CPM1A
Micro PLCs

VERSATILE, SMALL-SCALE
CONTROL OPTIONS

NEW
MODELS WITH
AC INPUTS

omron
the problem solvers™

Complete Small Scale Control

The popular CPM1A family of micro PLCs now includes models with AC inputs. In one product family, you get cost- and space-efficient controllers that handle AC input/relay outputs or DC inputs/transistor or relay outputs with high speed performance and extensive expansion options.

The CPM1A's expanded product offering includes:

- New AC input/relay output models
- Numerous models manufactured in the U.S.A.
- CPUs with 10, 20, 30, 32, or 40 point I/O densities
- Expansion to 100 I/O
- Built-in 5 kHz high-speed counter that supports increment mode or phase differential encoder inputs at 2.5 kHz
- Peripheral ports that are easily converted to RS-232C ports for communications with PCs, other Omron PLCs, or operator interface terminals
- Analog modules, temperature sensor modules, and numerous I/O expansion modules are available

CPM1A-chiever Kit

The ultimate starter kit! Whether you want to evaluate the CPM1A or need one for your application, this kit has everything that you need to get started, including software!

Contents include:

- CPM1A micro PLC with 20 I/O (DC IN/Relay OUT) and AC or DC power supply
- CPM1A-20CDR input simulator
- RS-232C adapter
- Program download cable
- Programming software
- CPM1A operation manual
- CPM1A programming manual
- Introduction to PLC guide

Temperature Sensor Module

Directly input RTD temperature signals into your Micro PLC with the CPM1A-TS101-DA temperature sensor module. This module connects directly to the expansion port and accepts 2 Pt 100 inputs with an input temperature range of -40°C to 250°C. Other RTD and thermocouple modules available.

Expansion I/O options

The CPM1A is small but your expansion options are great. Choose among several modules with options like:
- Relay or transistor output models
- 8-point input expansion module
- 8-point output expansion module
- 20-point I/O expansion module
- Analog input/output

Mixed Analog I/O Module

Quickly incorporate analog signals in your small-scale control systems with the CPM1A-MAD01 module. Featuring 2 analog inputs/1 analog output with constant monitoring for 'broken wire' and for +/- voltage

System Configuration Options

The CPM1A's small size lets you pack several connections and usage options into a compact panel. It is powerful enough to support up to 100 I/O, offer multiple control options, and connectivity to several different devices including bar code readers, operator interfaces, process and temperature controllers, etc.

Connect any **Operator Interface Terminal** with an RS-232C adapter. With this connection, you can monitor the process or interface with the CPM1A directly.

Use a **handheld programmer** to program and download information directly to the CPM1A via its peripheral port.

The **CPM1A connects directly to a PC** using an RS-232C adapter. You can download programs, transfer data, and monitor the status of the CPM1A from your PC.

Expansion I/O increases the CPM1A's usefulness in solving your applications. Expand up to three modules (up to 100 I/O points total) including a mix of relay, transistor (NPN or PNP) or, analog input and output points all connected via simple ribbon cable connections.

1:N Communications allows multiple CPM1As to connect to a PC via a link adapter and RS-422 adapters. You can monitor, control and program up to 32 PLCs from a remote location.

Using **the CPM1A-SRT21 adapter**, the CPM1A can operate as a slave on a CompoBus/S network and use up to 8 outputs and 8 inputs via control of a CompoBus/S master.

1:1 Link connects a CPM1A to another CPM1A or any other Omron PLC, allowing the linked PLCs to communicate directly and seamlessly share data.

Adapters

Item	Description	Part Number
RS-232C Adapter (Cable)	Converts Peripheral port to RS-232C level / Cable 3.3 m	CQM-CIF02
RS-232C Adapter (DIN)	Converts Peripheral port to RS-232C level / DIN Mount	CPM1-CIF01
RS-422 Adapter	Converts RS-232C port to RS-422A (Requires 5VDC power supply)	NT-AL001
Link Adapter	Converts RS-422 to RS-232C	3G2A9-AL004-E
RS-422 Adapter (DIN)	Converts Peripheral port to RS-422A / DIN Mount	CPM1-CIF11

Connecting Cables

Item	Description	Part Number
RS-232C Cable	RS-232C to RS-232C / PLC communication (2 m)	C200H-CN320-EU
RS-232C Cable	RS-232C to RS-232C / PC connection for program download (2 m)	C200HS-CN220-EU

Peripheral Devices

Item	Description	Part Number
Programming console	Handheld programming console with 2 m cable attached	CQM1-PRO01-E
Programming console	Handheld programming console with back light (Cable not included)	C200H-PRO27-E
Connecting cable	Connects C200H programming console to peripheral port (2 m)	C200H-CN222
Connecting cable	Connects C200H programming console to peripheral port (4 m)	C200H-CN422
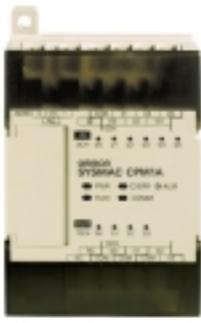
DC IN/Relay OUT
10, 20, 30, 40 I/O

