

Industrial Automation Guide 2016



Industrial Products & Systems

Targeted Technologies

Creating maximum output with minimum input

By identifying the many ways of innovation in specific industries we developed the 'targeted technologies' concept. It's a way of thinking about technology in a prioritized format. Prioritized according to our customers' most pressing needs. The result? A set of solutions that make immediate impact on the core of our customers' businesses. A set of solutions that hit the target every time. Take a look at the examples on our website.

industrial.omron.eu/technologies



PROplus Line

If you have a complex application or one where you need to address special needs, then the PROplus Line is the answer. That's because PROplus products are designed to be customisable.

The possibility to modify a PROplus product means you can adapt your solution to meet a specific application, process or machine. This is the only way to ensure that your solution is truly customisable. It's the only way to ensure that your solution is truly customisable. It's the only way to ensure that your solution is truly customisable.

For example, the PROplus 4000 series robot controller comes in 3, 4, and 6 axis configurations. This allows you to choose the right configuration for your application. The PROplus 4000 series robot controller comes in 3, 4, and 6 axis configurations. This allows you to choose the right configuration for your application.

The new ES-NH temperature controller. The new ES-NH temperature controller. The new ES-NH temperature controller. The new ES-NH temperature controller. The new ES-NH temperature controller.

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The 361° Approach

At Omron, we asked ourselves these questions too. And by identifying the answers in specific industries we developed the 'targeted technologies' concept. It's a way of thinking about technology in a prioritised format. Prioritized according to our customers' most pressing needs. The result? A set of solutions that make immediate impact on the core of our customers' businesses. A set of solutions that hit the target every time. Take a look at the examples below.

Technologies

Creating maximum output with minimum input

Whatever type of automated machinery you are specialized in, you know that there are many ways to innovate. You are already aware that there are many possible areas for improvement. But where do you start? Where do you focus your efforts? Where can you make the biggest difference with the least amount of effort?

At Omron, we asked ourselves these questions too. And by identifying the answers in specific industries we developed the 'targeted technologies' concept. It's a way of thinking about technology in a prioritised format. Prioritized according to our customers' most pressing needs. The result? A set of solutions that make immediate impact on the core of our customers' businesses. A set of solutions that hit the target every time. Take a look at the examples below.

Technologies

Sysmac: the all-in-one platform

We know that machine builders prefer different product solutions for different challenges. But this can cause hierarchy headaches and communications issues. That's why we developed Sysmac: a single unified platform that is open, scalable, flexible, and totally focused on maximising the speed and flexibility of machines. A platform that integrates robotic, motion and sequential logic control into a single multitasking system.

[Learn more](#)



361°: the perfect match

When it comes to sensors and components, we know that our customers all have different needs. That's why our product development in this area is driven by the 361° Approach. It produces product families that offer a total all-round choice. From quality products suited to standard environments to specialist devices that can handle extremes. A full circle of choice, all with an extra degree of quality and proven reliability.

[Learn more](#)



The 361° portfolio

PRO Line
PROplus products are designed for specialty applications or customer demands.

[Learn more](#)



LITE Line
LITE sensors are the effective solution for maximum quality.

[Learn more](#)



Product groups

Sysmac controller

The Sysmac controller is the heart of your machine. It's the central brain that coordinates all the activities of your machine. It's the central brain that coordinates all the activities of your machine. It's the central brain that coordinates all the activities of your machine.

Robotics

Omron's robot controllers are designed to be easy to use. They are designed to be easy to use. They are designed to be easy to use. They are designed to be easy to use. They are designed to be easy to use.

Sensors

Omron's sensors are designed to be reliable. They are designed to be reliable. They are designed to be reliable. They are designed to be reliable. They are designed to be reliable.

Related product news



With new G2B sensors, you only pay for what you need. The new G2B sensors are designed to be easy to use. They are designed to be easy to use. They are designed to be easy to use. They are designed to be easy to use.

[Learn more](#)

Related product news



ES1A - Omron's new photo sensors combine simplicity with performance. The new ES1A photo sensors are designed to be easy to use. They are designed to be easy to use. They are designed to be easy to use. They are designed to be easy to use.

[Learn more](#)

Related product news



With new G2B sensors, you only pay for what you need. The new G2B sensors are designed to be easy to use. They are designed to be easy to use. They are designed to be easy to use. They are designed to be easy to use.

[Learn more](#)

Welcome to our world

Our best-in-class devices for your automation system

Welcome to Omron's world of advanced industrial automation. The INDUSTRIAL AUTOMATION GUIDE is your essential tool to select best-in-class devices for your automation system. It highlights our core competences in sensing, control, visualisation, motion and panel components.

Of course, Omron offers a much larger range of products than you can find on the attached DVD. For more information on services and company competence visit our website.

Here you will find:

- Latest product news
- Technical product specifications
- 2D / 3D CAD Library
- Customer references
- Technology concepts
- Supporting product documentation
- Knowledge Base - "myOmron"
- Events Calendar
- Contact information

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Industrial Automation Guide 2016

	Omron at a glance	3
	The 361° Approach	4
	Sysmac: A fully integrated platform	6
	Product selection table	8
Automation systems	Machine automation controller	12
	Programmable logic controllers (PLC)	26
	Remote I/O	54
	Human machine interfaces (HMI)	68
	I/O cables and terminal blocks	82
	Ethernet cables and accessories	91
Motion & Drives	Motion controllers	96
	Servo systems	112
	Robots	170
	Frequency inverters	202
Sensing	Photoelectric sensors	236
	Mark and Color sensors	278
	Lightcurtains and area sensors	284
	Fiber optic sensors and amplifiers	292
	Inductive sensors	324
	Mechanical sensors/Limit switches	344
	Rotary encoders	358
	Cable connectors	366
Quality control & Inspection	Inspection & Ident systems	370
	Measurement sensors	426
Safety	Emergency stop and control devices	462
	Safety limit switches	472
	Safety door switches	480
	Safety sensors	506
	Safety logic control systems	544
	Safety outputs	566
Control components	Temperature controllers	574
	Power supplies	596
	Uninterruptible power supplies (UPS)	614
	Timers	622
	Counters	632
	Programmable relays	642
	Digital panel indicators	650
	Energy monitoring devices	660
	Photovoltaic	674
Switching components	Electromechanical relays	682
	Solid state relays	696
	Low voltage switchgear	706
	Monitoring products	722
	Pushbutton switches	750
Software	Software	766
	Outline of Major Standards	772
	Index	775

“To the machine the work of the machine,
to man the thrill of further creation.”

