OMRON

Packaging Industry Project Book

INTEGRATED | INTELLIGENT | INTERACTIVE

The Packaging Industry

Packaging companies are challenged with producing a consistently high level of product quality, maximum throughput and plant availability, optimum machine efficiency – all with the flexibility and scalability to meet ever-changing customer demands. Addressing these challenges today and in the future is possible only with fully integrated solutions tailored to the packaging industry.

Omron is your trusted global partner for food, beverage and consumer packaged goods processors and packagers.

Browse through this project book to discover industry-leading solutions, learn about the most popular products and read through implementation successes.

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Smart solutions built for the factory of the future

The key to success in the packaging industry is to capitalize on advanced automation technologies purposefully joined into smart solutions that solve common to complex applications. Smart solutions from Omron will transform your business to ensure you remain competitive. From package or product inspection to machine safety, we offer a range of end-to-end solutions that will align with any business strategy.

Transform the way you manufacture

Adapt to changing environments with an integrated robotic solution.

Package sortation and placement

Packaging companies are looking for speed and accuracy in their machines. This often means investing in robotics, which increase the speed, functionality and precision of operations. Robotic systems are commonly found in industrial automation processes and are used for putting individual items into a tray or carton for ready meals, beverages, consumer packaged goods, confectionery, cosmetics, pharmaceuticals, and much more.

- Perform repetitive tasks with virtually no downtime
- Handle differences in item size and change-overs
- Ensure items are placed in the proper compartments
- Keep food safe from pathogens during

  direct contact

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Safeguard your most valuable assets

Allow people and machinery to collaborate safely through assessments, remediation and training services.

Predictive maintenance

Predictive maintenance (PdM) evaluates the stability of machines and components by performing periodic or continuous condition monitoring. PdM uses real-time data to predict potential failures so manufacturers can avoid downtime, reduce costs and minimize operational risk.

- Predict where, when and why component failures are likely to occur
- Identify primary variables as part of a root-cause analysis
- Monitor data trends for decision making at critical

  control points

Packaging machine safety

Safety is critical to automation and manufacturers need balance between effective ways to protect workers while extending the life of the machine and maintaining stable operations. Proper safety components and practices protect operators, but also improve uptime and productivity.

- Warn operators of safety hazards caused by wear on machines
- Save on fines, legal fees and increased inspections due

  to incidents
- Increase productivity by reducing downtime

Advanced safety services

Advanced safety services is comprised of three main categories: safety education, machine assessment and remediation services. TÜVcertifi ed experts specialize in safeguarding machines and consult on applicable regulations, directives and standards.

- Build a foundation for a safer, more productive manufacturing operation
- Document a risk reduction strategy
- Ensure machines are compliant with

  applicable standards

Invest in your future productivity today

With the widest range of smart solutions, we can help you address any application that may arise.

Automated line change-over

Growth in product variations is driving the need for efficient change-overs. Automation eliminates the risk of incorrect adjustments while enhancing productivity.

- Automate machine settings and sequences
- Minimize downtime between product changes
- Decrease time before payback

High-speed temperature control

Temperature slippage above or below limits, which is failure to maintain the temperature chain, can contribute to compromised output.

- Control in continuous and intermittent flows
- Stop machine shut downs by keeping temperature within limits
- Minimize waste from improper sealing

Scrap and waste reduction

Reduce scrap and waste by identifying inefficient processes that lead to wasted time and cost as well as damaged brand reputation.

- Eliminate the cost of carrying extra inventory
- Keep production from backing up due to re-works
- Ensure the correct parts are in place for a production run

Vibration suppression

Prevent items from shaking, fluid from sloshing or spilling and fragile materials from breaking. Technology optimizes the flow of products, and improves movement control to optimize transportation speed.

- Shorten product handling time
- Reduce waste caused by spilling
- Increase the accuracy of the weighing process

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Protect your brand and your market share

Identify non-conforming packaging or labeling with the most comprehensive suite of inspection solutions in the industry.

Track-and-trace

Driven by regulations, traceability links products to data. Trace history, application or location of products by means of recorded identification and share data within the supply chain.

- Provide compliance with regulations, preventing government action
- Protect brands by identifying compromised products before they reach market
- Provide information on composition, origin and handling of products

Quality control for labels and markings

Mark and read products during manufacturing or for final use. This solution serves applications ranging from acquisition, inventory and manufacturing to distribution, supply and repair.

- Define requirements for identifying items
- Inspect both labels and direct part marking
- Ensure adherence to label standards

Package or product inspection

Identify non-conforming packages or products by detecting defects at the earliest point. This solution helps companies improve productivity, reduce defect rates, re-work and waste.

- Reduce end-of-line defects
- Ensure the quality of products during production
- Increase retailer confidence

SKU control

SKU control enables companies to track an inventoried item that is in their warehouse or other outlet and verifies SKU information matches the item contents.

- Enhance track-and-trace capabilities
- Catch mislabeled items prior to shipment, avoiding a recall
- Manage inventory more efficiently

Optimize your production with data

Turn real-time machine data into high value, actionable information.

Production optimization through data: OEE

Optimize production by leveraging real-time machine and line data and turning it into key performance indicators (KPIs) and overall equipment effectiveness (OEE) information. This results in prolonged machine life and improved productivity and product quality.

- Minimize production downtime; reduce losses and bottlenecks
- Implement on-demand decision making

Machine-to-machine communications: PackML

PackML, or Packaging Machine Language, (ISA-TR88.00.02) is a standard for machine programming. PackML brings a common look and feel as well as operational consistency to machines that make up a packaging line, regardless of the automation platform.

- Standardize data in and out of a machine
- Allow for integration of machines from multiple vendors
- Support productivity-enhancing initiatives such as OEE

About Omron Automation

Omron Automation is an industrial automation partner that creates, sells and services fully integrated automation solutions that include sensing, control, safety, vision, motion, robotics and more. Established in 1933 and currently headed by President Yoshihito Yamada, Omron's 30,000 employees help businesses solve problems with creativity in more than 110 countries. Learn more at automation.omron.com.

Contents

E2E NEXT - Long Range DC 3-Wire Inductive Sensors 🌐

- Industry leading sensing distances with up to 4x the sensing range of standard models
- IO-Link is standard with DC 3-wire PNP models Multiple connection Types
- Multiple connection Types (including M8 QD, M12 QD, M12 Pig-tail QD, PVC cable and PVC Robot Cable)
- Harsh condition robustness with IP67, IP69K, and IP67G

Barrel Size	Sensing Distance	Shielded /Unshielded	Connection Method	PNP Model	NPN Model
M8	1.5 mm	Shielded	M8 Connector (3 pins)	E2E-X1R5B1D8-M5	E2E-X1R5C18-M5
	2mm			E2E-X2B1D8-M5	E2E-X2C18-M5
	4mm			**E2E-X4B1D8-M5**	E2E-X4C18-M5
	1.5 mm		M12 Pigtail*	E2E-X1R5B1D8-M1TJ 0.3M	E2E-X1R5C18-M1TJ 0.3M
	2mm			E2E-X2B1D8-M1TJ 0.3M	E2E-X2C18-M1TJ 0.3M
	4mm			E2E-X4B1D8-M1TJ 0.3M	E2E-X4C18-M1TJ 0.3M
	2 mm	Unshielded	M8 Connector (3 pins)	E2E-X2MB1D8-M5	E2E-X2MC18-M5
	4mm			E2E-X4MB1D8-M5	E2E-X4MC18-M5
	8mm			E2E-X8MB1D8-M5	E2E-X8MC18-M5
	2 mm		M12 Pigtail*	E2E-X2MB1D8-M1TJ 0.3M	E2E-X2MC18-M1TJ 0.3M
	4mm			E2E-X4MB1D8-M1TJ 0.3M	E2E-X4MC18-M1TJ 0.3M
	8mm			E2E-X8MB1D8-M1TJ 0.3M	E2E-X8MC18-M1TJ 0.3M
M12	2 mm	Shielded	M12 Connector (4 pins)	E2E-X2B1D12-M1	E2E-X2C112-M1
	4mm			**E2E-X4B1D12-M1**	E2E-X4C112-M1
	9mm			**E2E-X9B1D12-M1**	E2E-X9C112-M1
	5 mm	Unshielded		E2E-X5MB1D12-M1	E2E-X5MC112-M1
	8mm			E2E-X8MB1D12-M1	E2E-X8MC112-M1
	16mm			E2E-X16MB1D12-M1	E2E-X16MC112-M1
M18	5 mm	Shielded		E2E-X5B1D18-M1	E2E-X5C118-M1
	8mm			E2E-X8B1D18-M1	E2E-X8C118-M1
	14mm			**E2E-X14B1D18-M1**	E2E-X14C118-M1
	10 mm	Unshielded		E2E-X10MB1D18-M1	E2E-X10MC118-M1
	16mm			E2E-X16MB1D18-M1	E2E-X16MC118-M1
	30mm			E2E-X30MB1DL18-M1	E2E-X30MC1L18-M1
M30	10 mm	Shielded		E2E-X10B1D30-M1	E2E-X10C130-M1
	15mm			E2E-X15B1D30-M1	E2E-X15C130-M1
	23mm			E2E-X23B1D30-M1	E2E-X23C130-M1
	18 mm	Unshielded		E2E-X18MB1D30-M1	E2E-X18MC130-M1
	30mm			E2E-X30MB1DL30-M1	E2E-X30MC1L30-M1
	50mm			E2E-X50MB1DL30-M1	E2E-X50MC1L30-M1

Note: Models shown are normally open, normally closed options are available.

    * 0.3M pre-wired with 4 pin M12 connector on the end.

    Tables include representative part numbers. Please consult the product page for more details.

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E2EW –
Metal Face Proximity Sensors

- Extended sensing range, up to 4x standard sensing
- Factor 1 sensing of ferrous and non-ferrous metals
- Weld field immunity
- IP67 rating for environmental robustness
- Proprietary slag resistance coating
- IO-link configurability and output monitoring

Connection Method	Sensing Range	Barrel Size	Sensing Distance	PNP Model	NPN Model
M12 Pigtail*	1x	M12	2 mm	E2EW-X2B112-M1TJ 0.3M	E2EW-X2C112-M1TJ 0.3M
		M18	5 mm	E2EW-X5B118-M1TJ 0.3M	E2EW-X5C118-M1TJ 0.3M
Pre-wire		M12	2 mm	E2EW-X2B112 2M	E2EW-X2C112 2M
		M18	5 mm	E2EW-X5B118 2M	E2EW-X5C118 2M

Connection Method	Sensing Range	Barrel Size	Sensing Distance	PNP Model	NPN Model
M12 Pigtail*	4x	M18	12 mm	**E2EW-X12B1T18-M1TJ 0.3M**	E2EW-X12C118-M1TJ 0.3M
		M30	22 mm	**E2EW-X22B1T30-M1TJ 0.3M**	E2EW-X22C130-M1TJ 0.3M
Pre-wire		M18	12 mm	E2EW-X12B1T18 2M	E2EW-X12C118 2M
		M30	22 mm	E2EW-X22B1T30 2M	E2EW-X22C130 2M

Spatter Resistance Models

Connection Method	Sensing Range	Barrel Size	Sensing Distance	PNP Model	NPN Model
M12 Pigtail*	1x	M12	2 mm	**E2EW-QX2B112-M1TJ 0.3M**	E2EW-QX2C112-M1TJ 0.3M
		M18	5 mm	**E2EW-QX5B118-M1TJ 0.3M**	E2EW-QX5C118-M1TJ 0.3M
Pre-wire		M12	2 mm	E2EW-QX2B112 2M	E2EW-QX2C112 2M
		M18	5 mm	E2EW-QX5B118 2M	E2EW-QX5C118 2M

Connection Method	Sensing Range	Barrel Size	Sensing Distance	PNP Model	NPN Model
M12 Pigtail*	4x	M18	12 mm	**E2EW-QX12B1T18-M1TJ 0.3M**	E2EW-QX12C118-M1TJ 0.3M
		M30	22 mm	**E2EW-QX22B1T30-M1TJ 0.3M**	E2EW-QX22C130-M1TJ 0.3M
Pre-wire		M18	12 mm	E2EW-QX12B1T18 2M	E2EW-QX12C118 2M
		M30	22 mm	E2EW-QX22B1T30 2M	E2EW-QX22C130 2M

* 0.3M pre-wired with 4 pin M12 connector on the end.

Note: Tables include representative part numbers. Bold models: Preferred Availability. Please consult the product page for more details.

E3Z - Compact Photoelectric Sensor

- General purpose photoelectric family with all common sensing modes at long range
- Minimal optical axis deviation for easy alignment
- IP67 for water resistance
- Intensive shielding for highest noise immunity (EMC)
- Multiple molding housing for high mechanical resistance

Sensor Type	Sensor Distance	Connection	PNP Model	NPN Model
Through-beam (emitter+receiver)	10m (Red LED)	2m Cable	E3Z-T81A	E3Z-T61A
		M8 Connector (4 pins)	**E3Z-T86A**	E3Z-T66A
	15m (Infrared LED)	2m Cable	**E3Z-T81**	**E3Z-T61**
		M8 Connector (4 pins)	**E3Z-T86**	E3Z-T66
	30m (Infrared LED)	2m Cable	E3Z-T82 2M	E3Z-T62 2M
		M8 Connector (4 pins)	E3Z-T87	E3Z-T67
Retro-reflective with MSR function	0.1 to 4m (Red LED)	2m Cable	**E3Z-R81**	**E3Z-R61**
		M8 Connector (4 pins)	**E3Z-R86**	**E3Z-R66**
Diffuse-reflective	1m (Infrared LED)	2m Cable	**E3Z-D82**	**E3Z-D62**
		M8 Connector (4 pins)	**E3Z-D87**	E3Z-D67
Background suppression	20 to 200mm (Red LED)	2m Cable	**E3Z-LS81**	**E3Z-LS61**
		M8 Connector (4 pins)	**E3Z-LS86**	E3Z-LS66

Note:
For sensors with IO-Link, refer to the catalog on the website automation.omron.com

Note: Tables include representative part numbers. Bold models: Preferred Availability. Please consult the product page for more details.

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E3FA - M18 Barrel Photoelectric Sensor

- Simplicity in selection and installation
- Compact size with flush mounting option
- IP67, IP69K for wash down resistance
- Straight or right angle (E3RA) models in cylindrical M18 plastic housing
- Background suppression, Limited Distance and Transparent detection models available

Sensor Type	Sensor Distance	Connection	PNP Model	NPN Model
Through-beam (emitter + receiver)*	20m (Red LED)	2m Cable	E3FA-TP11 2M	E3FA-TN11 2M
		M12 Connector (4 pins)	**E3FA-TP21**	**E3FA-TN21**
Retro-reflective with MSR function	0.1 to 4m (Red LED)	2m Cable	**E3FA-RP11 2M**	**E3FA-RN11 2M**
		M12 Connector (4 pins)	**E3FA-RP21**	**E3FA-RN21**
Diffuse-reflective*	100mm (Red LED)	2m Cable	E3FA-DP11 2M	**E3FA-DN11 2M**
		M12 Connector (4 pins)	**E3FA-DP21**	**E3FA-DN21**
	300mm (Red LED)	2m Cable	**E3FA-DP12 2M**	**E3FA-DN12 2M**
		M12 Connector (4 pins)	**E3FA-DP22**	**E3FA-DN22**
	1m (Red LED)	2m Cable	E3FA-DP13 2M	E3FA-DN13 2M
		M12 Connector (4 pins)	**E3FA-DP23**	E3FA-DN23
Background suppression	100mm (Red LED)	2m Cable	E3FA-LP11 2M	E3FA-LN11 2M
		M12 Connector (4 pins)	**E3FA-LP21**	E3FA-LN21
	200mm (Red LED)	2m Cable	E3FA-LP12 2M	E3FA-LN12 2M
		M12 Connector (4 pins)	E3FA-LP22	E3FA-LN22

*Note for these sensing modes Infrared LED models are available.

Note: Tables include representative part numbers. Bold models: Preferred Availability. Please consult the product page for more details.

E3Z-F -
M18 Barrel Mount Photoelectric Sensor

- Visible alignment spot simplifies set-up
- Popular M18 nose mounting
- Models with infrared LEDs available
- Offers various types of sensing distances

Sensor Type	Sensor Distance	Connection	PNP Model	NPN Model
Through-beam (emitter+receiver)*	20 m	2m Cable	E3Z-FTP11 2M	E3Z-FTN11 2M
		M12 Connector (4 pins)	E3Z-FTP21	E3Z-FTN21
Retro-reflective with MSR Function	0.1 to 4m	2m Cable	E3Z-FRP11 2M	E3Z-FRN11 2M
		M12 Connector (4 pins)	E3Z-FRP21	E3Z-FRN21
Diffuse-reflective*	100 mm	2m Cable	E3Z-FDP11 2M	E3Z-FDN11 2M
		M12 Connector (4 pins)	E3Z-FDP21	E3Z-FDN21
	300 mm	2m Cable	E3Z-FDP12 2M	E3Z-FDN12 2M
		M12 Connector (4 pins)	E3Z-FDP22	E3Z-FDN22
	500 mm	2m Cable	E3Z-FDP13 2M	E3Z-FDN13 2M
		M12 Connector (4 pins)	E3Z-FDP23	E3Z-FDN23
	1 m	2m Cable	E3Z-FDP14 2M	E3Z-FDN14 2M
		M12 Connector (4 pins)	E3Z-FDP24	E3Z-FDN24

Note:
Reflectors for retroreflective models are sold separately under code E39-R1S
*Note for these sensing modes Infrared LED models are available

Note: Tables include representative part numbers. Bold models: Preferred Availability. Please consult the product page for more details.

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E3AS-HL - Photoelectric Sensor

- Limited effect of color or reflectivity
- Small and complex object detection
- Line and spot beam for 150mm and 500mm sensing distances
- IP69K and IP67G
- Ecolab tested and certified detergent resistance
- Advanced ease-of-use, single teach button, OLED screen
- IO-Link distance output monitoring and configuration

Sensor Type	Sensor Distance	Beam Type	Connection	PNP Model (I/O Link)	NPN Model
CMOS laser	500 mm	Spot	Pre-wire M12 Connector	E3AS-HL500MT-M1TJ 0.3M	E3AS-HL500MN-M1TJ 0.3M
		Line		E3AS-HL500LMT-M1TJ 0.3M	E3AS-HL500LMN-M1TJ 0.3M
	150 mm	Spot		E3AS-HL150MT-M1TJ 0.3M	E3AS-HL150MN-M1TJ 0.3M
		Line		E3AS-HL150LMT-M1TJ 0.3M	E3AS-HL150LMN-M1TJ 0.3M
	500 mm	Spot	M8 4pin	E3AS-HL500MT M3	E3AS-HL500MN M3
		Line		E3AS-HL500LMT M3	E3AS-HL500LMN M3
	150 mm	Spot		E3AS-HL150MT M3	E3AS-HL150MN M3
		Line		E3AS-HL150LMT M3	E3AS-HL150LMN M3

E3AS-F - Photoelectric Sensor

- Minimal color influence on sensing distance
- 50mm to 1500mm sensing range
- IP69K and IP67G
- Ecolab tested and certified detergent resistance
- Single teach button
- IO-Link distance output monitoring and configuration

Sensor Type	Sensor Distance	Material	Connection	PNP Model (I/O Link)	NPN Model
Time of Flight with Background Suppression	50 - 1500 mm	Stainless Steel	Pre-wired M12 Connector	E3AS-F1500IMT-M1TJ 0.3M	E3AS-F1500IMN-M1TJ 0.3M
			M8 4pin Connector	E3AS-F1500IMT M3	E3AS-F1500IMN M3
		Plastic	Pre-wired M12 Connector	E3AS-F1500IPT- M1TJ 0.3M	E3AS-F1500IPN-M1TJ 0.3M
			M8 4pin Connector	E3AS-F1500IPT M3	E3AS-F1500IPN M3
	50 - 1000 mm	Stainless Steel	Pre-wired M12 Connector	E3AS-F1000IMT-M1TJ 0.3M	E3AS-F1000IMN-M1TJ 0.3M
			M8 4pin Connector	E3AS-F1000IMT M3	E3AS-F1000IMN M3
		Plastic	Pre-wired M12 Connector	E3AS-F1000IPT-M1TJ 0.3M	E3AS-F1000IPN-M1TJ 0.3M
			M8 4pin Connector	E3AS-F1000IPT M3	E3AS-F1000IPN M3

Note: Tables include representative part numbers. Bold models: Preferred Availability. Please consult the product page for more details.

