SMART PLATFORM

One software – One connection – One minute

Omron's Smart Platform is designed to make machine automation easy. It provides seamless, drag-and-drop integration of all automation components in your machine. From sensor to controller, from HMI to drive, all devices are accessible through one connection using a single software suite, CX-One.
Built-in distributed intelligence in Omron devices means less time programming and troubleshooting.

Everyone claims ease of use, a short movie explains how easy programming and configuration really can be:
www.smartplatform.info

Automation systems – Table of contents

KNOW ONE... KNOW THEM ALL!

Whether your automation requires a simple and economical solution, or your target is advanced, high-speed control, you can find what you need in Omron's line-up of Programmable Controllers.

And if your systems grow, or change due to market demand, you will find that only Omron offers a full range of Compact PLCs and Modular PLCs that share the same architecture. Therefore your programs are fully upward compatible, both in memory allocation and instruction set.

• One scalable PLC family to always match exactly with your application
• Transparent communication routing through different networks
• The best size/performance ratio in the industry

```
                        Compact

                       Max. I/O size?

   up to 180      up to 180      up to 192      up to 320

     CP1E           CP1L          CPM2C          CP1H
```

Page 15	Page 17	Page 13	Page 19

Type of PLC needed?

Modular		Rack	

Max. I/O size?

Max. I/O size?

up to 640	up to 2560	up to 5120

High-speed synchronous I/O

Dual redundancy
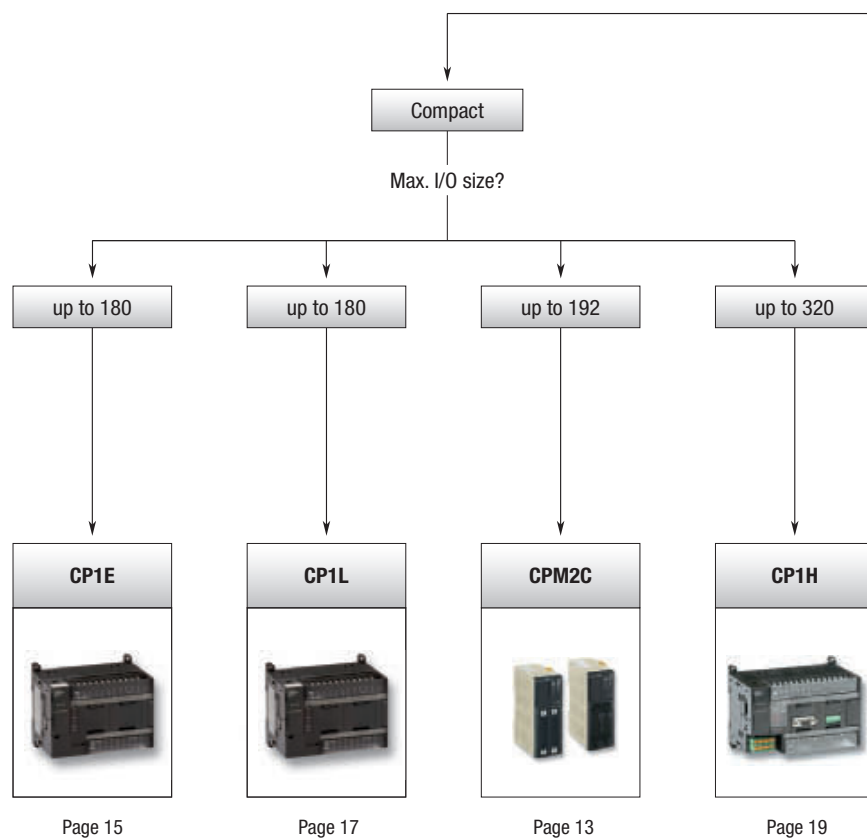
CJ1M	CJ2M	CJ2H	CS1G/H	CS1D
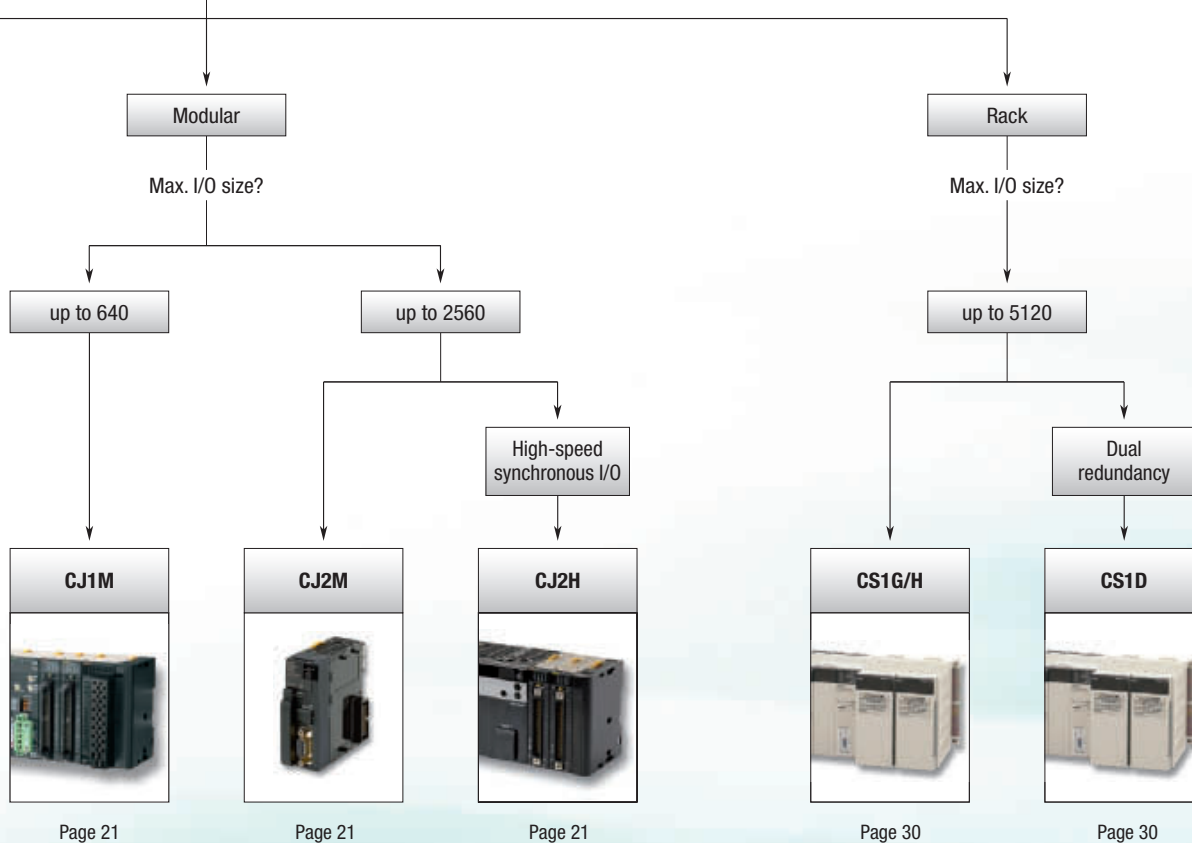
Page 21	Page 21	Page 21	Page 30	Page 30

Selection table

	Compact PLC series			
Model	CPM2C	CP1E	CP1L	CP1H
Max digital I/O points[1]	192	180	180	320[2]
Built-in — **Digital I/O**	10 to 32	10 to 60	10 to 60	20 or 40
Interrupt inputs	2 or 4	4 or 6	2, 4, or 6	6 or 8
Counter inputs	2 or 4	5 or 6	4	2 or 4
Pulse outputs[1]	2	2	2	2 or 4
CPU features[1]	Compact size Expansion units Quick-response inputs Input interrupts High-speed counter Pulse output with PWM Built-in RS-232C port Real time clock	USB port standard Expansion I/O units Quick-response inputs Input interrupts High-speed counter Pulse output with PWM Built-in RS-232C port Up to 1 serial option boards Real time clock 2 Analogue adjusters	USB port standard Expansion I/O units Quick-response inputs Input interrupts High-speed counter Pulse output with PWM Up to 2 serial option boards Real time clock 1 Analogue adjuster 1 External analogue input	USB port standard Expansion I/O units CJ-series Special I/O Units CJ-series CPU Bus Units Quick-response inputs Input interrupts High-speed counter Pulse output with PWM Built-in RS-232C port Option board slots Real time clock 1 Analogue adjuster 1 External analogue input LED display, 2 digit
Instruction Execution time (bit instruction)	0.64 µs	1.19 µs	0.55 µs	0.10 µs
Program memory	4K words	2 or 8K steps	5 or 10K steps	20K steps
Data memory	2K words	2 or 8K words	10 or 32K words	32K words
External memory	Expansion memory unit	–	Memory cassette	Memory cassette
Analogue I/O	Analogue I/O unit Temperature sensor unit	Built-in for E-NA model (2 in + 1 out) Analogue I/O Expansion Units Temperature Input Expansion Units	Analogue I/O Expansion Units Temperature Input Expansion Units	Built-in for XA model (4 in + 2 out) Analogue I/O Expansion Units Temperature Input Expansion Units CJ Analogue I/O Units CJ Temperature Units
Special function units	–			CJ-series Special I/O Units CJ-series CPU Bus Units
Fieldbus master	–			Ethernet EtherNet/IP Controller Link DeviceNet PROFIBUS-DP PROFINET ModBus CompoNet CompoBus/S CAN (freely configurable)
Fieldbus I/O	CompoBus/S DeviceNet	PROFIBUS-DP CompoBus/S DeviceNet	PROFIBUS-DP CompoBus/S DeviceNet	PROFIBUS-DP CompoBus/S DeviceNet
Page	13	15	17	19

[1] Some features listed are not available for all CPU types within each series. Please review specifications for more information on CPU features and performance.
[2] Represents local I/O capacity. If a fieldbus master is used more I/O is possible.

OMRON

		Modular PLC series			Rack PLC series	
Model		CJ1M/G	CJ2M	CJ2H	CS1G/H	CS1D
Max. digital I/O points[1]		1280	2560	2560	5120	5120
Built-in[1]	**Digital I/O**	16	–			
	Interrupt inputs	4	–			
	Counter inputs	2	–			
	Pulse outputs	2	–			
CPU features[1]		Compact size No backplane required Large program capacity Easy backups Built-in pulse I/O Loop control CPU type Real time clock	USB port standard Built-in Ethernet/IP port High-speed I/O units Option board plug-in Structures and arrays Tag data links Compact size No backplane required Large program capacity Function Block memory Easy backups Real time clock	USB port standard Built-in Ethernet/IP port High-speed I/O units Structures and arrays Tag data links Synchronous I/O Compact size No backplane required Extra Large program capacity Easy backups Real time clock	High I/O capacity Inner board support Large program capacity Backwards compatible Easy backups Real time clock	Redundant CPU Redundant power supply Hot swapping High I/O capacity Inner board support Large program capacity Backwards compatible Easy backups Real time clock
Instruction Execution time (bit instruction)		0.10/0.04 µs	0.04 µs	0.016 µs	0.04/0.02 µs	0.04/0.02 µs
Program memory		5 to 60K steps	5 to 60K steps	50 to 400K steps	10 to 250K steps	10 to 250K steps
Data memory		32 to 128K words	64 to 160K words	160 to 832K words	64 to 448K words	64 to 448K words
CompactFlash memory		Up to 512 MB				
Analogue I/O		Analogue I/O unit Temperature sensor unit Temperature control unit				
Special function units		Temperature control High-speed counters (500 kHz) SSI encoder input Position control Protocol macro RFID sensor unit Weighing unit Data collection & storage unit		Temperature control High-speed counters (500 kHz) SSI encoder input Position control Protocol macro RFID sensor unit High-speed I/O Synchronised Position Data collection & storage unit	Temperature control SSI encoder input High-speed counters (500 kHz) Position control Motion control Process control Protocol macro RFID sensor unit Data collection & storage unit	
Fieldbus master		Ethernet EtherNet/IP Controller Link DeviceNet PROFIBUS-DP PROFINET ModBus CompoNet CompoBus/S CAN (freely configurable)				
Fieldbus I/O		DeviceNet PROFIBUS-DP CAN (freely configurable)				
Page		21			30	

*1 Some features listed are not available for all CPU types within each series. Please review specifications for more information on CPU features and performance.

OMRON

OMRON

The versatile slim-line controller

An extensive range of models ensures efficient machine control in an ultra-compact package. CPU units 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.

- Space-saving slim outline, high-density I/O
- 10-32 I/O points per CPU, transistor or relay outputs
- 20 kHz counter input, two 10 kHz pulse outputs integrated
- Two communication ports built-in, freely accessible
- Digital, analogue, and fieldbus expansion units

PLC

1

Ordering information

Input points	Output points	Program capacity	Data memory capacity	Logic execution speed	Size in mm (HxWxD)	I/O Connectors	Output method	Built-in functions	Real time clock	Order code
6 points	4 points	4K words	2K words	0.64 µs	90x33x65	2 Terminal blocks	Relay	1 Encoder input (20 kHz)	–	CPM2C-10CDR-D
									Yes	CPM2C-10C1DR-D
						2 Fujitsu (24 pt)	Transistor (source type)	1 Encoder input (20 kHz) 2 Pulse output (10 kHz)	–	CPM2C-10CDT1C-D
									Yes	CPM2C-10C1DT1C-D
						2 MIL (20 pt)	Transistor (source type)	1 Encoder input (20 kHz) 2 Pulse output (10 kHz)	–	CPM2C-10CDT1M-D
									Yes	CPM2C-10C1DT1M-D
12 points	8 points	4K words	2K words	0.64 µs	90x33x65	2 Terminal blocks	Relay	1 Encoder input (20 kHz)	–	CPM2C-20CDR-D
									Yes	CPM2C-20C1DR-D
						2 Fujitsu (24 pt)	Transistor (source type)	1 Encoder input (20 kHz) 2 Pulse output (10 kHz)	–	CPM2C-20CDT1C-D
									Yes	CPM2C-20C1DT1C-D
						2 MIL (20 pt)	Transistor (source type)	1 Encoder input (20 kHz) 2 Pulse output (10 kHz)	–	CPM2C-20CDT1M-D
									Yes	CPM2C-20C1DT1M-D
16 points	16 points	4K words	2K words	0.64 µs	90x33x65	2 Fujitsu (24 pt)	Transistor (source type)	1 Encoder input (20 kHz) 2 Pulse output (10 kHz)	–	CPM2C-32CDT1C-D
						2 MIL (20 pt)	Transistor (source type)	1 Encoder input (20 kHz) 2 Pulse output (10 kHz)	–	CPM2C-32CDT1M-D
6 points	4 points	4K words	2K words	0.64 µs	90x40x65	1 Fujitsu (24 pt)	Transistor (source type)	1 Encoder input (20 kHz) 2 Pulse output (10 kHz) Programmable Slave with DeviceNet slave and CompoBus/S Master	Yes	CPM2C-S110C-DRT
6 points	4 points	4K words	2K words	0.64 µs	90x40x65	1 Fujitsu (24 pt)	Transistor (source type)	1 Encoder input (20 kHz) 2 Pulse output (10 kHz) CompoBus/S Master	Yes	CPM2C-S110C

Note: All CPU's are available only with DC supply voltage (CPM2C-PA201 can be used as power supply).
CPU's with sourcing transistor outputs are also available with sinking transistor outputs.
MIL = connector according to MIL-C-83503 (compatible with DIN 41651/IEC 60603-1).

Expand the capacity of your CPM2C PLC

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

Ordering information

Unit	Output type	I/O Connectors	Inputs	Outputs	Order code
Expansion I/O units	–	1 Fujitsu (24 pt)	8	–	CPM2C-8EDC
		1 MIL (20 pt)			CPM2C-8EDM
	–	1 Fujitsu (24 pt)	16	–	CPM2C-16EDC
		1 MIL (20 pt)			CPM2C-16EDM
	Relay	1 Terminal block	–	8	CPM2C-8ER
	Transistor output (source type)	1 Fujitsu (24 pt)			CPM2C-8ET1C
		1 MIL (20 pt)			CPM2C-8ET1M
	Transistor output (source type)	1 Fujitsu (24 pt)	–	16	CPM2C-16ET1C
		1 MIL (20 pt)			CPM2C-16ET1M
	Relay	2 Terminal blocks	6	4	CPM2C-10EDR
	Relay	2 Terminal blocks	12	8	CPM2C-20EDR
	Transistor output (source type)	2 Fujitsu (24 pt)	16	8	CPM2C-24EDT1C
		2 MIL (20 pt)			CPM2C-24EDT1M
	Transistor output (source type)	2 Fujitsu (24 pt)	16	16	CPM2C-32EDT1C
		2 MIL (20 pt)			CPM2C-32EDT1M
Analogue I/O units	Analogue (resolution 1/6000)	2 Terminal blocks	2	1	CPM2C-MAD11
Temperature sensor units	Thermocouple input	1 Terminal block	2	–	CPM2C-TS001
	Platinum resistance input	1 Terminal block	2	–	CPM2C-TS101
CompoBus/S I/O link unit	–	1 Terminal block	I/O link of 8 input bits and 8 output bits		CPM2C-SRT21
RS-232C and RS422 adapter units	–	1 D-sub 9-pin	RS-232C		CPM2C-CIF01-V1
		1 Terminal block and 1 D-sub 9-pin	RS-232C and RS422		CPM2C-CIF11

Note: Expansion I/O units with sourcing transistor outputs are also available with sinking transistor outputs.
  MIL = connector according to MIL-C-83503 (compatible with DIN 41651/IEC 60603-1).

OMRON

Easy, efficient & economic

Omron's CP1E series targets a 'lean' automation solution, but still offers all functionality you need to control relatively simple applications, including outstanding positioning capability. The CP1E comes with 10, 14, 20, 30, 40 or 60 I/O built-in and can be expanded with a wide range of CP1W or CPM1A expansion units up to 180 I/O points. It uses a standard USB port for programming and monitoring. The CP1E-E-type or -N type includes a serial communication port and offers an additional plug-in serial communication port. As the CP1E series shares the same architecture as the CP1L, CP1H, CJ1, and CS1 series, programs are compatible for memory allocations and instructions.

PLC

1

Ordering information

CP1E CPU type	Power supply	Input points	Output points	Built-in functions	Output method	Expandability	Max I/O points (Built-in + Expanded)	Program capacity	Data memory capacity	Logic execution speed	Order code
E-type with 10 I/O Points	100 to 240 VAC	6 points	4 points	4 Encoder inputs (10 kHz)	Relay	–	10 points	2K steps	2K words	1.19 μs	CP1E-E10DR-A
					Transistor (sink type)						CP1E-E10DT-A
					Transistor (source type)						CP1E-E10DT1-A
	24 VDC				Relay						CP1E-E10DR-D
					Transistor (sink type)						CP1E-E10DT-D
					Transistor (source type)						CP1E-E10DT1-D
E-type with 14 I/O Points	100 to 240 VAC	8 points	6 points	6 Encoder inputs (10 kHz)	Relay		14 points				CP1E-E14DR-A
E-type with 20 I/O Points		12 points	8 points				20 points				CP1E-E20DR-A
E-type with 30 I/O Points		18 points	12 points			Up to 3 expansions[*1]	150 points				CP1E-E30DR-A
E-type with 40 I/O Points		24 points	16 points				160 points				CP1E-E40DR-A

[*1] It has no restriction on the possible combination of expansion units. All expansion units can be combined with each other up to the maximum nb of expansions.

Note: CP1E CPU series can be expanded with CP1W-, or CPM1A expansion units
There are no accessories included with E-type CP1E CPU Units. A Battery (CP1W-BAT01) cannot be used.

CP1E CPU type	Power supply	Input points	Output points	Built-in functions	Output method	Expandability	Max I/O points (Built-in + Expanded)	Program capacity	Data memory capacity	Logic execution speed	Order code
N-type with 14 I/O Points (Built-in RS-232C port)	100 to 240 VAC	8 points	6 points	6 Encoder inputs (100 kHz)	Relay	–	14 points	8K steps	8K words	1.19 μs	CP1E-N14DR-A
				6 Encoder inputs (100 kHz) 2 Pulse outputs (100kHz)	Transistor (source type)						CP1E-N14DT1-A
					Transistor (sink type)						CP1E-N14DT-A
	24 VDC			6 Encoder inputs (100 kHz)	Relay						CP1E-N14DR-D
				6 Encoder inputs (100 kHz) 2 Pulse outputs (100kHz)	Transistor (sink type)						CP1E-N14DT-D
					Transistor (source type)						CP1E-N14DT1-D
N-type with 20 I/O Points (Built-in RS-232C port)	100 to 240 VAC	12 points	8 points	6 Encoder inputs (100 kHz)	Relay		20 points				CP1E-N20DR-A
				6 Encoder inputs (100 kHz) 2 Pulse outputs (100kHz)	Transistor (sink type)						CP1E-N20DT-A
					Transistor (source type)						CP1E-N20DT1-A
	24 VDC			6 Encoder inputs (100 kHz)	Relay						CP1E-N20DR-D
				6 Encoder inputs (100 kHz)	Transistor (sink type)						CP1E-N20DT-D
				2 Pulse outputs (100kHz)	Transistor (source type)						CP1E-N20DT1-D

OMRON

CP1E CPU type	Power supply	Input points	Output points	Built-in functions	Output method	Expandability	Max I/O points (Built-in + Expanded)	Program capacity	Data memory capacity	Logic execution speed	Order code
N-type with 30 I/O Points (Built-in RS-232C port)	100 to 240 VAC	18 points	12 points	6 Encoder inputs (100 kHz)	Relay	Up to 3 expansions[*1]	150 points	8K steps	8K words	1.19 µs	CP1E-N30DR-A
				6 Encoder inputs (100 kHz) 2 Pulse outputs (100kHz)	Transistor (sink type)						CP1E-N30DT-A
					Transistor (source type)						CP1E-N30DT1-A
	24 VDC			6 Encoder inputs (100 kHz)	Relay						CP1E-N30DR-D
				6 Encoder inputs (100 kHz) 2 Pulse outputs (100kHz)	Transistor (sink type)						CP1E-N30DT-D
					Transistor (source type)						CP1E-N30DT1D
N-type with 40 I/O Points (Built-in RS-232C port)	100 to 240 VAC	24 points	16 points	6 Encoder inputs (100 kHz)	Relay		160 points				CP1E-N40DR-A
				6 Encoder inputs (100 kHz) 2 Pulse outputs (100kHz)	Transistor (sink type)						CP1E-N40DT-A
					Transistor (source type)						CP1E-N40DT1-A
	24 VDC			6 Encoder inputs (100 kHz)	Relay						CP1E-N40DR-D
				6 Encoder inputs (100 kHz) 2 Pulse outputs (100kHz)	Transistor (sink type)						CP1E-N40DT-D
					Transistor (source type)						CP1E-N40DT1-D
N-type with 60 I/O Points (Built-in RS-232C port)	100 to 240 VAC	36 points	24 points	6 Encoder inputs (100 kHz)	Relay		180 points				CP1E-N60DR-A
				6 Encoder inputs (100 kHz) 2 Pulse outputs (100kHz)	Transistor (sink type)						CP1E-N60DT-A
					Transistor (source type)						CP1E-N60DT1-A
	24 VDC			6 Encoder inputs (100 kHz)	Relay						CP1E-N60DR-D
				6 Encoder inputs (100 kHz) 2 Pulse outputs (100kHz)	Transistor (sink type)						CP1E-N60DT-D
					Transistor (source type)						CP1E-N60DT1-D
NA-type with 20 I/O Points (Built-in analog and RS-232C port)	100 to 240 VAC	12 points (Digital) 2 points (Built-in analog)	8 points (Digital) 1 point (Built-in analog)	6 Encoder inputs (100 kHz) 2 Analogue in (res: 1/6000) 1 Analogue out (res: 1/6000)	Relay + analogue		140 points				CP1E-NA20DR-A
	24 VDC	12 points (Digital) 2 points (Built-in analog)	8 points (Digital) 1 point (Built-in analog)	6 Encoder inputs (100 kHz) 2 Pulse outputs (100kHz) 2 Analogue in res: 1/6000 1 Analogue out (res: 1/6000)	Transistor (sink type) + analogue						CP1E-NA20DT-D
					Transistor (source type) + analogue						CP1E-NA20DT1-D

[*1] It has no restriction on the possible combination of expansion units. All expansion units can be combined with each other up to the maximum nb of expansions.

Note: CP1E CPU series can be expanded with CP1W-, or CPM1A expansion units.

There are no accessories included with N/NA-type CP1E CPU Units. RS-232C connectors for the built-in RS-232C port and the Battery (CP1W-BAT01) are not included.

Accessories

Type	Remarks	Order code
RS-232C Option Board	Plug-in board (D-Sub, 9 pins, female)	CP1W-CIF01
RS-422A/485 Option board	Plug-in board	CP1W-CIF11
RS-422A/485 Option board (isolated type)	Plug-in board	CP1W-CIF12
USB Programming cable	A-type male to B-type male (length: 1.8 m)	CP1W-CN221
Ethernet option board	Plug-in board (not for 10 points CPU)	CP1W-CIF41[*1]

[*1] Only firmware v2.0

OMRON

The compact machine controller

When it comes to controllers for compact machines, Omron's CP1L series offers the compactness of a micro-PLC with the capability of a modular PLC. It provides all the functionality you need to control your machine, including outstanding positioning capability. The CP1L comes with 14, 20, 30, 40, or 60 I/O built-in and can be expanded with a wide range of CP1W or CPM1A expansion units up to 180 I/O points. It uses a standard USB port for programming and monitoring and offers two optional plug-in serial communication ports, of which one can be used for a display or Ethernet option as well. As the CP1L series shares the same architecture as the CP1E, CP1H, CJ1, and CS1 series, programs are compatible for memory allocations and instructions.

