

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 is a product line that is designed to meet a wide range of needs. It's a product line that is designed to meet a wide range of needs. It's a product line that is designed to meet a wide range of needs.

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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 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

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 maximizing 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 applications requiring high performance in quality.

[Learn more](#)



Related product news



With new G2B sensors, you only pay for what you need. Optimizing relative proximity sensors in the new G2B range has been specifically designed to offer a cost-effective sensing solution or standard sensing conditions, making it unnecessary to buy more sensors than you actually need.

[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 ES16 photo sensors that combine simple selection, installation with reliability, versatility, rugged construction and value for money.

[Learn more](#)

Related product news



AS Safety Control: New step towards the full integration of Automation disciplines.



AS Safety Control: New step towards the full integration of Automation disciplines.



AS Safety Control: New step towards the full integration of Automation disciplines.

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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	Programmable relays	642
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	Low voltage switchgear	706
	Monitoring products	722
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Software	Software	766
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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
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



Pills blister packing

- 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

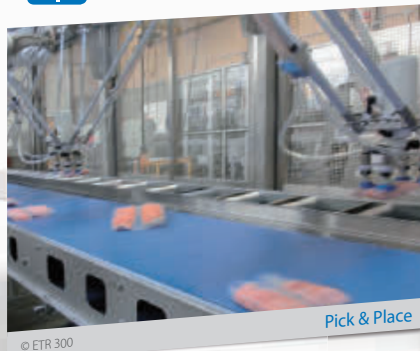
Vision



Quality inspection

- 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



Pick & Place

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

Sensing



Presence detection of the rubber seal

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

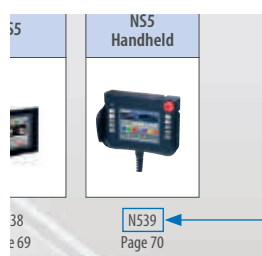
Product selection table

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				
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	766 Software			
Software				

Control components

Find information fast!

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Quick Link

Control components

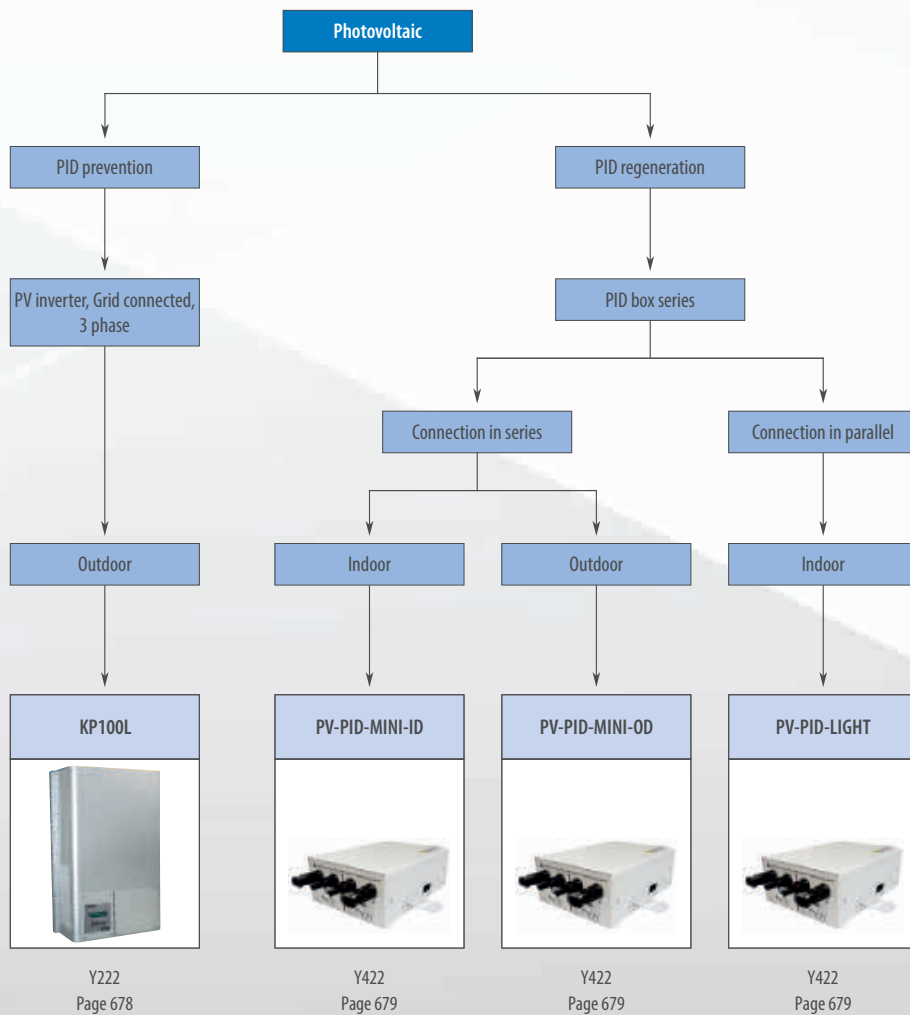
Temperature controllers	574	Timers	622
Selection table	576	Selection table	624
Basic temperature controllers		Analog solid state timers	
E5C2	579	H3DS	627
E5CSV	581	H3DK	628
E5CB	582	H3YN	629
K8AK-TH	749	H3CR	630
E5L	574	Digital timers	
E5L-A/C	576	H5CX	631
E5_L	576	H8GN	639
General purpose temperature controllers		Counters	632
E5_C	583	Selection table	634
Advanced and Multi-Loop controllers		Totalisers	
E5_C-T	587	H7EC	636
E5_R/E5_R-T	589	H7ET	637
CelciuX® (EJ1)	591	H7ER	638
E5_N-H/E5_N-HT	575	Pre-set counters	
Temperature sensors		H8GN	639
E52-E	593	H7CX	640
Auxiliaries		Cam positioners	
PRT1-SCU11/ES1B	594	H8PS	641
ES1C/EJ1N-HFU-ETN	595	Programmable relays	642
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Selection table	598	Programmable relays	
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S8VK-C	601	ZEN-20C	647
S8VK-G	602	ZEN-8E	648
S8FS-C	603	ZEN-PA	649
S8JX-G	605	Digital panel indicators	650
S8JX-P	607	Selection table	652
S8EX	608	1/32 DIN multi-function	
Power back-up unit		K3GN	654
S8TS	609	1/8 DIN standard indicators	
S8T-DCBU-01/-02	610	K3MA-J, -L, -F	655
S8BA	618	1/8 DIN advanced indicators	
Three-phase		K3HB-X, -H, -V, -S	656
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KP100L	678	KP100L	678
PID recovering		PID recovering	
PID box series	679	PID box series	679