E3AS-L - Photoelectric Sensor

- Enhanced background suppression-Reduced black/white error and differential travel
- 200mm or 80mm sensing range
- IP69K and IP67G
- Ecolab tested and certified detergent resistance
- Single teach button
- IO-Link configurability

Sensor Type	Sensor Distance	Material	Connection	PNP Model (I/O Link)	NPN Model
Diffuse with Background Suppression	10 - 200 mm	Stainless Steel	Pre-wired M12 Connector	E3AS-L200MT-M1TJ 0.3M	E3AS-L200MN-M1TJ 0.3M
	10 - 80 mm			E3AS-L80MT-M1TJ 0.3M	E3AS-L80MN-M1TJ 0.3M
	10 - 200 mm		M8 4pin Connector	E3AS-L200MT M3	E3AS-L200MN M3
	10 - 80 mm			E3AS-L80MT M3	E3AS-L80MN M3

E3S-DC - Color Mark Detection Sensor

- High signal to noise ratio detects subtle color differences.
- High luminance, three-element (RGB) LED light source for greater light intensity.
- Highly efficient optics technology provides high power and enables stable detection even of subtle color differences.

Type	Sensor Distance	Connection	Output	Baud Rate (IO-Link)	Model
Diffuse - reflective (mark detection)	10 ± 3mm	M12 Connector	PNP	COM 3 (230, 4 kbps)	E3S-DCP21-IL3
			NPN	---	E3S-DCN21

Note: Tables include representative part numbers. Bold models: Preferred Availability. Please consult the product page for more details.

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E3NX-FA - High Speed Digital Fiber Amplifier

• Easy teaching by Smart tuning within a few seconds

• New N-Smart technology provides significant improvement for sensing distance, minimum object detection and speed

• Easy and transparent information about sensor status by Solution Viewer and Change Finder function

• EtherCAT Communication unit for high-speed field bus connectivity

Setting/Function	Sensor Distance	Inputs/Outputs	Connection	PNP Model	NPN Model
Standard Models	Sensing distance up to 4m depending on fiber used	1 output	2 m	E3NX-FA41 2M	E3NX-FA11 2M
Advanced Models		2 outputs + 1 input	2 m	E3NX-FA51 2M	E3NX-FA21 2M
Analog Output Models		2 outputs	2 m	E3NX-FA41AN 2M	E3NX-FA11AN 2M

Note: Infrared standard models are available as well as connector options for standard, advanced, and infrared models.

E3X-HD -

Advanced Fiber Amplifier

• Simple one-button smart tuning for sensor threshold and light intensity

• Confirm settings and status easily with dual digital display

• Automatic compensation for large objects and low reflectance dark targets

Setting / Function	Range	Connection	PNP Model	NPN Model
Advanced digital amplifier	Up to 4m depending on fiber model	2m Cable	**E3X-HD41 2M**	**E3X-HD11 2M**
		M8 Connector	**E3X-HD44**	E3X-HD14

Note: Tables include representative part numbers. Bold models: Preferred Availability. Please consult the product page for more details.

E3X-NA / SD -
Fiber Optic Amplifiers

• Easy adjustment with potentiometer
• Mutual interference prevention
• Enhanced water resistance types

Setting / Function	Distance	Connection	PNP Model	NPN Model
Potentiometer and Bargraph	Depending on the fiber optic model	2m Cable	**E3X-NA41**	**E3X-NA11**
Teach Button and digital display			**E3X-SD51**	E3X-SD21

E3NX-CA -
Colormark Fiber Amplifier

• High signal to noise ratio makes subtle color difference detection easy
• Able to handle glossy materials
• Stable even when lots change

Model	Sensor Distance	Connection	Inputs / Outputs	PNP Model	NPN Model
Standard Model	Sensor distance depends on selected fiber model	2m Cable	1 output	E3NX-CA41 2M	E3NX-CA11 2M
Advanced Model			2 outputs / 1 input	E3NX-CA51 2M	E3NX-CA21 2M

*For fiber options, or models for special applications, refer to the E32 fibers catalog on the Omron website.

Note: Tables include representative part numbers. Bold models: Preferred Availability. Please consult the product page for more details.

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E3ZM-V -
Colormark Detection Sensor

- Compact SUS 316L colormark photoelelctric sensor
- Ideal for high contrast colormark detection in a small package
- IP69K and IP67 rated for environmental robustness
- 50 us response time
- Single teach button

Type	Sensor Distance	Connection	PNP	NPN
Diffuse - reflective (color mark detection)	12 ± 2mm	Pre-wired	E3ZM-V81 2M	E3ZM-V61 2M
		M8 Connector	E3ZM-V86	E3ZM-V66

ZX1 - CMOS Laser Measurement Sensor

- Down to 2um resolution
- Best in class performance for accuracy and speed
- Increased measurement range
- Stable measurement for objects with any surface
- Simple configuration by one-button, Smart Tuning
- Compact size for quick mounting

Range	Resolution	Connection	PNP Model	NPN Model
50 ± 10 mm	2um	2 m Cable	ZX1-LD50A81 2M	ZX1-LD50A61 2M
100 ± 35 mm	7um		ZX1-LD100A81 2M	ZX1-LD100A61 2M
300 ± 150 mm	30um		ZX1-LD300A81 2M	ZX1-LD300A61 2M
600 ± 400 mm	80um		ZX1-LD600A81 2M	ZX1-LD600A61 2M

Note: Models with 5-meter cable and pre-wired M12 connector available.

Note: Tables include representative part numbers. Bold models: Preferred Availability. Please consult the product page for more details.

Sensor Cordsets

- Standard PVC or PUR cordsets for a wide variety of applications
- M8 and M12 connector sizes with 3 and 4 pin configurations
- Straight, right angle, and double ended variations available
- 2m, 5m, and 10m cordset lengths are available. Alternative lengths are also available

Material	Connector Size	No. of Pins	Length	Straight Connector	Right Angle Connector
PUR	M8	3 Pins	2 m	XS3F-M8PUR3S2M	XS3F-M8PUR3A2M
			5 m	**XS3F-M8PUR3S5M**	XS3F-M8PUR3A5M
			10 m	XS3F-M8PUR3S10M	XS3F-M8PUR3A10M
		4 Pins	2 m	XS3F-M8PUR4S2M	XS3F-M8PUR4A2M
			5 m	**XS3F-M8PUR4S5M**	**XS3F-M8PUR4A5M**
			10 m	**XS3F-M8PUR4S10M**	XS3F-M8PUR4A10M
	M12		2 m	XS2F-M12PUR4S2M	XS2F-M12PUR4A2M
			5 m	**XS2F-M12PUR4S5M**	**XS2F-M12PUR4A5M**
			10 m	**XS2F-M12PUR4S10M**	XS2F-M12PUR4A10M
PVC	M8	3 Pins	2 m	XS3F-M8PVC3S2M	XS3F-M8PVC3A2M
			5 m	XS3F-M8PVC3S5M	XS3F-M8PVC3A5M
			10 m	XS3F-M8PVC3S10M	XS3F-M8PVC3A10M
		4 Pins	2 m	XS3F-M8PVC4S2M	XS3F-M8PVC4A2M
			5 m	XS3F-M8PVC4S5M	XS3F-M8PVC4A5M
			10 m	XS3F-M8PVC4S10M	XS3F-M8PVC4A10M
	M12	3 Pins	2 m	XS2F-M12PVC3S2M	XS2F-M12PVC3A2M
			5 m	XS2F-M12PVC3S5M	XS2F-M12PVC3A5M
			10 m	XS2F-M12PVC3S10M	XS2F-M12PVC3A10M
		4 Pins	2 m	**XS2F-M12PVC4S2M**	XS2F-M12PVC4A2M
			5 m	**XS2F-M12PVC4S5M**	**XS2F-M12PVC4A5M**
			10 m	**XS2F-M12PVC4S10M**	XS2F-M12PVC4A10M

Double-ended cordsets

Material	Connector Size	No. of Pins	Length	Straight Connector	Right Angle (Socket)/Straight (Plug)
PVC	M12	4	2 m	XS2W-D421-D81-F	XS2W-D424-D81-F
			5 m	XS2W-D421-G81-F	XS2W-D424-G81-F
			10 m	XS2W-D421-J81-F	XS2W-D424-J81-F

Note: Tables include representative part numbers. Bold models: Preferred Availability. Please consult the product page for more details.

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S8VK - Complete Line Of Power Supplies

- Compact single-phase and three-phase power supplies
- Operating Temperature: -40°C to 70°C (S8VK-G and S8VK-T) and -25°C to 60°C (S8VK-C)
- 5 year warranty
- Power Boost Function: 120% for 10s (S8VK-G/T)

Line	Power	Output Voltage	Output Current	Capacity	Model
Economy Single-Phase	100 to 240 VAC 90 to 350 VDC	24V	2.5 A	60 W	**S8VK-C06024**
			5 A	120 W	**S8VK-C12024**
			10 A	240 W	S8VK-C24024
			20 A	480 W	S8VK-C48024
General Purpose Single-phase		5V	3 A	15 W	S8VK-G01505
		12V	2.5 A	30 W	S8VK-G03012
		24V	1.3 A	30 W	S8VK-G03024
			2.5 A	60 W	**S8VK-G06024**
			5 A	120 W	**S8VK-G12024**
			10 A	240 W	**S8VK-G24024**
			20 A	480 W	S8VK-G48024
		48V	10 A	480 W	S8VK-G48048
Three-phase	380 to 480 VAC 450 to 600 VDC	24V	5 A	120 W	S8VK-T12024
			10 A	240 W	**S8VK-T24024**
			20 A	480 W	**S8VK-T48024**
			40 A	960 W	S8VK-T96024

Note: Tables include representative part numbers. Bold models: Preferred Availability.
        Please refer to the Component selection guide for more details.

S8VK-X - Power Supply With EtherNet / IP

- Product replacement time, output voltage, output current, and more can be monitored remotely on the Ethernet/IP network
- Product status can be checked on-site using the indication monitor
- Remote monitoring with included software tool

Line	Power	Output Voltage	Output Current	Capacity	Model
EtherNet/IP Communication With Display	100 to 240 VAC 90 to 350 VDC	24V	3.75 A	90 W	**S8VK-X09024A-EIP**
			5 A	120 W	**S8VK-X12024A-EIP**
			10 A	240 W	**S8VK-X24024A-EIP**
EtherNet/IP Communication Without Display			2.5 A	60 W	S8VK-X06024-EIP
			3.75 A	90 W	**S8VK-X09024-EIP**
			5 A	120 W	S8VK-X12024-EIP
			10 A	240 W	S8VK-X24024-EIP
			20 A	480 W	S8VK-X48024-EIP

S8V-CP - Electronic Circuit Protector

- Compact design saves panel space compared to standard circuit breakers
- 3-step LED indicators for easy identification of channel status
- 4 and 8 channel models available with individual output current adjustments for various loads
- Available UL Class-2 output model

Power	Output Voltage	Number of Outputs	Maximum Input Current	Adjustment Output Current	Model
24 VDC	24 VDC	4	40A	2 A up to 10 A	**S8V-CP0424**
		8	70A	2 A up to 10 A	S8V-CP0824

Note: Tables include representative part numbers. Bold models: Preferred Availability.

Please refer to the Component selection guide for more details.

H5CX-N - Digital Timer

- 15 Different timing settings
- High Precision and Excellent Performance
- Available IP66 rating with optional waterproof cover
- Time parameterization from 0.001s to 9999h

Power	Terminal Type	Output Type	Model
12 - 24V AC/DC	Screw	Relay	H5CX-AD-N AC24/DC12-24
		Transistor	H5CX-ASD-N DC12-24/AC24
100 - 240 VAC		Relay	**H5CX-A-N AC100-240**

H7CX-N - Digital Counters

- Multi-function Counter/Tachometer
- High Precision and Excellent Performance
- Available IP66 rating with optional waterproof cover
- 4 and 6 digit displays are available

Power	Terminal type	Output Type	Display Digits	Model
12 - 24V AC/DC	Screw	Relay	6	**H7CX AD-N DC12-24**
		Transistor		H7CX-ASD-N DC12-24
100 - 240 VAC		Relay		**H7CX-A-N AC100-240**
		Transistor		H7CX-AS-N AC100-240

Note: Tables include representative part numbers. Bold models: Preferred Availability.

Please refer to the Component selection guide for more details.

G2RV-SR - Slim I/O Relay

- Push-in plus Technology for easy wiring
- Lockable test switch models available for circuit troubleshooting
- LED/mechanical flag available for checking operation
- Slim 6mm width – space saving
- Gold plate contact models available for micro loads
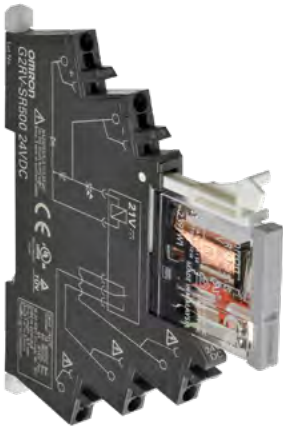
Coil Voltage	Contact Rating	Contact Form	Screw Terminal Model	Push-in Terminal Model	Individual Relay for Replacement
24 VDC	6 A	SPDT	**G2RV-SR700 DC24**	**G2RV-SR500 DC24**	G2RV-1-S- DC21
110 VAC			**G2RV-SR700 AC110**	**G2RV-SR500 AC110**	G2RV-1-S DC48
230VAC			G2RV-SR700 AC230	G2RV-SR500 AC230	

Accessories

Description	Number of Poles	Red	Blue	Yellow
Jumper bar	20	PYDN-6.2-200R	PYDN-6.2-200S	PYDN-6.2-200Y

Note: Tables include representative part numbers. Bold models: Preferred Availability.

Please refer to the Component selection guide for more details.

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G2R-S - Slim Mechanical Relay

- Lockable test switch models available for circuit troubleshooting
- LED/mechanical flag available for checking operation
- Available DIN-rail mount relay sockets
- Slim 16mm design with socket

Coil Voltage	Contact Rating	Contact Form	Relay Socket Model	Relay Model
12 VDC	10 A	SPDT	P2RFZ-05E/P2RF-05-PU	G2R-1-S DC12(S)
24 VDC				**G2R-1-S DC24(S)**
120 VAC				**G2R-1-SN AC120(S)**
240 VAC				G2R-1-SN AC240(S)
12 VDC	5 A	DPDT	P2RFZ-08E/P2RF-08-PU	G2R-2-S DC12(S)
24 VDC				**G2R-2-S DC24(S)**
120 VAC				**G2R-2-S AC120(S)**
240 VAC				G2R-2-S AC240(S)

MY - General Purpose Ice Cube Relay

- DPDT type 10 A / 4PDT type 5 A
- Lockable test switch models available for circuit troubleshooting
- LED/mechanical flag available for checking operation
- Low power switching (1 mA at 5 VDC) / Bifurcated 4PDT (0.1 mA at 1 VDC)

Coil Voltage	Contact Rating	Contact Form	Relay Socket Model	Relay Model
24 VDC	10 A	DPDT	PYFZ-08-E/PYF-08-PU	**MY2N DC24 (S)**
120 VAC				**MY2N AC110/120 (S)**
220 VAC				MY2N AC220/240 (S)
24 VDC	5 A	4PDT	PYFZ-14-E/PYF-14-PU	**MY4N DC24 (S)**
120 VAC				**MY4N AC110/120 (S)**
220 VAC				MY4N AC220/240 (S)

Note: Tables include representative part numbers. Bold models: Preferred Availability.

Please refer to the Component selection guide for more details.

E5CC/E5DC - General-Purpose Temperature Controllers

- High contrast white PV display
- High-speed sampling at 50ms
- Available auxiliary outputs, event inputs, a transfer output, and a remote SP input
- Short body with a depth of 60mm
- Available IP66 rating with optional waterproof cover

Dimensions	Type of Input	Power	Type of Output	Auxiliary Output	Standard Model
48 x 48 x 60 mm	Thermocouple, PT100, Analogical	100 -240 VAC	Relay	SPST-NO contacts (Relay Output)	E5CC-RX3A5M-000
			Voltage		E5CC-QX3A5M-000
			Current		E5CC-CX3A5M-000
		24 VAC / VDC	Relay		E5CC-RX3D5M-000
			Voltage		E5CC-QX3D5M-000
			Current		E5CC-CX3D5M-000
22.5mm For DIN rail mount		100-240 VAC	Relay		E5DC-RX2ASM-000
			Current		E5DC-CX2ASM-000
		24VAC / VDC	Relay		E5DC-RX2DSM-000
			Voltage		E5DC-QX2DSM-002

Note: Tables include representative part numbers. Bold models: Preferred Availability.

Please refer to the Component selection guide for more details.

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K6CM - Motor Condition Monitor

- 24/7 remote monitoring of critical 3-phase induction motors
- Can monitor motor vibration, temperature, current, and insulation resistance depending on model
- EtherNet/IP and Modbus TCP communication
- Included monitoring software tool can monitor up to 10 motors at one time

Motor failure mode	Description	Power	Controller model	Sensor Model
Bearing Wear	Monitors motor vibration/ temperature with sensor	24 VAC/DC	**K6CM-VBMD-EIP**	**K6CM-VBS1**
Overload Condition	Monitors motor current and degradation level using a CT sensor	24 VAC/DC	**K6CM-CI2MD-EIP**	**K6CM-CICB025 K6CM-CICB100 K6CM-CICB200** K6CM-CICB400
Insulation breakdown	Monitors motor insulation and current leakage with sensor	24 VAC/DC	K6CM-ISMD-EIP	K6CM-ISZBI52

K6PM - Thermal Condition Monitor

- 24/7 remote thermal monitoring of equipment using infrared thermal image sensors
- Thermal Imaging Sensor that detects temperatures 32-392°F (0-200°C)
- EtherNet/IP and Modbus TCP communication
- Included monitoring software tool can monitor up to 155 sensors at one time

Power	Controller	Thermal image Sensor
24 VAC/DC	K6PM-THMD-EIP	**K6PM-THS3232**

Note: Tables include representative part numbers. Bold models: Preferred Availability.

Please refer to the Component selection guide for more details.

K8AK / K8DS – Monitoring Relays

- Three-phase and single-phase relays for voltage and current monitoring
- Complete line for monitoring sequence and phase drop, asymmetry, under or over control
- Supply voltages: 24 VAC/DC, 100 to 240 VAC, 380-480 VAC
- Special models for monitoring temperature and liquid level

Phase	Dimensions	Monitoring Type	Input	Output Contact Form	Model
Single-Phase	K8AK - 22.5 x 90 x 100 [mm] K8DS: 17.5 x 80 x 69 [mm]	Over Current	24 VAC/DC or 100 to 240 VAC	SPDT	K8AK-AS2 24VAC/DC
		Overvoltage and Undervoltage	24 VAC/DC or 100 to 240 VAC	SPDT	K8AK-VW2 24VAC/DC
Three-Phase		Phase Drop and Phase Sequence	200-480 VAC	DPDT SPDT	**K8AK-PH1 200/500VAC**
					K8DS-PH1 200/480VAC
		Phase Drop, Phase Sequence, Overvoltage and Undervoltage	200-240 VAC	(2) SPDT	K8AK-PM1 200/240VAC
			380-480 VAC		K8AK-PM2 380/480VAC

Note: Tables include representative part numbers. Bold models: Preferred Availability.

Please refer to the Component selection guide for more details.

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A2W - Wireless Pushbutton

- 8 pushbuttons can be assigned to one receiver unit
- Each receiver has 8 transistor outputs (one-shot operation)
- LED signal strength indicator on each button
- Battery-less pushbutton (uses self-generating power)

Pushbutton Unit

Type	Button type	Frequency (MHz)	Area	Button color	Flange color	Model
Pushbutton	Mushroom	922.5	United States or Canada	Green	Black	A2W-TC-WC1 US1GB
	Full guard			Red	Black	A2W-TC-WC1 US2RB
				Green	Black	A2W-TC-WC1 US2GB
				Yellow	Black	A2W-TC-WC1 US2YB
				Blue	Black	A2W-TC-WC1 US2AB
				Black	Black	A2W-TC-WC1 US2BB

Receiver Unit

Type	Frequency (MHz)	Area	Output configuration	Model
Receiver	922.5	United States or Canada	PNP	A2W-RCP-WC1 US

Note: This product is a wireless device that conforms to the radio regulations of United States or Canada. It cannot be used outside of United States or Canada.

Accessories (sold separately)

Type	Model	Remarks
High-sensitivity magnetic-base antenna	A2W-AT2.5-WC1	Frequencies: all frequencies supported, cable length 2.5 m Degree of protection: IP65

Note: Tables include representative part numbers. Bold models: Preferred Availability.
Please refer to the Component selection guide for more details.