Ordering information

CP1L CPU type	Power supply	Input points	Output points	Built-in functions	Output type	Expandability	Max I/O points (Built-in + Expanded)	Program Capacity	Data Memory capacity	Logic execution speed	Order code
L-Type with 10 I/O Points	20.4 to 26.4 VDC	6 points	4 points	4 Encoder inputs (100 kHz) 2 Interrupts/counters	Relay	–	10 points	5K steps	10K words	0.55 µs	CP1L-L10DR-D
				4 Encoder inputs (100 kHz) 2 Pulse outputs (100 kHz) 2 Interrupts/counters	Transistor (sink type)						CP1L-L10DT-D
					Transistor (source type)						CP1L-L10DT1-D
	84 to 264 VAC			4 Encoder inputs (100 kHz) 2 Interrupts/counters	Relay						CP1L-L10DR-A
L-Type with 14 I/O Points	20.4 to 26.4 VDC	8 points	6 points	4 Encoder inputs (100 kHz) 2 Pulse outputs (100kHz) 4 Interrupts/counters	Transistor (sink type)	Up to 1 expansion[1]	54 points				CP1L-L14DT-D
					Transistor (source type)						CP1L-L14DT1-D
				4 Encoder inputs (100 kHz) 4 Interrupts/counters	Relay						CP1L-L14DR-D
	85 to 264 VAC			4 Encoder inputs (100 kHz) 4 Interrupts/counters	Relay						CP1L-L14DR-A
L-Type with 20 I/O Points	20.4 to 26.4 VDC	12 points	8 points	4 Encoder inputs (100 kHz) 2 Pulse outputs (100kHz) 6 Interrupts/counters	Transistor (sink type)		60 points				CP1L-L20DT-D
					Transistor (source type)						CP1L-L20DT1-D
				4 Encoder inputs (100 kHz) 6 Interrupts/counters	Relay						CP1L-L20DR-D
	85 to 264 VAC			4 Encoder inputs (100 kHz) 6 Interrupts/counters	Relay						CP1L-L20DR-A
M-Type with 30 I/O Points	20.4 to 26.4 VDC	18 points	12 points	4 Encoder inputs (100 kHz) 2 Pulse outputs (100kHz) 6 Interrupts/counters	Transistor (sink type)	Up to 3 expansions[1]	150 points	10K steps	32K words		CP1L-M30DT-D
					Transistor (source type)						CP1L-M30DT1-D
				4 Encoder inputs (100 kHz) 6 Interrupts/counters	Relay						CP1L-M30DR-D
	85 to 264 VAC			4 Encoder inputs (100 kHz) 6 Interrupts/counters	Relay						CP1L-M30DR-A
M-Type with 40 I/O Points	20.4 to 26.4 VDC	24 points	16 points	4 Encoder inputs (100 kHz) 2 Pulse outputs (100kHz) 6 Interrupts/counters	Transistor (sink type)		160 points				CP1L-M40DT-D
					Transistor (source type)						CP1L-M40DT1-D
				4 Encoder inputs (100 kHz) 6 Interrupts/counters	Relay						CP1L-M40DR-D
	85 to 264 VAC	24 points	16 points	4 Encoder inputs (100 kHz) 6 Interrupts/counters	Relay						CP1L-M40DR-A

CP1L CPU type	Power supply	Input points	Output points	Built-in functions	Output type	Expandability	Max I/O points (Built-in + Expanded)	Program Capacity	Data Memory capacity	Logic execution speed	Order code
M-Type with 60 I/O Points	20.4 to 26.4 VDC	36 points	24 points	4 Encoder inputs (100 kHz) 2 Pulse outputs (100 kHz) 6 Interrupts/Counters	Transistor (sink type) Transistor (source type)	Up to 3 expansions[*1]	180 points	10K steps	32K words	0.55 µs	CP1L-M60DT-D CP1L-M60DT1-D
				4 Encoder inputs (100 kHz) 6 Interrupts/counters	Relay						CP1L-M60DR-D
	85 to 264 VAC			4 Encoder inputs (100 kHz) 6 Interrupts/counters	Relay						CP1L-M60DR-A

*1 It has no restriction on the possible combination of expansion units. All expansion units can be combined with each other up to the maximum nb of expansions.

Note: CP1L CPU series can be expanded with CP1W-, or CPM1A expansion units

Accessories

Type	Remarks	Order code
RS-232C Option Board	Plug-in board (D-Sub, 9 pins, female)	CP1W-CIF01
RS-422A/485 Option board	Plug-in board (Terminal block)	CP1W-CIF11
RS422A/485 (isolated) option board	Plug-in board (D-Sub, 9 pins, female)	CP1W-CIF12
Ethernet option board	Plug-in board (not for 10 points CPU)	CP1W-CIF41
Memory cassette	512K words (upload/download program)	CP1W-ME05M
USB Programming cable	A-type male to B-type male (length: 1.8m)	CP1W-CN221
LCD display	4 rows x 12 characters	CP1W-DAM01

OMRON

CP1H CPU units

Compact PLC

The All-in-One PLC

Designed for compact machines, it combines the compactness of a micro PLC and the power of a modular PLC. Four built-in high-speed counters and four pulse outputs are ideal for multi-axis positioning control. The CP1H-XA comes with 4 analogue inputs and 2 analogue outputs built-in. This makes it suitable for simple loop control, using the PLC's advanced PID control function with auto-tuning. The CP1H can be expanded with CPM1 I/Os and supports up to 2 CJ1 special I/O units. This means that it is open to popular fieldbuses and supports all communication units of the CJ1 series.

• Up to 1 MHz for inputs/outputs
• CJ1M compatible instruction set and execution speed
• 4 analogue inputs and 2 analogue outputs for the XA model
• USB port for easy communication, programming and configuration
• Supports PROFIBUS, DeviceNet, CAN and Ethernet

Ordering information

CP1H CPU type	Power supply	Input points	Output points	Built-in functions	Output method	Expandability	Max I/O points (Built-in + Expanded)	Program capacity	Data memory capacity	Logic execution speed	Order code
Y-Type with 20 I/O Points	20.4 to 26.4 VDC	12 points	8 points	4 Encoder inputs (2×1 MHz + 2×100 kHz) 4 Pulse outputs (2×1 MHz + 2×100 kHz) 6 Interrupts/counters	Transistor (sink type)	Up to 7 expansions*1	300 points	20K steps	32K words	0.1μs	CP1H-Y20DT-D
X-Type with 40 I/O Points	20.4 to 26.4 VDC	24 points	16 points	4 Encoder inputs (100 kHz) 4 Pulse outputs (100 kHz) 8 Interrupts/counters	Transistor (source type)		320 points				CP1H-X40DT1-D
					Transistor (sink type)						CP1H-X40DT-D
	85 to 264 VAC			4 Encoder inputs (100 kHz) 8 Interrupts/Counters	Relay						CP1H-X40DR-A
XA-Type with 40 I/O Points (Built-in analog)	20.4 to 26.4 VDC	24 points (Digital) 4 points (Built-in analog)	16 points (Digital) 2 points (Built-in analog)	4 Encoder inputs (100 kHz) 4 Pulse outputs (100 kHz) 8 Interrupts/counters 4 Analogue in (res: 1/12000) 2 Analogue out (res: 1/12000)	Transistor (source type) + analogue						CP1H-XA40DT1-D
					Transistor (sink type) + analogue						CP1H-XA40DT-D
	85 to 264 VAC			4 Encoder inputs (100 kHz) 8 Interrupts/counters 4 Analogue in (res: 1/12000) 2 Analogue out (res: 1/12000)	Relay + analogue						CP1H-XA40DR-A

*1 It has some restrictions on the possible combination of CP1W-, or CPM1A expansion units.

Note: CP1H CPU series can be expanded with CP1W-, or CPM1A expansion units (Up to 7 units) and CJ1 Special I/O units (Up to 2 units).
Some expansion units count for 2 unit numbers (eg. CP1W/CPM1A-AD041, CP1W/CPM1A-DA041, CP1W/CPM1A-TS002 and CP1W/CPM1A-TS102) but only 7 expansion unit numbers can be allocated in a CP1H PLC's configuration.

Accessories

Type	Remarks	Order code
RS-232C option board	Plug-in board (D-Sub, 9 pins, female)	CP1W-CIF01
RS-422A/485 option board	Plug-in board (Terminal block)	CP1W-CIF11
RS422A/485 (isolated) option board	Plug-in board (D-Sub, 9 pins, female)	CP1W-CIF12
Ethernet option board	Plug-in board (not for 10 points CPU)	CP1W-CIF41
Memory cassette	512K words (upload/download program)	CP1W-ME05M
Expansion I/O connecting cable	80 cm cable to connect CPM1A I/O	CP1W-CN811
CJ1 expansion unit adapter	Unit to connect CJ1 Special I/O units	CP1W-EXT01
LCD display	4 rows x 12 characters	CP1W-DAM01
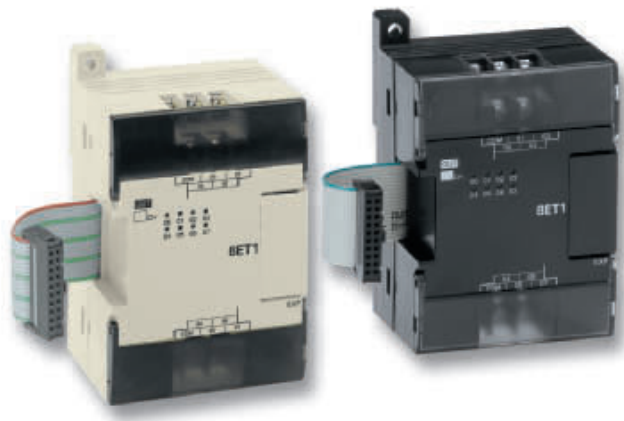
Expand the capacity of your compact PLC

A wide variety of expansion units such as Digital I/O, Analogue I/O and Remote I/O are available to create the application you need. These CP1W / CPM1A expansion units can be used for CPM1A-, CPM2A-, CP1L-, and CP1H series PLC.

Ordering information

Expansion unit type	Max I/O Points	Inputs	Outputs	Built-in function	Output method	Size in mm (H x W x D)	No. of unit numbers allocated (CP1H only)[*1]	Order code CP1W model	Order code CPM1A model
Digital I/O units	8 Points	8 Points	–	8 inputs	–	90 x 66 x 50	1	CP1W-8ED	CPM1A-8ED
		–	8 Points	8 outputs	Relay	90 x 66 x 50	1	CP1W-8ER	CPM1A-8ER
					Transistor (sinking)	90 x 66 x 50	1	CP1W-8ET	CPM1A-8ET
					Transistor (sourcing)	90 x 66 x 50	1	CP1W-8ET1	CPM1A-8ET1
	16 Points		16 Points	16 outputs	Relay	90 x 86 x 50	1	CP1W-16ER	–
	20 Points	12 Points	8 Points	12 inputs 8 outputs	Relay	90 x 86 x 50	1	CP1W-20EDR1	CPM1A-20EDR1
					Transistor (sinking)	90 x 86 x 50	1	CP1W-20EDT	CPM1A-20EDT
					Transistor (sourcing)	90 x 86 x 50	1	CP1W-20EDT1	CPM1A-20EDT1
	40 Points	24 Points	16 Points	24 inputs 16 outputs	Relay	90 x 150 x 50	1	CP1W-40EDR	CPM1A-40EDR
					Transistor (sinking)	90 x 150 x 50	1	CP1W-40EDT	CPM1A-40EDT
					Transistor (sourcing)	90 x 150 x 50	1	CP1W-40EDT1	CPM1A-40EDT1
Analogue I/O units	4 Analog Points	4 Analog Points	–	4 analog inputs (resolution 1/6000)	Analogue	90 x 86 x 50	2	CP1W-AD041	CPM1A-AD041
	4 Analog Points	–	4 Analog Points	4 analog outputs (resolution 1/6000)	Analogue	90 x 86 x 50	2	CP1W-DA041	CPM1A-DA041
	2 Analog Points	-	2 Analog Points	2 analog outputs (resolution 1/6000)	Analogue	90 x 86 x 50	1	CP1W-DA021	–
	3 Analog Points	2 Analog Points	1 Analog Points	2 analog inputs (resolution 1/256) 1 analog output (resolution 1/256)	Analogue	90 x 66 x 50	1	–	CPM1A-MAD01
				2 analog inputs (resolution 1/6000) 1 analog output (resolution 1/6000)	Analogue	90 x 86 x 50	1	CP1W-MAD11	CPM1A-MAD11
Temperature sensor units (K, J)	2 Analog Points	2 Analog Points	–	2 Thermocouple inputs (K or J)	–	90 x 86 x 50	1	CP1W-TS001	CPM1A-TS001
	4 Analog Points	4 Analog Points	–	4 Thermocouple inputs (K or J)	–	90 x 86 x 50	2	CP1W-TS002	CPM1A-TS002
Temperature sensor units (Pt100, JPt100)	2 Analog Points	2 Analog Points	–	2 Platinum resistance thermometer inputs (Pt100 or JPt100)	–	90 x 86 x 50	1	CP1W-TS101	CPM1A-TS101
	4 Analog Points	4 Analog Points	–	4 Platinum resistance thermometer inputs (Pt100 or JPt100)	–	90 x 86 x 50	2	CP1W-TS102	CPM1A-TS102
	3 Analog Points	2 Analog Points	1 Analog Points	4 Platinum resistance thermometer inputs (Pt100 or JPt100) 1 analog output (resolution 1/256)	Analogue	90 x 86 x 50	1	–	CPM1A-TS101-DA
CompoBus/S I/O link unit	16 Points	8 Points	8 Points	I/O link of 8 input bits and 8 output bits	CompoBus/S communication	90 x 66 x 50	1	CP1W-SRT21	CPM1A-SRT21
PROFIBUS-DP I/O link unit	32 Points	16 Points	16 Points	I/O link of 16 input bits and 16 output bits	PROFIBUS-DP communication	90 x 66 x 50	1	–	CPM1A-PRT21
DeviceNet I/O link unit	64 Points	32 Points	32 Points	I/O link of 32 input bits and 32 output bits	DeviceNet communication	90 x 66 x 50	1	–	CPM1A-DRT21

[*1] Some expansion units count for 2 unit numbers (eg. CP1W/CPM1A-AD041, CP1W/CPM1A-DA041, CP1W/CPM1A-TS002 and CP1W/CPM1A-TS102) but only 7 expansion unit numbers can be allocated in a CP1H PLC's configuration.

OMRON

CJ-Series CPU units

Modular PLC

Fast and powerful CPUs for any task

The family of CJ1 and CJ2 CPUs range from very small CPUs for simple sequence control to powerful and fast models that offer total machine control which can handle up to 2560 I/O points. This enables you to modularize or 'slice' your machine into logical sections without changing PLC series.

All CPU units support IEC61131-3 Structured text, Sequential Function Charts and ladder language. Omron's extensive function block library helps to reduce your programming effort, while you can create your own function blocks to suit your specific needs.

All CJ2M CPU units can be equipped with pulse I/O option modules to perform position control for up to 4 axes, using dedicated instructions.

Ordering information

Max. digital I/O points	Program capacity	Data memory capacity	Logic execution speed	Max. I/O units	Width	5 V current consumption	Built-in functions	Order code
2,560	400 K	832 K	16 ns	40	80 mm	820 mA	USB + EtherNet/IP + RS-232C	CJ2H-CPU68-EIP
2,560	250 K	512 K	16 ns	40	80 mm	820 mA	USB + EtherNet/IP + RS-232C	CJ2H-CPU67-EIP
2,560	150 K	352 K	16 ns	40	80 mm	820 mA	USB + EtherNet/IP + RS-232C	CJ2H-CPU66-EIP
2,560	100 K	160 K	16 ns	40	80 mm	820 mA	USB + EtherNet/IP + RS-232C	CJ2H-CPU65-EIP
2,560	50 K	160 K	16 ns	40	80 mm	820 mA	USB + EtherNet/IP + RS-232C	CJ2H-CPU64-EIP
2,560	60 K	160 K	40 ns	40	62 mm	700 mA	USB + EtherNet/IP, serial comm. option slot	CJ2M-CPU35
2,560	30 K	160 K	40 ns	40	62 mm	700 mA	USB + EtherNet/IP, serial comm. option slot	CJ2M-CPU34
2,560	20 K	64 K	40 ns	40	62 mm	700 mA	USB + EtherNet/IP, serial comm. option slot	CJ2M-CPU33
2,560	10 K	64 K	40 ns	40	62 mm	700 mA	USB + EtherNet/IP, serial comm. option slot	CJ2M-CPU32
2,560	5 K	64 K	40 ns	40	62 mm	700 mA	USB + EtherNet/IP, serial comm. option slot	CJ2M-CPU31
2,560	400 K	832 K	16 ns	40	49 mm	420 mA	USB + RS-232C	CJ2H-CPU68
2,560	250 K	512 K	16 ns	40	49 mm	420 mA	USB + RS-232C	CJ2H-CPU67
2,560	150 K	352 K	16 ns	40	49 mm	420 mA	USB + RS-232C	CJ2H-CPU66
2,560	100 K	160 K	16 ns	40	49 mm	420 mA	USB + RS-232C	CJ2H-CPU65
2,560	50 K	160 K	16 ns	40	49 mm	420 mA	USB + RS-232C	CJ2H-CPU64
2,560	60 K	160 K	40 ns	40	31 mm	500 mA	USB + RS-232C	CJ2M-CPU15
2,560	30 K	160 K	40 ns	40	31 mm	500 mA	USB + RS-232C	CJ2M-CPU14
2,560	20 K	64 K	40 ns	40	31 mm	500 mA	USB + RS-232C	CJ2M-CPU13
2,560	10 K	64 K	40 ns	40	31 mm	500 mA	USB + RS-232C	CJ2M-CPU12
2,560	5 K	64 K	40 ns	40	31 mm	500 mA	USB + RS-232C	CJ2M-CPU11
1,280	60 k	128 k	40 ns	40	69 mm	1,060 mA	Loop control engine (300 blocks)	CJ1G-CPU45P
1,280	30 k	64 k	40 ns	40	69 mm	1,060 mA	Loop control engine (300 blocks)	CJ1G-CPU44P
960	20 k	64 k	40 ns	30	69 mm	1,060 mA	Loop control engine (300 blocks)	CJ1G-CPU43P
960	10 k	64 k	40 ns	30	69 mm	1,060 mA	Loop control engine (50 blocks)	CJ1G-CPU42P
640	20 k	32 k	100 ns	20	49 mm	640 mA	2 Encoder inputs (100 kHz) 2 Pulse outputs (100 kHz) 4 interrupt/counter inputs	CJ1M-CPU23
320	10 k	32 k	100 ns	10	49 mm	640 mA	2 Encoder inputs (100 kHz) 2 Pulse outputs (100 kHz) 4 interrupt/counter inputs	CJ1M-CPU22
160	5 k	32 k	100 ns	10	49 mm	640 mA	2 Encoder inputs (100 kHz) 2 Pulse outputs (100 kHz) 4 interrupt/counter inputs	CJ1M-CPU21
640	20 k	32 k	100 ns	19	62 mm	950 mA	100 base-Tx Ethernet port	CJ1M-CPU13-ETN
				20	31 mm	580 mA	–	CJ1M-CPU13
320	10 k	32 k	100 ns	9	62 mm	950 mA	100 base-Tx Ethernet port	CJ1M-CPU12-ETN
				10	31 mm	580 mA	–	CJ1M-CPU12
160	5 k	32 k	100 ns	9	62 mm	950 mA	100 base-Tx Ethernet port	CJ1M-CPU11-ETN
				10	31 mm	580 mA	–	CJ1M-CPU11

OMRON

Accessories

Description	Remarks	Order code
High-speed data collection and storage unit, with CF card slot and Ethernet port	CPU bus unit	CJ1W-SPU01-V2
Pulse I/O option module for CJ2M CPU Units, 2 encoder inputs, 2 pulse outputs	NPN (sinking) outputs	CJ2M-MD211
Pulse I/O option module for CJ2M CPU Units, 2 encoder inputs, 2 pulse outputs	PNP (sourcing) outputs	CJ2M-MD212
CompactFlash memory card, 128 MB, for all models (not required for operation)	Industrial grade	HMC-EF183
CompactFlash memory card, 256 MB, for all models (not required for operation)	Industrial grade	HMC-EF283
CompactFlash memory card, 512 MB, for all models (not required for operation)	Industrial grade	HMC-EF583
CompactFlash PC-Card adapter	–	HMC-AP001
I/O terminal block (40×M3 screw) for CJ1M-CPU2x	MIL (40 pt)	XW2D-40G6
Servo unit terminal block for 1 axis	–	XW2B-20J6-8A
Servo unit terminal block for 2 axes	–	XW2B-40J6-9A
Connection cable between I/O terminal block and CJ1M-CPU2x (_ _ _ = length in cm)	MIL (40 pt)	XW2Z-_ _ _ K
SMARTSTEP cable for CJ1M CPU2x, cable length: 1 m	–	XW2Z-100J-A26
W-series servo cable for CJ1M CPU2x, cable length: 1 m	–	XW2Z-100J-A27
CX-One, integrated software for programming and configuration of all Omron control system components	–	CX-ONE-AL_ _C-E
Connection cable, D-Sub 9-pin PC serial port to PLC peripheral port (length: 2.0 m)	–	CS1W-CN226
Connection cable, D-Sub 9-pin PC serial port to PLC peripheral port (length: 6.0 m)	–	CS1W-CN626
USB to serial conversion cable	–	CS1W-CIF31
RS-232C Option Board[1]	–	CP1W-CIF01
RS-422A/485 Option board[1]	–	CP1W-CIF11
RS422A/485 (isolated) Option board[1]	–	CP1W-CIF12
Battery Set[2]	–	CJ1W-BAT01
USB Programming cable	–	CP1W-CN221

[1] Only used with CJ2M-CPU3_
[2] Included with the CPU unit

Note: MIL = connector according to MIL-C-83503 (compatible with DIN 41651/IEC 60603-1).

CJ-Series power supplies, expansions

Modular PLC

Power and flexibility

CJ systems can operate on 24 VDC power supply, or on 100 to 240 VAC mains. For small-scale systems with mainly digital I/O a low cost, small capacity power supply can be used. For systems with many analogue I/Os and control/communication units, it may be necessary to use a larger power supply unit.

Depending on the CPU type, up to 3 expansions can be connected to the CPU 'rack', giving a total capacity of 40 I/O units. The total length of the expansion cables of one system may be up to 12 m.

Ordering information

Power supply

Input range	Power consumption	Output capacity at 5 VDC	Output capacity at 24 VDC	Max. output power	Features	Width	Order code
21.6 to 26.4 VDC	35 W max.	2.0 A	0.4 A	16.6 W	–	27 mm	CJ1W-PD022
19.2 to 28.8 VDC	50 W max.	5.0 A	0.8 A	25 W	–	60 mm	CJ1W-PD025
85 to 264 VAC 47 to 63 Hz	50 VA max.	2.8 A	0.4 A	14 W	–	45 mm	CJ1W-PA202
	100 VA max.	5.0 A	0.8 A	25 W	Run output (SPST relay)	80 mm	CJ1W-PA205R
					Maintenance status display	80 mm	CJ1W-PA205C

Note: The CJ1W-PD022 has no galvanic isolation

I/O expansion

Type	Description	Width, Length	Order code
I/O control unit	Required unit on CPU 'rack' to connect I/O expansions	20 mm	CJ1W-IC101
I/O interface unit	Start unit for each I/O expansion 'rack'. Requires a power supply unit.	31 mm	CJ1W-II101
I/O expansion cable	Connects CJ1W-IC101 or -II101 to the next expansion rack's -II101	0.3 m	CS1W-CN313
		0.7 m	CS1W-CN713
		2.0 m	CS1W-CN223
		3.0 m	CS1W-CN323
		5.0 m	CS1W-CN523
		10 m	CS1W-CN133
		12 m	CS1W-CN133-B2

CJ-Series digital I/O units

Modular PLC

8 to 64 points per unit – input, output or mixed

Digital I/O units serve as the PLC's interface to achieve fast, reliable sequence control. A full range of units, from high-speed DC inputs to relay outputs, let you adapt CJ1 to your needs.

CJ1 units are available with various I/O densities and connection technologies. Up to 16 I/O points can be wired to units with detachable M3 screw terminals or screwless clamp terminals. High-density 32- and 64- point I/O units are equipped with standard 40-pin flat cable-connectors. Prefabricated cables and wiring terminals are available for easy interfacing to high-density I/O units.

Ordering information

Points	Type	Rated voltage	Rated current	Width	Remarks	Connection type[*1]	Order code
16	AC input	120 VAC	7 mA	31 mm	–	M3	CJ1W-IA111
8	AC input	240 VAC	10 mA	31 mm	–	M3	CJ1W-IA201
8	DC input	24 VDC	10 mA	31 mm	–	M3	CJ1W-ID201
16	DC input	24 VDC	7 mA	31 mm	–	M3 Screwless	CJ1W-ID211 CJ1W-ID211(SL)
16	DC input	24 VDC	7 mA	31 mm	Fast-response (15 µs ON, 90 µs OFF)	M3	CJ1W-ID212
16	DC input	24 VDC	7 mA	31 mm	Inputs start interrupt tasks in PLC program	M3	CJ1W-INT01
16	DC input	24 VDC	7 mA	31 mm	Latches pulses down to 50 µs pulse width	M3	CJ1W-IDP01
32	DC input	24 VDC	4.1 mA	20 mm	–	1 x Fujitsu	CJ1W-ID231
32	DC input	24 VDC	4.1 mA	20 mm	–	1 x MIL[*1] (40 pt)	CJ1W-ID232
32	DC input	24 VDC	4.1 mA	20 mm	Fast-response (15 µs ON, 90 µs OFF)	1 x MIL[*1] (40 pt)	CJ1W-ID233
64	DC input	24 VDC	4.1 mA	31 mm	–	2 x Fujitsu	CJ1W-ID261
64	DC input	24 VDC	4.1 mA	31 mm	–	2 x MIL[*1] (40 pt)	CJ1W-ID262
8	Triac output	250 VAC	0.6 mA	31 mm	–	M3	CJ1W-OA201
8	Relay output	250 VAC	2 A	31 mm	–	M3 Screwless	CJ1W-OC201 CJ1W-OC201(SL)
16	Relay output	250 VAC	2 A	31 mm	–	M3 Screwless	CJ1W-OC211 CJ1W-OC211(SL)
8	DC output (sink)	12 to 24 VDC	2 A	31 mm	–	M3	CJ1W-OD201
8	DC output (source)	24 VDC	2 A	31 mm	With short-circuit protection, alarm	M3	CJ1W-OD202
8	DC output (source)	24 VDC	0.5 A	31 mm	With short-circuit protection, alarm	M3	CJ1W-OD204
16	DC output (sink)	12 to 24 VDC	0.5 A	31 mm	–	M3 Screwless	CJ1W-OD211 CJ1W-OD211 (SL)
16	DC output (source)	24 VDC	0.5 A	31 mm	With short-circuit protection, alarm	M3 Screwless	CJ1W-OD212 CJ1W-OD212 (SL)
16	DC output (sink)	24 VDC	0.5 A	31 mm	Fast-response (15 µs ON, 80 µs OFF)	M3	CJ1W-OD213
32	DC output (sink)	12 to 24 VDC	0.5 A	20 mm	–	1 x Fujitsu	CJ1W-OD231
32	DC output (source)	24 VDC	0.3 A	20 mm	With short-circuit protection, alarm	1 x MIL[*1] (40 pt)	CJ1W-OD232
32	DC output (sink)	24 VDC	0.5 A	20 mm	Fast-response (15 µs ON, 80 µs OFF)	1 x MIL[*1] (40 pt)	CJ1W-OD234
64	DC output (sink)	12 to 24 VDC	0.3 A	31 mm	–	2 x Fujitsu	CJ1W-OD261
64	DC output (source)	24 VDC	0.3 A	31 mm	–	2 x MIL[*1] (40 pt)	CJ1W-OD262
16 + 16	DC in+out (source)	24 VDC	0.5 A	31 mm	–	2 x MIL[*1] (20 pt)	CJ1W-MD232
32 + 32	DC in+out (sink)	24 VDC	0.3 A	31 mm	–	2 x MIL[*1] (40 pt)	CJ1W-MD263
32 + 32	DC in+out (TLL)	5 VDC	35 mA	31 mm	–	2 x MIL[*1] (40 pt)	CJ1W-MD563

[*1] MIL = connector according to MIL-C-83503 (compatible with DIN 41651/IEC 60603-1).

