OMRON
AUTOMATION & SAFETY

2014-2015

Industrial Components

Solution Selection Guide

Sensing

Control Components

Switching Components

Safety

BETTER MACHINES

OMRON Automation and Safety is a leading global supplier of automation systems serving industrial customers. Our comprehensive product lines and application expertise are delivered via a well-trained distribution channel. They work with you to solve demanding automation challenges and apply the advanced technology built into Omron products.

Our customers benefit from Omron's long standing legacy of sensing and control technologies that help deliver more capable and profitable machines in less time. We strive to be your trusted partner in automation. Leverage our industry expertise and powerful yet simple solutions in your next project.

"We help customers build superior automated machines that are easy to use, install and integrate."

Omron Facts

- 80 years in the automation and controls business, founded in 1933
- $6.5 billion sales (USD, April 2013)
- 40% of our sales come from industrial automation. Electronic components, social systems, automotive electronics and healthcare make up the balance
- 35,411 employees worldwide

Primary Industries Served

- Automotive
- Food/Beverage
- Semiconductor
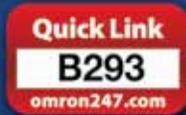- Electronics and Small Parts Assembly
- Pharmaceutical/Cosmetics

Automation Expertise

- Packaging & Material Handling
- Measurement & Gauging
- Inspection
- Track & Trace
- Quality Improvement

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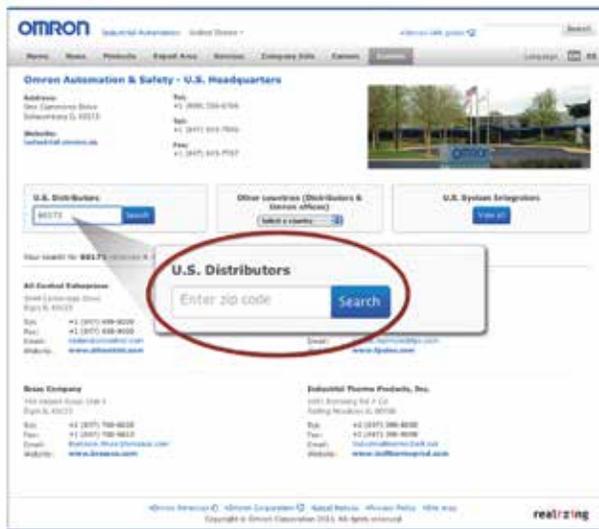
SpeedSPEC
F3SJB
sti.com

Quick Links and SpeedSPECs are unique codes assigned to Omron products listed in this guide. Enter these codes in the Search box on **Omron247.com** or **sti.com** to access detailed information on products in this guide:

Datasheets, brochures, manuals

CAD, EDS and ESI files

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Contents

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i

The widest range of expertly engineered automation products

Omron products are specifically designed for simple programming, operation and maintenance, as well as long service life so machine builders and end users benefit from a lower cost of ownership over a machine's life cycle.

Sensing

A Photoelectric Sensors

E Photomicrosensors

B Fiber-optic Sensors

F Limit Switches

C Proximity Sensors

G Measurement Sensors

D Cordsets

H Rotary Encoders

For complete specifications and additional models and accessories visit www.omron247.com

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Control Components

I Temperature Controllers

J Power Supplies

K Timers and Counters

L Digital Panel Meters

M Monitoring Products

Switching Components

N Electromechanical and Solid State Relays

O Pushbuttons, Indicators, and Key Switches

Safety

P Light Curtains

Q Safety Mats, Edges and Bumpers

R Interlock Switches

S Monitoring Relays

T E-Stops and Rope Pull Switches

Wide selection to meet your needs

We offer easy to use automation components for any application. Whether you require a 'standard' solution or 'advanced' functionality for extreme operating conditions. Here are some examples:

Photoelectric Sensors

E3FA Series

High power red LED for easy sensor alignment and dependable outputs in harsh environments.

E3ZM Series

Detergent-resistant sensor in 316L stainless steel body eliminates corrosion.

Fiber-Optic Sensors

E3X-HD Series

Easy setup. Stable detection with built-in light compensation to combat debris buildup or misalignment.

E3NX-FA Series

Best for challenging applications with long sensing distances, minute object detection or high speed targets.

Temperature Controllers

E5CC Series

Highly visible display and fast response to process upsets; short mounting depth.

E5CN-HT Series

Ramp/soak controller offers 8 patterns with up to 32 steps, and high-resolution 5-digit display.

Power Supplies

S8VK-G Series

15 to 480 W models available with wide operating temp range and vibration resistant DIN mounting.

S8VS Series

60 to 480 W models available with Smart Display to simplify troubleshooting of DC supply problems.

For complete specifications and additional models and accessories visit www.omron247.com

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SUPPORT FROM YOUR FIRST IDEA TO YOUR FINAL MACHINE

Let Omron introduce you to talented systems integrators, custom machine designers, field application engineers and technical support providers to help you design or retrofit your machine for greater productivity. When it is ready to deliver, we can assist with installation and commissioning. We are here to help you every step of the way.

Area Technical Support Services

U.S.: 800-556-6766
Canada: 886-986-6766
Mexico: 01-800-226-6766

Our Technical Services group provides technical support, application assistance and product selection assistance. Troubleshooting support is free to our customers during normal business hours: from 8:00 AM to 8:00 PM EST.

Application Engineering Services

U.S.: 800-556-6766
**Canada: 886-986-6766**
Mexico: 01-800-226-6766

Our knowledgeable staff can provide advanced support and engineering services at regular hourly rates. Some examples of advanced technical support services include:

- Code examples, application review, and troubleshooting
- Software installation and configuration
- Network configuration assistance
- Program conversion services

After-Hours Technical Support

U.S. and Canada: 800-367-4584

After hours service is available for basic technical support for Omron products. A product support specialist will answer your call within 30 minutes to assist you. Contact Omron toll- free to schedule an onsite emergency service call.
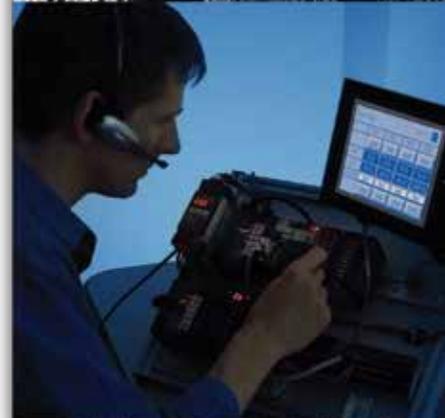
Terms and Conditions of Sale

1. Offer; Acceptance. These terms and conditions (these "Terms") are deemed part of all quotes, agreements, purchase orders, acknowledgments, price lists, catalogs, manuals, brochures and other documents, whether electronic or in writing, relating to the sale of products or services (collectively, the "Products") by Omron Electronics LLC and its subsidiary companies ("Omron"). Omron objects to any terms or conditions proposed in Buyer's purchase order or other documents which are inconsistent with, or in addition to, these Terms.

2. Prices; Payment Terms. All prices stated are current, subject to change without notice by Omron. Omron reserves the right to increase or decrease prices on any unshipped portions of outstanding orders. Payments for Products are due net 30 days unless otherwise stated in the invoice.

3. Discounts. Cash discounts, if any, will apply only on the net amount of invoices sent to Buyer after deducting transportation charges, taxes and duties, and will be allowed only if (i) the invoice is paid according to Omron's payment terms and (ii) Buyer has no past due amounts.

4. Interest. Omron, at its option, may charge Buyer 1-1/2% interest per month or the maximum legal rate, whichever is less, on any balance not paid within the stated terms.

5. Orders. Omron will accept no order less than $200 net billing.

6. Governmental Approvals. Buyer shall be responsible for, and shall bear all costs involved in, obtaining any government approvals required for the importation or sale of the Products.

7. Taxes. All taxes, duties and other governmental charges (other than general real property and income taxes), including any interest or penalties thereon, imposed directly or indirectly on Omron or required to be collected directly or indirectly by Omron for the manufacture, production, sale, delivery, importation, consumption or use of the Products sold hereunder (including customs duties and sales, excise, use, turnover and license taxes) shall be charged to and remitted by Buyer to Omron.

8. Financial. If the financial position of Buyer at any time becomes unsatisfactory to Omron, Omron reserves the right to stop shipments or require satisfactory security or payment in advance. If Buyer fails to make payment or otherwise comply with these Terms or any related agreement, Omron may (without liability and in addition to other remedies) cancel any unshipped portion of Products sold hereunder and stop any Products in transit until Buyer pays all amounts, including amounts payable hereunder, whether or not then due, which are owing to it by Buyer. Buyer shall in any event remain liable for all unpaid accounts.

9. Cancellation; Etc. Orders are not subject to rescheduling or cancellation unless Buyer indemnifies Omron against all related costs or expenses.

10. Force Majeure. Omron shall not be liable for any delay or failure in delivery resulting from causes beyond its control, including earthquakes, fires, floods, strikes or other labor disputes, shortage of labor or materials, accidents to machinery, acts of sabotage, riots, delay in or lack of transportation or the requirements of any government authority.

11. Shipping; Delivery. Unless otherwise expressly agreed in writing by Omron:
a. Shipments shall be by a carrier selected by Omron; Omron will not drop ship except in "break down" situations.
b. Such carrier shall act as the agent of Buyer and delivery to such carrier shall constitute delivery to Buyer;
c. All sales and shipments of Products shall be FOB shipping point (unless otherwise stated in writing by Omron), at which point title and risk of loss shall pass from Omron to Buyer; provided that Omron shall retain a security interest in the Products until the full purchase price is paid;
d. Delivery and shipping dates are estimates only; and
e. Omron will package Products as it deems proper for protection against normal handling and extra charges apply to special conditions.

12. Claims. Any claim by Buyer against Omron for shortage or damage to the Products occurring before delivery to the carrier must be presented in writing to Omron within 30 days of receipt of shipment and include the original transportation bill signed by the carrier noting that the carrier received the Products from Omron in the condition claimed.

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15. Indemnities. Buyer shall indemnify and hold harmless Omron Companies and their employees from and against all liabilities, losses, claims, costs and expenses (including attorney's fees and expenses) related to any claim, investigation, litigation or proceeding (whether or not Omron is a party) which arises or is alleged to arise from Buyer's acts or omissions under these Terms or in any way with respect to the Products. Without limiting the foregoing, Buyer (at its own expense) shall indemnify and hold harmless Omron and defend or settle any action brought against such Companies to the extent based on a claim that any Product made to Buyer specifications infringed intellectual property rights of another party.

16. Property; Confidentiality. Any intellectual property in the Products is the exclusive property of Omron Companies and Buyer shall not attempt to duplicate it in any way without the written permission of Omron. Notwithstanding any charges to Buyer for engineering or tooling, all engineering and tooling shall remain the exclusive property of Omron. All information and materials supplied by Omron to Buyer relating to the Products are confidential and proprietary, and Buyer shall limit distribution thereof to its trusted employees and strictly prevent disclosure to any third party.

17. Export Controls. Buyer shall comply with all applicable laws, regulations and licenses regarding (i) export of products or information; (ii) sale of products to "forbidden" or other proscribed persons; and (iii) disclosure to non-citizens of regulated technology or information.

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2. Programmable Products. Omron Companies shall not be responsible for the user's programming of a programmable Product, or any consequence thereof.

3. Performance Data. Data presented in Omron Company websites, catalogs and other materials is provided as a guide for the user in determining suitability and does not constitute a warranty. It may represent the result of Omron's test conditions, and the user must correlate it to actual application requirements. Actual performance is subject to the Omron's Warranty and Limitations of Liability.

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Photoelectric Sensors

Contents

FOR MACHINES THAT NEVER STOP

Omron Automation and Safety's photoelectric sensor range is designed and tested to achieve the maximum levels of reliability and detection performance. Leveraging the latest technology, our sensors ensure your machines never stop.

Through-beam

60 m
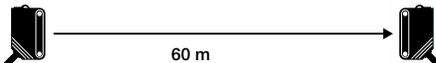
Retroreflective with MSR (Mirror Surface Rejection)

15 m
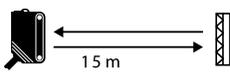
MSR (Mirror Surface Rejection) is a function of Retroreflective Photoelectric Sensors to receive only the light reflected from the Retroreflector by using the characteristics of the polarizing filter built into the Sensor and the characteristics of the Retroreflector.