A22N / M22N -
Push Buttons And Indicators

- Complete line with Ø 22mm assemblies
- Various colors and models with plastic or metallic bezels
- Color coded contact blocks to prevent assembly errors
- Easy installation and IP66 degree of protection

Type	Bezel material	Color	Contact	LED Voltage	Model
A22NN - Push Button	(1) Bezel Material B – Plastic R – Metallic	(2) Color B – Red G – Green Y – Yellow W – White A – Blue B – Black	1 NO	(3) LED Voltage N – No lighting A – 6 VAC/VDC B – 12 VAC/VDC C – 24VAC/VDC D – 100/120 VAC/VDC E – 200/240 VAC/VDC	A22NN-RNM-NGA-G100-NN
			1 NO		A22NN-RNM-NBA-G100-NN
A22NL - Lighted Push Button			1 NO		A22NL-BGM-TGA-G100-GC
			1 NO		A22NL-RPM-TRA-G100-RC
			---		M22N-BC-TYA-YC
M22N - Indicators			---		M22N-BN-TGA-GC
A22NS - Selector			2 positions - 1NO		A22NS-2RM-NBA-G100-NN
			3 positions - 2NO		A22NS-3RM-NBA-G101-NN
A22NK - Selector with Key		----	2 positions - 1NO	----	A22NK-2RM-01AA-G100
			2 positions - 1NO		A22NK-2RL-01BA-G100

Item	Model
Contact block 1NO	A22NZ-S-G1A
Contact block 1NC	A22NZ-S-G1B

Note: Tables include representative part numbers. Bold models: Preferred Availability.
Please refer to the Component selection guide for more details.

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CP1H – MicroPLC for 4 Axis Position Control and High Speed Control

- High-speed counters with differential phases and pulse outputs for 4 axes control. Easily handles multi-axis control with a single unit.
- Up to two Ethernet ports and two serial ports when selecting the appropriate optional communications boards
- Up to 40 Built in I/O points with Analog I/O built in on XA CPU units
- Over 30 different expansion units for I/O, temperature sensing and communications

Type	Input Points	Output Points	Expandable up to*	Program Capacity	Data Memory Capacity	Power Supply	Output Method	Built-In Functions			Model
								E	I/C	P	
CP1H-X with pulse outputs for 4 axes	24	16	320 points	20K steps	32K words	85 to 264 VAC	Relay output	4	8	--	CP1H-X40DR-A
						20.4 to 26.4 VDC	Transistor output (sink type)	4	8	4	CP1H-X40DT-D
							Transistor output (source type)	4	8	4	CP1H-X40DT1-D
CP1H-XA with built-in analog I/O (4 analog inputs/2 analog outputs; 1/12,000 resolution)						85 to 264 VAC	Relay output	4	8	--	**CP1H-XA40DR-A**
						20.4 to 26.4 VDC	Transistor output (sink type)	4	8	4	**CP1H-XA40DT-D**
							Transistor output (source type)	4	8	4	CP1H-XA40DT1-D
CP1H-Y with 1-MHz pulse I/O	12	8	300 points				Transistor output (sink type)	4**	6	4**	CP1H-Y20DT-D

Note: Built-in functions: E = Encoder inputs; I/C = Interrupts/counters; P = Pulse outputs

*CP1H CPU series can be expanded with CP-series Expansion Units and CJ1 Special I/O Units.
** Encoder inputs: 2x 1 MHz + 2x 100 kHz; Pulse outputs: 2x 1 MHz + 2x 100 kHz.

Note: Tables include representative part numbers. Bold models: Preferred Availability. Please consult the product page for more details.

CP2E - Micro PLC for Data Collection and Machine-To-Machine Communication

- Up to five communications channels: dual Ethernet and up to three serial ports for data collection, machine-to-machine or IIoT

- Built-in I/O of either 14, 20, 30, 40 or 60 points with up to 180 I/O points when using expansion modules

- Up to four axes of motion control for precise machine movement

CP2E-N/Network Models

I/O points	Specifications								
	Power Supply	Inputs	Outputs	Output Type	Communications	Axis	Option Boards	Expansion Units	Model
14	100 to 240 VAC	8	6	Relay	1 Ethernet port Up to 2 serial ports	2	1		CP2E-N14DR-A
				Transistor (sinking)					CP2E-N14DT-A
	24 VDC			Relay					CP2E-N14DR-D
				Transistor (sinking)					CP2E-N14DT-D
				Transistor (sourcing)					CP2E-N14DT1-D
20	100 to 240 VAC	12	8	Relay	1 Ethernet port Up to 2 serial ports	2	1		CP2E-N20DR-A
				Transistor (sinking)					CP2E-N20DT-A
	24 VDC			Relay					CP2E-N20DR-D
				Transistor (sinking)					CP2E-N20DT-D
				Transistor (sourcing)					CP2E-N20DT1-D
30	100 to 240 VAC	18	12	Relay	2 Ethernet ports Up to 3 serial ports	4	2	3	**CP2E-N30DR-A**
				Transistor (sinking)					CP2E-N30DT-A
	24 VDC			Relay					CP2E-N30DR-D
				Transistor (sinking)					CP2E-N30DT-D
				Transistor (sourcing)					CP2E-N30DT1-D
40	100 to 240 VAC	24	16	Relay	2 Ethernet ports Up to 3 serial ports	4	2	3	**CP2E-N40DR-A**
				Transistor (sinking)					CP2E-N40DT-A
	24 VDC			Relay					CP2E-N40DR-D
				Transistor (sinking)					CP2E-N40DT-D
				Transistor (sourcing)					CP2E-N40DT1-D
60	100 to 240 VAC	36	24	Relay	2 Ethernet ports Up to 3 serial ports	4	2	3	CP2E-N60DR-A
				Transistor (sinking)					CP2E-N60DT-A
	24 VDC			Relay					CP2E-N60DR-D
				Transistor (sinking)					CP2E-N60DT-D
				Transistor (sourcing)					CP2E-N60DT1-D

Note: Tables include representative part numbers. Bold models: Preferred Availability. Please consult the product page for more details.

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CP2E - Micro PLC
(continued)

- Function block library for expedited program development
- Analog, high speed counters, pulse outputs, linear interpolation and PWM output facilitates a wide range of applications

CP2E-S/Standard Models

I/O points	Specifications								
	Power Supply	Inputs	Outputs	Output Type	Communications	Axis	Option Boards	Expansion Units	Model
30	100 to 240 VAC	18	12	Relay	1 x RS-232C port 1 x RS-485 port	2	----	3	CP2E-S30DR-A
	24 VDC			Transistor (sinking)					CP2E-S30DT-D
				Transistor (sourcing)					CP2E-S30DT1-D
40	100 to 240 VAC	24	16	Relay	1 x RS-232C port 1 x RS-485 port	2	----	3	CP2E-S40DR-A
	24 VDC			Transistor (sinking)					CP2E-S40DT-D
				Transistor (sourcing)					CP2E-S40DT1-D
60	100 to 240 VAC	36	24	Relay	1 x RS-232C port 1 x RS-485 port	2	----	3	CP2E-S60DR-A
	24 VDC			Transistor (sinking)					CP2E-S60DT-D
				Transistor (sourcing)					CP2E-S60DT1-D

CP2E-E/Essential Models

I/O points	Specifications								
	Power Supply	Inputs	Outputs	Output Type	Communications	Axis	Option Boards	Expansion Units	Model
14	100 to 240 VAC	8	6	Relay	1 x RS-232C port	----	----	3	CP2E-E14DR-A
20		12	8	Relay	1 x RS-232C port	----	----	3	CP2E-E20DR-A
30		18	12	Relay	1 x RS-232C port	----	----	3	**CP2E-E30DR-A**
40		24	16	Relay	1 x RS-232C port	----	----	3	CP2E-E40DR-A
60		36	24	Relay	1 x RS-232C port	----	----	3	CP2E-E60DR-A

Note: Tables include representative part numbers. Bold models: Preferred Availability. Please consult the product page for more details.

CP1L - Micro PLC

- Compact PLC for up to 180 I/O points
- Programming via USB port or Ethernet port based on model
- Optional boards for Analog, Serial and Ethernet communication on select models
- Supports up to 4 encoders and 2 pulse train outputs (transistor models only)

Family	Power Supply	Amount of I/Os in the CPU			Expansion Units	Communication Ports	Option Boards	Output Type	Model
		Digital		Analog					
		Inputs	Outputs	Inputs					
CP1L-EM	24 VDC	24	16	2 (0-10V)	3	Ethernet FINS	2	Transistor (sourcing)	**CP1L-EM40DT1-D**
	24 VDC	24	16	2 (0-10V)	3	Ethernet FINS	2	Relay	**CP1L-EM40DR-D**
	24 VDC	18	12	2 (0-10V)	3	Ethernet FINS	2	Transistor (sourcing)	CP1L-EM30DT1-D
	24 VDC	18	12	2 (0-10V)	3	Ethernet FINS	2	Relay	**CP1L-EM30DR-D**
CP1L-EL	24 VDC	12	8	2 (0-10V)	1	Ethernet FINS	1	Transistor (sourcing)	CP1L-EL20DT1-D
	24 VDC	12	8	2 (0-10V)	1	Ethernet FINS	1	Relay	CP1L-EL20DR-D
CP1L-M	100 to 240 VAC	24	16	No	3	USB	2	Relay	**CP1L-M40DR-A**
	24 VDC	24	16	No	3	USB	2	Relay	**CP1L-M40DR-D**
	24 VDC	24	16	No	3	USB	2	Transistor (sourcing)	**CP1L-M40DT1-D**
	100 to 240 VAC	18	12	No	3	USB	2	Relay	**CP1L-M30DR-A**
	24 VDC	18	12	No	3	USB	2	Relay	CP1L-M30DR-D
	24 VDC	18	12	No	3	USB	2	Transistor (sourcing)	CP1L-M30DT1-D
CP1L-L	24 VDC	12	8	No	1	USB	1	Transistor (sourcing)	**CP1L-L20DT1-D**
	24 VDC	12	8	No	1	USB	1	Transistor (sinking)	CP1L-L20DT-D
	100 to 240 VAC	12	8	No	1	USB	1	Relay	**CP1L-L20DR-A**
	24 VDC	12	8	No	1	USB	1	Relay	CP1L-L20DR-D
	24 VDC	8	6	No	1	USB	1	Transistor (sinking)	CP1L-L14DT-D
	100 to 240 VAC	8	6	No	1	USB	1	Relay	**CP1L-L14DR-A**

Expansion Modules and Accessories

Family	Communication Ports	Model
Digital Expansions	8 Inputs	CP1W-8ED
	8 Relay Outputs	CP1W-8ER
	16 Relay Outputs	CP1W-16ER
	12 Inputs and 8 PNP Transistor Outputs	CP1W-20EDT1
	24 Inputs and 16 Relay Outputs	CP1W-40EDR
Analog Expansions Resolution of 12000 points	4 Inputs (0 to 5V, 1 to 5V, 0 to 10V, -10 to + 10V, 0 to 20mA and 4 to 20mA)	CP1W-AD042
	4 Outputs (1 to 5V, 0 to 10V, -10 to + 10V, 0 to 20mA and 4 to 20mA)	CP1W-DA042
	2 Inputs (0 to 5V, 1 to 5V, 0 to 10V, -10 to + 10V, 0 to 20mA and 4 to 20mA) 1 Output (1 to 5V, 0 to 10V, -10 to + 10V, 0 to 20mA and 4 to 20mA)	CP1W-MAD42
Optional Communication Adapters	RS-232C Serial Port (15m Distance)	CP1W-CIF01
	RS-422A/485 Serial Port (50m Distance)	CP1W-CIF11
	RS-422A/485 Serial Port (500m Distance)	CP1W-CIF12
Software	Programming Software with 1 license	CXONE-AL01D-V4

Note: Tables include representative part numbers. Bold models: Preferred Availability. Please consult the product page for more details.

OMRON INTEGRATED | INTELLIGENT | INTERACTIVE

NX1P -
Machine Automation Controllers

- Compact entry model with integrated motion and machine control. Connectivity to safety and vision systems
- Up to 4 axes of coordinated motion control plus 4 axes point to point control
- Expandable I/O using up to 8 NX series I/O cards on local bus
- Built in EtherCAT and EtherNet/IP ports
- Connect up to 16 EtherCAT Slaves
- Sysmac Studio IDE for flexible, scalable programming

Built-In Digital I/O		Specifications	Number of Coordinated axes*	Number of point-to-point axes**	Total Axes	Option Boards	Model
Digital							
Inputs	Outputs						
14	10	1.5MB of programming memory, min cycle time up to 2ms	0	4	4	1 Slot	**NX1P2-9024-DT1**
24	16		2		6	2 Slots	**NX1P2-1040-DT1**
24	16		4		8		NX1P2-1140-DT1

* Coordinated Axes Include:
- Point to Point Point Positioning
- Synchronized Motion (Gearing/Camming)
- Multi-Axes Coordinated Motion (Circular/Linear Interpolation)
- Axes grouping

**Point to Point axes Include:
- Only Point to Point Positioning
- No Synchronized Motion
- No Multi-Axes Coordinated Motion
- No Axes Grouping

Note: PNP transistor Output options shown. For NPN options, go toautomation.omron.com

Option Boards

Type	Description	Communication Protocol	Model
Serial Communication	1 x RS-232C port Transmission Distance: 15 m Connector type: Spring terminal (9 terminals)	Host link, Modbus-RTU Master and no-protocol	NX1W-CIF01
	1 RS-422A/485 Transmission Distance: 50 m Connector type: Spring terminal (5 terminals)		NX1W-CIF11
	1 RS-422A/485 port (isolated) Transmission Distance: 500 m Connector type: Spring terminal (5 terminals)		NX1W-CIF12
Analog Inputs and Outputs	2 x Analog inputs Voltage input: 0 to 10 V (Resolution: 1/4,000) Input current: 0 to 20 mA (1/2,000) Connector type: Spring terminal (5 terminals)		NX1W-ADB21
	2 x Analog inputs / 2 x Analog output Voltage input: 0 to 10 V (Resolution: 1/4,000) Input current: 0 to 20 mA (1/2,000) Voltage output: 0 to 10 V (Resolution: 1/4,000) Connector Type: Spring terminal (8 terminals)		NX1W-MAB221

Note: The expansion cards of the NX1P machine controller line are the same as the NX Series I/O cards.

For information on virtual axes, refer to the catalog on the website automation.omron.com

Note: Tables include representative part numbers. Bold models: Preferred Availability. Please consult the product page for more details.

NX102 - Machine Automation Controller

- Compact controller integrates production line, safety systems, and IT systems
- EtherCAT (1 port) and EtherNet/IP (2 ports) communication on the same CPU
- OPC UA server functionality
- Up to 8 axes of coordinated motion plus 4 axes of point-to-point control
- Embedded SQL Client Option
- Connect up to 64 EtherCAT slaves
- Expandable IO using up to 32 NX Series I/O cards on local bus
- Sysmac Studio IDE for flexible, scalable programming

Family	Specifications	Number of Coordinated axes *	Number of point-to-point axes **	Total Axes	SQL	Model
NX102	5 MB of programming memory, Min. cycle up to 1ms	0	4	4	No	**NX102-9000**
		0		4	Yes	**NX102-9020**
		2		6	No	**NX102-1000**
		2		6	Yes	NX102-1020
		4		8	No	NX102-1100
		4		8	Yes	NX102-1120
		8		12	No	NX102-1200
		8		12	Yes	NX102-1220

Note: The NX-END02 terminal cover is included with the NX102. The HMC-SD291 memory card is supplied with the NX102-_ _ 20.
The battery is not mounted when the product is shipped. Refer to the datasheet for details.

For information on virtual axes, refer to the catalog on Omron website automation.omron.com

* Coordinated Axes Include:
- Point to Point Point Positioning
- Synchronized Motion (Gearing/Camming)
- Multi-Axes Coordinated Motion (Circular/Linear Interpolation)
- Axes grouping

**Point to Point axes Include:
- Only Point to Point Positioning
- No Synchronized Motion
- No Multi-Axes Coordinated Motion
- No Axes Grouping

Note: Tables include representative part numbers. Bold models: Preferred Availability. Please consult the product page for more details.

OMRON   INTEGRATED | INTELLIGENT | INTERACTIVE

Omron enables easy canning machine customization for microbrewery industry and helps leading manufacturer achieve 1,000% growth with consolidated control platform

Twin Monkeys Beverage Systems, a company that builds canning machines for the microbrewery industry, needed to increase the flexibility of its products for customers while ensuring that they would be able to expand from 1-10 fill heads and seam 10-100+ cans per minute. The company has created six canning machine models with a variety of customizable options to accommodate the unique needs of each customer.

The company's microbrew canning machine expertise doesn't stop at filling and seaming, however. Twin Monkeys also assists its customers with implementing a fully integrated packaging line from the exit of their beverage tanks to the finished pallets of cans. Omron helped the company implement a reliable control platform based on Sysmac Studio that can be supported worldwide. Thanks to these improvements, Twin Monkeys' sales expectations for the next 12 months have increased to more than 40% growth.

Twin Monkeys Beverage Systems: A unique automation customer

While Twin Monkey's sells machines to microbreweries for static placement in their production lines, it also sells to independent companies that take the machines from microbrewery to microbrewery using a mobile unit. This business model allows several companies producing small amounts of product to "share" the machines and minimize their capital investment.

Twin Monkeys has tapped into this niche, offering a flexible and scalable "canning as a service," model in which mobile service providers bring machines direct to microbreweries' doors. Microbreweries can rent the machines to complete a batch and benefit from the added capabilities without the full investment of purchasing a machine.

The solution
A consolidated control platform

The need

To ensure maximum throughput while enabling on-the-fly adjustments according to customer requirements, the controls for the upgraded system needed to be flexible and robust. Twin Monkeys had a series of mismatched control products from other providers that hampered communication between components and increased programming needs when a machine was commissioned.

The Omron team was able to replace the varied assortment of automation technologies with an all-in-one control platform based on the Sysmac Studio machine automation software suite. This platform standardized the controls so that Twin Monkeys only needs to cut and paste code and make minimal adjustments when commissioning a new machine. The Sysmac automation platform also allowed the company to support its products wherever they are shipped around the world.

The technology

Omron's solution increased the ease of commissioning and distribution on several equipment configurations by using Sysmac Studio's "Derive Device" feature, which enables the reuse of primary machine code on several different hardware layouts. Additionally, Omron helped Twin Monkeys convert its original machine codes from multiple platforms over to Sysmac Studio while training the customer to program future machines. During several hands-on training sessions, Twin Monkeys and Omron brainstormed design changes for future machine upgrades, such as moving all field I/O to EtherCAT.

The hardware that Omron chose for the redesign enabled the best pricing and optimal function for the new system. Omron chose the NX1P2 advanced motion controller because it has a similar footprint and allows for additional slices of I/O. Several design meetings and testing led to the choice of the G5 EtherCAT servo drive to conserve cabinet space.

The outcome

Over the last five years, Twin Monkeys has experienced more than 1,000% growth in sales and has added five new product lines. Now a prominent machine builder in the microbrewery industry, the company is rapidly becoming an industry leader with a reputation for manufacturing reliable, high-quality and customizable microbrew canning machines.

Because Omron's consolidated control platform promotes flexibility and supports on-the-fly customizations, Twin Monkeys was able to readily develop new machines and new customizable features. Due to the reliability of Omron's products, such as precise motion control with the G5 servo drive, it became easier to commission new machines. The ease of programming and communication amongst components allowed the company to easily replicate for speedy uptime.

