

Fast, Capable and Compact

Omron's powerful CPM2C micro controller redefines the traditional micro PLC. The CPM2C's 33 mm width allows it to fit into small spaces, offers 119 instructions, and has processing speeds rivaling many 'small' PLCs. The 20 I/O units with relay outputs are the smallest in the industry. Multiple communication options along with advanced motion control features enable the CPM2C to provide a powerful solution to virtually any small-scale control application.



- Ultra compact design with 33 mm width
- Built-in combination RS-232C/Peripheral port
- Transistor Outputs expandable to 192 I/O (CPU + 5 Modules), Relay Outputs expandable to 180 I/O (CPU + 5 Modules)
- Screw terminal, Fujitsu and MIL (flat ribbon) style connections
- Connect high density MIL and Fujitsu models to Omron relay or terminal blocks for easy wiring and choice of I/O style
- 4K Program memory
- Synchronized pulse control allows synchronization of input devices to control devices
- Up to 5 expansion I/O modules for up to 192 total I/O points
- Optional Real-Time Clock
- Multiple High-speed counter inputs
- 10 kHz pulse outputs
- UL/CSA/CE

Communication and Expansion

■ Serial Communication

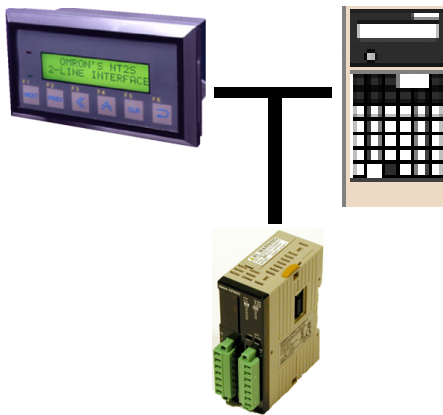
- Built in serial port allows direct connection to CPU
- Combination cable provides 2 simultaneous ports (Peripheral / RS-232C) from one location
- Connect directly to serial devices such as a printer, modem, or a bar code reader.
- Download programs from a PC directly to CPM2C serial port
- 1:1 connection to other Omron PLCs allows CPUs to seamlessly share data
- CPM2C-CIF01 adapter allows use of dual RS-232C ports



Direct Connection to PC

■ Peripheral Communication

- Combination cable provides 2 simultaneous ports (Peripheral / RS-232C) from one location
- Connect directly to Omron programming devices
- Connect directly from the CPU's peripheral port to an Omron operator interface terminal with an XM2Z cable (NT21/31/631/20/600/11, NS Series)
- Connect direct from the CPM2C CPU peripheral port to the NT2S using the NT2S-CN223-V1 and NT2S-CN224-V1
- Connect to additional RS-232C adapter or RS-422 adapter



Operator Interface and Programming console

■ Expansion

- Easy "snap-on" expansion
- Connect up to 5 expansion modules for up to 192 total I/O points
- Modular expansion allows addition of input, output or combination I/O modules.
- 8, 10, 16, 20, 24 or 32 point modules available
- Relay, or transistor expansion output modules
- Analog I/O module (2 in, 1 out)
- Temperature Sensor modules