Kazuma Tateisi, founder of Omron

Omron at a glance

200.000 products ranging
input, logic and output

Sensing, Control Systems, Visualization, Drives, Robots, Safety,
Quality Control & Inspection, Control and Switching Components

7%

Investment in Research & Development

Innovation track
record of 80 years

Top 150 global patent assignee

1.200 employees dedicated to R&D

11.000 + issued and pending patents

37.000

Employees worldwide

210

Locations worldwide

22

Countries in EMEA

Working for the
benefit of society



Close to your needs

Technical training & seminars, technical support, Automation Technology Centers, online community (MyOmron), online catalogues and technical documentation, customer service & sales support, inter-operability labs (Tsunagi), safety services, repairs.

Your needs, our focus

Solutions perfectly matching your needs

We asked ourselves: 'What do you need in sensors and components?' Well, first you need reliability. Then a variety and choice of performance levels. You may also want advanced functionality, with special features defined by you – or you may want standardized solutions, with highly competitive prices.

Whatever it is, it can all add up to a wish list that is difficult to fulfil. Until now. That's because our new 361° Approach not only provides a complete all-round offer without gaps, it also puts you at the very centre of the product selection process. It's an approach that leads to a Perfect Match – one with the extra degree of confidence that comes from choosing Omron.

361° in one view



Quality



Line-up



Application



Customization



Global availability



Specs

	Quality	Line-up	Application	Customization	Global availability	Specs
PRO^{plus}	Premium	Tailored	Special	Yes	Yes	Application oriented
PRO	Premium	Complete	Advanced	Yes	Yes	Above Standard
LITE	Premium	Standard	Basic	No	No	Basic
	'Quality' refers to the standard of manufacturing and the materials used – this translates into reliability	'Line-up' refers to the number of model types	'Application' indicates the complexity of the automation	'Customization' is the possibility to modify the product		'Specs' refers to the choice of performance levels

The extra degree of advantage

Three distinct lines of sensors and components

Three distinct lines

361° Approach offers three distinct lines within each sensor or component product category. LITE products are cost-effective without any compromise in quality. PRO products represent the “install & forget” option, offering longer lifetime, higher protection, and more features. While PROplus products are designed for specific applications or customer demands.

Optimized reliability

All three lines are backed by the Omron commitment to quality, so even when you need a price-competitive advantage, you can be confident that they will never let you down.

Solutions that perfectly match your needs

The 361° Approach ensures that you can quickly and easily identify the perfect match solution to your needs – nothing more, nothing less.

Optimized costs

Your sensor and component costs are also minimized – because it eliminates over-specification.

Why an extra 1°?

The extra degree is what you get when you do business with Omron, and that means different things to different customers – all depending on their needs. For example, if you need specification advice, the extra degree is ‘service’. But ultimately, to everyone it means “an extra degree of confidence in the perfect match”.



Sysmac: A fully integrated platform

Integration and Functionality

Sysmac is an integrated automation platform dedicated to providing complete control and management of your automation plant. At the core of this platform, the Machine Controller series offers synchronous control of all machine devices and advanced functionality such as motion, robotics and database connectivity. This multidisciplinary concept allows you to simplify solution architecture, reduce programming and optimize productivity.

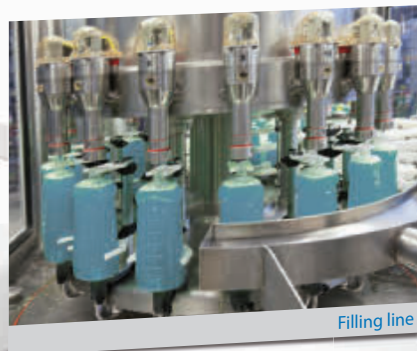


Machine Automation Controller

FACTORY
AUTOMATION

MACHINE
CONTROL

Motion



Filling line

- Motion Control: Integrated within the IDE, and operating in real-time
- Standard PLCopen Function Blocks plus Omron generated motion FB's
- Direct Synchronous control for Position, Speed and Torque

Safety



Assembly

- All safety related data is synchronized with the whole network
- Safety functions such as muting, guard locking, EDM and valve monitoring are simple to manage

- ✓ **One Integrated Development Environment software** for Configuration, Programming, Simulation and Monitoring



Information



- Sysmac communicates in real-time with Databases such as SQL
- Secure Data: In the event of a server going down or losing communications, data is automatically stored in internal memory
- Sysmac operates with Databases at high speed [1000 table element/ 100 ms] ensuring realistic Big Data Processing to improve productivity and aid predictive maintenance etc.

✓ Integrated Automation Control:

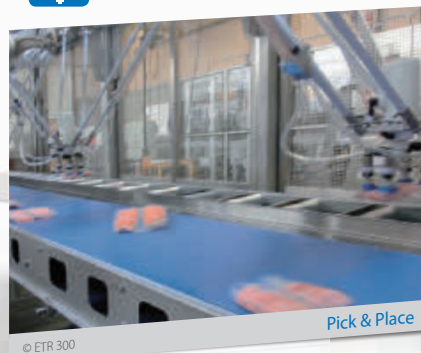
The Sysmac platform is scalable and provides the performance and functionality for a wide range of solutions from simple machines through to manufacturing cells

Vision



- Higher resolution images available without increasing the vision processing time
- Shape search technology: Provides more stable and accurate object detection for Pick & Place projects

Robotics



- Up to 8 Delta robots with one controller
- Time-based Robotic Function Blocks make programming easier

Sensing



- Full control of the process parameter setting and predictive maintenance functions
- High precision detection and positioning data synchronized on the network

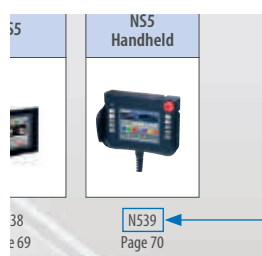
Product selection table

Automation systems				
	12 Machine automation controller	26 Programmable logic controllers (PLC)	54 Remote I/O	68 Human machine interfaces (HMI)
				
	96 Motion controllers	112 Servo systems	170 Robots	202 Frequency inverters
Sensing				
	236 Photoelectric sensors	278 Mark and Color sensors	284 Lightcurtains and area sensors	292 Fiber optic sensors and amplifiers
				
	370 Inspection & Ident systems	426 Measurement sensors		
Safety				
	462 Emergency stop and control devices	472 Safety limit switches	480 Safety door switches	506 Safety sensors
				
	574 Temperature controllers	596 Power supplies	614 Uninterruptible power supplies (UPS)	622 Timers
Switching components				
	682 Electromechanical relays	696 Solid state relays	706 Low voltage switchgear	722 Monitoring products
				
