or SYSWAY Communications

| Classification | Product | Model | SYSWAY | Segments | CompoWay/F | Remarks |
|---|---|---|---|---|---|---|
| Controllers | Temperature Controllers | E5GN | Yes | 1 | Yes | --- |
| | | E5CN | Yes | 1 | Yes | --- |
| | | E5EN | Yes | 1 | Yes | --- |
| | | E5AN | Yes | 1 | Yes | --- |
| | Modular Temperature Controller | E5ZN | No | --- | Yes | --- |
| | Digital Controllers | E5CK | Yes | 1 | No | --- |
| | | E5EK | Yes | 1 | No | --- |
| | | E5AK | Yes | 1 | No | --- |
| | Digital Controllers for control valves | E5EK | Yes | 1 | No | Valve system communications not supported. |
| | | E5AK | Yes | 1 | No | |
| | Digital Controller, basic type | E5CK-T | No | --- | No | --- |
| | | E5EK-T | No | --- | No | --- |
| | | E5AK-T | No | --- | No | --- |
| | Digital Controllers for control valves, programmable | E5EK-T | No | --- | No | --- |
| | | E5AK-T | No | --- | No | --- |
| | Temperature Controllers | E5EJ | Yes | 1 | No | --- |
| | | E5AJ | Yes | 1 | No | --- |
| | Fuzzy Temperature Controller | E5AF | Yes | 1 | No | --- |
| Timers | Electronic Timer/Counter | H8GN | No | --- | Yes | --- |

| Classification | Product | Model | SYSWAY | Segments | CompoWay/F | Remarks |
|---|---|---|---|---|---|---|
| Digital Panels | Digital Panel Meter | K3GN | No | --- | Yes | --- |
| | Process Meter | K3NX | Yes | 2 | Limited | Some commands cannot be used with some models (options). Only the CompoWay/F variable area can be read. |
| | Weighing Meter | K3NV | Yes | 2 | Limited | |
| | Frequency/Rate Meter | K3NR | Yes | 2 | Limited | |
| | Period Meter | K3NP | Yes | 2 | Limited | |
| | Up/Down Counter Meter | K3NC | Yes | 2 | Limited | |
| | Temperature Meter | K3NH | Yes | 2 | Limited | |
| | Intelligent Signal Processor | K3TS | Yes | 2 | No | SYSWAY communications only (See note 2.) |

Limited: Connection possible for limited functions.

**Note: 1.** SYSWAY segment 1 and SYSWAY segment 2 can be combined.

**2.** When a K3TS is connected, connect the other components via SYSWAY as well.

## Component Parameters Supported for Communications

The communications protocol for components can be set in the CPM2C's DM Area to CompoWay/F or SYSWAY. The data that can be read and written depends on the protocol that is set.

### CompoWay/F

Reading and writing is possible for all component data (except for some Digital Panel Meters). The amount of data that can be read/written in one operation per component is limited to 12 data items for reading and 12 data items for writing. Reading and writing is enabled by setting the address for each parameter in DM.

### SYSWAY

Reading and writing is possible for the data shown in the following table.

| Segment | Read/write | Item | Command group 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|---|---|
| 1: Controllers | Read | Present temperature | Yes | Yes | Yes | Yes | Yes |
| | | Status | Yes | Yes | Yes | Yes | Yes |
| | | Temperature set value | Yes | Yes | Yes | Yes | Yes |
| | | Alarm 1 set value | | | Yes | Yes | Yes |
| | | Alarm 2 set value | | | Yes | Yes | Yes |
| | | Proportional band | | | | Yes | Yes |
| | | Integral time | | | | Yes | Yes |
| | | Derivative time | | | | Yes | Yes |
| | | Heater current | | | | | Yes |
| | | Heater current status | | | | | Yes |
| | Write | Temperature set value | Yes | Yes | Yes | Yes | Yes |
| | | Operation command | | Yes | Yes | Yes | Yes |
| | | Alarm 1 set value | | | Yes | Yes | Yes |
| | | Alarm 2 set value | | | Yes | Yes | Yes |
| | | Proportional band | | | | Yes | Yes |
| | | Integral time | | | | Yes | Yes |
| | | Derivative time | | | | Yes | Yes |
| | | Heater burnout detection value | | | | | Yes |
| 2: Digital Meters | Read | Display value | Yes | Yes | Yes | Yes | Yes |
| | | Display status | Yes | Yes | Yes | Yes | Yes |
| | | Peak hold | | Yes | Yes | | Yes |
| | | Peak hold status | | Yes | Yes | | Yes |
| | | Bottom hold | | Yes | Yes | | Yes |
| | | Bottom hold status | | Yes | Yes | | Yes |
| | | HH comparison value | | | | Yes | Yes |
| | | H comparison value | | | | Yes | Yes |
| | | L comparison value | | | | Yes | Yes |
| | | LL comparison value | | | | Yes | Yes |
| | Write | Operation command | | | Yes | | Yes |
| | | HH comparison value | | | | Yes | Yes |
| | | H comparison value | | | | Yes | Yes |
| | | L comparison value | | | | Yes | Yes |
| | | LL comparison value | | | | Yes | Yes |

The command groups for which reading or writing is performed are determined by settings in the DM area.

## Specifications

### General

| Item | | Specification |
|---|---|---|
| Applicable PLC | | CPM2C |
| RS-485/422 (top port) | Maximum number of connectable components | 32 |
| | Component connection port | Components connected to RS-485/422 terminal block. Connected to CPM2C CPU Unit via peripheral port (see diagram below). |
| | Baud rate for connection to components | 9.6, 19.2, 38.4, or 57.6 kbps |
| | Baud rate for connection to CPU Unit | 9.6 or 19.2 kbps |
| RS-232C (bottom port) | Signal conversion | Output from CPU Unit's RS-232C interface with no conversion |
| | Communications functions | One of the following: Host Link, no-protocol, 1:1 Link, 1:1 NT Link |
| Power supply | | From CPU Unit |
| Power consumption | | 1 W |
| Weight | | 150 g max. |

## System Configuration

### Internal
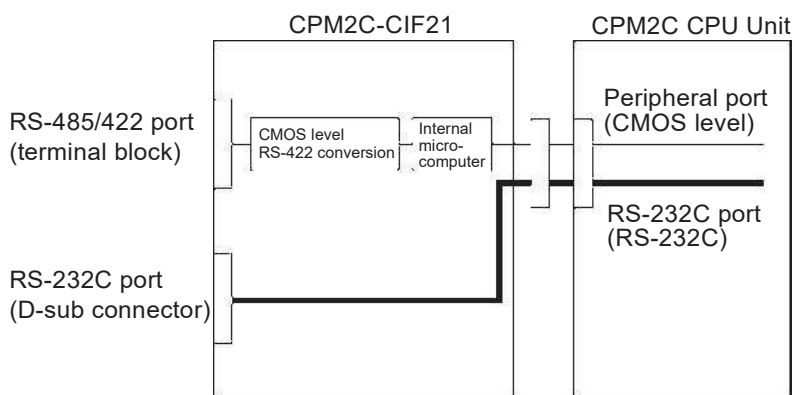
# CPM2C-CIF@1(-V1)
# RS-232C / RS-422 / RS-485 Adapter Units

## System Configuration

### External Configuration

CPM2C-CIF01-V1

Peripheral connector

Communications connector

RS-232C port (D-sub 9-pin connector)

CPM2C CPU Unit

CPM2C-CIF11

RS-422/ RS-485 port (terminal block)

Communications connector

RS-232C port (D-sub 9-pin connector)

CPM2C CPU Unit

### Internal Configuration

CPM2C-CIF01-V1 / CPM2C CPU Unit

Peripheral port(CMOS /RS-232C)

CMOS level

CMOS level → RS-232C conversion

RS-232C port (RS-232C)

Peripheral port (CMOS level)

RS-232C port(RS-232C)

**Note:** When using the CS1W-CN226/CN626 Connecting Cable for personal computer connection, turn ON the switch.

CPM2C-CIF11 / CPM2C CPU Unit

RS-422/ RS-485 port

CMOS level → RS-422/ RS-485 conversion

RS-232C port

Peripheral port (CMOS level)

RS-232C port
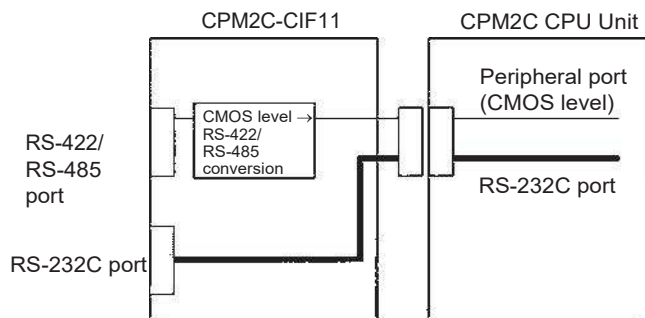
**Note:** A Programming Console cannot be connected to the RS-422 port.