OMRON INTEGRATED | INTELLIGENT | INTERACTIVE

NJ - Machine Automation Controllers

- One integrated controller designed to meet extreme requirements in terms of logic sequence, motion control speed, accuracy, and system size
- EtherCAT and Ethernet IP communication on the same CPU
- Ability to manage logic, motion, safety and vision tasks
- Embedded SQL Client Option
- Expandable I/O Using up to 10 CJ Expansion cards
- Sysmac Studio IDE for flexible, scalable programming

Family	Specifications	Number of axes	OPC UA	SQL	Model
NJ1	64 EtherCAT slaves, 3 MB of programming memory, Min. cycle time: 1ms	0	No	No	NJ101-9000
		0	No	Yes	NJ101-9020
		2	No	No	NJ101-1000
		2	No	Yes	NJ101-1020
NJ3	192 EtherCAT slaves, 5 MB of programming memory, Min. cycle time: 1ms	4	No	No	NJ301-1100
		8	No	No	NJ301-1200
NJ5	192 EtherCAT slaves, 20 MB of programming memory, Min. cycle time: 0.5 ms	16	Yes	No	NJ501-1300
		16	No	Yes	**NJ501-1320**

Note: For information on virtual axes, refer to the catalog on the website automation.omron.com

Power Supplies

Power Supplies	Capacity	RUN Indicator	Model
100 to 240VAC	30W	NO Relay	**NJ-PA3001**
24 VDC			**NJ-PD3001**

Software and Switches

Type	Description	Model
Software	Sysmac Studio IDE 1 License	SYSMAC-SE201L
Hub	Hub EtherCAT with 3 Ports	GX-JC03
	Hub EtherCAT with 6 Ports	**GX-JC06**
	Hub EtherNet/IP with 3 Ports	W4S1-03B
	Hub EtherNet/IP with 5 Ports	W4S1-05B

Note: Tables include representative part numbers. Bold models: Preferred Availability. Please consult the product page for more details.

NX7 - Machine Automation Controllers

- Highest performance Sysmac CPU, designed to address the most demanding industrial control and motion applications, laying the infrastructure for Big Data support
- EtherCAT (1 port) and EtherNet/IP (2 ports) communication on the same CPU
- Dual-core Motion
- 128 or 256 Axes of Motion
- Embedded SQL Client Option
- Sysmac Studio IDE for flexible, scalable programming

Family	Specification	Number of Coordinated Axes	SQL	Model Number
NX7	80 MB of programming memory, minimum cycle time 0.125 ms	128	YES	**NX701-1620**

Power Supplies

Power Supplies	Capacity	RUN Indicator	Model
100 to 240VAC	90W	NO Relay	NX-PA9001
24 VDC	70W		NX-PD7001

Note: Tables include representative part numbers. Bold models: Preferred Availability. Please consult the product page for more details.

OMRON   INTEGRATED | INTELLIGENT | INTERACTIVE

NX - Remote I/O

- Wide variety of high density remote I/O Modules
- Ideal match with Sysmac Machine automation controllers
- EtherCAT and EtherNet/IP coupler options
- Platform Agnostic. Easy connectivity to 3rd party systems
- Removable wiring terminals for easy system assembly and testing

Type	Description	Model
Digital I/O	8 Digital Inputs (NPN)	NX-ID4342
	8 Digital Inputs (PNP)	**NX-ID4442**
	16 Digital Inputs (NPN)	**NX-ID5342**
	16 Digital Inputs (PNP)	**NX-ID5442**
	8 Relay NO Outputs	**NX-OC4633**
	8 Digital Outputs (NPN)	NX-OD4121
	8 Digital Outputs (PNP)	**NX-OD4256**
	16 digital outputs (NPN)	**NX-OD5121**
	16 digital outputs (PNP)	**NX-OD5256**
Analog I/O	4 4-20 mA Analog Inputs	**NX-AD3203**
	4 4-20mA Analog Outputs	**NX-DA3203**
	4 Analog Inputs -10 to +10 V	**NX-AD3603**
	4 Analog Outputs -10 to +10 V	**NX-DA3603**
Temperature control	4 Thermocouple Inputs	**NX-TS3101**
	4 RTD Inputs	**NX-TS3201**
Weighing	1 Input for Load Cell	**NX-RS1201**
Position control	1 Line-Driver Pulsed Output	NX-PG0122
	1 Incremental Encoder Input	NX-EC0122
Serial Communication	1 RS232C Interface	NX-CIF101
	1 RS485/422A Interface	NX-CIF105
IIoT	IO-Link Master Interface for 4 IO-Link Devices	**NX-ILM400**
Accessories	Additional Supply for I/Os (4A)	NX-PF0630
	Additional Supply for I/Os (10A)	**NX-PF0730**
	Additional Source for Communication Bus	**NX-PD1000**

Couplers

Network	Communications Cycle	Current Consumption	Maximim I/O power supply current	Model
EtherCAT	250 to 4,000 µs	1.45 W or lower	4A	NX-ECC201
			10A	**NX-ECC202**
	125 to 10,000 µs	1.25 W or lower		**NX-ECC203**
EtherNet/IP	-	1.50W or lower		**NX-EIC202**

Note: Tables include representative part numbers. Bold models: Preferred Availability. Please consult the product page for more details.

NB - Basic Graphic HMI

- 65K Color TFT display with LED backlight
- Data Logging/Trending, Recipes, Alarms, Remote web viewing
- Graphics Library and Animation
- Free NB Designer programming software
- Preferred for Omron CP controllers

Size	Description		Model
	Communication Port	Resolution	
3.5"	RS232C/RS422	320 × 234	NB3Q-TW00B
5.6"	RS232C/RS422, Ethernet		**NB5Q-TW01B**
5.6"	RS232C/RS422		**NB5Q-TW00B**
7"	RS232C/RS422, Ethernet	800 x 480	**NB7W-TW01B**
7"	RS232C/RS422		**NB7W-TW00B**
10"	RS232C/RS422, Ethernet		**NB10W-TW01B**

Note: For more information, refer to the catalog on the website automation.omron.com

NS - Standard Graphic HMI

- High resolution displays QVGA (5.7") to XGA (15") with LED back lighting
- Ladder Monitor, Programming Console and Troubleshooter for Omron Controllers
- FTP Interface with Ethernet models
- CX Designer programming software
- Preferred for Omron CJ/CS controllers

Size	Description		Model
	Communication Port	Resolution	
5.7"	RS232C	320 x 240 Resolution	**NS5-SQ10B-V2**
8.4"	EtherNet, RS232C	640 x 480 Resolution	**NS8-TV01B-V2**
10.4"	RS232C	640 x 480 Resolution	NS10-TV00B-V2
12.1"	EtherNet, RS232C	800 x 600 Resolution	**NS12-TS01B-V2**
15"	EtherNet, RS232C	1024 x 768 Resolution	**NS15-TX01B-V2**

Note: Tables include representative part numbers. Bold models: Preferred Availability. Please consult the product page for more details.

OMRON   INTEGRATED | INTELLIGENT | INTERACTIVE

NA - Advanced High Resolution Graphic Display

- Wide screen high resolution display with 16M colors
- Multimedia including video, Word, Excel and PDF viewers
- Sysmac Studio provides the integrated development environment
- Preferred for NJ/NX controllers

Size	Description		Model
	Communication Port	**Resolution**	
7"	2 Ethernet, USB, RS232	800 x 480	NA5-7W001B-V1
9"			NA5-9W001B-V1
12.1"		1280 x 800	NA5-12W101B-V1
15.4"			NA5-15W101B-V1

Note: Part numbers are for black bezel. Silver bezel available.

Note: Tables include representative part numbers. Bold models: Preferred Availability. Please consult the product page for more details.

NY - Industrial PC

- No internal cables eliminates faults, maximizes uptime
- Unique simplified thermal design cuts downtime
- Powerful Intel® CoreTM technology for optimum performance
- Options for models with no moving parts - increasing reliability
- Box and Panel mount versions

Family	Operational System	CPU	RAM Memory	Storage	Type	Model
NYB	Windows 10 IoT Enterprise LTSB 64bit	Intel Xeon E3-1515M v5	8GB	128GB SSD	Box PC	NYB1E-313K1
		Intel Core i7-4700EQ				NYB17-313K1
		Intel Core i5-7300U				NYB35-313K1
		Intel Core i5-4300U				NYB25-313K1
		Intel Celeron 2980U				NYB1C-313K1
		Intel Core ATOM E3940		64GB SSD		NYB2A-30450
NYP		Intel Core i7-4700EQ		128GB SSD	Monitor Panel 12", 15", 19"	NYP17-313K1-15WC1000
		Intel Core i5-7300U				NYP35-30350-19WC1000
		Intel Core i5-4300U		64GB SSD		NYP25-31391-15WC1000
		Intel Celeron 2980U				NYP1C-313K1-15WC1000
		Intel Core ATOM E3940		128GB SSD		NYP2A-30460-19WC1000

Note: The NYB family does not come with an industrial monitor.

NYM - Industrial Monitor

- Multitouch projected capacitive touchscreen
- False touch detection (palm, water)
  Operator can wear gloves
- Optional NY Monitor Link interface for connectivity up to 100m
- Custom logo option

Item	Size	Resolution	Interface	Model
Industrial Monitor	18.5"	1,280 x 800	DVI-D	NYM19W-C1000
	15.4"			NYM15W-C1000
	12.1"			NYM12W-C1000
	18.5"		NY Monitor Link	NYM19W-C1060
	15.4"			NYM15W-C1060
	12.1"			NYM12W-C1060

Note: Tables include representative part numbers. Bold models: Preferred Availability. Please consult the product page for more details.

OMRON INTEGRATED | INTELLIGENT | INTERACTIVE

NY5 - IPC Machine Controller

- Models available with AI function and with NC function
- Real Time Operating System runs independently of the Windows OS
- Program the machine control with Sysmac Studio using ladder, ST, SFC.
- Machine control program portable to modular NJ controller
- Available in box and panel versions

Operational System	CPU	Number of axes	RAM Memory	Storage	Type	Model
Windows Embedded Standard 7 64 bit	Intel Core i7 4700EQ	64	8 GB	64GB SSD	15.4" Monitor Panel	NY532-1500-112213910
		32				NY532-1400-112213910
		16				NY532-1300-112213910

Note: For models with NC function or with Artificial Intelligence function, refer to the catalog on the website automation.omron.com

Note: Tables include representative part numbers. Bold models: Preferred Availability. Please consult the product page for more details.

MS-3, QX-830/870 - 1D Code Readers

- Very high scan speed (Up to 1400 scans/second)
- 1D Code reading with Intelligent Raster
- X-Mode technology for code reconstruction (QX-830 and QX-870)
- IP65 Degree of Protection (QX-870)

Line	Scans per Second	Resolution Code	Distance	Communication	Laser Format	Power	Model
MS-3	300 to 1000	5 to 20 mils*	38 to 254 mm*	Serial (RS-232C) + Serial (RS-232C/422/485)	Single Line	5VDC	FIS-0003-0001G
					Raster Line		**FIS-0003-0003G**
QX-830	300 to 1400	5 to 40 mils*	38 to 762 mm*	2 x Serial (RS-232C/422/485)	Single Line	10~28VDC	FIS-0830-0001G
					Raster Line		FIS-0830-0004G
				Serial (RS-232C/422/485), Ethernet TCP/IP, EtherNet/IP	Single Line		FIS-0830-1001G
					Raster Line		FIS-0830-1004G
QX-870					Sweeping Raster		FIS-0870-1004G
				2 x Serial (RS-232C/422/485)			FIS-0870-0004G

Note: * dependent on model #, see data sheet

Note: Tables include representative part numbers. Bold models: Preferred Availability. Please consult the product page for more details.

OMRON   INTEGRATED | INTELLIGENT | INTERACTIVE

MicroHAWK V430/420/330 -
Barcode Reader

• Ultracompact readers, with several model options and setting possibilities

• High performance in reading 1D and 2D codes on any surface, including Direct Part Marks

• Extremely simple setting via browser - WebLink, without the need for software installation

• Autofocus with liquid lens (V420-F and V430-F)

Line	Acquisition	Sensor	Focus	Communication	Lighting	IP	Power	Model
V320-F	52 fps	0.34 MP Mono	Fixed 102mm	RS-232C, USB/HID, or Ethernet via USB (USB 2.0 Full-Speed)	Built-in White & Red	IP40	5VDC	V320-F102W03M-NNX
	40 fps	1.2 MP Mono						V320-F102W12M-NNX
V330-F	60 fps	0.34 MP Mono	Fixed 102mm	Ethernet TCP/IP	Built-in White & Red		36 to 57 VDC (PoE, IEEE 802.3af)	V330-F102W03M-NNX
	42 fps	1.2 MP Mono						V330-F102W12M-NNX
V420-F	60 fps	0.34 MP Mono	Autofocus 50-300mm	RS-232C, USB/HID, or Ethernet via USB (USB 2.0 Full-Speed)	Built-in White & Red + External Red (8 LEDs)	IP54	5VDC	V420-F000W03M-SRX
	42 fps	1.2 MP Mono						V420-F000W12M-SRX
	42 fps	1.2 MP Mono	Autofocus 75-1200mm					V420-F000L12M-SRX
V430-F	60 fps	0.34 MP Mono	Autofocus 50-300mm	RS-232C, Ethernet TCP/IP, EtherNet/IP, PROFINET I/O		IP65/67	5 to 30 VDC	V430-F000W03M-SRX
	42 fps	1.2 MP Mono						V430-F000W12M-SRX
	42 fps	1.2 MP Mono	Autofocus 75-1200mm					V430-F000L12M-SRX
	42 fps	1.2 MP Mono	Autofocus 50-300mm		External Red (24 LEDs)			V430-F000M12M-RRX

Note: Tables include representative part numbers. Bold models: Preferred Availability. Please consult the product page for more details.
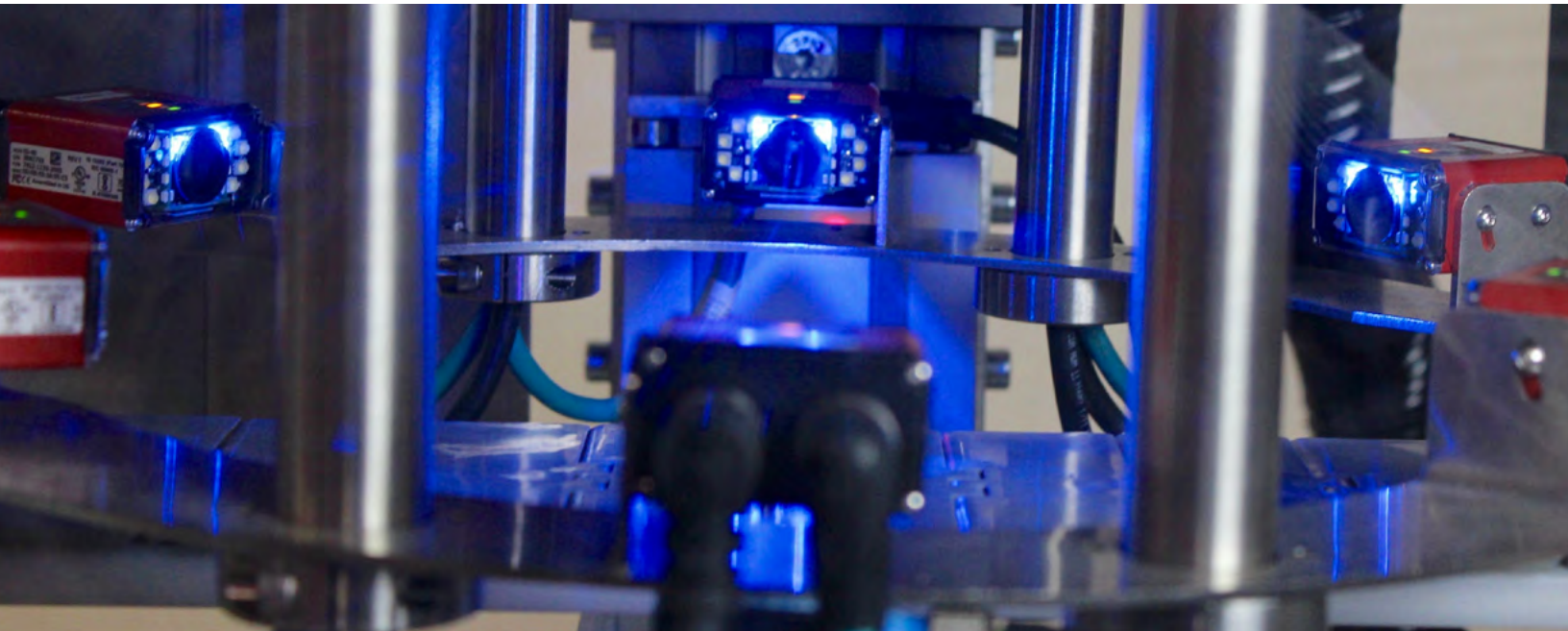
Omron helps packaging equipment manufacturer design a flexible system for reading barcodes on bottle labels using MicroHAWK ID-40/<u>V430</u>

Packaging Efficiency Solutions (PES), a packaging equipment manufacturer based in Denville, NJ that specializes in solutions for food and beverage, pharmaceutical and nutraceutical companies, was approached by several customers seeking a reliable system for reading barcodes on bottle labels to improve serialization and verification. The target customers for this system would be pharmaceutical manufacturers and CMOs engaged in serialization activities as well as consumer goods CMOs using the system to allow label and print verification on all bottle sizes and shapes.

As with any automated system meant to work for a variety of end users, flexibility was paramount. To make the new system accessible to the broadest possible range of customers, PES needed to keep the overall machine footprint small and invest in highly intuitive technology that would minimize installation and maintenance needs. Finally, PES was hoping for a system that would exceed the level of reliability currently being used by its customers.

PES tapped Omron to design the new system, and Omron selected its popular MicroHAWK barcode readers as the key technology. Omron partnered with Saddle Brook Controls , a distribution partner based in New Jersey, to help with integration and testing. As a local company, Saddle Brook Controls has been able to provide quick support with respect to implementation and optimization.

Business need
A packaging equipment manufacturer needed a flexible, reliable and cost-effective system for reading barcodes on bottle labels that it could sell to its food and beverage, pharmaceutical and nutraceutical customers.

Unique solution
Omron designed a flexible system using six MicroHAWK ID-40/V430 cameras to minimize false rejects while keeping the overall machine footprint to a minimum.

Customer benefits
Thanks to the flexibility and compact size of the MicroHAWK cameras, the new system has helped PES become a leading resource for serialization and inspection systems.

OMRON INTEGRATED | INTELLIGENT | INTERACTIVE

The solution
A compact system using MicroHAWK

The need

The new system – which would be dubbed the "PES-360" – needed to reliably inspect all angles of the bottle/label at speeds of up to 100 bottles per minute. In addition, PES's customers wanted to enhance the system's flexibility by limiting its overall footprint and reducing the amount of integration and line modifications required for installation. Existing market suppliers were offering systems that were fairly large and quite expensive, so PES was hoping Omron would be able to come up with a more compact and cost-effective solution.

Some of PES's customers were already using automated bottle inspection systems, but these didn't use enough cameras to be fully reliable. Since they took just a single image per camera per bottle, they had an elevated occurrence of false rejects or no response. The PES-360 needed to make sure that every point on the circumference of the bottles would always be seen by at least one of the system's cameras.

The technology

To combat the issue of false rejects, Omron used six cameras – initially MicroHAWK ID-40 cameras but transitioning to V430 cameras as the latest technology – to achieve maximum performance. The MicroHAWK Series is known for small size and easy installation, and the family's compact design allowed Omron to integrate up to seven cameras in each unit (with six cameras situated around the conveyor and one either above or below). The PES-360 takes advantage the cameras' ability to capture images in bursts as opposed to a single image per trigger, which provides more chances to successfully inspect and decode the data.

The MicroHAWK readers are easily integrated into the current control system, where the standard/configurable I/O offers greater flexibility in machine logic setup. In addition, the system's ability to communicate data match strings via TCP/IP messages minimizes hardware requirements, and the use of self-contained smart cameras reduces the need for more skilled technical resources to interface with traditional PC-based camera systems.

The outcome

Omron has already integrated over thirty PES-360 systems into customer lines, and the solution has helped PES become a leading resource for serialization and inspection systems. The MicroHAWK cameras work wonders when it comes to giving system integrators like PES more flexibility. Depending on the application, Omron has a wide variety of MicroHAWK resolutions to choose from without having to change the overall system's mechanical design. There are many options for internal lighting, but there's also the option to utilize external lighting when required. PES is currently using SXGA (which is a 1.2MP sensor) with integrated lighting.

Another benefit of the MicroHAWK ID-40/V430 cameras is that their barcode reading capabilities can be easily upgraded to a machine vision smart camera without requiring any mechanical changes to a customer's equipment. Based on the success of the PES-360 and the ease of collaborating with Omron, PES is looking into partnering with Omron for a variety of other vision inspection and code reading applications.

