

# Industrial Automation Guide 2016



Industrial Products & Systems

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# 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](https://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 that your application is unique. However, this does not mean that the PROplus Line is not a ready-made solution. On the contrary, it is a challenge.

For example, the PROplus 4000 series is designed to be modified to meet your needs. It can be modified to meet your needs in terms of I/O, communication, and more. This makes the PROplus 4000 series a challenge.

## EE-NH temperature controller

The new EE-NH series is the most powerful and precise temperature controller. It features a 16-bit A/D converter and a 16-bit D/A converter. It also has a 16-bit timer and a 16-bit counter. It is designed to be modified to meet your needs.

## The 361° Approach



OMRON

Industrial Automation Europe

Omron IAB partner

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Products > Technologies

## 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 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 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

**PROplus**  
PROplus products are designed for specific applications or customer demands.

[Learn more](#)



### LITE

LITE sensors are the most effective without any compromise in quality.

[Learn more](#)



### PRO

If you want extra performance in your sensors and components the Omron PRO Line is your perfect choice.

[Learn more](#)



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realizing

## Grinding made easy

Sysmac controller provides a flexible platform. With Sysmac, you can manage the entire grinding process from the start to the end. It is designed to be modified to meet your needs.

## Product groups

### Sysmac controller

The Sysmac controller is the heart of the Sysmac system. It is designed to be modified to meet your needs.

### Robotics

The Sysmac controller is the heart of the Sysmac system. It is designed to be modified to meet your needs.

### Sensors

The Sysmac controller is the heart of the Sysmac system. It is designed to be modified to meet your needs.

### Actuators

The Sysmac controller is the heart of the Sysmac system. It is designed to be modified to meet your needs.

### Relays

The Sysmac controller is the heart of the Sysmac system. It is designed to be modified to meet your needs.

## Related product news



With new G2 sensors, you only pay for what you need. The new G2 sensors are designed to be modified to meet your needs.

[Learn more](#)

## Related product news



ES16 - Omron's new photo sensors combine simplicity with performance. Drawing on our experience of manufacturing over a million photoelectric sensors a year, we have developed a new generation of photoelectric products that combine simple selection, installation with reliability, versatility, rugged construction and value for money.

[Learn more](#)

## Related product news



With new G2 sensors, you only pay for what you need. The new G2 sensors are designed to be modified to meet your needs.

[Learn more](#)

### ES16

ES16 - Omron's new photo sensors combine simplicity with performance. Drawing on our experience of manufacturing over a million photoelectric sensors a year, we have developed a new generation of photoelectric products that combine simple selection, installation with reliability, versatility, rugged construction and value for money.

[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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“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
<b>PRO<sup>plus</sup></b>	Premium	Tailored	Special	Yes	Yes	Application oriented
<b>PRO</b>	Premium	Complete	Advanced	Yes	Yes	Above Standard
<b>LITE</b>	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:

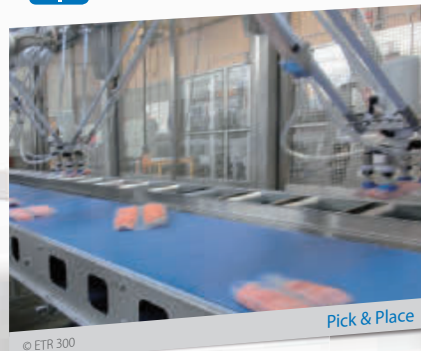
The Sysmac platform is scalable and provides the performance and functionality for a wide range of solutions from simple machines through to manufacturing cells