## Specifications

### General

| Item | | Specification | |
|---|---|---|---|
| | | **CPM2C-CIF01-V1** | **CPM2C-CIF11** |
| Upper port | Signal conversion | Outputs signals from the CPU Unit's CMOS interface without conversion, or converts CMOS level (CPU Unit side) to RS-232C (connected device side). | Converts CMOS level (CPU Unit side) to RS-422 or RS-485 (connected device side). The externally connected device is insulated. |
| | Function | Host Link, peripheral bus, no-protocol, or Programming Console connections. | Host Link, peripheral bus, or no-protocol connections. |
| Lower port | Signal conversion | Outputs signals from the CPU Unit's CMOS interface without conversion. | Outputs signals from the CPU Unit's CMOS interface without conversion. |
| | Function | Host Link, no-protocol, 1:1 Link, or 1:1 NT Link connections. | Host Link, no-protocol, 1:1 Link, or 1:1 NT Link connections. |
| Power supply | | Power supplied from CPU Unit. | |
| Current consumption | | 0.3 A max. at 5 V | |
| Weight | | 150 g max. | |

**Note:** Neither the CPM2C-CIF01-V1 nor the CPM2C-CIF11 can be used with any PLC other than the CPM2C. A CPM2C-CIF11 or another CPM2C-CIF01-V1 cannot be connected to the CPM2C if a CPM2C-CIF01-V1 is already connected to it.

# CPM2C-SRT21

# CompoBus/S I/O Link Unit

## I/O Link Unit for CPM2C

- Operates as a Slave of the CompoBus/S Master Unit.
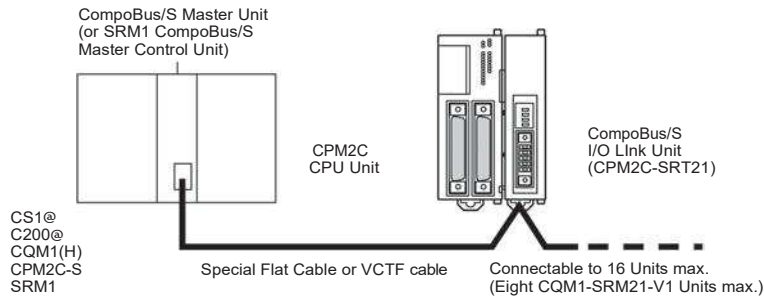- Exchanges eight inputs and eight outputs with the Master.

## Ordering Information

### CompoBus I/O Link Unit

| Name | Specifications | Model |
|------|---------------|-------|
| CompoBus/S I/O Link Unit | Number of points for I/O links: 8 inputs and 8 outputs | CPM2C-SRT21 |

## Application Examples

### Conveyor Line

Processing speed can be increased and system setup labor reduced by creating a distributed system with a CPM2C at each conveyor.

CompoBus/S Master Unit
(or SRM1 CompoBus/S
Master Control Unit)

CPM2C
CPU Unit

CompoBus/S
I/O LInk Unit
(CPM2C-SRT21)

CS1@
C200@
CQM1(H)
CPM2C-S
SRM1

Special Flat Cable or VCTF cable

Connectable to 16 Units max.
(Eight CQM1-SRM21-V1 Units max.)

## Specifications

| Item | CPM2C-SRT21 |
|------|-------------|
| Master/Slave | CompoBus/S Slave |
| Number of I/O points | 8 inputs and 8 outputs |
| Number of words occupied in CPM2C'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 |
| Power consumption | 1 W |
| Weight | 150 g |

**Note:** For details of CPM2C PLCs, refer to the CPM2C catalog (Cat. No. P049).

# CPM2C General Information

## System Configuration



5 Units max.

CPU Unit

| Unit | Model number | Inputs | Outputs |
|------|-------------|--------|---------|
| CPU Unit | CPM2C-20CDTC-D | IR 000 | IR 010 |
| Expansion I/O Unit | CPM2C-24EDTC | IR 001 | IR 011 |
| Expansion Output Unit | CPM2C-16ETC | --- | IR 012 |
| Analog I/O Unit | CPM2C-MAD11 | IR 002 IR 003 | IR 013 |
| Temperature Sensor Unit | CPM2C-TS001 | IR 004 IR 005 | --- |
| CompoBus/S I/O Link Unit | CPM2C-SRT21 | IR 006 | IR 014 |
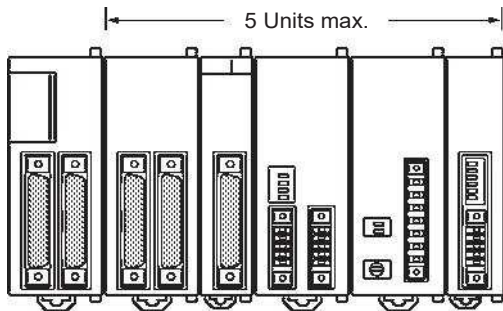
### Number of Connectable Units

Up to 5 Units can be connected to a CPM2C CPU Unit except for the CPM2C-S1@OC-DRT Programmable Slave and CPM2C-S1@OC CompoBus/S Master Unit, which are limited to 3 Units. The number of words that can be used by Expansion Units, however, is limited, and these limits must not be exceeded.

| Model | Max. No. of Units | Applicable I/O words |
|-------|-------------------|----------------------|
| CPU Units except those listed below | 5 | Inputs: IR 001 to IR 009 (CPU Unit uses IR 000) Outputs: IR 011 to IR 019 (CPU Unit uses IR 010) |
| CPU Units with 32 I/O points (CMP2C-32CDT@C-D) | 5 | Inputs: IR 002 to IR 009 (CPU Unit uses IR 000 and IR 001) Outputs: IR 012 to IR 019 (CPU Unit uses IR 010 and IR 011) |
| CPM2C-S1@OC-DRT Programmable Slave and CPM2C-S1@OC CompoBus/S Master Unit | 3 | Inputs: IR 001 to IR 009 (CPU Unit uses IR 000) Outputs: IR 011 to IR 019 (CPU Unit uses IR 010) |

### Number of I/O Words Allocated to Expansion Units

| Unit | Model number | Input words | Output words |
|------|-------------|-------------|--------------|
| Expansion Input Units | CPM2C-8ED@ | 1 | --- |
| | CPM2C-16ED@ | 1 | --- |
| Expansion Output Units | CPM2C-8ER | --- | 1 |
| | CPM2C-8ET(1)@ | --- | 1 |
| | CPM2C-16ET(1)@ | --- | 1 |
| Expansion I/O Units | CPM2C-10EDR | 1 | 1 |
| | CPM2C-24EDT(1)@ | 1 | 1 |
| Expansion I/O Units | CPM2C-20EDR | 1 | 1 |
| | CPM2C-32EDT(1)@ | 1 | 1 |
| Analog I/O Unit | CPM2C-MAD11 | 2 | 1 |
| Temperature Sensor Units | CPM2C-TS001 | 2 | --- |
| | CPM2C-TS101 | 2 | --- |
| CompoBus/S I/O Link Unit | CPM2C-SRT21 | 1 | 1 |

**Note: 1.** An AC Power Supply Unit can be used for the CPU Units.
**2.** The CPM2C-CIF01-V1/CIF11/CIF21 can be used with the CPU Units

### CPM2C Power Consumption

Use the following power consumption tables to calculate the total power capacity required when using a CPM2C PC. The rated output for the CPM2C-PA201 AC Power Supply Unit is 15 W. Any surplus power not required for the PC directly can be used as service power supply for sensors and other devices.

### CPM2C Power Supplies

| CPU Unit | Power consumption (W) |
|----------|----------------------|
| CPM2C-10C(1)DR-D | 4 |
| CPM2C-20C(1)DR-D | 4 |
| CPM2C-S1@0C-DRT1 | 3 |
| CPM2C-S1@0C | 3 |
| CPM2C-10C(1)DT(1)@-D | 3 |
| CPM2C-20C(1)DT(1)@-D | 3 |
| CPM2C-32C(1)DT(1)@-D | 3 |

The power consumption of the CPU Unit includes power for the Programming Consoles and Adapter Units.

