OMRON

Life Sciences Industry Project Book

INTEGRATED | INTELLIGENT | INTERACTIVE

The Life Sciences Industry

The life sciences industry is challenged with achieving greater efficiencies, lower life-cycle costs, maintaining product quality and driving compliance with real-time actionable insights. Addressing these challenges today and for the future is possible only with 100% data integrity and reliable components that are small enough to fit into instruments. From reading labels on specimen tubes or directly marked surgical instruments to automated presence/absence detection of microtiter plates – the life sciences industry can depend on Omron for the highest levels of performance.

Omron is your trusted partner for medical device manufacturing, clinical and in vitro diagnostic instruments, laboratory automation solutions and pharmaceutical processors and packagers.

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

Solutions fit for the future, but ready today

Omron solutions set the foundation for the future, solving your most complex applications today while ensuring your facility is smart, secure, connected, flexible and compliant for the future. Comprised of next-generation technologies, services and backed by 80+ years of experience, our solutions help maintain product quality and compliance, decrease validation costs and increase production flexibility.

Medical Device Manufacturing

Regulations and internal manufacturing mandates provide immense pressure. Omron offers solutions that improve productivity and quality, increase visibility for traceability, achieve regulatory compliance and ensure safety. These solutions are tailored for medical device manufacturers and are engineered for ease-of-use.

Collaborative automation

Increase productivity and improve product quality through collaborative robotics with integrated vision.

- Prevent repetitive stress injuries
- Detect manufacturing abnormalities
- Read data on an HMI to make production decisions

Production optimization through data: OEE

Optimize production by turning machine data into high value, actionable information.

- Identify bottlenecks and production losses
- Improve predictive or proactive maintenance
- Provide visibility into complex processes

Labeling for regulatory compliance

Ensure labels are printed legibly and with the correct information.

- Verify off-line and in-line 1D and 2D codes, including OCR and OCV
- Electronically store and access data for internal traceability and FDA audits
- Maintain compliance with GS1, UDI, 21 CFR Part 11

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Clinical / In Vitro Diagnostics

Diagnostics designers and manufacturers need data integrity and reliable components that are small enough to fit into instruments - from tracking patient identification on specimen tubes to enhancing instrument throughput. Manufacturers depend on the highest levels of performance with minimal integration effort. From immunoassay, clinical chemistry, hematology and hemostasis to urinalysis, sample transport, slide staining for pathology and many more, Omron supports your sector.

Deck calibration for liquid handling

Increase instrument accuracy to fine tolerances.

- Automatically calibrate your system before new runs
- Inspect every tube before aspirating any liquid
- Eliminate the chance of broken pipette tips

High speed code reading

Read labels and accurately record data for sample tubes and reagent packs.

- Reagent, sample or tube carrier ID
- Match test to sample
- Sample routing and tracking

Sample tube characterization

Analyze defined sample tube characteristics for error-proof throughput.

- Tube height and diameter; cap detection, color and shape
- Microsample cup detection (pediatrics)
- Pipette alignment and detection

Laboratory Automation

Increase productivity, efficiency and speed without sacrificing quality. Omron offers a suite of laboratory automation solutions to automate key pre- and post-processing steps. This helps reduce potential errors, maximize machine workflow and better manage laboratory productivity and safety.

- Provide uniform hardware and software interfaces
- Collaborate on repetitive tasks, with accurate reliability
- Reduce validation and documentation
- Reduce product variation
- Allow for predictive maintenance and lower inventory of spare parts

Lab workflow optimization through robotics

Increase the reliability of throughput by utilizing robotics.

- Reduce deployment costs with zero facility modifications
- Automating repetitive tasks such as assembly
- Perform complete machine tending
- Utilize autonomous mobile robots to improve workflow

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Pharmaceuticals

Ensure pharmaceuticals are consistently produced according to regulations that state every component must be documented and traceable at any point during manufacturing. Omron has a proven solution that supports the handling of electronic records, validations, audit trails, user management, documentation as well as managing data integrity.

- Validation services
- Detecting and eliminating potential errors at the earliest point possible
- Establishing procedures for regulatory compliant operations
- Predicting Utilize autonomous mobile robots to improve workflow. failures before they occur

Serialization

The ability to trace individual products (item-level) through the supply chain.

- Ensure compliance with global standards including DSCSA
- Connect to ERP/MES and cloud solutions
- Track products from production line to patient

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.

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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.