Diffuse-reflective

1 m
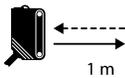
Distance-settable with background suppression

200 mm
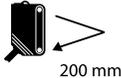
Compact square plastic housing

E3Z
IP67 IP69k   • Highest water resistance
• Highest electromagnetic noise immunity (e.g. from inverters)
• Pulse synchronization for reliable ambient light immunity

Special Applications						
Precision positioning and detection	**Detergent resistant**	**Oil resistant, metal housing**	**Oil resistant, plastic housing**	**Print mark detection**	**Transparent material detection**	**Transparent bottle detection**
E3Z Laser	E3ZM	E3ZM-C, E3S-C	E3Z	E3ZM-V	E3ZM-B	E3Z-B
Small visible light spot	Detergent resistant stainless steel housing	Oil resistance in stainless steel housing (E3ZM-C) or long distance detection (E3S-C)	Oil resistant in plastic housing	Autoteach button and 50 µs response time	General transparent materials or PET optimized models	Transparent bottle optimized optical system

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Miniature housing:	E3T	E3T Cylindrical
Cylindrical M18 housing:	E3FA/E3RA	E3FB/E3RB
Longer distance:	E3G	E3Z-Laser

Special Applications

Fork sensor	Narrow beam sensor	Distance settable sensor	Multi-voltage power supply	High performance, small sensor	Long range sensor	UV power monitor
E3Z-G	E3Z-L	E3Z-LS	E3JK, E3JM, E3G-M	E3S-A	E3K	F3UV
Slot width 25 mm for Registration Mark and Edge Control	Detects 0.1 mm diameter objects	Background/ foreground suppression sensor (BGS/FGS)	AC/DC power supply and relay output	Timer, alarm, turbo aiming models	Material handling, door control and heavy duty switching applications	Monitor ultraviolet light (UV) intensity or wavelength

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Selection Table

Model	E3FA/E3RA	E3FB/E3RB	E3Z	E3Z-LASER
Product type	Cylindrical plastic	Cylindrical brass	General purpose	Laser
Sensor type	• Through-beam • Retro-reflective • Diffuse • Background suppression • Limited distance • Transparent detection	• Through-beam • Retro-reflective • Diffuse • Background suppression • Limited distance • Transparent detection	• Through-beam • Retro-reflective • Diffuse • Distance-settable (BGS)	• Through-beam • Retro-reflective • Distance-settable (BGS)
Maximum sensing distances	• Through-beam: 20 m • Retro-reflective: 4 m • Diffuse: 1 m • Background suppression: 200 mm • Limited distance: 50 mm • Transparent detection: 2 m	• Through-beam: 20 m • Retro-reflective: 4 m • Diffuse: 1 m • Background suppression: 200 mm • Limited distance: 50 mm • Transparent detection: 2 m	• Through-beam: 30 m • Retro-reflective: 4 m • Diffuse: 1 m • Distance-settable: 200 mm	• Through-beam: 60 m • Retro-reflective: 15 m • Distance-settable: 300 mm
Supply voltage	10-30 VDC	10-30 VDC	12-24 VDC	12-24 VDC
Output type	Light-on/Dark-on Selectable	Light-on/Dark-on Selectable	Light-on/Dark-on	Light-on/Dark-on
Output state	NPN or PNP	NPN or PNP	NPN or PNP	NPN or PNP
Connections	Pre-wired, Connector	Pre-wired, Connector	Pre-wired, Connector	Pre-wired, Connector
IP rating	IP67, IP69K	IP67, IP69K	IP67	IP67

Model	E3Z-L	E3Z-LS	E3Z-G	E3ZM
Product type	Narrow beam	Distance-settable	Grooved head	Stainless steel housing; Wash down rated
Sensor type	• Diffuse Reflective	• Distance-settable	• Fixed distance through-beam	• Through-beam • Retro-reflective • Diffuse • Background suppression
Maximum sensing distances	• Diffuse reflective: 90 mm	• Distance-settable: 200 mm	• 25 mm	• Through-beam: 15 m • Retro-reflective: 4 m • Diffuse: 1 m • Background suppression: 200 mm
Supply voltage	12-24 VDC	12-24 VDC	12-24 VDC	10-30 VDC
Output type	Light-on/Dark-on	Light-on/Dark-on	Light-on/Dark-on	Light-on/Dark-on
Output state	NPN or PNP	NPN or PNP	NPN or PNP	NPN or PNP
Connections	Pre-wired, Connector	Pre-wired, Connector	Pre-wired, Connector	Pre-wired, Connector
IP rating	IP67	IP67	IP64	IP67, IP69K

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Model	E3ZM-C	E3ZM-V	E3ZM-B	E3Z-B
Product type	Oil resistant	Print mark detection	PET bottle detection; stainless steel housing	PET bottle detection; plastic housing
Sensor type	• Through-beam • Retro-reflective • Diffuse • Background suppression	• Diffuse reflective mark sensor	• Retro-reflective	• Retro-reflective
Maximum sensing distances	• Through-beam: 15 m • Retro-reflective: 4 m • Diffuse: 1 m • Background suppression: 200 mm	• Diffuse: 12 mm	• Retro-reflective: 500 mm	• Retro-reflective: 2 m
Supply voltage	10-30 VDC	10-30 VDC	10-30 VDC	10-30 VDC
Output type	Light-on/Dark-on	Light-on/Dark-on	Light-on/Dark-on	Light-on/Dark-on
Output state	NPN or PNP	NPN or PNP	NPN or PNP	NPN or PNP
Connections	Pre-wired, Connector	Pre-wired, Connector	Pre-wired, Connector	Pre-wired, Connector
IP rating	IP67, IP69K	IP67, IP69K	IP67, IP69K	IP67

Model	E3S-CL	E3G	E3JK	E3JM
Product type	Distance-settable	Long distance	All voltage	All voltage
Sensor type	• Distance-settable	• Retro-reflective • Distance-settable	• Through-beam • Retro-reflective • Diffuse	• Through-beam • Retro-reflective • Diffuse
Maximum sensing distances	• 500 mm	• Retro-reflective: 10 m • Distance-settable: 2 m	• Through-beam: 5 m • Retro-reflective: 4 m • Diffuse: 300 mm	• Through-beam: 10 m • Retro-reflective: 4 m • Diffuse: 700 mm
Supply voltage	10-30 VDC	12-240 VDC 24-240 VAC	12-240 VDC 24-240 VAC	12-240 VDC 24-240 VAC
Output type	Light-on/Dark-on	Light-on/Dark-on	Light-on/Dark-on	Light-on/Dark-on
Output state	NPN or PNP	NPN or PNP; Relay output	NPN or PNP	Relay or SSR
Connections	Pre-wired	Pre-wired	Pre-wired	Pre-wired, Terminal block
IP rating	IP67	IP67 (with protective cover)	IP64	IP64

Selection Table

Model	E3T	E3S-A	E3K	F3UV	E3Z-K
Product type	Miniature	Built-in amplifier	Long distance	Ultraviolet intensity detection	Oil resistant
Sensor type	• Through-beam • Retro-reflective • Diffuse • Convergent reflective • Background suppression	• Through-beam • Retro-reflective • Diffuse	• Retro-reflective • Diffuse	• UV intensity	• Through-beam • Retro-reflective • Diffuse
Maximum sensing distances	• Through-beam: 2 m • Retro-reflective: 200 mm • Diffuse: 30 mm • Convergent reflective: 30 mm • Background suppression: 30 mm	• Through-beam: 7 m • Retro-reflective: 2 m • Diffuse: 700 mm	• Retro-reflective: 10 m • Diffuse: 2 m	• N/A	• Through-beam: 15 m • Retro-reflective: 4 m • Diffuse: 1 m
Supply voltage	12-24 VDC	10-30 VDC	24-240 VDC 42-240 VAC	12-24 VDC	12-24 VDC
Output type	Light-on/Dark-on	Light-on/Dark-on	Light-on/Dark-on	Analog	Light-on/Dark-on
Output state	NPN or PNP	NPN or PNP	Relay	NPN or PNP	NPN or PNP
Connections	Pre-wired	Pre-wired, Connector	Plated steel screw terminals	Pre-wired	Pre-wired, Connector
IP rating	IP65, IP67	IP67	IP67	IP30	IP67

Model	E3S-C	F3ET2	F3EM2	E3NC	E3C-LDA
Product type	Long distance metal body detector	Discrete output light grid	Analog output light grid	Laser	Laser beam sensor with separate amplifier
Sensor type	• Through-beam • Retro-reflective • Diffuse	• Through-beam	• Through-beam	• E3NC-L variable spot • E3NC-S CMOS	• Diffuse • Retro-reflective
Maximum sensing distances	• Through-beam: 30 m • Retro-reflective: 3 m • Diffuse: 2 m	• Through-beam: 3 m or 15 m	• Through-beam: 3 m or 15 m	• E3NC-L: 1200 mm • E3NC-S: 250 mm	• Diffuse: 1 m • Retro-reflective: 7 m
Supply voltage	10-30 VDC	24 VDC	24 VDC	10-30 VDC	12-24 VDC
Output type	Light-on/Dark-on	Light-on/Dark-on Selectable	Light-on/Dark-on Selectable	NPN or PNP	Light-on/Dark-on Selectable
Output state	NPN or PNP	NPN or PNP Selectable	0-10 VDC		NPN or PNP, 1-5 VDC
Connections	Pre-wired, Connector	M12 5-pin	M12 5-pin	Pre-wired, connector	Pre-wired, connector
IP rating	IP67	IP65	IP65	IP65	IP40 head; IP50 amp

For complete specifications and additional models and accessories visit www.omron247.com

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E3FA/E3RA Photoelectric Sensors

New All-Application Sensors in Plastic M18 Housing

The E3FA/E3RA family provides a wide range of high quality sensors, with models designed for standard or special applications.

- Compact size with flush mounting option
- IP67, IP69K for wash down resistance
- Straight or Radial models in cylindrical M18 plastic housing
- Background suppression, Limited Distance and Transparent detection models

Sensor Type

Setup	Sensor type		Sensing distance	PNP		NPN	
				Pre-wired (2 m)	M12 connector	Pre-wired (2 m)	M12 connector
Straight		Through-beam *1	20 m	E3FA-TP11 2M	E3FA-TP21	E3FA-TN11 2M	E3FA-TN21
		Retro-reflective *2	0.1 to 4 m*	E3FA-RP11 2M	E3FA-RP21	E3FA-RN11 2M	E3FA-RN21
		Retro-reflective (coaxial) *2	0 to 500 mm*	E3FA-RP12 2M	E3FA-RP22	E3FA-RN12 2M	E3FA-RN22
		Diffuse-reflective	100 mm	E3FA-DP11 2M	E3FA-DP21	E3FA-DN11 2M	E3FA-DN21
			300 mm	E3FA-DP12 2M	E3FA-DP22	E3FA-DN12 2M	E3FA-DN22
			1 m	E3FA-DP13 2M	E3FA-DP23	E3FA-DN13 2M	E3FA-DN23
		BGS (Background suppression)	100 mm	E3FA-LP11 2M	E3FA-LP21	E3FA-LN11 2M	E3FA-LN21
			200 mm	E3FA-LP12 2M	E3FA-LP22	E3FA-LN12 2M	E3FA-LN22
		Limited distance reflective	10 to 50 mm	E3FA-VP11 2M	E3FA-VP21	E3FA-VN11 2M	E3FA-VN21
		Transparent detection *2	100 to 500 mm**	E3FA-BP11 2M	E3FA-BP21	E3FA-BN11 2M	E3FA-BN21
			0.1 to 2 m**	E3FA-BP12 2M	E3FA-BP22	E3FA-BN12 2M	E3FA-BN22
Radial		Through-beam *1	15 m	E3RA-TP11 2M	E3RA-TP21	E3RA-TN11 2M	E3RA-TN21
		Retro-reflective *2	0.1 to 3 m*	E3RA-RP11 2M	E3RA-RP21	E3RA-RN11 2M	E3RA-RN21
		Diffuse-reflective	100 mm	E3RA-DP11 2M	E3RA-DP21	E3RA-DN11 2M	E3RA-DN21
			300 mm	E3RA-DP12 2M	E3RA-DP22	E3RA-DN12 2M	E3RA-DN22
			700 mm	E3RA-DP13 2M	E3RA-DP23	E3RA-DN13 2M	E3RA-DN23
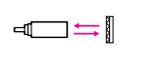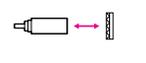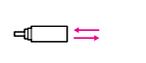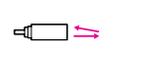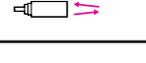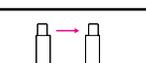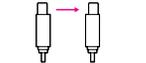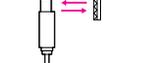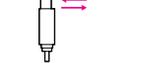
*Measured with reflector E39-R1S. **Measured with reflector E39-RP1
*1 The set type includes the emitter and receiver. *2 The reflector is sold separately.
Note: All sensors are 10-30 VDC. Light-On/Dark-On selectable by wiring.

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New All-Application Sensors in Brass M18 Housing

The E3FB/E3RN family provides a wide range of high quality sensors, with models designed for standard or special applications.

- Compact size with flush mounting option

- IP67, IP69K for wash down resistance

- Straight or Radial models in cylindrical M18 brass housing

- Background suppression, Limited Distance and Transparent detection models

Sensor Type

Setup	Sensor type		Sensing distance	PNP		NPN	
				Pre-wired (2 m)	M12 connector	Pre-wired (2 m)	M12 connector
Straight		Through-beam *1	20 m	E3FB-TP11 2M	E3FB-TP21	E3FB-TN11 2M	E3FB-TN21
		Retro-reflective *2	0.1 to 4 m*	E3FB-RP11 2M	E3FB-RP21	E3FB-RN11 2M	E3FB-RN21
		Retro-reflective (coaxial) *2	0 to 500 mm*	E3FB-RP12 2M	E3FB-RP22	E3FB-RN12 2M	E3FB-RN22
		Diffuse-reflective	100 mm	E3FB-DP11 2M	E3FB-DP21	E3FB-DN11 2M	E3FB-DN21
			300 mm	E3FB-DP12 2M	E3FB-DP22	E3FB-DN12 2M	E3FB-DN22
			1 m	E3FB-DP13 2M	E3FB-DP23	E3FB-DN13 2M	E3FB-DN23
		BGS (Background suppression)	100 mm	E3FB-LP11 2M	E3FB-LP21	E3FB-LN11 2M	E3FB-LN21
			200 mm	E3FB-LP12 2M	E3FB-LP22	E3FB-LN12 2M	E3FB-LN22
		Limited distance reflective	10 to 50 mm	E3FB-VP11 2M	E3FB-VP21	E3FB-VN11 2M	E3FB-VN21
		Transparent detection *2	100 to 500 mm**	E3FB-BP11 2M	E3FB-BP21	E3FB-BN11 2M	E3FB-BN21
			0.1 to 2 m**	E3FB-BP12 2M	E3FB-BP22	E3FB-BN12 2M	E3FB-BN22
Radial		Through-beam *1	15 m	E3RB-TP11 2M	E3RB-TP21	E3RB-TN11 2M	E3RB-TN21
		Retro-reflective *2	0.1 to 3 m*	E3RB-RP11 2M	E3RB-RP21	E3RB-RN11 2M	E3RB-RN21
		Diffuse-reflective	100 mm	E3RB-DP11 2M	E3RB-DP21	E3RB-DN11 2M	E3RB-DN21
			300 mm	E3RB-DP12 2M	E3RB-DP22	E3RB-DN12 2M	E3RB-DN22
			700 mm	E3RB-DP13 2M	E3RB-DP23	E3RB-DN13 2M	E3RB-DN23
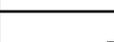
*Measured with reflector E39-R1S. **Measured with reflector E39-RP1
*1 The set type includes the emitter and receiver. *2 The reflector is sold separately.
Note: All sensors are 10-30 VDC. Light-On/Dark-On selectable by wiring.