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

# Sensing

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*Quick Link*



# Sensing

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# Cable connectors

Size	Shape	Type	Features	Material		Order code	
				Nut	Cable		
M8		PRO	3 pin	Brass (CuZn)	PVC 2 m	XS3F-M8PVC3S2M-EU	XS3F-M8PVC3A2M-EU
			4pin		PUR 2 m	XS3F-M8PUR3S2M-EU	XS3F-M8PUR3A2M-EU
					PVC 2 m	XS3F-M8PVC4S2M-EU	XS3F-M8PVC4A2M-EU
					PUR 2 m	XS3F-M8PUR4S2M-EU	XS3F-M8PUR4A2M-EU
		LITE	3 pin	Brass (CuZn)	PVC 2 m	XS3F-LM8PVC3S2M	XS3F-LM8PVC3A2M
			4 pin			XS3F-LM8PVC4S2M	XS3F-LM8PVC4A2M
		PRO <sup>plus</sup> Detergent resistant Wash-down	4 pin	Stainless steel (SUS316L)	PP*1 2 m	Y92E-S08PP4S 2M	Y92E-S08PP4A 2M
		PRO <sup>plus</sup> Robotic (drag chain)	4 pin	Brass (CuZn)	Robotic PVC 2 m	XS3F-M421-402-R	XS3F-M422-402-R
					Robotic PUR 2 m	Y92E-M08PUR4S2M-L	Y92E-M08PUR4A2M-L
		High robotic (drag chain & torsion)			High robotic PUR 2 m	Y92E-M08PUR4S2M-R	Y92E-M08PUR4A2M-R
M12		PRO	3 wire	Brass (CuZn)	PVC 2 m	XS2F-M12PVC3S2M-EU	XS2F-M12PVC3A2M-EU
			4 wire		PUR 2 m	XS2F-M12PUR3S2M-EU	XS2F-M12PUR3A2M-EU
					PVC 2 m	XS2F-M12PVC4S2M-EU	XS2F-M12PVC4A2M-EU
					PUR 2 m	XS2F-M12PUR4S2M-EU	XS2F-M12PUR4A2M-EU
			5 wire		PVC 2 m	XS2F-M12PVC5S2M-EU	XS2F-M12PVC5A2M-EU
					PUR 2 m	XS2F-M12PUR5S2M-EU	XS2F-M12PUR5A2M-EU
		LITE	3 wire	Brass (CuZn)	PVC 2 m	XS2F-LM12PVC3S2M	XS2F-LM12PVC3A2M
			4 wire			XS2F-LM12PVC4S2M	XS2F-LM12PVC4A2M
		PRO <sup>plus</sup> LED (power and output LED, PNP)	3 wire	Nickel plated brass	PVC 2 m	—	XS2F-M12PVC3A2MPLD
			4 wire			—	XS2F-M12PVC4A2MPLD
			3 wire		PUR 2 m	—	XS2F-M12PUR3A2MPLD
			4 wire			—	XS2F-M12PUR4A2MPLD
		PRO <sup>plus</sup> Detergent resistant Wash-down	4 wire	Stainless steel (SUS316L)	PP*1 2 m	Y92E-S12PP4S 2M	Y92E-S12PP4A 2M
		PRO <sup>plus</sup> 105°C Heat resistant	4 wire	Stainless steel (SUS316L)	Heat resistant PVC 2 m	XS2F-E421-D80-E	XS2F-E422-D80-E
		Twist & click	4 wire	Nickel plated Zinc	PVC 2 m	XS5F-D421-D80-F	XS5F-D422-D80-F
					PUR 2 m	XS5F-D421-D80-P	XS5F-D422-D80-P
		PRO <sup>plus</sup> Robotic (drag chain)	4 wire	Brass (CuZn)	Robotic PVC 2 m	XS2F-D421-D80-F	XS2F-D422-D80-F
					Robotic PUR 2 m	Y92E-M12PUR4S2M-L	Y92E-M12PUR4A2M-L
		High robotic (drag chain & torsion)			High grade robotic PUR 2 m	Y92E-M12PUR4S2M-R	Y92E-M12PUR4A2M-R
		8 pin	8 wire shielded ca- ble	Brass (CuZn)	Shielded PUR 2m	Y92E-M12PURSH8S2M-L	—
Fiber amplifier (E3X) connector		Fiber amplifier connec- tors	Special fiber connector - 4 wire	PBT	PVC 2 m	E3X-CN21	
			Special fiber connector + M8 plug	Plug: Zinc diecast	PVC 30 cm with M8 4-pin plug	E3X-CN21-M3J-2 0.3M	
			Special fiber connector + M12 plug		PVC 30 cm with M12 4-pin plug	E3X-CN21-M1J 0.3M	

\*1 PP - polypropylene

## Cable connectors

Size	Shape	Type	Features	Material		Order code	
				Nut	Cable		
M12		IDC (Insulation Displacement Contact)	Fast and easy IDC pressure-welded assembly One connector for cable diameters of 3 mm to 8 mm IP 67 for waterproof connection Smartclick connection	Brass	n.a.	XS5G-D418 XS5C-D418	
M8/M12		Confection-able	Plugs and connectors for self assembly	Brass	n.a.	XS2G, XS2C Y92E_conf	
M12		Field I/O boxes	Direct wiring or DeviceNet communication	–		XW3B, DRT2	
M8/M12		T-connectors, covers, accessories and extended wiring portfolio	n.a.	–		XS2R, XS3R, XY2F, ...	