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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
12 - 24V AC/DC	Screw	Transistor	H5CX-ASD-N DC12-24/AC24
100 - 240 VAC	Screw	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**
12 - 24V AC/DC	Screw	Transistor	6	H7CX-ASD-N DC12-24
100 - 240 VAC	Screw	Relay	6	**H7CX-A-N AC100-240**
100 - 240 VAC	Screw	Transistor	6	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
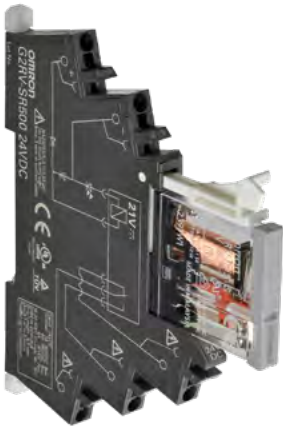
Coil Voltage	Contact Rating	Contact Form	Screw Terminal Model	Push-in Terminal Model	Individual Relay for Replacement
24 VDC			**G2RV-SR700 DC24**	**G2RV-SR500 DC24**	G2RV-1-S- DC21
110 VAC	6 A	SPDT	**G2RV-SR700 AC110**	**G2RV-SR500 AC110**	G2RV-1-S DC48
230VAC			G2RV-SR700 AC230	G2RV-SR500 AC230	

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.

OMRON INTEGRATED | INTELLIGENT | INTERACTIVE

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]	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	K8DS: 17.5 x 80 x 69 [mm]	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.

OMRON   INTEGRATED | INTELLIGENT | INTERACTIVE

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.

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 Helps Life Sciences Company Extract Data from Legacy Controller

Legacy equipment can pose significant challenges for manufacturers. On the one hand, it is equipment that – for the most part – functions well and gives operators the comfort of familiarity. On the other hand, it may be outdated and incapable of integrating with newer technologies. Omron recently helped a company enjoy the best of both worlds by incorporating new edge devices that allowed for better productivity tracking without requiring the legacy controller to be changed in any way.

Omron prides itself on an exceptional ability to take customers' unique needs into account and come up with creative, workable solutions around them. This success story showcases Omron's strategic approach to customizing products and

platforms for a specific situation.

Omron took a long-term approach to what – at first glance – appeared to be a short-term project. Instead of merely looking at the immediate need, Omron laid out an entire communications strategy that started with the individual machine and then travelled through a line level, a room level and ultimately to the global server.

At every step of the way, Omron made sure to fully satisfy the requirement that no changes be made to the hardware or code of the PLC. The goal was to find an affordable way to extract data from the legacy equipment without altering its operating state or changing it in any way.

Business need

A global life sciences company was unable to collect important data from an older PLC that didn't have Ethernet connectivity. This data was essential for process control and OEE tracking.

Unique solution

Since the legacy PLC was an Omron C200HE with an RS232 port, Omron added one of its NX1P controllers as an edge device external to this machine. This made it possible to collect data from the PLC via FINS.

Customer benefits

Omron's solution gave the life sciences company access to much-needed data using its first-ever edge device. The company was also able to move machines around the world without losing track of their location or performance history.

The solution
Sysmac

The need

A global life sciences company known for its broad range of branded generic drugs, medical devices, diagnostic assays and nutrition products found that it was unable to collect much-needed data from an older programmable logic controller (PLC) that lacked Ethernet connectivity. This data was essential for process control and Overall Equipment Effectiveness (OEE) tracking. In addition, senior management had key objectives tied to factory efficiency and required a means of determining baseline productivity levels and tracking improvements.

Although the PLC was more than 15 years old, neither its hardware nor its coding could be changed because it was FDA validated. This posed significant challenges for extracting the necessary data.

The life sciences company desperately needed to access the data in order to streamline production processes, maximize equipment throughput and improve overall quality. It turned to Omron for assistance with gathering the as-yet-inaccessible OEE and process control data from the old PLC.

The technology

Omron determined that its powerful, all-in-one machine automation controller known as the NX1P would be the ideal addition to the Ethernet-incompatible legacy machine. The NX1P is designed to manage advanced motion, networking, I/O and enabling IIoT solutions on the plant floor.

With integrated sequence and motion control, battery-free operation and up to eight axes of control via EtherCAT in a compact casing, the controller served as an excellent entry-level model on which to start building the new data flow network. Omron developed a networking strategy on top of the NX1P using its Sysmac platform with custom-developed Dynamic Host Configuration Protocol (DHCP) capabilities. Sysmac is a robust and fully integrated machine automation platform that uses a single connection and single software. End users can take advantage of its complete machine control capabilities to seamlessly scale up their machinery in accordance with specific application needs.

As it turned out, the older PLC was an Omron C200HE with an RS232 port. By adding the

The outcome

NX1P as an edge device external to this machine, it became possible to collect data via FINS (Factory Interface Network Service) without any modifications to the existing machine or the PLC program.

If the older PLC had not been an Omron unit, an alternate solution would have involved monitoring the I/O or any available communication protocols and turning this information into CIP (Common Industrial Protocol) data that would flow up through the data networkThanks to Omron's creative solution, the life sciences company soon had its first edge device running smoothly and collecting data. In addition, the company gained the ability to move machines around to different parts of the globe while keeping track of their current location and performance history.