REVIVE & RENEW PV PLANTS

Protection against the problem of PID

Improve your power generation with our new photovoltaic technologies. Whether you are designing a new system or improving an existing installation, we have the photovoltaic solutions to help optimize your solar plant.

- Prevent PID with ZCC technology integrated in the PV inverter
- Revive PV panels with a complete retrofit solution based on PID box series
- TÜV Rheinland test approved



	PID recovering box			Photovoltaic inverter
				
Model	PV-PID-MINI-ID	PV-PID-MINI-OD	PV-PID-LIGHT	KP100L-OD-EU
Description	PID box for retrofit	PID box for retrofit	PID box for retrofit	On grid, 10 kW, three-phase PV inverter
Prevents PID on installed PV modules	–	–	–	Yes
Regenerates modules affected with PID	Yes	Yes	Yes	–
Connection type	series	series	parallel	–
Fast PID recovery	+++	+++	+ ^{*1}	–
Able to recover modules in all stages of PID	+++	+++	+ ^{*1}	–
System size ^{*2}	0 to 20 A per independent input	0 to 20 A per independent input	max. 100 kWp ^{*3}	0 to 13 A per independent input (max. 33 A)
Number of MPPT's	2	2	2	3
Grounding possible at inverter side	Yes	Yes	No	Negative pole always grounded during inverter operation, due to ZCC.
Disconnects from the inverter	Yes	Yes	No	–
Outdoor use	No	Yes ^{*4}	No	Yes
Approval is required from the manufacturer of the inverter	No	No	Yes	–
Easy to implement	++	++	+++	+
Page/Quick Link	679/Y422	679/Y422	679/Y422	678/Y222

^{*1} Depending on the inverter

^{*2} Look at the Isc of the modules and the number of strings in parallel. This may never exceed the max current of the PID-box. Also consider the tolerances.

^{*3} Inputs have to be secured with 2 A fuses

^{*4} Power supply is rated IP30. Place it indoor.



The unique 10 kW transformerless PV inverter able to prevent PID

The key to Omron's innovative solution to prevent PID is the special ZCC circuit, which at the same time provides high efficiency. Our PV inverters also give you great flexibility when designing your PV system through their 3 MPP trackers and 3-phase feed-in.