CPM2C System

Specifications

Item	CPM2C-10	CPM2C-20	CPM2C-32
Number of Inputs	6	12	16
Number of Outputs	4	8	16
Supply voltage	24 VDC		
Operating Voltage Range	20.4 to 26.4 VDC		
Power Consumption	4W max (changes depending on the CPU type)		
Inrush current	25A max		
Control method	Stored program method		
I.O control method	Cyclic scan with direct output; Immediate refresh processing		
Programming language	Ladder diagram		
Instruction length	1 step per instruction, 1 to 5 words per instruction		
Types of instructions	Basic instructions: 14 Special instructions: 105 instructions, 185 variations		
Execution time	Basic instructions: .64 μ sec Special instructions: 7.8 μ sec		
Program capacity	4,096 words		
Timers/Counters	256 timers/counters (TIM/CNT 000 to TIM/CNT 255) Types: 1ms, 10ms, 100ms, 1s, 10s, decrementing and reversible counters		
Interrupt processing	2 Interrupts	4 Interrupts	4 Interrupts
	(Shared by external interrupt inputs (counter mode) and the quick response inputs)		
High-speed counters	Pulse plus direction mode (20kHz) Differential phase mode (5KHz) Up/down pulse mode (20kHz) Increment mode (20kHz) Interrupt inputs: increment or decrement mode (2kHz)		
Pulse output (2 total)	2-pts with no acceleration/deceleration, 10 Hz to 10 kHz, no direction control 1 pt with trapezoid acceleration/deceleration, 10Hz to 10kHz, and direction control 2 pts with variable duty-ratio outputs (transistor output models only)		
Clock Function	Shows year, month, day of the week, day, hour, minute, and second Battery Backup) The CPUs with "C1" in the part number have a built-in clock. (Not provided on CPU's with 32 I/O points.)		
Memory Backup	Flash Memory Program, read-only DM area, and PC setup Battery Backup: Read/write DM, HR, AR, and counter values		
Certification	UL, CSA, CE, NK, Lloyd		

■ Dimensions

	CPU	Expansion I/O	Expansion I/O
Width	33 mm (1.30 in)	33 mm (1.30 in)	20 mm (.79 in)
Depth	65 mm (2.56 in)	65 mm (2.56 in)	65 mm (2.56 in)
Height	90 mm (3.54 in)	90 mm (3.54 in)	90 mm (3.54 in)
Models	All Models	CPM2C-8ER CPM2C-10EDR CPM2C-20EDR CPM2C-24EDTC CPM2C-24EDTM CPM2C-24EDT1C CPM2C-24EDT1M CPM2C-32EDT1C CPM2C-32EDTC CPM2C-32EDTM CPM2C-32EDT1M	CPM2C-8EDM CPM2C-8ETM CPM2C-8ET1M CPM2C-8EDM CPM2C-8ETM CPM2C-8ET1M CPM2C-16EDM CPM2C-16ETM CPM2C-16ET1M CPM2C-16EDM CPM2C-16ETM CPM2C-16ET1M

Ordering Information

■ Part Number Nomenclature

1 2 3 4 5 6

CPM2C – □ □ □ □ □ – □

- 1. Number of I/O
- 2. RTC = C1
No RTC = C
- 3. Input power
- 4. PNP = T1
NPN = T
- 5. Relay = R
MIL = M
Connector = C
- 6. Power Supply

Important Note for Ordering:

Choose normally stocked products whenever possible to ensure availability that matches your schedule. All items listed in this datasheet are normally stocked products.