Omron's strategy is to always keep the customer's unique needs in mind while thinking in terms of future needs as well. This strategy paid off significantly for the life sciences company, which now has a future-proof means of extracting data from a legacy PLC using a complete yet affordable communications system.

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.

MX-Z2000H-V1 - Laser Marker

- Provides durable, high-resolution marking for advanced traceability (1D & 2D Code Marking)
- Boosts flexibility by marking parts in any orientation (Three axes)
- Marks a wide variety of shapes and curved surfaces
- Performs orientation, marking and verification in a single step

Laser Type	Marking Area	Working Distance	Marking Resolution	Model
1062nm Class 4, 20W	90mm x 90mm	170mm +/- 10mm	2 micron	MX-Z2000H-V1
	160mm x 160mm	220mm +/- 10mm	4 micron	MX-Z2050H-V1
				MX-Z2055H-V1*

* Large Bean Diameter for coarse marking

Accessories

Type	Descriptions	Model
Safety Relay	4 pole, DPST-NO, DPST-NC, EN 50205 Class A	**G7SA-2A2B DC24**
Cable	Controller power supply cable	MX-9301
EE Mode	Energy Enhancement (EE) Mode activation key	MX-9230
Camera Controller	Vision System Controller, Super, Mid Spd CPU, Box 2-Cam	FH-2050
Camera	Hi-Speed Camera 4M pix Color	FH-SC04
Camera Lens	CCTV Lens 16mm	3Z4S-LE SV-1614V
Camera Bracket	Vision Attachment MX-Z2050/55	MX-9151
	Vision Attachment MX-Z2000	MX-9150
Camera Mounting Plate	FH-SC04 Camera Mount for MX-9151	SFP0270

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

OMRON INTEGRATED | INTELLIGENT | INTERACTIVE

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.

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.

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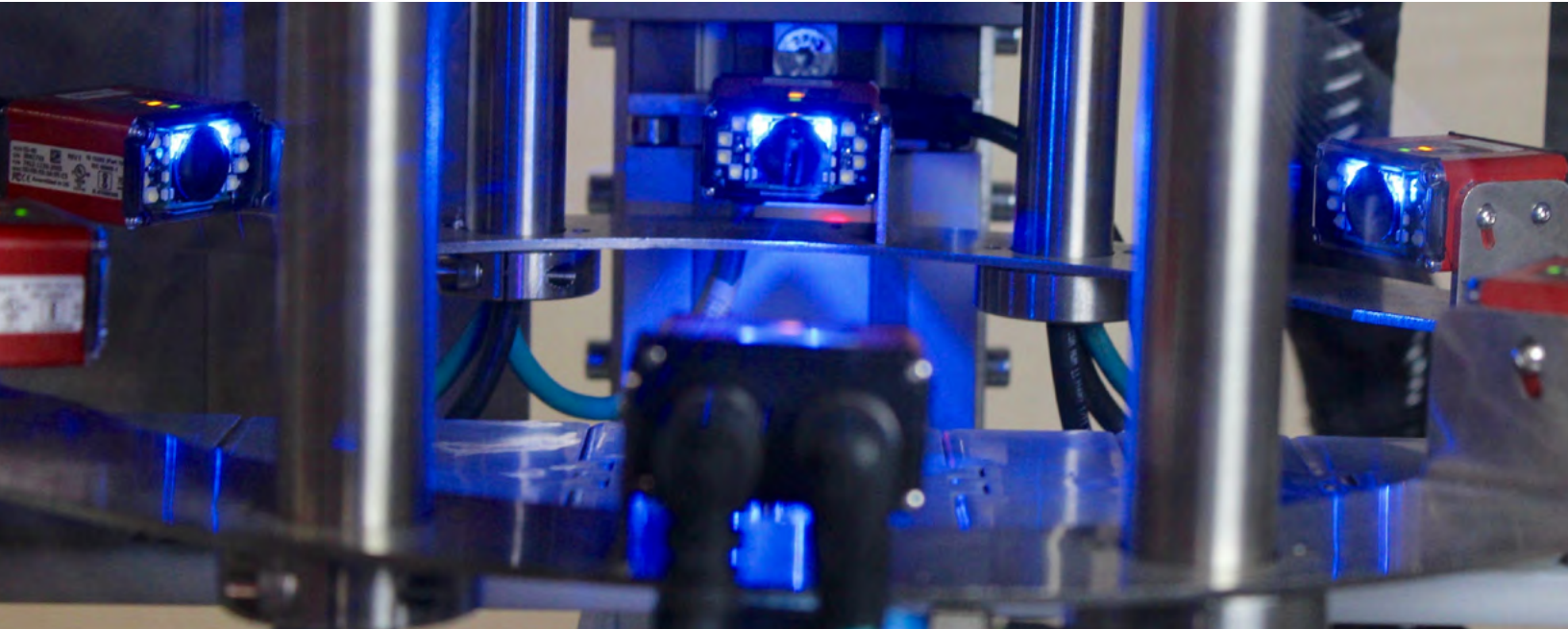
Omron helps packaging equipment manufacturer design a flexible system for reading barcodes on bottle labels using MicroHAWK ID-40/V430

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.