	766 Software			
Software				

Automation systems

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Quick Link

Automation systems

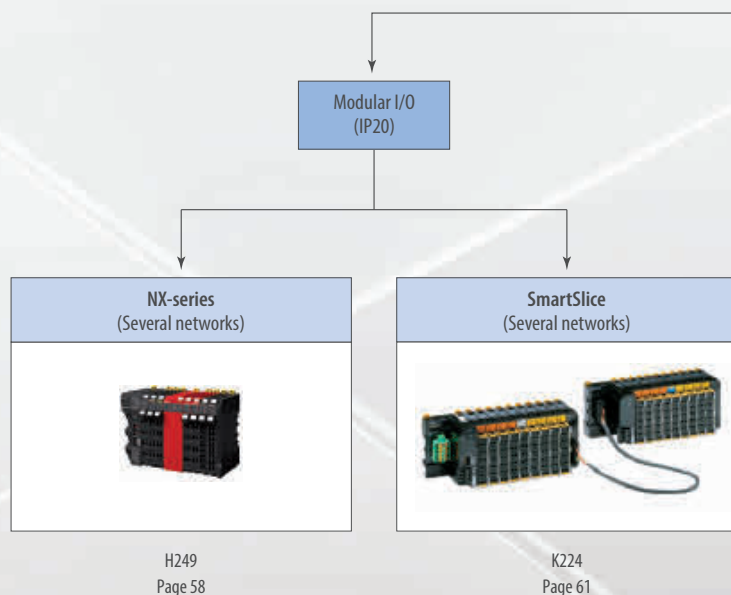
Machine automation controller	12	Human machine interfaces (HMI)	68
Selection table	15	Selection table	70
Machine controller		Integrated HMI	
NJ series	16	NA7/9/12/15	72
NX7 series	23	Scalable HMI	
		NS15/NS12/NS10/NS8	74
		NS5	75
		NS5 handheld	76
Programmable logic controllers (PLC)	26	Integrated controller/Scalable HMI	
Selection table	28	Accessories NS	77
Compact PLC		Compact HMI	
CPM2C CPU units	30	NB series	78
CPM2C expansion units	31	Function-key HMI	
CP1E CPU units	32	NT11	80
CP1L CPU units	34	NT2S	81
CP1H CPU units	36		
CP1W expansion units	37	Cables and accessories	
Modular PLC		I/O cables	82
CJ-Series CPU units	38	I/O terminal blocks	90
CJ-Series power supplies, expansions	40	Ethernet cables and accessories	
CJ-Series digital I/O units	41	Ethernet cables	91
CJ-Series analog I/O and control units	42	Accessories	92
CJ-Series motion/position control units	44	Wireless communication	
CJ-Series communication units	46	WE70	93
Rack PLC			
CS-Series CPU units	47		
CS-Series power supplies, backplanes	48		
CS-Series digital I/O units	49		
CS-Series analog and process I/O units	50		
CS-Series position/motion control units	52		
CS-Series communication units	53		
Remote I/O	54		
Selection table	57		
Remote I/O			
NX-series modular I/O system	58		
SmartSlice I/O system	61		
Compact I/O GX-series	62		
Compact I/O DRT2	63		
Compact I/O CRT1	64		
Compact I/O SRT2	65		
Field I/O DRT2-__C	66		
Field I/O SRT2-__C	67		

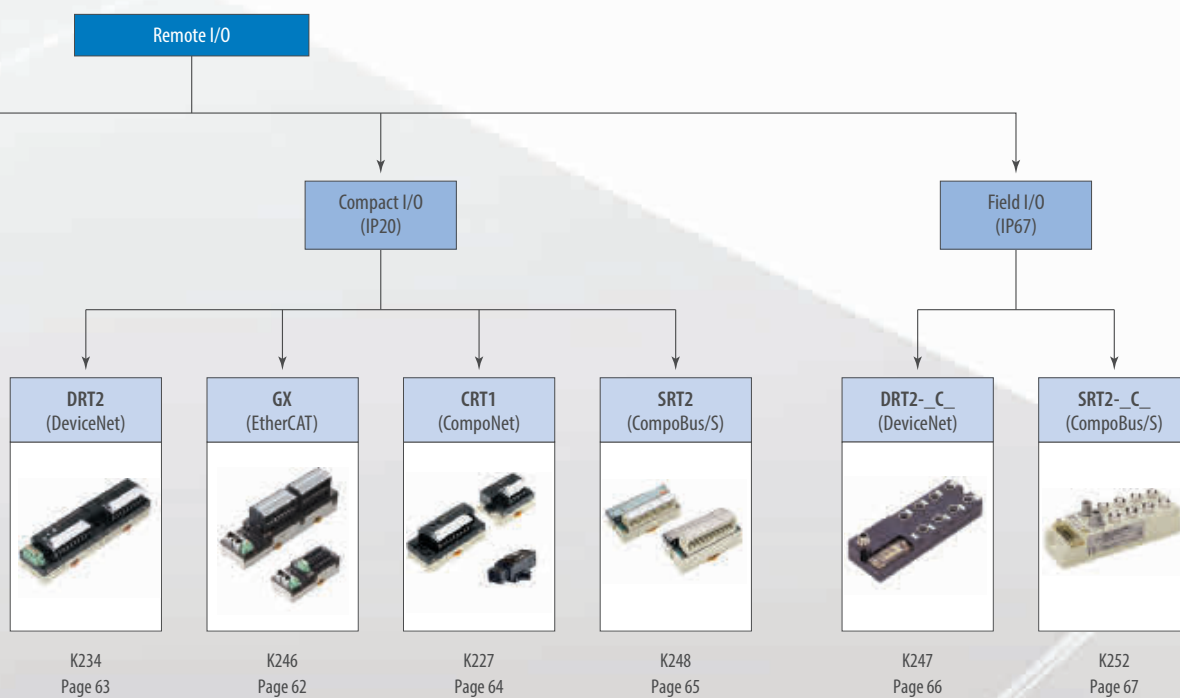
I/O SYSTEMS TO MEET EVERY NEED






Choose by network, style and flexibility




Compact remote I/O units combine a fixed number of I/O points in a space-saving housing. Built-in smart monitoring functions for voltage level, broken wire, actuator and cycle time will assist in planning preventive maintenance for machines and eliminating costly downtime. Compact smart slaves are available for the open EtherCAT, DeviceNet and CompoNet networks whilst Omron's CompoBus/S offers a more simple and cost-efficient solution.

Modular remote I/O systems offer the possibility to install just the right number and type of I/O's where you need them. I/O modules range from basic and economical digital I/O's to high-performance modules with intelligent functions. With a choice of communication couplers for various open networks, you can adapt to existing installations and end-user demands, or make the right trade-off between performance and ease-of-use. Besides EtherCAT as main machine automation network, Omron offers connectivity to EtherNet/IP, DeviceNet, CompoNet, PROFINET IO, PROFIBUS DP, and MECHATROLINK-II.