Add the following consumptions when using Expansion I/O Units.

| Expansion I/O Unit | Power consumption (W) |
|--------------------|----------------------|
| CPM2C-10EDR | 1 |
| CPM2C-20EDR | 2 |
| CPM2C-24EDT(1)@ | 1 |
| CPM2C-32EDT(1)@ | 1 |
| CPM2C-MAD11 | 3.5 |
| CPM2C-SRT21 | 1 |
| CPM2C-TS001/002 | 1.5 |
| CPM2C-8ED@/16ED@ | 1 |
| CPM2C-8ER | 2 |
| CPM2C-8ET(1)@/16ET(1)@ | 1 |

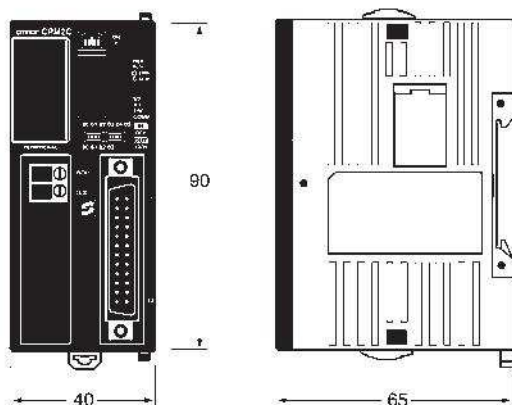# Dimensions

## CPU Units

### CPU Units with Relay Outputs
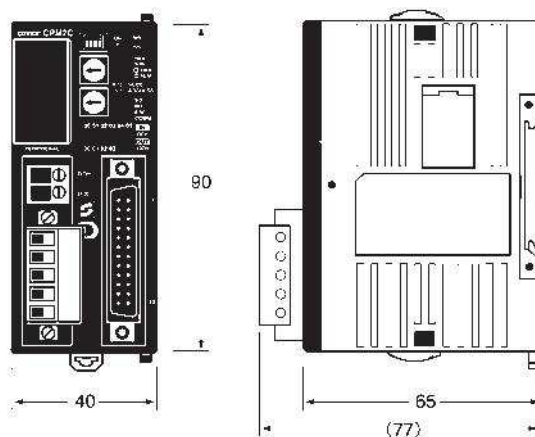(CPM2C-10C(1)DR-D, CPM2C-20C(1)DR-D)
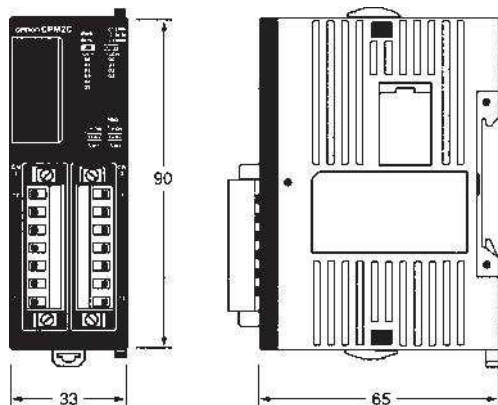


### CPU Units with Transistor Outputs
(CPM2C-10C(1)DT(1)C-D, CPM2C-10C(1)DT(1)M-D,
CPM2C-20C(1)DT(1)C-D, CPM2C-20C(1)DT(1)M-D,
CPM2C-32CDT(1)C-D, CPM2C-32CDT(1)M-D)
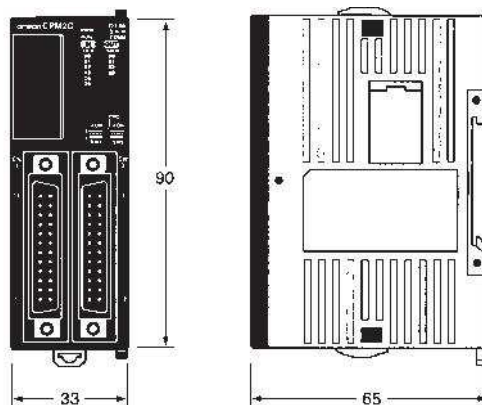


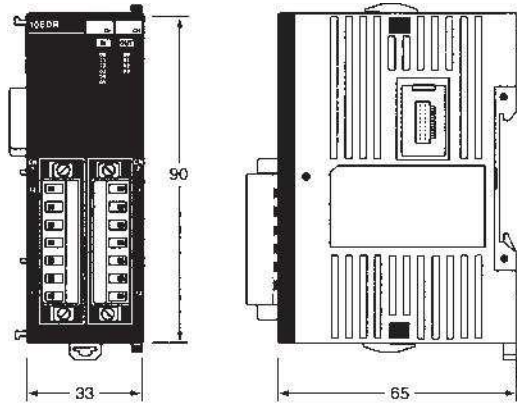### CPU Units with Relay Outputs
(CPM2C-S1@0C)



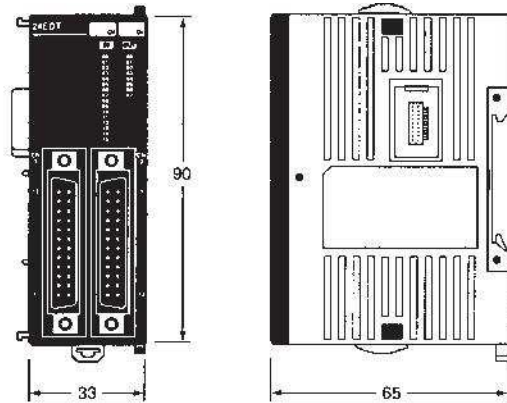### CPU Units with Transistor Outputs
(CPM2C-S1@0C-DRT)



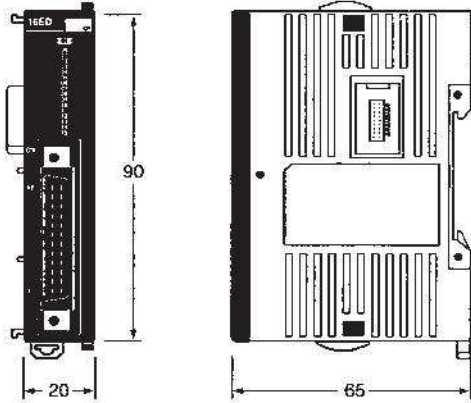**Note:** All dimensions are in mm.

## I/O Expansion Units

**Units with Relay Outputs
(CPM2C-8ER, CPM2C-10EDR, CPM2C-20EDR)**

**Units with Transistor Outputs
(CPM2C-24EDT(1)C, CPM2C-24EDT(1)M,
CPM2C-32EDT(1)C, CPM2C-32EDT(1)M)**





**Units with Transistor Outputs Only and Units with Inputs Only
(CPM2C-8ED(1), CPM2C-8ET(1)C, CPM2C-8ET(1)M,
CPM2C-16ED(1), CPM2C-16ET(1)C, CPM2C-16ET(1)M)**



**Note:** All dimensions are in mm.

**AC Power Supply Unit
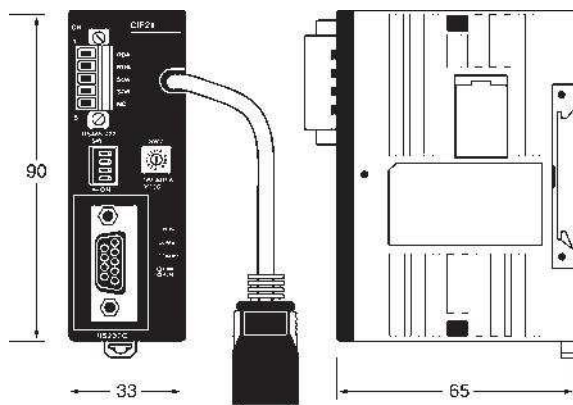(CPM2C-PA201)**

OMRON
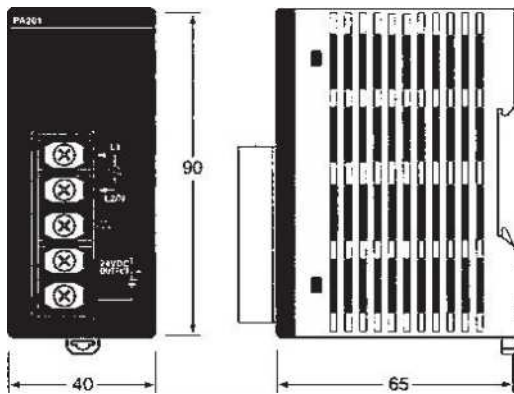
**Analog I/O Unit
(CPM2C-MAD11)**
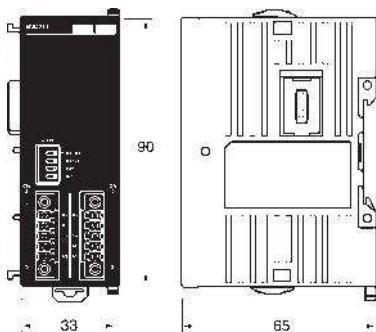
**Temperature Sensor Unit
(CPM2C-TS001, CPM2C-TS101)**
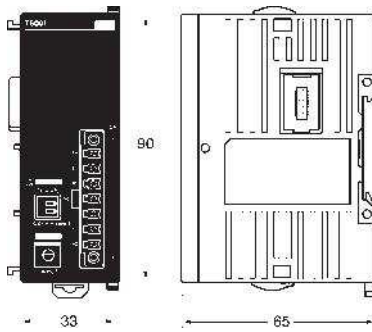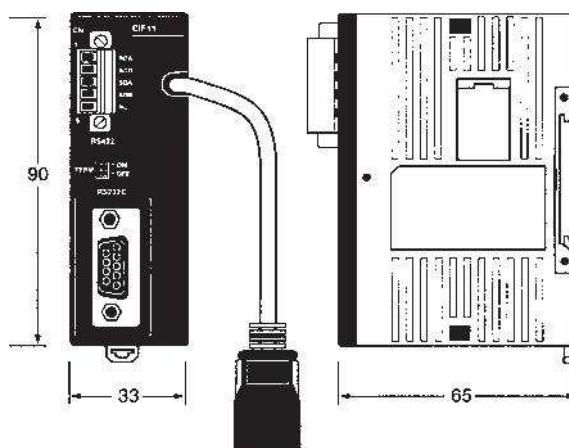
**CompoBus/S I/O Link Unit
(CPM2C-SRT21)**
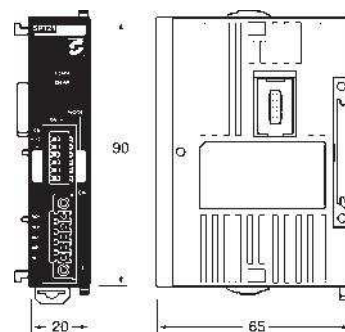
**Simple Communications Unit
(CPM2C-CIF21)**

