

Compact PLC Series CPM2C

General

The CPM2C Micro PLC is suitable as a controller for simple stand-alone machines, as well as a simple networked controller. One innovation is the new synchronisation instruction, which makes it possible to generate output pulse trains as a function of an input pulse frequency, e.g. to emulate the synchronisation of 2 axes through a variable gear ratio. Furthermore, PID control and pulse width modulation can also be realised easily by preconfigured instructions.

PLC programs from the CPM1/CPM1A and the CPM2A can be used with the CPM2C. Programming is carried out using the CX-Programming software.

Features of the CPM2C series:

- Small size, space-saving narrow design
- Removable terminal block or connector
- Real-time clock and backup battery (dependent on type)
- One 20 kHz counter and two 10 kHz pulse outputs
- Peripheral and RS-232C ports in one connector
- Active RS-232C port (RXD/TXD instruction)
- Synchronisation, PID control, and pulse width modulation instructions

The very small size and DIN rack mounting allow the CPM2C to be installed in small control cabinets, which can be integrated directly into machines and therefore save a great deal of space.



Programmable
Logic Contr.

Performance Data (Max. Values)

		CPM2C-10_	CPM2C-S1_	CPM2C-20_	CPM2C-32_
Built-in I/O	Inputs	6	6	12	16
	Outputs	4	4	8	16
With expansion	Inputs	86	54	92	96
	Outputs	84	52	88	96
Execution time (bit instruction)		0.64 µs	0.64 µs	0.64 µs	0.64 µs
Program memory		4 kwords	4 kwords	4 kwords	4 kwords
Data memory		2 kwords	2 kwords	2 kwords	2 kwords
Input interrupts		2	2	4	4
Time-controlled interrupts		1	1	1	1

Networks and Communication

Ethernet (open network)	-	-	-	-
Controller Link (PLC network)	-	-	-	-
Host Link, SYSMAC WAY (serial network)	Yes	Yes	Yes	Yes
DeviceNet (open fieldbus)	-	Yes (slave)	-	-
CompoBus/S (fieldbus)	Yes (slave)	Yes (master/slave)	Yes (slave)	Yes (slave)
AS-Interface (open fieldbus)	-	-	-	-
PROFIBUS-DP (open fieldbus)	-	-	-	-

Compact PLC Series CPM2C

System Configuration

Configuration

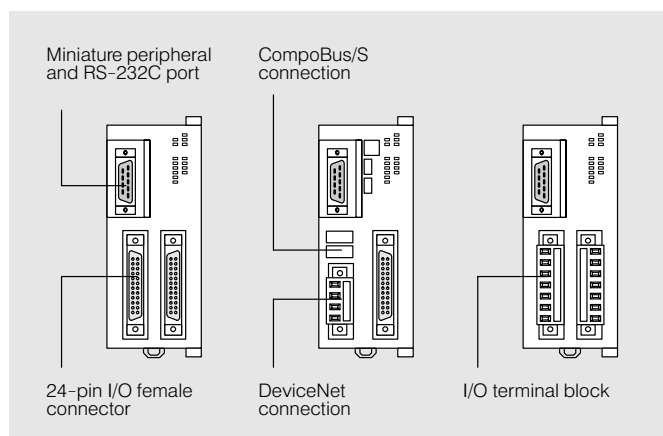
The individual Units of the CPM2C system are plugged in to one another and secured using 2 locking sliders. The system must be mounted on DIN rail.

Communication interfaces

The CPM2C has one peripheral and one RS-232C interface on a miniature peripheral socket. They can both be accessed via the CPM2C-CN111 adapter cable.

For other adapter cables, see page 61.

Both ports can be used simultaneously.



Expansion of the CPM2C

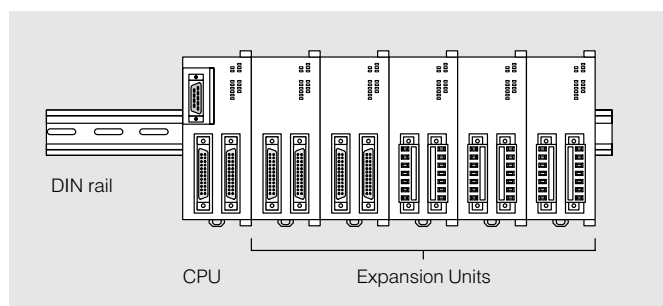
Up to five Expansion Units can be connected to CPM2C CPU Units, and up to three Expansion Units to CPM2C-S100C/S110C Units. Only a total of four of the CPM2C-MAD11 and CPM2C-TS_ Expansion Units can be connected.

Interrupt input

Two or four of the normal transistor inputs can also be configured as interrupt inputs. Various interrupt modes are available.

Pulse outputs

Only CPM2C CPU Units with transistor outputs provide a pulse output function. These pulse outputs are to be subtracted from the number of available standard outputs.



High-speed counter inputs

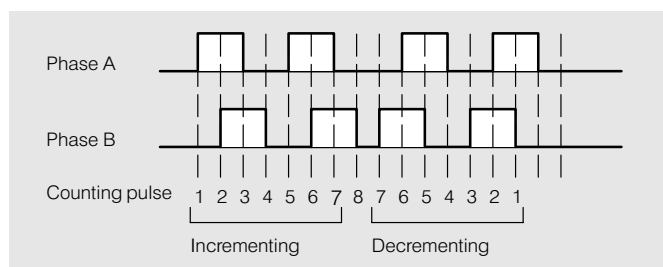
If the high-speed counter function is required, three of the normal transistor inputs are occupied. The high-speed counter input can be used to connect an encoder with phases A, B and Z, for example.

- Differential phase mode

The maximum input frequency is 5 kHz.

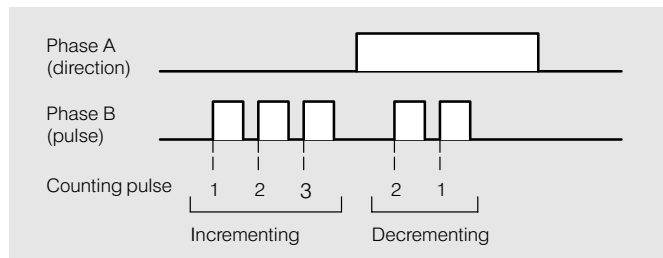
Each upward and each downward edge is counted, i.e. at 5 kHz, 20,000 pulses per second are counted.