Note: All digital I/O unit are designated as basic I/O units.

Accessories

Description	Connection type	Order code
Replacement 18-point screwless terminal blocks for I/O units, pack of 5 pcs.	Screwless	CJ-WM01-18P-5
Replacement 18-point screw terminal blocks for I/O units, pack of 5 pcs.	M3	CJ-OD507-18P-5
I/O terminal block (40×M3 screw) for XW2Z-___K	MIL (40pt)	XW2D-40G6
Connection cable between I/O terminal block and I/O unit (___ = length in cm)	MIL (40pt)	XW2Z-___K

OMRON

CJ-Series analogue I/O and control units

From basic analogue I/O to advanced temperature control

The CJ-series offers a wide choice of analogue input units, fit for any application, from low-speed, multi-channel temperature measurement to high-speed, high-accuracy data acquisition. Analogue outputs can be used for accurate control or external indication.

Advanced units with built-in scaling, filtering and alarm functions reduce the need for complex PLC programming. High-accuracy process I/O units support an extensive range of sensors, for fast and accurate data acquisition. Temperature control units relieve the PLC CPU of PID calculations and alarm monitoring. These functions are handled autonomously by the unit, offering control performance and auto-tuning functions similar to stand-alone temperature controllers.

Ordering information

| Points	Type	Ranges	Resolution	Accuracy [1]	Conversion time	Width	Remarks	Connection type	Order code
4	Universal analogue input	0 to 5 V 1 to 5 V 0 to 10 V 0 to 20 mA 4 to 20 mA K, J, T, L, R, S, B Pt100, Pt1000, JPt100	V / I: 1/12000 T/C: 0.1 °C RTD: 0.1 °C	V: 0.3% I: 0.3% T/C: 0.3% RTD: 0.3%	250 ms/4 point	31 mm	Universal inputs, with zero/span adjustment, configurable alarms, scaling, sensor error detection	M3	CJ1W-AD04U
								Screwless	CJ1W-AD04U(SL)
4	Analogue input	0 to 5 V, 0 to 10 V, -10 to 10 V, 1 to 5 V, 4 to 20 mA	1/8,000	V: 0.2% I: 0.4%	250 µs/point	31 mm	Offset/gain adjustment, peak hold, moving average, alarms	M3	CJ1W-AD041-V1
								Screwless	CJ1W-AD041-V1 (SL)
4	High-speed analogue input	1 to 5 V, 0 to 10 V, -5 to 5 V, -10 to 10 V, 4 to 20 mA	1/40,000	V: 0.2% I: 0.4%	35 µs/4 points	31 mm	Direct conversion (CJ2H special instruction)	M3	CJ1W-AD042
8	Analogue input	1 to 5 V, 0 to 10 V, -10 to 10 V, 1 to 5 V, 4 to 20 mA	1/8,000	V: 0.2% I: 0.4%	250 µs/point	31 mm	Offset/gain adjustment, peak hold, moving average, alarms	M3	CJ1W-AD081-V1
								Screwless	CJ1W-AD081-V1 (SL)
2	Analogue output	0 to 5 V, 0 to 10 V, -10 to 10 V, 1 to 5 V, 4 to 20 mA	1/4,000	V: 0.3% I: 0.5%	1 ms/point	31 mm	Offset/gain adjustment, output hold	M3	CJ1W-DA021
								Screwless	CJ1W-DA021 (SL)
4	Analogue output	1 to 5 V, 0 to 10 V, -10 to 10 V, 1 to 5 V, 4 to 20 mA	1/4,000	V: 0.3% I: 0.5%	1 ms/point	31 mm	Offset/gain adjustment, output hold	M3	CJ1W-DA041
								Screwless	CJ1W-DA041 (SL)
4	High-speed analogue output	1 to 5 V, 0 to 10 V, -10 to 10 V	1/40,000	0.3%	35 µs/4 points	31 mm	Direct conversion (CJ2H special instruction)	M3	CJ1W-DA042V
8	Voltage output	0 to 5 V, 0 to 10 V, -10 to 10 V, 1 to 5 V	1/8,000	0.3%	250 µs/point	31 mm	Offset/gain adjustment, output hold	M3	CJ1W-DA08V
								Screwless	CJ1W-DA08V (SL)
8	Current output	4 to 20 mA	1/8,000	0.5%	250 µs/point	31 mm	Offset/gain adjustment, output hold	M3	CJ1W-DA08C
								Screwless	CJ1W-DA08C (SL)
4 + 2	Analogue in + output	1 to 5 V, 0 to 10 V, -10 to 10 V, 1 to 5 V, 4 to 20 mA	1/8,000	in: 0.2% out: 0.3%	1 ms/point	31 mm	Offset/gain adjustment, scaling, peak hold, moving average, alarms, output hold	M3	CJ1W-MAD42
								Screwless	CJ1W-MAD42 (SL)
4	Universal analogue input	DC voltage, DC current, Thermocouple, Pt100/Pt1000, potentiometer	1/256000	0.05%	60 ms/4 points	31 mm	All inputs individually isolated, configurable alarms, maintenance functions, user-defined scaling, zero/span adjustment	M3	CJ1W-PH41U
2	Process input	4 to 20 mA 0 to 20 mA 0 to 10 V, -10 to 10 V, 0 to 5 V, -5 to 5 V, 1 to 5 V, 0 to 1.25 V, 1.25 to 1.25 V	1/64,000	0.05%	5 ms/point	31 mm	Configurable alarms, maintenance functions, user-defined scaling, zero/span adjustment, square root, totaliser	M3	CJ1W-PDC15

PLC

1

OMRON

CJ-Series analogue I/O and control units

Points	Type	Ranges	Resolution	Accuracy [*1]	Conversion time	Width	Remarks	Connection type	Order code
2	Thermocouple input	B, E, J, K, L, N, R, S, T, U, WRe5-26, PLII, -100 to 100 mV	1/64,000	0.05%	5 ms/point	31 mm	Configurable alarms, maintenance functions	M3	CJ1W-PTS15
2	Resistance thermometer input	Pt50, Pt100, JPt100, Ni508.4	1/64,000	0.05%	5 ms/point	31 mm	Configurable alarms, maintenance functions	M3	CJ1W-PTS16
4	Thermocouple Input	B, J, K, L, R, S, T	0.1°C	0.3%	62.5 ms/point	31 mm	4 configurable alarm outputs	M3	CJ1W-PTS51
4	Resistance thermometer input	Pt100, JPt100	0.1°C	0.3%	62.5 ms/point	31 mm	4 configurable alarm outputs	M3	CJ1W-PTS52
6	Thermocouple input	K-type (-200 to 1,300°C) J-Type (-100 to 850°C)	0.1°C	0.5%	40 ms/point	31 mm	Basic I/O unit, setup by DIP switches, adjustable filtering 10/50/60 Hz	M3	CJ1W-TS561
								Screwless	CJ1W-TS561 (SL)
6	Resistance thermometer input	Pt100 (-200 to 650°C) Pt1000 (-200 to 650°C)	0.1°C	0.5%	40 ms/point	31 mm	Basic I/O unit, setup by DIP switches, adjustable filtering 10/50/60 Hz	M3	CJ1W-TS562
								Screwless	CJ1W-TS562 (SL)
4	Temperature control loops, Thermocouple	B, J, K, L, R, S, T	0.1°C	0.3%	500 ms total	31 mm	4 control outputs: PNP open collector, 100 mA max.	M3	CJ1W-TC002
2	Temperature control loops, Thermocouple	B, J, K, L, R, S, T	0.1°C	0.3%	500 ms total	31 mm	2 control outputs: PNP open collector, 100 mA max., 2 current transformer inputs for heater burnout detection.	M3	CJ1W-TC004
4	Temperature control loops, RTD	Pt100, JPt100	0.1°C	0.3%	500 ms total	31 mm	4 control outputs: PNP open collector, 100 mA max.	M3	CJ1W-TC102
2	Temperature control loops, RTD	Pt100, JPt100	0.1°C	0.3%	500 ms total	31 mm	2 control outputs: PNP open collector, 100 mA max., 2 current transformer inputs for heater burnout detection.	M3	CJ1W-TC104
1	Weighing unit	10 V DC, max. four 350Ω load cells	24 bit, 0.3µV/ count	Linearity error: <0.01% FS	2 ms	31 mm	Self-contained unit designed for feed weighing, discharge weighing, hopper scales, packing scales, bag filling, etc. Made by Unipulse Co.	M3	CJ1W-F159

[*1] Accuracy for Voltage and Current Inputs/Outputs as percentage of full scale and typical value at 25°C ambient temperature (Consult the operation manual for details)
Accuracy for Temperature Inputs/Outputs as percentage of process value and typical value at 25°C ambient temperature (Consult the operation manual for details)

Note: All Analogue I/O units are designated as Special I/O units, except TS561/TS562, which are Basic I/O units (cannot be used with CP1H).

Accessories

Description	Connection type	Order code
Replacement 18-point screwless terminal blocks for I/O units, pack of 5 pcs.	Screwless	CJ-WM01-18P-5
Replacement 18-point screw terminal blocks for I/O units, pack of 5 pcs.	M3	CJ-OD507-18P-5

OMRON

CJ-Series motion/position control units

Modular PLC
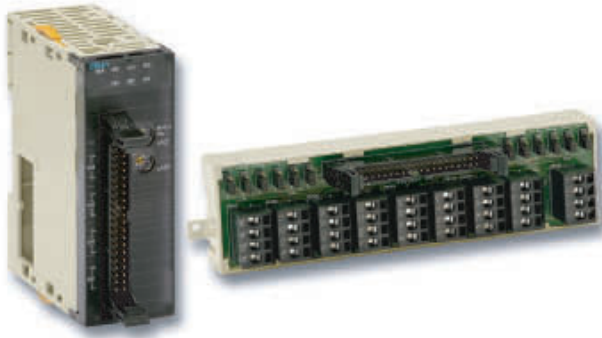
Add motion control to any CJ-Series PLC

From simple position measurement to multi-axis synchronised motion control, the CJ-Series offers a full range of units:

- Counter units gather position information from SSI- or incremental encoders. Actual positions are compared with internally stored target values.
- CJ2M CPU Units have dedicated positioning functions that can be used by installing up to 2 Pulse I/O option modules.
- Position Control units are used for point-to-point positioning with servo drives or stepper motors. Target data and acceleration/deceleration curves can be adjusted on-the-fly.
- Position- and Motion Control units equipped with EtherCAT or MECHATROLINK-II interface can control multiple drives through a single high-speed link. Message routing through multiple communication layers allows the attached drives to be configured from any point in the control network.

Ordering information

Channels/ Axes	Type	Signal type	Unit class	Width	Remarks	Connection type	Order code
2	SSI inputs (absolute position data)	Synchronous serial protocol	Special I/O unit	31 mm	Baud rate, encoding type, data length, etc. can be set per channel	M3 screw	CJ1W-CTS21-E
2	500 kHz Counter	24 V, line driver	Special I/O unit	31 mm	2 configurable digital inputs + outputs	1 x Fujitsu (40 pt)	CJ1W-CT021
4	100 kHz Counter	Line driver, 24 V via terminal block	Special I/O unit	31 mm	Target values trigger interrupt to CPU	1 x MIL (40 pt)	CJ1W-CTL41-E
1	DC Motor Control unit	PWM (24 V/4 A)	Special I/O unit	31 mm	4 configurable digital inputs + 50 kHz counter input	3 x Screwless	CJ1W-DCM11-E
2	Pulse I/O option module for CJ2M CPU	24 V, line driver	CPU Option Module	20 mm	100 kpps encoder inputs and pulse outputs, NPN (sinking), interrupt / fast response inputs	1 x MIL (40 pt)	CJ2M-MD211
2	Pulse I/O option module for CJ2M CPU	24 V, line driver	CPU Option Module	20 mm	100 kpps encoder inputs and pulse outputs, PNP (sourcing), interrupt / fast response inputs	1 x MIL (40 pt)	CJ2M-MD212
1	Position Control unit	24 V open collector	Special I/O unit	31 mm	500 kpps pulse outputs, inputs for origin, limit switches, stop, interrupt	1 x Fujitsu (40 pt)	CJ1W-NC113
2	Position Control unit	24 V open collector	Special I/O unit	31 mm	500 kpps pulse outputs, inputs for origin, limit switches, stop, interrupt	1 x Fujitsu (40 pt)	CJ1W-NC213
4	Position Control unit	24 V open collector	Special I/O unit	31 mm	500 kpps pulse outputs, inputs for origin, limit switches, stop, interrupt	2 x Fujitsu (40 pt)	CJ1W-NC413
2	Position Control Unit High speed type	24 V open collector	Special I/O Unit	51 mm	500 kpps pulse outputs, built-in feedback pulse counters, synchronous multi-axis control	MIL	CJ1W-NC214
4	Position Control Unit High speed type	24 V open collector	Special I/O Unit	62 mm	500 kpps pulse outputs, built-in feedback pulse counters, synchronous multi-axis control	MIL	CJ1W-NC414
2	Position Control Unit	EtherCAT	CPU bus unit	31 mm	Position, speed and torque control, access to all drive parameters	RJ45	CJ1W-NC281
4	Position Control Unit	EtherCAT	CPU bus unit	31 mm	Position, speed and torque control, access to all drive parameters	RJ45	CJ1W-NC481
4	Position Control Unit	EtherCAT	CPU bus unit	31 mm	Position, speed and torque control, access to all drive parameters, supports up to 64 general purpose EtherCAT slaves	RJ45	CJ1W-NC482
8	Position Control Unit	EtherCAT	CPU bus unit	31 mm	Position, speed and torque control, access to all drive parameters	RJ45	CJ1W-NC881
8	Position Control Unit	EtherCAT	CPU bus unit	31 mm	Position, speed and torque control, access to all drive parameters, supports up to 64 general purpose EtherCAT slaves	RJ45	CJ1W-NC882
16	Position Control Unit	EtherCAT	CPU bus unit	31 mm	Position, speed and torque control, access to all drive parameters	RJ45	CJ1W-NCF81
2	Position Control Unit	MECHATROLINK-II	CPU bus unit	31 mm	Position, speed and torque control, access to all drive parameters	ML-II	CJ1W-NC271
4	Position Control Unit	MECHATROLINK-II	CPU bus unit	31 mm	Position, speed and torque control, access to all drive parameters	ML-II	CJ1W-NC471
16	Position Control unit	MECHATROLINK-II	CPU bus unit	31 mm	Position, speed and torque control, access to all drive parameters	ML-II	CJ1W-NCF71
30	Advanced Motion Control unit	MECHATROLINK-II, Encoder I/O, digital I/O	CPU bus unit	49 mm	Trajexia Motion Controller on the CJ-series	ML-II, 9-pin D-Sub, screwless push-in	CJ1W-MCH72

Note: Line driver signal type units also available.

Accessories

Description	Connection type	Order code
General purpose I/O terminal block (40×M3 screw)	MIL (40 pt)	XW2D-40G6
Screwless terminal block for connecting 24 V or Line driver encoders to CJ1W-CTL41-E	MIL (40 pt.) to 32 pt. screwless clamp	XW2G-40G7-E
General purpose I/O connection cable for I/O units with 40-pt. Fujitsu connector (_ _ _ = length in cm)	Fujitsu (40 pt.) to MIL (40 pt.)	XW2Z-_ _ _ B
General purpose I/O connection cable for I/O units with 40-pt. MIL connector (_ _ _ = length in cm)	2 x MIL (40 pt)	XW2Z-_ _ _ K
Servo relay unit 1-Axis position control unit	–	XW2B-20J6-1B
Servo relay unit 2-Axes position control unit	–	XW2B-40J6-2B
Cable connecting servo relay unit to Position control unit CJ1W-NC113, cable length 1 m. For Accurax G5 servo drives.	–	XW2Z-100J-A14
Cable connecting servo relay unit to Position control unit CJ1W-NC213/413, cable length 1 m. For Accurax G5 servo drives.	–	XW2Z-100J-A15
Cable connecting servo relay unit to Position control unit CJ1W-NC113, cable length 1 m. For SmartStep 2 servo drives.	–	XW2Z-100J-A14
Cable connecting servo relay unit to Position control unit CJ1W-NC213/413, cable length 1 m. For SmartStep 2 servo drives.	–	XW2Z-100J-A15
Cable connecting servo relay unit to Position control unit CJ1W-NC133, cable length 1 m. For Accurax G5 servo drives.	–	XW2Z-100J-A18
Cable connecting servo relay unit to Position control unit CJ1W-NC233/433, cable length 1 m. For Accurax G5 servo drives.	–	XW2Z-100J-A19
Cable connecting servo relay unit to Position control unit CJ1W-NC133, cable length 1 m. For SmartStep 2 servo drives.	–	XW2Z-100J-A18
Cable connecting servo relay unit to Position control unit CJ1W-NC233/433, cable length 1 m. For SmartStep 2 servo drives.	–	XW2Z-100J-A19
Cable connecting servo relay unit to Accurax G5 servo drives, cable length 1 m.	–	XW2Z-100J-B25
Cable connecting servo relay unit to SmartStep 2 servo drive, cable length 1 m.	–	XW2Z-100J-B29

CJ-Series communication units

Open to any communication

The CJ-Series offers both standardised open networks interfaces, and cost-efficient high-speed proprietary network links. Datalinks between PLCs, or to higher-level information systems can be made using serial or Ethernet links, or the easy-to-use controller link network.

Omron supports the 2 major field networks, DeviceNet and PROFIBUS-DP. For high-speed field I/O, Omron's own CompoBus/S offers an unsurpassed ease of installation. Fully user-configurable serial and CAN-based communication can be used to emulate a variety of application-specific protocols. EtherNet/IP units provide data link functions to share large amounts of data between PLCs. The new PROFINET-IO controller together with the SmartSlice modular I/O system offers Ethernet based I/O with controller- and network redundancy.

Ordering information

Type	Ports	Data transfer	Protocols	Unit class	Width	Connection type	Order code
Serial	2 x RS-232C		CompoWay/F, Host link, NT link, Modbus, User-defined	CPU bus unit	31 mm	9-pin D-Sub	CJ1W-SCU21-V1
Serial	2 x RS-232C	High-speed	CompoWay/F, Host link, NT link, Modbus, User-defined	CPU bus unit	31 mm	9-pin D-Sub	CJ1W-SCU22
Serial	2 x RS-422A/RS-485		CompoWay/F, Host link, NT link, Modbus, User-defined	CPU bus unit	31 mm	9-pin D-Sub	CJ1W-SCU31-V1
Serial	2 x RS-422A/RS-485	High-speed	CompoWay/F, Host link, NT link, Modbus, User-defined	CPU bus unit	31 mm	9-pin D-Sub	CJ1W-SCU32
Serial	1 x RS-232C + 1 x RS-422/RS-485		CompoWay/F, Host link, NT link, Modbus, User-defined	CPU bus unit	31 mm	9-pin D-Sub	CJ1W-SCU41-V1
Serial	1 x RS-232C + 1 x RS-422/RS-485	High-speed	CompoWay/F, Host link, NT link, Modbus, User-defined	CPU bus unit	31 mm	9-pin D-Sub	CJ1W-SCU42
Ethernet	1 x 100 Base-Tx		UDP, TCP/IP, FTP server,SMTP (e-mail), SNTP (time adjust), FINS routing, socket service	CPU bus unit	31 mm	RJ45	CJ1W-ETN21
EtherNet/IP	1 x 100 Base-Tx		EtherNet/IP, UDP, TCP/IP, FTP server, SNTP, SNMP	CPU Bus unit	31 mm	RJ45	CJ1W-EIP21
Controller link	2-wire twisted pair		Omron proprietary	CPU bus unit	31 mm	2-wire screw + GND	CJ1W-CLK21-V1
DeviceNet	1 x CAN		DeviceNet	CPU bus unit	31 mm	5-p detachable	CJ1W-DRM21
PROFIBUS-DP	1 x RS-485 (Master)		DP, DPV1	CPU bus unit	31 mm	9-pin D-Sub	CJ1W-PRM21
PROFIBUS-DP	1 x RS-485 (Slave)		DP	Special I/O unit	31 mm	9-pin D-Sub	CJ1W-PRT21
PROFINET-IO	1 x 100 Base-Tx		PROFINET-IO Controller, FINS/UDP	CPU Bus unit	31 mm	RJ45	CJ1W-PNT21
CAN	1 x CAN		User-defined, supports 11-bit and 29-bit identifiers	CPU bus unit	31 mm	5-p detachable	CJ1W-CORT21
CompoNet	4-wire, data + power to slaves (Master)		CompoNet (CIP-based)	Special I/O unit	31 mm	4-p detachable IDC or screw	CJ1W-CRM21
CompoBus/S	2-wire (Master)		Omron proprietary	Special I/O unit	20 mm	2-wire screw + 2-wire power	CJ1W-SRM21

Accessories

Description	Connection type	Order code
RS-232C to RS-422/RS-485 signal converter. Mounts directly on serial port.	9-pin D-sub to screw clamp terminals	CJ1W-CIF11
Controller link PCI board with support software	PCI, wired CLK	3G8F7-CLK21-EV1
Controller link repeater unit (wire to wire)	Screw - Screw	CS1W-RPT01
Controller link repeater unit (wire to HPCF fiber)	Screw - HPCF connector	CS1W-RPT02
Controller link repeater unit (wire to graded-index glass fiber)	Screw - ST connector	CS1W-RPT03

CS-Series CPU units

Rack PLC

Fast and powerful CPUs for any task

Omron's CS1-series CPUs are available in two processor speeds, each in various memory capacities. Besides the basic CPU models, versions are available for dual redundant operation, supporting I/O hot-swapping. All CPUs have one dedicated board slot with a direct CPU-bus connection, in which a serial communication board or a loop control board can be mounted. All CPU units support IEC61131-3 structured text and ladder language.

Omron's extensive function block library helps to reduce your programming effort, while you can create your own function blocks to suit your specific needs.

Ordering information

Max. Digital I/O points	Program capacity	Data memory capacity	Logic execution speed	Max. I/O units	Additional functions	Order code
5120	250K steps	448K words	20 ns	80	–	CS1H-CPU67H
				71	Supports duplex power supply and I/O hot-swapping	CS1D-CPU67S
				68	CPU for full dual-redundancy	CS1D-CPU67H
					CPU for full dual-redundancy, with loop control board	CS1D-CPU67P
	120K steps	256K words		80	–	CS1H-CPU66H
	60K steps	128K words		80	–	CS1H-CPU65H
				71	Supports duplex power supply and I/O hot-swapping	CS1D-CPU65S
				68	CPU for full dual-redundancy	CS1D-CPU65H
					CPU for full dual-redundancy, with loop control board	CS1D-CPU65P
	30K steps	64K words		80	–	CS1H-CPU64H
	20K steps				–	CS1H-CPU63H
	60K steps		40 ns		–	CS1G-CPU45H
1280	30K steps			40	–	CS1G-CPU44H
				35	Supports duplex power supply and I/O hot-swapping	CS1D-CPU44S
960	20K steps			30	–	CS1G-CPU43H
	10K steps				–	CS1G-CPU42H
				26	Supports duplex power supply and I/O hot-swapping	CS1D-CPU42S

Accessories

Description	Remarks	Order code
High-speed data collection and storage unit, with CF card slot and Ethernet port	CPU bus unit	CS1W-SPU01-V2
High-speed data collection and storage unit, with CF card slot and 2 Ethernet ports	CPU bus unit	CS1W-SPU02-V2
Duplex unit, required for CS1D-CPU6_H systems	–	CS1D-DPL01
Serial communication option board, 2 x RS-232C	–	CS1W-SCB21-V1
Serial communication option board, 1 x RS-232C + 1 x RS422/RS-485	–	CS1W-SCB41-V1
Loop control option board	50 control blocks max.	CS1W-LCB01
Loop control option board	300 control blocks max.	CS1W-LCB05
Replacement battery set, for all CS1 CPUs	–	CS1W-BAT01
Compact Flash memory card, 128 MB, for all models (not required for operation)	Industrial grade	HMC-EF183
Compact Flash memory card, 256 MB, for all models (not required for operation)	Industrial grade	HMC-EF283
Compact Flash memory card, 512 MB, for all models (not required for operation)	Industrial grade	HMC-EF583
Compact Flash PC-Card adapter	–	HMC-AP001
CX-One, integrated software for programming and configuration of all Omron control system components	–	CX-ONE-AL__C-E
Connection cable, D-Sub 9-pin PC serial port to PLC peripheral port	length: 2.0 m	CS1W-CN226
Connection cable, D-Sub 9-pin PC serial port to PLC peripheral port	length: 6.0 m	CS1W-CN626
USB to serial conversion cable	–	CS1W-CIF31

OMRON
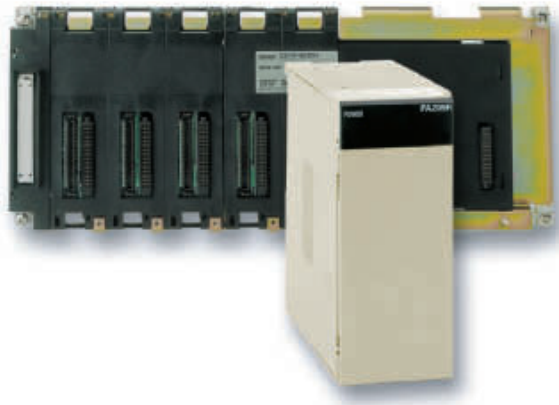
Expand with up to 7 racks

CS1 systems can operate on 24 VDC power supply, or on 100-240 VAC mains. For small-scale systems with mainly digital I/O a low cost, small capacity power supply can be used. For systems with many analogue I/Os and control/communication units, it may be necessary to use a larger power supply unit.