**Peripheral/RS-232C Adapter Unit
(CPM2C-CIF01-V1)**
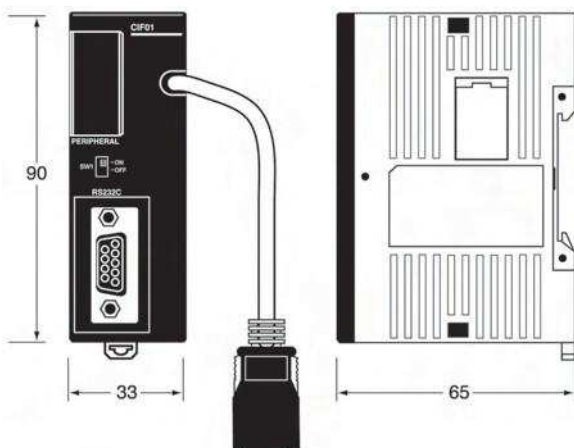
**RS-422/RS-485/RS-232C Adapter Unit
(CPM2C-CIF11)**

# CPM2C 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.

## CPM2C CPU Units

| CPU Unit | | Inputs | Outputs | Internal clock | Model | Standards |
|---|---|---|---|---|---|---|
| Units with 10 I/O points<br><br>Inputs: 6<br>Outputs: 4 | I/O terminal block | 6 inputs (24 V DC) | 4 relay outputs | --- | CPM2C-10CDR-D | U, C, CE |
| | | | | Yes | CPM2C-10C1DR-D | U, C, CE |
| Units with 10 I/O points<br><br>Inputs: 6<br>Outputs: 4 | 2 Fujitsu connectors | 6 inputs (24 V DC) | 4 sinking transistor outputs | --- | CPM2C-10CDTC-D | U, C, CE |
| | | | | Yes | CPM2C-10C1DTC-D | U, C, CE |
| | | | 4 sourcing transistor outputs | --- | CPM2C-10CDT1C-D | U, C, CE |
| | | | | Yes | CPM2C-10C1DT1C-D | U, C, CE |
| | 2 MIL connectors | 6 inputs (24 V DC) | 4 sinking transistor outputs | --- | CPM2C-10CDTM-D | U, C, CE |
| | | | 4 sinking transistor outputs | Yes | CPM2C-10C1DTM-D | |
| | | | 4 sourcing transistor outputs | --- | CPM2C-10CDT1M-D | |
| | | | 4 sourcing transistor outputs | Yes | CPM2C-10C1DT1M-D | |
| Units with 20 I/O points<br><br>Inputs: 12<br>Outputs: 8 | 2 terminal blocks | 12 inputs (24 V DC) | 8 relays | --- | CPM2C-20CDR-D | U, C, CE |
| | | | | Yes | CPM2C-20C1DR-D | |
| | 2 Fujitsu connectors | | 8 sinking transistor outputs | --- | CPM2C-20CDTC-D | U, C, CE |
| | | | | Yes | CPM2C-20C1DTC-D | U, C, CE |
| | | | 8 sourcing transistor outputs | --- | CPM2C-20CDT1C-D | U, C, CE |
| | | | | Yes | CPM2C-20C1DT1C-D | U, C, CE |
| | 2 MIL connectors | 12 inputs (24 V DC) | 8 sinking transistor outputs | --- | CPM2C-20CDTM-D | U, C, CE |
| | | | 8 sinking transistor outputs | Yes | CPM2C-20C1DTM-D | |
| | | | 8 sourcing transistor outputs | --- | CPM2C-20CDT1M-D | |
| | | | 8 sourcing transistor outputs | Yes | CPM2C-20C1DT1M-D | |
| Units with 32 I/O points<br><br>Inputs: 16<br>Outputs: 16 | 2 Fujitsu connectors | 16 inputs (24 V DC) | 16 sinking transistor outputs | --- | CPM2C-32CDTC-D | U, C, CE |
| | | | 16 sourcing transistor outputs | --- | CPM2C-32CDT1C-D | |
| | 2 MIL connectors | 16 inputs (24 V DC) | 16 sinking transistor outputs | --- | CPM2C-32CDTM-D | U, C, CE |
| | | | 16 sourcing transistor outputs | --- | CPM2C-32CDT1M-D | |
| Programmable Slave with DeviceNet slave and CompoBus/S Master, 10 I/O points<br><br>Inputs: 6<br>Outputs: 4 | 1 Fujitsu connector | 6 inputs (24 V DC) | 4 sinking transistor outputs | Yes | CPM2C-S100C-DRT | U, C, CE |
| | | | 4 sourcing transistor outputs | Yes | CPM2C-S110C-DRT | |
| Units with CompoBus/S Master, 10 I/O points<br><br>Inputs: 6<br>Outputs: 4 | 1 Fujitsu connector | 6 inputs (24 V DC) | 4 sinking transistor outputs | Yes | CPM2C-S100C | U, C, CE |
| | | | 4 sourcing transistor outputs | Yes | CPM2C-S110C | |

## Power Supply Unit

| Unit | Input | Output | Model | Standards |
|---|---|---|---|---|
| AC Power Supply Unit | 100 to 240 V AC | 24 V DC/600 mA | CPM2C-PA201 | U, C, CE |

## Expansion I/O Units

| Expansion I/O Unit | | Inputs | Outputs | Model | Standards |
|---|---|---|---|---|---|
| Units with inputs only<br><br>Inputs: 8 | 1 Fujitsu connector | 8 inputs (24 V DC) | --- | CPM2C-8EDC | U, C, CE |
| | 1 MIL connector | 8 inputs (24 V DC) | --- | CPM2C-8EDM | U, C, CE |
| Units with inputs only<br><br>Inputs: 16 | 1Fujitsu connector | 16 inputs (24 V DC) | --- | CPM2C-16EDC | U, C, CE |
| | 1 MIL connector | 16 inputs (24 V DC) | --- | CPM2C-16EDM | U, C, CE |
| Units with relay outputs only<br><br>Outputs: 8 | I/O terminal block | --- | 8 relay outputs | CPM2C-8ER | U, C, CE |
| | 1 Fujitsu connector | --- | 8 sinking transistor outputs | CPM2C-8ETC | U, C, CE |
| | | --- | 8 sourcing transistor outputs | CPM2C-8ET1C | U, C, CE |
| | 1 MIL connector | --- | 8 sinking transistor outputs | CPM2C-8ETM | U, C, CE |
| | | --- | 8 sourcing transistor outputs | CPM2C-8ET1M | U, C, CE |
| Units with transistor outputs only<br><br>Outputs: 8 | 1 Fujitsu connector | --- | 16 sinking transistor outputs | CPM2C-16ETC | U, C, CE |
| | | --- | 16 sourcing transistor outputs | CPM2C-16ET1C | U, C, CE |
| | 1 MIL connector | --- | 16 sinking transistor outputs | CPM2C-16ETM | U, C, CE |
| | | --- | 16 sourcing transistor outputs | CPM2C-16ET1M | U, C, CE |
| Units with 10 I/O points<br><br>Inputs: 6<br>Outputs: 4 | 1 I/O terminal block | 6 inputs (24 V DC) | 4 relay outputs | CPM2C-10EDR | U, C, CE |

| Expansion I/O Unit | | Inputs | Outputs | Model | Standards |
|---|---|---|---|---|---|
| Units with 20 I/O points<br><br>Inputs: 12<br>Outputs: 8 | 1 I/O terminal block | 12 inputs (24 V DC) | 8 relay outputs | CPM2C-20EDR | U, C, CE |
| Units with 24 I/O points<br><br>Inputs: 16<br>Outputs: 8 | 2 Fujitsu connectors | 16 inputs (24 V DC) | 8 sinking transistor outputs | CPM2C-24EDTC | U, C, CE |
| | | | 8 sourcing transistor outputs | CPM2C-24EDT1 | U, C, CE |
| | 2 MIL connectors | 16 inputs (24 V DC) | 8 sinking transistor outputs | CPM2C-24EDTM | U, C, CE |
| | | | 8 sourcing transistor outputs | CPM2C-24EDT1M | U, C, CE |
| Units with 32 I/O points<br><br>Inputs: 16<br>Outputs: 16 | 2 Fujitsu connectors | 16 inputs (24 V DC) | 16 sinking transistor outputs | CPM2C-32EDTC | U, C, CE |
| | | | 16 sourcing transistor outputs | CPM2C-32EDT1C | U, C, CE |
| | 2 MIL connectors | 16 inputs (24 V DC) | 16 sinking transistor outputs | CPM2C-32EDTM | U, C, CE |
| | | | 16 sourcing transistor outputs | CPM2C-32EDT1M | U, C, CE |

## Analog I/O Units

| Product | Specifications | Model | Standards |
|---|---|---|---|
| Analog I/O Unit | 2 analog inputs and 1 analog output | CPM2C-MAD11 | CE |

## Temperature Sensor Unit

| Product | Specifications | Model | Standards |
|---|---|---|---|
| Temperature Sensor Unit | 2 inputs for thermocouples | CPM2C-TS001 | CE |
| | 2 inputs for temperature resistance thermometers | CPM2C-TS101 | |

## CompoBus/S I/O Link Units

| Product | Specifications | Model | Standards |
|---|---|---|---|
| CompoBus/S I/O Link Units | I/O Links: 8 inputs, 8 outputs | CPM2C-SRT21 | CE |

## I/O Connectors

(Connectors are not provided with CPU Unit. Select the appropriate ones from the following table. One CPU Unit requires two sets of Connectors.)