	Modular I/O		Compact I/O		
					
Model	NX-series	SmartSlice	GX	DRT2	CRT1
Network connection	EtherCAT in- and outgoing connections by RJ45 ethernet ports, EtherNet/IP with built-in Ethernet switch and 2 RJ45 ports	DeviceNet, CompoNet, PROFIBUS DP, PROFINET I/O, EtherCAT, MECHATROLINK-II	EtherCAT in- and outgoing connections by RJ45 ethernet plug	DeviceNet with open-style push-in terminal block	CompoNet, unshielded 4-wire flat cable and IDC connectors, or general-purpose 2-wire cable by screw terminals
I/O types	Digital standard and high-speed synchronous, analog standard and high-speed, temperature, encoders, pulse output, safety I/O	Digital I/O, analog I/O, temperature inputs, high-speed counter with control outputs	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+extension, 8 DI + 8 DO 16 relay out, 4 AI (V/I, TC, Pt100), 2 AO (V/I),	8/16 DI+extension, 8/16 DO+extension, 8 DI + 8 DO 4 AI, 2 AO, 2 DI, 2 DO
I/O connection technology	Push-in wiring on removable terminal block, MIL connectors, M3 screw terminals and Fujitsu connectors	Push-in wiring on removable terminal block	M3 screw terminals (1- or 3-wire DI)	M3 screw terminals (1- or 3-wire DI)	M3 screw terminals
Smart features	Synchronous I/O and time-stamping on EtherCAT, safety I/O	I/O and power supply diagnostics, operation timers and counters per I/O point	Automatic or fixed address allocation	I/O and power supply diagnostics, operation timers and counters per I/O point, analog value calculations and alarms	I/O and power supply diagnostics, operation timers and counters for each I/O point, analog value calculations and alarms
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/Quick Link	58/H249	61/K224	62/K246	63/K234	64/K227

	Compact I/O	Field I/O	
			
Model	SRT2	DRT2- _C_	SRT2- _C_
Network connection	CompoBus/S, (2-wire + power) by M3 screw terminals	DeviceNet with M12 micro connector	CompoBus/S, by 4-wire M12 connector, unshielded
I/O types	4/8/16 DI, 4/8/16 DO, 8/16 relay out, 4 AI (V/I) 2 AO (V/I)	8/16 DI, 8/16 DO, 8DI + 8 DO	4/8 DI, 4/8 DO
I/O connection technology	M3 screw terminals (1- or 3-wire DI)	M12, 1 or 2 I/O signals per connector, 7/8" I/O Power connector	M12 connectors, one I/O point per connector
Smart features	I/O isolation, status indication	I/O and power supply diagnostics, operation timers and counters per I/O point	I/O isolation, status indication
Ingress Protection class	IP20 (DIN rail mounting in cabinets)	IP67, flat mounting by two M5 screws	IP67, flat mounting by three M5 screws
Page/Quick Link	65/K248	66/K247	67/K252



Performance and practicality for machine control

Modern machine control requires system-wide synchronisation of motion axes with microsecond accuracy. The NX I/O system offers this timing accuracy and repeatability for a wide variety of in- and outputs. Its ultra-fast internal bus system is synchronised with the Distributed Clock of the EtherCAT network, resulting in system-wide deterministic I/O operation.

Alternatively, NX-series I/O can be used in non-synchronous “Free Run” mode on EtherNet/IP, the open CIP-based network supported by our CJ2-series PLC’s.

NX-series I/O covers a full range of units, including standard and high-speed digital I/O’s, various performance levels in analog I/O, encoder inputs and pulse outputs. The series continues to expand with time-stamped I/O, safety I/O and application-specific modules.

- Ideal match with Sysmac machine automation controllers and CJ2-series PLC’s
- Synchronous I/O updates, system-wide, with less than 1 µs jitter using EtherCAT
- High density: up to 16 digital or 8 analog signals in 12 mm width
- Removable wiring terminals for easy system assembly and testing

Ordering information

Communication and control units

Module Type	Protocol	Connection	Specification	Width	Order Code
Communication coupler	EtherCAT Slave	2 RJ45 ports (in + out)	Up to 63 I/O units. Max. 1,024 bytes in + 1,024 bytes out Supports distributed clock I/O power supply up to 10 A	46 mm	NX-ECC203
	EtherNet/IP Slave	2 RJ45 ports with built-in switch	Up to 63 I/O units. Max. 512 bytes in + 512 bytes out Supports local safety communication Free Run I/O refresh mode only I/O power supply up to 10 A	46 mm	NX-EIC202 ^{*1}
Safety controller	FSoE Protocol	128 Safety connections	For up to 1,024 safety I/O points	30 mm	NX-SL3500
		32 Safety connections	For up to 256 safety I/O points	30 mm	NX-SL3300

^{*1} The NX-EIC202 communication coupler unit does not support the NX-SL3500 safety controller unit.