E3Z Photoelectric Sensors

General Purpose Sensor in Compact Plastic Housing

Compact housing size and high-power LED for excellent performance-size ratio and best value-performance ratio for standard applications.

- Minimal optical axis deviation for easy alignment

- IP67 and IP69K for highest water resistance

- Intensive shielding for highest noise immunity (EMC)

- Multiple molding housing for high mechanical resistance

CE

Sensor type		Sensing distance	Connection Method		Model	
			M8	⫲	NPN output	PNP output
Through-beam		30 m (Infrared light)	—	2 m	E3Z-T62	E3Z-T82
			■	—	E3Z-T67	E3Z-T87
		10 m (Red light)	—	2 m	E3Z-T61A	E3Z-T81A
			■	—	E3Z-T66A	E3Z-T86A
Retro-reflective with M.S.R		0.1 to 4 m (with E39-R15) (Red light)	—	2 m	E3Z-R61	E3Z-R81
			■	—	E3Z-R66	E3Z-R86
Retro-reflective without M.S.R		0.1 to 5 m (with E39-R15) (Infrared light)	—	2 m	E3Z-R61-4	E3Z-R81-4
			■	—	E3Z-R66-4	E3Z-R86-4
Diffuse-reflective		1 m (adjustable) (Infrared light)	—	2 m	E3Z-D62	E3Z-D82
			■	—	E3Z-D67	E3Z-D87
Diffuse-reflective wide beam		100 mm (adjustable) (Infrared light)	—	2 m	E3Z-D61	E3Z-D81
			■	—	E3Z-D66	E3Z-D86
Distance-settable (background suppression)[2]	Small spot (Red light)	2 mm 20 mm **80 mm** BGS (set to minimum) BGS (set to maximum)	—	2 m	E3Z-LS63	E3Z-LS83
			■	—	E3Z-LS68	E3Z-LS88
	Standard (Red light) (note 1)	20 mm 40 mm **200 mm** Incident light level threshold (fixed) BGS (at min. setting) BGS (at max. setting) FGS (at min. setting) FGS (at max. setting)	—	2 m	E3Z-LS61[2]	E3Z-LS81[2]
			■	—	E3Z-LS66[2]	E3Z-LS86[2]
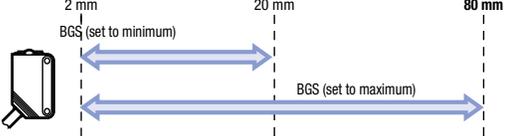
[1] Infrared light models available
[2] To order with 30 cm long pigtail with M12, M8 3-pin or 4-pin connector please contact your OMRON representative.

OMRON

LASER Sensor in Compact Plastic Housing

The E3Z LASER sensor in compact plastic housing features visible Laser light for precision positioning and detection applications.

- Visible LASER light for precision positioning and small object detection

- High power laser diode for long range precision

- Class 1 LASER (JIS, IEC) Class 2 (FDA) LASER

- Precise background suppression and low black/white error for accurate detection

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Sensor type	Sensing distance	Response time	Connection Method		Model	
			M8	▮	NPN output	PNP output
Through-beam	60 m	1 ms	—	2 m	E3Z-LT61 2M	E3Z-LT81 2M
			▪	—	E3Z-LT66	E3Z-LT86
Retro-reflective with M.S.R	0.3 to 15 m (with E39-R15)		—	2 m	E3Z-LR61 2M	E3Z-LR81 2M
			▪	—	E3Z-LR66	E3Z-LR86
Distance-settable (background suppression)	20 to 300 mm		—	2 m	E3Z-LL61 2M	E3Z-LL81 2M
			▪	—	E3Z-LL66	E3Z-LL86
	25 to 300 mm	0.5 ms	—	2 m	E3Z-LL63 2M	E3Z-LL83 2M
			▪	—	E3Z-LL68	E3Z-LL88
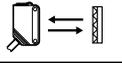
Note: To order with 30 cm long pigtail with M12, M8 3-pin or M8 4-pin connector please contact your OMRON representative.
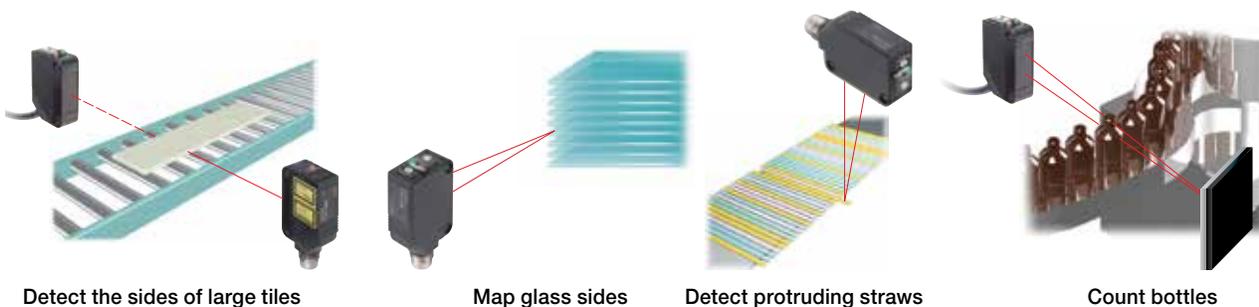
Detect the sides of large tiles

Map glass sides

Detect protruding straws

Count bottles

E3ZM Photoelectric Sensors

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Detergent-Resistant Photoelectric Sensor in Compact Stainless Steel Housing

Compact housing size and high power LED for excellent performance-size ratio in a rugged, detergent-resistant stainless steel housing for demanding environments.

- High grade stainless steel housing (SUS316L)

- IP67 and IP69K for highest water resistance

- ECOLAB tested and certified detergent resistance

CE

Sensor type	Sensing distance	Connection Method			Model	
		M8	⫼	▭	**NPN output**	**PNP output**
Through-beam	15 m	—	2 m	*1 For ordering pigtail versions replace '2M' of the cable types with: - S1J: for M12 stainless steel plug with 30 cm cable - S3J: for M8 4-pin stainless steel plug with 30 cm cable - S5J: for M8 3-pin stainless steel plug with 30 cm cable (except for background suppression types) - M1J: for M12 brass plug with 30 cm cable - M3J: for M8 4-pin brass plug with 30 cm cable - M5J: for M8 3-pin brass plug with 30 cm cable (except for background suppression types)	E3ZM-T61 2M	E3ZM-T81 2M
		■	—		E3ZM-T66	E3ZM-T86
	0.8 m with built in slit	—	2 m		E3ZM-T63 2M	E3ZM-T83 2M
		■	—		E3ZM-T68	E3ZM-T88
Retro-reflective with M.S.R	0.1 to 4 m (with E39-R1S)	—	2 m		E3ZM-R61 2M	E3ZM-R81 2M
		■	—		E3ZM-R66	E3ZM-R86
Diffuse-reflective	1 m (adjustable)	—	2 m		E3ZM-D62 2M	E3ZM-D82 2M
		■	—		E3ZM-D67	E3ZM-D87
Diffuse-reflective (background suppression)	10 to 100 mm (fixed)	—	2 m		E3ZM-LS61X 2M*2	E3ZM-LS81X 2M*2
		■	—		E3ZM-LS66X*2	E3ZM-LS86X*2
	10 to 200 mm (fixed)	—	2 m		E3ZM-LS64X 2M*2	E3ZM-LS84X 2M*2
		■	—		E3ZM-LS69X*2	E3ZM-LS89X*2

*2 E3ZM-LS_X are fixed LIGHT-ON models. For Fixed DARK-ON models order E3ZM-LS_Y and for L-NO/D-NO selectable by wire please order E3ZM-LS_H.

Robust construction

Tight housing
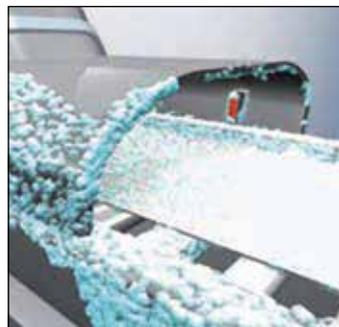
Detergent resistant

Oil-Resistant Photoelectric Sensor in Compact Stainless Steel Housing

The oil-resistant compact photoelectric sensor in a robust stainless steel housing features reliable object detection in dirty and mechanically demanding environments such as automotive assembly lines.

- Oil-resistant stainless steel housing

- IP67 and IP69K for highest water resistance

- High visibility orange LED in through-beam model for easy alignment

CE

Sensor type	Sensing distance	Connection Method			Model	
		M8		M12	NPN output	PNP output
Through-beam	15 m (infrared light)	—	2 m	—	E3ZM-CT61 2M	E3ZM-CT81 2M
		—	—	■	E3ZM-CT61-M1TJ	E3ZM-CT81-M1TJ
		■	—	—	E3ZM-CT66	E3ZM-CT86
	20 m (Orange light)	—	2 m	—	E3ZM-CT62B 2M	E3ZM-CT82B 2M
		—	—	■	E3ZM-CT62B-M1TJ	E3ZM-CT82B-M1TJ
		■	—	—	E3ZM-CT67B	E3ZM-CT87B
Retro-reflective with M.S.R	0.1 to 4 m (with E39-R1S)	—	2 m	—	E3ZM-CR61 2M	E3ZM-CR81 2M
		—	—	■	E3ZM-CR61-M1TJ	E3ZM-CR81-M1TJ
		■	—	—	E3ZM-CR66	E3ZM-CR86
Diffuse-reflective	1 m (adjustable)	—	2 m	—	E3ZM-CD62 2M	E3ZM-CD82 2M
		—	—	■	E3ZM-CD62-M1TJ	E3ZM-CD82-M1TJ
		■	—	—	E3ZM-CD67	E3ZM-CD87
Diffuse-reflective (background suppression)	10 to 100 mm (fixed)	—	2 m	—	E3ZM-CL61H 2M	E3ZM-CL81H 2M
		—	—	■	E3ZM-CL61H-M1TJ	E3ZM-CL81H-M1TJ
		■	—	—	E3ZM-CL66H	E3ZM-CL86H
	10 to 200 mm (fixed)	—	2 m	—	E3ZM-CL64H 2M	E3ZM-CL84H 2M
		—	—	■	E3ZM-CL64H-M1TJ	E3ZM-CL84H-M1TJ
		■	—	—	E3ZM-CL69H	E3ZM-CL89H

Note: M12 connector types use Omron Automation and Safety's XS5 Series "Twist & Click" M12 connector cordsets, 30 cm standard length.

Print Mark Detection Photoelectric Sensor in Compact Stainless Steel Housing

The detergent resistant photoelectric sensor in a robust stainless steel housing provides reliable detection of all common print marks in food packaging applications.

- White LED for stable detection of differently colored or black print marks

- SUS 316L stainless steel housing

- Easy-to-use teach-in button or remote teach

- Fast response time of 50 µs

CE

Sensor type	Sensing distance	Connection Method		Model	
		M8		NPN output	PNP output
Mark sensor	12±2 mm	—	2 m	E3ZM-V61 2M	E3ZM-V81 2M
		■	—	E3ZM-V66	E3ZM-V86
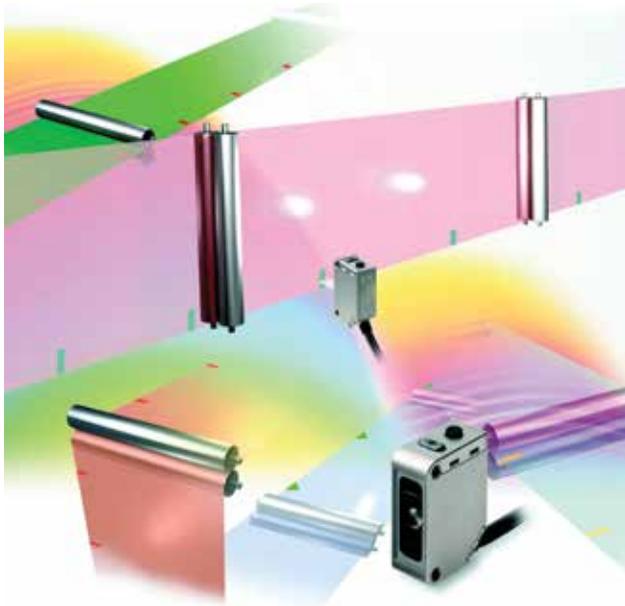
Transparent Object Detection Sensor in Compact Stainless Steel Housing

The E3ZM-B family provides models for general transparent material detection and specialized models providing highest stability for the detection of PET bottles.