The Z phase can be used as a reset signal.



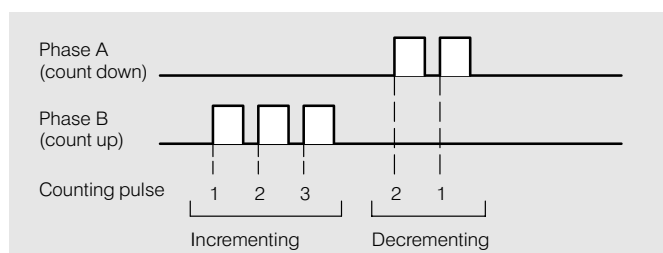
- Pulse/direction mode

The maximum counting frequency is 20 kHz.



- Up/down count mode

The maximum counting frequency is 20 kHz.



Compact PLC Series CPM2C

CPU Units



CPM2C-CPU Unit

- DIN rail mounting
- LED status display
- Max. 5 Expansion Units
- Removable terminal blocks
- Voltage supply 24 VDC

Model code

Inputs

Outputs

Data backup

Real-time clock

CPM2C-10CDR-D

6 DC inputs

4, relay

Capacitor

-

Model code

Inputs

Outputs

Data backup

Real-time clock

CPM2C-10C1DR-D

6 DC inputs

4, relay

Battery

Yes

Model code

Inputs

Outputs

Data backup

Real-time clock

CPM2C-20CDR-D

12 DC inputs

8, relay

Capacitor

-

Model code

Inputs

Outputs

Data backup

Real-time clock

CPM2C-20C1DR-D

12 DC inputs

8, relay

Battery

Yes



CPM2C-CPU Unit

- DIN rail mounting
- LED status display
- Max. 5 Expansion Units
- 24-pin front connector*
- Voltage supply 24 VDC
- Pulse output
- FUJITSU connector

Model code

Inputs

Outputs

Data backup

Real-time clock

CPM2C-10CDT1C-D

6 DC inputs

4, transistor, PNP

Capacitor

-

Model code

Inputs

Outputs

Data backup

Real-time clock

CPM2C-10CDTC-D

6 DC inputs

4, transistor, NPN

Capacitor

-

Model code

Inputs

Outputs

Data backup

Real-time clock

CPM2C-10C1DT1C-D

6 DC inputs

4, transistor, PNP

Battery

Yes

Model code

Inputs

Outputs

Data backup

Real-time clock

CPM2C-10C1DTC-D

6 DC inputs

4, transistor, NPN

Battery

Yes

* Front connector or terminal block and cable are not included in delivery package, see page 465.

Compact PLC Series CPM2C

CPU Units (Continued)



CPM2C-CPU Unit

- DIN rail mounting
- LED status display
- Max. 5 Expansion Units
- 24-pin front connector*
- Voltage supply 24 VDC
- Pulse output
- MIL connector

Model code

Inputs

Outputs

Data backup

Real-time clock

Model code

Inputs

Outputs

Data backup

Real-time clock

Model code

Inputs

Outputs

Data backup

Real-time clock

Model code

Inputs

Outputs

Data backup

Real-time clock

CPM2C-10CDT1M-D

6 DC inputs

4, transistor, PNP

Capacitor

-

CPM2C-10CDTM-D

6 DC inputs

4, transistor, NPN

Capacitor

-

CPM2C-10C1DT1M-D

6 DC inputs

4, transistor, PNP

Battery

Yes

CPM2C-10C1DTM-D

6 DC inputs

4, transistor, NPN

Battery

Yes

* Front connector or terminal block and cable are not included in delivery package, see page 465.

Compact PLC Series CPM2C

CPU Units (Continued)



- CPM2C-CPU Unit**
- DIN rail mounting
 - LED status display
 - Max. 5 Expansion Units
 - 24-pin front connector*
 - Voltage supply 24 VDC
 - Pulse output
 - FUJITSU connector



Model code	CPM2C-20CDT1C-D
Inputs	12 DC inputs
Outputs	8, transistor, PNP
Data backup	Capacitor
Real-time clock	-
Model code	CPM2C-20CDTC-D
Inputs	12 DC inputs
Outputs	8, transistor, NPN
Data backup	Capacitor
Real-time clock	-
Model code	CPM2C-20C1DT1C-D
Inputs	12 DC inputs
Outputs	8, transistor, PNP
Data backup	Battery
Real-time clock	Yes
Model code	CPM2C-20C1DTC-D
Inputs	12 DC inputs
Outputs	8, transistor, NPN
Data backup	Battery
Real-time clock	Yes
Model code	CPM2C-32CDT1C-D
Inputs	16 DC inputs
Outputs	16, transistor, PNP
Data backup	Capacitor
Real-time clock	-
Model code	CPM2C-32CDTC-D
Inputs	16 DC inputs
Outputs	16, transistor, NPN
Data backup	Capacitor
Real-time clock	-

* Front connector or terminal block and cable are not included in delivery package, see page 465.

Compact PLC Series CPM2C

CPU Units (Continued)



CPM2C-CPU Unit

- DIN rail mounting
- LED status display
- Max. 5 Expansion Units
- 24-pin front connector*
- Voltage supply 24 VDC
- Pulse output
- MIL connector

Model code

Inputs

Outputs

Data backup

Real-time clock

Model code

Inputs

Outputs

Data backup

Real-time clock

Model code

Inputs

Outputs

Data backup

Real-time clock

Model code

Inputs

Outputs

Data backup

Real-time clock

Model code

Inputs

Outputs

Data backup

Real-time clock

Model code

Inputs

Outputs

Data backup

Real-time clock

CPM2C-20CDT1M-D

12 DC inputs

8, transistor, PNP

Capacitor

-

CPM2C-20CDTM-D

12 DC inputs

8, transistor, NPN

Capacitor

-

CPM2C-20C1DT1M-D

12 DC inputs

8, transistor, PNP

Battery

Yes

CPM2C-20C1DTM-D

12 DC inputs

8, transistor, NPN

Battery

Yes

CPM2C-32CDT1M-D

16 DC inputs

16, transistor, PNP

Capacitor

-

CPM2C-32CDTM-D

16 DC inputs

16, transistor, NPN

Capacitor

-



CPM2C-CPU Unit

- DIN rail mounting
- LED status display
- Max. 3 Expansion Units
- 24-pin front connector*
- Voltage supply 24 VDC
- Pulse output
- FUJITSU connector