V410H - Handheld Barcode Reader

- Labels or Direct Part Mark barcode reading
- High resolution 1280 x 800 pixels
- Read ranges from contact to 28 inches
- Intuitive and insightful WebLink PC utility and run time with image storage, statistics, reader discovery, troubleshooting and extensive tool tips

Name	Decoding Algorithms	Read Range (10 mil DataMatrix)	Communication	IP Rating	Application	Model
V410-H XD	1D/2D, X-Mode	0 - 12 cm / 0 - 4.6 in	RS-232 / USB	IP52	Direct Part Mark and Labels	V410-HDS4608XD
V410-H SR	1D/2D	2.5 – 29 cm / 1 –11.5 in			Labels only	V410-HDS4608SR
V410-H HC		0.5 – 24 cm / 0.2 – 9.5 in			Healthcare / Disinfectant resistant	V410-HDS4608HC

Cables And Accessories

Product	Type	Description	Model
MS-3	Programming	DB15 cable for USB	**98-000051-01**
QX-830/870	Port A: Power, I/O and Serial	Cable with 12-pin M12 connector, 3m	61-000167-02
	Port B: Serial	Cable with 12-pin M12 connector, 3m	61-000166-02
	Port B: Ethernet	Cable with 8-pin M12 connector for RJ45, 3m	61-000163-03
MicroHAWK V/F320-F	Power, I/O, Serial and USB	Cable with RJ50 connector, 3m	V320-W8-3M
	RJ50/DB-15 Converter	RJ50 Cable for DB-15, 1m	V320-WR-1M
	Programming	DB-15 cable for USB, 1m	V420-WUB-1M
MicroHAWK V/F330-F	Standard Ethernet Cable	RJ45 Cable for RJ45	XS6W-5PURBSS_00CM-G
MicroHAWK V/F420-F	Programming	DB-15 cable for USB, 1m	V420-WUB-1M
MicroHAWK V/F430-F	Power, I/O and Serial	Cable with 12-pin M12 connector	V430-W8-_M
	Ethernet	Cable with 8-pin M12 connector for RJ45	V430-WE-_M
V410-H	Cable (Required)	CABLE ASSY, UNIVERSAL STYLE 3 USB, 2m, SHIELDED MOD PLUG-V410-H	V410-WUB-2M
	Cable	CBL ASSY, RS232, DB9F, 2m, for connection to communication module or PLC	V410-WR-2M
	Power Supply	Power Supply required for V410-WR-2M RS-232 Cable	V410-AC0-1
	Intelligent Stand	Stand/holder for using in Hands-free mode	V410-AS0
	Communication Module	Serial to Ethernet TCP and EIP DIN rail mounted converter	OEI-EA3600-R1CP-11
	Cable	2m Serial Cable for OEI-EA3600	OEI-CBA-RF2-CO9ZAR

Note: Tables include representative part numbers. Bold models: Preferred Availability. Please consult the product page for more details.

OMRON INTEGRATED | INTELLIGENT | INTERACTIVE

V680S - RFID Reader/Writer

- All in one controller, amplifier, antenna
- Reads and writes to any ISO 18000-3 compliant RFID Tag
- Diagnostic function for easy setup and troubleshoooting
- Ethernet, EtherNet/IP and PROFINET connectivity

Dimensions (mm)	Network	Model
50 x 50 x 30	EtherNet/IP	**V680S-HMD63-EIP**
	PROFINET	V680S-HMD63-PNT
	Modbus TCP (TCP/IP)	V680S-HMD63-ETN
75 x 75 x 40	EtherNet/IP	V680S-HMD64-EIP
	PROFINET	V680S-HMD64-PNT
	Modbus TCP (TCP/IP)	V680S-HMD64-ETN
120 x 120 x 40	EtherNet/IP	V680S-HMD66-EIP
	PROFINET	V680S-HMD66-PNT
	Modbus TCP (TCP/IP)	V680S-HMD66-ETN

Tags

Type	Memory	Dimensions (mm)	Installation	Model
No Battery	2 K	40 x 40 x 5	For assembly on non-metallic faceted surface	V680S-D2KF67
			For assembly on metallic faceted surface	V680S-D2KF67M
		86 x 54 x 10	For assembly on non-metallic faceted surface	V680S-D2KF68
			For assembly on metallic faceted surface	V680S-D2KF68M
	8 K	40 x 40 x 5	For assembly on non-metallic faceted surface	V680S-D8KF67
			For assembly on metallic faceted surface	V680S-D8KF67M
		86 x 54 x 10	For assembly on non-metallic faceted surface	V680S-D8KF68
			For assembly on metallic faceted surface	V680S-D8KF68M

Note: For tags in other formats, or labels, refer to Omron website.

Note: Tables include representative part numbers. Bold models: Preferred Availability. Please consult the product page for more details.

V780 - UHF Long Range RFID Reader/Writer 🌐

- All-in-one antenna/amplifier/controllerw with up to 6m of read/write range
- Abilitlity to network up to 7 slave antennas with a master for increased tag reading area
- Web browser based setup and configuration with advanced diagnostics
- Ethernet (Modbus TCP, EtherNet/IP™) as a standard feature

Dimensions (mm)	Network	Applicable countries	Model
250 × 250 × 70	Modbus/TCP base (TCP/IP)	United States and Canada	V780-HMD68-ETN-US
		Mexico	V780-HMD68-ETN-MX
	EtherNet/IP	United States and Canada	V780-HMD68-EIP-US
		Mexico	V780-HMD68-EIP-MX
	(For Multi-Reader/ Writer function *2)	United States and Canada	V780-HMD68-ETN-US-S
		Mexico	V780-HMD68-ETN-MX-S

Cables and accessories for V680 and V780

Type of Communication	Length	Power cable	Communication cable
Modbus TCP (TCP/IP)	2 Meters		V680S-A41 2M*
	5 Meters		V680S-A41 5M*
	10 Meters		V680S-A41 10M*
V780 EtherNet/IP and PROFINET	1 Meter	XS5F-D421-C80-F	XS5W-T421-CME-K
V680S EtherNet/IP and PROFINET	2 Meters	XS5F-D421-D80-F	XS5W-T421-DMC-K
	5 Meters	XS5F-D421-G80-F	XS5W-T421-GMC-K
	10 Meters	XS5F-D421-J80-F	XS5W-T421-JMC-K

Note: Tables include representative part numbers. Bold models: Preferred Availability. Please consult the product page for more details.

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LVS-95XX - Offline Verifier

- Verify a broad variety of direct part marks as well as 1D and 2D printed barcodes with a single model
- Software automatically selects best lighting performance from integrated red or white dome and 30° angle lighting
- Validates printed barcodes to ISO/IEC, ANSI, GS1, and UDI print quality standards

Type	Field of View	Codes	X-Dimension (min)		Lighting	Power	Communication	Model
			1 D	2 D				
LVS-9510 Desktop	102mm x 102mm	1D & 2D	6.0 mils	9.0 mils	White (with red filter)	12VDC (Supply)	USB 2.0	9510-5-4.0
LVS-9580 DPM/ LVS-9585 DPM	76.19mm x 57.15mm	1D, 2D & DPM	4.0 mils	5.9 mils	White Dome type (with red filter)	5VDC (Via USB)	USB 2.0	9580-C-3
	33mm x 25mm (High Density, HD)			2.0 mils (DPM)				9580-DPM-HD
	76.19mm x 57.15mm 44mm x 44mm (DPM)			5.9 mils	White and Red Dome			9585-DPM
	33mm x 25mm (High Density, HD)			2.0 mils (DPM)	White and Red Dome			9585-DPM-HD

V275 - Inline Verifier and Print Quality Inspection

- Inspect 100% of labels for print quality.
- Verify 1D and 2D codes to ISO standards.
- Ensure compliance with regulations and quality requirements.
- Check for cosmetic blemishes and errors in printed data.
- Avoid costly chargebacks, recalls, and supply chain disruption.

Printer	Print Resolution	Print Speed (max)	Label Width (max)	X-Dimension (min)		Font Size (point)	Communication	Model
				1 D	2 D			
Zebra ZT610	300 dpi	304mm (12")/seg	104mm (4.1")	6.6 mils	10.0 mils	5 point	5 pt Ethernet (via PC)	V275-P46Z61030-CC
Zebra ZT610	600 dpi	152mm (6")/seg	104mm (4.1")					V275-P46Z61060-CC
Zebra ZT620	300 dpi	203mm (8")/seg	167mm (6.6")					V275-P86Z62030-CC

Note: 10.0 mils if Code 1D is vertically printed (ladder orientation)

Note: Tables include representative part numbers. Bold models: Preferred Availability. Please consult the product page for more details.

MicroHAWK F430/330 - Smart Camera

- Ultracompact Smart Cameras
- Various model options and configuration possibilities
- Two programming software options: AutoVISION (Simplified) or Visionscape (Complete)
- Autofocus with liquid lens (F420-F and F430-F)
- Degree of protection up to IP67

Family	Sensor Color	Sensor Resolution	Shutter Type	Lens Type/ Mount	Focus Distance	Software or License	Model
F320	Monochrome	0.34 MP	Global	Integrated - fixed focus	102 mm	AutoVISION + Verification + Visionscape	F320-F102W03M-NNV
F320	Monochrome	1.2 MP	Global	Integrated - fixed focus	102 mm	AutoVISION + Verification + Visionscape	F320-F102W12M-NNV
F320	Color	5 MP	Rolling	Integrated - fixed focus	102 mm	AutoVISION + Verification + Visionscape	F320-F102W50C-NNV
F330	Monochrome	0.34 MP	Global	Integrated - fixed focus	102 mm	AutoVISION + Verification + Visionscape	F330-F102W03M-NNV
F330	Monochrome	1.2 MP	Global	Integrated - fixed focus	102 mm	AutoVISION + Verification + Visionscape	F330-F102W12M-NNV
F330	Color	5 MP	Rolling	Integrated - fixed focus	102 mm	AutoVISION + Verification + Visionscape	F330-F102W50C-NNV
F420	Monochrome	1.2 MP	Global	Autofocus high speed liquid lens	75 to 1200 mm	AutoVISION + Verification + Visionscape	F420-F000L12M-SRV
F420	Color	5 MP	Rolling	Autofocus high speed liquid lens	50 to 300 mm	AutoVISION Sensor	F420-F000M50C-SWS
F420	Monochrome	0.34 MP	Global	Autofocus high speed liquid lens	50 to 300 mm	AutoVISION + Verification + Visionscape	F420-F000W03M-SRV
F420	Monochrome	1.2 MP	Global	Autofocus high speed liquid lens	50 to 300 mm	AutoVISION + Verification + Visionscape	F420-F000W12M-SRV
F420	Color	5 MP	Rolling	Autofocus high speed liquid lens	50 to 300 mm	AutoVISION + Verification + Visionscape	F420-F000W50C-SWV
F430	Monochrome	1.2 MP	Global	Autofocus high speed liquid lens	75 to 1200 mm	AutoVISION + Verification + Visionscape	F430-F000L12M-SRV
F430	Monochrome	1.2 MP	Global	Autofocus high speed liquid lens	50 to 300 mm	AutoVISION + Verification + Visionscape	F430-F000M12M-RRV
F430	Monochrome	1.2 MP	Global	Autofocus high speed liquid lens	50 to 300 mm	AutoVISION + Verification	F430-F000M12M-SRA
F430	Monochrome	1.2 MP	Global	Autofocus high speed liquid lens	50 to 300 mm	AutoVISION + Verification + Visionscape	F430-F000M12M-SRV
F430	Monochrome	1.2 MP	Global	Autofocus high speed liquid lens	50 to 300 mm	AutoVISION + Verification	**F430-F000M12M-SWA**
F430	Monochrome	0.34 MP	Global	Autofocus high speed liquid lens	50 to 300 mm	AutoVISION + Verification + Visionscape	F430-F000W03M-SRV
F430	Monochrome	1.2 MP	Global	Autofocus high speed liquid lens	50 to 300 mm	AutoVISION + Verification + Visionscape	F430-F000W12M-SRV
F430	Color	5 MP	Rolling	Autofocus high speed liquid lens	50 to 300 mm	AutoVISION Sensor	F430-F000W50C-SWS
F430	Color	5 MP	Rolling	Autofocus high speed liquid lens	50 to 300 mm	AutoVISION + Verification + Visionscape	F430-F000W50C-SWV

Note: Tables include representative part numbers. Bold models: Preferred Availability. Please consult the product page for more details.

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MV4000 - Smart camera/vision sensor

- Complete vision, code reading and code verification toolsets
- Near PC processing speeds (inspection rates ranging from 4,000 to 14,000 parts per minute)
- Complete offering lenses, lights, cables and mounts to support the complete solution
- A scalable and faster solution on AutoVISION/Visionscape software platform

Family	Sensor Color	Sensor Resolution	Shutter Type	Lens Type/Mount	Software or License	Model
MV-4000	Monochrome	0.3 MP	Global	C Mount with option for auto-focus accessory	AutoVISION + Verification + Visionscape	8011-0000-0104
		1.3 MP				8012-0000-0104
		2 MP				8013-0000-0104
		5 MP				8014-0000-0104
	Color	0.3 MP				8015-0000-0104
		1.3 MP				8016-0000-0104
		2 MP				8017-0000-0104
		5 MP				8018-0000-0104

Note: Tables include representative part numbers. Bold models: Preferred Availability. Please consult the product page for more details.

FHV7 - Vision System

- Smart Cameras with several model options and setting possibilities (from 0.4MP to 12M)
- Dual Core CPU providing up to 430 fps (0.4MP) acquisition
- Multicolor lighting module (red, green, blue, and infrared, with individual control
- Degree of protection up to IP67

Family	Sensor Color	Sensor Resolution	Shutter Type	Lens Type/Mount	Software or License	Model
FHV7	Monochrome	0.4 MP	Global	C Mount with option for auto-focus accessory	FHV Software + Sysmac Studio	FHV7H-M004-C
		1.6 MP				FHV7H-M016-C
		3.2 MP				FHV7H-M032-C
		5 MP		C Mount		FHV7H-M050-C
	Color	0.4 MP		C Mount with option for auto-focus accessory		**FHV7H-C004-C**
		1.6 MP				FHV7H-C016-C
		3.2 MP				**FHV7H-C032-C**
		5 MP		C Mount		FHV7H-C050-C
		6.3 MP	Rolling	C Mount with option for auto-focus accessory		FHV7H-C063R-C
		12 MP		C Mount		FHV7H-C120R-C
	Monochrome	6.3 MP		C Mount with option for auto-focus accessory		FHV7H-M063R-C
		12 MP		C Mount		FHV7H-M120R-C

Lenses

Focal Distance	C-Mount	Autofocus (Standard)	Autofocus (High-speed)
6mm		FHV-LEM-S06	FHV-LEM-H06
8mm	**3Z4S-LE SV-0814H**	-	-
9mm		**FHV-LEM-S09**	-
12mm	**3Z4S-LE SV-1214H**	FHV-LEM-S12	-
16mm	**3Z4S-LE SV-1614H**	FHV-LEM-S16	-
19mm	-		FHV-LEM-H19
25mm	**3Z4S-LE SV-2514H**	FHV-LEM-S25	-

Note: For C-Mount lenses, please refer to Vision Accessory Catalog for complete lens setup. Autofocus and Lighting modules will fit on 0.4MP, 1.6MP, 3.2MP and 6.3MP cameras. You can also refer to the FHV7 configurator on the product page.

Lighting Modules

Light Color	Model
Multicolor	FHV-LTM-MC
Red	FHV-LTM-R
White	**FHV-LTM-W**
IR	FHV-LTM-IR

Accessories

Type	Connector	
	Straight	**90°**
Ethernet Cable	FHV-VNB _M	FHV-VNLB _M
I/O Cable	FHV-VDB _M	FHV-VDLB _M
Connection cable for Interface	FHV-VUB _M	FHV-VULB _M
I/O Cable for Parallel Interface	XW2Z-S013-_*	

Data and Communication Interface

Type	Inputs / Outputs	EtherCAT Communication	Model
Parallel	12 Inputs / 24 Outputs	No	FHV-SDU10
EtherCAT	1 Input / 2 Outputs	Yes (Slave)	FHV-SDU30

OMRON   INTEGRATED | INTELLIGENT | INTERACTIVE

FH - Vision System

- High performance Vision System with more than 100 program tools
- Connection for 2, 4 or 8 cameras on the same controller with independent triggers
- High resolution cameras up to 20 MP
- Real image processing (16 million colors)

Controllers

Item	CPU and Processing	Communication	EtherCAT	No. of cameras	Model
Box type controller	High-Speed Controller (4 core)	EtherNet/IP, Ethernet TCP/UDP, PROFINET, Serial, Parallel I/O	Yes	2	FH-5050
				4	FH-5050 -10
				8	FH-5050-20
	High-Speed Controller (2 core)			2	FH-2050
				4	FH-2050 -10
				8	FH-2050 -20
	Lite Controller (2 core)		No	2	**FH-L550**
				4	FH-L550-10

Cameras

Item	Description	Model Color	Model Monochrome
CMOS Camera (Rolling Shutter)	5MP, 71.7ms image acquisition time	FH-SC05R	FH-SM05R
	20.4MP, 42.6ms image acquisition time	FH-SC21R	FH-SM21R
Newer high speed CMOS Camera (Global Shutter)	12MP, 24.9ms image acquisition time	FH-SCX12	FH-SMX12
	5MP, 10.3ms image acquisition time	FH-SCX05	FH-SMX05
	0.4MP, 1.9ms image acquisition time	FH-SCX	FH-SMX
High speed CMOS Camera (Global Shutter)	M42 Mount 12MP, 25.7ms image acq time	FH-SC12	FH-SM12
	4MP, 8.5ms image acquisition time	FH-SC04	FH-SM04
	2MP, 4.6ms image acquisition time	FH-SC02	FH-SM02
	0.3MP, 3.3ms image acquisition time	FH-SC	FH-SM
CCD Camera (Global Shutter)	5MP, 62.5ms image acquisition time	FZ-SC5M3	FZ-S5M3
	2MP, 33.3ms image acquisition time	FZ-SC2M	FZ-S2M
	0.3MP, 12.5ms image acquisition time	FZ-SC	FZ-S
	0.3MP, 4.9ms image acquisition time	FZ-SHC	FZ-SH
Smart CMOS Camera (Global Shutter)	0.3MP, 16.7ms image acquisition time	FZ-SQ100N	-

Type	Description	Model
Cable for camera	2m Length	FZ-VS3 2M
	5m Length	**FZ-VS3 5M**
	10m Length	**FZ-VS3 10M**
Parallel cable for I/Os	2m Length	XW2Z-S013-2
	5m Length	XW2Z-S013-5

Type of Camera	Focal Distance	Model
FZ-S_2M FZ-S_5M2 FH-S_05R (2MP and 5MP)	6mm	3Z4S-LE SV-0614H
	8mm	3Z4S-LE SV-0814H
	12mm	3Z4S-LE SV-1214H
	16mm	3Z4S-LE SV-1614H
	25mm	3Z4S-LE SV-2514H
FZ-S_ FH-S_ (0.3MP)	6mm	3Z4S-LE SV-0614V
	8mm	3Z4S-LE SV-0813V
	12mm	3Z4S-LE SV-1214V
	16mm	3Z4S-LE SV-1614V
	25mm	3Z4S-LE SV-2514V

Note: Please refer to Vision Accessory Catalog for complete lens setup.

G9SP - Safety Controller

- The standalone safety controller for small and mid-sized applications.
- Communication with standard PLC via Ethernet or Serial
- Direct communication with HMI NB Series via Serial
- Four types of standard expansion

Product	Inputs		Test outputs	Safety outputs	Common outputs	Model
G9SP Series	10	4	Transistor Output: 4	4	**G9SP-N10S**
	10	6		-	G9SP-N10D
	20	6	Transistor Output: 8	-	**G9SP-N20S**

Expansion Modules and Accessories

Description	No. of Outputs	No. of Inputs	Model
Expansion Modules	8 (NPN)	12 (NPN)	CP1W-20EDT
	8 (PNP)	12 (PNP)	CP1W-20EDT1
	32 (NPN)		CP1W-32ET
	32 (PNP)		CP1W-32ET1
Connection Cable	80cm (for connecting distant units)		CP1W-CN811
Communication Modules	RS-232 Serial		CP1W-CIF01
	EtherNet/FINS		CP1W-CIF41
	EtherNet/IP		**CM-EIP-1**
Programming software	1 license		WS02-G9SP01-V1
Cassette Memory			CP1W-ME05M

Note: Tables include representative part numbers. Bold models: Preferred Availability. Please consult the product page for more details.

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NX-SL5 - Safety Controller

- A versatile safety controller, with EtherCAT and EtherNet/IP capabilities, for integrated or stand-alone solutions, making machine safety design, installation, and maintenance easier

- Enable flexible manufacture by supporting different safety networks,CIP Safety and FSoE. Enable a hybrid system, when combining the NX-SL5 with the NX-102.