- Wide MPPT voltage range
- Max. efficiency of 97.5%
- Innovative PID-preventive solution
- 3-phase feed-in
- 3 MPP trackers suitable for multiple and single use
- Integrated grid management
- Inverter production since 1994

Ordering information

Unit type	Input type	Output type	Environmental conditions	Built in DC switch	Order code
Grid connected 3 phase PV inverter	3 × 13 A (maximum 33 A)	3 phase 4 wires	Outdoor (IP 65)	No	KP100L-OD-EU
				Yes	KP100L-OD-EU-S

Specifications

		KP100L-OD-EU	KP100L-OD-EU-S
Input (DC)	Nominal DC power	10,300 W	
	Max. DC power	11,500 W	
	Max. DC voltage	850 VDC	
	MPP voltage range	225 to 850 VDC	
	DC nominal voltage	585 VDC	
	Min. DC voltage	200 VDC	
	Max. input current per MPPT	13 A	
	Max. input current total	33 A	
	Number of MPP tracker	3	
Output (AC)	AC nominal power	10,000 W	
	AC peak power (max. 10 Min.)	11,000 W	
	Max. efficiency	97.5%	
	European efficiency	97.1%	
	Output voltage	230/400 VAC	
	Nominal frequency	50 Hz (±5 Hz)	
	Nominal output current	14.5 A	
	Power factor (cos phi)	0.85 leading ... 1 (typical) ... 0.9 lagging	
	Distortion factor THD	4% or less	
Number of connection phases		3-phase 4-wire	
Dimensions (W×H×D)		455 × 740 × 270 mm	
Weight		42 kg	
Operating temperature		–20 to 60°C	
Power consumption		< 1 W	
Climate class (per IEC 60721-3-4)		4K4H	
Degree of protection		Housing: IP65 (acc. to DIN EN60529)	
Features	Connection DC	MC-4 (PV-KBT4 / PV-KST4)	
	Connection AC	Screw terminal	
	Communication	RS 485, RS-232C	
	Monitoring	Omron PVRemote / Solar-Log™	
	Cooling	Forced ventilation	
	Display	LCD	
	Grid surveillance	Included (Three phase monitoring)	
	Built in DC switch	No	Yes
	Potential free contact	Included	
	Warranty	5 years or 10 years	
	Certifications	www.industrial.omron.eu	



Omron & Ilumen's retrofit solution to recover PID

When PV panels are exposed to a negative voltage to ground, Potential Induced Degradation (PID) can occur and reduce energy generation. In partnership with Ilumen, we deliver a retrofit solution to eliminate PID directly in the field, with keeping PV modules in place.

- Proven solution tested by TÜV Rheinland
- Noticeable improvement in affected panels within 5 days
- PV-PID-MINI is compatible with all brands of inverters and string sizes (no compatibility issues for retrofit)
- Suitable for small and medium scale solar systems
- Plug and play
- Indoor and outdoor models available

Ordering information

Unit type	Connection type	Input type	Power supply voltage	Environmental conditions	Order code
PID regeneration box	Series	2 × 20 A	18 VDC	Indoor	PV-PID-MINI-ID
				Outdoor	PV-PID-MINI-OD
	Parallel	2 × 50 kW		Indoor	PV-PID-LIGHT

Specifications

		PV-PID-MINI-ID	PV-PID-MINI-OD	PV-PID-LIGHT
PV array/inverter input	Input PV voltage range	80 to 1000 V		
	Output voltage to ground	Up to 1250 V		Up to 1000 V
	Maximum PV current	20 A		–
	Maximum total PV power	–		100 kWp (c-Si)
	Maximum output current in operation	5 mA		
GRID (AC)	Nominal AC voltage	100 to 240 V		
	Nominal AC grid frequency	47 to 63 Hz		
	Power consumption in standby operation	< 0.2 W		
	Typical power consumption in operation	8 W		
	Maximum power consumption	15 W		
General data	Dimensions (W × D × H)	270 × 200 × 75 mm		
	Weight	1,100 g		
	Operating temperature range	–25 to 60 °C (–13 to 140 °F)		
	Environmental conditions	indoor use	IP65 – indoor/outdoor use	indoor use
Configuration	PV connectors	MC4 compatible		
		<div><div><ul style="list-style-type: none">• One PV-PID-MINI per 2 MPPTs• Maximum one MPPT per input (A/B)• None of the connected solar module poles may become grounded on the PV side, grounding on the inverter side is possible• 18 VDC power supply included</div><div><ul style="list-style-type: none">• One PV-PID-LIGHT per 2 MPPTs• Maximum one MPPT per input (A/B)• None of the connected solar module poles may become grounded• 1 screw connection for grounding the frames of the PV modules• The inverter manufacturer's approval is needed to place the PV-PID-LIGHT. The client is responsible getting the approval</div></div>		
Warranty		Standard 2 years		
Certificates		CE Declaration, EMC: EN 61000-6-3:2007, EN 61000-6-2:2005, LVD: EN50178:1997		