Digital I/O units

Module type	Channels, Signal type	Performance ^{*1} , I/O Refresh Mode	Connection type ^{*2}	Width	Order Code	NPN-type ^{*3}
AC Digital Input	4 inputs, 200 to 240 VAC, 50/60 Hz	Free Run	Screwless push-in (NX-TBA082)	12 mm	NX-IA3117	–
Safety Digital Input	4 inputs + 2 test outputs	Free Run	Screwless push-in (NX-TBA082)	12 mm	NX-SIH400	–
	8 inputs + 2 test outputs	Free Run	Screwless push-in (NX-TBA162)	12 mm	NX-SID800	–
DC Digital Input	4 inputs, 3-wire connection	High-speed Synchronous Time Stamp	Screwless push-in (NX-TBA122)	12 mm	NX-ID3444	NX-ID3344
		High-speed Synchronous/Free Run	Screwless push-in (NX-TBA122)	12 mm	NX-ID3443	NX-ID3343
		Synchronous/Free Run	Screwless push-in (NX-TBA122)	12 mm	NX-ID3417	NX-ID3317
	8 inputs, 2-wire connection	Synchronous/Free Run	Screwless push-in (NX-TBA162)	12 mm	NX-ID4442	NX-ID4342
	16 inputs, 1-wire connection	Synchronous/Free Run	Screwless push-in (NX-TBA162)	12 mm	NX-ID5442	NX-ID5342
			1 × 20-pin MIL connector	30 mm	NX-ID5142-5	same
			M3 screw	30 mm	NX-ID5142-1	same
	32 inputs, 1-wire connection	Synchronous/Free Run	1 × 40-pin MIL connector	30 mm	NX-ID6142-5	same
			1 × 40-pin Fujitsu connector	30 mm	NX-ID6142-6	same
DC Digital I/O	16 inputs + 16 outputs 0.5 A, 1-wire connection + common	Synchronous/Free Run	2 × 20-pin MIL connector	30 mm	NX-MD6256-5	NX-MD6121-5
			2 × 24-pin Fujitsu connector	30 mm	–	NX-MD6121-6
DC Digital Output	2 outputs 0.5 A, 3-wire connection	High-speed Synchronous Time Stamp	Screwless push-in (NX-TBA082)	12 mm	NX-OD2258	NX-OD2154
	4 outputs 0.5 A, 3-wire connection	High-speed Synchronous/Free Run	Screwless push-in (NX-TBA122)	12 mm	NX-OD3257	NX-OD3153
		Synchronous/Free Run	Screwless push-in (NX-TBA122)	12 mm	NX-OD3256	NX-OD3121
	4 outputs 2 A/point, 8 A total, 3-wire connection	Synchronous/Free Run	Screwless push-in (NX-TBA162)	12 mm	NX-OD3268	–
	8 outputs 0.5 A, 2-wire connection	Synchronous/Free Run	Screwless push-in (NX-TBA162)	12 mm	NX-OD4256	NX-OD4121
	16 outputs 0.5 A, 1-wire connection	Synchronous/Free Run	Screwless push-in (NX-TBA162)	12 mm	NX-OD5256	NX-OD5121
			1 × 20-pin MIL connector	30 mm	NX-OD5256-5	NX-OD5121-5
			M3 screw	30 mm	NX-OD5256-1	NX-OD5121-1
	32 outputs 0.5 A, 1-wire connection	Synchronous/Free Run	1 × 40-pin MIL connector	30 mm	NX-OD6256-5	NX-OD6121-5
			1 × 40-pin Fujitsu connector	30 mm	–	NX-OD6121-6
Safety Digital Output	2 outputs, 2.0 A	Free Run	Screwless push-in (NX-TBA082)	12 mm	NX-SOH200	–
	4 outputs, 0.5 A	Free Run	Screwless push-in (NX-TBA082)	12 mm	NX-SOD400	–
Relay Digital Output	2 outputs, N.O., 2.0 A	Free Run	Screwless push-in (NX-TBA082)	12 mm	NX-OC2633	–
	2 outputs, N.O.+ N.C., 2.0 A	Free Run	Screwless push-in (NX-TBA082)	12 mm	NX-OC2733	–

Position control units

Module type	Channels, Signal type	Performance, I/O Refresh Mode	Connection type ^{*2}	Width	Order Code	NPN-type ^{*3}
Encoder Input	1 SSI encoder, 2 MHz	Synchronous/Free Run	Screwless push-in (NX-TBA122)	12 mm	NX-EC5112	–
	2 SSI encoders, 2 MHz	Synchronous/Free Run	Screwless push-in (NX-TBA122)	12 mm	NX-ECS212	–
	1 incremental encoder line driver 4 MHz + 3 Digital Inputs (1 µs)	Synchronous/Free Run	Screwless push-in (NX-TBA122 + NX-TBB122)	24 mm	NX-EC0142	NX-EC0132
	1 incremental encoder open collector 500 kHz + 3 Digital Inputs (1 µs)	Synchronous/Free Run	Screwless push-in (NX-TBA162)	12 mm	NX-EC0122	NX-EC0112
	2 incremental encoders open collector 500 kHz	Synchronous/Free Run	Screwless push-in (NX-TBA122)	12 mm	NX-EC0222	NX-EC0212
Pulse Output	1 Pulse Up/Down or Pulse/Direction open collector 500 kHz + 2 Digital Inputs + 1 Digital Output (1 µs)	Synchronous	Screwless push-in (NX-TBA162)	12 mm	NX-PG0122	NX-PG0112

Serial Communication Interface Units

Module type	Channels, Signal type	Performance, I/O Refresh Mode	Connection type ^{*2}	Width	Order Code	NPN-type ^{*3}
Serial Communication	1 × RS-422A/485	Free Run	Screwless push-in (NX-TBC162)	12 mm	NX-CIF105	–
	1 × RS-232C	Free Run	Screwless push-in (NX-TBC162)	12 mm	NX-CIF101	–
	2 × RS-232C	Free Run	9-pin D-sub	30 mm	NX-CIF210	–

^{*1} Digital I/O performance

Digital I/O performance		Standard		High Speed	
		ON delay	OFF delay	ON delay	OFF delay
Input	PNP	0.02 ms	0.4 ms	100 ns	100 ns
	NPN				
	AC	10 ms	40 ms	N.A.	N.A.
Output	PNP	0.5 ms	1.0 ms	300 ns	300 ns
	NPN	0.1 ms	0.8 ms		
	Relay	15 ms	15 ms	N.A.	N.A.

^{*2} Units with screwless push-in connections are supplied with the appropriate terminal connector. Units with MIL/Fujitsu connectors are supplied without matching plugs; for connecting cables see page 82

^{*3} Order codes are for PNP-type signals (positive switching, 0 V common). Most models are also available as NPN-type (negative switching, 24 V common). Inputs of MIL-connector versions can be used as NPN or PNP.