Model code

Inputs

Outputs

CompoBus/S Master

Data backup

Real-time clock

Model code

Inputs

Outputs

CompoBus/S Master

Data backup

Real-time clock

CPM2C-S110C

6 DC inputs

4, transistor, PNP

Up to 128 remote input points
+ 128 remote output points

Battery

Yes

CPM2C-S100C

6 DC inputs

4, transistor, NPN

Up to 128 remote input points
+ 128 remote output points

Battery

Yes

* Front connector or terminal block and cable are not included in delivery package, see page 465.

Compact PLC Series CPM2C

CPU Units (Continued)



CPM2C-CPU Unit

- DIN rail mounting
- LED status display
- Max. 3 Expansion Units
- 24-pin front connector*
- Voltage supply 24 VDC
- Pulse output 2
- FUJITSU connector

Model code

Inputs

Outputs

DeviceNet I/O Link

CompoBus/S Master

Data backup

Real-time clock

CPM2C-S110C-DRT

6 DC inputs
1 circuit, 6 inputs

4 transistor, PNP
1 circuit, 4 outputs

Configurable up to 64 byte in
+ 64 byte out

Up to 128 remote input points
+ 128 remote output points

Battery

Yes

CPM2C-CPU Unit

- DIN rail mounting
- LED status display
- Max. 3 Expansion Units
- 24-pin front connector*
- Voltage supply 24 VDC
- Pulse output

Model code

Inputs

Outputs

DeviceNet I/O Link

CompoBus/S Master

Data backup

Real-time clock

CPM2C-S100C-DRT

6 DC inputs
1 circuit, 6 inputs

4, transistor, NPN
1 circuit, 4 outputs

Configurable, up to 64 byte in
+ 64 byte out

Up to 128 remote input points
+ 128 remote output points

Battery

Yes

* Front connector or terminal block and cable are not included in delivery package, see page 465.

Specifications

Relay output	CPM2C	-10CDR-D	-10C1DR-D	-	-
Transistor outp. PNP		-	-	-10CDT1C/M-D	-10C1DT1C/M-D
Transistor outp. NPN		-	-	-10CDTC/M-D	-10C1DTC/M-D
CPU built-in inputs		6 DC inp. 1 circuit, 6 inp.	6 DC inp. 1 circuit, 6 inp.	6 DC inp. 1 circuit, 6 inp.	6 DC inp. 1 circuit, 6 inp.
CPU built-in outputs		4 relay outp. 2 circuits, 1 outp. each 1 circuit, 2 outp. 4 A per circuit	4 relay outp. 2 circuits, 1 outp. each 1 circuit, 2 outp. 4 A per circuit	4 transistor outp. 1 circuit, 4 outp. 1 circuit, 2 outp. 1.2 A per circuit	4 transistor outp. 1 circuit, 4 outp. 1 circuit, 2 outp. 1.2 A per circuit
Max. local	Inputs Outputs	86 84	86 84	86 84	86 84
Real-time clock		-	Yes	-	Yes
Number of Expansion Units		5	5	5	5
Data backup		Capacitor, 10 days	Battery, 2 years	Capacitor, 10 days	Battery, 2 years
Pulse output 10 Hz..10 kHz		-	-	2	2
Input interrupts 300 µs call subroutine		2	2	2	2
Counter interrupts 2 kHz counting frequency		2	2	2	2
Pulse storage min. 50 µs pulse width		2	2	2	2

Compact PLC Series CPM2C

Specifications (Continued)

Relay output	CPM2C	-20CDR-D	-20C1DR-D	-	-
Transistor outp. PNP		-	-	-20CDT1C/M-D	-20C1DT1C/M-D
Transistor outp. NPN		-	-	-20CDTC/M-D	-20C1DTC/M-D
CPU built-in inputs		12 DC inp. 1 circuit, 12 inp.	12 DC inp. 1 circuit, 12 inp.	12 DC inp. 1 circuit, 8 inp. 1 circuit, 4 inp.	12 DC inp. 1 circuit, 8 inp. 1 circuit, 4 inp.
CPU built-in outputs		8 relay outp. 4 circuits, 2 outp. each 4 A per circuit	8 relay outp. 4 circuits, 2 outp. each 4 A per circuit	8 transistor outp. 1 circuits, 8 outp. 2.4 A per circuit	8 transistor outp. 1 circuits, 8 outp. 2.4 A per circuit
Max. local	Inputs Outputs	92 88	92 88	92 88	92 88
Real-time clock		-	Yes	-	Yes
Number of Expansion Units		5	5	5	5
Data backup		Capacitor, 10 days	Battery, 2 years	Capacitor, 10 days	Battery, 2 years
Pulse output 10 Hz..10 kHz		-	-	2	2
Input interrupts 300 µs call subroutine		4	4	4	4
Counter interrupts 2 kHz counting frequency		4	4	4	4
Pulse storage min. 50 µs pulse width		4	4	4	4
Relay output	CPM2C	-	-	-	
Transistor outp. PNP		-32CDT1C/M-D	-S110C	-S110C-DRT	
Transistor outp. NPN		-32CDTC/M-D	-S100C	-S100C-DRT	
CPU built-in inputs		16 DC inp. 2 circuit, 8 inp.	6 DC inp. 1 circuit, 4 inp. 1 circuit, 2 inp.	6 DC inp. 1 circuit, 4 inp. 1 circuit, 2 inp.	
CPU built-in outputs		16 transistor outp. 2 circuits, 8 outp. each* 3.2 A per circuit	4 transistor outp. 1 circuit, 4 outp. 1.2 A per circuit	4 transistor outp. 1 circuit, 4 outp. 1.2 A per circuit	
Max. local	Inputs Outputs	96 96	54 52	54 52	
CompoBus/S	Inputs Outputs	- -	128 128	128 128	
DeviceNet	Inputs Outputs	- -	- -	64 bytes 64 bytes	
Real-time clock		-	Yes	Yes	
Number of Expansion Units		5	3	3	
Data backup		Capacitor, 10 days	Battery, 2 years	Battery, 2 years	
Pulse output 10 Hz..10 kHz		2	2	2	
Input interrupts 300 µs call subroutine		4	2	2	
Counter interrupts 2 kHz counting frequency		4	2	2	
Pulse storage min. 50 µs pulse width		4	2	2	

* Output switching capacity differs depending on the circuit

Programmable Logic Contr.