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.

OMRON   INTEGRATED | INTELLIGENT | INTERACTIVE

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.

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.

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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.

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)		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.

OMRON   INTEGRATED | INTELLIGENT | INTERACTIVE

Omron helps medical device contract manufacturer improve labeling speed and accuracy with LVS-7510 printer-integrated system

A multinational medical device contract manufacturer of stents, balloons and catheters needed to be able to easily shift manufacturing lines across its multiple facilities from development to mass production. Each facility was doing the same type of work, and it was necessary to maintain precision and accuracy as demand increased. The customer is opening a new R&D facility that will function as a prototype location for building a "Golden" manufacturing line as well as a space to be used to manage temporary production increases.

The customer reached out to Omron for a solution that would help with speed and consistency in labeling across its many facilities. Label accuracy is imperative in the medical device industry, as any incorrect information can lead to fines, recalls and a reduction in consumer confidence. In order to comply with FDA UDI standards, all medical device manufacturers are required to format their labels in a specific way so that end users can easily identify package contents. This includes a unique device identifier (UDI) that must be issued through an FDA-accredited agency.

Business need

A multinational medical device contract manufacturer needed to improve labeling speed and accuracy as demand increased across its several facilities.

Unique solution

The customer replaced time-consuming manual inspections with the LVS-7510 Series printer-integrated label inspection solution from Omron.

Customer benefits

The customer was able to get the system up and running very quickly, allowing two operators who had previously been working on label inspection to focus on other tasks.

The solution
Printer-integrated label inspection

The need

Prior to investing in a new in-line label inspection system from Omron, the medical device manufacturer had its employees perform inspections manually. Two people would be required to visually inspect each label for accuracy and print quality. This process involved not only the human-readable information on the label, but also the automatic identification portion (essentially, the information contained in the barcode).

The FDA UDI mandate also requires barcodes to be of a certain quality threshold to help ensure that they will be readable throughout the supply chain. Any barcode reader can validate whether a code is readable, but simple validation isn't enough to guarantee a passing grade. It's possible to grade barcodes manually if volumes are small and the inspection team is well trained on the changing standards, but it becomes unmanageable once manufacturing starts being moved between facilities for a larger variety of products that each have unique requirements.

The technology

Omron has worked with the world's leading printer manufacturer to create the LVS-75xx Series printer-integrated label inspection solution, which is the only barcode quality grading system compatible with Zebra thermal printers that complies with ISO 15426 and GS1 standards. With inspection reports for 100% of produced labels, users can be assured that full compliance with regulations is achieved and that no products are shipped with defective labels.

Omron sold the medical device manufacturer an LVS-7510 system with specifications fitting the exact customer need. The system creates templates for each requisite label format that can then be saved in the cloud and accessed across all facilities. This helps transitions from one facility to another flow seamlessly and guarantees that every label produced meets a global standard created by a team of experts in these regulations.

The outcome

Removing inspection-related decisions from floor-level employees has resulted in less mandatory training on individual standards as jobs change. Thanks to the solution's light stack and visual UI that alert operators when direct attention is needed, a single employee can either run multiple systems at once or focus on other operations in the manufacturing line. Omron also provided an IQ/OQ/PQ package to help users get up and running quickly with the system, saving the customer what could have been months of work.

The customer was able to immediately implement the system and begin designing label templates for their other locations. Two operators who had been working on label instruction were able to move their focus to other tasks, and the concern about faulty labels is much diminished. The manufacturer will continue to implement this solution across its multiple facilities as well as other contract manufacturing sites.