NEW

AC IN/Relay OUT 20 or 32 I/O
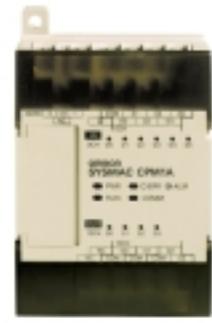
DC IN/Transistor OUT
10, 20, 30, 40 I/O

CPM1A Ordering Guide

Description	# of I/O		Input Type	Output Type	Power Supply	Part Number
	Input	Output				
10 I/O Points	6	4	DC	Relay	AC	CPM1A-10CDR-A
				Relay	DC	CPM1A-10CDR-D*
				Transistor (NPN)		CPM1A-10CDT-D*
				Transistor (PNP)		CPM1A-10CDT1-D*
20 I/O Points	12	8	DC	Relay	AC	CPM1A-20CDR-A
				Relay	DC	CPM1A-20CDR-D*
				Transistor (NPN)		CPM1A-20CDT-D*
				Transistor (PNP)		CPM1A-20CDT1-D*
			AC	Relay	AC	CPM1A-20CAR-A*
30 I/O Points	18	12	DC	Relay	AC	CPM1A-30CDR-A
				Relay	DC	CPM1A-30CDR-D*
				Transistor (NPN)		CPM1A-30CDT-D*
				Transistor (PNP)		CPM1A-30CDT1-D*
32 I/O Points	20	12	AC	Relay	AC	CPM1A-32CAR-A*
40 I/O Points	24	16	DC	Relay	AC	CPM1A-30CDR-A
				Relay	DC	CPM1A-30CDR-D*
				Transistor (NPN)		CPM1A-30CDT-D*
				Transistor (PNP)		CPM1A-30CDT1-D*

*Indicates CE mark

CPM1A Expansion Modules

Description	# of I/O		Input Type	Output Type	Power Supply	Part Number
	Input	Output				
8 Input Points	8	0	DC	N/A	N/A	CPM1A-8ED*
8 Output Points	0	8	N/A	Relay		CPM1A-8ER*
				Transistor		CPM1A-8ET*
				Transistor (PNP)		CPM1A-8ET1*
20 I/O Points	12	8	DC	Relay	N/A	CPM1A-20EDR*
				Transistor (NPN)		CPM1A-20EDT*
				Transistor (PNP)		CPM1A-20EDT1*
Analog I/O	2	1	0 to 10 V	0 to 10 V	N/A	CPM1A-MAD01*
			1 to 5 V	-10 to +10 V		
			4 to 20 mA	4 to 20 mA		

*Indicates CE mark

CPM1A-chiever Kits

Item	Description	Part Number
CPM1A-chiever Kit	20 I/O CPU; DC IN/Relay Out; DC power supply and accessories	CPM1A-CHIEVER-20D
	20 I/O CPU; DC IN/Relay Out; AC power supply and accessories	CPM1A-CHIEVER-20A

CompoBus/S I/O Link

Item	Description	Part Number
CompoBus/S I/O Adapter	Operates as a CompoBus/S slave and provides 8 inputs and 8 outputs to the CPM1A or CPM2A PC	CPM1A-SRT21

Programming Software

Item	Description	Part Number
SYSWIN	SYSWIN V3.3 CD-ROM	SYSWIN-CPM1-V3.3
CX-Programmer	CX-Programmer Version 1.1 CD-ROM	WS02-CXPC1-EV1.1

CPM1A Specifications

Item		10-POINT I/O	20-POINT I/O	30-POINT I/O	32-POINT I/O	40-POINT I/O
Number of inputs		6	12	18	20	24
Number of outputs		4	8	12	12	16
Supply voltage	AC type	100 to 240 VAC, 50/60 Hz				
	DC type	24 VDC				
Operating voltage range	AC type	85 to 264 VAC				
	DC type	20.4 to 26.4 VDC				
Power consumption	AC type	30 VA max.		60 VA max.		
	DC type	6 W max.		20 W max.		
Inrush current		30 A max.		60A max.		
External power supply (AC type only)	Supply voltage	24 VDC				
	Output capacity	200 mA		300 mA		
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: 77 types				
Execution time		Basic instructions: 0.72 to 16.2 μs Special instructions: MOV = 16.3 μs				
Program capacity		2,048 words				
Input bits		00000 to 00915 (Bits not used as input bits can be used as work bits.)				
Output bits		01000 to 01915 (Bits not used as output bits can be used as work bits.)				
Work bits (IR area)		512 bits: 20000 to 23115 (Words IR 200 to IR 231)				
Special bits (SR area)		384 bits: 23200 to 25515 (Words SR 232 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)		256 bits: AR 0000 to AR 1515 (Words AR 00 to AR 15)				
Link bits (LR area)		256 bits: LR 0000 to LR 1515 (Words LR 00 to LR 15)				
Timers/Counters		128 timers/counters (TIM/CNT 000 to TIM/CNT 127)				
Interrupt processing		External interrupts: 2	External interrupts: 4			
Memory Backup	Flash memory:	The memory and read-only DM area are backed up without battery				
	Capacitor backup:	The read/write DM area, HR area, AR area, and counter values are backed up by a capacitor for 20 days at 77°F (25°C)				
High-speed counter (DC input models only)		One high-speed counter: 5 kHz single-phase or 2.5 kHz two-phase (linear count method)				
Quick-response inputs		2 points Min. input pulse width: 0.2 ms	4 points DC inputs models: min. input pulse width: 0.2 ms AC inputs models: min. input pulse width: 0.5 ms			
Input time constant		Can be set to 1, 2, 4, 8, 16, 32, 64, or 128 ms.				
Analog adjustment settings		2 controls (0 to 200 BCD)				
Certification		**UL** and **CSA**. See Ordering Guide inside for **CE** marked models				