Time-controlled interrupts 0.5 ms..5 min	1
Execution time μs	0.64
Program memory kwords	4
Data memory kwords	2
Work relay bits (words)	928 (58)
Holding relay bits (words)	320 (20)
Timer/Counter	256 (1 ms, 10 ms, 100 ms, $\frac{1}{10}$ s, timer, counter)
CPU ports	1 miniature peripheral port, comprising - 1 RS-232C port - 1 RS-232C port/programming console (switchable)
Number of instructions	14 basic instructions, 106 special instructions, all with edge- or level-triggered execution
Special instructions	- Synchronisation - Pulse output - Subroutine - Arithmetic - PID - Macro - ASCII/HEX - Indirect addressing - Pulse width modulation - 7 segment decoder - Tabular processing
Program backup	Flash EEPROM
Program protection	Password
Pulse counter	1x 20 kHz single-phase or 5 kHz differential mode (encoder phases A, B and Z)
Supply voltage	24 VDC
Operating voltage limits	20.4..26.4 VDC
Power consumption	3..4 W, + 1..2 W per Expansion Unit (except CPM2C-MAD11: 3.5 W)
Insulation resistance	Min. 20 MΩ at 500 VDC, measured between AC and PE terminal
Dielectric strength	2300 VAC at 50/60 Hz for one minute with a leakage current of max. 10 mA between AC and PE terminals.
Noise immunity	2 kV on power lines, conforms to IEC 61000-4-4
Vibration resistance	10..57 Hz with 0.075 mm amplitude; 57..0.150 Hz with an acceleration of 1 G in X, Y and Z directions, 10 sweeps of 8 minutes each.
Shock resistance	147 m/s ² (15 G) in X, Y and Z directions 3 times each.
Temperature Operation Storage	0..55 °C -20..75 °C
Ambient humidity	10..90% (without condensation)
Atmosphere	System must not be exposed to the following conditions: - Corrosive gases - Severe temperature fluctuations - Air with an extreme dust or salt content - Metal filings or metallic dust - Splash water or other chemicals
Degree of protection	IEC IP30 (Control cabinet mounting)
Grounding	According to EN60204
Approvals	CE, UL, CSA

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Compact PLC Series CPM2C

Specifications (Continued)

DC inputs of CPU Units

The inputs IN0000..IN0001 are the fast counter inputs (e.g. encoder phase A and B).

Input voltage	ON level OFF level	24 VDC (20.4..26.4 VDC) Min. 14.4 VDC Max. 5.0 VDC
Input impedance		3.9..4.7 k Ω (IN0000..IN0001: 2.7 k Ω)
Input current		5..6 mA (IN0000..IN0001: 8 mA)
ON/OFF delay		10 ms (selectable in 8 steps from 1..80 ms)

Relay outputs of CPU Units

Type of output		Relay
Max. switching capacity		250 VAC, 2 A ($\cos\phi=1$); 24 VDC, 2 A
Min. switching capacity		5 VDC, 10 mA
Relay life	electrical mechanical	150,000 operations at R load, 100,000 operations at L load 20,000,000 operations
ON/OFF delay		Max. 15 ms

Transistor outputs of CPU Units

Type of output		Transistor
Switching capacity		24 V (20.4..26.4 V), 0.3 A for first set of 8 24 V (20.4..26.4 V), 0.1 A for second set of 8
Leakage current		Max. 0.1 mA
Residual voltage		Max. 0.8 V
ON delay		Max. 0.1 ms (pulse outputs 20 μ s)
OFF delay		Max. 1 ms (pulse outputs 40 μ s at >10mA)

Power Supplies



Power supply unit	Model code	CPM2C-PA201
- Power supply for CPM2A and CPM2C series	Input voltage	100..240 VAC
	Output voltage	24 VDC, 600 mA (14.4W)

Port Adapters



	Description	Cable length	Model code
RS-232C port adapter	Adapter unit for connection to the peripheral port of the CPM2C-CPU - 1x peripheral port (RS-232C possible via CS1W-CN226) - 1x RS-232C	7 cm	CPM2C-CIF01-V1



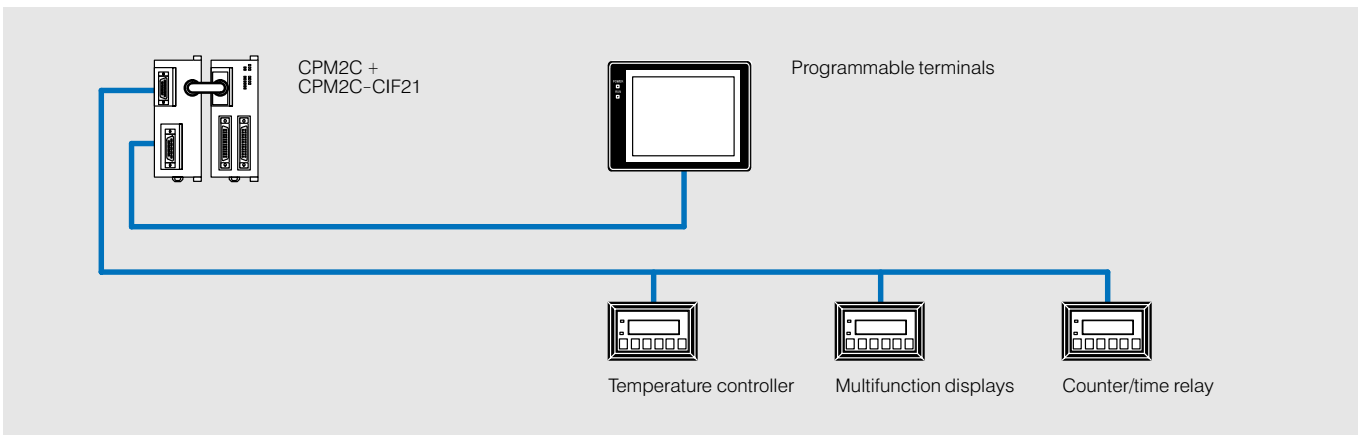
RS-232C and RS-422/485 port adapter	Adapter unit for connection to the peripheral port of the CPM2C-CPU - 1x RS-422/485 - 1x RS-232C	7 cm	CPM2C-CIF11
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RS-232C and RS-422/485 communication adapter For device connection overview, see page 61	Adapter unit for connection to the peripheral port of the CPM2C-CPU - 1x RS-422/485 - 1x RS-232C - Communication protocol for CompoWay/F, SYSWAY, NT-Link - Communication programs for OMRON timers, counters, controllers and multi-function displays	7 cm	CPM2C-CIF21
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Compact PLC Series CPM2C