OMRON   INTEGRATED | INTELLIGENT | INTERACTIVE

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
	Monochrome	1.2 MP					F320-F102W12M-NNV
	Color	5 MP	Rolling				F320-F102W50C-NNV
F330	Monochrome	0.34 MP	Global				F330-F102W03M-NNV
	Monochrome	1.2 MP					F330-F102W12M-NNV
	Color	5 MP	Rolling				F330-F102W50C-NNV
F420	Monochrome	1.2 MP	Global	Autofocus high speed liquid lens	75 to 1200 mm		F420-F000L12M-SRV
	Color	5 MP	Rolling		50 to 300 mm	AutoVISION Sensor	F420-F000M50C-SWS
	Monochrome	0.34 MP	Global			AutoVISION + Verification + Visionscape	F420-F000W03M-SRV
	Monochrome	1.2 MP					F420-F000W12M-SRV
	Color	5 MP	Rolling				F420-F000W50C-SWV
F430	Monochrome	1.2 MP	Global		75 to 1200 mm		F430-F000L12M-SRV
	Monochrome	1.2 MP			50 to 300 mm		F430-F000M12M-RRV
	Monochrome	1.2 MP				AutoVISION + Verification	F430-F000M12M-SRA
	Monochrome	1.2 MP				AutoVISION + Verification + Visionscape	F430-F000M12M-SRV
	Monochrome	1.2 MP				AutoVISION + Verification	**F430-F000M12M-SWA**
	Monochrome	0.34 MP				AutoVISION + Verification + Visionscape	F430-F000W03M-SRV
	Monochrome	1.2 MP				AutoVISION + Verification + Visionscape	F430-F000W12M-SRV
	Color	5 MP	Rolling			AutoVISION Sensor	F430-F000W50C-SWS
	Color	5 MP				AutoVISION + Verification + Visionscape	F430-F000W50C-SWV

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

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.

OMRON   INTEGRATED | INTELLIGENT | INTERACTIVE

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

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.

OMRON INTEGRATED | INTELLIGENT | INTERACTIVE

M Series GigE Vision Cameras

- Power over Ethernet capable
- High Resolution, High Speed, CMOS Sensors.
- Small Form Factor: 29 x 29mm & 30 x 40mm versions.
- IEEE1588 Certified with GigE Vision 2.1
- Compatible with Omron AutoVISION & VisionScape

Global shutter models

Monochrome/Color	Resolution	Frame Rate	Effective Pixels (H × V)	Sensor Size	Cell Size (µm)	Sensor	Lens Mount	Model
Monochrome	0.4M	282.8 fps	720 × 540	1/2.9	6.9 × 6.9	IMX287	C	STC-MBS43POE
Color								STC-MCS43POE
Monochrome	0.5M	166.5 fps	816 × 624	1/1.7	9 × 9	IMX433	C	STC-MBS52POE
Color								STC-MCS52POE
Monochrome	1.3M	61 fps	1280 × 1024	1/1.8	5.3 × 5.3	EV76C560	C	STC-MBE132POE
Color								STC-MCE132POE
Monochrome	1.6M	70.7 fps	1440 × 1088	1/2.9	3.45 × 3.45	IMX273	C	STC-MBS163POE
Color								STC-MCS163POE
Monochrome	2M	54.6 fps	1624 × 1240	1/1.7	4.5 × 4.5	IMX430	C	STC-MBS202POE
Color								STC-MCS202POE
Monochrome	2.3M	41.6 fps	1920 × 1200	1/1.2	5.86 × 5.86	IMX249	C	STC-MBS231POE
Color								STC-MCS231POE
Monochrome	3.2M	34.9 fps	2048 × 2048	2/3	3.45 × 3.45	IMX265	C	STC-MBS312POE
Color								STC-MCS312POE
Monochrome	5M	21.9 fps	2448 × 2048	2/3	3.45 × 3.45	IMX264	C	STC-MBS500POE
Color								STC-MCS500POE
Monochrome	8.9M	12.4 fps	4096 × 2160	1	3.45 × 3.45	IMX267	C	STC-MBS881POE
Color								STC-MCS881POE
Monochrome	12.3M	8.9 fps	4096 × 3000	1.1	3.45 × 3.45	IMX255	C	STC-MBS122BPOE
Color								STC-MCS122BPOE

Rolling shutter models

Monochrome/Color	Resolution	Frame Rate	Effective Pixels (H × V)	Sensor Size	Cell Size (µm)	Sensor	Lens Mount	Model
Monochrome	5M	14 fps	2592 × 1944	1/2.5	2.2 × 2.2	MT9P031	C	STC-MBA503POE
Color								STC-MCA503POE
Monochrome	6.4M	17.4 fps	3072 × 2048	1/1.8	2.4 × 2.4	IMX178	C	STC-MBS642POE
Color								STC-MCS642POE
Monochrome	10M	10.3 fps	3856 × 2764	1/2.3	1.67 × 1.67	MT9J003	C	STC-MBA1002POE
Monochrome	12M	9.2 fps	4000 × 3000	1/1.7	1.85 × 1.85	IMX226	C	STC-MBS1242POE
Color								STC-MCS1242POE
Monochrome	20.4M	5.5 fps	5472 × 3648	1	2.4 × 2.4	IMX183	C	STC-MBS2041POE
Color								STC-MCS2041POE

Screw-Fastened GigE Cables

Length	Model
3 m	FJ-VSG 3M
5 m	FJ-VSG 5M
10 m	FJ-VSG 10M
20 m	FJ-VSG 20M
40 m	FJ-VSG 40M

Power Supply and I/O Cables

Length	Model
3 m	FJ-VSP2 3M
5 m	FJ-VSP2 5M
10 m	FJ-VSP2 10M

Note. Please connect the cables according to the external connector specifications prescribed in your camera's specification documents, for faulty wiring can cause failure.