CPM1A Dimensions

			CPM1A-10CD□-□	CPM1A-20CD□-□	CPM1A-20CA□-□ CPM1A-30CD□-□	CPM1A-32CA□-□ CPM1A-40CD□-□	CPM1A-20EDR-□
Width			2.60 in (66 mm)	3.39 in (86 mm)	5.12 in (130 mm)	5.91 in (150 mm)	3.39 in (86 mm)
Depth	AC		3.35 in (85 mm)	3.35 in (85 mm)	3.35 in (85 mm)	3.35 in (85 mm)	3.35 in (85 mm)
	DC		1.97 in (50 mm)	1.97 in (50 mm)	1.97 in (50 mm)	1.97 in (50 mm)	1.97 in (50 mm)
Height			3.54 in (90 mm)	3.54 in (90 mm)	3.54 in (90 mm)	3.54 in (90 mm)	3.54 in (90 mm)

A Complete Family of Micro PLC Solutions

CPM1 is a low cost, and simple control option with a CE mark

The cost-effective CPM1 micro PLC CPU is easily set up and has 10, 20, and 30 base I/O and is expandable to 90 I/O. CE mark is standard on all versions.
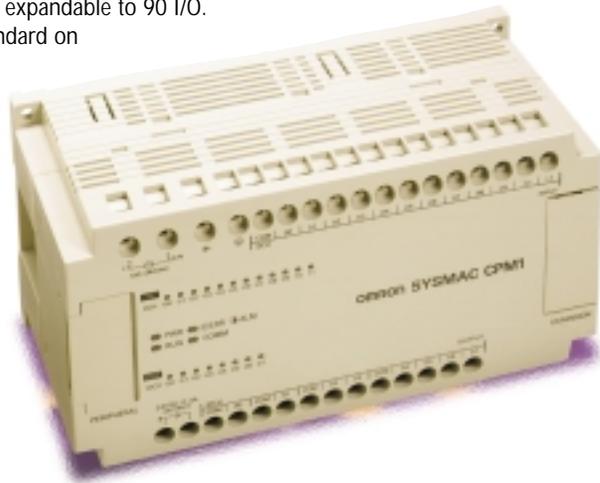
The ultra small SRM1 network controller supports distributed I/O

Distribute your control with the SRM1 network controller. It offers the flexibility and power of a small PLC in a distributed I/O package. It supports multi-point relay terminal connections or remote terminal connections up to 500 meters away. Each module in the distributed I/O network communicates directly with the SRM1 via twisted pair, eliminating complex cabling and allowing you to place the control device close to your application.

The new, ultra-slim CPM2C offers a variety of communication and expansion options

The 33 mm wide CPM2C supports up to 140 I/O (5 expansion modules) via screw terminal contacts or a connector that is compatible with several styles of I/O terminals. Built-in features include a real time clock, RS-232C port, synchronous pulse control and numerous expansion options. Communication options include RS-232C, Omron's Host Link and no-protocol communications. The CPM2C also has a combination RS-232C/peripheral port that can support two devices simultaneously from one location.
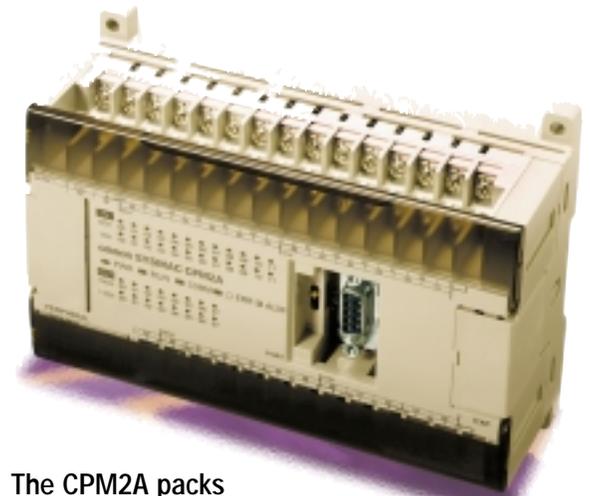
The CPM2A packs speed, power, control options, and large I/O capacity in a micro-sized package

Use the CPM2A's base I/O of 30, 40, and 60 points to integrate power, speed, and advanced control into your small-scale applications. It is expandable to 120 I/O points, has a built in RS-232C port, removable terminals, and four high-speed interrupts.