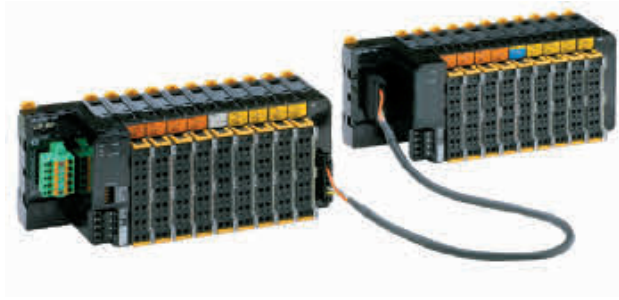
Analog I/O Units

Module type	Signal type	Performance, I/O Refresh Mode	Channels	Connection type*1	Width	Order Code
Temperature Sensor Input	Thermocouple type B,E,J,K,L,N,R,S,T,U,WRe5-26,PLII	0.1°C resolution, 200 ms/unit Free Run	2	Screwless push-in terminal block(s) with cold junction sensor, calibrated individually at the factory	12 mm	NX-TS2101
			4		24 mm	NX-TS3101
		0.01°C resolution, 10 ms/unit Free Run	2		12 mm	NX-TS2102
			4		24 mm	NX-TS3102
		0.001°C resolution, 60 ms/unit Free Run	2		12 mm	NX-TS2104
			4		24 mm	NX-TS3104
	RTD type Pt100 (3-wire), Pt1000, Ni508.4	0.1°C resolution, 200 ms/unit Free Run	2	Screwless push-in (NX-TBA162)	12 mm	NX-TS2201
			4	Screwless push-in (NX-TBA162 + NX-TBB162)	24 mm	NX-TS3201
		0.01°C resolution, 10 ms/unit Free Run	2	Screwless push-in (NX-TBA162)	12 mm	NX-TS2202
			4	Screwless push-in (NX-TBA162 + NX-TBB162)	24 mm	NX-TS3202
		0.001°C resolution, 60 ms/unit Free Run	2	Screwless push-in (NX-TBA162)	12 mm	NX-TS2204
			4	Screwless push-in (NX-TBA162 + NX-TBB162)	24 mm	NX-TS3204
Analog Input	4 to 20 mA single ended	1/8000 resolution, 250 µs/channel Free Run	2	Screwless push-in (NX-TBA082)	12 mm	NX-AD2203
			4	Screwless push-in (NX-TBA122)	12 mm	NX-AD3203
			8	Screwless push-in (NX-TBA162)	12 mm	NX-AD4203
	4 to 20 mA differential	1/8000 resolution, 250 µs/channel Free Run	2	Screwless push-in (NX-TBA082)	12 mm	NX-AD2204
			4	Screwless push-in (NX-TBA122)	12 mm	NX-AD3204
			8	Screwless push-in (NX-TBA162)	12 mm	NX-AD4204
		1/30000 resolution, 10 µs/channel Synchronous/Free Run	2	Screwless push-in (NX-TBA082)	12 mm	NX-AD2208
			4	Screwless push-in (NX-TBA122)	12 mm	NX-AD3208
			8	Screwless push-in (NX-TBA162)	12 mm	NX-AD4208
	–10 to 10 V single ended	1/8000 resolution, 250 µs/channel Free Run	2	Screwless push-in (NX-TBA082)	12 mm	NX-AD2603
			4	Screwless push-in (NX-TBA122)	12 mm	NX-AD3603
			8	Screwless push-in (NX-TBA162)	12 mm	NX-AD4603
	–10 to 10 V differential	1/8000 resolution, 250 µs/channel Free Run	2	Screwless push-in (NX-TBA082)	12 mm	NX-AD2604
			4	Screwless push-in (NX-TBA122)	12 mm	NX-AD3604
			8	Screwless push-in (NX-TBA162)	12 mm	NX-AD4604
		1/30000 resolution, 10 µs/channel Synchronous/Free Run	2	Screwless push-in (NX-TBA082)	12 mm	NX-AD2608
			4	Screwless push-in (NX-TBA122)	12 mm	NX-AD3608
			8	Screwless push-in (NX-TBA162)	12 mm	NX-AD4608
Analog Output	4 to 20 mA	1/8000 resolution, 250 µs/channel Free Run	2	Screwless push-in (NX-TBA082)	12 mm	NX-DA2203
			4	Screwless push-in (NX-TBA122)	12 mm	NX-DA3203
		1/30000 resolution, 10 µs/channel Synchronous/Free Run	2	Screwless push-in (NX-TBA082)	12 mm	NX-DA2205
			4	Screwless push-in (NX-TBA122)	12 mm	NX-DA3205
	–10 to 10 V	1/8000 resolution, 250 µs/channel Free Run	2	Screwless push-in (NX-TBA082)	12 mm	NX-DA2603
			4	Screwless push-in (NX-TBA122)	12 mm	NX-DA3603
		1/30000 resolution, 10 µs/channel Synchronous/Free Run	2	Screwless push-in (NX-TBA082)	12 mm	NX-DA2605
			4	Screwless push-in (NX-TBA122)	12 mm	NX-DA3605

Other Units

Module type	Description	Connection type*1	Width	Order Code
Power Unit	NX bus power supply unit, 24 V DC input, non-isolated	Screwless push-in (NX-TBC082)	12 mm	NX-PD1000
	I/O power feed unit, for separation of power groups, up to 10 A	Screwless push-in (NX-TBA082)	12 mm	NX-PF0730
	I/O power connection unit, 16 × IOV	Screwless push-in (NX-TBA162)	12 mm	NX-PC0020
	I/O power connection unit, 16 × IOG	Screwless push-in (NX-TBA162)	12 mm	NX-PC0010
	I/O power connection, 8 × IOV + 8 × IOG	Screwless push-in (NX-TBA162)	12 mm	NX-PC0030
System Units and Accessories	Grounding terminal, 16 points	Screwless push-in (NX-TBC162)	12 mm	NX-TBX01
	End cover (included with Communication Coupler)	–	12 mm	NX-END01
	Replacement front connector with 8 wiring terminals (marked A+B)	Screwless push-in	12 mm	NX-TBA082
	Replacement front connector with 12 wiring terminals (marked A+B)	Screwless push-in	12 mm	NX-TBA122
	Replacement front connector with 16 wiring terminals (marked A+B)	Screwless push-in	12 mm	NX-TBA162
	Replacement front connector with 12 wiring terminals (marked C+D)	Screwless push-in	12 mm	NX-TBB122
	Replacement front connector with 16 wiring terminals (marked C+D)	Screwless push-in	12 mm	NX-TBB162
	Replacement front connector with 8 wiring terminals (marked A+B+FG)	Screwless push-in	12 mm	NX-TBC082
	Replacement front connector with 16 wiring terminals (marked A+B+FG)	Screwless push-in	12 mm	NX-TBC162
	DIN rail insulation spacers, set of 3 pcs	–	–	NX-AUX01
	30 Unit pins + 30 Terminal keying pins, to prevent mismatch of unit and terminal block (one set is enough for 10 units)	–	–	NX-AUX02

*1 Units with screwless push-in connections are supplied with the appropriate terminal connector.