FS Series GigE Vision Line Scan Cameras

- Power over Ethernet capable
- Compact case designed for easy mounting
- Offered in 2K, 4K, or 8K
- Available in Single & Dual Line Monochrome and Dual Line Color Models.
- Action Command Triggering: Trigger multiple cameras simultaneously with one command.

Monochrome/Color	Resolution	Line Rate	Pixel size	Sensor	Sensor Type	Lens Mount	Model
Monochrome	2048 × 1	51 kHz	7 μm	DR-2K-7	Single	C	FS-B2KU7GES-C
						F	FS-B2KU7GES-F
						M42	FS-B2KU7GES-M42
Monochrome	4096 × 1	26 kHz	7 μm	DR-4K-7	Single	F	FS-B4KU7GES-F
						M42	FS-B4KU7GES-M42
Monochrome	4096 × 1	26 kHz	3.5 μm	DR-4K-3.5	Single	C	FS-B4KU35GES-C
						F	FS-B4KU35GES-F
						M42	FS-B4KU35GES-M42
Monochrome	8192 × 1	13 kHz	3.5 μm	DR-8K-3.5	Single	F	FS-B8KU35GES-F
						M42	FS-B8KU35GES-M42
Monochrome	2048x1	26kHz	7 μm	DR-2X2K-7-inver	Dual	C	FS-B2KU7DGES-C
						F	FS-B2KU7DGES-F
						M42	FS-B2KU7DGES-M42
Monochrome	4096x2	13kHz	7 μm	DR-2X4K-7-inver	Dual	F	FS-B4KU7DGES-F
						M42	FS-B4KU7DGES-M42
Color	2048x1	26kHz	7 μm	DR-2X2K-7-inver-RGB	Dual	C	FS-C2KU7DGES-C
						F	FS-C2KU7DGES-F
						M42	FS-C2KU7DGES-M42
Color	4096x2	13kHz	7 μm	DR-2X4K-7-inver-RGB	Dual	F	FS-C4KU7DGES-F
						M42	FS-C4KU7DGES-M42

Screw-Fastened GigE Cables

Length	Model
3 m	FJ-VSG 3M
5 m	FJ-VSG 5M
10 m	FJ-VSG 10M
20 m	FJ-VSG 20M
40 m	FJ-VSG 40M

Power Supply and I/O Cables

Length	Model
3 m	FJ-VSP2 3M
5 m	FJ-VSP2 5M
10 m	FJ-VSP2 10M

Note. Please connect the cables according to the external connector specifications prescribed in your camera's specification documents, for faulty wiring can cause failure.

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M Series USB3 Vision Cameras

- USB3.0 Compact CMOS Camera
- Offered in resolutions ranging from 0.4M to 20.4M
- Plug and Play functionality
- Compatible with Omron AutoVISION & VisionScape.

Global shutter models

Monochrome/Color	Resolution	Frame Rate	Effective Pixels (H × V)	Sensor Size	Cell Size (µm)	Sensor	Lens Mount	Model
Monochrome	0.4M	527.1 fps	720 × 540	1/2.9	6.9 × 6.9	IMX287	C	STC-MBS43U3V
Color								STC-MCS43U3V
Monochrome	1.3M	60 fps	1280 × 1024	1/1.8	5.3 × 5.3	EV76C560	CS	STC-MBE132U3V
Color								STC-MCE132U3V
Monochrome	1.6M	238 fps	1440 × 1080	1/2.9	3.45 × 3.45	IMX273	C	STC-MBS163U3V
Color								STC-MCS163U3V
Monochrome	2M	167 fps	2048 × 1088	2/3	5.5 × 5.5	CMV2000	C	STC-MBCM200U3V
Monochrome NIR								STC-MBCM200U3V-NIR
Monochrome	2.3M	41.6 fps	1920 × 1200	1/1.2	5.86 × 5.86	IMX249	C	STC-MBS231U3V
Color								STC-MCS231U3V
Monochrome	2.3M	163 fps	1920 × 1200	1/1.2	5.86 × 5.86	IMX174	C	STC-MBS241U3V
Color								STC-MCS241U3V
Monochrome	3.2M	56 fps	2048 × 1536	1/1.8	3.45 × 3.45	IMX265	C	STC-MBS312U3V
Color								STC-MCS312U3V
Monochrome	3.2M	121 fps	2048 × 1536	1/1.8	3.45 × 3.45	IMX252	C	STC-MBS322U3V
Color								STC-MCS322U3V
Monochrome	4M	89 fps	2048 × 2048	1	5.5 × 5.5	CMV4000	C	STC-MBCM401U3V
Color								STC-MCCM401U3V
Monochrome NIR								STC-MBCM401U3V-NIR
Monochrome	5M	35.8 fps	2448 × 2048	2/3	3.45 × 3.45	IMX264	C	STC-MBS500U3V
Color								STC-MCS500U3V
Monochrome	5M	75.7 fps	2448 × 2048	2/3	3.45 × 3.45	IMX250	C	STC-MBS510U3V
Color								STC-MCS510U3V
Monochrome	7.1M	51.2 fps	3216 × 2208	1.1	4.5 × 4.5	IMX428	C	STC-MBS70BU3V
Color								STC-MCS70BU3V
Monochrome	8.9M	32.5 fps	4096 × 2160	1	3.45 × 3.45	IMX267	C	STC-MBS881U3V
Color								STC-MCS881U3V
Monochrome	8.9M	41.9 fps	4096 × 2160	1	3.45 × 3.45	IMX255	C	STC-MBS891U3V
Color								STC-MCS891U3V
Monochrome	12.3M	23.5 fps	4096 × 3000	1.1	3.45 × 3.45	IMX304	C	STC-MBS122BU3V
Color								STC-MCS122BU3V
Monochrome	12.3M	30.4 fps	4096 × 3000	1.1	3.45 × 3.45	IMX253	C	STC-MBS123BU3V
Color								STC-MCS123BU3V

