

Industrial Automation Guide 2016



Industrial Products & Systems

industrial.omron.eu

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



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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Quick Links shortens your search. Quick Links are unique codes assigned to Omron products listed in this guide. Enter Quick Link codes in the search box on industrial.omron.eu to access detailed information on products in this guide.



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Industrial Automation Guide 2016

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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.

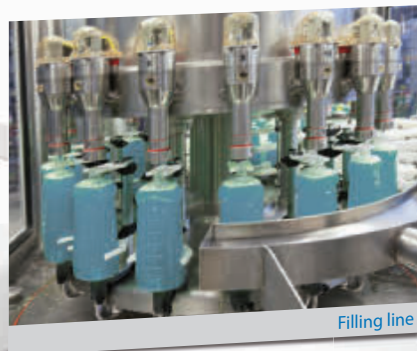


Machine Automation Controller

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



- 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:

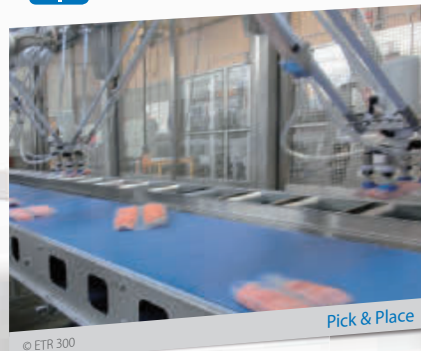
The Sysmac platform is scalable and provides the performance and functionality for a wide range of solutions from simple machines through to manufacturing cells

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				
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Software				

Sensing

Find information fast!

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Quick Link

Sensing

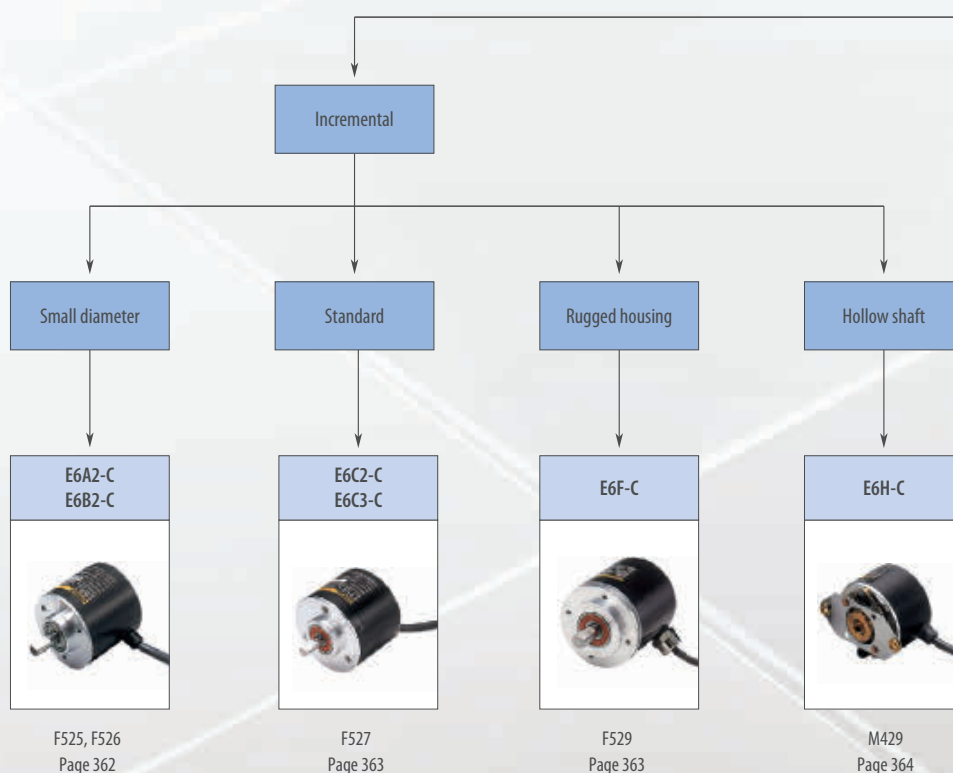
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Multi-purpose		E32 Standard cylindrical	296
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		Cable connectors	
		Cable connectors	
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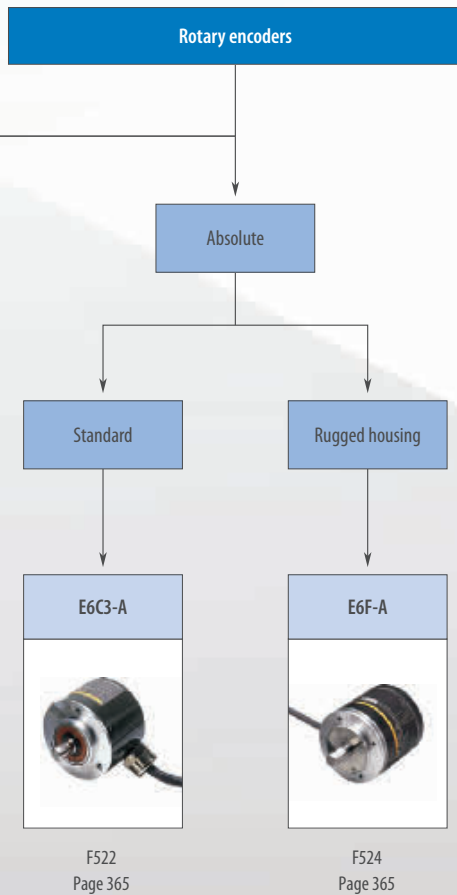
ACCURACY AND ROBUSTNESS MADE RELIABLE