### Fujitsu Connectors

| Connection method | From OMRON | | From Fujitsu |
|---|---|---|---|
| Soldered | C500-CE241 | 1 set | FCN-361J024-AUConnector<br>FCN-360C024-J2Connector Cover |
| Crimped | C500-CE242 | | FCN-363J024Housing<br>FCN-363J-AUContacts<br>FCN-360C024-J2Connector Cover |
| Pressure-welded | C500-CE243 | | FCN-367J024-AU/F |

### MIL Connectors

| Connection method | Model | Number in box | Specifications |
|---|---|---|---|
| Pressure-welded | XG4M-2030-T | 100 | Poles: 20 |

**Note:** Any commercially available 20-pole (IDC) connectors, according to MIL-C-83503, DIN 41651 or IEC 60603-1 specification, can be used.

### Programming Consoles and Cables

| Product | | Model | Standards |
|---|---|---|---|
| Programming Console (2-m cable attached) | | CQM1-PRO01-E | U, C, CE, N |
| Programming Console (Requires separate cable. See below.) | | C200H-PRO27-E | U, C, N, CE |
| Connecting Cable for connecting CQM1-PRO01-E to a peripheral port | | CS1W-CN114 | CE |
| Connecting Cable for C200H-PRO27-E | 2-m cable | C200H-CN222 | N |
| | 4-m cable | C200H-CN422 | --- |
| Connecting Cable for C200H-PRO27-E allowing direct connection to the CPM2C CPU Unit | 2-m cable | CS1W-CN224 | CE |
| | 6-m cable | CS1W-CN624 | CE |

### Support Software

| Product | Functions | Model | Standards |
|---|---|---|---|
| CX-One | Omron's integrated software for programming and configuration of all control system components, including PLCs, HMI, drives, temperature controllers and advanced sensors. | CX-ONE-AL@@C-E[1] | --- |

[1] @@ = Number of licenses (01, 03, 10)

| Product | Model | Standards |
|---|---|---|
| Expansion Memory Unit | CPM1-EMU01-V1 | --- |
| EEPROM (256 K) | EEROM-JD | --- |

# OMRON

## Peripheral Port Adapters and Connecting Cables

| Description | | Computer port | Length | Model | Standards |
|---|---|---|---|---|---|
| Personal Computer Connecting Cables | | For a D-sub 9-pin port | 2 m | CS1W-CN226 | CE |
| | | | 6 m | CS1W-CN626 | CE |
| | | | 3.3 m | CQM1-CIF02 | U, C, N, L, CE |
| | Peripheral Port Cable | | 0.05 m | CS1W-CN114 | CE |

## RS-232C Cables

| Product | Computer port | Specifications | Length | Model | Standards |
|---|---|---|---|---|---|
| RS-232C Cable | For a D-sub 9-pin port | --- | 2 m | XW2Z-200S-V | --- |
| | | | 5 m | XW2Z-500S-V | --- |
| | | Can be used with a peripheral bus or Host Link. Uses connector that prevents ESD (electrostatic discharge.) | 2 m | XW2Z-200S-CV | --- |
| | | | 5 m | XW2Z-500S-CV | --- |

## Communications Port Connecting Cables

| Description | Cable length | Model | Standards |
|---|---|---|---|
| Converts to a Peripheral port and RS-232C port. | 0.1 m (about 4") | CPM2C-CN111 | CE |
| Converts to a Peripheral port only. | 0.05 m (about 2") | CS1W-CN114 | CE |
| Converts to an RS-232C port only. | 0.1 m (about 4") | CS1W-CN118 | CE |

## Simple Communications Unit

| Product | Specifications | Model | Standards |
|---|---|---|---|
| Simple Communications Unit | RS-485/RS-232C ports for connection to components | CPM2C-CIF21 | U, C, CE |

## Adapters

| Product | Function | | Model | Standards |
|---|---|---|---|---|
| Peripheral/RS 232C Adapter Unit | Peripheral port level conversion | | CPM2C-CIF01-V1 | --- |
| RS-422/RS-485/RS-232C Adapter Unit | | | CPM2C-CIF11 | U, C, CE |
| Link Adapter | RS-232C to RS-422A conversion | For personal computer connection (Can also be connected to the CPM2A.) | 3G2A9-AL004-E | --- |
| RS-422A Adapter | | For CPM2A connection (Can also be connected to a personal computer, but requires an external 5-V power supply.) | NT-AL001 | --- |

## Battery

| Product | Function | Model | Standards |
|---|---|---|---|
| Battery | Backs up memory in the CPM2C CPU Unit. | CPM2C-BAT01 | CE |

## I/O Terminal Blocks and Connecting Cables

| Product | Description | No. of inputs/ outputs | Model | Comments |
|---|---|---|---|---|
| I/O Terminal Blocks | Slim type with M3 slotted screw terminal block | 20 | XW2D-20G6 | For more information refer to "Wiring Systems" on page 384 |
| | Flat cable connector with M2.5 slotted screw terminal block | 20 | XW2B-20G4 | |
| Common terminals (3-tier inputs) | --- | | XW2E-20G5-IN16 | |
| Common terminals (2-tier outputs) | --- | | XW2C-20G6-IO16 | |

| Product | Cable length | | Model | Comments |
|---|---|---|---|---|
| Special Connecting Cable | With Fujitsu connector | 0.5 m | XW2Z-050A | For more information refer to "Wiring Systems" on page 384 |
| | | 1 m | XW2Z-100A | |
| | | 1.5 m | XW2Z-150A | |
| | | 2 m | XW2Z-200A | |
| | | 3 m | XW2Z-300A | |
| | | 5 m | XW2Z-500A | |
| | With MIL connector | 2.5 m | G79-025C | |
| | | 5 m | G79-050C | |

## Relay I/O Terminals and Connecting Cables

| Product | Mounted relay | I/O points | Processing | Rated voltage | Model | Standards | Output | Fujitsu connector | MIL connector |
|---|---|---|---|---|---|---|---|---|---|
| Relay I/O terminals | G7TC | 16 inputs | NPN (– common) | 24 V DC | G7TC-ID16 | --- | --- | G79-#00C | G79-O#00C |
| | | | | 100 (110) V AC | G7TC-IA16 | | | G79-#00C | G79-O#00C |
| | | | | 200 (220) V AC | | | | G79-#00C | G79-O#00C |
| | | 16 outputs | NPN (+ common, sinking output) | 24 V DC | G7TC-OC16 | | Sink | G79-#00C | G79-O#00C |
| | | 16 outputs | PNP (– common, sourcing output) | 24 V DC | G7TC-OC16-1 | | Source | G79-#00C | G79-O#00C |
| | | 8 outputs | NPN (+ common, sinking output) | 24 V DC | G7TC-OC08 | --- | Sink | G79-#00C | G79-O#00C |
| | G6D | 16 outputs | NPN (+ common, sinking output) | 24 V DC | G70D-SOC16 | --- | Sink | G79-#00C | G79-O#00C |
| | | | PNP (– common, sourcing output) | 24 V DC | G70D-SOC16-1 | --- | Source | | G79-I#00C |
| | G3DZ (Power MOS FET Relay) | | NPN (+ common, sinking output) | 24 V DC | G70D-FOM16 | --- | Sink | G79-#00C | G79-O#00C |
| | | | PNP (– common, sourcing output) | 24 V DC | G70D-FOM16-1 | --- | Source | | G79-I#00C |
| | G6D | | NPN (+ common, sinking output) | 24 V DC | G70D-VSOC16 | --- | Sink | G79-#00C | G79-O#00C |
| | G3DZ (Power MOS FET Relay) | | NPN (+ common, sinking output) | 24 V DC | G70D-VFOM16 | --- | Sink | G79-#00C | G79-O#00C |
| | (Sold separately) G2R G3R G3RN H3RN | | NPN (+ common, sinking output) | 24 V DC | G70A-ZOC16-3 | --- | Sink | G79-#00C | G79-O#00C |
| | | | PNP (– common, sourcing output) | | G70A-ZOC16-4 | --- | Source | --- | G79-I#00C |

| Product | Cable length | | Model | Comments |
|---|---|---|---|---|
| Connecting Cable with connector (1:1) | With Fujitsu connector | 1 m | G79-100C | For more information refer to "Wiring Systems" on page 384 |
| | | 1.5 m | G79-150C | |
| | | 2 m | G79-200C | |
| | | 3 m | G79-300C | |
| | | 5 m | G79-500C | |
| | With MIL connector | 0.25 m | G79-O25C | |
| | | 5 m | G79-O50C | |
| | | 0.25 m | G79-I25C | |
| | | 0.5 m | G79-I50C | |