Connection and Adapter Cables



Device connection overview for CPM2C with CIF21

	Type	SYSWAY	CompoWay/F
Temperature controller	E5AN, E5CN, E5EN, E5GN	Yes	Yes
	E5ZN	No	Yes
	E5AK, E5CK, E5EK	Yes	No
	E5AK-T, E5CK-T, E5EK-T	No	No
	E5AJ, E5EJ	Yes	No
	E5AF	Yes	No
Timer	H8GN	No	Yes
Multifunction displays	K3GN	No	Yes
	K3NX	Yes	Limited
	K3NV	Yes	Limited
	K3NR	Yes	Limited
	K3NP	Yes	Limited
	K3NC	Yes	Limited
	K3NH	Yes	Limited
	K3TS	Yes	No

Programming, Accessories and Documentation

Programming



Description		Cable length	Model code
CX–Programmer. PLC programming software. For WINDOWS 95/98/ME/2000/NT4.0–SP5/XP – see page 434		–	WS02–CXPC1–_
Programming cable, peripheral port <-> PC		2 m	CS1W–CN226
		6 m	CS1W–CN626
Programming consoles	Programming console with cable for peripheral port	2 m	CQM1H–PRO01–E
	Programming console without cable for installation in control cabinet door	–	C200H–PRO27–E
	Cable for PRO27 to CPU	2 m	CS1W–CN224
	Cable for PRO27 to CPU	6 m	CS1W–CN624

Compact PLC Series CPM2C

Programming, Accessories and Documentation (Continued)



Program copy device	Writing of the user program, the PLC configuration, the expanded instruction set and the data words from DM6144 to DM6655 on EEPROM, as well as down-loading of EEPROM data in the PLC. For PLC systems: CPM and CQM1H Supported EEPROMs: Atmel AT28C256 NEC μPD28C256 * CPM2C–CN111 or –CN114 adapter cables must be used	20 cm	CPM1–EMU01–V1*
24-pin connector for the CPM2C Units with plug connection (solder terminal)		–	C500–CE241
24-pin connector for the CPM2C Units with plug connection (spring clip for ribbon cable)		–	C500–CE243
Spare battery for CPM2C		–	CPM2C–BAT01
Spare cable for 24 VDC power supply for CPM2C		0.1 m	Power cable CPM2C

Accessories,
cables etc.

Terminal blocks and connecting cable for connector types, CPU and Expansion Units

PLC/Unit	Connecting cables	Cable length	Terminal block	Description	
Fujitsu connector					
CPM2C-20C CPM2C-24E CPM2C-32C CPM2C-32E		XW2Z-050A	0.5 m		XW2B-20G4 - 20 inputs or outputs - Screw terminals M3
		XW2Z-100A	1.0 m		
		XW2Z-200A	2.0 m	XW2B-20G5 - 20 inputs or outputs - Screw terminals M3.5	
		XW2Z-500A	5.0 m		
MIL connector					
CPM2C-20C_M CPM2C-24E_M CPM2C-32CM CPM2C-32EM		G79-O25C	0.25 m		XW2B-20G4 - 20 inputs or outputs - Screw terminals M3
		G79-O50C	0.50 m		

For terminal block terminal assignment, see page 465.

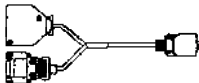
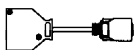
Technical
Documentation