CPU	Connector Type		Input Type	Output Type	RTC	Part Number				
						Relay Outputs	Transistor Outputs			
							NPN (Sinking)	PNP (Sourcing)		
10 I/O points (6 IN 4 OUT)	Terminal Block		24 VDC	Relay	No	CPM2C-10CDR-D	----	----		
					Yes	CPM2C-10C1DR-D	----	----		
	I/O Connector	Fujitsu		Transistor	No	----	CPM2C-10CDTC-D	----	----	
					Yes	----	CPM2C-10C1DTC-D	----	----	
					No	----	----	CPM2C-10CDT1C-D	----	
					Yes	----	----	CPM2C-10C1DT1C-D	----	
					No	----	CPM2C-10CDTM-D	----	----	
					Yes	----	CPM2C-10C1DTM-D	----	----	
					No	----	----	CPM2C-10CDT1M-D	----	
					Yes	----	----	CPM2C-10C1DT1M-D	----	
				MIL	Relay	No	CPM2C-20CDR-D	----	----	
						Yes	CPM2C-20C1DR-D	----	----	
20 I/O points (12 IN 4 OUT)	Terminal Block		24 VDC	Relay		No	CPM2C-20CDR-D	----	----	
						Yes	CPM2C-20C1DR-D	----	----	
	I/O Connector	Fujitsu		Transistor		No	----	CPM2C-20CDTC-D	----	----
						Yes	----	CPM2C-20C1DTC-D	----	----
					No	----	----	CPM2C-20CDT1C-D	----	
					Yes	----	----	CPM2C-20C1DT1C-D	----	
		No			----	CPM2C-20CDTM-D	----	----		
		Yes			----	CPM2C-C1DTM-D	----	----		
		No			----	----	CPM2C-20CDT1M-D	----		
		Yes			----	----	CPM2C-20C1DT1M-D	----		
32 I/O points (16 IN 16 OUT)	I/O Connector	Fujitsu		24 VDC	Relay	No	CPM2C-32CDR-D	----	----	
						Yes	CPM2C-32C1DR-D	----	----	
	MIL	Transistor	No			----	CPM2C-32CDTC-D	----	----	
			Yes			----	CPM2C-32C1DTC-D	----	----	
			No		----	----	CPM2C-32CDT1C-D	----		
			Yes		----	----	CPM2C-32C1DT1C-D	----		
		No	----		CPM2C-32CDTM-D	----	----			
		Yes	----		----	CPM2C-32C1DTM-D	----			
		No	----		----	CPM2C-32CDT1M-D	----			
		Yes	----		----	CPM2C-32C1DT1M-D	----			

■ CPM2C Expansion Units

Description	Connector Type	# Of I/O		Input Type	Output Type	Part Number
		Input	Output			
Inputs Only	I/O Connector	8	---	24VDC	----	CPM2C-8EDC
		16	---		----	CPM2C-16EDC
		8	---		----	CPM2C-8EDM
		16	---		----	CPM2C-16EDM
Outputs Only	I/O Terminal Block	---	8	----	Relay	CPM2C-8ER
	I/O Connector	---	8	----	Transistor, NPN	CPM2C-8ETC
		---	8	----	Transistor, NPN, MIL	CPM2C-8ETM
		---	8	----	Transistor, PNP	CPM2C-8ET1C
		---	8	----	Transistor, NPN, MIL	CPM2C-8ET1M
		---	16	----	Transistor, NPN	CPM2C-16ETC
		---	16	----	Transistor, NPN, MIL	CPM2C-16ETM
		---	16	----	Transistor, PNP	CPM2C-16ET1C
		---	16	----	Transistor, PNP, MIL	CPM2C-16ET1M
10 I/O Points	I/O Terminal Block	6	4	24 VDC	Relay	CPM2C-10EDR
20 I/O Points		12	8		Relay	CPM2C-20EDR
24 I/O Points	I/O Connectors	16	8		Transistor, NPN	CPM2C-24EDTC
					Transistor, NPN, MIL	CPM2C-24EDTM
					Transistor, PNP	CPM2C-24EDT1C
					Transistor, PNP, MIL	CPM2C-24EDT1M
32 I/O Points		16	16		Transistor, NPN	CPM2C-32EDTC
					Transistor, NPN, MIL	CPM2C-32EDTM
					Transistor, PNP	CPM2C-32EDT1C
					Transistor, PNP, MIL	CPM2C-32EDT1M

■ Power supply Module

Description	Input	Output	Part Number
Power Supply	100 to 240 VAC	24 VDC/600 mA	CPM2C-PA201

■ Dedicated I/O Module

Description		Max Number of Units	Input	Output	Part Number
Analog I/O Module	2 inputs	4	2 points, 2 words allocated	1 point, 1 word allocated	CPM2C-MAD11
	1 output				
Temperature Sensor Module	2 thermocouple inputs	4	2 points, 2 words	----	CPM2C-TS001
	2 platinum resistance thermometer inputs		2 points, 2 words	----	CPM2C-TS101
CompoBus/S I/O Link Module	8 input pts and 8 output pts for the built-in outputs and inputs of the Master Module	5	8 points, 1 word allocated (Inputs from the Master)	8 points, 1 word allocated (Inputs from the Master)	CPM2C-SRT21
CompoWay/F Interface	Up to 32 comm. components supporting the CompoWay/F protocol and temp controllers and digital panel meters supporting the SYSWAY protocol can be connected	-----	-----	-----	CPM2C-CIF21