- Detergent resistant compact SUS316L housing

- Includes Bi-refringent, P-opaquing sensing technology to provide the margin necessary to overcome the challenges in geometry, color and contents of PET bottle detection which standard retro-reflective sensors can not perform

- Simple push button teach operation

- Unique AC3 technology compensates for lens contamination to maintain expected sensor output

- IP69K (DIN 40050-9) compliant

- 316L stainless steel body resists detergents and disinfectants

- High noise immunity against interference from inverters and other inductive loads

Sensor type		Sensing distance	Special reflector	Connection Method		Model	
				M8	(cable)	NPN output	PNP output
Retro-reflective with M.S.R	Optimized for PET bottles and trays	100 to 500 mm (teachable)	Order separately*1	—	2 m	E3ZM-B61 2M	E3ZM-B81 2M
				■	—	E3ZM-B66	E3ZM-B86
			E39-RP1 included	—	2 m	E3ZM-B61-C 2M	E3ZM-B81-C 2M
				■	—	E3ZM-B66-C	E3ZM-B86-C
Retro-reflective with M.S.R	For all transparent media (glass, PET, foils)	100 to 500 mm (potentiometer adjustment)*3	Order separately*3	—	2 m	E3ZM-B61T 2M	E3ZM-B81T 2M
				■	—	E3ZM-B66T	E3ZM-B86T

*1 For higher signal stability using circular polarization functionality for PET bottles, order special reflector E39-RP1 separately.
*2 Teachable all-transparent-media types are available. Contact your Omron Automation and Safety representative.
*3 Order reflector separately: Use E39-RP1 for 500 mm sensing distance; E39-RP37 or E39-RSP1 for 250 mm sensing distance.
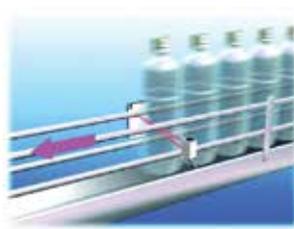
OMRON

E3Z-B Photoelectric Sensors

Transparent Bottle Detection Photoelectric Sensor in Compact Plastic Housing

The E3Z-B provides easy adjustment for the detection of a large variety of standard transparent objects.

- Detects a wide range of bottles from single bottles to sets of stocked bottles

- IP67/IP69K tested for highest water resistance

Sensor type	Sensing distance (with E39-R1S reflector)	Connection Method		Model	
		M8		**NPN output**	**PNP output**
Retro-reflective without M.S.R.	80 to 500 mm (adjustable)	—	2 m	E3Z-B61 2M	E3Z-B81 2M
		■	—	E3Z-B66	E3Z-B86
	0.5 to 2 m (adjustable)	—	2 m	E3Z-B62 2M	E3Z-B82 2M
		■	—	E3Z-B67	E3Z-B87

E3Z-G Photoelectric Sensors

Photoelectric Sensor in Plastic Fork Shape Housing

The forked shape optical through-beam sensors combine simple installation with reliable passage detection of objects, machine parts or transportation elements such as hanging carriers.

- Slotted head eliminates the need for optical axis adjustment

- 1 or 2 axis models

Sensor type	Sensing distance	Number of optical axes	Connection Method		Model	
					NPN output	**PNP output**
Through-beam	25 mm (Infrared light)	1	2 m	—	E3Z-G61	E3Z-G81
			—	■ M8 4-pin	E3Z-G61-M3J	E3Z-G81-M3J
		2	2 m	—	E3Z-G62	E3Z-G82
			—	■ M8 4-pin	E3Z-G62-M3J	E3Z-G82-M3J

Narrow-Beam Sensor Detects Small Objects

- Small 2.5 mm beam diameter at 90 mm sensing distance enables detection through small holes or gaps

- Detect objects as small as 0.1 mm diameter

- Adjustable distance setting of 90 ± 30 mm

- Visible red light beam simplifies alignment for visual checking of sensing spot position

- Integrated circuit design with advanced LED assures long sensing distances

- High noise immunity against interference from inverters and other inductive loads

- Rated IP67, withstands 1200 psi washdown

- Switch-selectable, Light-ON/Dark-ON operation

Narrow-Beam Sensors

Sensor type	Setup	Features	Light source	Sensing distance	Connection method	Model	
						NPN output	PNP output
Diffuse reflective		Detects 0.1 mm dia. objects	Red (650 nm)	90 ±30 mm	Pre-wired	E3Z-L61	E3Z-L81
					4-pin M8 Connector	E3Z-L66	E3Z-L86

Miniature Distance-Settable Sensors with Built-In Amplifiers

- Detect glossy/uneven surfaces with foreground suppression

- Ignore objects beyond the set distance such as a conveyor belt or rail using background suppression

- Web/edge position detection sensors (E3Z-LS63/-LS83) with 2 mm spot eliminate background influences in printing, converting and packaging

- Detect presence of strip and sheet materials and non-woven fabric edges with 2% max. differential travel to compensate for vibration (E3Z-LS63/-LS83)

- Integrated circuit design with advanced LED assures long sensing distances

- High noise immunity against interference from inverters and other inductive loads

- Rated IP67, withstands 1200 psi washdown

- Switch-selectable, Light-ON/Dark-ON operation

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Background/Foreground Suppression Sensors

BGS (Background Suppression)

Selectable by Changing Cable Connection

FGS (Foreground Suppression)

Objects beyond the set distance, such as the conveyor, will not be detected. The hysteresis is 10% or less, so at a set distance of 40 mm, steps with a thickness of 4 mm can be detected on objects.

ON (incident)
Distance threshold
OFF (interrupted)
Conveyor (background)
(for Light-ON setting)

Glossy, uneven objects are reliably detected because the OFF (incident) status occurs only when the conveyor is detected, and ON (interrupted) status occurs only when an object exists or when reflected light is not returned to the Sensor. (Depending on the shape of the object, an OFF-delay timer may be required.)

ON (interrupted)
Distance threshold
Light level threshold (fixed)
OFF (incident)
Conveyor (background)
ON (interrupted)
(for Dark-ON setting)

Sensor type	Setup	Features	Light source	Sensing distance	Connection method	Model	
						NPN output	PNP output
Distance settable		Resists interference from fluorescent lighting	Red (680 nm)	Background setting 20 to 200 mm Foreground setting 40 to 200+ mm	Pre-wired	E3Z-LS61	E3Z-LS81
					4-pin M8 Connector	E3Z-LS66	E3Z-LS86
		Web/edge position detector	Red (650 nm)	Background setting 2 to 80 mm	Pre-wired	E3Z-LS63	E3Z-LS83
					4-pin M8 Connector	E3Z-LS68	E3Z-LS88

Oil-Resistant Sensors with Built-In Amplifiers

- Sensor housing includes special coating to resist effects in environments subject to high pH oil mists, coolants and medium pH detergents that aggressively attach sensors

- Long distance sensing: 15 m through-beam models; 3 m retro-reflective; 1 m diffuse-reflective

- High noise immunity against interference from inverters and other inductive loads

- Rated IP67, withstands 1200 psi washdown

- Switch-selectable, Light-ON/Dark-ON operation

CE

Sensor Type

Sensor type	Setup	Features	Light source	Sensing distance	Connection method	Model	
						NPN output	**PNP output**
Through-beam		—	Infrared (870 nm)	15 m	Pre-wired	E3Z-T61K	E3Z-T81K
					Pigtail, 4-pin M8	E3Z-T61K-M3J 0.3M	E3Z-T81K-M3J 0.3M
Retro-reflective		Polarized; Order reflector separately	Red (660 nm)	0.1 to 4 m with E39-R1S reflector 0.1 to 3 m with E39-R1 reflector	Pre-wired	E3Z-R61K	E3Z-R81K
					Pigtail, 4-pin M8	E3Z-R61K-M3J 0.3M	E3Z-R81K-M3J 0.3M
Diffuse reflective		Wide view	Infrared (860 nm)	5 to 100 mm	Pre-wired	E3Z-D61K	E3Z-D81K
					Pigtail, 4-pin M8	E3Z-D61K-M3J 0.3M	E3Z-D81K-M3J 0.3M
		Standard		1 m	Pre-wired	E3Z-D62K	E3Z-D82K
					Pigtail, 4-pin M8	E3Z-D62K-M3J 0.3M	E3Z-D82K-M3J 0.3M

E3S-CL Photoelectric Sensors

Distance-Settable Sensor in Metal Housing

- Minimal black/white error for highest reliability detecting differently colored objects

- Setting distance up to 500 mm with reliable background suppression

- Stable detection regardless of the target workpiece color, material or size

- Simple to set distance with 6-turn adjustor and indicator

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Sensor type	Light source	Sensing distance	Connection method		Model
Distance-settable (background suppression)	Red (700 mm)	5 — 40mm Min. setting — Setting range 40 to 200 mm — Max. setting — 5 Detecting range 200mm 5 to 200 mm	2 m	—	E3S-CL1
			—	■ M12	E3S-CL1-M1J
	Infrared (860 mm)	5 — 50mm Min. setting — Setting range 50 to 500 mm Max. setting — 5 Detecting range 500mm 5 to 500 mm	2 m	—	E3S-CL2
			—	■ M12	E3S-CL2-M1J

E3G Photoelectric Sensors

Long Distance Sensor in Plastic Housing

Long distance retro-reflective and teachable distance-settable sensors in plastic housing.

- Distance-settable model with 1.2 m maximum setting distance

- Light-On/Dark-On operation, NPN/PNP output switch selectable

CE

Sensor type	Sensing distance	Connection method		Model
		M12		
Retro-reflective with M.S.R.	0.5 to 10 m measured with E39-R2	—	2 m	E3G-R13-G 2M
		■	—	E3G-R17-G
Distance-settable (background suppression)	0.2 to 2 m (0.2 to 1.2 m distance-settable)	—	2 m	E3G-L73 2M
		■	—	E3G-L77

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For complete specifications and additional models and accessories visit www.omron247.com

All Voltage (AC/DC) Photoelectric Sensor in Plastic Housing

The square sized E3JK family uses 12 to 240 VDC and 24 to 240 VAC supply voltage

- Retro-reflective models accurately detect shiny objects

- Relay outputs with long life expectancy and high switching capacity (3 A, 250 VAC)

- cUL recognized

Sensor type	Sensing distance	Connection method	Operation mode	Model
Through-beam	5 m (Infrared light)		Light ON	E3JK-5M1-N-US
			Dark ON	E3JK-5M2-N-US
Retro-reflective with M.S.R.	2 m measured with E39-R1 (Red light)		Light ON	E3JK-R2M1-US
			Dark ON	E3JK-R2M2-US
		2 m		
Retro-reflective without M.S.R.	4 m (adjustable) measured with E39-R1 (Red light)		Light ON	E3JK-R4M1-US
			Dark ON	E3JK-R4M2-US
Diffuse-reflective	300 mm (adjustable) (Infrared light)		Light ON	E3JK-DS30M1-US
			Dark ON	E3JK-DS30M2-US
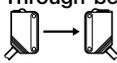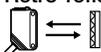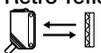
Note: All part numbers include mounting hardware, Retro-reflective models include E39-R1 reflector.

E3JM Photoelectric Sensors

A

All Voltage (AC/DC) Photoelectric Sensor in Plastic Housing

The square sized E3JM family uses 12 to 240 VDC and 24 to 240 VAC supply voltage, an enhanced sensing distance and a timer function.

- Easy to wire terminal block speeds installation and servicing
- Relay or solid state relay output
- Timer function models available
- Mounting hardware and terminal protection cover included

Sensor type	Sensing distance	Connection method	Operation mode	Model		
				Relay output	DC SSR output	
					NPN Output	PNP Output
Through-beam	10 m (Infrared light)	Terminal block (with PG 13.5 conduit opening)	—	E3JM-10M4-US	E3JM-10S4-US OMS	E3JM-10R4-US
			ON or OFF delay 0.1 s to 5 s (adjustable)	F3JM-10M4T-US	F3JM-10S4T-US	E3JM-10R4T-US
Retro-reflective with M.S.R.	4 m with E39-R1 reflector (Red light)		—	E3JM-R4M4-US	E3JM-R4S4-US	E3JM-R4R4-US
			ON or OFF delay 0.1 s to 5 s (adjustable)	E3JM-R4M4T-US	E3JM-R4S4T-US	E3JM-R4R4T-US
Diffuse-reflective	700 mm (adjustable) (Infrared light)		—	E3JM-DS70M4-US	E3JM-DS70S4-US	E3JM-DS70R4-US
			ON or OFF delay 0.1 s to 5 s (adjustable)	E3JM-DS70M4T-US	E3JM-DS70S4T-US	E3JM-DS70R4T-US

E3G-M Photoelectric Sensors

Long Distance All Voltage (AC/DC) Photoelectric Sensor

The E3G-M series offers the long sensing distance of the E3G family for all voltage (AC/DC) installations.

- 12 to 240 VDC and 24 to 240 VAC
- Terminal block connection

Sensor type	Sensing distance	Connection method	Timer Function	Model
				Relay output
Retro-reflective with M.S.R.	0.5 to 10 m with E39-R2 reflector (Red light)	Terminal block	—	E3G-MR19-G
			ON or OFF delay 0 to 5 s (adjustable)	E3G-MR19T-G
Distance-settable (background detection)	0.2 to 2 m (0.2 to 1.2 m distance-settable) (Infrared light)		—	E3G-ML79-G
			ON or OFF delay 0 to 5 s (adjustable)	E3G-ML79T-G

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Photoelectric Sensor in Miniature Plastic Housing

Small sized photoelectric sensors in flat, side view and M5 cylindrical shapes for demanding mounting conditions.