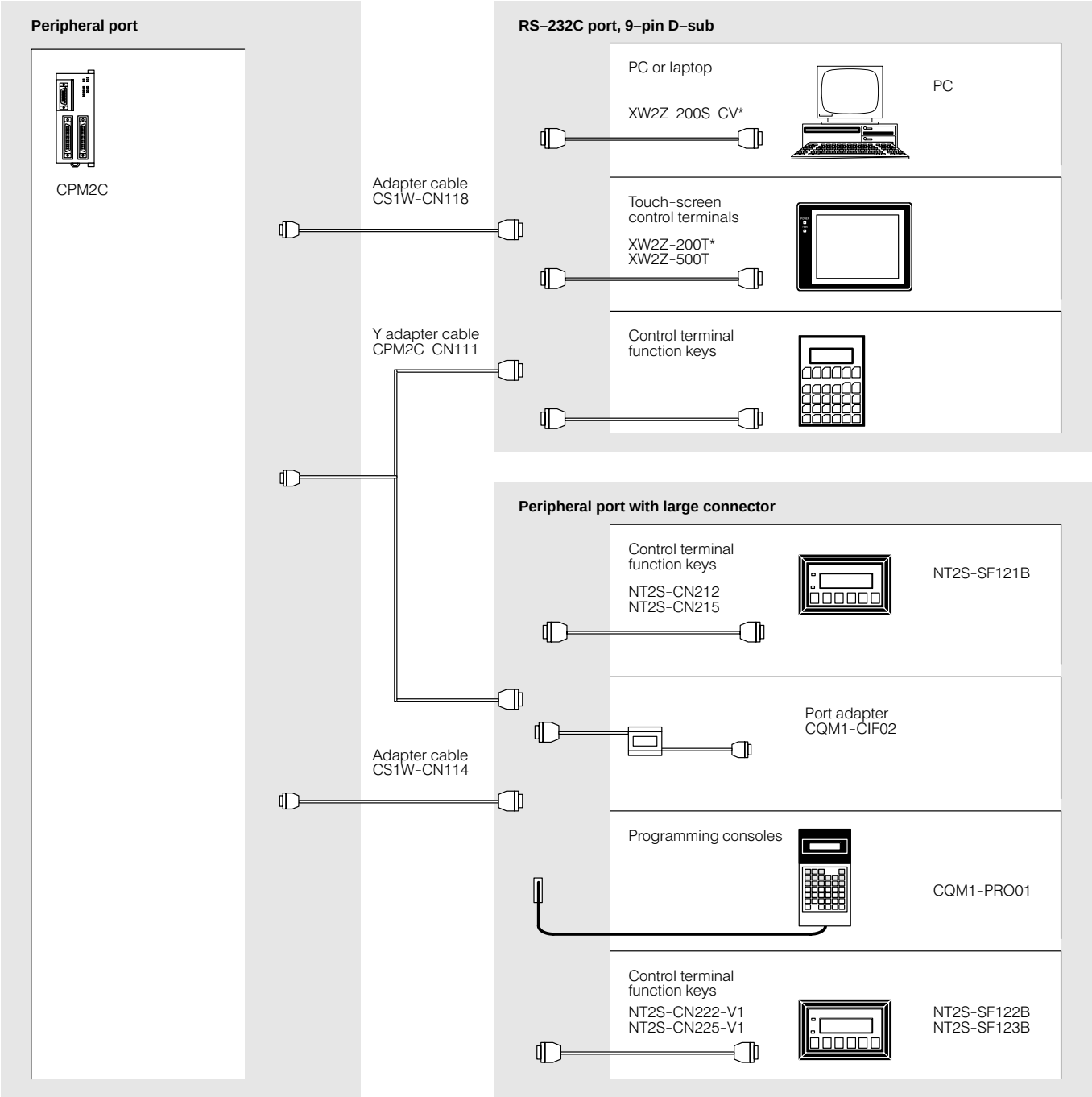
English documentation	Product	Title	Model code
	CPM2C	Operation Manual	W356–E1
	CPM1/CPM1A/CPM2A/ CPM2C/SRM1(–V2)	Programming Manual	W353–E1
	CPM2C–S_	Operation Manual	W377–E1

Compact PLC Series CPM2C

Terminal Blocks, Connection and Adapter Cables

Adapter cable for communications

	Adapter cable	Description Connection between miniature peripheral port and RS-232C port, D-sub, 9-pin	Cable length 0.1 m	Model code CS1W-CN118
	Y adapter cable	Description Connection between miniature peripheral port and RS-232C port, D-sub, 9-pin and peripheral port with large connector	0.2 m	CPM2C-CN111
	Adapter cable	Description Connection between miniature peripheral port and peripheral port with large connector	0.1 m	CS1W-CN114

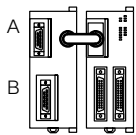


* Please compare these articles with the selection available in your country.

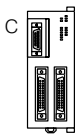
Compact PLC Series CPM2C

Terminal Blocks, Connection and Adapter Cables (Continued)

Peripheral port or peripheral port and RS-232C

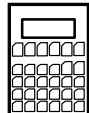


CPM2C + CPM2C-CIF01

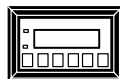
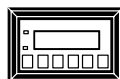


CPM2C

RS-232C port, 9-pin D-sub

B	PC or laptop		PC
	XW2Z-200S-CV*		
B	Touch-screen control terminals		
B	Control terminal function keys		
	RS-232C cable		

Peripheral port with DDK connector

A or C	Control terminal function keys		NT2S-SF121B
	NT2S-CN223-V1		
A or C	PC or laptop		PC
	CS1W-CN226		
A or C	Programming consoles		CQM1H-PRO01-E
A or C	Control terminal function keys		NT2S-SF122B NT2S-SF123B
	NT2S-CN224-V1		
A or C	Touch-screen control terminals		NT21, NT31 NT631
	NT-CN221		

* Please compare these articles with the selection available in your country.

Compact PLC Series CPM2C

Dimensions (mm)

CPU

Product	W
CPM2C-10C(1)DR/-20C(1)DR	33
CPM2C-10C(1)DT_/-20C(1)DT_/-32C(1)DT_	33
CPM2C-S1_OC(-DRT)	40

Expansion Unit

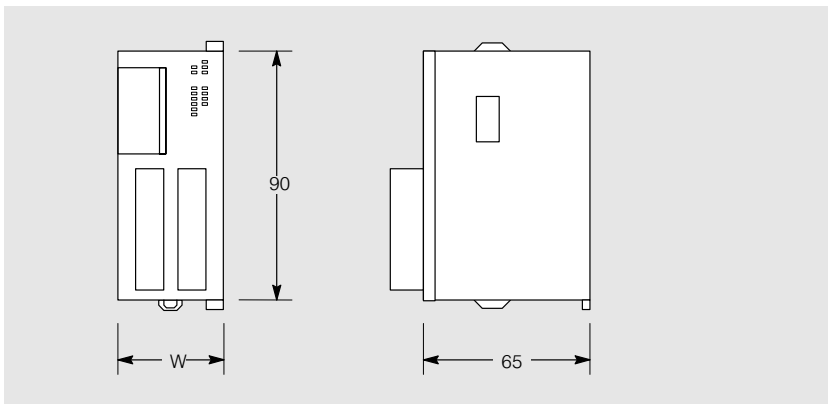
CPM2C-8ER/-10EDR/-20EDR	33
CPM2C-24EDT_/-32EDT_	33
CPM2C-8EDC/-8ET_/-16EDC/-16ET_	20
CPM2C-MAD11	33
CPM2C-TS_	33
CPM2C-SRT	20

Communication adapter

CPM2C-CIF_	33
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Power supply

CPM2C-PA201	40
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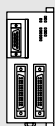
Communication Examples

	CPM2C
SYSMAC WAY (network)	Yes
Active RS-232C	Yes
1:1 CPU Link	Yes
1:1 NT Link	Yes

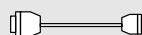
SYSMAC WAY

SYSMAC WAY communicates via RS-232C and RS-422 ports and contains the disclosed and OMRON-specific ASCII protocol called the HostLink. By default, the CPM2C communication port runs in Host Link slave mode and can therefore be easily operated from a PC, a supervisory controller or HMI.