■ Omron I/O Connectors

Description	Part Number
24-pin soldered connector with cover	C500-CE241
24-pin crimp connector with cover	C500-CE242
24-pin pressure connector	C500-CE243

■ Communications Port Connecting Cables

Item	Description	Part Number
Combination cable	Converts CPM2C communications port to both Peripheral and RS232C (about 4")	CPM2C-CN111
Peripheral port cable	Converts CPM2C communications port to Peripheral port (about 2")	CS1W-CN114
Peripheral port cable	Converts CPM2C communications port to RS-232C port (about 2")	CS1W-CN118

■ Communication Adapters and Connecting Cables

Using this CPM2C port	Name	Description	Part Number
Peripheral	RS-232C Adapter Unit	RS-232C Port (Din mount) CPU's peripheral port→Peripheral port + RS-232C port	CPM2C-CIF01
	RS422/RS-232C Adapter Unit	RS422/RS232C adapter (Din mount) CPU's peripheral port→RS422 port + RS-232C port	CPM2C-CIF11
	Direct CPM2C CPU to NT cable	NT21/31/631/20/600/11 and NS Series to CS1/CJ1/CQM1H/CPM2C peripheral port (2 m)	XM2Z-200T-2
	Direct CPM2C CPU to NT cable	NT21/31/631/20/600/11 and NS Series to CS1/CJ1/CQM1H/CPM2C peripheral port (5 m)	XM2Z-500T-2
	Direct CPM2C CPU to NT2S cable	NT2S-SF121- to CS1/CJ1/CQM1H/CPM2C peripheral port (2 m)	NT2S-CN223
	Direct CPM2C CPU to NT2S cable	NT2S-SF122- and SF123- to CS1/CJ1/CQM1H/CPM2C peripheral port (2 m)	NT2S-CN224
RS-232C	RS-232C Cable	For 25-pin computer serial port (2 m)	XW2Z-200S
		For 25-pin computer serial port (5 m)	XW2Z-500S
		For a 9-pin computer serial port (2 m)	XW2Z-200S-V
		For a 9-pin computer serial port (5 m)	XW2Z-500S-V

■ Programming Consoles and Cables

Description	Part Number	
Programming Console with 2m cable attached; connects directly to the peripheral port	CQM1-PRO01-E	
Programming Console (Requires separate cable)	C200H-PRO27-E	
Connecting Cable for C200H-PRO27-E; connects directly to a Peripheral port	2 m length	C200H-CN222
	4 m length	C200H-CN422
Connecting Cable for C200H-PRO27-E allows direct connection to the CPM2C CPU Communications port	2 m length	CS1W-CN224
	4 m length	CS1W-CN624
Connecting Cable used only from CPU's peripheral port to computer (D-sub 9 pin)	2 m length	CS1W-CN226
	6 m length	CS1W-CN626

■ Software

Item	Description	Part Number
CX-Programmer Jr.	Windows based programming software for just micro controllers	WS02-CXPC1-EJR-V_._
CX-Programmer	Full programming software package for all controllers	WS02-CXPC1-EV_._

■ Program Transfer Equipment

Item	Description	Part Number
Expansion Memory Unit	Uploads and downloads program and setup memory areas to and from the controller	CPM1-EMU01-V1
EEPROM (256 kbits)	Not available from OMRON. Please contact an ARROW or DIGIKEY Distributor (part number to the right).	ATMEL AT28C256-20PC See the information to the left