- Small size with precision pinpoint LED

- 3.5 mm flat model with reliable background suppression and small black/white error

- Unique optical alignment technology ensuring minimal deviation of optical axis

- High EMC and ambient light immunity

CE

Sensor type	Sensing distance	Connection Method		Operation mode	Model (note 1)	
		▆▆≣	▆▆❚		NPN output	PNP output
Through-beam	1 m			Light- ON	E3T-ST11	E3T-ST13
				Dark-ON	E3T-ST12	E3T-ST14
	300 mm			Light- ON	E3T-ST21	E3T-ST23
				Dark-ON	E3T-ST22	E3T-ST24
Through-beam	500 mm			Light- ON	E3T-FT11	E3T-FT13
				Dark-ON	E3T-FT12	E3T-FT14
	300 mm			Light- ON	E3T-FT21	E3T-FT23
				Dark-ON	E3T-FT22	E3T-FT24
Through-beam, M5	1 m			Dark-ON	E3T-CT12	E3T-CT14
Through-beam, M5	500 m			Dark-ON	E3T-CT22S	E3T-CT24S
Retro-reflective (note 3)	30 to 200 mm on reflectors/ 10 to 100 mm on reflective foils (note 2)	2 m	To order pigtail connector versions, replace "2M" for cable types if present, then add a suffix: - M1TJ 0.3M: M12 with 30 cm cable - M3J 0.3M: M8 4-pin with 30 cm cable	Light- ON	E3T-SR41-C	E3T-SR43-C
				Dark-ON	E3T-SR42-C	E3T-SR44-C
Diffuse-reflective	5 to 30 mm			Light- ON	E3T-FD11	E3T-FD13
				Dark-ON	E3T-FD12	E3T-FD14
Diffuse-reflective (with adjuster), M6	3-50 mm			Dark-ON	E3T-CD11	E3T-CD13
Limited-reflective	5 to 15 mm			Light- ON	E3T-SL11	E3T-SL13
				Dark-ON	E3T-SL12	E3T-SL14
	5 to 30 mm			Light- ON	E3T-SL21	E3T-SL23
				Dark-ON	E3T-SL22	E3T-SL24
Diffuse-reflective (background suppression)	1 to 15 mm			Light- ON	E3T-FL11	E3T-FL13
				Dark-ON	E3T-FL12	E3T-FL14
	1 to 30 mm			Light- ON	E3T-FL21	E3T-FL23
				Dark-ON	E3T-FL22	E3T-FL24

Note: 1- For pre-wired models with robotic cables add '-R' to the order code (example: E3T-FT21R 2M)
2- The distances are measured with reflector E39-R4 and reflective foil E39-R37-CA. For applications with shorter distances between the sensor and the reflector contact your Omron Automation and Safety representative. Light-ON E3T-SR41-C 2M*3
3- Order reflector separately. Models with included reflectors are available.

High Performance Small DC Sensors

- Enclosure meets NEMA 4X, 6 and IP67
- User-friendly features for ease of installation and use
- Timer/alarm/turbo aiming tool models available
- Light-ON/Dark-ON, switch selectable
- Mounting bracket E39-L69 supplied with horizontal sensors
- Mounting bracket E39-L70 supplied with vertical sensors
- Polarized retro-reflective sensors include E39-R1 reflector
- Through-beam sensors include both emitter and receiver
- Pre-wired versions have 2 m cable; M12 4-pin connector versions available

E3K Photoelectric Sensors

Long-range Sensing for Door Control and Material Handling Applications

- AC/DC sensor for heavy-duty switching requirements
- Long sensing distances:
  - Retro-reflective: 10 m, includes E39-R1 reflector
  - Diffuse-reflective: 2 m
- Clean interior, easy-to-wire terminal strip
- Plug-in replaceable relay output
- Timer modules available
- Rated IP67, NEMA 4X, 6 for washdown

Laser Position Verification Sensors with Long Range or Variable Spot Size

- Compact, lightweight sensing heads
- Slim DIN rail mounting amplifiers
- Simple setup with 3 types of tuning
- CMOS triangulation model E3NC-S detects regardless of surface or color
- EtherCAT communication available

Ordering Information

E3NC-L Sensing Heads

Sensing method	Focus	Sensing distance	Spot diameter	Ratings	Connection	Model
Limited-reflective	Spot	70 ±15 mm	0.1 mm	Laser Class 1, IP65	2 m robot cable to amplifier	E3NC-LH01 2M
Diffuse-reflective	Variable spot	1200 mm max.	0.8 mm or larger			E3NC-LH01 2M

E3NC-L Amplifier Units

Inputs/outputs	Connection method	Connection media	E3NC-L Amplifier Model	
			NPN	PNP
1 In + 2 Out	Pre-wired 2 m	PVC cable	E3NC-LA21 2M	E23NC-LA51 2M
1 in + 1 Out	Connector	E3X-CN cables	E3NC-LA7	E3NC-LA9
2 Out	Comm Unit for E3NW	E3X-CN02	E3NC-LA0	

E3NC-S Sensing Heads

Sensing method	Detected level difference	Sensing distance	Spot diameter	Ratings	Connection	Model
Diffuse-reflective	35 to 50 mm: 1.5 mm; 50 to 100 mm: 3 mm	35 to 100 mm	0.5 mm	Laser Class 1, IP67	2 m robot cable to amplifier	E3NC-SH100 2M
	35 to 180 mm: 9 mm; 180 to 250 mm: 25 mm	35 to 250 mm	1 mm			E3NC-SH250 2M

E3NC-S Amplifier Units

Inputs/outputs	Connection method	Connection media	E3NC-S Amplifier Model	
			NPN	PNP
1 In + 2 Out	Pre-wired 2 m	PVC cable	E3NC-SA21 2M	E23NC-SA51 2M
1 in + 1 Out	Connector	E3X-CN cables	E3NC-SA7	E3NC-SA9
2 Out	Comm Unit for E3NW	E3X-CN02	E3NC-SA0	

Connectors

Type	Cable length	No. of Conductors	Model
Master Connector	2 m	4	E3X-CN21
Slave Connector		2	E3X-CN22

Head Mounting Brackets

Applicable Sensor Head	Model
E3NC-LH01	E39-L186
E3NC-LH02	E39-L185
E3NC-SH100	E39-L188
E3NC-SH250	E39-L187

E3C-LDA Measurement Sensors

A

Variable Laser Beam Sensors

The E3C-LDA sensors for high-speed gauging applications combine compact Class II laser sensing heads with slim DIN-mount amplifiers.

- Sensing heads offer variable focal point and optical axis alignment

- Safe Class II lasers require no special protective hardware

- Dual digital display on the amplifier simplifies setup and monitoring

- Selectable detection modes with response speed as fast as 100 µs

CE Class I Class II

Ordering Information

Sensing Heads

Sensing method	Beam shape	Sensing distance	Dimensions H x W x D mm	Model
Diffuse reflective	Spot, 0.8 mm max.	30 mm to 1 m	25 x 12.8 x 33	E3C-LD11
	Line, 33 mm L			E3C-LD21
	Area, 33 x 15 mm		27 x 13.2 x 36	E3C-LD31
Coaxial retro-reflective with mirror surface rejection	Variable spot (0.8 mm dia.)	Up to 7 m with E39-R12	25 x 12.8 x 39	E3C-LR11
	Line, 28 mm L	Up to 1.7 m with E39-R12		E3C-LR11 + E39-P31
	Area, 28 x 16 mm	Up to 900 mm with E39-R12		E3C-LR11 + E39-P41
	Fixed spot (2 mm dia.)	Up to 7 m with E39-R12		E3C-LR12

Amplifiers

Connector	Description	Functions	Output ratings	Model	
				NPN output	**PNP output**
Pre-wired models	Analog + Discrete outputs	Area output, differential operation	1 to 5 VDC, 50 mA at 26.4 VDC	E3C-LDA11AN	E3C-LDA41AN
	Two discrete outputs	Area output, differential operation, self-diagnostics	2 x 50 mA at 26.4 VDC	E3C-LDA11	E3C-LDA41
	External input + Discrete output	Built-in counter, differential operation, remote setting	1 x 50 mA at 26.4 VDC	E3C-LDA21	E3C-LDA51
Connector	Two discrete outputs	Area output, differential operation, self-diagnostics	2 x 50 mA at 26.4 VDC	E3C-LDA6	E3C-LDA8
	External input + Discrete output	Built-in counter, differential operation, remote setting	1 x 50 mA at 26.4 VDC	E3C-LDA7	E3C-LDA9

Connectors

Description	Compatible amplifiers	Cable length	Conductors	Model
Master connector (for first unit)	E3C-LDA6, E3C-LDA7, E3C-LDA8, E3C-LDA9	2 m	3	E3X-CN11
Slave connector (for second and additional units)			4	E3X-CN21
			1	E3X-CN12
			2	E3X-CN22

OMRON

New Non-Safety Discrete Output Light Grid

The F3ET2 light grids provide reliable area detection in robust IP65 aluminum housing.

- Light grids detect area heights from 150 mm up to 2100 mm

- Optical synchronization for reliable operation without additional wiring

- NPN/PNP and Light-ON / Dark-ON selectable

- Brackets included with Light Grids

- Connects with M12, 5-wire cable

Ordering Information

Sensor Type	Detection Area (mm)	Pitch	Sensing Distance**	Number of Beams	Detectable Object Size	Output*	Model
Through-beam	150	5 mm	3 m	30	10 mm min.	PNP/NPN	F3ET2-005-150
		18 mm	15 m	8	30 mm min.		F3ET2-018-150
	300	5 mm	3 m	60	10 mm min.		F3ET2-005-300
		18 mm	15 m	16	30 mm min.		F3ET2-018-300
	450	5 mm	3 m	90	10 mm min.		F3ET2-005-450
		18 mm	15 m	24	30 mm min.		F3ET2-018-450
	600	5 mm	3 m	120	10 mm min.		F3ET2-005-600
		18 mm	15 m	32	30 mm min.		F3ET2-018-600
	900	5 mm	3 m	180	10 mm min.		F3ET2-005-900
		18 mm	15 m	48	30 mm min.		F3ET2-018-900
	1200	5 mm	3 m	240	10 mm min.		F3ET2-005-1200
		18 mm	15 m	64	30 mm min.		F3ET2-018-1200
	1500	5 mm	3 m	300	10 mm min.		F3ET2-005-1500
		18 mm	15 m	80	30 mm min.		F3ET2-018-1500
	1800	5 mm	3 m	360	10 mm min.		F3ET2-005-1800
		18 mm	15 m	96	30 mm min.		F3ET2-018-1800
	2100	18 mm	15 m	112	30 mm min.		F3ET2-018-2100
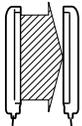
*Light-ON / Dark-ON selectable

**The maximum sensing distance between the Transmitter and Receiver light grids

OMRON

F3EM2 Photoelectric Sensor

New Non-Safety Analog Output Light Grid

The F3ET2 light grids provide reliable area monitoring in robust IP65 aluminum housing.

- Analog output for simple height detection

- Light grids detect area heights from 150 mm up to 2100 mm

- Optical synchronization for reliable operation without additional wiring

- Brackets included with Light Grids

- Connects with M12, 5-wire cable

Ordering Information

Sensor Type	Measurement Range (mm)	Pitch	Sensing Distance*	Number of Beams	Detectable Object Size	Analog Output	Model
Through-beam	150	5 mm	3 m	30	10 mm min.	0-10 VDC (12 bits)	F3EM2-005-150-AV
		18 mm	15 m	8	30 mm min.		F3EM2-018-150-AV
	300	5 mm	3 m	60	10 mm min.		F3EM2-005-300-AV
		18 mm	15 m	16	30 mm min.		F3EM2-018-300-AV
	450	5 mm	3 m	90	10 mm min.		F3EM2-005-450-AV
		18 mm	15 m	24	30 mm min.		F3EM2-018-450-AV
	600	5 mm	3 m	120	10 mm min.		F3EM2-005-600-AV
		18 mm	15 m	32	30 mm min.		F3EM2-018-600-AV
	900	5 mm	3 m	180	10 mm min.		F3EM2-005-900-AV
		18 mm	15 m	48	30 mm min.		F3EM2-018-900-AV
	1200	5 mm	3 m	240	10 mm min.		F3EM2-005-1200-AV
		18 mm	15 m	64	30 mm min.		F3EM2-018-1200-AV
	1500	5 mm	3 m	300	10 mm min.		F3EM2-005-1500-AV
		18 mm	15 m	80	30 mm min.		F3EM2-018-1500-AV
	1800	5 mm	3 m	360	10 mm min.		F3EM2-005-1800-AV
		18 mm	15 m	96	30 mm min.		F3EM2-018-1800-AV
	2100	18 mm	15 m	112	30 mm min.		F3EM2-018-2100-AV
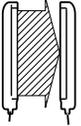
*The maximum sensing distance between the Transmitter and Receiver light grids

E3S-C Photoelectric Sensor

Long Distance Sensor in Oil-Resistant, Metal Case

- Long sensing distances: 30 m through-beam; 3 m polarized retro-reflective; 2 m or 0.7 m diffuse reflective

- Rugged zinc die cast housing protects against vibration (10 Hz to 2 kHz) and shock (up to approx. 100 G)

- Meets IP67 and NEMA 4X, 6P for water washdown

- High visibility indicators for light incidence and stability

- Light-ON and Dark-ON operation selectable

CE

Metal Body Sensors

Sensing type	Setup	Features	Light source	Sensing distance	Connection method	Model
Through-beam	Horizontal	Includes E39-L102 mounting bracket	Infrared (880 nm)	30 m Using E39-S61 slits: 4 mm slit: 15 m 2 mm slit: 7 m 1 mm slit: 3.5 m 0.5 mm slit: 1.8 m	Pre-wired	E3S-CT11
					M12 4-pin connector	E3S-CT16
	Vertical	Includes E39-L103 mounting bracket			Pre-wired	E3S-CT61
					M12 4-pin connector	E3S-CT66
Retro-reflective	Horizontal	Polarized; includes E39-R1 reflector and E39-L102 mounting bracket	Red (700 nm)	0 to 3 with E39-R1 reflector (included); Optional reflectors: E39-R2: 0 to 4 m E39-R3: 0 to 150 cm E39-R4: 0 to 75 cm E39-RSA: 5 to 35 cm E39-RSB: 5 to 60 cm	Pre-wired	E3S-CR11
					M12 4-pin connector	E3S-CR16
	Vertical	Polarized; includes E39-R1 reflector and E39-L103 mounting bracket			Pre-wired	E3S-CR61
					M12 4-pin connector	E3S-CR66
Diffuse reflective	Horizontal	includes E39-L102 mounting bracket	Infrared (880 nm)	0 to 70 cm	Pre-wired	E3S-CD11
					M12 4-pin connector	E3S-CD16
	Vertical	Includes E39-L103 mounting bracket			Pre-wired	E3S-CD61
					M12 4-pin connector	E3S-CD66
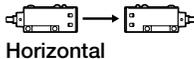
OMRON