PLC racks are available in several sizes, from 2 to 10 slots wide. Special backplanes are required for duplex systems. Depending on the CPU type, up to 7 expansions can be connected to the CPU rack, giving a total capacity of 80 I/O units. The total length of the expansion cables of one system may be up to 12 m.

Ordering information

Power supplies

Input range	Power consumption	Output capacity 5 VDC	Output capacity 26 VDC	Max. output power	Extra functions	Order code
19.2 to 28.8 VDC	40 W max.	6.6 A	0.62 A	30 W	–	C200HW-PD024
		4.3 A	0.56 A	28 W	Power supply for dual-redundant system	CS1D-PD024
	55 VA max.	5.3 A	1.3 A	40 W	–	C200HW-PD025
					Power supply for dual-redundant system	CS1D-PD025
85 to 264 VAC 50/60 Hz	120 VA max.	4.6 A	0.62 A	30 W	Maintenance status display	C200HW-PA204C
85 to 132 VAC, 170 to 264 VAC, 50/60 Hz					–	C200HW-PA204
					Service output 24 VDC, 0.8 A	C200HW-PA204S
					Run status output (SPST relay)	C200HW-PA204R
	180 VA max.	9.0 A	1.3 A	45 W	Run status output (SPST relay)	C200HW-PA209R
	150 VA max.	7.0 A	1.3 A	35 W	Power supply for dual-redundant system	CS1D-PA207R

Specifications

Type	Slots	Expansion connector	Width	Special functions	Order code
CPU backplane	2	No	200 mm	–	CS1W-BC023
CPU backplane	3	Yes	260 mm	–	CS1W-BC033
CPU backplane	5	Yes	330 mm	–	CS1W-BC053
CPU backplane	8	Yes	435 mm	–	CS1W-BC083
CPU backplane	10	Yes	505 mm	–	CS1W-BC103
Expansion backplane	3	Yes	260 mm	–	CS1W-BI033
Expansion backplane	5	Yes	330 mm	–	CS1W-BI053
Expansion backplane	8	Yes	435 mm	–	CS1W-BI083
Expansion backplane	10	Yes	505 mm	–	CS1W-BI103
CPU backplane	5	Yes	505 mm	For Duplex CPU + Power supplies	CS1D-BC052
CPU backplane	8	Yes	505 mm	For Duplex Power supplies	CS1D-BC082S
Expansion backplane	9	Yes	505 mm	For Duplex Power supplies	CS1D-BI092

Type	Remarks	Order code
I/O Expansion cable to connect CS1 CPU backplane or Expansion backplane to next Expansion backplane.	0.3 m	CS1W-CN313
	0.7 m	CS1W-CN713
	2.0 m	CS1W-CN223
	3.0 m	CS1W-CN323
	5.0 m	CS1W-CN523
	10.0 m	CS1W-CN133
	12.0 m	CS1W-CN133-B2

CS-Series digital I/O units

Up to 96 I/O points per unit – input, output or mixed

Digital I/O units serve as the PLC's interface to achieve fast, reliable sequence control. A full range of units, from high-speed DC inputs to relay outputs, let you adapt CS1 to your needs.

CS1 units are available with various I/O densities and connection technologies. Up to 16 I/O points can be wired to units with detachable M3 screw terminals directly. High-density 32- and 64- point I/O units are equipped with standard 40-pin connectors. Prefabricated cables and wiring terminals are available for easy interfacing to high-density I/O units.

Ordering information

Points	Type	Rated voltage	Rated current	Remarks	Connection type	Order code [1]
16	AC or DC input	120 VAC or VDC	10 mA	–	M3	CS1W-IA111
16	AC input	240 VAC	10 mA	–	M3	CS1W-IA211
16	DC input	24 VDC	7 mA	–	M3	CS1W-ID211
16	DC input	24 VDC	7 mA	Inputs start interrupt tasks in PLC program	M3	CS1W-INT01
16	DC input	24 VDC	7 mA	Latches pulses down to 50 µs pulse width	M3	CS1W-IDP01
32	DC input	24 VDC	6 mA	–	1×40 pt Fujitsu	CS1W-ID231
64	DC input	24 VDC	6 mA	–	2×40 pt Fujitsu	CS1W-ID261
96	DC input	24 VDC	5 mA	–	2×56 pt Fujitsu	CS1W-ID291
8	Triac output	250 VAC	1.2 A	–	M3	CS1W-0A201
16	Triac output	250 VAC	0.5 A	–	M3	CS1W-0A211
8	Relay output	250 VAC	2.0 A	–	M3	CS1W-0C201
16	Relay output	250 VAC	2.0 A	–	M3	CS1W-0C211
16	DC output (sink)	12 to 24 VDC	0.5 A	–	M3	CS1W-0D211
16	DC output (source)	24 VDC	0.5 A	With short-circuit protection, alarm	M3	CS1W-0D212
32	DC output (sink)	12 to 24 VDC	0.5 A	–	1×40 pt Fujitsu	CS1W-0D231
32	DC output (source)	24 VDC	0.5 A	With short-circuit protection, alarm	1×40 pt Fujitsu	CS1W-0D232
64	DC output (sink)	12 to 24 VDC	0.3 A	–	2×40 pt Fujitsu	CS1W-0D261
64	DC output (source)	24 VDC	0.3 A	With short-circuit protection, alarm	2×40 pt Fujitsu	CS1W-0D262
96	DC output (sink)	12 to 24 VDC	0.1 A	–	2×56 pt Fujitsu	CS1W-0D291
96	DC output (source)	24 VDC	0.1 A	–	2×56 pt Fujitsu	CS1W-0D292
32+32	DC output (sink)	12 to 24 VDC	0.3 A	–	2×40 pt Fujitsu	CS1W-MD261
32+32	DC in+out (source)	24 VDC	0.3 A	With short-circuit protection, alarm	2×40 pt Fujitsu	CS1W-MD262
48+48	DC output (sink)	12 to 24 VDC	0.1 A	–	2×56 pt Fujitsu	CS1W-MD291
48+48	DC in+out (source)	12 to 24 VDC	0.1 A	–	2×56 pt Fujitsu	CS1W-MD292

[1] C200H I/O units can also be mounted, except on CS1D systems.

Note: All Digital I/O units are designated as Basic I/O units.

OMRON

From basic analogue I/O to process control

CS1 offers a wide choice of analogue input units, fit for any application, from low-speed, multi-channel temperature measurement to high-speed, high-accuracy data acquisition. Analogue outputs can be used for accurate control or external indication.

Advanced units with built-in scaling, filtering and alarm functions reduce the need for complex PLC programming. High-accuracy process I/O units support an extensive range of sensors, for fast and accurate data acquisition. All process and temperature I/O units provide isolation between all individual channels.

PLC

1

Ordering information

Points	Type	Ranges	Resolution	Accuracy[1]		Conversion time	Remarks	Connection type	Order code
4	Analogue input	0 to 5 V,	1/8,000	V:	0.2% of PV	250 µs/point	Offset/gain adjustment, peak hold, moving average, alarms	M3	CS1W-AD041-V1
8	Analogue input	0 to 10 V,		I:	0.4% of PV			M3	CS1W-AD081-V1
18	Analogue input	-10 to 10 V, 1 to 5 V, 4 to 20 mA			0.2% of PV			2 x MIL (34p.)	CS1W-AD161
4	Analogue output	0 to 5 V, 0 to 10 V, -10 to 10 V, 1 to 5 V, 4 to 20 mA	1/4,000	V: I:	0.3% of PV 0.5% of PV	1 ms/point	Offset/gain adjustment	M3	CS1W-DA041
8	Voltage output	0 to 5 V, 0 to 10 V, -10 to 10 V, 1 to 5 V			0.3% of PV		Offset/gain adjustment, output hold	M3	CS1W-DA08V
8	Current output	4 to 20 mA			0.5% of PV			M3	CS1W-DA08C
4 + 4	Analogue in + output	0 to 5 V, 0 to 10 V, -10 to 10 V, 1 to 5 V (4 to 20 mA input)	1/8,000	V in: I in: out:	0.2% of PV 0.4% of PV 0.3% of PV	1 ms/point	Offset/gain adjustment, scaling, peak hold, moving average, alarms, output hold	M3	CS1W-MAD44
4	Process input	4 to 20 mA, 0 to 20 mA, 0 to 10 V, -10 to 10 V, 0 to 5 V, -5 to 5 V, 1 to 5 V, 1 to 1.25 V, -1.25 to 1.25 V	1/64,000		0.05% of PV	5 ms/point	Configurable alarms, maintenance functions, user-defined scaling, zero/span adjustment, square root, totaliser.	M3	CS1W-PDC11
8	Process input	-10 to 10 V, 0 to 5 V, 1 to 5 V, 4 to 20 mA	1/16,000		0.3% of PV	62.5 ms/point	Configurable alarms, zero/span adjustment, square root	M3	CS1W-PDC55
4	Thermocouple input	B, E, J, K, L, N, R, S, T, U, WRe5-26, PLII, -100 to 100 mV	1/64,000		0.05% of PV	5 ms/point	Configurable alarms (absolute + rate-of-change), peak hold, maintenance functions	M3	CS1W-PTS11
4	Resistance thermometer input	Pt50, Pt100 JPt100, Ni508.4	1/64,000		0.05% of PV	5 ms/point	Configurable alarms (absolute + rate-of-change), peak hold, maintenance functions	M3	CS1W-PTS12
4	Thermocouple input	B, J, K, L, R, S, T	0.1°C		0.3% of PV	62.5 ms/point	4 configurable alarm outputs	M3	CS1W-PTS51
4	Resistance thermometer input	Pt100, JPt100	0.1°C		0.3% of PV	62.5 ms/point	4 configurable alarm outputs	M3	CS1W-PTS52
8	Thermocouple input	B, J, K, L, R,S, T	0.1°C		0.3% of PV	31.2 ms/point	Configurable alarms per channel	M3	CS1W-PTS55
8	Resistance thermometer input	Pt100, JPt100	0.1°C		0.3% of PV	31.2 ms/point	Configurable alarms per channel	M3	CS1W-PTS56
4	2-Wire transmitter input	1 to 5 V, 4 to 20 mA	1/4,096		0.2% of FS	25 ms/point	Built-in power supply for transmitter, configurable alarms, square root, rate-of-change, etc.	M3	CS1W-PTW01
8	Power transducer input	-1 to 1 mA, 0 to 1 mA	1/4,096		0.2% of FS	25 ms/point	Inrush current limiter, configurable alarms, averaging, etc.	M3	CS1W-PTR01
8	Power transducer input	-100 to 100 mV, 0 to 100 mV	1/4,096		0.2% of FS	25 ms/point	Inrush current limiter, configurable alarms, averaging, etc.	M3	CS1W-PTR02
4	Pulse rate input	20000 pps, voltage, open collector, contact	up to 1/32,000		–	25 ms/point	Averaging, totaliser	M3	CS1W-PPS01

Points	Type	Ranges	Resolution	Accuracy[1]	Conversion time	Remarks	Connection type	Order code
4	Isolated control output	1 to 5 V, 4 to 20 mA	1/4,000	I: 0.1% of FS V: 0.2% of FS	25 ms/point	Output readback, high/low/rate limiting, disconnection alarm, zero/span adjustment	M3	CS1W-PMV01
4	Isolated control output	-10 to 10 V, 0 to 10 V, -5 to 5 V, 0 to 5 V, -1 to 1 V, 0 to 1 V	1/4,000	0.1% of FS	10 ms/point	High/low/rate limiting, output hold, zero/span adjustment	M3	CS1W-PMV02

[1] Accuracy for Voltage and Current Inputs/Outputs as percentage of full scale and typical value at 25°C ambient temperature (Consult the operation manual for details)
Accuracy for Temperature Inputs/Outputs as percentage of process value and typical value at 25°C ambient temperature (Consult the operation manual for details)

Note: All analogue I/O units are designated as special I/O units

Add motion control to any CS1 PLC

From simple position measurement to multi-axis synchronised motion control, CS1 offers a full range of units:

- Counter units gather position information from SSI- or incremental encoders. Actual positions are compared with internally stored target values.
- Position control units are used for point-to-point positioning with servo drives or stepper motors. Target data and acceleration/deceleration curves can be adjusted on-the-fly.
- Position- and motion control units equipped with MECHATROLINK-II interface can control multiple drives through a single high-speed link. Message routing through multiple communication layers allows the attached drives to be configured from any point in the control network.

PLC

1

Ordering information

Channels/ Axes	Type	Signal type	Unit class	Remarks	Connection type	Order code
2	SSI inputs (absolute position data)	Synchronous serial protocol	Special I/O unit	Baud rate, encoding type, data length, etc. can be set per channel 2 digital outputs, NPN/PNP selectable.	M3 screw	CS1W-CTS21
2	500 kHz Counter	24 V, 12V, line driver	Special I/O unit	4 configurable digital inputs +	1 x Fujitsu (40 pt)	CS1W-CT021
4				4 configurable digital outputs Target values trigger interrupt to CPU	2 x Fujitsu (40 pt)	CS1W-CT041
1	Position control unit	24V open collector	Special I/O unit	500 kpps pulse outputs, inputs for origin, limit switches, stop, interrupt	1 x Fujitsu (40 pt)	CS1W-NC113
2	Position control unit	24V open collector	Special I/O unit	500 kpps pulse outputs, inputs for origin, limit switches, stop, interrupt	1 x Fujitsu (40 pt)	CS1W-NC213
4	Position control unit	24V open collector	Special I/O unit	500 kpps pulse outputs, inputs for origin, limit switches, stop, interrupt	2 x Fujitsu (40 pt)	CS1W-NC413
1	Position control unit	Line driver	Special I/O unit	500 kpps pulse outputs, inputs for origin, limit switches, stop, interrupt	1 x Fujitsu (40 pt)	CS1W-NC133
2	Position control unit	Line driver	Special I/O unit	500 kpps pulse outputs, inputs for origin, limit switches, stop, interrupt	1 x Fujitsu (40 pt)	CS1W-NC233
4	Position control unit	Line driver	Special I/O unit	500 kpps pulse outputs, inputs for origin, limit switches, stop, interrupt	2 x Fujitsu (40 pt)	CS1W-NC433
2	Motion control unit	Analogue	Special I/O unit	Closed loop with automatic trapezoid or S-curve acceleration/deceleration	Snap-on connectors (3M)	CS1W-MC221-V1
4	Motion control unit	Analogue	Special I/O unit	Closed loop with automatic trapezoid or S-curve acceleration/deceleration	Snap-on connectors (3M)	CS1W-MC421-V1

Accessories

Description	Connection type	Order code
General purpose I/O terminal block (40×M3 screw)	MIL (40 pt)	XW2D-40G6
General purpose I/O connection cable for I/O units with 40-pt. Fujitsu connector (_ _ _ = length in cm)	Fujitsu (40 pt.) to MIL (40 pt.)	XW2Z-_ _ _ B
Servo relay unit 1-Axis position control unit	–	XW2B-20J6-1B
Servo relay unit 2-Axes position control unit	–	XW2B-40J6-2B
Cable connecting servo relay unit to Position control unit CS1W-NC113, cable length 1 m. For Accurax G5 servo drives.	–	XW2Z-100J-A6
Cable connecting servo relay unit to Position control unit CS1W-NC213/413, cable length 1 m. For Accurax G5 servo drives.	–	XW2Z-100J-A7
Cable connecting servo relay unit to Position control unit CS1W-NC113, cable length 1 m. For SmartStep 2 servo drives.	–	XW2Z-100J-A6
Cable connecting servo relay unit to Position control unit CS1W-NC213/413, cable length 1 m. For SmartStep 2 servo drives.	–	XW2Z-100J-A7
Cable connecting servo relay unit to Position control unit CS1W-NC133, cable length 1 m. For Accurax G5 servo drives.	–	XW2Z-100J-A10
Cable connecting servo relay unit to Position control unit CS1W-NC233/433, cable length 1 m. Accurax G5 servo drives.	–	XW2Z-100J-A11
Cable connecting servo relay unit to Position control unit CS1W-NC133, cable length 1 m. For SmartStep 2 servo drives.	–	XW2Z-100J-A10
Cable connecting servo relay unit to Position control unit CS1W-NC233/433, cable length 1 m. For SmartStep 2 servo drives.	–	XW2Z-100J-A11
Cable connecting servo relay unit to Accurax G5 servo drives, cable length 1 m.	–	XW2Z-100J-B25
Cable connecting servo relay unit to SmartStep 2 servo drive, cable length 1 m.	–	XW2Z-100J-B29

OMRON

Open to any communication, standard or user-defined

CS1 provides both standardised open networks interfaces, and cost efficient, high-speed proprietary network links. Datalinks between PLCs, or to higher-level information systems can be made using Serial or Ethernet links, or the easy-to-use Controller Link network.

Omron supports the 2 major field networks, DeviceNet and PROFIBUS-DP. For high-speed field I/O, Omron's own CompoBus/S offers an unsurpassed ease of installation. Fully user-configurable serial and CAN-based communication can be used to emulate a variety of application-specific protocols. EtherNet/IP units provide data link functions to share large amounts of data between PLCs. The PROFINET-IO controller together with the SmartSlice modular I/O system offers ethernet-based I/O with controller- and network redundancy.

Ordering information

Type	Ports	Protocols	Unit class	Remarks	Connection type	Order code
Serial	2 x RS-232C	CompoWay/F, Host Link, NT link, Modbus, User-defined	CPU bus unit	–	9-pin D-Sub	CS1W-SCU21-V1
Serial	2 x RS-232C/RS-485	CompoWay/F, Host Link, NT link, Modbus, User-defined	CPU bus unit	–	9-pin D-Sub	CS1W-SCU31-V1
Serial	2 x RS-232C	CompoWay/F, Host Link, NT link, Modbus, User-defined	CPU option board	–	9-pin D-Sub	CS1W-SCB21-V1
Serial	1 x RS-232C + 1 x RS-422/RS-485	CompoWay/F, Host Link, NT link, Modbus, User-defined	CPU option board	–	9-pin D-Sub	CS1W-SCB41-V1
GP-IB	Master/Slave selectable	GP-IB instrument communication	Special I/O unit	–	GP-IB	CS1W-GPI01
Ethernet	1 x 100 Base-Tx	UDP, TCP/IP, FTP server, SMTP (e-mail), SNTP (time adjust), FINS routing, socket service	CPU bus unit	–	RJ45	CS1W-ETN21
Controller link	2-wire twisted pair	Omron proprietary	CPU bus unit	–	2-wire screw + GND	CS1W-CLK21-V1
	Optical HPCF			–	2 x HPCF connector	CS1W-CLK12-V1
	Optical graded-index fiber			–	4 x ST connector	CS1W-CLK52-V1
EtherNet/IP	1 x 100 Base-Tx	EtherNet/IP, UDP, TCP/IP, FTP server, SNTP, SNMP	CPU Bus unit	31 mm	RJ45	CS1W-EIP21
DeviceNet	1 x CAN	DeviceNet	CPU bus unit	–	5-p detachable	CS1W-DRM21-V1
CompoNet	4-wire, data + power to slaves (Master)	CompoNet (CIP-based)	Special I/O unit	–	4-p detachable IDC or screw	CS1W-CRM21
PROFIBUS-DP	1 x RS-485 (Master)	DP, DPV1	CPU bus unit	–	9-pin D-Sub	CS1W-PRM21
CAN	1 x CAN	CANopen, User-defined	CPU bus unit	–	5-p detachable	CS1W-CORT21
PROFINET IO	1 x 100 Base-Tx PROFINET IO controller	FINS UDP	CPU bus unit	–	RJ45	CS1W-PNT21
PROFIBUS-DP	1 x RS-485 (Slave)	DP	C200H special I/O unit	C200H units cannot be used on CS1D systems	9-pin D-Sub	C200HW-PRT21
CompoBus/S	2-wire (Master)	Omron proprietary	C200H special I/O unit		2-wire screw + 2-wire power	C200HW-SRM21-V1

Accessories

Description	Connection type	Order code
RS-232C to RS-422/RS-485 signal converter. Mounts directly on serial port.	9-pin D-sub to screw clamp terminals	CJ1W-CIF11
Controller link PCI board with support software	PCI, wired CLK	3G8F7-CLK21-EV1
Controller link PCI board with support software	PCI, HPCF connectors	3G8F7-CLK12-EV1
Controller link PCI board with support software	PCI, ST connectors	3G8F7-CLK52-EV1
Controller link repeater unit (wire to wire)	Screw - Screw	CS1W-RPT01
Controller link repeater unit (wire to HPCF fiber)	Screw - HPCF connector	CS1W-RPT02
Controller link repeater unit (wire to graded-index glass fiber)	Screw - ST connector	CS1W-RPT03

OMRON

FA Wireless LAN unit

WE70 utilises spread-spectrum modulation technology based on radio waves to enable communication between devices in a limited area. This gives users the mobility to move around within a broad coverage area and still be connected to the network. The smart roaming function enables high speed roaming therefore moving equipment and mobile object can communicate at high speed.

- Conforms to IEEE 802.11a/b/g.
- Same noise and environment resistance level as a PLC.
- Features Omron's original security system.
- Signals can be observed with LED indicators.
- Conforms to radio wave standards for the USA, Europe, and China.

Ordering information

Area	Type	Model
Europe	Access Point (Master)	WE70-AP-EU
	Client (Slave)	WE70-CL-EU
USA	Access Point (Master)	WE70-AP-US
	Client (Slave)	WE70-CL-US
China	Access Point (Master)	WE70-AP-CN
	Client (Slave)	WE70-CL-CN

Accessories

Type	Specifications	Model
Directional Magnetic-base Antenna	1 set with two Antennas, 2.4 GHz/5 GHz Dual-band compatible	WE70-AT001H

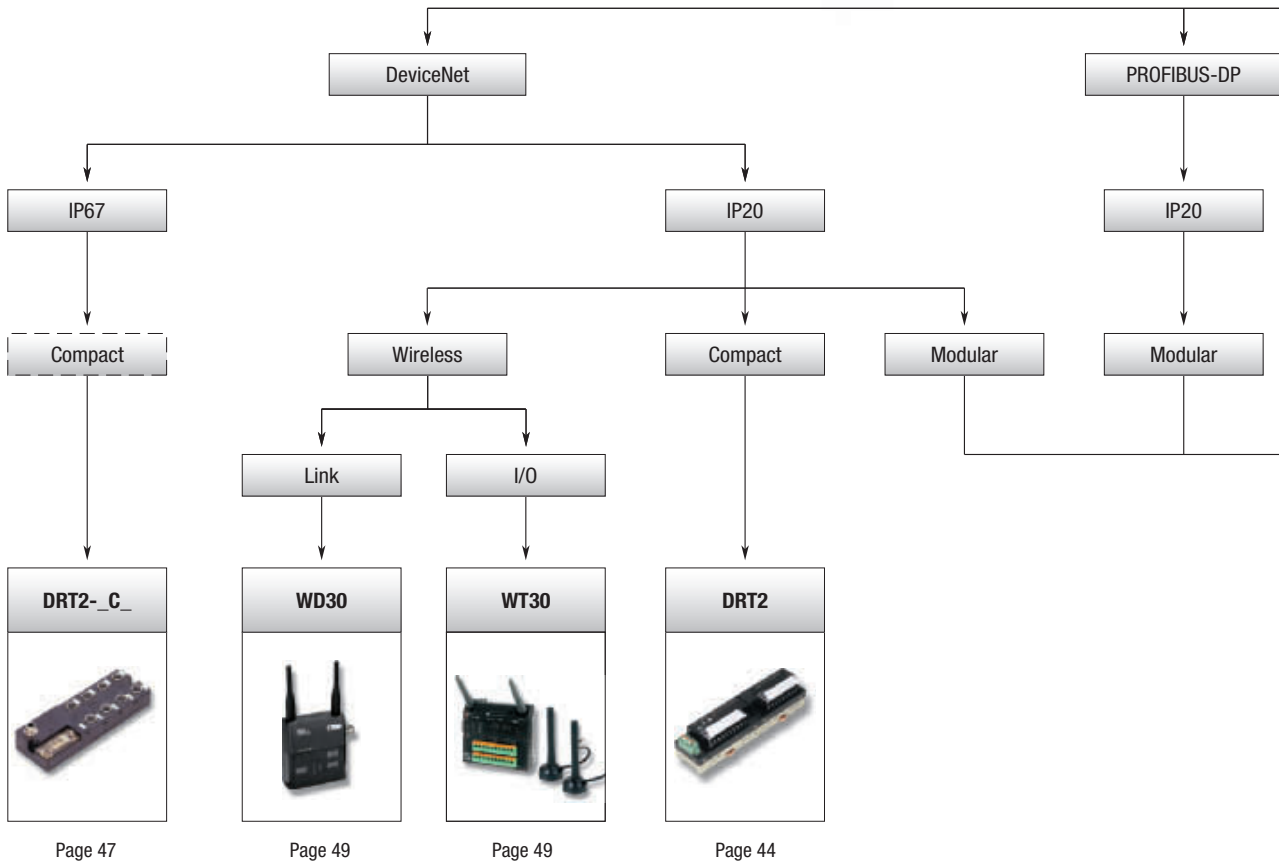| Type	Model
DIN Rail Mounting Bracket (for TH35 7.5)	WT30-FT001
DIN Rail Mounting Bracket (for TH35 15)	WT30-FT002
Antenna Extension Cable (5 m)	WE70-CA5M