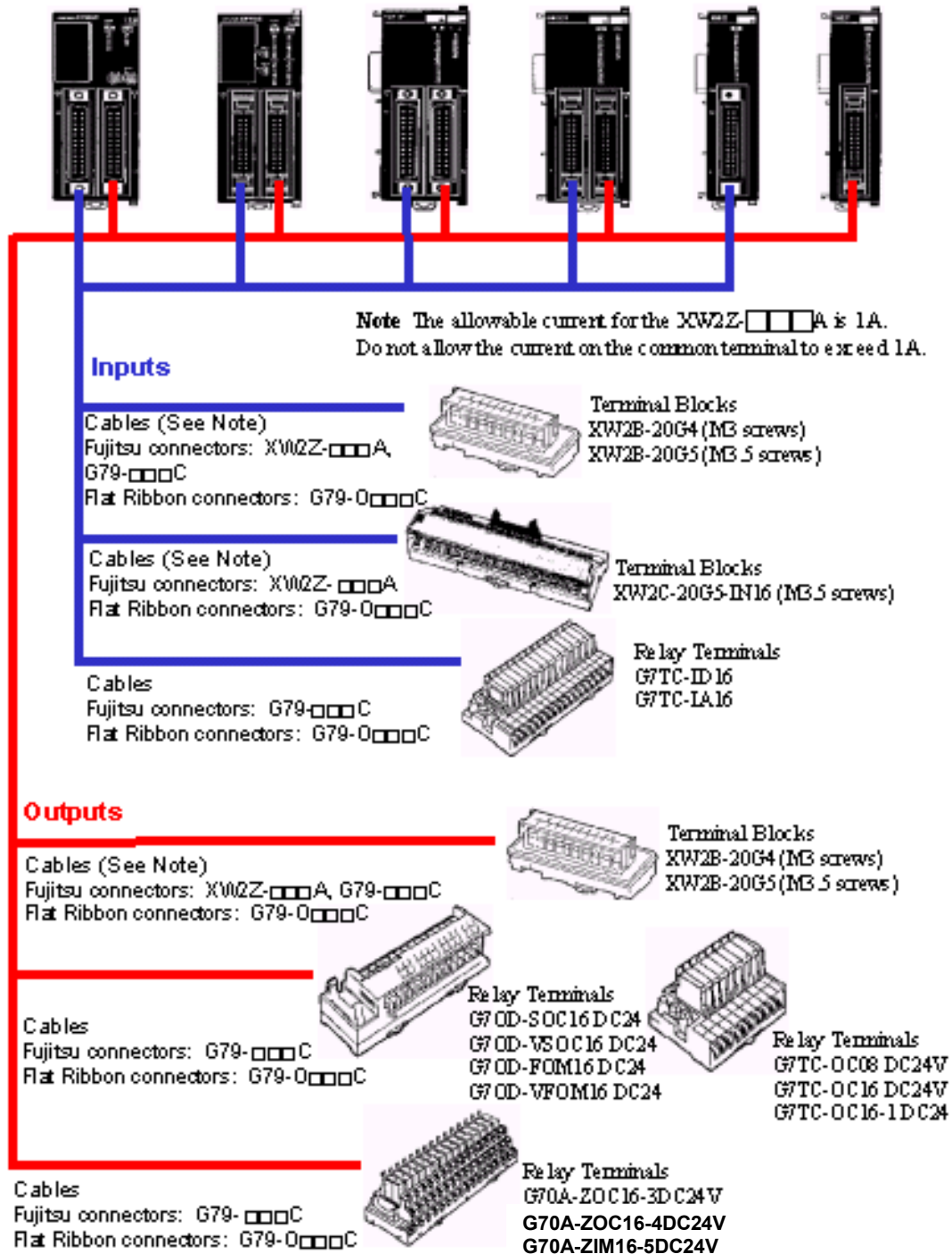
■ Maintenance Accessories

Item	Description	Part Number
Battery	Backs up memory in the CPM2C CPU module. (One battery is already installed in the module.)	CPM2C-BAT01

■ Literature

Item	Description	Part Number
Operation manual	CPM2C operation manual	W356
Programming manual	CPM2C programming manual	W353

Using I/O and Relay Terminals with the CPM2C



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