A

UV Power Monitor for Sterilizing and Curing Operations

- Monitor ultraviolet light (UV) intensity or wavelength to maintain effective levels for critical processes

- Compact monitors fit tight inspection spaces on existing machinery

- Built-in amplifier models detect incident UV light power in two ranges (1 to 30 mW/cm^2 or 0.2 to 3 mW/cm^2) and provide a 1-5 V analog output

- Fiber-optic detection heads and separate amplifiers detect in two ranges (10 to 300 mW/cm2 or 30 to 300 mW/cm^2)

- Fiber-optic monitor available with judgment, answer-back and current/voltage analog outputs

$C\,\epsilon$

OMRON

E39-L   Mounting Brackets

Photoelectric Sensor Mounting Brackets

- Brackets enhance mounting flexibility

- Protective mounts fortify sensors

- Height adjustable and rotating mounts available

E39-R   Reflectors

Reflectors Return Light to Retro-reflective Photoelectric Sensors and Photomicrosensors

- Corner cube reflectors return maximum light with minimal scattering

- Reflectors extend or shorten sensing distance

- Hard acrylic reflectors are backed by ABS plastic

- Easy-to-apply, adhesive-backed reflectors available

- Sensor data sheets show recommended reflector models

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Fiber-optic Sensors

OMRON

B

Contents

THE SIMPLICITY OF HIGH PERFORMANCE IN CHALLENGING AREAS

With over 500 different fiber heads we offer one of the most comprehensive fiber portfolios bringing reliable detection to smallest spaces or most challenging environments. The easy usage and auto adjustment features of the fiber amplifiers provide highest stability and performance reducing setup and adjustment times.

Standard cylindrical fiber heads

Smaller size:

E32 Miniature

E32 Standard cylindrical

- Easy installation and long sensor lifetime for all general applications
- High flex fibers and 90° models for fiber breakage prevention

Square housing:

E32 Square

Through-beam

M4 — 4000 mm

Diffuse-reflective

M3 — 2100 mm
M4 → 490 mm
M6 → 210 mm

Longer distance:

E32 Longer distance

Special Applications

Heat, chemical vaccuum resistant	Robotic applications	Area monitoring	Precision detection	Special application
E32 Harsh environment	**E32 Robot**	**E32 Area monitoring**	**E32 Precision**	**E32 Special**
Heat resistant up to 400°C	Robot fibers withstand over 1 million bending cycles	Area monitoring up to 70mm beam width	Coaxial or limited reflective models, up to 100µm resolution, variable focal lenses or fine beam	Special solutions for liquid level, color, mark, wafer detection, etc.

OMRON

Dual digital display amplifier

E3X-HD

- Easy 1-button teaching
- Auto-teaching during operation
- Auto power control for long term stability

Basic functionality:

E3X-NA / E3X-SD
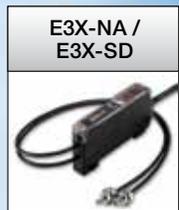
Advanced functionality:

E3NX-FA

Special Applications				
2 in 1 double amplifier	**Fast response**	**High stability**	**Color (RGB) amplifier**	**Infrared LED**
E3X-MDA	**E3X-NA-F**	**E3NX-FA**	**E3X-DAC-S**	**E3X-DAH-S Infrared**
AND, OR signal Infrared LED comparison of two input signals saving space and set-up time	Short turn on time of 20µs	Simple one button setting; detects large and low-reflection targets; light intensity and incidence compensation for stability.	White LED and RGB ratio comparison for challenging color and mark detection	Infrared LED

Selection Table

Fiber-optic Sensor Heads

Type	Cylindrical	Square shape	Miniature	Longer distance	Chemical resistant	Heat resistant
Model	E32 Standard Cylindrical	E32 Square Shape	E32 Miniature	E32 Longer Distance	E32 Chemical Resistant	E32 Heat Resistant
Key features	• Standard and high-flex fibers • Sizes M3 to M6	• 3 or 4 mm thin housing • Models in X,Y or Z-axis • Direct mounting without bracket	• Sizes from 500 µm to 3 mm dia • Bendable sleeves	• Built in focal lenses	• Fluoroplastic cover or coating	• Heat resistant up to 400°C
Through-beam	4000 mm	3000 mm	3000 mm	20 m	4000 mm	4000 mm
Diffuse-reflective	2100 mm	1260 mm	1260 mm	4000 mm	1260 mm	1680 mm

Type	Vacuum resistant	Robot applications	Precision detection	Area monitoring	Special application
Model	E32 Vacuum Resistant	E32 Robot	E32 Precision Detection	E32 Area Monitoring	E32 Special
Key features	• Leakage rate of 1×10^{-10} Pa*m³/s max	• Free moving multicore fibers for >1 Mio bending cycles	• Detection accuracy up to 100 µm • Coaxial fibers • Adjustable focal points	• Area monitoring up to 70 mm beam width	• Detection of special objects (wafer, liquid level, flat glass, print mark, etc.)
Through-beam	2000 mm	3750 mm	4000 mm	4000 mm	4000 mm
Diffuse-reflective	−	1260 mm	300 mm	1050 mm	300 mm

[1] Sensing distance varies depending on the amplifier used. These sensing distances were measured with the Giga mode of the E3NX-FA.

For complete specifications and additional models and accessories visit www.omron247.com

OMRON

Fiber-optic Amplifiers

Type	Easy Teach Digital	Advanced Functionality	Bar Graph/Single Display
Model	E3X-HD	E3NX-FA	E3X-NA, E3X-SD
Key features	• Simple 1 button setting • Compensates for light reduction from grime, deterioration	• Longest sensing ranges • White LED display • Advanced Smart Tuning • Predictive Maintenance DPC	• Easy adjustment by potentiometer • Bar graph gain display (-NA)
Response time (min.)	50 µs	30 µs	200 µs

Type	High functionality	Easy Teach	Double Amplifier
Model	E3X-DA-S	E3X-DA-SE-S	E3X-MDA
Key features	• High functionality signal processing (timer, counter, power tuning, etc.)	• 1 button object teaching • Auto teach during operation	• 2 inputs with AND, OR signal comparison
Response time (min.)	1 ms (80 µs in high speed mode)	1 ms	1 ms (130 µs in high speed mode)

Type	High Speed	Color/Print Mark Detection	Infrared LED
Model	E3X-NA-F	E3X-DAC-S	E3X-DAH-S
Key features	• Fastest response time of Omron fiber amplifiers	• White LED and RGB ratio comparison	• Infrared LED
Response time (min.)	20 µs	1 ms (60 µs in super high speed)	1 ms (55 µs in super high speed)

B

E32 Fiber-optic Sensor Heads

Standard Cylindrical Sensor Heads

The standard cylindrical fiber-optic sensing heads provide reliable object detection, easy installation and long sensor lifetime for all general applications.

- High-flex fibers and 90° cable exit reduce fiber breakage

- Models with hexagonal back for simplified one-nut mounting

- Sizes M3 to M6

Sensor type	Size	Sensing distance (mm)[*1]		Model	
		Standard	High-flex Fiber	Standard Fiber	High-flex
Through-beam	M4	760	530	E32-TC200	E32-T11R
	M3	220	130	E32-TC200E	E32-T21R
Through-beam	M4	—	530	—	E32-T11N 2M
Retro-reflective	M6	250[*2]	—	E32-R21	—
Diffuse-reflective	M6	300	170	E32-DC200	E32-D11R 2M
	M4	80	30	E32-D211 2M	E32-D211R 2M
	M3	80	30	E32-DC200E	E32-D21R 2M
Diffuse-reflective	M6	—	170	—	E32-D11N 2M
Diffuse-reflective	6 mm dia	110	45	E32-D14L	E32-D14LR
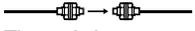
[*1] Sensing distance measured with E3X-DA-SE-S family. Longer sensing distances can be achieved with the E3X-HD and E3NX-FA.
[*2] Measured with E39-R3 reflector
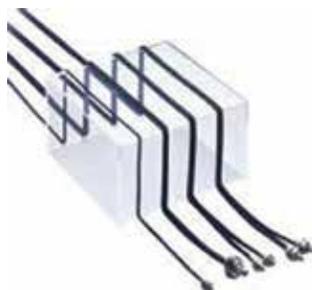
Hi-flex multicore fibers for flexibility in installation without fiber breakage

Models with hexagonal back for simple one-nut mounting

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Square Shape Sensor Heads

The fiber heads in square shaped housing provide fast and easy installation on flat surfaces.

- Models with sensing direction in X, Y or Z axis

- 3 or 4 mm thick housings for minimal height requirement

- Standard or high-flex fibers

B

Sensor type	Size (mm)	Sensing distance (mm)[1]		Model	
		Standard Fiber	High-flex Fiber	Standard Fiber	High-flex Fiber
Through-beam	15 x 8 x 3	760	560	E32-T15X 2M	E32-T15XR 2M
Through-beam	15 x 8 x 3	460	210	E32-T15Y 2M	E32-T15YR 2M
Through-beam	15 x 8 x 3	460	480	E32-T15Z 2M	E32-T15ZR 2M
Diffuse-reflective	15 x 10 x 3	300	170	E32-D15X 2M	E32-D15XR 2M
Diffuse-reflective	15 x 10 x 3	100	40	E32-D15Y 2M	E32-D15YR 2M
Diffuse-reflective	15 x 10 x 3	100	60	E32-D15Z 2M	E32-D15ZR 2M
Through-beam	24.5 x 10 x 3	890	—	E32-A03-1 2M	—
	20.5 x 2 x 2	340	—	E32-A04-1 2M	—
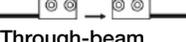
[1] Sensing distance measured with E3X-DA-SE-S family. Longer sensing distances can be achieved with the E3X-HD and E3NX-FA.
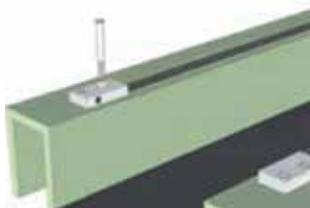
Space saving and fast mounting without additional brackets

Precise positioning during manufacturing for 90° optics to achieve minimal tolerance variations in optical output axis angle

E32 Fiber-optic Sensor Heads

Miniature Sensor Heads

The miniature fiber heads provide high accuracy in smallest spaces and reliable detection of miniature objects.

- Sizes from 500 µm diameter to 3 mm diameter

- Side view models with precision axis alignment for highest accuracy

- Bendable sleeves for precision positioning

Sensor type	Size	Sensing distance (mm)[1]		Model	
		Standard Fiber	**High-flex Fiber**	**Standard Fiber**	**High-flex Fiber**
Through-beam	3 mm dia	750	530	E32-T12 2M	E32-T12R
	2 mm dia	220	130	E32-T22	E32-T22R 2M
	1.5 mm dia	220	130	E32-T222 2M	E32-T222R 2M
	1 mm dia	—	130	—	E32-T223R 2M
Through-beam	3 mm dia	460	210	E32-T14L	E32-T14LR
	2 mm dia	340	—	E32-A04	—
Through-beam	1 mm dia	130	50	E32-T24	E32-T24R
Through-beam	1.2 mm dia	750	530	E32-TC200B	E32-TC200BR
	0.9 mm dia	220	130	E32-TC200F	E32-TC200FR
Diffuse-reflective	3 mm dia	80	30	E32-D22 2M	E32-D22R
	2 mm dia	75	40	E32-D32	E32-D32R 2M
	1.5 mm dia	—	30	—	E32-D22B
Diffuse-reflective	2 mm dia	30	15	E32-D24	E32-D24R
Diffuse-reflective	2.5 mm dia	300	170	E32-DC200B [3]	E32-DC200BR [3]
	1.2 mm dia	80	30	E32-DC200F	E32-DC200FR
Diffuse-reflective	0.8 mm dia	—	16	—	E32-D33
	0.5 mm dia	—	3	—	E32-D331
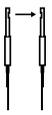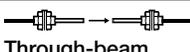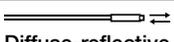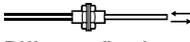
[1] Sensing distance measured with E3X-DA-SE-S family. Longer sensing distances can be achieved with the E3X-HD and E3NX-FA.
[2] Models with 40 mm sleeve instead of 90 mm sleeve are available by adding '4' to the order code at the end, e.g. E32-TC200B4
[3] Sleeve cannot be bent

E32 Fiber-optic Sensor Heads

Longer Distance Sensor Heads

With built-in focal lenses the longer distance fiber heads provide enhanced operational stability in dusty environments or long distance applications