- Sysmac Studio offers a set of unique functions to make functional safety management easier as Safety Signature Check and Online Function Verification. In addition, reduce the design cycle with automatic programming and simple automatic test.

Product	Description	Model
NX-SL5 Safety Controller Units	Safety PLC, up to 1024 safety I/O and 128 safety connections	**NX-SL5500**
	Safety PLC, up to 2032 safety I/O and 254 safety connections	NX-SL5700

Product	Type	Protocol	Am. of Ports	Number of Networks	Safety Inputs	Safety Outputs	Test Outputs	Model
Communication & Remote Safety I/O Units	Network Coupler	EtherNet/IP	3	2				NX-CSG320
	Remote Module of safety I/Os	EtherNet/IP	2	1	12	4	12	GI-SMD1624
					12	-	12	GI-SID1224

Product	Type	No. of Points	Description	Model
Safety Input & Output Units	Input	4	4 safety input points (PNP) with 2 test outputs	NX-SIH400 Ver 1.1
		8	8 safety input points (PNP) with 2 test outputs	**NX-SID800**
	Output	2	2 safety outputs (PNP)	NX-SOH200
		4	4 safety outputs (PNP)	**NX-SOD400**

Note: Tables include representative part numbers. Bold models: Preferred Availability. Please consult the product page for more details.

NX-SL3 - Safety Controller

- Effortless integration into the most common PLC's platforms in the market, providing reliable safety solutions while supporting different configurations.

- Offer a direct connection to any PLC using an EtherNet/IP coupler, and build a stand-alone system. For larger projects, with a higher number of safety devices distributed over a larger area, using an EtherCAT coupler supports EtherCAT and FSoE.

- Sysmac Studio offers a set of unique functions to make functional safety management easier as Safety Signature Check and Online Function Verification. In addition, reduce the design cycle with automatic programming and simple automatic test.

Product	Type	Model
NX-SL3 Safety Controller Units	Safety PLC, up to 256 safety I/O and 32 safety connections *	NX-SL3300 Ver 1.1
	Safety PLC, up 1024 safety I/O and 128 safety connections *	NX-SL3500 Ver 1.1

* Only FSoE master connections supported

Product	Type	No. of Points	Description	Model
Safety Input & Output Units	Input	4	4 safety input points (PNP) with 2 test outputs	NX-SIH400 Ver 1.1
		8	8 safety input points (PNP) with 2 test outputs	NX-SID800
	Output	2	2 safety outputs (PNP)	NX-SOH200
		4	4 safety outputs (PNP)	NX-SOD400

Product	Communication Cycle	Protocol	Maximum number of NX I/O modules	Maximum Current I/O	Model
Network Couplers	250 to 4,000 us	EtherCAT Slave	63	4A	NX-ECC201
				10A	NX-ECC202
	125 to 10,000 us				NX-ECC203
	4 to 1,000 us	EtherNet/IP Slave			NX-EIC202

Note: Tables include representative part numbers. Bold models: Preferred Availability. Please consult the product page for more details.

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F3SG-SR - Machine Guard Safety Light Curtain 🌐

- Three-color Area Beam Indicators (ABIs) enable easy alignment and quick troubleshooting
- Up to 30m protection range (25mm resolution and up)
- IO-Link communication capability helps improve preventive maintenance programs
- Advanced programming features (muting, blanking, pre-reset, warning zone, etc.) are available on all models.
- IP67G rating is standard, with IP69K option available (F3SG-SRB only)

Resolution	Protective Height (mm)	Area Beam Indicators	Part Number
14 mm	160	No	F3SG-4SRB0160-14
	320		F3SG-4SRB0320-14
	400		F3SG-4SRB0400-14
	480		F3SG-4SRB0480-14
	560		**F3SG-4SRB0560-14**
	640		F3SG-4SRB0640-14
	720		F3SG-4SRB0720-14-F
	1200		**F3SG-4SRB1200-14**
25 mm	360		F3SG-4SRB0360-25-F
	440		F3SG-4SRB0440-25-F
	600		**F3SG-4SRB0600-25-F**
	680		F3SG-4SRB0680-25-F
	760		F3SG-4SRB0760-25-F
	840		F3SG-4SRB0840-25-F
	920		**F3SG-4SRB0920-25-F**
	1000		F3SG-4SRB1000-25-F
	1200		**F3SG-4SRB1200-25**
	1440		F3SG-4SRB1440-25
	1520		**F3SG-4SRB1520-25**
	1600		F3SG-4SRB1600-25
	1840		F3SG-4SRB1840-25
14 mm	400	Yes	F3SG-4SRA0400-14
	560		**F3SG-4SRA0560-14**
	720		F3SG-4SRA0720-14-F
	880		F3SG-4SRA0880-14-F
	1200		**F3SG-4SRA1200-14**
25 mm	280		F3SG-4SRA0280-25-F
	440		F3SG-4SRA0440-25-F
	600		**F3SG-4SRA0600-25-F**
	760		F3SG-4SRA0760-25-F
	920		**F3SG-4SRA0920-25-F**
	1200		**F3SG-4SRA1200-25**
	1600		F3SG-4SRA1600-25
	1760		F3SG-4SRA1760-25

Baking company implements new tray stacking system using Omron controls to boost productivity and improve employee safety

Saginaw Bakeries is a family-owned company based in Surrey, British Columbia, Canada, that was founded in 1993 and currently employs 87 people at its 34,000-square foot production facility on the outskirts of Vancouver. It produces a variety of doughnuts, cookies, brownies, muffins, sliced cakes and other sweets for roughly 400 customer locations on a daily basis. Given that the departure time for trucks leaving the facility is critical, the time window for producing baked goods for delivery is extremely limited.

During the past few years, Saginaw started investing in high-performance automation systems and equipment to improve productivity and customer service while lowering the risk of repetitive motion injury for its workers. In one recent project, the company worked with Apex Motion Control and Vital Manufacturing Inc. (both based in Surrey) to develop an automated tray stacker using controls from Omron.

Apex Motion and Vital Manufacturing chose Omron's technology thanks to the complete line of automation products and extensive service channels. Joshua Bradshaw, Vital Manufacturing's president, stated that Omron was the "obvious choice" because '"They are one of the only manufacturers that can supply world-class PLCs, HMIs, remote I/O couplers, VFDs (variable frequency drives), servo motors and drives, safety light curtain, vision systems, electronic door locks, sensors and switches - all of which are utilized within the tray stacker system."

Business need

Saginaw Bakery wanted to improve productivity, reduce product damage and eliminate the potential for injury caused by manual tray stacking in delivery preparation.

Unique solution

The company worked with automation solution providers todevelop a fully automated tray stacking system using Omron control and safety technologiesthat can stack any collection of industry-standard bread baskets at a speed of 15 trays per minute.

Customer benefits

The new tray stacking system's speed provided a 25% improvement over the productivity of a three-person stacking crew and allowed these employees to take care of other tasks while also protecting them from repetitive motion injury

The solution
A fully automated tray stacking system

The need

Saginaw wanted to eliminate the potential for injury caused by manual tray stacking and also improve product delivery times overall, as tray stacking was a major bottleneck during the process of preparing for deliveries. The manual task could also cause product damage if trays were misaligned, so the new system needed to also ensure proper alignment every time.

Before the system was installed, Saginaw would have two or three employees responsible for manually stacking the loaded bread baskets in 96-inch columns and then transfer them onto the trailers using wheeled dollies. Some employees would require stepladders to place trays in the highest position, which created another potential hazard. The manual tray stacking was proving to be both a bottleneck and a safety issue. .

The technology

The new, fully automated tray stacking system specifically addresses the needs of bakeries that make daily deliveries to convenience stores and chain restaurants with variations in product quantities and order requirements. The servo- driven system can stack any collection of industry-standard bread baskets at a speed of 15 trays per minute and sort stacks by order and route.

The stacking system uses several Omron 1S servo motors and drives and has an Omron programmable logic controller (PLC) inside it controlling all mechanical functions. Operators can use an intuitive Omron human-machine interface (HMI) terminal to select programs on the machine. Omron's F3SG series light curtains, D4SL door interlock switches and G9SE safety relays are incorporated into the system to ensure operator safety.

The outcome

The new system dramatically smoothed out the production flow thanks to the elimination of manual tray handling, which was a significant bottleneck. This was a highly error-prone stage of production, and inconsistencies in tray stacking could cause customers to receive the wrong orders. The tray stacking solution also eliminated product damage due to tray misalignment and optimized truck loading capacity and sorting.

The tray stacker's speed provided a 25% improvement over the productivity of a three-person stacking crew, and it freed up several employees to take care of other tasks. The new system also allowed employees to avoid repetitive motion to reduce their risk of injury. Apex Motion and Vital Manufacturing foundOmron to be a phenomenal automation partner thanks to its open channels of communication, its excellent team of application engineers, and the seamless integration of its built in EtherCAT network.

F3SG-PG - Perimeter Guard Safety Light Curtain

- Three-color Area Beam Indicators (ABIs) enable easy alignment and quick troubleshooting.
- Protection distance up to 110m
- Robust design for harsh environments (rated IP67G)
- IO-Link communication for remote monitoring

Number of Beams	Beam Gap (mm)	Product Length (mm)	Protection Range (m)	Type	Part Number
2	500	670	up to 30m	Emitter/Receiver	F3SG-4PGA0670-2A
	500	670	up to 8m	Transceiver	F3SG-4PGA0670-2C
	500	670	up to 110m	Emitter/Receiver	F3SG-4PGA0670-2L
3	400	970	up to 30m	Emitter/Receiver	F3SG-4PGA0970-3A
	400	970	up to 110m	Emitter/Receiver	**F3SG-4PGA0970-3L**
4	300	1070	up to 30m	Emitter/Receiver	F3SG-4PGA1070-4A
	300	1070	up to 8m	Transceiver	F3SG-4PGA1070-4C
	300	1070	up to 110m	Emitter/Receiver	F3SG-4PGA1070-4L
	400	1370	up to 30m	Emitter/Receiver	F3SG-4PGA1370-4A
	400	1370	up to 8m	Transceiver	F3SG-4PGA1370-4C
	400	1370	up to 110m	Emitter/Receiver	**F3SG-4PGA1370-4L**

Note: Tables include representative part numbers. Bold models: Preferred Availability. Please consult the product page for more details.

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Safety Light Curtain Accessories and Cables

F3SG-SR/PG Brackets

Description	Part Number
Standard Bracket (non-adjustable)	F39-LSGF
Adjustable Side-Mount Bracket	**F39-LSGA**
Adjustable Top/Bottom Bracket (F3SJ, F3SN Adaptor)	F39-LSGTB-SJ
Adjustable Top/Bottom Bracket (F3SG-RA/RE Adaptor)	**F39-LSGTB-RE**
Adjustable Top/Bottom Bracket (MS4800, F3SR Adaptor)	**F39-LSGTB-MS**

F3SG-SR/PG Root Cables (plug into light curtain)

Description	Length	Emitter Part Number	Receiver Part Number
Root Cable to M12 connector (Standard)	0.3 m	**F39-JGR3K-L**	**F39-JGR3K-D**
Root Cable to Flying Leads	3m	**F39-JG3C-L**	**F39-JG3C-D**
Root Cable to Flying Leads	7m	F39-JG7C-L	F39-JG7C-D
Root Cable to Flying Leads	10m	F39-JG10C-L	F39-JG10C-D
Root Cable to M12 Connector (F3SJ-B/A, F3SR, or F3SN Conversion)	0.3 m	F39-JGR3K-SJ-L	F39-JGR3K-SJ-D
Root Cable to M12 Connector (F3SG-RE Conversion)	0.3 m	F39-JGR3K-RE-L	F39-JGR3K-RE-D
Root Cable to M12 Connector (MS4800 Conversion)	0.3 m	**F39-JGR3K-MS-L**	**F39-JGR3K-MS-D**

F3SG-SR/PG Extension Cables (plug into M12 Root Cable)

Description	Length	Emitter Part Number	Receiver Part Number
M12 to Flying Lead Extension Cable	3 m	F39-JG3A-L	F39-JG3A-D
M12 to Flying Lead Extension Cable	10 m	**F39-JG10A-L**	**F39-JG10A-D**
M12 to M12 Extension Cable	3 m	F39-JG3B-L	F39-JG3B-D
M12 to M12 Extension Cable	10 m	F39-JG10B-L	F39-JG10B-D
M12 to M12 Extension Cable	20 m	F39-JG20B-L	F39-JG20B-D

F3SG-SR Cascade Cables

Description	Length	Part Number
Side-by-Side Cascading Cable (2 cables per part number)	0.12 m	**F39-JGR12L**
Extension Cable for Cascading (2 cables per part number)	0.3 m	**F39-JGR3W**

F3SG-SR/PG IO-Link Cables

Description	Length	Part Number
NX-ILM400 IO-Link Cable	2 m	XS5F-D521-DJ0-IL
GX-ILM08C IO-Link Cable	3 m	F39-JG3B-L
GX-ILM08C IO-Link Cable	10 m	F39-JG10B-L
GX-ILM08C IO-Link Cable	20 m	F39-JG20B-L

F3SG-SR/PG Wiring Reduction and Reset Cables

Description	Length	Part Number
Y-Joint Plug/Socket Connector	0.5 m	F39-GCNY2
Reset Switch Connector	0.5 m	F39-GCNY3
Reset Switch Connector to Reset Switch Cable	1 m	X5SF-D421-C80-F
Reset Switch Connector to Reset Switch Cable	2 m	X5SF-D421-D80-F
Reset Switch Connector to Reset Switch Cable	3 m	X5SF-D421-E80-F
Reset Switch Connector to Reset Switch Cable	5 m	X5SF-D421-G80-F
Reset Switch Connector to Reset Switch Cable	10 m	X5SF-D421-J80-F
Reset Switch Connector to Reset Switch Cable	20 m	X5SF-D421-L80-F

F3SG-SR/PG Accessories

F3SG-SR, F3SG-PG, and F3SG-R[] Floor Mount Columns

Applicable F3SG-SR/F3SG-R[] Light Curtain	Applicable F3SG-PG Light Curtain	Column Height	Part Number
Protective Height up to 880 mm	F3SG-4PGA0670-2[]	990 mm	F39-ST0990
Protective Height up to 1280 mm	F3SG-4PGA0970-3A/3L F3SG-4PGA1070-4[]	1310 mm	**F39-ST1310**
Protective Height up to 1520 mm	F3SG-4PGA1370-4[]	1630 mm	F39-ST1630
Protective Height up to 1840 mm	-------------	1950 mm	F39-ST1950
Protective Height up to 2080 mm	-------------	2270 mm	F39-ST2270

F3SG-SR, F3SG-PG, and F3SG-R[] Mirror Columns

Applicable F3SG-SR/F3SG-R[] Light Curtain	Applicable F3SG-PG Light Curtain	Column Height	Part Number
Protective Height up to 880 mm	F3SG-4PGA0670-2[]	990 mm	F39-SML0990
Protective Height up to 1200 mm	F3SG-4PGA0970-3A/3L F3SG-4PGA1070-4[]	1310 mm	**F39-SML1310**
Protective Height up to 1520 mm	F3SG-4PGA1370-4[]	1630 mm	F39-SML1630
Protective Height up to 1840 mm	-------------	1950 mm	F39-SML1950
-------------	F3SG-4PGA0670-2A/2L	990 mm	F39-PML0990-2
-------------	F3SG-4PGA0970-3A/3L	1310 mm	F39-PML1310-3
-------------	F3SG-4PGA1070-4A/4L	1310 mm	F39-PML1310-4
-------------	F3SG-4PGA1370-4A/4L	1950 mm	F39-PML1630-4

Stand and Mirror Base Accessory

Description	Part Number
Adjustable and Rotatable Column Base	**F39-STB**

F3SG-SR and F3SG-PG Muting Accessories

Description	Length	Part Number
Through Beam Muting Sensor Mounting Arm	150 mm	F39-FMA150T
Through Beam Muting Sensor Mounting Arm	400 mm	F39-FMA400T
Retro-Reflective Muting Sensor Mounting Arm	150 mm	F39-FMA150R
Retro-Reflective Muting Sensor Mounting Arm	400 mm	F39-FMA400R
Muting Arm Bracket for F3SG-SR/PG Mounting	n/a	F39-LMAF1
Muting Sensor Connection Box	n/a	F39-GCN5

Note: Tables include representative part numbers. Bold models: Preferred Availability. Please consult the product page for more details.

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F3SG-RE - Economic Model

- Simple on/off functionality with easy wiring
- 5ms response time
- IP67 Rated
- Resolutions of 14 and 30mm

Resolution	Protective Height (mm)	Part Number
14 mm	160	F3SG-4RE0160P14
	240	F3SG-4RE0240P14
	320	F3SG-4RE0320P14
	560	F3SG-4RE0560P14
	640	F3SG-4RE0640P14
	960	F3SG-4RE0960P14
	1200	F3SG-4RE1200P14
30 mm	350	F3SG-4RE0350P30
	430	F3SG-4RE0430P30
	590	**F3SG-4RE0590P30**
	750	F3SG-4RE0750P30
	910	**F3SG-4RE0910P30**
	1070	F3SG-4RE1070P30
	1230	**F3SG-4RE1230P30**
	1550	F3SG-4RE1550P30

Cables

Material	Length	Model
PVC Cable	2m	XS2F-M12PVC4S2M
	5m	XS2F-M12PVC4S5M
	10m	XS2F-M12PVC4S10M
PUR Cable	2m	XS2F-M12PUR4S2M
	5m	XS2F-M12PUR4S5M
	10m	XS2F-M12PUR4S10M
Connection cable in 'Y" between Sender and Receiver	0.5m	F39-GCNY1

Accessories (for Advanced and Economic models)

Type	Description	Model
Fixed Mounting Bracket (Already included)	Side fixation (2 supports per code)	F39-LGF
		F39-LGA
Adjustable Mounting Bracket (Optional)	Top fixation (4 supports per code)	F39-LGTB
		F39-LGTB-1

Note: Tables include representative part numbers. Bold models: Preferred Availability. Please consult the product page for more details.

OS32C - Safety Laser Scanner

- 4m maximum safety zone and 15m warning zone
- Up to 70 different detection zones configurations
- Distance measurement capabilities up to 50m
- 5W power consumption

Cable Outlet	Safety Range	Ethernet/IP Data	Part Number
Back	3m	No	OS32C-BP
	4m	No	**OS32C-BP-4M**
	3m	Yes	OS32C-BP-DM
	4m	Yes	OS32C-BP-DM-4M
Side	3m	No	OS32C-SP1
	4m	No	OS32C-SP1-4M
	3m	Yes	OS32C-SP1-DM
	4m	Yes	OS32C-SP1-DM-4M

OS32C Safety Laser Scanner Cables

Description	Length	Part Number
Power Cable	3 m	**OS32C-CBL-03M**
	10 m	OS32C-CBL-10M
	20 m	OS32C-CBL-20M
	30 m	OS32C-CBL-30M
Ethernet Cable	2 m	**OS32C-ECBL-02M**
	5 m	OS32C-ECBL-05M
	15 m	OS32C-ECBL-15M

OS32C Safety Laser Scanner Brackets

Description	Part Number
Bottom/Side Mounting Bracket	**OS32C-BKT1**
XY Axis Rotation Mouting Bracket	OS32C-BKT2
Simple Mounting Bracket	OS32C-BKT3
Protective Cover for Window	OS32C-BKT4
Mounting Stand	OS32C-MT
Hardware kit for Mounting Stand	OS32C-HDT

OS32C Spare/Replacement Parts

Description	Part Number
Scan Window	**OS32C-WIN-KT**
Sensor block without I/O 3m Range	OS32C-SN
Sensor block without I/O 4m Range	OS32C-SN-4M
Sensor block without I/O 3m Range, Ethernet/IP	OS32C-SN-DM
Sensor block without I/O 4m Range, Ethernet/IP	OS32C-SN-DM-4M
I/O Block with Back Cable Access	OS32C-CBBP
I/O Block with Side Cable Access	OS32C-CBSP1

Note: Tables include representative part numbers. Bold models: Preferred Availability. Please consult the product page for more details.