THE SMARTEST MODULAR I/O SYSTEM
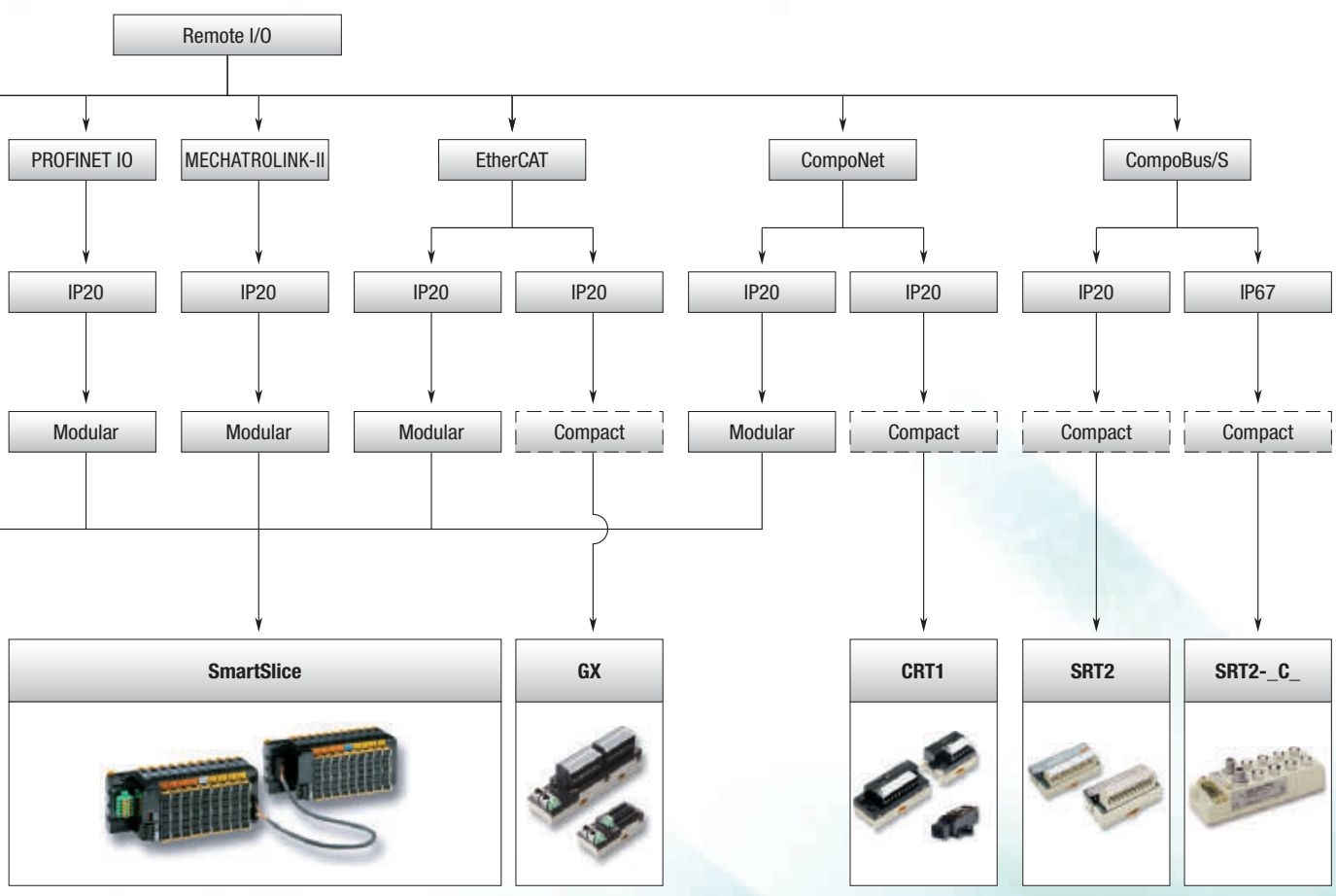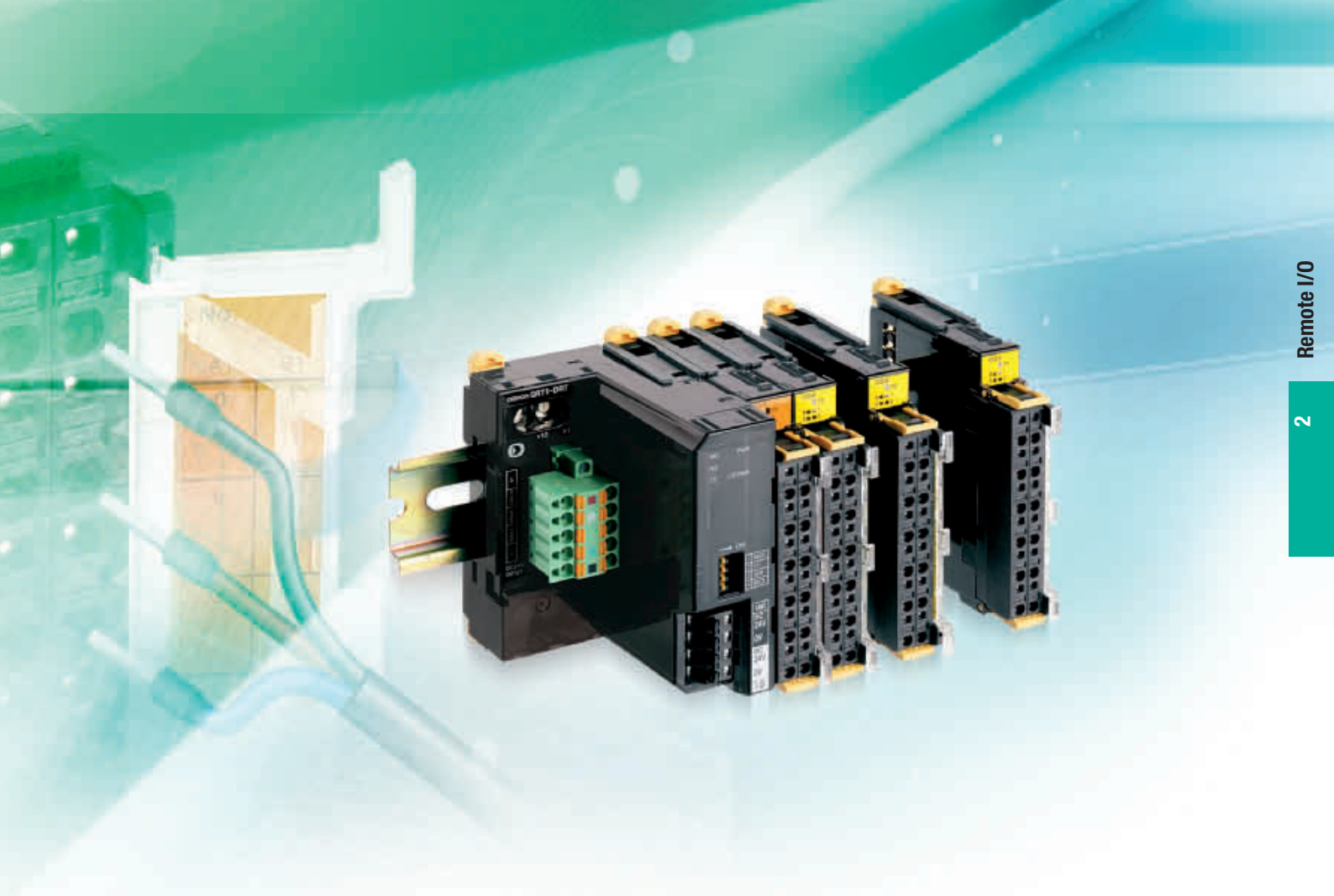
SmartSlice – Intelligence point by point

SmartSlice is the most advanced, yet easy-to-use remote I/O system currently available.
Its built-in intelligence will help to reduce the effort you spend on engineering, troubleshooting and maintenance in your machine, line or plant. By keeping track of control performance and logging all operations, each module can provide timely warnings, preventing costly machine downtime.

SmartSlice supports the open communication standards EtherCat, PROFINET-IO, PROFIBUS-DP, DeviceNet, CompoNet and MECHATROLINK-II. This provides you the flexibility to adapt to local requirements, anywhere in the world, without changing your I/O.

• Reduce engineering time
• Reduce machine downtime
• Increase your efficiency

The five most used smart features are demonstrated at:
www.smartslice.info

	DeviceNet				PROFIBUS-DP
IP67		IP20			IP20
Compact	Wireless		Compact	Modular	Modular
	Link	I/O			
DRT2-_C_	WD30	WT30	DRT2		
Page 47	Page 49	Page 49	Page 44		

```
                          ┌─────────────┐
                          │  Remote I/O │
                          └──────┬──────┘
                                 │
  ┌──────────────┬──────────────┼──────────────────────┬──────────────────────┐
  │              │              │                       │                       │
┌─────────┐ ┌──────────────┐ ┌──────────┐        ┌──────────┐           ┌──────────────┐
│PROFINET │ │MECHATROLINK-II│ │ EtherCAT │        │ CompoNet │           │ CompoBus/S   │
│   IO    │ │              │ │          │        │          │           │              │
└────┬────┘ └──────┬───────┘ └────┬─────┘        └────┬─────┘           └──────┬───────┘
     │             │          ┌───┴────┐          ┌───┴────┐            ┌──────┴─────┐
     │             │          │        │          │        │            │            │
  ┌─────┐       ┌─────┐    ┌─────┐  ┌─────┐    ┌─────┐  ┌─────┐      ┌─────┐     ┌─────┐
  │IP20 │       │IP20 │    │IP20 │  │IP20 │    │IP20 │  │IP20 │      │IP20 │     │IP67 │
  └──┬──┘       └──┬──┘    └──┬──┘  └──┬──┘    └──┬──┘  └──┬──┘      └──┬──┘     └──┬──┘
     │             │          │        │          │        │           │           │
 ┌───────┐    ┌───────┐  ┌───────┐ ┌───────┐  ┌───────┐ ┌───────┐  ┌───────┐  ┌───────┐
 │Modular│    │Modular│  │Modular│ │Compact│  │Modular│ │Compact│  │Compact│  │Compact│
 └───────┘    └───────┘  └───────┘ └───────┘  └───────┘ └───────┘  └───────┘  └───────┘
```

SmartSlice	GX	CRT1	SRT2	SRT2-_C_

OMRON

	Modular I/O	Compact I/O			
Model	GRT	GX	DRT2	CRT1	SRT2
Network connection	DeviceNet open-style terminal block PROFIBUS-DP 9-pin D-sub CompoNet: 4-pin system connector PROFINET-IO: 2 x RJ45 MECHATROLINK-II: 2 x ML-II EtherCAT: 2 x RJ45	EtherCAT in- and outgoing connections by RJ45 ethernet plug	DeviceNet with open-style push-in terminal block	Unshielded 4-wire flat cable and IDC connectors, or general-purpose 2-wire cable by screw terminals.	CompoBus/S, (2-wire + power) by M3 screw terminals
I/O types	2/4/8-point digital I/O 2-point analogue I/O 2-point temperature input Counter units Power feed units Expansion units	8 DI + 8 DO 16 DI+extension 16 DO+extension 16 relay out 4 AI (V/I) 2 AO (V/I) Incremental Encoder (24 V/line driver)	8/16 DI+extension, 8/16 DO+extenstion, 8 DI + 8 DO 16 relay out, 4 AI (V/I, TC, Pt100), 2 AO (V/I),	8/16 DI+extension, 8/16 DO+extenstion, 8 DI + 8 DO 4 AI, 2 AO, 2 DI, 2 DO.	4/8/16 DI, 4/8/16 DO, 8/16 relay out, 4 AI (V/I) 2 AO (V/I)
I/O Connection technology	Push-in screwless clamp	M3 screw terminals (1- or 3-wire DI)	M3 screw terminals (1 or 3-wire DI)	M3 screw terminals	M3 screw terminals (1 or 3-wire DI)
Smart features	I/O and power supply diagnostics. Operation timers and counters per I/O point. Analogue value calculations and alarms.	automatic or fixed address allocation	I/O and power supply diagnostics. Operation timers and counters per I/O point. Analogue value calculations and alarms.	I/O and power supply diagnostics. Operation timers and counters for each I/O point. Analogue value calculations and alarms.	I/O isolation, status indication
Ingress Protection class	IP20 (DIN rail mounting in cabinets)	IP20 (DIN rail mounting in cabinets)	IP20 (DIN rail mounting in cabinets)	IP20 (DIN rail mounting in cabinets)	IP20 (DIN rail mounting in cabinets)
Page	42	43	44	45	46

	Field I/O		Wireless I/O
Model	DRT2-_C_	SRT2-_C_	WD30/WT30
Network connection	DeviceNet with M12 micro connector	CompoBus/S, by 4-wire M12 connector, unshielded	DeviceNet M12 connection RS-232C by 9-pin D-sub
I/O types	8/16 DI, 8/16 DO, 8DI + 8 DO	4/8 DI, 4/8 DO	Wireless link, 16 DI, 8DI + 8DO
I/O Connection technology	M12, 1 or 2 I/O signals per connector. 7/8" I/O Power connector.	M12 connectors, one I/O point per connector	Push-in screwless clamp
Smart features	I/O and power supply diagnostics. Operation timers and counters per I/O point.	I/O isolation, status indication	Wireless link diagnostics Explicit message communication
Ingress Protection class	IP67, flat mounting by two M5 screws	IP67, flat mounting by three M5 screws	IP20 (cabinet mounting). Separate antennas (IP67) can be mounted outside the cabinet
Size in mm (H×W×D)	175×60×27.3	114/160×54×29.5	WD30: 80x95x35 WT30: 105x90x40
Page	47	48	49
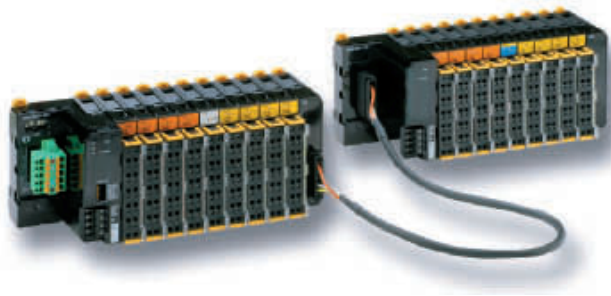
OMRON

The smartest modular I/O system

Omron's SmartSlice I/O system is compact, intelligent and easy. When used with Omron's CS1/CJ1 DeviceNet master units it is plug-and-work, no configuration tool is required. By using built-in functions such as pre-scaling, totalising, differentiation and alarming in analogue I/O units, PLC programming can be minimised. Preventive maintenance data can be accessed using CX-Integrator software, standard PLC function blocks or NS-series Smart Active Parts.

- Most compact in the market (84 mm high)
- Easy set-up, backup and restore functions
- Diagnostics and preventive maintenance data at I/O level
- Detachable terminal blocks allow hot-swapping without re-wiring
- 3-wire connection with 'push-in' technology, no screwdriver required for installation

Ordering information

Model	Function	Specifications	Size in mm (HxWxD)	Order code
Interface units	DeviceNet interface unit	For up to 64 I/O units	84x58x70	GRT1-DRT
	CompoNet interface unit	For up to 64 I/O units (limited to 32 byte in + 32 byte out)	84x58x70	GRT1-CRT
	PROFIBUS-DP interface unit	For up to 64 I/O units	84x58x70	GRT1-PRT
	PROFINET-IO interface unit	For up to 64 I/O units	84x58x70	GRT1-PNT
	MECHATROLINK-II interface unit	For up to 64 I/O units (slave to Trajexia motion controller)	84x58x70	GRT1-ML2
	EtherCAT interface unit	For up to 64 I/O units (slave to Trajexia motion controller)	84x58x70	GRT1-ECT
	End plate	One unit required per bus interface	84x20x58	GRT1-END
	End plate with memory function	Supports toolless replacement of PROFINET-IO interface unit	84x20x58	GRT1-END-M
I/O units	4 NPN inputs	24 VDC, 6 mA, 3-wire connection	84x15x74	GRT1-ID4
	4 PNP inputs	24 VDC, 6 mA, 3-wire connection	84x15x74	GRT1-ID4-1
	8 NPN inputs	24 VDC, 4 mA, 1-wire connection + 4xG	84x15x74	GRT1-ID8
	8 PNP inputs	24 VDC, 4 mA, 1-wire connection + 4xV	84x15x74	GRT1-ID8-1
	4 AC inputs	110 VAC, 2-wire connection	84x15x74	GRT1-IA4-1
	4 AC inputs	230 VAC, 2-wire connection	84x15x74	GRT1-IA4-2
	4 NPN outputs	24 VDC, 500 mA, 2-wire connection	84x15x74	GRT1-OD4
	4 PNP outputs	24 VDC, 500 mA, 2-wire connection	84x15x74	GRT1-OD4-1
	4 PNP outputs with short-circuit protection	24 VDC, 500 mA, 3-wire connection	84x15x74	GRT1-OD4G-1
	4 PNP outputs with short-circuit protection	24 VDC, 2 A, 2-wire connection	84x15x74	GRT1-OD4G-3
	8 NPN outputs	24 VDC, 500 mA, 1-wire connection + 4xV	84x15x74	GRT1-OD8
	8 PNP outputs	24 VDC, 500 mA, 1-wire connection + 4xG	84x15x74	GRT1-OD8-1
	8 PNP outputs with short-circuit protection	24 VDC, 500 mA, 1-wire connection + 4xG	84x15x74	GRT1-OD8G-1
	2 relay outputs	240 VAC, 2A, normally-open contacts	84x15x74	GRT1-ROS2
	60 kHz Counter unit, NPN	A+B encoder inputs + 1 Z/control input + 1 output (NPN-type)	84x15x74	GRT1-CT1
	60 kHz Counter unit, PNP	A+B encoder inputs + 1 Z/control input + 1 output (PNP-type)	84x15x74	GRT1-CT1-1
	100 kHz Counter / Positioner unit	A+B+Z encoder inputs (line driver or 24 V selectable) + 1 control input + 2 outputs (PNP-type)	84x15x74	GRT1-CP1-L
	2 analogue inputs, current/voltage	±10 V, 0-10 V, 0-5 V, 1-5 V, 0-20 mA, 4-20 mA	84x15x74	GRT1-AD2
	2 analogue outputs, voltage	±10 V, 0-10 V, 0-5 V, 1-5 V	84x15x74	GRT1-DA2V
	2 analogue outputs, current	0-20 mA, 4-20 mA	84x15x74	GRT1-DA2C
	2 Pt100 inputs	Pt100, 2-wire or 3-wire connection	84x15x74	GRT1-TS2P
	2 Pt1000 inputs	Pt1000, 2-wire or 3-wire connection	84x15x74	GRT1-TS2PK
	2 Thermocouple inputs	Types B, E, J, K, N, R, S, T, U, W, PL2, with cold junction compensation	84x15x74	GRT1-TS2T

Model	Description		Size in mm (HxWxD)	Order code
Other units	I/O power feed unit, separates power supply between groups of I/O units		84x15x74	GRT1-PD2
	I/O power feed unit with electronic overload protection, separates power supply between groups of I/O units		84x15x74	GRT1-PD2G
	I/O power feed and distribution unit, separates power supply between groups of I/O units, 8xV + 4xG		84x15x74	GRT1-PD8
	I/O power feed and distribution unit, separates power supply between groups of I/O units, 4xV + 8xG		84x15x74	GRT1-PD8-1
	I/O power connection unit, 8xV + 4xG		84x15x74	GRT1-PC8
	I/O power connection unit, 4xV + 8xG		84x15x74	GRT1-PC8-1
	Turnback unit, right-hand side		84x20x58	GRT1-TBR
	Turnback unit, left-hand side		84x58x70	GRT1-TBL
	Turnback cable, one meter		1 m	GCN2-100

Accessories

Description	Order code
Replacement front connectors, pack of 5 pcs.	GRT1-BT1-5
PROFIBUS-DP connector, 9-pin D-sub	PROFIBUS Connector 839550
PROFIBUS-DP connector, 9-pin D-sub, with bus termination	PROFIBUS Term. Conn. 846086
PROFINET RJ45 connector	IE-PS-RJ45-FH-BK
CompoNet connectors	See page 45

OMRON
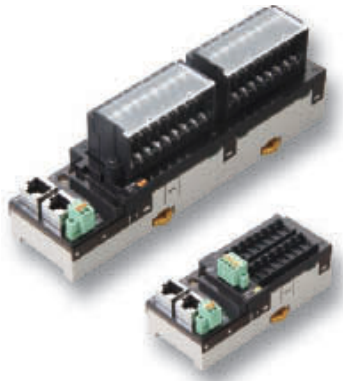
When speed counts: EtherCAT I/O

EtherCAT is an extremely fast industrial automation network, which uses standard ethernet cabling. It makes very efficient use of the standard Ethernet transmission frame, with each node accessing the entire frame on the fly. This reduces the delay in each slave to microsecond level.

Its deterministic nature makes EtherCAT extremely suitable for motion control. Omron provides PLC-based as well as stand-alone motion control solutions based on EtherCAT.

The GX-series I/O units provide the basic in- and outputs for such systems, including high-speed encoder inputs which can feed position information into the controller.

Ordering information

Unit Type	Specification	Size in mm (HxWxD)	Remarks	Order code
16-point NPN input unit	24 VDC, 6 mA per point	52 x 135 x 57	Expandable with one XWT unit	GX-ID1611
16-point NPN input unit	24 VDC, 6 mA per point	52 x 200 x 69	3-tier connection for direct sensor wiring	GX-ID1612
16-point PNP input unit	24 VDC, 6 mA per point	52 x 135 x 57	Expandable with one XWT unit	GX-ID1621
16-point PNP input unit	24 VDC, 6 mA per point	52 x 200 x 69	3-tier connection for direct sensor wiring	GX-ID1622
16-point relay output unit	2 A per point, max. 8 A per common	52 x 160 x 58	with easy-to-replace relays, expandable with one XWT unit	GX-OC1601
16-point NPN output unit	24 VDC, 0.5 A per point	52 x 135 x 57	Expandable with one XWT unit	GX-OD1611
16-point NPN output unit	24 VDC, 0.5 A per point	52 x 200 x 69	3-tier connection for direct sensor wiring	GX-OD1612
16-point PNP output unit	24 VDC, 0.5 A per point	52 x 135 x 57	Expandable with one XWT unit	GX-OD1621
16-point PNP output unit	24 VDC, 0.5 A per point	52 x 200 x 69	3-tier connection for direct sensor wiring	GX-OD1622
8-point input + 8-point output unit (NPN)	24 VDC, input 6 mA, output 0.5 A per point	52 x 135 x 57	–	GX-MD1611
8-point input + 8-point output unit (NPN)	24 VDC, input 6 mA, output 0.5 A per point	52 x 200 x 69	3-tier connection for direct sensor wiring	GX-MD1612
8-point input + 8-point output unit (PNP)	24 VDC, input 6 mA, output 0.5 A per point	52 x 135 x 57	–	GX-MD1621
8-point input + 8-point output unit (PNP)	24 VDC, input 6 mA, output 0.5 A per point	52 x 200 x 69	3-tier connection for direct sensor wiring	GX-MD1622
4-Channel analogue input unit	1 to 5 V, 1 to 5 V, 0 to 10 V, -10 to 10 V, 4 to 20 mA,	52 x 135 x 57	Resolution 1/6000, conversion time 4 ms (4 inputs)	GX-AD0471
2-Channel analogue output unit	1 to 5 V, 1 to 5 V, 0 to 10 V, -10 to 10 V, 4 to 20 mA,	52 x 135 x 57	Resolution 1/6000, conversion time 2 ms (2 outputs)	GX-DA0271
1-Channel incremental encoder input (24V)	Oper collector, up to 125 kHz	52 x 215 x 69	A, B, Z, 2 x Latch, Reset inputs	GX-EC0211
1-Channel incremental encoder input (line driver)	RS422 signal level, up to 1 MHz	52 x 215 x 69	A, B, Z, 2 x Latch, Reset inputs	GX-EC0241

Expansion units

Unit Type	Specification	Size in mm (HxWxD)	Remarks	Order code
8-point PNP input expansion unit	24 VDC, 6 mA per point	50x66x50	Expansion unit for GX, DRT2 and CRT1 series	XWT-ID08-1
16-point PNP input expansion unit	24 VDC, 6 mA per point	50x94x50	Expansion unit for GX, DRT2 and CRT1 series	XWT-ID16-1
8-point PNP output expansion unit	24 VDC, 0.5 A per point	50x66x50	Expansion unit for GX, DRT2 and CRT1 series	XWT-OD08-1
16-point PNP output expansion unit	24 VDC, 0.5 A per point	50x94x50	Expansion unit for GX, DRT2 and CRT1 series	XWT-OD16-1

Note: To order models with NPN (sinking) outputs and corresponding inputs (+V common), omit the "-1" from the model code.

Smart DeviceNet I/O

Compact DeviceNet I/O units with extensive diagnostic functions. Data regarding power supply status, I/O response times, operation counters and on-time are continuously recorded and checked against user-defined limits. Any deviation is reported to the control system, as indication to perform machine maintenance and prevent unplanned downtime. Smart DeviceNet I/Os are supported by PLC Function Blocks and HMI Smart Active Parts, allowing program-less visualisation and monitoring from the CJ1 PLCs and NS operator terminals.

- Compact size IP20 housing
- Expandable digital I/Os
- Built-in diagnostics and preventive maintenance functions
- Detachable I/O terminal blocks
- Analogue I/O with data pre-processing and alarm functions

Ordering information

Unit type	Specifications	Size in mm (HxWxD)	Remarks	Order code
8-point PNP input unit	24 VDC, 6 mA per point	50x115x50	–	DRT2-ID08-1
16-point PNP input unit	24 VDC, 6 mA per point	50x115x50	Expandable with one XWT unit	DRT2-ID16-1
16-point PNP input unit	24 VDC, 6 mA per point	50x180x58	3-tier connection for direct sensor wiring	DRT2-ID16TA-1
8-point PNP output unit	24 VDC, 0.5 A per point	50x115x50	–	DRT2-OD08-1
16-point PNP output unit	24 VDC, 0.5 A per point	50x115x50	Expandable with one XWT unit	DRT2-OD16-1
16-point PNP output unit	24 VDC, 0.5 A per point	50x180x58	3-tier connection for direct actuator wiring	DRT2-OD16TA-1
16-point relay output unit	2 A per point, max. 8 A per common	50x125x52	with easy-to-replace relays, expandable with one XWT unit	DRT2-ROS16
8-point input + 8-point output unit (PNP)	24 VDC, input 6 mA, output 0.5 A per point	50x115x50	–	DRT2-MD16-1
8-point input + 8-point output unit (PNP)	24 VDC, input 6 mA, output 0.5 A per point	50x180x58	3-tier connection for direct sensor/actuator wiring	DRT2-MD16TA-1
4-Channel analogue input unit	0 to 5 V, 1 to 5 V, 0 to 10 V, -10 to 10 V, 0 to 20 mA, 4 to 20 mA	50x115x50	Resolution 1/6000, conversion time 4 ms (4 inputs)	DRT2-AD04
4-Channel analogue input unit	1 to 5 V, 1 to 5 V, 0 to 10 V, -10 to 10 V, 0 to 20 mA, 4 to 20 mA	50x115x50	Resolution 1/30000, conversion time 250 ms (4 inputs)	DRT2-AD04H
2-Channel analogue output unit	0 to 5 V, 1 to 5 V, 0 to 10 V, -10 to 10 V, 0 to 20 mA, 4 to 20 mA	50x115x50	Resolution 1/6000, conversion time 2 ms (2 outputs)	DRT2-DA02
4-Channel temperature input unit	Platinum Resistance Thermometer types Pt100, JPt100	50x115x50	0.3% accuracy, conversion time 250 ms (4 inputs)	DRT2-TS04P
4-Channel temperature input unit	Thermocouple types R, S, K, J, T, B, L, E, U, N, W, and PL2	50x115x50	0.3% accuracy, conversion time 250 ms (4 inputs)	DRT2-TS04T

Expansion units

Unit type	Specifications	Size in mm (HxWxD)	Remarks	Order code
8-point PNP input expansion unit	24 VDC, 6 mA per point	50x66x50	Expansion unit for GX, DRT2 and CRT1 series	XWT-ID08-1
16-point PNP input expansion unit	24 VDC, 6 mA per point	50x94x50	Expansion unit for GX, DRT2 and CRT1 series	XWT-ID16-1
8-point PNP output expansion unit	24 VDC, 0.5 A per point	50x66x50	Expansion unit for GX, DRT2 and CRT1 series	XWT-OD08-1
16-point PNP output expansion unit	24 VDC, 0.5 A per point	50x94x50	Expansion unit for GX, DRT2 and CRT1 series	XWT-OD16-1

Note: To order models with NPN (sinking) outputs and corresponding inputs (+V common), omit the "-1" from the model code.