Note. We recommend that you use an external power supply for 8.9M and 12M cameras, for depending on PC performance, power supplied via USB bus connection alone may not be sufficient for these cameras.

Note. Models with "-SE" have been additionally equipped with the Short Exposure Mode feature.

Rolling shutter models

Monochrome/Color	Resolution	Frame Rate	Effective Pixels (H × V)	Sensor Size	Cell Size (µm)	Sensor	Lens Mount	Model
Monochrome	12M	31.2 fps	4000 × 3000	1/1.7	1.85 × 1.85	IMX226	C	STC-MBS1242U3V
Color								STC-MCS1242U3V
Monochrome	20.4M	18.5 fps	5472 × 3648	1	2.4 × 2.4	IMX183	C	STC-MBS2041U3V
Color								STC-MCS2041U3V

Non-USB3 Vision Compliant Models (with Rolling Shutters)

Monochrome/Color	Resolution	Frame Rate	Effective Pixels (H × V)	Sensor Size	Cell Size (µm)	Sensor	Lens Mount	Model
Monochrome	5M	14 fps	2592 × 1944	1/2.5	2.2 × 2.2	MT9P031	CS	STC-MBA5MUSB3
Color								STC-MCA5MUSB3

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

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.

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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.

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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.

OMRON INTEGRATED | INTELLIGENT | INTERACTIVE

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

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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.

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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.
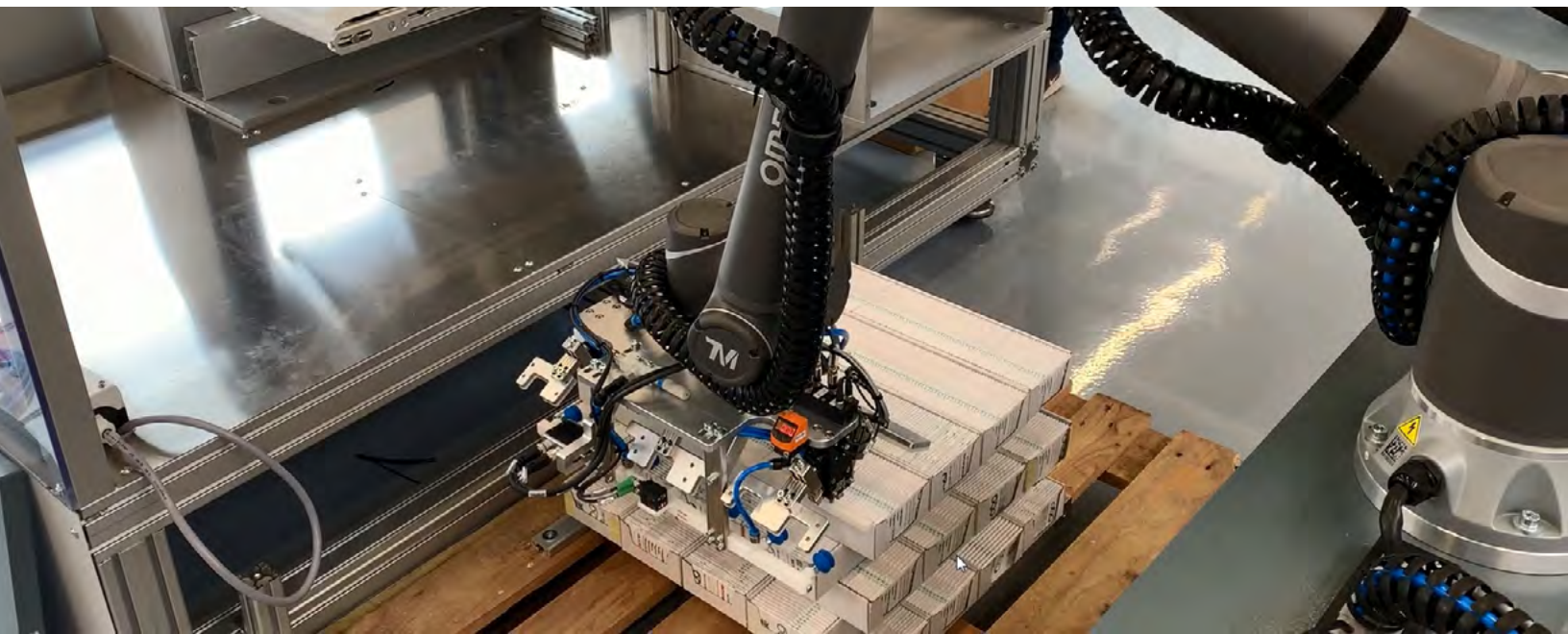
Omron TM12 cobot automates booklet feeding for Kraus Maschinenbau