OMRON INTEGRATED | INTELLIGENT | INTERACTIVE

G9SE - Safety Relays

- A compact safety relay for simple safety applications, with screwless terminals and increased diagnostic capabilities for fast troubleshooting and easy wiring
- Modules with two or four safety contacts and OFF-delay timing options
- Compact units, 17.5 or 22.5 mm wide
- Front side wiring using screw less terminals and led indicators for fast diagnostic

Safety Outputs	Auxiliary Output	OFF-delay Max. time	Power	Model
2		-		**G9SE-201**
4		-		**G9SE-401**
2	1	5 s	24VDC	**G9SE-221-T05**
2		30 s		G9SE-221-T30

G9SA - Expandable Safety Relay

- All-purpose expandable safety relays series ideal for high demand applications.
- Ideal for high demand applications.
- Expandable outputs options only, up to 8: instantaneous or time-delay
- Simple expansion connection available

Safety Outputs	Auxiliary Outputs	Power	Model
3	1		G9SA-301 AC/DC24
5	1	24VDC	**G9SA-501 AC/DC24**
3	1		G9SA-EX301
3	1		G9SA-TH301 AC/DC24*

* Two hand controller (type III C, EN 574)

Note: Tables include representative part numbers. Bold models: Preferred Availability. Please consult the product page for more details.

G9SX - Safety Modules

- A versatile safety relay series, ideal for scalable safety solution, support logical "AND" functions for expansion and offer special modules for dedicated safety functions
- G9SX-family modules can be connected by a logical "AND" function to implement partial/global stopping of a machine
- Solid-state outputs, detailed LED diagnosis and clever feedback signals help to keep maintenance easy
- Expansion units with safe timing functions complete the line-up

Terminal Block Type	Safety Output Instantaneous	Safety Output – Off-Delayed	Safety Standstill detection output	Safety slow-speed/ stopping detection output	Auxiliary Outputs	Power	Model
Screw Terminal	2	0	0	0	2	24VDC	**G9SX-BC202-RT DC24**
Spring-cage terminals	3	2	0	0	2		G9SX-AD322-T15-RC DC24*
Screw Terminals	0	0	3	0	2		G9SX-SM032-RT
Screw Terminals	2	0	0	2	4		G9SX-LM224-F10-RT **
Screw Terminals	2	0	0	0	2		G9SX-NS202-RT DC24 ***
Screw Terminals	2	2	0	0	2		G9SX-NSA222-T03-RT DC24

*Off-Delay:

T15: 0/0.2/0.3/0.4/0.5/0.6/0.7/1/1.5/2/3/4/5/7/10/15 s

T03: 0/0.2/0.3/0.4/0.5/0.6/0.7/0.8/0.9/1.0/1.2/1.4/1.8/2.0/2.5/3.0 s

** Safe Standstill monitoring unit based on Back EMF operation for two and three phase systems.

*** Limited speed monitoring unit

Note: Tables include representative part numbers. Bold models: Preferred Availability. Please consult the product page for more details.

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D40Z - Compact Non-Contact Door Switch

- Up 30 Switches can be connected to one Safety Controller while maintaining PLe/safety category 4
- Can be connected to G9SP or G9SX-NS[] Safety Controllers
- LED indication for easy troubleshooting
- Compact Non-contact Door Switch can be mounted from both sides

Cable length	Auxiliary Outputs	Model
2 m	1	D40Z-1C2
5 m		**D40Z-1C5**

D40P - Non-Contact Safety Switches

- Hall effect technology provides solid state outputs for increased longevity
- LED indicates operation state
- Operates with all OMRON safety controllers and safety relays
- Connect up to 20 switches in series, up to PLd acc. EN ISO 13849-1

Body Size	Housing	Contacts	Cable Connection	Model
Elongated	Polyester Housing	2NC / 1NO	M12, 8 pin, fitted with 250 mm cable	**D40P-LPC-21-M12**
Small			M12, 8 pin, fitted with 250 mm cable	D40P-SPC-21-M12
Barrel			5 m pre-wired	D40P-BPC-21-05
Small	Stainless Steel		5 m pre-wired	D40P-SMC-21-05
Small	Hygienic	2NC / 1NO	M12, 8 pin, fitted with 250 mm cable	D40P-SHC-21-M12

Accessories

Type	Description	Model
Cables, M12 female - 8 pin to flying leads	5m	D40ML-CBL-M12-5M
Cables, M12 female - 8 pin to flying leads	10m	**D40ML-CBL-M12-10M**
T-Connector Connection Cable	T-Connector for M12 cable	D40P-8PTC-M12

Note: Tables include representative part numbers. Bold models: Preferred Availability. Please consult the product page for more details.

D40ML - RFID Magnetic Locking Safety Switch

- Magnetic latching combines with RFID technology to deliver high holding force and tamper resistance
- Residual magnetism acts as light door latch after unlocking and it provides multiple holding forces
- Clean/Sanitize in Place – stainless steel versions are rated IP69K
- For use on machines with no rundown time if power is lost

Actuator Type	Case Material	Holding Force	Cable Connection	Model
Basic	Diecast Metal (IP67)	1500N	Pigtail w/ M12 Connector	D40ML-M1-B-M12
Basic	Plastic (IP67)	1500N		D40ML-P1-B-M12
Basic	316 Stainless Steel (IP69K)	950N		D40ML-SS1-B-M12
Unique	316 Stainless Steel (IP69K)	600N	5m Cable	D40ML-SS2-U-5M

Accessories

Type	Description	Model
Cables, M12 female - 8 pin to flying leads	5m	D40ML-CBL-M12-5M
Cables, M12 female - 8 pin to flying leads	10m	D40ML-CBL-M12-10M

Note: Tables include representative part numbers. Bold models: Preferred Availability. Please consult the product page for more details.

OMRON INTEGRATED | INTELLIGENT | INTERACTIVE

D4SL-N - Guard Lock Safety Door Switch

- A wide variety of built-in switches can be used for various devices (4-, 5-, and 6-contact models are available)
- Removable terminal block for easy wiring and quick maintenance
- Key holding force of 1,300N
- Slide key available to prevent workers from becoming trapped inside the hazardous area
- Can be easily mounted on 40 × 40 mm aluminum frames

Type	Conduit Size	Contact Model	Head Material	Door Lock and Release	Indicator	Model
D4SL-N	1/2-14NPT *	2NC/1NO + 2NC/1NO	Metal	Mechanical lock/24VDC solenoid release	Yes	**D4SL-N3NDA-D**
	1/2-14NPT *	2NC/1NO + 2NC/1NO	Metal	24VDC solenoid lock/mechanical release	Yes	**D4SL-N3NDG-D**
	M20	3NC + 1NC/1NO	Resin	Mechanical lock/24VDC solenoid release	Yes	D4SL-N4GFA-D
	G1/2	2NC/1NO + 2NC/1NO	Resin	Mechanical lock/24VDC solenoid release	Yes	D4SL-N2NFA-D4

* M20, includes M20-to-1/2-14NPT conversion adapter.

Slides Key for D4SL

- Lockout Key to prevent workers from becoming trapped inside the hazardous area
- The plastic material makes the Slide Key suitable for lightweight doors

Description	Model
Slide Key Kit	**D4SL-NSK10-LK**
Slide Key with inner lever	D4SL-NSK10-LKH

Operation Keys for D4SL

Mounting Orientation	Special Function	Model
Horizontal	-	D4SL-NK1
Horizontal	Rubber cushions	D4SL-NK1G
Vertical	-	D4SL-NK2
Horizontal	Adjustable	D4SL-NK3

Note: Tables include representative part numbers. Bold models: Preferred Availability. Please consult the product page for more details.

PMAC Motion Controllers CK3 Series

CK3E - EtherCAT Based Controllers

- 32, 16 or 8 axes motion control
- Up to 250 μs cycle time
- Compatible with standard G-Code functions
- Save space & wiring thanks to compact design
- CAD/CAM for easy motion control
- EtherCAT for flexible configuration

Number of Axis	Memory capacity	Programming language	Model
8	1G	G-Code/ANSI C/original programming language	CK3E-1210-US
16			CK3E-1310-US
32			CK3E-1410-US

By combining global leading Delta Tau Data Systems' Motion Control technologies, Omron can open up new applications and solutions. The CK3E is a controller designed for precise multi-axis control. You can build a system capable of controlling up to 32 axes of motion and incorporate customized control algorithms into the system. The CK3E allows you to program in C language and reuse existing software assets. The compact design saves space in machines and control panels. EtherCAT® connects servo drives, I/O, and other devices to the CK3E, reducing the number of cables.

CK3M - Modular Controllers

- Local axes for nanoscale precision
- Ultra high-speed synchronous control (50μs/5 axes)
- Custom servo regulation algorithms
- Flexibility on using multi-vendor actuators and encoders
- Flexibility on programming on G-code, ANSI C or original programming language

Product Type	Memory capacity	EtherCAT® port	EtherCAT Axes	Expansion	Model
CPU Units	RAM: 1 GB Built-In flash memory: 1 GB	-	-	One expansion rack can be connected using the expansion master unit and expansion slave unit	CK3M-CPU101
		EtherCATEtherCAT®: 1 port (DC sync)	4		CK3M-CPU111
			8		CK3M-CPU121

Maximize your machine's performance: Performing precise linear motor drive control and nanoscale positioning, the PMAC (Programmable Multi Axis Controller) has been appreciated by manufacturers of semiconductor manufacturing equipment and other leading-edge equipment. Omron now offers a next generation motion controller CK3M that packs PMAC's superior motion control capability, multi-vendor connectivity, and flexible development capability into its compact design. The CK3M removes constraints and barriers and maximizes your machine's capabilities.

Note: Tables include representative part numbers. Bold models: Preferred Availability. Please consult the product page for more details.

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Product Type	Amplifier interface	Encoder interface	Output type	Model
Axial Interface Units	DirectPWM output	Digital quadrature encoder/serial encoder	NPN type	CK3W-AX1313N
	DA output (Filtered PWM)			CK3W-AX1414N
	DA output (True DAC)			CK3W-AX1515N
	DirectPWM output	Sinusoidal encoder/Serial encoder		CK3W-AX2323N
	DirectPWM output	Digital quadrature encoder/serial encoder	PNP type	CK3W-AX1313P
	DA output (Filtered PWM)			CK3W-AX1414P
	DA output (True DAC)			CK3W-AX1515P
	DirectPWM output	Sinusoidal encoder/Serial encoder		CK3W-AX2323P

Product Type	Description	Model
Power Supply Unit	Rated output voltage: 5 VDC / 24 VDC	CK3W-PD048

Product Type	Number of inputs	Number of outputs	I/O type	Model
Digital I/O Units	16 points	16 points	NPN	CK3W-MD7110
			PNP	CK3W-MD7120

Product Type	Input Range	Number of inputs	Model
Analog Input Units	Unit -10 to 10 V	4 points	CK3W-AD2100
		8 points	CK3W-AD3100

Product Type	Product Name	Function	Model
Expansion Master Unit and Expansion Slave Unit	Expansion Master Unit	Expansion Master Unit connects to the right side of the CPU Unit	CK3W-EXM01
	Expansion Slave Unit	Expansion Slave Unit connects to the right side of the Power Supply Unit	CK3W-EXS02
	Expansion cable	To connection between the Expansion Master Unit and Slave Unit (0.3m)	CK3W-CAX003A

Power PMAC IDE
(Integrated Development Environment)

- Based on Microsoft® Visual Studio®
- ANSI C or original programming language
- Easy tuning
- Simple setting
- Troubleshooting
- Debugger

Note: Tables include representative part numbers. Bold models: Preferred Availability. Please consult the product page for more details.

1S Series - Servomotor

- Advanced design allows easy installation and wiring
- EtherCAT communications up to 125μsec
- Safety over the EtherCAT network
- Motor has 23-bit battery less absolute encoder
- 350% momentary torque (200 V, 750 W max.)

RPM	Capacity	Torque	Motor	Drive	Motor	Drive
			110V VAC		**480V VAC**	
3000 RPM	0.05 kW	0.159 Nm	R88M-1M05030S-(1)S2	**R88D-1SN01L-ECT**		
	0.1 kW	0.318 Nm	R88M-1M10030S-(1)S2	R88D-1SN01L-ECT		
	0.2 kW	0.637 Nm	R88M-1M20030S-(1)S2	R88D-1SN02L-ECT		
	0.4 kW	1.27 Nm	R88M-1M40030S-(1)S2	R88D-1SN04L-ECT		
			220V VAC			
	0.05 kW	0.159 Nm	R88M-1M05030T-(1)S2	**R88D-1SN01H-ECT**		
	0.1 kW	0.318 Nm	R88M-1M10030T-(1)S2	R88D-1SN01H-ECT		
	0.2 kW	0.637 Nm	R88M-1M20030T-(1)S2	**R88D-1SN02H-ECT**		
	0.4 kW	1.27 Nm	R88M-1M40030T-(1)S2	**R88D-1SN04H-ECT**		
	0.75 kW	2.39 Nm	R88M-1M75030T-(1)S2	**R88D-1SN08H-ECT**	R88M-1L75030C-(1)S2	R88D-1SN10F-ECT
	1.0 kW	3.18 Nm	R88M-1L1K030T-(1)S2	**R88D-1SN10H-ECT**	R88M-1L1K030C-(1)S2	R88D-1SN10F-ECT
	1.5 kW	4.77 Nm	R88M-1L1K530T-(1)S2	**R88D-1SN15H-ECT**	R88M-1L1K530C-(1)S2	R88D-1SN15F-ECT
	2.0 kW	6.37 Nm	R88M-1L2K030T-(1)S2	**R88D-1SN20H-ECT**	R88M-1L2K030C-(1)S2	**R88D-1SN20F-ECT**
	3.0 kW	9.55 Nm	R88M-1L3K030T-(1)S2	**R88D-1SN30H-ECT**	R88M-1L3K030C-(1)S2	R88D-1SN30F-ECT
	4.0 kW	12.7 Nm	R88M-1L4K030T-(1)S2	R88D-1SN55H-ECT	R88M-1L4K030C-(1)S2	R88D-1SN55F-ECT
	5.5 kW	15.9 Nm	R88M-1L5K030T-(1)S2	R88D-1SN55H-ECT	R88M-1L5K030C-(1)S2	R88D-1SN55F-ECT
2000 RPM	0.4 kW	1.91 Nm			R88M-1M40020C-(1)S2	R88D-1SN06F-ECT
	0.6 kW	2.86 Nm			R88M-1M60020C-(1)S2	R88D-1SN06F-ECT
	1.0 kW	4.77 Nm	R88M-1M1K020T-(1)S2	R88D-1SN10H-ECT	R88M-1M1K020C-(1)S2	R88D-1SN10F-ECT
	1.5 kW	7.16 Nm	R88M-1M1K520T-(1)S2	R88D-1SN15H-ECT	R88M-1M1K520C-(1)S2	R88D-1SN15F-ECT
	2.0 kW	9.55 Nm	R88M-1M2K020T-(1)S2	R88D-1SN20H-ECT	R88M-1M2K020C-(1)S2	R88D-1SN20F-ECT
	3.0 kW	14.3 Nm	R88M-1M3K020T-(1)S2	R88D-1SN30H-ECT	R88M-1M3K020C-(1)S2	R88D-1SN30F-ECT
1500 RPM	4 kW	25.5 Nm	R88M-1M4K015T-(1)S2	R88D-1SN55H-ECT	R88M-1M4K015C-(1)S2	**R88D-1SN55F-ECT**
	5.5 kW	35 Nm	R88M-1M5K515T-(1)S2	**R88D-1SN55H-ECT**	R88M-1M5K515C-(1)S2	R88D-1SN55F-ECT
	7.5kW	47.8 Nm	R88M-1M7K515T-(1)S2	**R88D-1SN75H-ECT**	R88M-1M7K515C-(1)S2	**R88D-1SN75F-ECT**
	11 kW	70 Nm	R88M-1M11K015T-(1)S2	R88D-1SN150H-ECT	R88M-1M11K015C-(1)S2	**R88D-1SN150F-ECT**
	15 kW	95.5 Nm	R88M-1M15K015T-(1)S2	R88D-1SN150H-ECT	R88M-1M15K015C-(1)S2	R88D-1SN150F-ECT
1000 RPM	0.9 kW	8.59 Nm	R88M-1M90010T-(1)S2	R88D-1SN10H-ECT	R88M-1M90010C-(1)S2	R88D-1SN10F-ECT
	2.0 kW	19.1 Nm	R88M-1M2K010T-(1)S2	R88D-1SN20H-ECT	R88M-1M2K010C-(1)S2	R88D-1SN20F-ECT
	3.0 kW	28.7 Nm	R88M-1M3K010T-(1)S2	R88D-1SN30H-ECT	R88M-1M3K010C-(1)S2	R88D-1SN30F-ECT

Note: (1) **B** - Motor with brake WHITE - Without brake

Note: Tables include representative part numbers. Bold models: Preferred Availability. Please consult the product page for more details.

OMRON INTEGRATED | INTELLIGENT | INTERACTIVE

3G3MX2 - Frequency Inverter

- Vector Frequency Inverter
- Communication with major industrial communication networks
- Built-in Safety Torque Off function
- Embedded Micro PLC

Capacity CT		220V Single phase	220V Three-phase	480V Three-phase
kW	HP			
0.1	1/8	3G3MX2-AB001-V1	3G3MX2-A2001-V1	-
0.2	1/4	3G3MX2-AB002-V1	**3G3MX2-A2002-V1**	-
0.4	1/2	**3G3MX2-AB004-V1**	**3G3MX2-A2004-V1**	**3G3MX2-A4004-V1**
0.75	1	**3G3MX2-AB007-V1**	**3G3MX2-A2007-V1**	**3G3MX2-A4007-V1**
1.5	2	3G3MX2-AB015-V1	**3G3MX2-A2015-V1**	**3G3MX2-A4015-V1**
2.2	3	3G3MX2-AB022-V1	**3G3MX2-A2022-V1**	**3G3MX2-A4022-V1**
3	4	-	-	3G3MX2-A4030-V1
3.7	5	-	**3G3MX2-A2037-V1**	-
4	5	-	-	3G3MX2-A4040-V1
5.5	7-1/2	-	3G3MX2-A2055-V1	3G3MX2-A4055-V1
7.5	10	-	3G3MX2-A2075-V1	3G3MX2-A4075-V1
11	15	-	3G3MX2-A2110-V1	3G3MX2-A4110-V1
15	20	-	3G3MX2-A2150-V1	3G3MX2-A4150-V1

Expansion Modules and Accessories

Description	Accessory	Model
Optional Communications	Profibus Communication	3G3AX-MX2-PRT-E
	DeviceNet Communication	3G3AX-MX2-DRT
	EtherCAT Communication	**3G3AX-MX2-ECT**
	CompoNET Communication	3G3AX-MX2-CRT-E
	Mechatrolink II Communication	3G3AX-MX2-ML2
	EtherNet/IP Communication	**3G3AX-MX2-EIP-A**
Remote HMI	Remote HMI with Potentiometer	3G3AX-OP01
	Communication cable for Remote HMI	3G3AX-OPCN3

Note: Tables include representative part numbers. Bold models: Preferred Availability. Please consult the product page for more details.