## DC Power Supplies

| Product | Output voltage/current | Input voltage | Model | Standards |
|---|---|---|---|---|
| DC Power Supply (3 W) | 24 V DC, 0.13 A | 85 V AC to 264 V AC | S82K-00324 | U, C |
| DC Power Supply (7.5 W) | 24 V DC, 0.3 A | 85 V AC to 264 V AC | S82K-00724 | U, C |
| DC Power Supply (15 W) | 24 V DC, 0.6 A | 85 V AC to 264 V AC | S82K-01524 | U, C |
| DC Power Supply (30 W) | 24 V DC, 1.3 A | 85 V AC to 264 V AC | S82K-03024 | U, C |
| DC Power Supply (50 W) | 24 V DC, 2.1 A | 85 V AC to 264 V AC | S82K-05024 | U, C |

ALL DIMENSIONS SHOWN ARE IN MILLIMETERS.
To convert millimeters into inches, multiply by 0.03937. To convert grams into ounces, multiply by 0.03527.

Cat. No. P06E-EN-03A    In the interest of product improvement, specifications are subject to change without notice.

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# Compact PLC series
# CPM2A/CPM2B/CPM2C

**Advanced functions and high performance in a compact shape.**
**Ideal for automation of packaging and conveyor systems. Provides increased performance and added value to any compact machine.**

**High Performance**
### Versatile Functions for More Advanced Systems
- High-speed counter inputs for position sensing or object counting.
- Synchronous control simplifies timing adjustment.
- High-speed processing with an interrupt function for immediate response.
- Supports both stand-alone and distributed control.

**Compact block-type PLCs**
### SYSMAC CPM2A

### AC Power Supply



### DC Power Supply



**Efficient and effective**
### Highly Economical
The combination of advanced functions and high performance in an economical PLC range will add value to your machines.

**Compact**
### Fits into your available space
A choice of three different compact form factors means you can more easily fit the functions you need in the space you have available in your control cabinet or machine.
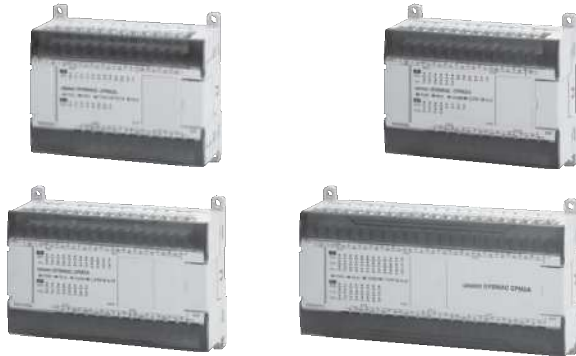
**Modular Board PLCs**
### SYSMAC CPM2B
Proven CPM2 technology to fit in the tightest spaces. And if the standard models do not fit, we'll make the exact shape and I/O combination you need.
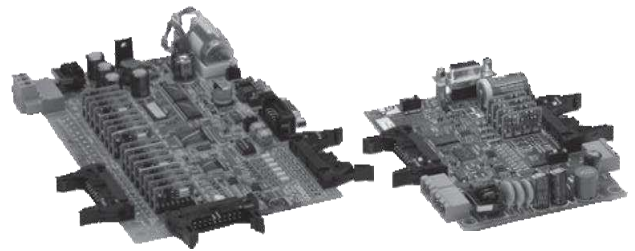


**Compact slim-line PLCs**
### SYSMAC CPM2C

| 10 I/O Points | 20 I/O Points | 32 I/O Points |
|---|---|---|



**Power Supply**     **Communication Adapter**



**Expansion I/O: Digital, Analog**     **Temperature Sensor**

# OMRON

## A full line-up to fit your needs

A wide range of models is available to achieve the machine or line controller that you require. Select from 16 CPU types, for AC power, DC power, relay output, transistor output, etc. Match the power supply, output, number of I/O points, and size to your particular needs. Expansion I/O Units can also be easily added to increase I/O points.

## Removable Terminal Blocks for Easy Maintenance

Removable terminal blocks* simplify installation, troubleshooting and machine maintenence.
(*CPU Unit only)



## Expandable up to 140 I/O Points

Even with its ultracompact size, the CPM2C features a wide range of models for efficient machine control. Ten CPU types, all with DC power supply, allow selection of relay output or transistor output, terminal block or connector wiring, clock function, and other functions. Choose the output type, number of I/O points and other features to meet your needs. Expansion I/O Units (8, 10, 16, or 24 I/O points) are also available to provide control for a maximum of 140 I/O points.

## Easy-to-Read LED Display

The LED display on the upper part of the CPM2C is easy to read, even when cables are connected.



LED Display
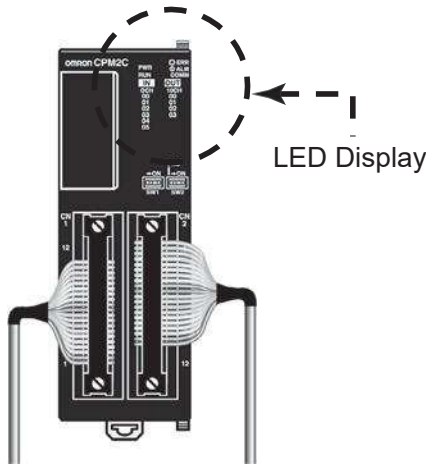
## Built-in RS-232C Port

The built-in RS-232C port enables connection with a variety of equipment. The communication port can be used for configuration, maintenance, troubleshooting, visualisation or general-purpose serial communication.

## PT Connection

Compatible with the OMRON Programmable Terminal's Programming Console functions. Maintenance is simplified with the on-screen programming operations.
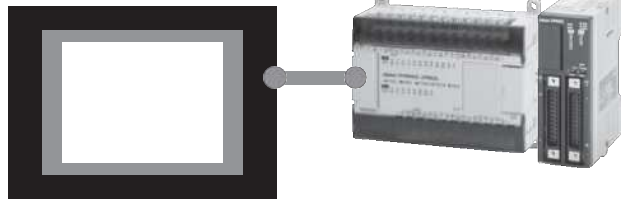


## Host Link

Host Link allows reading and writing of the I/O memory and operation modes of the CPM2A or CPM2C by a personal computer. The following RS422/RS-232C Communications Adapters also provide 1:n communications.
CPM2A: CPM1-CIF11
CPM2C: CPM2C-CIF11
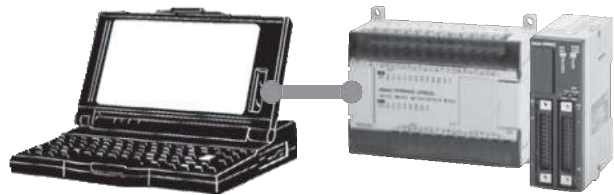


## One-to-one Link

A 1:1 PLC Link connection can be established with another CPM2C, or a CQM1(H), CPM1, CPM1A, CPM2A, SRM1(-V2), C200HS, or C200HX/HG/HE PLC.

## Windows-based Programming Support

The Windows-based CX-One Support Software is available for programming all OMRON PLC's, including the CPM2A or CPM2C. Being able to program in the Windows environment reduces programming steps, and gives you access to a large number of display monitor and debugging functions. It also means that you can use existing Windows applications to help with CPM2A or CPM2C programming, which adds up to a highly advanced programming environment.

# CPM2-series Features

*The illustrations in this section show CPM2A PLCs, but the same functions are available in CPM2B/CPM2C PLCs unless otherwise stated.*

**Interrupts**

The CPM2-series PLCs provide the following kinds of interrupt processing.

**Interrupt Inputs**

Interrupt programs are executed when inputs to the CPU Unit's built-in input points (00003 to 00006) are turned from OFF to ON. Interrupt sub-routine numbers 000 to 003 are allocated to input points 00003 to 00006.

**Interval Timer Interrupts**

Interval timer interrupt programs are executed with a precision of 0.1 ms. Interrupt subroutine numbers 000 to 049 are allocated by instructions.

**Count-up Interrupts**

Input signals to the CPU Unit's built-in input points (00003 to 00006) are counted at high speed (up to 2 kHz), and the normal program is stopped and an interrupt program is executed when the count reaches the SV. Interrupt subroutine numbers 000 to 003 are allocated to input points 00003 to 00006.