Close the loop – angle, position and velocity on hand

Rotary encoders create information which represent the movement of your application. To meet challenging demands, Omron offers a wide range of absolute and incremental encoders.

- Wide resolution variety
- Models with rugged housing
- Models for multi- turn applications





Output		Incremental				
						
Model		E6A2-C	E6B2-C	E6C2-C	E6C3-C	E6F-C
Type		Small diameter shaft			Standard	Rugged housing
Resolution range	Min.	10			100	
	Max.	500	2,000		3,600	1,000
Output	NPN	■	■	■	■	■
	PNP	–	■	■	–	–
Size dia. in mm		25	40	50	50	60
Max. force	Radial	10	30	50	80	120
	Axial	5	20	30	50	50
IP rating	IP50	■	■	–	–	–
	IP64	–	–	■	–	–
	IP65	–	–	–	■	■
Max. rotation frequency		5,000	6,000		5,000	
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Output		Incremental	Absolute		
					
Model		E6H-C	E6C3-A	E6F-A	
Type		Hollow shaft	Standard	Rugged housing	
Resolution Range	Min.	300	6	256	
	Max.	3,600	1,024		
Output	NPN	■	■	■	
	PNP	–	■	■	
Size dia. in mm		40 (hollow)	50	60	
Max. force	Radial	29.4	80	120	
	Axial	4.9	50	50	
IP rating	IP50	■	–	–	
	IP64	–	–	–	
	IP65	–	■	■	
Max. rotation frequency		10,000	5,000	5,000	
Page/Quick Link		364/M429	365/F522	365/F524	

■ Standard

□ Available

– No/not available



Incremental rotary encoder in miniature housing

The E6A family of rotary encoders features a small sized dia. 25 mm housing.

- Small sized dia. 25 mm housing

Ordering information

Size dia. in mm	Output phase	Power supply voltage	Output form	Resolution (pulse/rotation)	Order code
25	A	5 to 12 VDC	NPN voltage output	10, 20, 60, 100, 200, 300, 360, 500	E6A2-CS3E
		12 to 24VDC	NPN open collector	10, 20, 60, 100, 200, 300, 360, 500	E6A2-CS3C
	A, B	5 to 12 VDC	NPN voltage output	100, 200, 360, 500	E6A2-CS5C
		12 to 24VDC	NPN open collector	100, 200, 360, 500	E6A2-CW3E
	A, B, Z	5 to 12 VDC	NPN voltage output	100, 200, 360, 500	E6A2-CW3C
		12 to 24VDC	NPN open collector	100, 200, 360, 500	E6A2-CW5C
	A, B, Z	5 to 12 VDC	NPN voltage output	100, 200, 360, 500	E6A2-CWZ3E
		12 to 24VDC	NPN open collector	100, 200, 360, 500	E6A2-CWZ3C
					E6A2-CWZ5C

E6B2-C



Incremental rotary encoder in compact housing

The E6B family of incremental rotary encoders features a housing size dia. 40 mm.

- Line driver output models available

Ordering information

Size dia. in mm	Power supply voltage	Output form	Resolution (pulse/rotation)	Order code
40	5 to 24 VDC	NPN open collector output	10, 20, 30, 40, 50, 60, 100, 200, 300, 360, 400, 500, 600, 720, 800, 1,000, 1,024, 1,200, 1,500, 1,800, 2,000	E6B2-CWZ6C
	12 to 24VDC	PNP open collector output	100, 200, 360, 500, 600, 1,000, 2,000	E6B2-CWZ5B
	5 to 12 VDC	NPN voltage output	10, 20, 30, 40, 50, 60, 100, 200, 300, 360, 400, 500, 600, 1,000, 1,200, 1,500, 1,800, 2,000	E6B2-CWZ3E
	5 VDC	Line driver output	10, 20, 30, 40, 50, 60, 100, 200, 300, 360, 400, 500, 600, 1,000, 1,024, 1,200, 1,500, 1,800, 2,000	E6B2-CWZ1X



Incremental rotary encoder with enhanced water resistant

The E6C family of dia. 50 mm incremental rotary encoders features an improved water resistance compared to standard models.