Up to 32 Host Link slaves can be integrated into a SYSMAC WAY network via RS-422 ports.



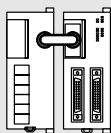
RS-232C port:



CS1W-CN226

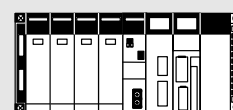
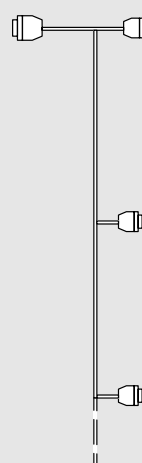


PC



CPM2C +
CPM2C-CIF11

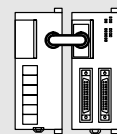
RS-422 cable



CS1 +
CS1W-SCB41



CJ1H +
CJ1W-SCU41



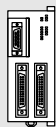
CPM2C +
CPM2C-CIF11

Compact PLC Series CPM2C

Communication Examples (Continued)

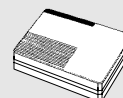
Active RS-232C

The CPM2C's RS-232C port can be switched to active RS-232C mode by the Host Link slave. SEND and RECEIVE instructions can be used to send and receive ASCII character strings. Peripherals such as modems, printers or barcode readers can be integrated.

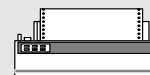


CPM2C

RS-232C cable



Modem



Printer



Bar code reader



Temperature controller

1:1 CPU Link

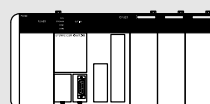
Via the 1:1 CPU Link, up to 64 words can be continuously exchanged between two PLC CPU Units without any programming effort, by means of a peripheral or RS-232C port.



CPM2C

Adapter unit
or adapter cable
is required

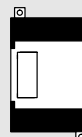
RS-232C port:
RS-232C cable



CQM1H



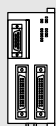
CPM2C



CPM1A

1:1 NT Link

Various control terminals, from function keys to NT/NS-series touch-screen colour terminals, are available to the user as a man/machine interface. Data is exchanged very quickly between a control terminal and the PLC via the 1:1 NT Link protocol.



CPM2C

Adapter unit
or adapter cable
is required

RS-232C port:
CS1W-CN118



NT-CN221



OMRON
control terminal

Compact PLC Series CPM2C

Expansion Units

	I/O type	Description	Connection	Model code	Page
Digital I/O Expansion Units	8 DC inputs	24 VDC	FUJITSU connector	CPM2C-8EDC	66
	8 DC inputs	24 VDC	MIL connector	CPM2C-8EDM	
	8 relay outputs	250 VAC, 2 A	Terminal connection	CPM2C-8ER	66
	8 transistor outputs	PNP, 24 VDC, 0.3 A	FUJITSU connector	CPM2C-8ET1C	66
	8 transistor outputs	PNP, 24 VDC, 0.3 A	MIL connector	CPM2C-8ET1M	
	8 transistor outputs	NPN, 24 VDC, 0.3 A	FUJITSU connector	CPM2C-8ETC	66
	8 transistor outputs	NPN, 24 VDC, 0.3 A	MIL connector	CPM2C-8ETM	
	6 DC inputs and 4 relay outputs	24 VDC 250 VAC, 2 A	Terminal connection	CPM2C-10EDR	66
	16 DC inputs	24 VDC	FUJITSU connector	CPM2C-16EDC	66
	16 DC inputs	24 VDC	MIL connector	CPM2C-16EDM	
	16 transistor outputs	PNP, 24 VDC, 0.3 A	FUJITSU connector	CPM2C-16ET1C	66
	16 transistor outputs	PNP, 24 VDC, 0.3 A	MIL connector	CPM2C-16ET1M	
	16 transistor outputs	NPN, 24 VDC, 0.3 A	FUJITSU connector	CPM2C-16ETC	66
	16 transistor outputs	NPN, 24 VDC, 0.3 A	MIL connector	CPM2C-16ETM	
	12 DC inputs and 8 relay outputs	24 VDC 250 VAC, 2 A	Terminal connection	CPM2C-20EDR	66
	16 DC inputs and 8 transistor outputs	24 VDC PNP, 24 VDC, 0.3 A	FUJITSU connector	CPM2C-24EDT1C	67
	16 DC inputs and 8 transistor outputs	24 VDC PNP, 24 VDC, 0.3 A	MIL connector	CPM2C-24EDT1M	
	16 DC inputs and 8 transistor outputs	24 VDC NPN, 24 VDC, 0.3 A	FUJITSU connector	CPM2C-24EDTC	67
	16 DC inputs and 8 transistor outputs	24 VDC NPN, 24 VDC, 0.3 A	MIL connector	CPM2C-24EDTM	
	16 DC inputs and 16 transistor outputs	24 VDC PNP, 24 VDC, 0.3 A	FUJITSU connector	CPM2C-32EDT1C	67
	16 DC inputs and 16 transistor outputs	24 VDC PNP, 24 VDC, 0.3 A	MIL connector	CPM2C-32EDT1M	
	16 DC inputs and 16 transistor outputs	24 VDC NPN, 24 VDC, 0.3 A	FUJITSU connector	CPM2C-32EDTC	67
	16 DC inputs and 16 transistor outputs	24 VDC NPN, 24 VDC, 0.3 A	MIL connector	CPM2C-32EDTM	
	2 inputs 1 output	0..20 mA, -10..10 V 0..20 mA, -10..10 V	Terminal connection	CPM2C-MAD11	68
	2 inputs	Thermocouple	Terminal connection	CPM2C-TS001	68
	2 inputs	Pt100	Terminal connection	CPM2C-TS101	68
CompoBus/S I/O Link Unit	8 input bits 8 output bits	Fieldbus slave	Terminal connection	CPM2C-SRT21	68

Compact PLC Series CPM2C

Expansion Units (Continued)