**Count-check Interrupts Using the High-speed Counter**

Pulse inputs to the CPU Unit's built-in input points (00000 to 00002) are counted at high speed (up to 20 kHz or 5 kHz), and an interrupt program is executed when the present value matches the target value or falls within a given range. Interrupt subroutine numbers 000 to 049 are allocated by instructions.

**Interval Timer Interrupts**

The CPM2 has one interval timer (precision: 0.1 ms) that can be set from 0.5 ms to 319,968 ms. There are two interrupt modes: the single-interrupt mode, in which a single interrupt is executed when the time is up, and the scheduled-interrupt mode, in which interrupts are executed at regular intervals.
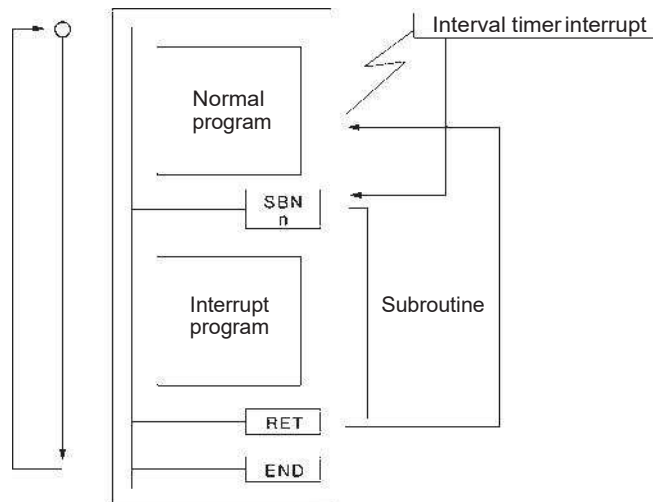


| Item | Single-interrupt mode | Scheduled-interrupt mode |
|---|---|---|
| Operation | Interrupt is executed once when time has elapsed. | Interrupts are executed at regular intervals. |
| Set time | 0.5 to 319,968 ms (Unit: 0.1 ms) | |
| Interrupt response time | 0.3 ms (from when time has elapsed until execution of interrupt program) | |

## High-speed Counters

The CPM2 CPU Unit has a built-in high-speed counter that can count input pulses at up to 20 kHz. When combined with the interrupt function, the high-speed counter can be used for target-value comparison or range comparison control that is unaffected by the cycle time.
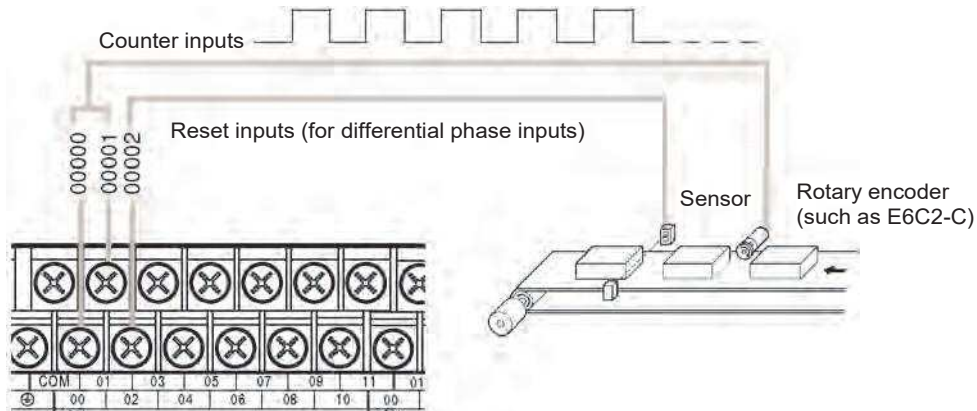


| Input | Response fre-quency | Input mode (count value) | Counter PV Storage | Control method |
|---|---|---|---|---|
| 00000 | 5 kHz | Differential phase input mode (-8,388,608 to 8,388,607) | SR 248 and SR 249 | Target value comparison interrupts |
| 00001 00002 | 20 kHz | Pulse + direction input mode (-8,388,608 to 8,388,607) Up/down pulse input mode (-8,388,608 to 8,388,607) Increment mode (0 to 16,777,215) | | Range comparison inter-rupts |

## Interrupt Inputs (Counter Mode)

The four built-in interrupt inputs in the CPM2 CPU Unit can be used in counter mode to count inputs of up to 2 kHz. These inputs can be used as either incrementing counters or decrementing counters and can trigger an interrupt (i.e., execute an interrupt subroutine) when the count matches the set value.
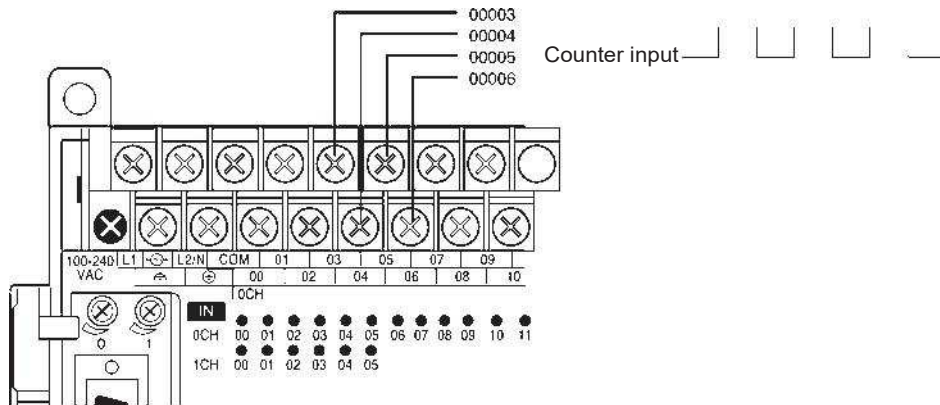


| Input | Counter number | Set value location | Present value loca-tion | Response frequency | Input mode (count value) | Control method |
|---|---|---|---|---|---|---|
| 00003 | Counter 0 | SR 240 | SR 244 | 2 kHz | Incrementing counter (0000 to FFFF) Decrementing counter (0000 to FFFF) | Count-up inter-rupts |
| 00004 | Counter 1 | SR 241 | SR 245 | | | |
| 00005 | Counter 2 | SR 242 | SR 246 | | | |
| 00006 | Counter 3 | SR 243 | SR 247 | | | |

## Pulse Outputs

The CPM2 has two pulse outputs. The PLC Setup can be set to use these outputs as two single-phase outputs without acceleration and deceleration, two variable duty-ratio pulse outputs, or pulse outputs with trapezoidal acceleration/deceleration (one pulse + direction output and one up/down pulse output). The pulse output's PV coordinate system can also be specified in the PC Setup as either relative or absolute.
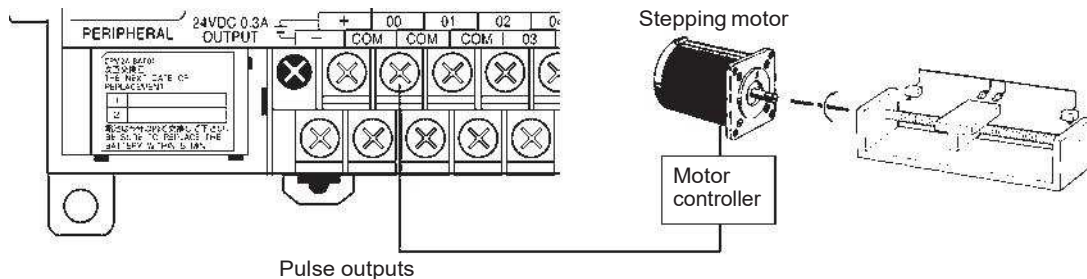


Pulse outputs

| Item | | Single-phase pulse output without accel/decel | Variable duty-ratio pulse output | Single-phase pulse output with trapezoidal acceleration/deceleration | | | |
|---|---|---|---|---|---|---|---|
| | | | | Pulse + direction output | | Up/down pulse output | |
| Controlling instruction(s) | | PULS(65) and SPED(64) | PWM(—) | PULS(65) and ACC(—) | | | |
| Output number | 01000 | Pulse output 0 (See note.) | Pulse output 0 (See note.) | Pulse output 0 | Pulse output | Pulse output 0 | CW pulse output |
| | 01001 | Pulse output 1 (See note.) | Pulse output 1 (See note.) | | Direction output | | CCW pulse output |
| Output frequency range | | 10 Hz to 10 kHz | 0.1 Hz to 999.9 Hz | 10 Hz to 10 kHz | | 10 Hz to 10 kHz | |
| | Pitch | 10 Hz | 0.1 Hz | 10 Hz | | 10 Hz | |
| Duty ratio | | 50% | 0 to 100% | 50% | | 50% | |

Note: With single-phase pulse outputs, pulse outputs 0 and 1 can each be output independently.