Accessories

Type	Order code
Power supply tap with 2 fuses, 2 bus connectors and termination resistor	DCN1-1P
T-branch tap with 3 bus connectors (screw clamp) and terminating resistor	DCN1-1C
T-branch tap with 3 bus connectors (screwless)	DCN1-1NC
T-branch tap with 5 bus connectors (screw clamp) and terminating resistor	DCN1-3C
T-branch tap with 5 bus connectors (screwless)	DCN1-3NC
Terminating resistor with screw terminals	DRS1-T

OMRON

Smart CompoNet I/O

Combining the smart features of DRT2 DeviceNet I/O and the speed and ease of use of CompoBus/S, CompoNet is ideal for high-speed machine control with a flexible and expandable architecture. The special flat cable and IDC connectors make installation quick and easy. The use of repeaters allows wide-area networks with free topology, ideal for conveyor- and warehouse automation.

- Compact size IP20 housing
- Expandable digital I/Os with detachable terminal blocks
- Easy network wiring with IDC connections
- Built-in diagnostics and preventive maintenance functions
- Analogue I/O with data pre-processing and alarm functions

Ordering information

Unit type	Specifications	Size in mm (HxWxD)	Remarks	Order code
4-point PNP input unit	24 VDC, 6 mA per point	24x80x20	Screwless I/O connector, power supply via CompoNet cable	CRT1B-ID04SL-1-300
8-point PNP input unit	24 VDC, 6 mA per point	50x115x57.6	Screw terminals, common power terminals per 8 points	CRT1-ID08-1
8-point PNP input unit	24 VDC, 6 mA per point	50x96x60	3 push-in terminals per I/O point (signal + power)	CRT1-ID08SL-1
16-point PNP input unit	24 VDC, 6 mA per point	50x115x50	Expandable with one XWT unit.	CRT1-ID16-1
16-point PNP input unit	24 VDC, 6 mA per point	52x180x69	3 terminals per I/O point (for power distribution)	CRT1-ID16TA-1
4-point PNP output unit	24 VDC, 0.2 A per point	24x80x20	Screwless I/O connector, power supply via CompoNet cable	CRT1B-OD04SL-1-300
8-point PNP output unit	24 VDC, 0.5 A per point	50x115x57.6	Screw terminals, common power terminals per 8 points	CRT1-OD08-1
8-point PNP output unit	24 VDC, 0.5 A per point	50x96x60	3 push-in terminals per I/O point (signal + power)	CRT1-OD08SL-1
16-point PNP output unit	24 VDC, 0.5 A per point	50x115x50	Expandable with one XWT unit.	CRT1-OD16-1
16-point PNP output unit	24 VDC, 0.5 A per point	52x180x69	3 terminals per I/O point (for power distribution)	CRT1-OD16TA-1
8-point SSR output unit	265 V AC, 0.3 A per point	50x95x57.6	Screw terminals, common power terminals per 8 points	CRT1-ROF08
8-point relay output unit	250 VAC, 2 A per point, 8 A per common	50x95x57.6	Screw terminals, common power terminals per 8 points	CRT1-ROS08
16-point relay output unit	250 VAC, 2 A per point, 8 A per common	50x140x57.6	8 outputs per common	CRT1-ROS16
2-point input + 2-point output unit, PNP	24 VDC, 0.1 A per point	24x80x20	Screwless I/O connector, power supply via CompoNet cable	CRT1-MD04SL-1-300
8-point input + 8-point output unit, PNP	24 VDC, 0.5 A per point	50x115x57.6	Screw terminals, common power terminals	CRT1-MD16-1
8-point input + 8-point output unit, PNP	24 VDC, 0.5 A per point	50x170x60	3 push-in terminals per I/O point (signal + power)	CRT1-MD16SL-1
8-point input + 8-point output unit PNP	24 VDC, 0.5 A per point	52x180x69	3 terminals per I/O point (for power distribution)	CRT1-MD16TA-1
4-Channel analogue input unit	0 to 5 V, 1 to 5 V, 0 to 10 V, -10 to 10 V, 0 to 20 mA, 4 to 20 mA	50x115x50	Resolution 1/6000, conversion time 4 ms (4 inputs)	CRT1-AD04
2-Channel analogue output unit	0 to 5 V, 1 to 5 V, 0 to 10 V, -10 to 10 V, 0 to 20 mA, 4 to 20 mA	50x115x50	Resolution 1/6000, conversion time 2 ms (2 outputs)	CRT1-DA02
4-Channel Temperature input unit	Platinum Resistance Thermometer type Pt100	50x115x50	0.3% accuracy, conversion time 250 ms (4 inputs)	CRT1-TS04P
4-Channel Temperature input unit	Thermocouple types R, S, K, J, T, B, L, E, U, N, W and PL2	50x115x50	0.3% accuracy, conversion time 250 ms (4 inputs)	CRT1-TS04T

Expansion units

Unit type	Specifications	Size in mm (HxWxD)	Remarks	Order code
8-point PNP input expansion unit	24 VDC, 6 mA per point	50x66x50	Expansion unit for GX, DRT2 and CRT1 series	XWT-ID08-1
16-point PNP input expansion unit	24 VDC, 6 mA per point	50x94x50	Expansion unit for GX, DRT2 and CRT1 series	XWT-ID16-1
8-point PNP output expansion unit	24 VDC, 0.5 A per point	50x66x50	Expansion unit for GX, DRT2 and CRT1 series	XWT-OD08-1
16-point PNP output expansion unit	24 VDC, 0.5 A per point	50x94x50	Expansion unit for GX, DRT2 and CRT1 series	XWT-OD16-1

Note: To order models with NPN (sinking) outputs and corresponding inputs (+V common), omit the "-1" from the model code.

Accessories

Unit type	Specifications	Size in mm (HxWxD)	Remarks	Order code
CompoNet Repeater unit	1 upstream port + 1 downstream port	50x95x43	For extending CompoNet trunk lines, or creating branch lines	CRS1-RPT01
CompoNet 4-wire flat cable	For IP20 use	100 m	For power supply + communication, use with DCN4-connectors	DCA4-4F10
CompoNet Branch connector for trunk line	For IP20 use	–	To create a branching point on a trunk line	DCN4-TR4
CompoNet Branch line end connector	For IP20 use	–	To connect a branch line to a trunk line	DCN4-BR4
CompoNet Y-connector	For IP20 use	–	To connect two line connectors to one slave unit	DCN4-MD4
CompoNet Screw terminal connector	For IP20 use	–	To provide conventional screw terminals for masters or slaves	DCN4-TB4
CompoNet Terminator	For IP20 use	–	Plugs in to DCN4-MD4 or DCN4-TR4	DCN4-TM4
CompoNet connector tool	For DCN4-connectors	–	To attach DCN4-connectors to DCA4-4F10 flat cable	DWT-A01
CompoNet Screw terminal connector	For IP20 use, box of 10 pcs	–	To provide conventional screw terminals for 4-point bit slaves	HCN-TB4LMZG-B10+
Bit slave flat cable plug	For CRT1B-_D04SL-1-300 slaves	–	Allows mounting bit slaves directly on flat cable	DCN4-MR4
Bit slave mounting plate	For CRT1B-_D04SL-1-300 slaves	–	Mount with two screws, bit slave clips in place	CRT1-ATT03

OMRON

Fast and easy over CompoBus/S

Omron's unique CompoBus/S is the original I/O bus for machine automation. With free topology and up to 500 m bus length in long-distance mode, it can be used as a remote I/O system. In high-speed mode (100 m max.) the guaranteed sub-millisecond cycle time makes it ideal for efficient machine control. Used with the compact CPM2C-S PLC as master, your machine control system will fit in the smallest spaces.

- Compact size in IP20 housing
- Fast cycle time; less than 1 ms per 256 I/O points
- Easy set-up; no software required
- Choice of 4- 8- and 16-point Digital I/O; transistor-, and relay models
- Analogue In/Outputs and customisable modules available

Ordering information

Unit type	Specifications	Size in mm (HxWxD)	Remarks	Order code
4-point PNP input unit	24 VDC, 6 mA per point	48x80x50	Compact IP20 I/O	SRT2-ID04-1
8-point PNP input unit	24 VDC, 6 mA per point	48x80x50	Compact IP20 I/O	SRT2-ID08-1
16-point PNP input unit	24 VDC, 6 mA per point	48x105x50	Compact IP20 I/O	SRT2-ID16-1
16-point PNP input unit	24 VDC, 6 mA per point	50x180x59	3-tier connection for direct sensor wiring	SRT2-ID16T-1
4-point PNP output unit	24 VDC, 0.3 A per point	48x80x50	Compact IP20 I/O	SRT2-OD04-1
8-point PNP output unit	24 VDC, 0.3 A per point	48x80x50	Compact IP20 I/O	SRT2-OD08-1
16-point PNP output unit	24 VDC, 0.3 A per point	48x105x50	Compact IP20 I/O	SRT2-OD16-1
16-point PNP output unit	24 VDC, 0.5 A per point	50x180x59	3-tier connection for direct sensor/actuator wiring	SRT2-OD16T-1
8-point input + 8-point output unit (PNP)	24 VDC, input 6 mA, output 0.3 A per point	50x180x59	3-tier connection for direct actuator wiring	SRT2-MD16T-1
8-point relay output unit	Max. 3 A per point	50x100x50	with easy-to-replace relays	SRT2-ROC08
16-point relay output unit	Max. 3 A per point	50x155x50	with easy-to-replace relays	SRT2-ROC16
4-Channel analogue input unit	0 to 5 V, 1 to 5 V, 0 to 10 V, -10 to 10 V, 0 to 20 mA, 4 to 20 mA	48x105x50	Resolution 1/6000, conversion time 4 ms (4 inputs)	SRT2-AD04
2-Channel analogue output unit	0 to 5 V, 1 to 5 V, 0 to 10 V, -10 to 10 V, 0 to 20 mA, 4 to 20 mA	48x105x50	Resolution 1/6000, conversion time 2 ms (2 outputs)	SRT2-DA02

Note: To order models with NPN (sinking) outputs and corresponding inputs (+V common), omit the "-1" from the model code.

Accessories

Type	Order code
CompoBus/S 4-wire flatcable for power and communication (100 m)	SCA1-4F10
CompoBus/S branch connector (IDC) for flatcable	SCN1-TH4
CompoBus/S termination connector (IDC) for flatcable	SCN1-TH4T
CompoBus/S termination block (screw connection)	SRS1-T

DeviceNet I/O for harsh environments

Rugged I/O units for field mounting. The DRT2 slave units feature internal diagnostic and maintenance data collection, which can be accessed over the network. Power supply status, I/O response times, operation counters and on-time monitor data is available at all times, and is internally checked against user-defined limits. Maintenance warnings will be generated when limits are exceeded. Using CX-One or NS-series HMI with Smart Active Parts for visualisation, this allows more efficient system setup, commissioning and troubleshooting without any additional programming.

- IP67 protection, DRT2 versions are also oil- and welding-spatter proof
- Internal circuits powered by DeviceNet; fewer connections means less installation errors
- Smart Slave functions for diagnostics and preventive maintenance
- Indication of broken wire and short-circuit in I/O signals
- M12 connectors for fast installation

Ordering information

Unit type	Specifications	Size in mm (HxWxD)	Remarks	Order code
4-point PNP input unit	24 V, 6 mA	123x60x44	Separate I/O power supply connection	DRT2-ID04CL-1
8-point PNP input unit	24 V, 6 mA	175x60x44	Separate I/O power supply connection	DRT2-ID08CL-1
8-point PNP input unit	24 V, 11 mA, with power short-circuit and sensor disconnection detection	175x60x38	Unit power supply via DeviceNet cable	DRT2-ID08C-1
16-point PNP input unit	24 V, 6 mA, 2 inputs per M12 connector	175x60x44	Separate I/O power supply connection	DRT2-HD16CL-1
16-point PNP input unit	24 V, 11 mA, 2 inputs per M12 connector, with power short-circuit and sensor disconnection detection	175x60x38	Unit power supply via DeviceNet cable	DRT2-HD16C-1
4-point PNP output unit	24 V, 0.5 A per point	123x60x44	Separate I/O power supply connection	DRT2-OD04CL-1
8-point PNP output unit	24 V, 0.5 A per point	175x60x44	Separate I/O power supply connection	DRT2-OD08CL-1
8-point PNP output unit	24 V, 1.5 A per point (8 A total), with short-circuit protection + indication	175x60x44	Separate I/O power supply connection	DRT2-OD08C-1
16-point PNP output unit	24 V, 0.5 A per point, 2 points per M12 connector	175x60x44	Separate I/O power supply connection	DRT2-WD16CL-1
8-point input + 8-point PNP output unit	24 V, 6 mA input, 0.5 A output per point, 2 points per M12 connector	175x60x44	Separate I/O power supply connection	DRT2-MD16CL-1

Note: To order models with NPN (sinking) outputs and corresponding inputs (+V common), omit the "-1" from the model code.

Accessories

Unit type	Specifications	Order code
DeviceNet thin cable	with one M12 socket connector (female), 1 m	DCA1-5CN01F1
DeviceNet thin cable	with one M12 socket connector (female), 2 m	DCA1-5CN02F1
DeviceNet thin cable	with one M12 socket connector (female), 5 m	DCA1-5CN05F1
DeviceNet thin cable	with one M12 socket connector (female) and one M12 plug connector (male), 1 m	DCA1-5CN01W1
DeviceNet thin cable	with one M12 socket connector (female) and one M12 plug connector (male), 2 m	DCA1-5CN02W1
DeviceNet thin cable	with one M12 socket connector (female) and one M12 plug connector (male), 5 m	DCA1-5CN05W1
DeviceNet T-connector for thin cable	with two M12 socket connectors (female) + one M12 plug connector (male)	DCN2-1
DeviceNet terminator	with M12 plug connector	DRS2-1
Power supply cable	with one 7/8 inches socket connector (female), 2 m	XS4F-D421-102-A
Power supply cable	with one 7/8 inches socket connector (female), 5 m	XS4F-D421-105-A
Power supply cable	with one 7/8 inches socket connector (female) and one 7/8 inches plug connector (male), 2 m	XS4W-D421-102-A
Power supply cable	with one 7/8 inches socket connector (female) and one 7/8 inches plug connector (male), 5 m	XS4W-D421-105-A
Power supply T-connector	with two 7/8 inches socket connectors (female) + one 7/8 inches plug connector (male)	XS4R-D424-5
4-wire I/O connection cable	with one M12 plug connector (male), 1 m	XS2H-D421-C80-A
4-wire I/O connection cable	with one M12 plug connector (male), 2 m	XS2H-D421-D80-A
4-wire I/O connection cable	with one M12 plug connector (male), 5 m	XS2H-D421-G80-A
4-wire I/O connection cable	with one M12 socket connector (female) and one M12 plug connector (male), 1 m	XS2W-D421-C81-A
4-wire I/O connection cable	with one M12 socket connector (female) and one M12 plug connector (male), 2 m	XS2W-D421-D81-A
4-wire I/O connection cable	with one M12 socket connector (female) and one M12 plug connector (male), 5 m	XS2W-D421-G81-A
Y-connector for 16-point I/O units	Splits the 2 I/O points per M12 connector to two M12 connectors	XS2R-D426-1
Y-connector cable for 16-point I/O units	Splits the 2 I/O points per M12 connector to two M12 connectors, 1 m	XS2R-D426-C11-F
M12 connector	M12 plug connector (male), solder type	XS2G-D421
M12 connector	M12 socket connector (female), solder type	XS2C-D421
IP67 cap for M12 sockets	Metal cap for unused I/O connections	XS2Z-12

Dust- and waterproof CompoBus I/O

Rugged I/O units for field mounting. Omron's unique CompoBus/S is the most efficient I/O bus for machine automation. With free topology and up to 500 m bus length in long-distance mode, it can be used as a remote I/O system. In high-speed mode (100 m max.) the guaranteed sub-millisecond cycle time makes it ideal for efficient machine control. With IP67 slave modules distributed throughout the machine, the need for protective enclosures is minimised.

- IP67 protection against dust and water
- Fast cycle time; less than 1 ms for 256 I/O points
- Easy setup; no software required
- Choice of 4- and 8-point Digital I/O
- M12 connectors for easy field wiring

Ordering information

Unit type	Specifications	Size in mm (HxWxD)	Order code
4-point PNP input unit	24 V, 6 mA	114x54x45	SRT2-ID04CL-1
8-point PNP input unit	24 V, 6 mA	114x54x45	SRT2-ID08CL-1
4-point PNP output unit	24 V, 0.5 A per point	114x54x45	SRT2-OD04CL-1
8-point PNP output unit	24 V, 0.5 A per point	114x54x45	SRT2-OD08CL-1

Note: To order models with NPN (sinking) outputs and corresponding inputs (+V common), omit the "-1" from the model code.

Accessories

Unit type	Specifications	Remarks	Order code
CompoBus/S terminator	with M12 plug connector	–	SRS2-1
M12 connector	M12 plug connector (male), screw type	For CompoBus/S 4-wire round cable	XS2G-D4S7
M12 connector	M12 socket connector (female), screw type	For CompoBus/S 4-wire round cable	XS2C-D4S7
M12 T-connector (4-wire)	with two M12 socket connectors (female) + one M12 plug connector (male)	–	XS2R-D427-5
4-wire I/O connection cable	with one M12 plug connector (male), 1 m	–	XS2H-D421-C80-A
4-wire I/O connection cable	with one M12 plug connector (male), 2 m	–	XS2H-D421-D80-A
4-wire I/O connection cable	with one M12 plug connector (male), 5 m	–	XS2H-D421-G80-A
4-wire I/O connection cable	with one M12 socket connector (female) and one M12 plug connector (male), 1 m	–	XS2W-D421-C81-A
4-wire I/O connection cable	with one M12 socket connector (female) and one M12 plug connector (male), 2 m	–	XS2W-D421-D81-A
4-wire I/O connection cable	with one M12 socket connector (female) and one M12 plug connector (male), 5 m	–	XS2W-D421-G81-A
Y-connector for 16-point I/O units	Splits the 2 I/O points per M12 connector to two M12 connectors	–	XS2R-D426-1
Y-connector cable for 16-point I/O units	Splits the 2 I/O points per M12 connector to two M12 connectors, 1 m	–	XS2R-D426-C11-F
M12 connector	M12 plug connector (male), solder type	–	XS2G-D421
M12 connector	M12 socket connector (female), solder type	–	XS2C-D421
IP67 cap for M12 sockets	Metal cap for unused I/O connections	–	XS2Z-12

OMRON

Wireless DeviceNet communication

There are applications where a normal wired connection is not practical, impossible to maintain or prone to disturbance. WD30 provides a wireless master/slave data link for up to 63 DeviceNet sub-networks. Alternatively, a WD30 master unit can directly control WT30 wireless I/O slave units. For direct access to wireless remote I/O without passing through DeviceNet, the WT30 master is equipped with a serial Compo-Way/F interface.

- Easy to set-up: Extensive diagnostic features such as signal strength measurement and channel usage
- Each Wireless Master handles up to 100/100 words, input/output data. Up to 63 Wireless Slaves per Wireless Master
- Uses spread spectrum technology for superior noise resistance in manufacturing environments
- Relay function for extension of communication range (3 repeaters max.)
- Explicit message communication

Ordering information

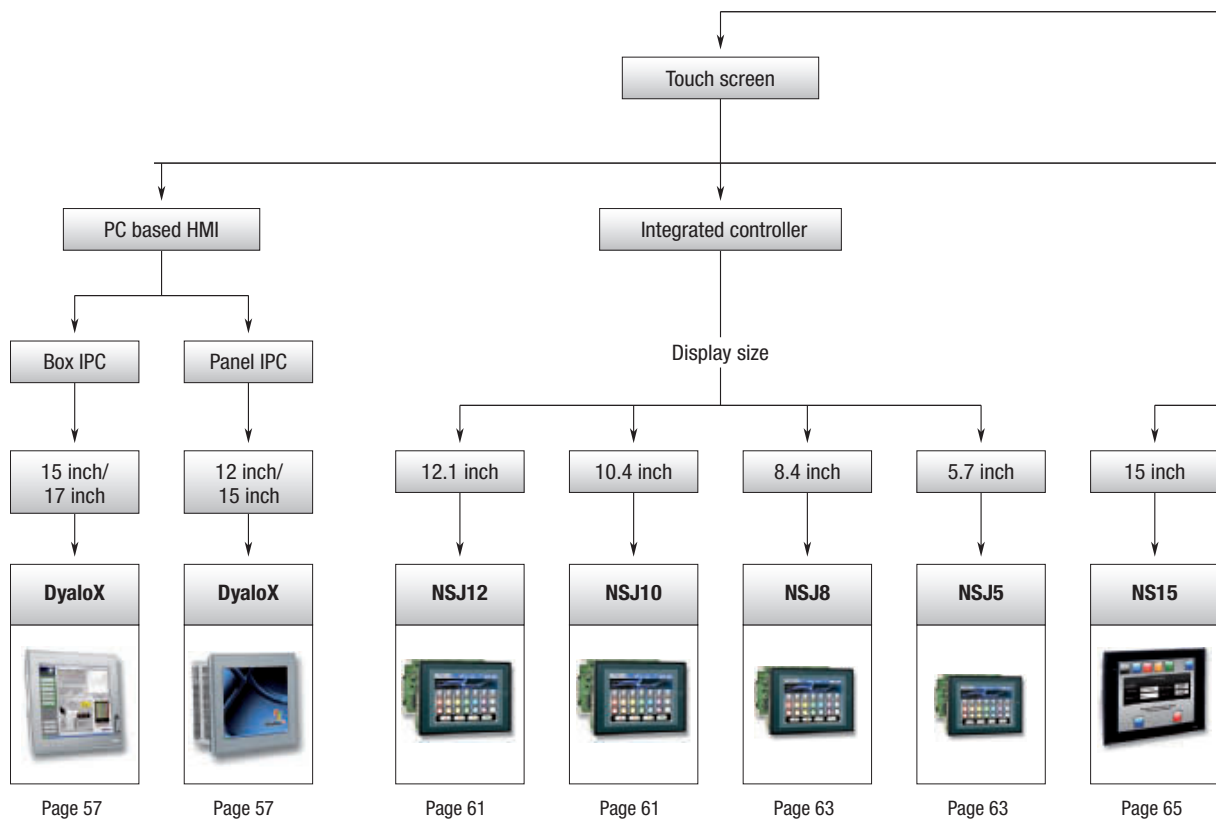| Unit type	Size in mm (HxWxD)	Order code
Wireless Master unit; slave on DeviceNet network; with 2 pencil antennas	80x159x35	WD30-ME
Wireless Master unit; slave on DeviceNet network; with 2 magnetic base antennas	80x95x35	WD30-ME01
Wireless Slave unit; Master on DeviceNet network; with 2 pencil antennas	80x159x35	WD30-SE
Wireless Slave unit; Master on DeviceNet network; with 2 magnetic base antennas	80x95x35	WD30-SE01
Wireless Master unit; controlled by serial RS232-C link (antenna not included)	105x90x40	WT30-M01-FLK
Wireless Slave unit; 16 digital inputs (NPN/PNP)	105x90x40	WT30-SID16
Wireless slave unit; 8 digital inputs + 8 digital outputs (PNP)	105x90x40	WT30-SMD16-1

Accessories

Unit type	Remarks	Size	Order code
Magnet base antennas (set of 2), with 2 m cable	–	115x⌀36	WT30-AT001
Pencil antennas (set of 2)	–	75	WT30-AT003
DIN-rail mounting bracket for WT30	–	–	WT30-FT001
DeviceNet thin cable	with one M12 socket connector (female)	1 m	DCA1-5CN01F1
DeviceNet thin cable	with one M12 socket connector (female)	2 m	DCA1-5CN02F1
DeviceNet thin cable	with one M12 socket connector (female)	5 m	DCA1-5CN05F1
DeviceNet thin cable	with one M12 socket connector (female) and one M12 plug connector (male)	1 m	DCA1-5CN01W1
DeviceNet thin cable	with one M12 socket connector (female) and one M12 plug connector (male)	2 m	DCA1-5CN02W1
DeviceNet thin cable	with one M12 socket connector (female) and one M12 plug connector (male)	5 m	DCA1-5CN05W1
DeviceNet T-connector for thin cable	with two M12 socket connectors (female) + one M12 plug connector (male)	–	DCN2-1
DeviceNet terminator	with M12 plug connector	–	DRS2-1

NQ HMI SERIES - Create and Operate

Powerful, colour HMI in a compact format

The NQ series, Omron's family of easy to use and economic HMI terminals, offers you many useful features, with the best quality graphical display in even the smallest touch screen. This makes the NQ family ideal for many different applications, for example from a simple semi-automatic packaging machine up to a bigger in-line packaging or filling machine.

• High quality display - Sharp contrast and colors, long backlight life
• Create applications quickly - Easy, full featured, intuitive software
• Powerful HMI features - Function keys, Trending, Data logging, etc.