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 analog 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 (H×W×D)	Order code
Interface units	DeviceNet interface unit	For up to 64 I/O units	84×58×70	GRT1-DRT
	CompoNet interface unit	For up to 64 I/O units (limited to 32 byte in + 32 byte out)	84×58×70	GRT1-CRT
	PROFIBUS-DP interface unit	For up to 64 I/O units	84×58×70	GRT1-PRT
	PROFINET-IO interface unit	For up to 64 I/O units	84×58×70	GRT1-PNT
	MECHATROLINK-II interface unit	For up to 64 I/O units (slave to Trajexia motion controller)	84×58×70	GRT1-ML2
	EtherCAT interface unit	For up to 64 I/O units (slave to Trajexia and Sysmac controller)	84×58×70	GRT1-ECT
	End plate	One unit required per bus interface	84×20×58	GRT1-END
	End plate with memory function	Supports toolless replacement of PROFINET-IO interface unit	84×20×58	GRT1-END-M
I/O units	4 NPN inputs	24 VDC, 6 mA, 3-wire connection	84×15×74	GRT1-ID4
	4 PNP inputs	24 VDC, 6 mA, 3-wire connection	84×15×74	GRT1-ID4-1
	8 NPN inputs	24 VDC, 4 mA, 1-wire connection + 4×G	84×15×74	GRT1-ID8
	8 PNP inputs	24 VDC, 4 mA, 1-wire connection + 4×V	84×15×74	GRT1-ID8-1
	4 AC inputs	110 VAC, 2-wire connection	84×15×74	GRT1-IA4-1
	4 AC inputs	230 VAC, 2-wire connection	84×15×74	GRT1-IA4-2
	4 NPN outputs	24 VDC, 500 mA, 2-wire connection	84×15×74	GRT1-OD4
	4 PNP outputs	24 VDC, 500 mA, 2-wire connection	84×15×74	GRT1-OD4-1
	4 PNP outputs with short-circuit protection	24 VDC, 500 mA, 3-wire connection	84×15×74	GRT1-OD4G-1
	4 PNP outputs with short-circuit protection	24 VDC, 2 A, 2-wire connection	84×15×74	GRT1-OD4G-3
	8 NPN outputs	24 VDC, 500 mA, 1-wire connection + 4×V	84×15×74	GRT1-OD8
	8 PNP outputs	24 VDC, 500 mA, 1-wire connection + 4×G	84×15×74	GRT1-OD8-1
	8 PNP outputs with short-circuit protection	24 VDC, 500 mA, 1-wire connection + 4×G	84×15×74	GRT1-OD8G-1
	2 relay outputs	240 VAC, 2A, normally-open contacts	84×15×74	GRT1-ROS2
	60 kHz Counter unit, NPN	A+B encoder inputs + 1 Z/control input + 1 output (NPN-type)	84×15×74	GRT1-CT1
	60 kHz Counter unit, PNP	A+B encoder inputs + 1 Z/control input + 1 output (PNP-type)	84×15×74	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)	84×15×74	GRT1-CP1-L
	2 analog inputs, current/voltage	±10 V, 0-10 V, 0-5 V, 1-5 V, 0-20 mA, 4-20 mA	84×15×74	GRT1-AD2
	2 analog outputs, voltage	±10 V, 0-10 V, 0-5 V, 1-5 V	84×15×74	GRT1-DA2V
	2 analog outputs, current	0-20 mA, 4-20 mA	84×15×74	GRT1-DA2C
	2 Pt100 inputs	Pt100, 2-wire or 3-wire connection	84×15×74	GRT1-TS2P
	2 Pt1000 inputs	Pt1000, 2-wire or 3-wire connection	84×15×74	GRT1-TS2PK
	2 Thermocouple inputs	Types B, E, J, K, N, R, S, T, U, W, PL2, with cold junction compensation	84×15×74	GRT1-TS2T

Model	Description	Size in mm (H×W×D)	Order code
Other units	I/O power feed unit, separates power supply between groups of I/O units	84×15×74	GRT1-PD2
	I/O power feed unit with electronic overload protection, separates power supply between groups of I/O units	84×15×74	GRT1-PD2G
	I/O power feed and distribution unit, separates power supply between groups of I/O units, 8×V + 4×G	84×15×74	GRT1-PD8
	I/O power feed and distribution unit, separates power supply between groups of I/O units, 4×V + 8×G	84×15×74	GRT1-PD8-1
	I/O power connection unit, 8×V + 4×G	84×15×74	GRT1-PC8
	I/O power connection unit, 4×V + 8×G	84×15×74	GRT1-PC8-1
	Turnback unit, right-hand side	84×20×58	GRT1-TBR
	Turnback unit, left-hand side	84×58×70	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 64



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

Expansion units

Unit Type	Specification	Size in mm (H×W×D)	Remarks	Order code
8-point PNP input expansion unit	24 VDC, 6 mA per point	50×66×50	Expansion unit for GX, DRT2 and CRT1 series	XWT-ID08-1
16-point PNP input expansion unit	24 VDC, 6 mA per point	50×94×50	Expansion unit for GX, DRT2 and CRT1 series	XWT-ID16-1
8-point PNP output expansion unit	24 VDC, 0.5 A per point	50×66×50	Expansion unit for GX, DRT2 and CRT1 series	XWT-OD08-1
16-point PNP output expansion unit	24 VDC, 0.5 A per point	50×94×50	Expansion unit for GX, DRT2 and CRT1 series	XWT-OD16-1
3 port branching unit	24 VDC, 3 × RJ45	90×25×78	EtherCAT junction box for T-branching	GX-JC03
6 port branching unit	24VDC, 6 × RJ45	90×48×78	EtherCAT junction box for star branching	GX-JC06

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
- Analog I/O with data pre-processing and alarm functions

Ordering information

Unit type	Specifications	Size in mm (H×W×D)	Remarks	Order code
8-point PNP input unit	24 VDC, 6 mA per point	50×115×50	–	DRT2-ID08-1
16-point PNP input unit	24 VDC, 6 mA per point	50×115×50	Expandable with one XWT unit	DRT2-ID16-1
16-point PNP input unit	24 VDC, 6 mA per point	50×180×58	3-tier connection for direct sensor wiring	DRT2-ID16TA-1
8-point PNP output unit	24 VDC, 0.5 A per point	50×115×50	–	DRT2-OD08-1
16-point PNP output unit	24 VDC, 0.5 A per point	50×115×50	Expandable with one XWT unit	DRT2-OD16-1
16-point PNP output unit	24 VDC, 0.5 A per point	50×180×58	3-tier connection for direct actuator wiring	DRT2-OD16TA-1
16-point relay output unit	2 A per point, max. 8 A per common	50×125×52	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	50×115×50	–	DRT2-MD16-1
8-point input + 8-point output unit (PNP)	24 VDC, input 6 mA, output 0.5 A per point	50×180×58	3-tier connection for direct sensor/actuator wiring	DRT2-MD16TA-1
4-Channel analog 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	50×115×50	Resolution 1/6000, conversion time 4 ms (4 inputs)	DRT2-AD04
4-Channel analog 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	50×115×50	Resolution 1/30000, conversion time 250 ms (4 inputs)	DRT2-AD04H
2-Channel analog 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	50×115×50	Resolution 1/6000, conversion time 2 ms (2 outputs)	DRT2-DA02
4-Channel temperature input unit	Platinum Resistance Thermometer types Pt100, JPt100	50×115×50	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	50×115×50	0.3% accuracy, conversion time 250 ms (4 inputs)	DRT2-TS04T