## Synchronized Pulse Control

The CPM2's high-speed counter function can be combined with the pulse output function to generate an output pulse at a specified multiple of the input pulse frequency.
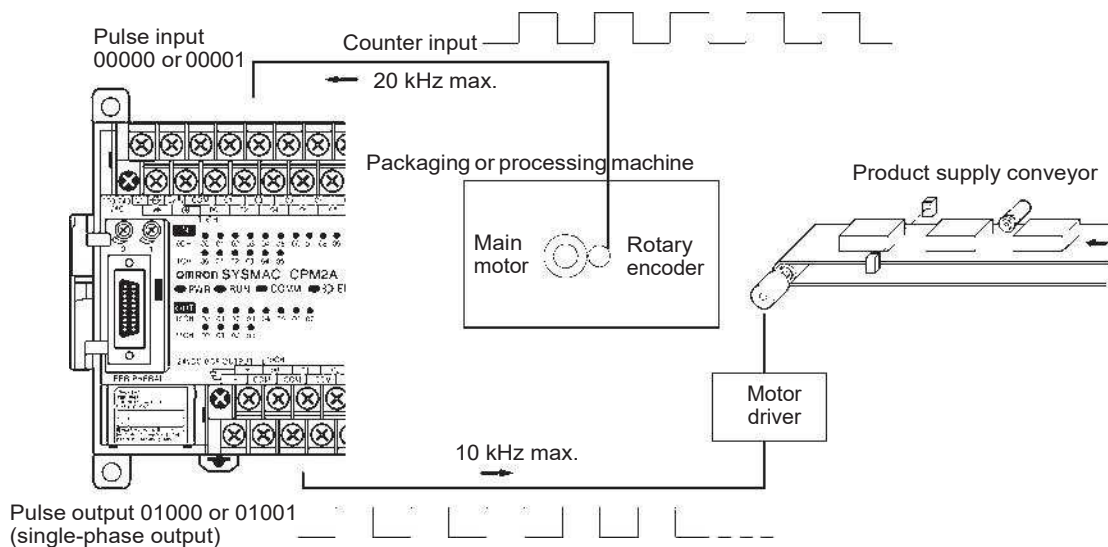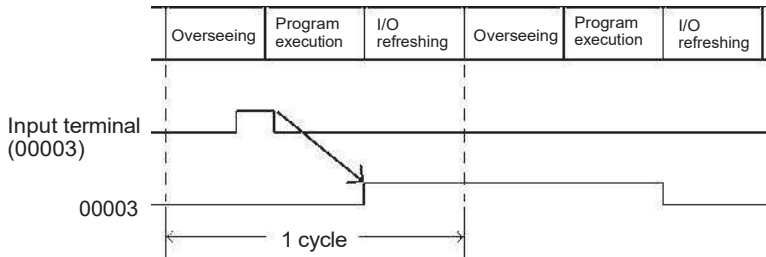


| Item | | Input mode | | | |
|---|---|---|---|---|---|
| | | Phase differential input mode | Pulse + direction input mode | Up/down pulse input mode | Increment mode |
| Input number | 00000 | A-phase input | Count input | CW input | Count input |
| | 00001 | B-phase input | Direction input | CCW input | See note 1. |
| Input method | | Phase differential quadruple input | Single-phase input | Single-phase input | Single-phase input |
| Input frequency range | | 10 Hz to 500 Hz (accuracy ±1 Hz) 20 Hz to 1 kHz (accuracy ±1 Hz) 300 Hz to 20 kHz (accuracy ±25 Hz) (See note 2.) | | | |
| Output frequency range | | 10 Hz to 10 kHz (accuracy 10 Hz) | | | |
| Frequency ratio (scaling factor) | | 1 % to 1,000% (Can be specified in units of 1%.) | | | |
| Synchronized control cycle | | 10 ms | | | |

**Note: 1.** Can be used as an ordinary input.

**2.** The accuracy is ±10 Hz when the input frequency is 10 kHz or less.

## Quick-response Inputs

The CPM2A/CPM2B CPU Units and CPM2C CPU Units with 20 I/O points have four inputs that can be used for quick-response inputs. The CPM2C CPU Units with 10 I/O points have two inputs that can be used for quick response inputs. These inputs are shared with interrupt inputs and 2-kHz high-speed counter inputs. Quick-response inputs are received into an internal buffer, so signals that change status within a cycle can be received.

| Overseeing | Program execution | I/O refreshing | Overseeing | Program execution | I/O refreshing |

| Input number | Min. input signal |
| --- | --- |
| 00003 | 50 µs |
| 00004 | |
| 00005 | |
| 00006 | |

Inputs 00003 through 00006 can be used as interrupt inputs, 2-kHz high-speed counter inputs, or quick-response inputs. These inputs can be used as ordinary inputs if they are not used as interrupt inputs, 2-kHz high-speed counter inputs, or quick-response inputs.

Inputs 00005 and 00006 cannot be used with the CPM2C CPU Unit with 10 I/O points.

## Analog Controls (CPM2A Only)

The CPM2A CPU Unit has two analog controls that can be used for a wide range of timer and counter analog settings. As these controls are turned, values from 0 to 200 (BCD) are stored in the SR Area.

| Control | Storage area | Set value (BCD) |
| --- | --- | --- |
| Analog control 0 | SR 250 | 0000 to 0200 |
| Analog control 1 | SR 251 | 0000 to 0200 |

## Clock Function

The CPM2A and some CPM2B/2Cs have a built-in clock (accuracy: ±1 minute/month) that allows the date and time to be read from the ladder program. The time can be overwritten from a Programming Console or other Programming Device, but the CPM2A is also equipped with a 30-second Compensation Bit. The time will be rounded off to the nearest minute when this bit is turned ON, so the time can be set very accurately by turning ON this bit when the "time tone" is heard on the radio.

(The CPM2B/CPM2C CPU Units have models with the clock function and models without.)

| | 15 | 8 | 7 | 0 |
| AR17 | Hour | | Minute | |
| AR18 | Minute | | Second | |
| AR19 | Date | | Hour | |
| AR20 | Year | | Month | |
| AR21 | | | Day of week | |

2 digits BCD each.
(Only the last 2 digits of the year are displayed.)

00 to 06: Sunday to Saturday

| AR2115 | Clock Set Bit |
| AR2114 | Clock Stop Bit |
| AR2113 | 30-second Adjustment Bit |
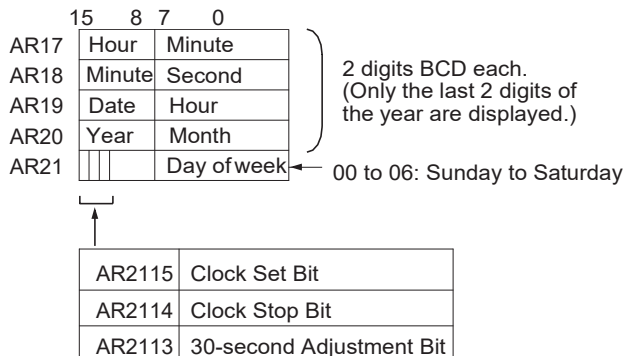
## Additional Timer Functions

| VERY HIGH-SPEED TIMER (Units: 1 ms) | Starts a very high-speed decrementing ON-delay timer with the specified timer number. The set value can be 0 to 9,999 ms. (Set in 1-ms units.) |
| --- | --- |
| LONG TIMER (Units: 1 s or 10 s) | Starts a long-term decrementing ON-delay timer with the specified timer number. The set value can be 0 to 9,999 s (when set in 1-s units) or 0 to 99,990 s (when set in 10-s units). |

## NT Links

The CPM2 can be connected to an OMRON PT (Programmable Terminal) in NT Link mode (1:1). A communications program is not required in the CPM2. The RS-232C port can be used for the NT Link.

CPM2A CPU Unit

RS-232C cable

OMRON PT

RS-232C port
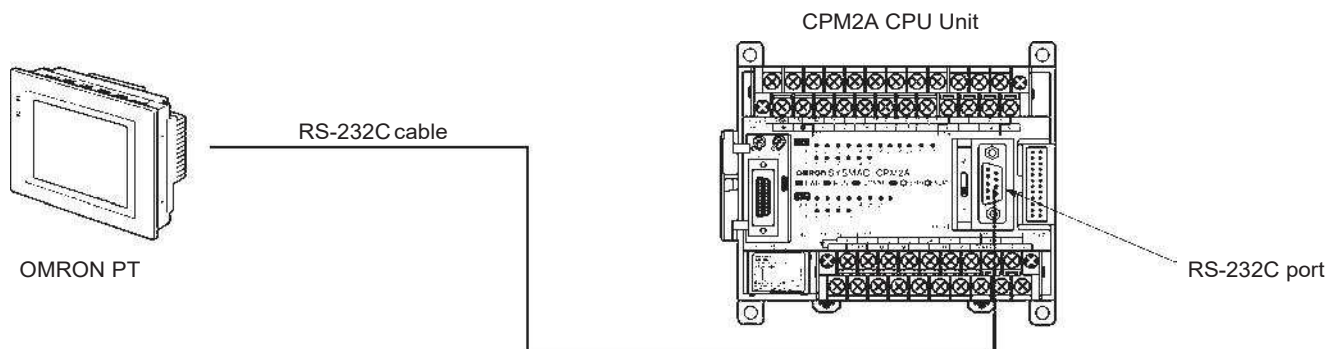
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