Cobots streamline processes in medtech and packaging industry

The productivity and efficiency of packaging processes at Kraus Maschinenbau GmbH have been transformed by its close working relationship with Omron. The two companies are already exhibiting the high degree of collaboration that will be essential for workflows in the factory of the future.

As manufacturers progress towards Industry 4.0 (and Packaging 4.0), closer interactions will be needed between both development and technology partners and also between man and machine in the factory. This is why Kraus Maschinenbau has joined forces with Omron to develop an innovative collaborative robot

(cobot) project for its packaging environment. A key element of this involves the Omron TM12 cobot, which is used to optimise the automatic feeding of booklets into pharmaceutical packages. The booklets are multi-page, quite extensive inserts that are added to packages for items such as insulin syringes or other medicines.

In the new solution, the booklets are stacked on approximately one-metre long rods (known as traces), and are taken over by the cobot and fed into the system. The Omron TM12 cobot was chosen as the most suitable solution as it has been shown to reduce the need for manual labour, whilst increasing efficiency and minimising any errors.

"Carton machines have become faster and faster in recent years, and this development will continue. There are now systems that can produce up to 500 packages a minute. At the same time, the booklets for some high-priced medical devices are getting thicker. Feeding them into the packages at a speed of three metres per minute can no longer be done manually and with a simple product magazine. That's why we've developed a system with Omron that significantly speeds up packaging processes in the pharmaceutical sector."

Joachim Kraus

Managing Director of Kraus Maschinenbau GmbH

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The solution
Cobot boosts productivity

The need

Interact Analysis predicts that the cobot market will reach around US$5.6 billion by 2027, due to the ongoing development of new applications – as well as the impact of the coronavirus crisis. The TM12 illustrates the powerful potential of cobots: it's a state-of-the-art robot that was specifically designed to enhance the collaboration between people and machines. It can be easily transported and has an integrated image processing system, which enables fast start-ups and product changes. Due to its intuitive software, the cobot can learn almost any task. This enables it to take over recurring tasks, freeing employees for other work and helping to boost productivity.

The technology

Marc Schönenberger, Field Sales Engineer Automation and Drives at Omron, comments: "Thanks to our cobot's fully integrated image processing capability, it can implement even complex and changing tasks, such as the palletising of changing products. This means that an existing production system that was previously designed for manual filling can be seamlessly expanded to include full automation without needing any significant adjustments."

The camera of the Omron TM12, paired with modern lighting technology, enables objects to be detected in a wide field of view and ensures error-free detection under almost all conditions. The image processing system increases the reliability, consistency and precision of pick-and-place processes such as booklet feeding in the medtech environment. It also offers functions such as pattern recognition, barcode detection and colour recognition, which are essential for many inspection, measurement and sorting applications. The risk assessment in accordance with EN ISO 12100 helps to meet the requirements of the Machinery Directive 2006/42 / EC.

The outcome

The cobot project developed by Kraus Maschinenbau and Omron is expected to be presented at Achema 2021. Some companies have already expressed a great interest in the solution. Joachim Kraus praises the collaboration: "At Omron, I get the entire portfolio from a single source – including motion controllers, PLCs, touch screens, drives, sensors, cameras, robots and cobots and servo axes, as well as advice and much more. At the same time, we benefit from having a reliable partner at our side to help us to solve many problems. The technical competence and chemistry between us are very important for development projects in an industrial environment."

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.

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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

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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

$$1720\square-3\square0\square0$$
$$\quad(1)\quad(2)\quad(3)$$

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.

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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
Connections — Pneumatic	-	-	1	1
Connections — 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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