Expansion units

Unit type	Specifications	Size in mm (H×W×D)	Remarks	Order code
8-point PNP input expansion unit	24 VDC, 6 mA per point	50×66×50	Expansion unit for GX, DRT2 and CRT1 series	XWT-ID08-1
16-point PNP input expansion unit	24 VDC, 6 mA per point	50×94×50	Expansion unit for GX, DRT2 and CRT1 series	XWT-ID16-1
8-point PNP output expansion unit	24 VDC, 0.5 A per point	50×66×50	Expansion unit for GX, DRT2 and CRT1 series	XWT-OD08-1
16-point PNP output expansion unit	24 VDC, 0.5 A per point	50×94×50	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



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
- Analog I/O with data pre-processing and alarm functions

Ordering information

Unit type	Specifications	Size in mm (H×W×D)	Remarks	Order code
4-point PNP input unit	24 VDC, 6 mA per point	24×80×20	Screwless I/O connector, power supply via CompoNet cable	CRT1B-ID04SL-1-300
8-point PNP input unit	24 VDC, 6 mA per point	50×115×57.6	Screw terminals, common power terminals per 8 points	CRT1-ID08-1
8-point PNP input unit	24 VDC, 6 mA per point	50×96×60	3 push-in terminals per I/O point (signal + power)	CRT1-ID08SL-1
16-point PNP input unit	24 VDC, 6 mA per point	50×115×50	Expandable with one XWT unit.	CRT1-ID16-1
16-point PNP input unit	24 VDC, 6 mA per point	52×180×69	3 terminals per I/O point (for power distribution)	CRT1-ID16TA-1
4-point PNP output unit	24 VDC, 0.2 A per point	24×80×20	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	50×115×57.6	Screw terminals, common power terminals per 8 points	CRT1-OD08-1
8-point PNP output unit	24 VDC, 0.5 A per point	50×96×60	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	50×115×50	Expandable with one XWT unit.	CRT1-OD16-1
16-point PNP output unit	24 VDC, 0.5 A per point	52×180×69	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	50×95×57.6	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	50×95×57.6	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	50×140×57.6	8 outputs per common	CRT1-ROS16
2-point input + 2-point output unit, PNP	24 VDC, 0.1 A per point	24×80×20	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	50×115×57.6	Screw terminals, common power terminals	CRT1-MD16-1
8-point input + 8-point output unit, PNP	24 VDC, 0.5 A per point	50×170×60	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	52×180×69	3 terminals per I/O point (for power distribution)	CRT1-MD16TA-1
4-Channel analog 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	50×115×50	Resolution 1/6000, conversion time 4 ms (4 inputs)	CRT1-AD04
2-Channel analog 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	50×115×50	Resolution 1/6000, conversion time 2 ms (2 outputs)	CRT1-DA02
4-Channel Temperature input unit	Platinum Resistance Thermometer type Pt100	50×115×50	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	50×115×50	0.3% accuracy, conversion time 250 ms (4 inputs)	CRT1-TS04T

Expansion units

Unit type	Specifications	Size in mm (H×W×D)	Remarks	Order code
8-point PNP input expansion unit	24 VDC, 6 mA per point	50×66×50	Expansion unit for GX, DRT2 and CRT1 series	XWT-ID08-1
16-point PNP input expansion unit	24 VDC, 6 mA per point	50×94×50	Expansion unit for GX, DRT2 and CRT1 series	XWT-ID16-1
8-point PNP output expansion unit	24 VDC, 0.5 A per point	50×66×50	Expansion unit for GX, DRT2 and CRT1 series	XWT-OD08-1
16-point PNP output expansion unit	24 VDC, 0.5 A per point	50×94×50	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 (H×W×D)	Remarks	Order code
CompoNet Repeater unit	1 upstream port + 1 downstream port	50×95×43	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



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
- Analog In/Outputs and customisable modules available

Ordering information

Unit type	Specifications	Size in mm (H×W×D)	Remarks	Order code
4-point PNP input unit	24 VDC, 6 mA per point	48×80×50	Compact IP20 I/O	SRT2-ID04-1
8-point PNP input unit	24 VDC, 6 mA per point	48×80×50	Compact IP20 I/O	SRT2-ID08-1
16-point PNP input unit	24 VDC, 6 mA per point	48×105×50	Compact IP20 I/O	SRT2-ID16-1
16-point PNP input unit	24 VDC, 6 mA per point	50×180×59	3-tier connection for direct sensor wiring	SRT2-ID16T-1
4-point PNP output unit	24 VDC, 0.3 A per point	48×80×50	Compact IP20 I/O	SRT2-OD04-1
8-point PNP output unit	24 VDC, 0.3 A per point	48×80×50	Compact IP20 I/O	SRT2-OD08-1
16-point PNP output unit	24 VDC, 0.3 A per point	48×105×50	Compact IP20 I/O	SRT2-OD16-1
16-point PNP output unit	24 VDC, 0.5 A per point	50×180×59	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	50×180×59	3-tier connection for direct actuator wiring	SRT2-MD16T-1
8-point relay output unit	Max. 3 A per point	50×100×50	with easy-to-replace relays	SRT2-ROC08
16-point relay output unit	Max. 3 A per point	50×155×50	with easy-to-replace relays	SRT2-ROC16
4-Channel analog 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	48×105×50	Resolution 1/6000, conversion time 4 ms (4 inputs)	SRT2-AD04
2-Channel analog 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	48×105×50	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-splatter 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 (H×W×D)	Remarks	Order code
4-point PNP input unit	24 V, 6 mA	123×60×44	Separate I/O power supply connection	DRT2-ID04CL-1
8-point PNP input unit	24 V, 6 mA	175×60×44	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	175×60×38	Unit power supply via DeviceNet cable	DRT2-ID08C-1
16-point PNP input unit	24 V, 6 mA, 2 inputs per M12 connector	175×60×44	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	175×60×38	Unit power supply via DeviceNet cable	DRT2-HD16C-1
4-point PNP output unit	24 V, 0.5 A per point	123×60×44	Separate I/O power supply connection	DRT2-OD04CL-1
8-point PNP output unit	24 V, 0.5 A per point	175×60×44	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	175×60×44	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	175×60×44	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	175×60×44	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 (H×W×D)	Order code
4-point PNP input unit	24 V, 6 mA	114×54×45	SRT2-ID04CL-1
8-point PNP input unit	24 V, 6 mA	114×54×45	SRT2-ID08CL-1
4-point PNP output unit	24 V, 0.5 A per point	114×54×45	SRT2-OD04CL-1
8-point PNP output unit	24 V, 0.5 A per point	114×54×45	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