- IP64f or IP65f drip-proof, oil-proof construction

Ordering information

	Size dia. in mm	Power supply voltage	Output form	Resolution (pulse/rotation)	Order code
Standard models	50	5 to 24 VDC	NPN open collector output	10, 20, 30, 40, 50, 60, 100, 200, 300, 360, 400, 500, 600, 720, 800, 1,000, 1,024, 1,200, 1,500, 1,800, 2,000	E6C2-CWZ6C
		12 to 24VDC	PNP open collector output	100, 200, 360, 500, 600, 1,000, 2,000	E6C2-CWZ5B
		5 to 12 VDC	NPN voltage output	10, 20, 30, 40, 50, 60, 100, 200, 300, 360, 400, 500, 600, 720, 800, 1,000, 1,024, 1,200, 1,500, 1,800, 2,000	E6C2-CWZ3E
		5 VDC	Line driver output	10, 20, 30, 40, 50, 60, 100, 200, 300, 360, 400, 500, 600, 720, 800, 1,000, 1,024, 1,200, 1,500, 1,800, 2,000	E6C2-CWZ1X
8 dia. tough model	50	12 to 24VDC	Complimentary output	100, 200, 300, 360, 500, 600, 720, 800, 1,000, 1,024, 1,200, 1,500, 1,800, 2,000, 2,048, 2,500, 3,600	E6C3-CWZ5GH
		5 to 12 VDC	NPN voltage output	100, 200, 300, 360, 500, 600, 720, 800, 1,000, 1,024, 1,200, 1,500, 1,800, 2,000, 2,048, 2,500, 3,600	E6C3-CWZ3EH
		5 to 12 VDC	Line driver output	100, 200, 300, 360, 500, 600, 720, 800, 1,000, 1,024, 1,200, 1,500, 1,800, 2,000, 2,048, 2,500, 3,600	E6C3-CWZ3XH

E6F-C



Incremental rotary encoder in rugged housing

The E6F family of dia. 60 mm rotary encoders features a rugged housing.

- Strong shaft for max 120 N in radial direction and max 50 N in thrust direction)
- Water- and oil-proof structure (IP65f)

Ordering information

Size dia. in mm	Power supply voltage	Output form	Resolution (pulse/rotation)	Order code
60	12 to 24VDC	Complimentary output	100, 200, 360, 500, 600, 1000	E6F-CWZ5G



Incremental rotary encoder with hollow shaft

The E6H family of incremental encoders features a dia. 40 mm housing with hollow shaft.

- Wide operating voltage range from 5 to 24 VDC
- Line drive output available (100 m max.)

Ordering information

Size dia. in mm	Power supply voltage	Output form	Resolution (pulse/rotation)	Order code
40	5 to 24 VDC	Open collector output	300, 360, 500, 600, 720, 800, 1,000, 1,024, 1,200, 1,500, 1,800, 2,000, 2,048, 2,500, 3,600	E6H-CWZ6C
	5 to 12 VDC	Voltage output	300, 360, 500, 600, 720, 800, 1,000, 1,024, 1,200, 1,500, 1,800, 2,000, 2,048, 2,500, 3,600	E6H-CWZ3E
	5 to 12 VDC	Line drive output	300, 360, 500, 600, 720, 800, 1,000, 1,024, 1,200, 1,500, 1,800, 2,000, 2,048, 2,500, 3,600	E6H-CWZ3X



Absolute rotary encoder with enhanced water resistance

The E6C family of dia. 50 mm incremental rotary encoders features an improved water resistance compared to standard models.

- IP65f drip-proof, oil-proof construction

Ordering information

Size dia. in mm	Power supply voltage	Output form	Output code	Resolution (pulse/rotation)	Connection method	Order code
50	12 to 24VDC	NPN open collector output	Gray code	256, 360	Connector type	E6C3-AG5C-C
				256, 360, 720, 1,024	Pre-wired type	E6C3-AG5C
			Binary	32, 40		E6C3-AN5C
			BCD	6, 8, 12		E6C3-AB5C
		PNP open collector output	Gray code	256, 360, 720, 1,024		E6C3-AG5B
			Binary	32, 40		E6C3-AN5B
			BCD	6, 8, 12		E6C3-AB5B
			5 VDC	NPN voltage output		Binary
	12 VDC	E6C3-AN2E				

E6F-A



Absolute rotary encoder in rugged housing

The E6F family of dia. 60 mm rotary encoders features a rugged housing.

- Stronger shaft and higher durability (120 N in radial direction and 50 N in thrust direction) than previous E6F Encoders
- Drip-proof construction meets IP64F standards
- High-resolution models (1024 pulses max. per revolution)
- Faster response for high-speed control applications (grey code: 20 kHz)

Ordering information

Size dia. in mm	Power supply voltage	Output form	Output code	Resolution (pulses/revolution)	Connection method	Order code
60	12 to 24 VDC	NPN open collector	BCD	360	Pre-wired	E6F-AB5C
					Connector type ^{*1}	E6F-AB5C-C
		PNP open collector	Gray code	256, 360, 720, 1,024	Pre-wired	E6F-AG5C
			BCD	360	Pre-wired	E6F-AB5B
			Gray code	256, 360, 720, 1,024	Pre-wired	E6F-AG5B

^{*1} For extension cables order E69-DF5 (5M) or E69-DF10 (10M).