- Sensing distance up to 20 m

- Built-in focal lens

- Sizes from 2 mm dia to M14 dia

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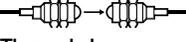
Sensor type	Size	Sensing distance (mm)[1]	Model
Through-beam	M14	20000	E32-T17L
Through-beam	25.2 x 10.5 x 8 mm	3400	E32-T14
Through-beam	M4	1330	E32-T11L
	M3	680	E32-TC200A
Through-beam	3 mm dia	1330	E32-T12L
	2 mm dia	440	E32-T22L
Convergent-reflective	21.4 x 27 x 10 mm	1500 [2]	E32-R16
Diffuse-reflective	22 x 17.5 x 9 mm	700	E32-D16
Diffuse-reflective	M6	400	E32-D11L
	M4	130	E32-D21L
Diffuse-reflective	3 mm dia	450	E32-D12
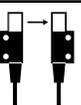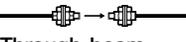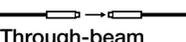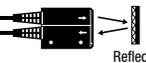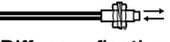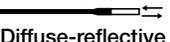
[1] Sensing distance measured with E3X-DA-SE-S family. Longer sensing distances can be achieved with the E3X-HD and E3NX-FA.
[2] Measured with E39-R1
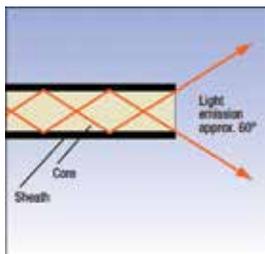
Light emission of conventional fibers
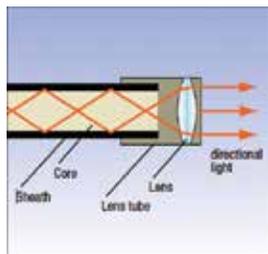
With built-in focal lenses, longer sensing distances can be achieved up to 5 times longer compared to conventional sensors

Built-in Lens Sensor Heads

- Achieve high power, focused beam detection without the need to attach a lens

- 15° beam aperture angle

- Standard or Flexible fiber options

- M4 through-beams and M6 Diffuse reflective fibers

Sensor type	Size	Sensing distance (mm)[1]	Model
Through-beam	M4	4,000	E32-LT11 2M
		4,000	E32-LT11R 2M
Diffuse-reflective	M6	860	E32-LD11 2M
		840	E32-LD11R 2M

[1] Sensing distance measured with E3X-HD family. Longer sensing distances can be achieved with the E3NX-FA.

Robot Application Sensor Heads

For applications on frequently or fast moving parts, the robot fibers reduce the risk of fiber breakage with a guaranteed operational life of more than 1 million bending cycles

- Free moving multicore fibers for more than 1 million bending cycles

- Square shapes for easy surface installation

- Cylindrical sizes from 1.5 mm dia to M6

Sensor type	Size	Sensing distance (in mm)[1]	Model
Through-beam	M4	680	E32-T11
	M3	200	E32-T21
Through-beam	3 mm dia	680	E32-T12B 2M
	2 mm dia	200	E32-T221B 2M
	1.5 mm dia	200	E32-T22B
Through-beam	15 x 18 x 3 mm	680	E32-T15XB
Diffuse-reflective	M6	170	E32-D11
	M4	70	E32-D21B
	M3	30	E32-D21
Diffuse-reflective	1.5 mm dia	30	E32-D22B
Diffuse-reflective	15 x 10 x 3 mm	170	E32-D15XB 2M
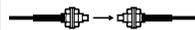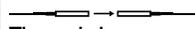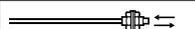
[1] Sensing distance measured with E3X-DA-SE-S family. Longer sensing distances can be achieved with the E3X-HD and E3NX-FA.

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Chemical Resistant Sensor Heads

The chemical resistant fibers provide long sensor lifetime in areas with frequent cleaning, usage of chemicals and higher temperatures.

- Fluoroplastic cover for highest chemical resistance

- Temperature resistance up to 200°C

Sensor type	Size	Sensing distance (mm)[1]	Cover material	Model
Through-beam	M4	680	Fluororesin coating	E32-T11U
Through-beam	5 mm dia	3,000	Fluororesin cover	E32-T12F
Through-beam	5 mm dia	1,400	Fluororesin cover	E32-T14F
Diffuse-reflective	M6	170	Fluororesin coating	E32-D11U
Diffuse-reflective	6 mm dia	85	Fluororesin cover	E32-D12F
Diffuse-reflective	6 mm dia	40	Fluororesin cover	E32-D14F
Through-beam	6 mm dia	700	Fluororesin cover Heat resistant to 200°C	E32-T81F-S
Through-beam	5 mm dia	3,000	Fluororesin cover Heat resistant to 150°C	E32-T51F
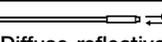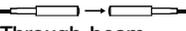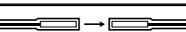
[1] Sensing distance measured with E3X-DA-SE-S family. Longer sensing distances can be achieved with the E3X-HD and E3NX-FA.

200°C
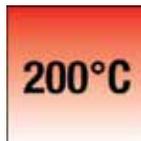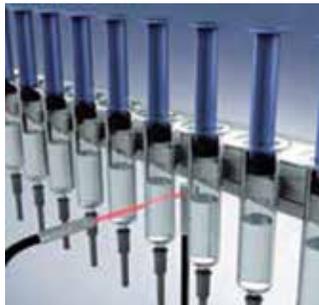
Enhanced temperature resistant models

The fluororesin cover provides highest chemical resistance for longest lifetime in frequently cleaned environments like aseptic filling in pharmaceutical applications

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E32 Fiber-optic Sensor Heads

Heat Resistant Sensor Heads

The wide range of heat resistant fibers provides long sensor lifetime with highest protection in demanding environments

- Heat resistant up to 400°C

- Sizes from 2 mm dia to M6

- Models for long distances or high detection accuracy

Sensor type	Size	Sensing distance (mm)[1]	Temperature Range	Model	
				For E3X-DA-S teachable amplifier	For E3X-NA amplifier with potentiometer adjustment
Through-beam	M4	450	-40°C to 150°C	E32-T51	
	M4	280	-40°C to 200°C	E32-T81R-S	
	M4	450	-60°C to 350°C	E32-T61-S	
Through-beam	2 mm dia	230	-40°C to 150°C	E32-T54	
Through-beam	3 mm dia	1300	-40°C to 200°C	E32-T84S-S	
Diffuse-reflective	M6	230	-40°C to 150°C	E32-D51	
	M6	280	-40°C to 200°C	E32-D81R-S	E32-D81R
Diffuse-reflective	M6	150	-60°C to 350°C	E32-D61-S	E32-D61
Diffuse-reflective	M4	60	-40°C to 400°C	E32-D73-S	E32-D73
Diffuse-reflective	23 x 20 x 9 mm	35	-40°C to 150°C	E32-A09H 2M	
	30 x 24 x 9 mm	25	-40°C to 300°C	E32-A09H2 2M	
Diffuse-reflective	36 x 18 x 5 mm	18	-40 to 300°C	E32-L66	
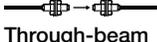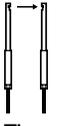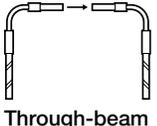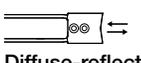
[1] Sensing distance measured with E3X-DA-SE-S family. Longer sensing distances can be achieved with the E3X-HD and E3NX-FA.
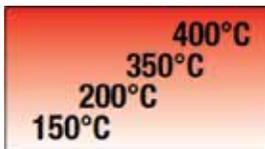
The temperature range optimized material selection provides best application fit and value - performance ratio.

Stainless steel spiral coating for flexibility with highest mechanical protection.

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Vacuum Resistant Sensor Heads

For applications in cleanest and hot environments the vacuum resistant fibers and connecting flanges provide long operational lifetime and vacuum integrity.

- Leakage rate of 1×10^{-10} Pa*M^3/s max

- Heat resistance up to 200°C

- Detergent resistant fluororesin or stainless steel fiber sheath

Sensor
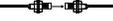
Sensor type	Size	Sensing distance (mm)[1]	Temperature Range	Model
Through-beam	M4	200	-40°C to 120°C	E32-T51V 1M
Through-beam	3 mm dia	130	-40°C to 120°C	E32-T54V 1M
	3 mm dia	480	-60°C to 200°C	E32-T84SV 1M

[1] Sensing distance measured with E3X-DA-SE-S family. Longer sensing distances can be achieved with the E3X-HD and E3NX-FA.

Flange

Type	Size	Model
4 channel flange	80 x 80 x 49 mm	E32-VF4
1 channel flange	96 x 30 dia mm max.	E32-VF1
Flange-to-amplifier connection fiber	2 m length	E32-T10V 2M
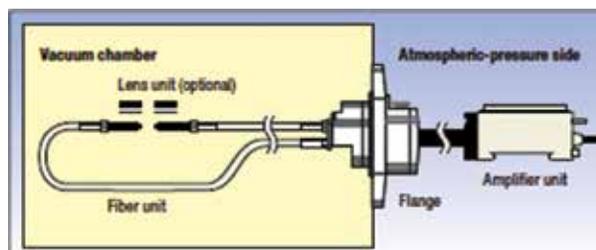
The vacuum resistant fiber heads and flanges are sealed to prevent gas leakage into vacuum areas

B

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Precision Detection Sensor Heads

Highest precision in design and manufacturing of the fibers and focal lenses ensure highest beam and spot accuracy allowing the detection of smallest objects and height differences of less than 100 µm.

- Coaxial fibers with focal lenses for spot diameters of 100 µm

- Through-beam models with highly focused beam and precise optical axis alignment

- Limited reflective models for height difference detection of less than 100 µm

Sensor type	Preferred usage	Size	Key feature	Sensing distance (mm) [1]	Model
Through-beam	Precise thin object detection / accurate positioning	3 mm dia	- High precision optical axis adjustment - Very focused beam	1900	E32-T22S
Through-beam		3 mm dia		890	E32-A03 2M
		3 mm dia		340	E32-A04 2M
Diffuse-reflective	Very small object detection	M6	—	300	E32-CC200 [2]
		M3	Spot dia 0.5 mm	20	E32-C31 2M
		M3	Spot dia 0.2 mm	17	E32-C41 + E39-F3B
		M3	Spot dia 0.1 mm	7	E32-C41 + E39-F3A-5
Diffuse-reflective		3 mm dia	—	150	E32-D32L
		2 mm dia	—	75	E32-D32 [2]
Diffuse-reflective		M6	- 90° cable exit - Hexagonal back	170	E32-C11N 2M
		M3		25	E32-C31N 2M
Diffuse-reflective		2 mm dia	Spot dia 0.5 to 1 mm	6-15 mm adjustable	E32-D32 + E39-F3A
		2 mm dia	Spot dia 0.1 to 0.6 mm	6-15 mm adjustable	E32-C42 + E39-F3A
Diffuse-reflective	Precision height difference detection / flat surface detection	23 x 20 x 9 mm	—	35	E32-A09 2M
Convergent-reflective		16 x 18 x 4 mm	—	7.2	E32-L25L [2]
		20 x 20 x 5 mm	—	3.3	E32-L25
Diffuse-reflective		18 x 20 x 4 mm	Precise spot e.g. for detection of a flat / reflective surface	4	E32-L24L [2]
Diffuse-reflective	Object detection in front of background	20.5 x 14 x 3.8 mm	Wide beam e.g. for object detection on a flat surface	15	E32-L16-N 2M
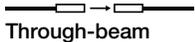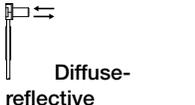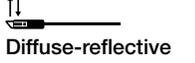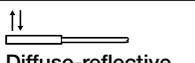
[1] Sensing distance measured with E3X-DA-SE-S family. Longer sensing distances can be achieved with the E3X-HD and E3NX-FA.
[2] A high flex cable version is available. Add 'R' to the order code, e.g. E32-CC200R

Area Monitoring Sensor Heads

The area monitoring fibers allow the detection of objects passing anywhere through the detection range and can be used for height comparisons of different objects.

- Area monitoring up to 70 mm height

- Multi-beam sensor with 4 separate heads for flexible detection points

- Standard or high flex fibers

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Sensor type	Area height (mm)	Sensing distance (mm)[1]		Model	
		Standard Fiber	High-flex Fiber	Standard Fiber	High-flex Fiber
Through-beam	10	2800	–	E32-T16	–
Through-beam	11	1100	840	E32-T16P	E32-T16PR
Through-beam	30	1800	1300	E32-T16W	E32-T16WR
	50	–	1800	–	E32-ET16WR-2
	70	–	2000	–	E32-ET16WR-1
Through-beam	11	1000	750	–	E32-T16JR
Through-beam	4 separate M3 heads	610	–	E32-M21	–
Diffuse-reflective	11	–	150	–	E32-D36P1
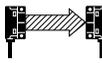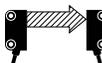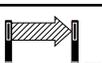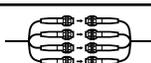
[1] Sensing distance measured with E3X-DA-SE-S family. Longer sensing distances can be achieved with the E3X-HD and E3NX-FA.
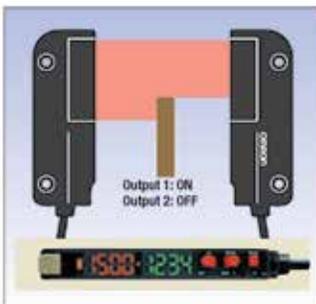
The two outputs of the E3X-DA-S can be used to detect two different light levels
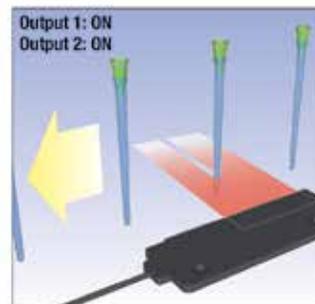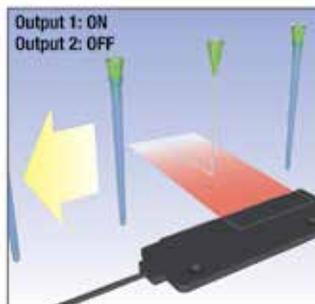
In combination with the twin output function of the E3X-DA-S amplifier, the diffuse reflective area monitoring fibers can detect very small objects (e.g. needles) and a second state (e.g. cover present). The area beam compensates for position variations at high speed.