Digital I/O Expansion Units

- LED status display
- DIN rail mounting
- 24-pin front connector*

Model code

Inputs

CPM2C-8EDC CPM2C-8EDM

8 DC inputs
1 circuit, 8 inputs



Digital I/O Expansion Units

- LED status display
- DIN rail mounting
- Removable terminal blocks

Model code

Outputs

CPM2C-8ER

8, relays
4 circuits, 1 output each
2 circuits, 2 outputs each

Total switching capacity

4 A per circuit



Digital I/O Expansion Units

- LED status display
- DIN rail mounting
- 24-pin front connector*

Model code

Outputs

CPM2C-8ET1C CPM2C-8ET1M

8, transistor, PNP
1 circuit, 8 outputs

Total switching capacity

2.4 A per circuit

Model code

CPM2C-8ETC CPM2C-8ETM

Outputs

8, transistor, NPN
1 circuit, 8 outputs

Total switching capacity

2.4 A per circuit



Digital I/O Expansion Units

- LED status display
- DIN rail mounting
- Removable terminal blocks

Model code

Inputs

CPM2C-10EDR

6 DC inputs
1 circuit, 6 inputs

Outputs

4, relays
1 circuit, 2 outputs

Total switching capacity

4A per circuit



Digital I/O Expansion Units

- LED status display
- DIN rail mounting
- 24-pin front connector*

Model code

Inputs

CPM2C-16EDC CPM2C-16EDM

16 DC inputs
2 circuits, 8 inputs each

Model code

CPM2C-16ET1C CPM2C-16ET1M

Outputs

16, transistor, PNP
2 circuits, 8 outputs each

Total switching capacity

3.2 A per circuit

Model code

CPM2C-16ETC CPM2C-16ETM

Outputs

16, transistor, NPN
2 circuits, 8 outputs each

Total switching capacity

3.2 A per circuit



Digital I/O Expansion Units

- LED status display
- DIN rail mounting
- Removable terminal blocks

Model code

Inputs

CPM2C-20EDR

12 DC inputs
1 circuit, 12 inputs

Outputs

8, relays
4 circuit, 2 outputs

Total switching capacity

4 A per circuit

* Front connector or terminal block and cable are not included in delivery package, see page 465.

Compact PLC Series CPM2C

Expansion Units (Continued)



Digital I/O Expansion Units

- LED status display
- DIN rail mounting
- 24-pin front connector*

Model code

Inputs

Outputs

Total switching capacity

CPM2C-24EDT1C
CPM2C-24EDT1M

16 DC inputs
2 circuits, 8 inputs each

8, transistor, PNP
1 circuit, 8 outputs

2.4 A per circuit

Digital I/O Expansion Units

- LED status display
- DIN rail mounting
- 24-pin front connector*

Model code

Inputs

Outputs**

Total switching capacity

CPM2C-24EDTC
CPM2C-24EDTM

16 DC inputs
2 circuits, 8 inputs each

8, transistor, NPN
1 circuit, 8 outputs

2.4 A per circuit



Digital I/O Expansion Units

- LED status display
- DIN rail mounting
- 24-pin front connector*

Model code

Inputs

Outputs

Total switching capacity

CPM2C-32EDT1C
CPM2C-32EDT1M

16 DC inputs
2 circuits, 8 inputs each

16, transistor, PNP
2 circuits, 8 outputs each

3.2 A per circuit

Model code

Inputs

Outputs**

Total switching capacity

CPM2C-32EDTC
CPM2C-32EDTM

16 DC inputs
2 circuits, 8 inputs each

16, transistor, NPN
2 circuits, 8 outputs each

3.2 A per circuit

Specification for DC inputs

Circuitry

Input voltage

ON level
OFF level

Input impedance

Input current

ON delay

PNP/NPN logic

24 VDC (20.4..26.4 VDC)
Min. 14.4 VDC
Max. 5.0 VDC

4.7 kΩ

5 mA

10 ms (adjustable 1..80 ms)

Specification for relay outputs

Switching capacity

minimum

Relay life

electrical

mechanical

ON/OFF delay

250 VAC, 2A (cosφ=1); 24 VDC, 2 A
5 VDC, 10 mA

150,000 operations at R load
100,000 operations at L load
20,000,000 operations

Max. 15 ms

Specification for transistor outputs

Switching capacity

1st circuit

2nd circuit

Leakage current

Residual voltage

ON delay

OFF delay

24 VDC (20.4..26.4 VDC), 0.3 A
24 VDC (20.4..26.4 VDC), 0.1 A

Max. 0.1 mA

Max. 1.5 V

Max. 0.2 ms

Max. 1 ms

* Front connector or terminal block and cable are not included in delivery package, see page 465.

** Output switching capacity differs depending on the circuit.

Compact PLC Series CPM2C

Expansion Units (Continued)



Analogue I/O Expansion Unit

- Maximum 4 Units per CPU
- Automatic averaging
- LED status display
- Removable terminal blocks

Model code

Number of analogue I/O

Range per input

Voltage
Current

Input resistance

Voltage
Current

Range of outputs

Voltage
Current

Resolution

Accuracy

Conversion time

Potential isolation

CPM2C-MAD11

2 inputs
1 output

0..5 V, 1..5 V, 0..10 V, -10..10 V
0..20 mA, 4..20 mA

1 M Ω
250 Ω

1..5 V, 0..10 V, -10..10 V
0..20 mA, 4..20 mA

1/6000

0.4% of full scale

6 ms overall

Photocoupler



Temperature sensor Expansion Units

- Maximum 4 Units per CPU
- LED status display
- Removable terminal block

Model code

Number of inputs

Sensor types

Measuring range
- K
- J

Accuracy

Conversion time

CPM2C-TS001

2 inputs, thermocouple

K (Ni/Cr)
J (Fe/constantan)

-200..1300 °C, 0..500°C
-100..850 °C, 0..400°C

±0.5% or 2°C ±1 digit

250 ms (total)

Model code

Number of inputs

Sensor types

Measuring range

Accuracy

Conversion time

CPM2C-TS101

2 inputs, Pt100

Pt100,
JPt100

-200..650 °C

±0.5% or 1°C ±1 digit

250 ms (total)



CompoBus/S I/O Link Unit

- LED status display
- Removable terminal block

For further information about
CompoBus/S, see page 256.

Model code

Number of Link bits

Input
Output

CPM2C-SRT21

8 bits
8 bits