Touch screen					

PC based HMI	Integrated controller

Display size

Box IPC	Panel IPC				

15 inch/ 17 inch	12 inch/ 15 inch	12.1 inch	10.4 inch	8.4 inch	5.7 inch	15 inch
DyaloX	DyaloX	NSJ12	NSJ10	NSJ8	NSJ5	NS15
Page 57	Page 57	Page 61	Page 61	Page 63	Page 63	Page 65

Interaction type

Function keys

Scalable HMI

Compact HMI

4 lines

2 lines

Display size

12.1 inch/ 10.4 inch	8.4 inch	5.7 inch	5.7 inch	5.7 inch	3.5 inch/ 3.8 inch		

NS12/NS10	NS8	NS5	NS5 Handheld	NQ5	NQ3	NT11	NT2S

| Page 65 | Page 65 | Page 66 | Page 67 | Page 69 | Page 69 | Page 70 | Page 71 |

Selection table

	Integrated controller			
Model	NSJ12	NSJ10	NSJ8	NSJ5
Type of Display	12.1 inch colour TFT	10.4 inch colour TFT	8.4 inch colour TFT	5.7 inch colour TFT or STN
Display Size / Resolution	246×184.5 mm (800×600 pixels)	215.5×162.4 mm (640×480 pixels)	170.9×128.2 mm (640×480 pixels)	117.2×88.4 mm (320×240 pixels)
Control	CJ1G-CPU45H; 60k-steps program memory, 128k-words data memory, logic instruction time 0.04 µs	CJ1G-CPU45H; 60k-steps program memory, 128k-words data memory, logic instruction time 0.04 µs	CJ1G-CPU45H; 60k-steps program memory, 128k-words data memory, logic instruction time 0.04 µs CJ1M-CPU13; 20k-steps program memory, 32k-words data memory, logic instruction time 0.04 µs	CJ1G-CPU45H; 60k-steps program memory, 128k-words data memory, logic instruction time 0.04 µs CJ1M-CPU13; 20k-steps program memory, 32k-words data memory, logic instruction time 0.04 µs
Communication	DeviceNet Master/Slave or PROFIBUS Master and optional Ethernet interface	DeviceNet Master/Slave or PROFIBUS Master and optional Ethernet interface	DeviceNet Master/Slave or PROFIBUS Master and optional Ethernet interface	DeviceNet Master/Slave or PROFIBUS Master and optional Ethernet interface
Expansion (1 board max.)	Ethernet, Controller Link, I/O extension	Ethernet, Controller Link, I/O extension	Ethernet, Controller Link, I/O extension	Ethernet, Controller Link, I/O extension
Dimensions in mm (HxWxD)	Without expansion unit 241×315×73.3 With expansion unit 241×315×89.3	Without expansion unit 241×315×73.3 With expansion unit 241×315×89.3	Without expansion unit 177×232×73.3 With expansion unit 177×232×89.3	Without expansion unit 195×142×79 With expansion unit 195×142×95
Page	61		63	

	Scalable HMI					
Model	NS15	NS12	NS10	NS8	NS5	NS5 handheld
Display	15 inch TFT colour	12.1 inch TFT colour	10.4 inch TFT colour	8.4 inch TFT colour	5.7 inch Monochrome or STN/TFT colour	5.7 inch STN colour
Resolution	1024×768 pixels (XGA)	800x600 pixels (SVGA)	640x480 pixels (VGA)	640x480 pixels (VGA)	320x240 pixels (QVGA)	320x240 pixels (QVGA)
Nr. of colours	256 (32,768 for image data)	256 (32,768 for image data)	256 (32,768 for image data)	256 (32,768 for image data)	Monochrome 16 greyscales, STN/TFT 256 colours (STN 4096, TFT 32,768 for image data)	256 colours (4096 colours for image data)
Memory Size	60MB screen memory	60MB screen memory, 32,768 words + 32,768 bits internal memory and 8192 words + 8192 bits retentative memory	60MB screen memory, 32,768 words + 32,768 bits internal memory and 8192 words + 8192 bits retentative memory	60MB screen memory, 32,768 words + 32,768 bits internal memory and 8192 words + 8192 bits retentative memory	60MB screen memory, 32,768 words + 32,768 bits internal memory and 8192 words + 8192 bits retentative memory	60MB screen memory, 32,768 words + 32,768 bits internal memory and 8192 words + 8192 bits retentative memory
Options	Controller Link, Video input board (NS-CA002)	Ethernet, Controller Link, Video input board (RGB/Composite)	Ethernet, Controller Link, Video input board (RGB/Composite)	Ethernet, Video input board (RGB/Composite)	Ethernet	RS-232 or RS-422 communication depending on cable
Dimensions in mm (HxWxD)	300×400×80	241×315×48.5	241×315×48.5	177×195×48.5	142×195×54	176×223×70.5 (excl. emergency button)
Page	65				66	67

OMRON

Category	Compact HMI				
Model	NQ5-TQ	NQ5-SQ	NQ5-MQ	NQ3-TQ	NQ3-MQ
Display	5.7 inch TFT Colour LED backlight	5.7 inch STN Colour CCFL backlight	5.7 inch STN Monochrome CCFL backlight	3.5 inch TFT Colour LED backlight	3.8 inch FSTN Monochrome LED backlight
Resolution	320×240 pixels	320×240 pixels	320×240 pixels	320×240 pixels	320×240 pixels
Number of colours	256 (32.000 for image data)	256 (4096 for image data)	Monochrome blue mode, 16 gradations	256 (32.000 for image data)	Monochrome black/white, 4 gradations
Memory	8 MB	8 MB	8 MB	8 MB	4 MB
Communication ports	2×RS-232/RS-422A/RS-485 1×USB Host, 1 x USB Slave 1×Ethernet	2×RS-232/RS-422A/RS-485 1×USB Host, 1 x USB Slave	2×RS-232/RS-422A/RS-485 1×USB Host, 1 x USB Slave	1×RS-232/RS-422A/RS-485 1×USB Host, 1 x USB Slave 1×Ethernet	1×RS-232/RS-422A/RS-485 1×USB Host, 1×USB Slave
Dimensions in mm (HxWxD)	142×195×50	142×195×50	142×195×50	102×128×44.5	102×128×44.5
Page	69				

Category	Function-key HMI			
Model	NT11	NT2S		
Type of Display	LED backlight LCD	LED backlight LCD		
Number of F-keys	22	6 or 20 depending on model		
Number of characters	20×4 lines	16×2 lines		
Printer connection	Yes	Depending on model		
Number of screens	250	65,000 (limited by memory)		
Size in mm (HxWxD)	113×218×38.2	6 F-keys 60×109×43 20 F-keys 107×107×43		
Page	70	71		

HMI

3

OMRON

53

OMRON

OMRON

Human machine interfaces (HMI)

HMI

3

System configuration

(Picture represents backside of a SYSMAC One unit)

Memory card interface (Display part) — **CF** — For screen captures, recipes and saving data log, etc.

Memory card interface (Controller part) — **CF** — For application back up and saving PLC data, etc.

DeviceNet or PROFIBUS

RS-232C Port C

■ Available both on NS and SYSMAC One series

■ Only available on SYSMAC One series

■ Only available on NS series

USB slave

Ethernet

RS-232C port A

RS-232C port B

PROFIBUS

DeviceNet

Printer
PictBridge technology

PC
General purpose USB cable

PLC

PLC — WE70 — Wireless

PC

PLC
RS-232C, PT-PLC connection cable
XW2Z-200T (2m)
XW2Z-500T (5m)

Barcode reader

PC
RS-232C, DOS/V transfer cable
XW2Z-S002 (2m)
USB, serial conversion cable
CS1W-CIF31

Memory link, single board Computer, etc.

Temperature controller, E5_N, EJ1, etc.
CompoWay/F(direct serial connection to HMI)

Inverter
RS-422A/485

RS-422A/485 conversion unit
CJ1W-CIF11 (~50m)
NS-AL002 (~500m)

PC
RS-232C, DOS/V transfer cable
XW2Z-S002 (2m)
USB serial conversion cable
CS1W-CIF31

Barcode reader
Serial

Printer
Serial

RS-422A/485 conversion unit
CJ1W-CIF11
NS-AL002

Temperature controller
E5_N, EJ1, etc.

I/O terminals

Inverters

GRT1 series
SmartSlice I/O

Other company´s equipments

non-Omron device

OMRON

Dyalox

Industrial PC created for 24/7 operation in the most demanding industrial environments

The DyaloX Industrial PC is designed to provide exceptional performance operating around-the-clock throughout its lifetime. Drawing on our many years of experience in industrial-class standalone PC-based equipment, we have created unique self-diagnostic hardware and software, such as the Omron RAS solution, to ensure that DyaloX IPCs will keep on running long after other IPCs have given up.

- Omron RAS solution
- Industrial-grade 600 MHz or 1.3 GHz Intel Celeron CPU
- Reliable silicon storage up to 8GB
- Fan-less heat sink cooling for enhanced reliability
- 3 year warranty, 5 year minimum availability, 7 year courier repair service

Ordering information

DyaloX IPC

Type		Order Code
Industrial PC panel, 600 MHz CPU	12 inches, 600 MHz, 512 MB internal, black	NSA12-TX12B
	12 inches, 600 MHz, 512 MB internal, silver	NSA12-TX12S
	15 inches, 600 MHz, 512 MB internal, black	NSA15-TX12B
	15 inches, 600 MHz, 512 MB internal, silver	NSA15-TX12S
Industrial PC panel, 1.3 GHz CPU	12 inches, 1.3 GHz, 512 MB internal, 2 GB storage, black	NSA12-TX01B-E
	12 inches, 1.3 GHz, 512 MB internal, 2 GB storage, silver	NSA12-TX01S-E
	15 inches, 1.3 GHz, 512 MB internal, 2 GB storage, black	NSA15-TX01B-E
	15 inches, 1.3 GHz, 512 MB internal, 2 GB storage, silver	NSA15-TX01S-E
Industrial PC box, 1.3 GHz CPU	1.3 GHz, RAM: 512 MB, storage: 2 GB	NSA-CPU01-E
	1.3 GHz, RAM: 512 MB, storage: 4 GB	NSA-CPU02-E
	1.3 GHz, RAM: 1 GB, storage: 2 GB	NSA-CPU03-E
	1.3 GHz, RAM: 1 GB, storage: 4 GB	NSA-CPU04-E

Touch panel

Type		Order Code
Touchscreen panel	15 inches, black	NSA-TX151B
	15 inches, silver	NSA-TX151S
	17 inches, black	NSA-TY171B
	17 inches, silver	NSA-TY171S

Accessories

Type	Order Code
2 GB CF with XP Embedded English	NSA-CEX02-E
4 GB CF with XP Embedded English	NSA-CEX04-E
8 GB CF with XP Embedded English	NSA-CEX08-E
512 MB DDR-SD RAM (non-ECC)	NSA-MR581
1 GB DDR-SD RAM (non-ECC)	NSA-MR191
DVI & USB cable 0.1 m	NSA-DU02
DVI & USB cable 2 m	NSA-DU22
DVI & USB cable 5 m	NSA-DU52
DVI cable 10 m	NSA-DV101
Set of 5 Anti-reflection sheets for 12 inches	NS12-KBA04
Set of 5 Anti-reflection sheets for 15 inches	NS15-KBA04
Battery for NSA12/15-TX01, NSA-CPU	NSA-BAT01
Battery for NSA12/15-TX12	NSA-BAT03

HMI

3

DyaloX IPC specifications

Main specifications

Item		NSA1_-TX12	NSA1_-TX01_-E	NSA-CPU01-E	NSA-CPU02-E	NSA-CPU03-E	NSA-CPU04-E
OS		CF with Windows XP embedded[*1]	Preinstalled Windows XP embedded				
Processor		600 MHz Intel Celeron-M Processor	1.3 GHz Intel Celeron-M Processor				
Storage device	Type	Industrial CF memory or HDD[*1]	DiskOnModule (Flash memory)				
	Capacity	CF: 2/4/8 GB (with OS) IDE I/F[*1]	2 GB	2 GB	4 GB	2 GB	4 GB
	Service life (write cycles)	CF: 100,000 write cycle/block HDD: 2 years at 24 hours/day operation, 3 years at 8 hours/day operation	NAND flash memory: 100,000 write cycles (to the same block)[*2]				
Memory	Main memory	512 MB DDR-SDRAM (non-ECC)	512 MB DDR-SDRAM (non-ECC)			1GB DDR-SDRAM (non-ECC)	
	Cache memory	512 KB Level 2 cache memory (built into the CPU)					
Interface	Keyboard	-	PS/2 keyboard with 6-pin MINI DIN connector				
	Mouse	-	PS/2 mouse with MINI DIN connector				
	Serial ports	2 ports conforming to EIA RS-232C for 9-pin D-SUB male connectors					
	Ethernet	2 x 10 BASE-T/ 100 BASE-TX RJ45 connector	One 10 BASE-T/100 BASE-TX port for an RJ45 connector				
	USB ports	4 x USB 2.0/1.1 for type-A connectors. (2 on front panel, cable 3 m max.)	2 USB 2.0/1.1 ports for USB type-A connectors	2 USB 2.0/1.1 ports for USB type-A connectors 2 USB 1.1 for USB type-A connectors			
	Memory Card	1 CF Card slot					
	Video output	-		1 DVI port for DVI-I connector			
	Audio	-		Line-In/Line-Out/Mic-In for mini jack			
Expansion slots		PCI expansion bus, 1 slot	PCI expansion bus, 2 slots				
Special RAS board	External input port	3-pin connector port for the UPS power interruption signal					
	Status LEDindicators	4 (RUN/BATLOW/ERR/DIAG)					
RAS functions	Special RAS board functions	Alive connection monitoring, device restart, timer start, startup and shutdown monitoring, backlight lit time measurement, UPS power interrupt signal output, and logging functions					
	Motherboard RAS functions	Standard PC RAS info, post error logging, post error retry, CMOS data recovery					
POWER LED indicator		Yes (green)					
Service life[*3]		50,000 hours at 40°C		50,000 hours at 30°C			
Battery life	Main board	5 years at 25°C (NSA-BAT03)	5 years at 25°C (NSA-BAT01)				
	RAS board	5 years at 25°C (NSA-BAT03)	5 years at 25°C (NSA-BAT01)				

[*1] Sold separately
[*2] Calculate condition
    Free area: 500 MB (*excluding OS & Application)
    Overwrite data size/time: 0.5 MB/time
    Overwrite times/day: 10,000 times/day
    MTBF: (500 MB *100,000 times) / (0.5 MB *10,000 times/day) = 10,000 days = 27 years
[*3] The service life is a guideline that is provided strictly for reference. It varies with factors such as the installation location and operating conditions.

OMRON

Touch Panel specifications

Item		NSA12-TX12_-E	NSA15-TX12_-E	NSA12-TX01_-E	NSA15-TX01_-E
Display panel	Type	TFT colour LCD			
	Size	12.1 inches	15 inches	12.1 inches	15 inches
	Resolution	1024×768 dots			
	Brightness	300 cd/m^2 (typical)			
	Viewing angle	130° left to right, 90° up and down			
	Colours displayed	262,144			
Backlight	Type	2 CCFL	4 CCFL	2 CCFL	4 CCFL
	Brightness adjustment	Three-level software adjustment[1]			
	Backlight not lit detection	The software reads the lamp burnout detection signal from the inverter[2]			
	Service life	50,000 hours min.[3]			
Touch panel	Type	Analogue resistive type			
	Effective input area Size in mm (H×W)	185.5×247	229×305	185.5×247	229×305
	Operating service life	10,000,000 operations (with non-stop key stroking using fingers to input) 100,000 characters (with non-stop character entry using a stylus to input)			
Interface	USB ports	4 x USB2.0/1.1 for type-A connectors (2 on front side)		2 x USB2.0/1.1 for type-A connectors	
	Video Input	-			
POWER LED indicator		Yes (green)			
Service life[4]		50,000 hours at 25°C		50,000 hours at 40°C	

[1] The contrast cannot be adjusted significantly.
[2] It is not the service life, but rather lamp failure due to hardware problems such as a broken wire that is detected. Backlight not lit detection means both backlight lamps have burnt out.
[3] The service life is a guideline for maximum contrast at room temperature with normal humidity and is provided strictly for reference. It varies significantly with the ambient temperature. The service life will be shorter under extreme (high or low) temperature conditions and falls off sharply particularly under low-temperature conditions.
[4] The service life is a guideline that is provided strictly for reference. It varies with factors such as the installation location and operating conditions.

General specifications

Item	NSA1_-TX12_-E	NSA1_-TX01_-E	NSA-CPU0_-E
Rated supply voltage	24 VDC		
Allowable supply voltage range	20.4 VDC to 27.6 VDC (24 VDC ±15%)	20.0 VDC to 27.6 VDC (24 VDC ±15%)	
Power consumption	12 inches: 65 W max. 15 inches: 75 W max.	12 inches: 80 W max. 15 inches: 100 W max.	60 W max.
Ambient operating temperature	0 to 50°C[1]		
Ambient storage temperature	-10 to 60°C[1]		
Ambient operating humidity	10% to 80% with no condensation[1]		
Ambient storage humidity	10% to 85% with no condensation[1]		
Operating atmosphere	Must be free of corrosive gases. Must be fairly dust free.		
Noise resistance	Conforms to IEC6100-4-4, power supply line: 2 kV		
Vibration resistance (in operation)	Conforms to JIS C0041, 0.05 mm amplitude at 10 to 55 Hz for 50 min. Each in the X, Y, and Z directions		
Shock resistance (in operation)	Conforms to JIS C0041, 196 m/s^2 three times each in the X, Y, and Z directions		
Degree of protection	Front panel: IP65 or the equivalent[1]		–
Weight	12 inches: 5 kg max. 15 inches: 7 kg max.	12 inches: 5 kg max. 15 inches: 7 kg max.	4 kg max.
Dimensions in mm (HxWxD)	12 inches: 281×342×98 15 inches: 296.5×397.5×103	12 inches: 264×322×100 15 inches: 312×384×108	233x308x76.5

[1] For more information, please check the user manual.

CF & HDD

Item	NSA-CEX02	NSA-CEX04	NSA-CEX08
Storage capacity	2 GB	4 GB	8 GB

HMI

3

Touch panel specifications (box model)

Item		NSA-TX151	NSA-TY171
Display panel	Type	TFT colour LCD	
	Size	15.0 inches	17.0 inches
	Resolution	1024×768 dots	1280×1024 dots
	Brightness	270 cd/m^2 (typical)	200 cd/m^2 (typical)
	Viewing angle	130° left to right, 90° up and down	
	Colours displayed	262,144	
Backlight	Type	2 CCFL	4 CCFL
	Brightness adjustment	10 level adjustment by rotary switch	
	Service life	50,000 hours min.[1]	
Touch panel	Type	Analogue resistive type	
	Effective input area Size in mm (H×W)	229×305	272×340
	Operating service life	10,000,000 operations (with non-stop key stroking using fingers to input) 100,000 characters (with non-stop character entry using a stylus to input)	
Interface	USB ports	3 x USB 1.1 for type-A connectors (2 on front side) 1 x USB 1.1 (used for touch) for type-B connector	
	Video Input	1 x DVI-D port	
POWER LED indicator		Yes (green)	
Service life[2]		50,000 hours at 30°C	

[1] The service life is a guideline for maximum contrast at room temperature with normal humidity and is provided strictly for reference. It varies significantly with the ambient temperature. The service life will be shorter under extreme (high or low) temperature conditions and falls off sharply particularly under low-temperature conditions.
[2] The service life is a guideline that is provided strictly for reference. It varies with factors such as the installation location and operating conditions.

General specifications (box model)

Item	NSA-TX151	NSA-TY171
Rated supply voltage	24 VDC	
Allowable supply voltage range	20.0 VDC to 27.6 VDC (24 VDC ±15%)	
Power consumption	40 W max.	55 W max.
Ambient operating temperature	0 to 50°C[1]	
Ambient storage temperature	-10 to 60°C[1]	
Ambient operating humidity	10% to 80% with no condensation[1]	
Ambient storage humidity	10% to 85% with no condensation[1]	
Operating atmosphere	Must be free of corrosive gases. Must be fairly dust free.	
Noise resistance	Conforms to IEC6100-4-4, power supply line: 2 kV	
Vibration resistance (in operation)	Conforms to JIS C0041, 0.05 mm amplitude at 10 to 55 Hz for 50 min. Each in the X, Y, and Z directions	
Shock resistance (in operation)	Conforms to JIS C0041, 196 m/s^2 three times each in the X, Y, and Z directions	
Degree of protection	IP65F (front panel oil protection)[1]	
Weight	6 kg max.	7 kg max.
Dimensions in mm (HxWxD)	328x404x57	371x436x57

[1] For more information, please check the user manual.

HMI with integrated PLC and Network interface

The NSJ12 and NSJ10 are combined with a CJ1G-CPU 45H and a DeviceNet or PROFIBUS interface fitted into a compact housing occupying less panel space than the separate products. Programming can be done via the standard high-speed USB port. The SYSMAC One is completely transparent, so the PLC, network (including field devices) and HMI can be accessed via a single port. A great advantage when servicing your machine remotely.

- HMI + PLC with 2 separate CPUs for greater performance and reliability
- Transparent architecture for easy remote maintenance
- Compact design occupying less panel space
- Flexible and cost-effective solution with multiple screen sizes, CPUs & networks
- Smart Active Parts for graphical interaction to field devices

Ordering Information

Type					Order Code
SYSMAC One 12.1" TFT	CJ1G-CPU45H	PROFIBUS	with Ethernet	Black	NSJ12-TS01B-G5P
				Ivory	NSJ12-TS01-G5P
SYSMAC One 12.1" TFT	CJ1G-CPU45H	PROFIBUS	no Ethernet	Black	NSJ12-TS00B-G5P
				Ivory	NSJ12-TS00-G5P
SYSMAC One 10" TFT	CJ1G-CPU45H	PROFIBUS	with Ethernet	Black	NSJ10-TV01B-G5P
				Ivory	NSJ10-TV01-G5P
SYSMAC One 10" TFT	CJ1G-CPU45H	PROFIBUS	no Ethernet	Black	NSJ10-TV00B-G5P
				Ivory	NSJ10-TV00-G5P

Type					Order Code
SYSMAC One 12.1" TFT	CJ1G-CPU45H	DeviceNet	with Ethernet	Black	NSJ12-TS01B-G5D
				Ivory	NSJ12-TS01-G5D
SYSMAC One 12.1" TFT	CJ1G-CPU45H	DeviceNet	no Ethernet	Black	NSJ12-TS00B-G5D
				Ivory	NSJ12-TS00-G5D
SYSMAC One 10" TFT	CJ1G-CPU45H	DeviceNet	with Ethernet	Black	NSJ10-TV01B-G5D
				Ivory	NSJ10-TV01-G5D
SYSMAC One 10" TFT	CJ1G-CPU45H	DeviceNet	no Ethernet	Black	NSJ10-TV00B-G5D
				Ivory	NSJ10-TV00-G5D

Note: For the accessories, please refer to page 68

Specifications

Item		NSJ12-TS0_-G5D	NSJ10-TV0_-G5D
Supply voltage		24 VDC	
Allowable supply voltage range		20.4 to 27.6 VDC (24 VDC ±15%)	
Power consumption		30 W max.	
Current consumption		Controller Section Internal 5 V: 500 mA max. DeviceNet Section Internal 5 V: 200 mA max., External 24 V: 18 mA max.	
Inrush current [1]		At 24 VDC: 10 A/20 ms max. for cold start at room temperature	
Ambient operating temperature (depending on angle of display surface off horizontal) [2]		$90°$ to $60°$: 0 to 50°C $60°$ to $30°$: 0 to 45°C $30°$ to $0°$: Use prohibited	
Ambient storage temperature		-20 to 60°C	
Ambient operating humidity		0 to 40°C: 35% to 85% (with no condensation) 40 to 50°C: 35% to 60% (with no condensation)	
Ambient operating environment		No corrosive gases	
Insulation resistance		20 MΩ min. (at 100 VDC) between DC external and GR terminals	
Dielectric strength		800 VDC for 1 min between DC external and GR terminals, leakage current: 10 mA max.	
Noise immunity		2 kV on power supply line (conforming to IEC 61000-4-4)	
Vibration resistance (during operation)		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	
Shock resistance (during operation)		147 m/s^2, 3 times each in X, Y and Z directions	
External dimensions in mm (W×H×D)	Without Expansion unit	315x241x73.3	
	With Expansion unit	315x241x89.3	
Panel output dimensions		$302^{+1}_{0} \times 228^{+1}_{0}$ mm (W×H) Panel thickness: 1.6 to 4.8	
Grounding		100 Ω or less	
Weight		2.7 kg max.	2.5 kg max.
Degree of protection		Front operating panel: Equivalent to IP65F and NEMA4 [3]	

Item	NSJ12-TS0_-G5D	NSJ10-TV0_-G5D
Battery life	5 years (at 25°C) The SRAM and RTC will be backed up for 5 days after the battery runs low (i.e., after the indicator lights orange). The SRAM and RTC will be backed up by a super capacitor for 5 minutes after removing the old battery (i.e., after turning ON power after 5 minutes).	
International standards	Conforms to cULus and EC Directives.	

[*1] A delay circuit that charges a capacitor is used to limit the inrush current. If a hot start is performed when the power supply has been OFF only a short period of time, the capacitor will still be charged and the inrush current specified above will be exceeded by up to approximately five times the specified value. When selecting fuses or breakers for external circuits, allow sufficient margin in the melting temperatures, detection characteristics, and inrush current.

[*2] Display angles off horizontal are as follows:

[*3] May not be applicable in locations with long-term exposure to oil.

OMRON

HMI with integrated PLC and Network interface

The NSJ8 and NSJ5 are combined either with a CJ1G-CPU 45H or with a low-cost CJ1M-CPU13 PLC and a DeviceNet or PROFIBUS interface. It is fitted into a compact housing occupying less panel space than the separate products. Programming can be done via the standard high-speed USB port. The SYSMAC One is completely transparent, so the PLC, network (including field devices) and HMI can be accessed via a single port. A great advantage when servicing your machine remotely.