3G3RX - Frequency Inverter

- Sensor-less and vector closed-loop control
- Full torque at 0 Hz in closed loop
- High starting torque in open loop: 200% at 0.3 Hz
- Double rating VT 120%/1 min and CT 150%/1 min
- Built-in EMC filter
- Built-in logic programmability

Voltage	Constant torque		Variable torque		Model
	Max motor (kW)	Rated current (A)	Max motor (kW)	Rated current (A)	
Three-phase 200 V	0.4	3	0.75	3.7	3G3RX-A2004-V1
	0.75	5	1.5	6.3	3G3RX-A2007-V1
	1.5	7.5	2.2	9.4	3G3RX-A2015-V1
	2.2	10.5	4	12	3G3RX-A2022-V1
	4	16.5	5.5	19.6	3G3RX-A2037-V1
	5.5	24	7.5	30	3G3RX-A2055-V1
	7.5	32	11	44	3G3RX-A2075-V1
	11	46	15	58	3G3RX-A2110-V1
	15	64	18.5	73	3G3RX-A2150-V1
	18.5	76	22	85	3G3RX-A2185-V1
	22	95	30	113	3G3RX-A2220-V1
	30	121	37	140	3G3RX-A2300-V1
	37	145	45	169	3G3RX-A2370-V1
	45	182	55	210	3G3RX-A2450-V1
	55	220	75	270	3G3RX-A2550-V1
Three-phase 400 V	0.4	1.5	0.75	1.9	3G3RX-A4004-V1
	0.75	2.5	1.5	3.1	3G3RX-A4007-V1
	1.5	3.8	2.2	4.8	3G3RX-A4015-V1
	2.2	5.3	4	6.7	3G3RX-A4022-V1
	4	9	5.5	11.1	3G3RX-A4040-V1
	5.5	14	7.5	16	3G3RX-A4055-V1
	7.5	19	11	22	3G3RX-A4075-V1
	11	25	15	29	3G3RX-A4110-V1
	15	32	18.5	37	3G3RX-A4150-V1
	18.5	38	22	43	3G3RX-A4185-V1
	22	48	30	57	3G3RX-A4220-V1
	30	58	37	70	3G3RX-A4300-V1
	37	75	45	85	3G3RX-A4370-V1
	45	91	55	105	3G3RX-A4450-V1
	55	112	75	135	3G3RX-A4550-V1
	75	149	90	160	3G3RX-B4750-V1
	90	176	110	195	3G3RX-B4900-V1
	110	217	132	230	3G3RX-B411K-V1
	132	260	160	290	3G3RX-B413K-V1

OMRON INTEGRATED | INTELLIGENT | INTERACTIVE

LD Series – Autonomous Mobile Robots

- Simplified programming and navigation using digital mapping
- In compliance with safety standards ISO 12100, ISO 14121-2 and ISO 13849-1
- Rechargeable battery with autonomy of 12 to 15 hours and self-management for recharging
- Connectivity with factory management software (MES/WMS)
- Cleanroom and ESD options available

Part Number Configurator

37□□□–□
(1) (2) (3) (4)

No.	Item	Specification		Symbol
1	Robot Type	LD 60/LD 90		0
		Cart Transporter		1
		D 250		2
2	Speed & Payload	0.9m/s (Excludes LD 250)	90Kg (LD90)	6
			130Kg (Cart transporter)	
		1.2m/s (LD 250 Only)	250Kg	2
		1.3m/s (Excludes LD 250)	90Kg (LD90)	4
			105Kg (Cart transporter)	
		1.8 m/s/ (LD 60 Only)	60Kg	3
3	Laser Version	SICK (Excludes LD 250)		1
		Omron		2
4	Configuration	Standard LD60 / LD 90 / LD 250	Robot	00000
			Robot, Dock	00002
			Robot, Dock, Joystick, Top Plate	10004
		Cart Transporter	Robot	00010
			Robot, Dock	00012
			Robot, Dock, Joystick, Top Plate	01014
		ESD LD 60 / LD 90	Robot	20000
			Robot, Dock	20002
			Robot, Dock, Joystick, Top Plate	20004

Accessories

Item	Description	Model
Battery	Power battery	20452000
Fleet Manager	LD Mobile robot fleet supervisor	20271-900-OEI-5

Note: The battery 20452000 must be purchased separately.

HD-1500 – Autonomous Mobile Robot 🌐

- Natural feature navigation: Automatically plans efficient routes and prevents collisions
- Fleet management: Operates in coordination with a fleet of up to 100 mobile robots
- Easy deployment: Installs quickly, without facility modifications
- 1500 Kg large capacity payload
- Dynamic intelligent 360° safety
- Integrated automation controller

Part Number Configurator 37☐☐☐-☐
(1) (2) (3)　(4)

No.	Item	Specification		Symbol
1	Robot Type	HD-1500		4
2	Speed & Payload	1.8 m/s	1500 Kg	8
3	Laser Version	Omron (HD)		0
4	Configuration	Standard HD-1500	Robot	00000
			Robot, Dock	00002
			Robot, Side Lasers	00010
			Robot, Single HAPS	00100
			Robot, Single HAPS, Side Lasers	00110
			Robot, Double HAPS	00200
			Robot, Double HAPS, Side Lasers	00210
			Robot, Dock, Joystick/Pendant, Top Plate	10004
			Robot, Dock, Single HAPS, Joystick/Pendant, Top Plate	10104
			Robot, Dock, Single HAPS, Joystick/Pendant, Top Plate, Side Lasers	10114
			Robot, Dock, Double HAPS, Joystick/Pendant, Top Plate	10204
			Robot, Dock, Single HAPS, Joystick/Pendant, Top Plate, Side Lasers	10214

Accessories

Item	Description	Model
Battery	Power battery	68330000
Fleet Manager	HD Mobile robot fleet supervisor	20271-900-OEI-5

Note: Vehicle Battery (68330000) must be purchased separately from the robot and is shipped separate from the HD Vehicle.

Note: Tables include representative part numbers. Bold models: Preferred Availability. Please consult the product page for more details.

omron INTEGRATED | INTELLIGENT | INTERACTIVE

Omron TM - Collaborative Robots

- Designed to promote a safe and harmonious workplace between humans and machines.
- Easy-to-use graphical programming environment for quick startup and operation.
- Built-in vision-based robot control enables visual servoing, inspection, and measurement operations.
- TMvision and landmark allows truly flexible, fast changeover.

**Part Number Configurator**   RT6- ☐ ☐ ☐ ☐ ☐ ☐ ☐
(1)   (2) (3) (4) (5) (6) (7) (8)

No.	Item	Specifications	Symbol
(1)		Omron TM Collaborative Robots	
(2)	Model Type	TM5	0
		TM12	1
		TM14	2
(3)	Power Supply	AC	0
		DC	1
(4)	Vision System	Integrated Camera	0
		No Camera (X Model)	1
(5)(6)	Arm Length	700 (TM5)	70
		900 (TM5)	90
		1300 (TM12)	13
		1100 (TM14)	11
(7)	Semi	Standard	0
		Semi	1
(8)	Cable Length	Standard Length (3m/1.5m)*	1
		Extended Length (12m)*	2

Note: 1.5m cable is only standard on DC models. 12m cable is not available on DC models.

Accessories

Type	Notes	Model
Landmark	3D position referencing label (2 units included in the robot code)	RT6-A000008
Mobile Station	Compatible with OMRON TM5 only	RT6-A000010
Portable Pedestal	Compatible only with OMRON TM5/Adjustable Height	RT6-A000009
SSD Card with cable	128 GB of memory with SATA cable	RT6-A000012
Calibration kit	Required for TCP calibration and manual vision	RT6-A000002
Pneumatic Box	. Recommended to attach to the robot pedestal	RT6-A000015

Note: Tables include representative part numbers. Bold models: Preferred Availability. Please consult the product page for more details.
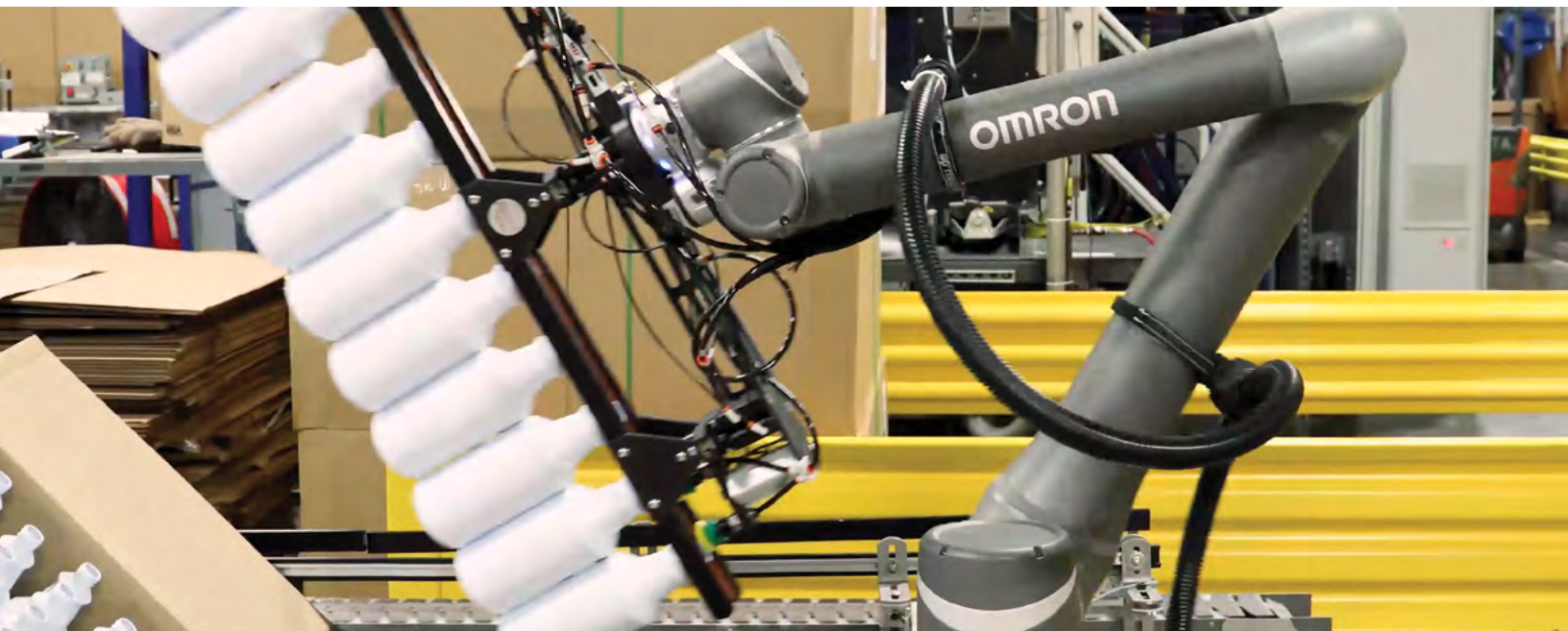
Manufacturer of plastic containers achieves major boost in flexibility and customer satisfaction with Omron TM Collaborative Robot

Founded in 1972, Schoeneck Containers, Inc. (SCI) is a family-owned, family-operated company based in Wisconsin that manufactures plastic containers for diverse consumer and commercial markets throughout the world. The company prides itself on its ability to provide innovative packaging solutions for its customers, as well as on its strong culture and state-of-the-art technology.

SCI strives to be perceived as a leader when its customers face packaging-related problems in their applications. In order to be a go-to partner that consistently delivers workable solutions for a challenging market, the company relies heavily on member engagement and highly advanced technologies.

Due to a labor shortage that is affecting the majority of manufacturers today, SCI began considering a collaborative robotic solution to augment the capabilities of its team. In the process of working on automation integration with Sure Controls, an industrial equipment distributor and system integrator in Wisconsin, SCI became aware of the Omron TM Collaborative Robot and did some research on the product in addition to what it learned from Sure Controls.

Sure Controls clearly articulated all of the benefits of the collaborative robot, and SCI decided that Omron's technology would be a good solution for its application needs. Omron stepped in to assist with risk assessments and extra training to ensure that the new technology was implemented smoothly. Omron also discussed several potential automation options for SCI's future applications.

Business need
A manufacturer of plastic containers for diverse consumer and commercial markets was seeking a collaborative robotic solution to overcome the pressures it was facing due to skilled labor shortages throughout the manufacturing industry.

Unique solution
The company chose Omron's TM Series Collaborative Robot to help it augment the capabilities of its team thanks to the technology's powerful combination of integrated vision, 3D positioning and user-friendly programming.

Customer benefits
The company was able to get the robot up and running in a single day, and the team quickly saw major improvements in customer satisfaction as well as a significant boost in overall production flexibility.

OMRON INTEGRATED | INTELLIGENT | INTERACTIVE

The solution
Omron TM Collaborative Robot

The need

Based on market demands, SCI came to the conclusion that one of the major challenges it needed to address for the near future was the widespread labor shortage felt throughout the manufacturing industry. With extremely low unemployment rates, the current environment made it even more difficult to find qualified operators to fill crucial roles.

The technical team at Sure Controls performed a deep-dive evaluation of various products to determine the right technology for SCI to take to its customers. The two companies analyzed a number of different products on the market and considered the robots' technical specifications and the overall portfolio of products of each automation solution provider.

Omron's strong product portfolio, which includes a full robotic line as well as safety and other integration solutions, was a major factor in SCI's decision. The company was impressed with Omron's ability to bring the entire solution together with robust technical support that covered all of SCI's needs.

The technology

For SCI, the Omron TM Collaborative Robot's integrated vision was a key differentiator because it enabled the company to re-deploy the robot more quickly and easily for initial applications and future deployments. The built-in vision solution along with 3D positioning allows the robot to orient itself within its environment and intelligently respond to changes in production requirements. It can also interact with machines with the efficiency of a human operator.

In addition, SCI placed importance on higher payloads and longer reach, which Omron's technology was able to accommodate. The robot's fast and simple programming combined with advanced collaborative control was also a major advantage, as these capabilities fit in quite well with what SCI was trying to achieve.

SCI appreciated Omron's large technology offering and the fact that all of its products are designed to function as part of comprehensive, end-to-end solutions. This gives SCI the ability to re-deploy existing technologies or introduce new products on the verge of coming available in the automation world.

The outcome

SCI was able to get the Omron TM Collaborative Robot up and running within a day, and the technology allowed the company to deliver a much more flexible solution for its customers. The robot is also highly re-deployable, so SCI can easily move it from one line to another whenever necessary.

In its off-line label application, SCI was able to use the collaborative robot to achieve higher consistency and reliability and gain the ability to set the pace of production to fit with complex scheduling needs. The company no longer needs to worry about having to shut its lines down due to labor inconsistencies.

SCI has seen its customer satisfaction improve considerably, and it has also worked with Omron and Sure Controls to ensure that everyone has a thorough understanding of how the collaborative robot works and how to make the most of its capabilities. SCI considers this project to be a major success and looks forward to working with Sure Controls and Omron on various applications in the future.

Hornet 565 - Parallel Robots

- Ethernet capability to control the robot through the familiar programming language (IEC 61131-3) of Machine Automation
- Controller NJ/NX/NY Series
- The amplifier and controller built into the robot reduces the number of cables
- Tracks up to a conveyor speed of 1.4 m/s

Item	Number of Axes	IP	Maximum Payload	Working volume		
				X,Y axis (stroke)	Z axis (stroke)	theta axis (rotation angle)
Hornet 565	3 axes	Standard	8 kg	1130 mm	425 mm	-
		IP65/67				
	4 axes	Standard	3 kg			±360°
		IP65/67				

Part Number Configurator 1720-☐-456☐☐

(1)   (2) (3)

No.	Item	Specification		Symbol
1	Bundle Type	Without Smart Controller EX	eV+	0
			ePLC	1
			Add-On	3
		With Smart Controller EX	eV+	2
			PLC	4
2	IP Rating (Topside/Underside/Platform & Arms)		IP20/IP65/IP67	0
			IP65/IP65/IP67	1
3	Number of Axes & Max Payload		3 Axis / 8kg	0
			4 Axis / 3kg	4

Note: Tables include representative part numbers. Bold models: Preferred Availability. Please consult the product page for more details.

OMRON   INTEGRATED | INTELLIGENT | INTERACTIVE

Quattro Parallel Robot

- Patented four-arm design
- Robust components and design
- High-resolution, absolute encoders
- High-efficiency, low-inertia drives and lightweight arms
- 8 kHz servo update rate yields high accuracy, superior slow-speed following, and easy calibration

Item	Number of Axes	Type	IP	Maximum Payload	Working volume		
					X,Y axis (stroke)	Z axis (stroke)	theta axis (rotation angle)
Quattro 650H/HS	4	H	Standard	6 kg (P30: 15 kg)	1300 mm	500 mm	0° (fixed) (P30) ±46.25° (P31) ±92.5° (P32) ±185° (P34)
			IP65/67				
		HS	Standard	3 kg (P30: 12 kg)			
Quattro 800H/HS		H	Standard	4 kg (P30:10 kg)	1600 mm		
			IP65/67				
		HS	Standard	1 kg (P30: 7 kg)			

Part Number Configurator 1721-□-26□□□
(1)   (2) (3) (4)

No.	Item	Specification		Symbol
1	Bundle Type	Without Smart Controller EX	Add-On	3
		With Smart Controller EX	eV+	2
			ePLC	4
2	Reach		650mm (1300mm total)	0
			800mm (1600mm total)	3
3	Max Payload (650mm/800mm) IP Rating (Topside/Underside/Platform & Arms)	"3kg/1kg (12kg/7kg with P30)"	IP65/IP65/IP67, Stainless Steel Platform (HS)	1
		"6kg/4kg (12kg/10kg with P30)"	IP20/IP65/IP67 (H)	0
			IP66/IP66/IP67 (H)	2
4	Platform Type / Rotation		(P30) / No Rotation	0
			(P31) / ± 46.25°	1
			(P32) / ± 92.5°	2
			(P34) / ± 185°	4

eCobra - SCARA Robots

- Ethernet capability to control the robot through the familiar programming language (IEC 61131-3) of Machine Automation Controller NJ/NX/NY Series
- Reach is extended to 800 mm without compromising repeatability
- High payload for screw-driving tools

Item	Type	IP	Mouting	Reach	Max payload	Cycle times *1 (Payload 2.0 kg)	
						Burst	Sustained
eCobra 600	600 Lite	Standard Cleanroom	Table/floor	600 mm	5.5 Kg	0.66 s	0.66 s
	600 Standard					0.55 s	0.55 s
	600 Pro					0.39 s	0.45 s
eCobra 800 & eCobra 800 Inverted	800 Lite	Standard Cleanroom IP65	Table/Floor or Inverted	800 mm		0.73 s	0.73 s
	800 Standard					0.62 s	0.62 s
	800 Pro					0.44 s	0.54 s

Part Number Configurator   17□1□-1□□0

(1)   (2)   (3) (4)

No.	Item		Specification	Symbol
1	License Type		Lite	0
			Standard	1
			Pro	2
2	Bundle Type	Without Smart Controller EX	eV+	0
			ePLC (Excludes Lite)	1
			Add-On (Excludes Lite)	3
		With Smart Controller EX	eV+ (Excludes Lite)	2
			ePLC (Excludes Lite)	4
3	Reach / Mounting		600mm / Floor,Table	60
			800mm / Floor,Table	80
			800mm / Inverted	84
4	Protection Rating		IP20	0
			IP65 (800mm Only)	3
			Cleanroom Class 10 (IP20)	1

OMRON   INTEGRATED | INTELLIGENT | INTERACTIVE

Cobra - SCARA Robots

- ACE software deploys your applications through a user-friendly interface
- High-resolution, absolute encoders give you high accuracy, superior slow-speed following, and easy calibration
- High-efficiency, low-inertia Harmonic Drives and a lightweight arm deliver maximum acceleration

Item	Reach	Maximum Payload	Protection	Conveyor tracking input	Model
Cobra 450	450 mm				17201-14500
Cobra 500	500 mm	5 kg	IP20	2	17201-15000
Cobra 650	650 mm				17201-16500

Note: Tables include representative part numbers. Bold models: Preferred Availability. Please consult the product page for more details.

Viper - Articulated Robots

- Rapid deployment using familiar ladder logic programming languages of existing PLC (IEC 61131-3)
- Diagnostics display enables faster trouble shooting
- Ethernet TCP/IP capability to control the robot through a PC, PLC, or robot controller

Item	IP	Number of axes	Reach	Maximum Payload	Repeatability XYZ	Conveyor tracking input	Programming environment
Viper 650	Standard Cleanroom IP54/65	6	653 mm	5 kg	±0.02 mm	2	ACE, PackXpert, ePLC
Viper 850	Standard Cleanroom IP54/65	6	855 mm	5 kg	±0.03 mm	2	ACE, PackXpert, ePLC

Part Number Configurator

1720☐-3☐0☐0
(1)   (2)   (3)

No.	Item		Specification	Symbol
1	Bundle Type	Without Smart Controller EX	eV+	0
			ePLC	1
			Add-On	3
		With Smart Controller EX	eV+	2
			PLC	4
2	Reach		650mm	6
			850mm	8
3	Protection Rating		IP40	0
			IP54 (IP65 on J4,J5,J6)	1
			Cleanroom Class 10 (IP40)	2

Note: Tables include representative part numbers. Bold models: Preferred Availability. Please consult the product page for more details.

OMRON INTEGRATED | INTELLIGENT | INTERACTIVE

Anyfeeder - Automatic Feeder

- Integration with robots, vision system and conveyors
- Flexibility in setting up different products
- Vibration control allows management of part movement

Model		SXM-100	SXM-140	SX-240	SX-340
Part Number		09725-500	18819-500	12480-500	14269-500
Pick area		100 x 134 mm	140 x 193 mm	240 x 320 mm	340 x 453 mm
Maximum weight in field of vision		500g		1500g	
Connections	Electric	1	1	1	1
	Pneumatic	-	-	1	1
	Serial	1	1	1	1

Accessories

Corresponding Model	SXM-100	SXM-140	SX-240	SX-340
Red Backlight Lighting type	09725-201	14630-001	05284-206	14269-002
White Smooth surface	09725-101	09725-301	05284-101	14269-003

Note: For other specifications of backlights and surface, refer to the product datasheet.

Note: Tables include representative part numbers. Bold models: Preferred Availability. Please consult the product page for more details.

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