- HMI + PLC with 2 separate CPUs for greater performance and reliability
- Transparent architecture for easy remote maintenance
- Compact design taking up less panel space
- Flexible and cost effective solution with multiple screen sizes, CPUs & networks
- Smart Active Parts for graphical interaction to field devices

HMI

3

Ordering Information

Type					Order Code
SYSMAC One 8.4" TFT	CJ1G-CPU45H	PROFIBUS	with Ethernet	Black	NSJ8-TV01B-G5P
				Ivory	NSJ8-TV01-G5P
SYSMAC One 8.4" TFT	CJ1G-CPU45H	PROFIBUS	no Ethernet	Black	NSJ8-TV00B-G5P
				Ivory	NSJ8-TV00-G5P
SYSMAC One 5.7" TFT	CJ1G-CPU45H	PROFIBUS	with Ethernet	Black	NSJ5-TQ11B-G5P
				Ivory	NSJ5-TQ11-G5P
SYSMAC One 5.7" TFT	CJ1G-CPU45H	PROFIBUS	no Ethernet	Black	NSJ5-TQ10B-G5P
				Ivory	NSJ5-TQ10-G5P
SYSMAC One 5.7" STN	CJ1G-CPU45H	PROFIBUS	with Ethernet	Black	NSJ5-SQ11B-G5P
				Ivory	NSJ5-SQ11-G5P
SYSMAC One 5.7" STN	CJ1G-CPU45H	PROFIBUS	no Ethernet	Black	NSJ5-SQ10B-G5P
				Ivory	NSJ5-SQ10-G5P
SYSMAC One 8.4" TFT	CJ1M-CPU13	PROFIBUS	with Ethernet	Black	NSJ8-TV01B-M3P
				Ivory	NSJ8-TV01-M3P
SYSMAC One 8.4" TFT	CJ1M-CPU13	PROFIBUS	no Ethernet	Black	NSJ8-TV00B-M3P
				Ivory	NSJ8-TV00-M3P
SYSMAC One 5.7" TFT	CJ1M-CPU13	PROFIBUS	with Ethernet	Black	NSJ5-TQ11B-M3P
				Ivory	NSJ5-TQ11-M3P
SYSMAC One 5.7" TFT	CJ1M-CPU13	PROFIBUS	no Ethernet	Black	NSJ5-TQ10B-M3P
				Ivory	NSJ5-TQ10-M3P
SYSMAC One 5.7" STN	CJ1M-CPU13	PROFIBUS	with Ethernet	Black	NSJ5-SQ11B-M3P
				Ivory	NSJ5-SQ11-M3P
SYSMAC One 5.7" STN	CJ1M-CPU13	PROFIBUS	no Ethernet	Black	NSJ5-SQ10B-M3P
				Ivory	NSJ5-SQ10-M3P

Type					Order Code
SYSMAC One 8.4" TFT	CJ1G-CPU45H	DeviceNet	with Ethernet	Black	NSJ8-TV01B-G5D
				Ivory	NSJ8-TV01-G5D
SYSMAC One 8.4" TFT	CJ1G-CPU45H	DeviceNet	no Ethernet	Black	NSJ8-TV00B-G5D
				Ivory	NSJ8-TV00-G5D
SYSMAC One 5.7" TFT	CJ1G-CPU45H	DeviceNet	with Ethernet	Black	NSJ5-TQ11B-G5D
				Ivory	NSJ5-TQ11-G5D
SYSMAC One 5.7" TFT	CJ1G-CPU45H	DeviceNet	no Ethernet	Black	NSJ5-TQ10B-G5D
				Ivory	NSJ5-TQ10-G5D
SYSMAC One 5.7" STN	CJ1G-CPU45H	DeviceNet	with Ethernet	Black	NSJ5-SQ11B-G5D
				Ivory	NSJ5-SQ11-G5D
SYSMAC One 5.7" STN	CJ1G-CPU45H	DeviceNet	no Ethernet	Black	NSJ5-SQ10B-G5D
				Ivory	NSJ5-SQ10-G5D

OMRON

Type					Order Code
SYSMAC One, 8.4" TFT	CJ1M-CPU13	DeviceNet	with Ethernet	Black	NSJ8-TV01B-M3D
				Ivory	NSJ8-TV01-M3D
SYSMAC One, 8.4" TFT	CJ1M-CPU13	DeviceNet	no Ethernet	Black	NSJ8-TV00B-M3D
				Ivory	NSJ8-TV00-M3D
SYSMAC One, 5.7" TFT	CJ1M-CPU13	DeviceNet	with Ethernet	Black	NSJ5-TQ11B-M3D
				Ivory	NSJ5-TQ11-M3D
SYSMAC One, 5.7" TFT	CJ1M-CPU13	DeviceNet	no Ethernet	Black	NSJ5-TQ10B-M3D
				Ivory	NSJ5-TQ10-M3D
SYSMAC One, 5.7" STN	CJ1M-CPU13	DeviceNet	with Ethernet	Black	NSJ5-SQ11B-M3D
				Ivory	NSJ5-SQ11-M3D
SYSMAC One, 5.7" STN	CJ1M-CPU13	DeviceNet	no Ethernet	Black	NSJ5-SQ10B-M3D
				Ivory	NSJ5-SQ10-M3D

Function	CJ1G-CPU45H	CJ1M-CPU13
UM capacity	60K steps	20K steps
I/O	1,280 points	640 points
Extended data memory	32K words × 3 banks	–
EM file memory	Yes	–
Maximum number of Expansion Racks	3	1
FB program memory capacity	1024 KB	256 KB
Maximum number of FB definitions	1,024	128
Maximum number of FB instances	2,048	256
Variable table sizes	128 KB	64 KB

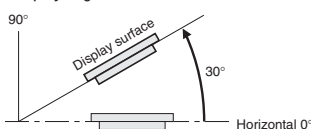Note: For the accessories, please refer to page 68

Specifications

Item	NSJ8-TV0_-G5D NSJ8-TV0_-M3D		NSJ5-TQ1_-G5D NSJ5-SQ1_-G5D NSJ5-TQ1_-M3D NSJ5-SQ1_-M3D
Supply voltage	24 VDC		
Allowable supply voltage range	20.4 to 27.6 VDC (24 VDC ±15%)		
Power consumption	30 W max.		SQ0_: 21 W max. TQ0_: 22 W max.
Current consumption	Controller Section Internal 5 V: 500 mA max. DeviceNet Section Internal 5 V: 200 mA max., External 24 V: 18 mA max.		
Inrush current [1]	At 24 VDC: 10 A/20 ms max. for cold start at room temperature		
Ambient operating temperature (depending on angle of display surface off horizontal) [2]	90° to 60°: 0 to 50°C 60° to 30°: 0 to 45°C 30° to 0°: Use prohibited		90° to 30°: 0 to 50°C 30° to 0°: 0 to 40°C
Ambient storage temperature	-20 to 60°C		
Ambient operating humidity	0 to 40°C: 35% to 85% (with no condensation) 40 to 50°C: 35% to 60% (with no condensation)		
Ambient operating environment	No corrosive gases		
Insulation resistance	20 MΩ min. (at 100 VDC) between DC external and GR terminals		
Dielectric strength	800 VDC for 1 min between DC external and GR terminals, leakage current: 10 mA max.		
Noise immunity	2 kV on power supply line (conforming to IEC 61000-4-4)		
Vibration resistance (during operation)	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		
Shock resistance (during operation)	147 m/s^2, 3 times each in X, Y and Z directions		
External dimensions in mm (W×H×D)	Without Expansion unit	232×177×73.3	195×142×79
	With Expansion unit	232×177×89.3	195×142×95
Panel output dimensions	$220.5^{+0.50}_{0} \times 165.5^{+0.50}_{0}$ mm (W×H) Panel thickness: 1.6 to 4.8		$184^{+0.50}_{0} \times 131^{+0.50}_{0}$ mm (W×H) Panel thickness: 1.6 to 4.8
Grounding	100 Ω or less		
Weight	2.0 kg max.		1.1 kg max.
Degree of protection	Front operating panel: Equivalent to IP65F and NEMA4 [3]		
Battery life	5 years (at 25°C) The SRAM and RTC will be backed up for 5 days after the battery runs low (i.e., after the indicator lights orange). The SRAM and RTC will be backed up by a super capacitor for 5 minutes after removing the old battery (i.e., after turning ON power after 5 minutes).		
International standards	Conforms to cULus and EC Directives.		

[1] A delay circuit that charges a capacitor is used to limit the inrush current. If a hot start is performed when the power supply has been OFF only a short period of time, the capacitor will still be charged and the inrush current specified above will be exceeded by up to approximately five times the specified value. When selecting fuses or breakers for external circuits, allow sufficient margin in the melting temperatures, detection characteristics, and inrush current.

[2] Display angles off horizontal are as follows:

[3] May not be applicable in locations with long-term exposure to oil.

OMRON

One-touch machine management

The NS-series is our advanced HMI series that covers a large range from 5.7" Mono-chrome STN to 15" TFT. Easily programmed it offers advanced features like, many communication possibilities, very good synergy with our PLC's and other devices with Ladder monitor, Smart Active Parts and proven reliability.

- Perfect clarity and fast switching screens
- Extremely long backlight life (up to 50,000 hours)
- Support all European languages, Asian and Cyrillic
- Easy data logging on compact flash
- Large Memory size (60 MB)
- Support for several non-Omron PLC's

HMI

3

Ordering information

Type			Order Code
TFT, 15'', 1024 x 768 pixels	with Ethernet	Black	NS15-TX01B-V2
		Silver	NS15-TX01S-V2
TFT, 12'', 800 x 600 pixels	no Ethernet	Black	NS12-TS00B-V2
		Ivory	NS12-TS00-V2
	with Ethernet	Black	NS12-TS01B-V2
		Ivory	NS12-TS01-V2
TFT, 10'', 640 x 480 pixels	no Ethernet	Black	NS10-TV00B-V2
		Ivory	NS10-TV00-V2
	with Ethernet	Black	NS10-TV01B-V2
		Ivory	NS10-TV01-V2
TFT, 8.4'', 640 x 480 pixels	no Ethernet	Black	NS8-TV00B-V2
		Ivory	NS8-TV00-V2
	with Ethernet	Black	NS8-TV01B-V2
		Ivory	NS8-TV01-V2

Note: For the accessories, please refer to page 68

Specifications

Item	NS15	NS12	NS10	NS8
Display type	15 inch colour TFT	12 inch colour TFT	10 inch colour TFT	8 inch colour TFT
Display resolution	1024×768 (XGA)	800×600 (SVGA)	640×480 (VGA)	
Number of colours	256 (32.768 for image data)			
Backlight	2×CCFL	1×CCFL		
Backlight lifetime	Min. 50000 hours			
View angle	Left/right ±85°, Top 70°, Bottom 80°	Left/right ±60°, Top 45°, Bottom 75°	Left/right ±60°, Top 35°, Bottom 65°	Left/right ±65°, Top 50°, Bottom 60°
Touch panel	Analogue resistive touch	Matrix resistive touch		
Number of functional keys	3	–		
Dimensions in mm (H×W×D)	304×405×75.8	241×315×48.5		177x195x48.5
Weight	4.2 kg max.	2.5 kg max.		2.0 kg max.
Screen data capacity	60 MB			
Internal memory	Bit memory: 32,767 bits, Word memory: 32,767 words, Retentative memory: 8,192 bits and 8,192 words.			
Memory card interface	1 slot ATA Compact Flash card			
Printer connection	PictBridge support			
Serial (COM1)	1×RS-232			
Serial (COM2)	1×RS-232/422/485	1×RS-232		
USB Slave	For programming & printing			
Ethernet	IEEE 802.3u 10Base-T/100Base-TX			
Expansion module	Optional network/video unit			Optional video unit
Line voltage	24 VDC ±15%			
Power consumption	45 W max.	25 W max.		
Battery	CJ1W-BAT01			
Battery lifetime	5 years (at 25°C)			
Enclosure rating (front side)	IP65F (equivalent to NEMA4)			
Obtained standards	UL 1604 Class 1 Diff. 2, cUL, CE, Lloyds, DNV			
Operating environment	No corrosive gases			
Noise immunity	Conforms to IEC61000-4-4, 2 KV (power lines)			
Ambient operating temperature	0 to 50°C[1]			
Ambient operating humidity	35% to 85% (0 to 40°C) with no condensation, 35% to 60% (40 to 50°C) with no condensation			

[1] see manual for details.

OMRON

More power, smaller size

This series consists of Monochrome models with 16 grey scales and STN/TFT models with up to 32,768 colours. It is equipped with a USB connection for project download/upload and the possibility to communicate over Ethernet. One great advantage with the NS is that you can make use of Omron unique Smart Active Parts (SAP) that save you time when configuring, commissioning and maintaining your machine. SAP are pre-programmed, pre-tested visualisation objects with embedded communication code, bringing 'drag and drop' simplicity to HMI design.

- Perfect clarity and fast switching screens
- Extremely long backlight life (up to 75,000 hours)
- Support all European languages, Asian and Cyrillic
- Easy data logging on compact flash
- Large Memory size (60 MB)
- Support for several non-Omron PLC's

Ordering information

Type				Order Code
NS5-TQ	TFT, 5.7'', 320×240 pixels	no Ethernet	Black	NS5-TQ10B-V2
			Ivory	NS5-TQ10-V2
		with Ethernet	Black	NS5-TQ11B-V2
			Ivory	NS5-TQ11-V2
NS5-SQ	TFT, 5.7'', 320×240 pixels	no Ethernet	Black	NS5-SQ10B-V2
			Ivory	NS5-SQ10-V2
		with Ethernet	Black	NS5-SQ11B-V2
			Ivory	NS5-SQ11-V2
NS5-MQ	STN, Monochrome 5.7'', 320×240 pixels	no Ethernet	Black	NS5-MQ10B-V2
			Ivory	NS5-MQ10-V2
		with Ethernet	Black	NS5-MQ11B-V2
			Ivory	NS5-MQ11-V2

Note: For the accessories, please refer to page 68

Specifications

Item	NS5-TQ	NS5-SQ	NS5-MQ
Display type	5.7 inch colour TFT		5.7 inch monochrome
Display resolution	340×240 (QVGA)		
Number of colours	256 (32.768 for image data)		16 grey scales
Backlight	LED		CCFL
Backlight lifetime	Min. 75000 hours		Min. 50000 hours
View angle	Left/right ±80°, Top 80°, Bottom 60°		Left/right ±45°, Top 20°, Bottom 40°
Touch panel	Matrix resistive touch		
Number of functional keys	–		
Dimensions in mm (H×W×D)	142×195×54		
Weight	1.0 kg max.		
Screen data capacity	60 MB		
Internal memory	Bit memory: 32,767 bits, Word memory: 32,767 words, Retentative memory: 8,192 bits and 8,192 words.		
Memory card interface	1 slot ATA Compact Flash card		
Printer connection	PictBridge support		
Serial (COM1)	1×RS-232		
Serial (COM2)	1×RS-232		
USB Slave	For programming & printing		
Ethernet	IEEE 802.3u 10Base-T/100Base-TX		
Expansion module	–		
Line voltage	24 VDC ±15%		
Power consumption	15 W max.		
Battery	CJ1W-BAT01		
Battery lifetime	5 years (at 25°C)		
Enclosure rating (front side)	IP65F (equivalent to NEMA4)		
Obtained standards	UL 1604 Class 1 Diff. 2, cUL, CE, Lloyds, DNV		
Operating environment	No corrosive gases		
Noise immunity	Conforms to IEC61000-4-4, 2 KV (power lines)		
Ambient operating temperature	0 to 50°C[1]		
Ambient operating humidity	35% to 85% (0 to 40°C) with no condensation, 35% to 60% (40 to 50°C) with no condensation		

[1] See manual for details.

OMRON

NS5 handheld

Scalable HMI

NS5 handheld, suitable for use in harsh conditions

The NS series has evolved into a mobile format. Based on the standard 5.7" TFT colour version, we can offer a handheld version of the NS series. Offering 10 Function keys for most used functions and with a protection degree of IP65 it is the product to use in harsh environment where freedom of movement is needed.

- 10 Function keys, 4 hardwired for inching
- Emergency switch on front plus enable switch on back of unit
- Well protected against water, IP65
- Compact Flash, Serial and USB interface

Ordering information

Type			Order code
NSH5	TFT, 5.7", 320×240 pixels	Black	NSH5-SQR10B-V2

Accessories

Type	Order code
Bracket NS handheld protecting emergency button from accidental activation	NSH5-ATT01
Bracket NS handheld for wall mounting	NSH5-ATT02
Cable NS handheld, RS-422, 10m UL	NSH5-422UL-10M
Cable NS handheld, RS-232, 10m UL	NSH5-232UL-10M
Cable NS handheld, RS-232, 3m UL	NSH5-232UL-3M

Specifications

Memory card interface	1 slot ATA Compact Flash card
Serial (COM1)	1×RS-232/RS-422A
USB Slave	For programming
Line voltage	24 VDC ±15%
Power consumption	10 W max.
Battery	CJ1W-BAT01
Battery lifetime	5 years (at 25°C)
Enclosure rating	IP65[1]
Obtained standards	UL 1604 Class 1 Diff. 2, cUL, CE, NEMA equivalent
Operating environment	No corrosive gases
Noise immunity	Conforming to IEC 61000-4-4: 2 kV (power supply line)
Ambient operating temperature	0 to 40°C
Ambient operating humidity	35% to 85% max. (with no condensation)
Vibration resistance (during operation)	10 to 57 Hz with amplitude of 0.075 mm, 57 to 150 Hz with acceleration of 9.8 m/s^2 three minutes each in X, Y, and Z directions
Shock resistance (during operation)	147 m/s^2 three times each in X, Y, and Z directions
Drop test[1]	Dropped from 1 m. Conforming to JIS B 3502/IEC61131-2

[1] see manual for details.

HMI

3

OMRON

Ordering information

Type	Description		Order code
Cable	Serial programming cable		XW2Z-S002
	USB programming cable, 2 m		CP1W-CN221
PT-to-PLC Connecting Cable	PT connection: 9 pins PLC connection: 9 pins	Length: 2 m	XW2Z-200T
		Length: 5 m	XW2Z-500T
Accessories	Video input	Inputs: 4 channels NTSC / PAL	NS-CA001
		Inputs: 2 channels NTSC / PAL, 1 channel RGB	NS-CA002
	Cable to connect NS-CA00_ to Video console unit		F150-VKP (2 m)
			F150-VKP (5 m)
	Controller link interface unit		NS-CLK21
	RS-422A/485 adapter (50 m)		CJ1W-CIF11
	RS-422A adapter (500 m)		NS-AL002
	Anti-reflection sheets (5 sheets)	NS15	NS15-KBA04
		NS12/10	NS12-KBA04
		NS8	NS7-KBA04
		NS5	NT30-KBA04
	Anti-reflection protective covers (5 pack)	NS12/10	NS12-KBA05
		NS8	NS7-KBA05
		NS5	NT31C-KBA05
	Transparent protective covers (5 pack)	NS15 (1 cover)	NS15-KBA05N
		NS12/10	NS12-KBA05N
		NS8	NS7-KBA05N
		NS5	NT31C-KBA05N
	Chemical-resistant cover (1 cover)	NS5	NT30-KBA01
	Attachment adapter	(NT625C/631/631C series to NS12 series)	NS12-ATT01
		(NT625C/631/631C series to NS12 series) Black	NS12-ATT01B
		(NT620S/620C/600S series to NS8 series)	NS8-ATT01
		(NT600M/600G/610G/612G series to NS8 series)	NS8-ATT02
	Memory card	128 MB	HMC-EF183
		256 MB	HMC-EF283
		512 MB	HMC-EF583
	Memory card adapter for PC		HMC-AP001
	Battery		CJ1W-BAT01

OMRON

Power behind a clear display

The NQ Series comes in different display sizes and each in a colour and monochrome version. All of them display clear and sharp pictures, buttons, text and graphs on a modern touch screen.

• Clear and bright display
• Portrait/Landscape display (NQ5)
• USB Host and Slave connections
• Easy to use software
• Trending, Logging, Alarm handling, etc.

Ordering information

Type			Order Code
Colour TFT	5.7 inch, 320x240 pixels	Ethernet	NQ5-TQ010-B
Colour STN	5.7 inch, 320x240 pixels	No Ethernet	NQ5-SQ000-B
		No Ethernet, Portrait model	NQ5-SQ001-B
Monochrome STN	5.7 inch, 320x240 pixels	No Ethernet	NQ5-MQ000-B
		No Ethernet, Portrait model	NQ5-MQ001-B
Colour TFT	3.5 inch, 320x240 pixels	No Ethernet	NQ3-TQ000-B
		Ethernet	NQ3-TQ010-B
Monochrome FSTN	3.8 inch, 320x240 pixels	No Ethernet	NQ3-MQ000-B

Accessories

Type		Order code
Cables	Mini-peripheral port CJ1/CS1/CQM1H/CPM2C PLC, 2 m	NQ-CN221
	Serial port RS-232 CJ1/CS1/CP1/CQM1H PLC, 2 m	NQ-CN222
	Serial port RS-232 CJ1/CS1/CP1/CQM1H PLC, 5 m	NQ-CN521
	USB programming cable, 2 m	CP1W-CN221
	Serial programming cable, 2 m	NT2S-CN002
Software	NQ-Designer can be downloaded for free from Omron website.	–
Accessories	Maintenance set including 2 x 24 V plug and 4 x mounting clamps	NQ-ATT01
	Battery	NQ-BAT01

Specifications

Item	NQ5-TQ	NQ5-SQ	NQ5-MQ	NQ3-TQ	NQ3-MQ
Display type	5.7 inch Colour TFT	5.7 inch Colour STN	5.7 inch Monochrome STN blue mode	3.5 inch Colour TFT	3.8 inch Monochrome FSTN black/white
Display resolution	320×240 (QVGA)				
Number of colours	256 (32.000 for image data)	256 (4096 for image data)	16 gradations	256 (32.000 for image data)	4 gradations
Backlight	LED	1×CCFL		LED	
Backlight lifetime	Min. 50,000 hours at 25°C				
Touch panel	Analogue resistive touch				
Number of functional keys	6			5	
Dimensions in mm (H×W×D)	142×195×50			102×128×44.5	
Weight	0.4 kg max.				
Screen data capacity	8 MB			8 MB	4 MB
Internal memory	Bit, Word and Retentive memory				
Serial (COM1)	1×RS-232/422/485				
Serial (COM2)	1×RS-232			–	–
USB Slave	For programming				
USB Host	For USB stick file transfer				
Ethernet	IEEE 802.3u 10Base-T/100Base-TX				
Line voltage	24 VDC ±15%				
Power consumption	12 W max.			10 W max.	
Battery	NQ-BAT01 (3 V coin battery)				
Battery lifetime	5 years (at 25°C)				
Enclosure rating (front side)	IP65				
Obtained standards	CE, cULus, Lloyds				
Operating environment	No corrosive gases				
Ambient operating temperature	0 to 50°C[*1]				
Ambient operating humidity	10-85% RH, no condensation				

*1 see manual for details.

HMI with four text lines and 22 F-keys

The NT11 is a Function key HMI with four text lines that can each hold up to 20 characters. It has a parallel printer connection next to a serial port for connection to a PLC. It has a LED backlight that has a life expectancy of at least 50,000 hours.

- Easy programming software.
- Small size and installation depth.
- Customisable F-Keys
- Printer connection.
- Cost effective solution.

Ordering information

Type			Order code
STN monochrome	Ten-key type	Ivory	NT11-SF121-EV1
		Black	NT11-SF121B-EV1

Accessories

Type	Description			Order code
Cables	For screen transfer			XW2Z-S002
	For PLC connection	PT: 9-pin PLC: 9-pin	Cable length: 2 m	XW2Z-200T
			Cable length: 5 m	XW2Z-500T
		PT: 9-pin PLC: Mini-peripheral	Cable length: 2 m	NT-CN221

Software

Type	Order code
NTST Version 4.8	NTZJCAT1EV4
Upgrade NTST Version 4.8	NTZJCAT1EV4S

Specifications

Size in mm (HxWxD)	113×218×38.2
Effective display area	100×40mm (160×64 pixels)
Line voltage	24 VDC ±15%
Function keys	22 keys
Touch panel	–
Obtained standards	CE, cULus
No. of display characters (standard characters)	20 characters × 4 lines
No. of registered screens	250
Screen data capacity (standard)	32 KB
Expansion memory	–
Memory card interface	–
Printer connection	Supported
Backlight life	50,000 hours average

OMRON

HMI with two text lines, 6 or 20 F-keys and up to two serial ports

The NT2S is the smallest HMI that we can offer you. It is based on a 16 × 2 lines LCD display with 6 or 20 Function keys. It offers IP65 protection, an optional RTC and printer connection.

- Easy and free programming software.
- Small size and installation depth.
- Real Time Clock (depending on model).
- Printer connection (depending on model).
- Cost effective solution.

Ordering information

Type			Order code
STN monochrome	Programmable	6-key type, Black	NT2S-SF121B-EV2
			NT2S-SF122B-EV2
	PLC controlled		NT2S-SF123B-EV2
	Programmable	20-key type, Black	NT2S-SF125B-E
			NT2S-SF126B-E
	PLC controlled		NT2S-SF127B-E

Accessories

Type	Description	Order code
NT2S-SF121/125 and NT3S	peripheral port CPM series except CPM2C, 2 m	NT2S-CN212-V1
NT2S-SF121/125 and NT3S	peripheral port CPM series except CPM2C, 5 m	NT2S-CN215-V1
NT2S-SF122/SF123/SF126/SF127	peripheral port CPM series except CPM2C, 2 m	NT2S-CN222-V1
NT2S-SF122/SF123/SF126/SF127	peripheral port CPM series except CPM2C, 5 m	NT2S-CN225-V2
NT2S-SF121/125 and NT3S	mini-peripheral port CJ1/CS1 and CPM2C series, 2 m	NT2S-CN223-V2
NT2S-SF122/SF123/SF126/SF127	mini-peripheral port CJ1/CS1 and CPM2C series, 2 m	NT2S-CN224-V1
NT2S-SF121/125 and NT3S	serial port CJ1/CS1/CP1/CPM2/CQM1(H), 2 m	NT2S-CN232-V1
NT2S-SF121/125 and NT3S	serial port CJ1/CS1/CP1/CPM2/CQM1(H), 5 m	NT2S-CN235-V1
NT2S-SF122/SF123/SF126/SF127	serial port CJ1/CS1/CP1/CPM2/CQM1(H), 2 m	NT2S-CN242-V1
All NT2S and NT3S models	serial programming cable, 2 m	NT2S-CN002

Software

Type	Order code
This software is provided free of charge and features Windows fonts, a Multi language import/export utility, a character map to design your own characters and can be used to place bitmaps in your application.	NTXS

Specifications

Size in mm (H×W×D)	60×109×43 (6 F-keys), 107×107×43 (20 F-keys)
Effective display area	56×11 mm
Line voltage	24 VDC ±10%
Touch panel	–
Obtained standards	CE, cULus
No. of display characters (standard characters)	16 characters x 2 lines
No. of registered screens	65,000 max.
Screen data capacity (standard)	24 KB in Programmable models
Expansion memory	–
Memory card interface	–
Internal memory	1K words data, 1K words retentative memory
Printer connection	Supported
Multi-Vendor support	Supported for several non-Omron PLCs. [1]
Backlight life	LED, min. 50,000 hours

[1] Please contact Omron for a list of available drivers.