E32 Fiber-optic Sensor Heads

Special Application Sensor Heads

For a wide range of special applications, the task optimized fiber heads provide best fitting sensing performance and adaptation to environmental requirements.

- Detection of special objects (liquids, labels on foils, etc.)

- Fiber heads ideal for color mark detection

- Fiber heads optimized for special tasks (wafer mapping, flat glass, etc.)

Sensor type		Size	Sensing distance (mm) [1]	Comment	Model
Through-beam	Fork shape	36 x 24 x 8 mm	10	–	E32-G14
Through-beam	Wafer mapping	3 mm dia	1900	–	E32-T22S
		3 mm dia	1300	–	E32-T24S
Through-beam		3 mm dia	890	–	E32-A03 2M
		2 mm dia	340	–	E32-A04 2M
	Liquid level sensor	6 mm dia	Liquid contact	Liquid level contact	E32-D82F1
Diffuse-reflective		15 x 23.5 x 5 mm	Tube contact	Liquid level detection through transparent tube or container	E32-D36T 2M
Diffuse-reflective	Glass detection	21 x 16.5 x 4 mm	8 mm	Metal housing	E32-A10 2M
		20.5 x 14 x 3.8 mm	15 mm	Plastic housing	E32-L16-N 2M
	Glass detection in hot environment	36 x 18 x 5.5 mm	18 mm	Heat resistant up to 300°C	E32-L66
Convergent-reflective	Glass detection in wet processes	38.5 x 39 x 17.5 mm	8 to 20 (recommended: 11 mm)	- Heat resistant up to 85°C - Recommended usage with 'tough mode' of E3X-DA-S	E32-L11FS 2M
Convergent-reflective	Label detection	20 x 20 x 5 mm	7.2	–	E32-L25L
Diffuse-reflective		18 x 20 x 4 mm	4	–	E32-L24L
Diffuse-reflective	Color/print mark detection	M6	300	Recommended for standard color and color mark detection	E32-CC200
		29 x 25.5 x 11.2	55	Recommended for challenging color and color mark detection	E32-L15 2M
Diffuse-reflective		23 x 20 x 9 mm	35		E32-A09 2M
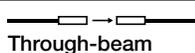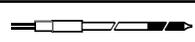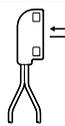
[1] Sensing distance measured with E3X-DA-SE-S family. Longer sensing distances can be achieved with the E3X-HD and E3NX-FA.

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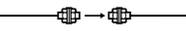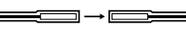
E3X-HD Fiber-optic Sensors

Easy-Teach Digital Amplifier

Fiber-optic amplifier provides ultra-stable performance and smart tuning for high-speed, reliable input to open protocol industrial networks.

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

- Confirm settings, status with dual display and indicators on control buttons

- Automatic compensation for large objects and low reflectance dark targets

- Smart power control function compensates for grime build-up and LED deterioration

- EtherCAT and CompoNet high-speed open network communication interfaces available

Sensor Amplifiers

Item	Maximum connectable units	Connection method	NPN output model	PNP output model
Standard models	16 units	Pre-wired, 2 m cable	E3X-HD11 2M	E3X-HD41 2M
	16 units	Wire-saving connector	E3X-HD6	E3X-HD8
M8 models	16 units	M8 4-pin connector (XS3F Series	E3X-HD14	E3X-HD44
Network models	16 units (E3X-CRT CompoNet); 30 units (E3X-ECT EtherCAT)	Communications unit	E3X-HD0	

Wire-saving Connectors

Item	Cable length	Number of conductors	Function	Model
Master connector	2 m	3	First amplifier, with power line	E3X-CN11
Slave connector		1	Second and subsequent amplifiers	E3X-CN12
Cordless slave connector	--	--	Use with amplifiers connected to a communication interface unit	E3X-CN02

Network Communication Interface Units

Network type	Applicable Fiber Amplifiers	Model
CompoNet	E3X-HD0, E3X-MDA0, E3X-DA0-S	E3X-CRT
EtherCAT		E3X-ECT

E3NX-FA Fiber-optic Sensors

Advanced Functionality Amplifier

The E3NX-FA amplifier is the best choice for even the most challenging fiber applications in terms of long sensing distance, small object detection or high speed processes.

- Easy calibration with Smart Tune allows for quick and stable setup

- New N-Smart technology provides significant improvements in sensing distance, minimum object detection and speed

- Straightforward sensor status information with Solution Viewer and Change Finder function

- EtherCAT communication unit for high-speed field bus connectivity

CE

Sensor Amplifiers

Item	Connection method	Inputs/outputs	Model	
			NPN output	**PNP output**
Standard models	Pre-wired (2 m)	1 output	E3NX-FA11 2M	E3NX-FA41 2M
	Wire-saving connector	1 output	E3NX-FA6	E3NX-FA8
Advanced models	Pre-wired (2 m)	2 outputs + 1 input	E3NX-FA21 2M	E3NX-FA51 2M
	Wire-saving connector	1 output + 1 input	E3NX-FA7	E3NX-FA9
		2 outputs	E3NX-FA7TW	E3NX-FA9TW
Model for sensor communications unit	Connector for sensor communications unit	2 outputs	E3NX-FA0	

Wire-saving Connectors

Item	Cable length	Number of conductors	Applicable Fiber Amplifier Units	Model
Master connector	2 m	4	E3NX-FA7, E3NX-FA7TW, E3NX-FA9, E3NX-FA9TW	E3X-CN21
Slave connector		2		E3X-CN22
Master connector		3	E3NX-FA6, E3NX-FA8	E3X-CN11
Slave connector		1		E3X-CN12

Network Communication Interface Units

Type	Model
Sensor communications unit for EtherCAT	E3NW-ECT
Sensor dispersion unit	E3NW-DS

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E3X-NA Fiber-optic Sensors

Simple, Easy-to-Read Amplifier with Bar Graph Display

- Streamlined features provide basic sensing immediately after plug-in

- Easy push button teach with or without workpiece

- Pre-wired (2 m cable) and wire-saving connector models available

- IP66 water-resistant models available

Ordering Information

Type	Item	Model	
		NPN output	**PNP output**
Pre-wired (2 m)	Standard	E3X-NA11	E3X-NA41
Pre-wired (2 m)	Enhanced water resistance	E3X-NA11V 2M	E3X-NA41V 2M
Connector	Standard (fiber amplifier connector)[1]	E3X-NA6	E3X-NA8
Connector	Enhanced water resistance (M8 4-pin connector)	E3X-NA14V	E3X-NA44V

[1] Order connector separately, see E3X-DA-S.

E3X-SD Fiber-optic Sensors

High Performance Amplifier with Single Digital Display

- Large, 6 mm wide digital display provides read-out of incident and operating level

- Incident settings and management can be performed reliably with fine tune adjustment

- Connectivity for up to 16 amplifiers

- Rated IP50

Ordering Information

Type	Item	Model	
		NPN output	**PNP output**
Pre-wired (2 m)	Standard	E3X-SD21 2M	E3X-SD51 2M
Connector	Standard (fiber amplifier connector)[1]	E3X-SD6	E3X-SD8

[1] Order connector separately, see E3X-DA-S.

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B

E3X-DA-S Fiber-optic Sensors

High Function Digital Amplifier

Advanced timing, LED power control and signal processing functionality providing highest detection accuracy and stability even for the most challenging objects and settings.

- Power tuning function to adjust the received light to a maximum, minimum or pre-defined value

- Auto power and threshold adjustment functions for highest operational stability

- Two outputs for window monitoring or two level detections (e.g. object + object state change)

Amplifier

Item	Function								Model	
	Power Tuning	Timer	Auto-threshold compensation (ATC)	Twin output	External input	Differential operation	Wet process 'tough mode'	Power saving 'Eco' functions (display/LED off)	NPN output	PNP output
Pre-wired	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	E3X-DA21-S 2M	E3X-DA51-S 2M
Fiber amplifier connector [1]	Yes	Yes	Yes	Yes - selectable	Yes	Yes	Yes	Yes	E3X-DA7-S	E3X-DA9-S

[1] Order E3X-CNxx connector separately below.

Wire-saving Connectors

Item	Cable length	Number of conductors	Function	Compatible sensor amplifiers	Model
Master connector	2 m	3	First amplifier, with power line	E3X-DA7F-S, E3X-DA9F-S, E3X-DA6SE-S, E3X DA8SE-S, E3X-DA6-S, E3X-DA8-S, E3X-DAG6-S, E3X-DAG8-S, E3X-DAB6-S, E3X-DAB8-S, E3X-DAH6-S, E3X-DAH8-S, E3X-DAC6-S, E3X-DAC8-S, E3X-SD6, E3X-SD8, E3X-NA6, E3X-NA8, E3X-NA14V, E3X-NA44V, E3X-HD6, E3X-HD8, E3NX-FA6, E3NX-FA8	E3X-CN11
Slave connector		1	Second and subsequent amplifiers		E3X-CN12
Master connector		4	First amplifier, with power line	E3X-DA7-S, E3X-DA9-S, E3X-DA6TW-S, E3X-DA8TW-S, E3X-DA6RM-S, E3X-DA8RM-S, E3X-DA6AT-S, E3X-DA8AT-S, E3X-MDA6, E3X-MDA8, E3X-DA6E-S, E3X-DA8SE-S, E3NX-FA7, E3NX-FA7TW, E3NX-FA9, E3NX-FA9TW	E3X-CN21
Slave connector		2	Second and subsequent amplifiers		E3X-CN22
Cordless slave connector	--	--	Use with amplifiers connected to a communication interface unit	E3X-HD0, E3X-DA0-S, E3X-MDA0	E3X-CN02

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Digital Amplifier With One Button Teaching

E3X-DA-SE-S allows easy one button setting and provides the best value to performance ratio for standard applications.

- Auto-teaching during machine operation

- Digital dual display for incident level and threshold

- Object or 2-point teaching within a few seconds

B

Amplifier

Item	Model	
	NPN output	**PNP output**
Pre-wired	E3X-DA11SE-S	E3X-DA41SE-S
Fiber amplifier connector [1]	E3X-DA6SE-S	E3X-DA8SE-S

[1] Order connector separately.

Amplifier Connectors

Shape	Type	Comment	Model
	Fiber amplifier connector	2 m PVC cable	E3X-CN21
		30 cm PVC cable with M12 plug connector (4 pin)	E3X-CN21-M1J 0.3M
		30 cm PVC cable with M8 plug connector (4 pin)	E3X-CN21-M3J-2 0.3M

[1] Order connector separately. For M8 connector models see E3X-DA-S.

TEACH IN with one button klick!

Fine adjustment with UP-/DOWN buttons

1-button auto-teaching

Workpiece Workpiece Workpiece

Push the TEACH button for min. 3 seconds

2-point teaching

Workpiece

Position a workpiece and press the TEACH button.

Remove a workpiece and press the TEACH button.

E3X-MDA Fiber-optic Sensors
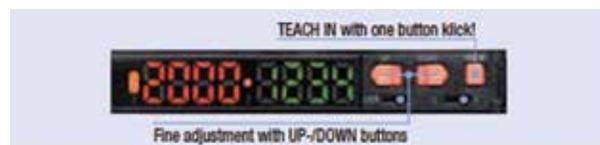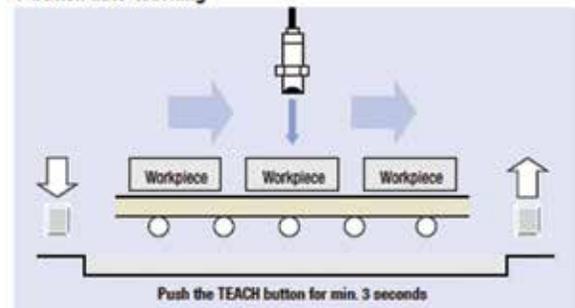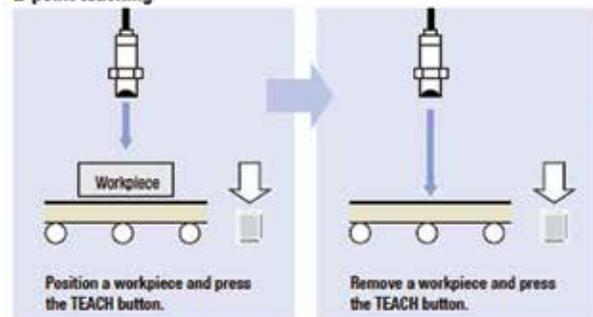
Dual Fiber Amplifier

E3X-MDA incorporates 2 digital fiber amplifiers in one slimline housing. For applications requiring the detection of two objects simultaneously the E3X-MDA provides an easy to use operation saving space and set-up time.

- Two digital amplifiers in one slimline housing

- Twin output models – on/off or area (between two threshold values)

- Signal comparison functions (AND, OR, etc.)

Item	Function	Model	
		NPN output	PNP output
Pre-wired	AND/OR output	E3X-MDA11	E3X-MDA41
Fiber amplifier connector[1]	AND/OR output	E3X-MDA6	E3X-MDA8
Communication model	AND/OR output	E3X-MDA0	

[1] Order E3X-CNxx connector separately, see E3X-DA-S.

E3X-NA-F Fiber-optic Sensors

Fast Response Digital Amplifier with Potentiometer

The E3X-NA-F provides a very fast response time and is the ideal amplifier for high speed detection applications.

- Short turn on time of only 20 µs

- Easy adjustment with potentiometer

Shape	Model	
	NPN output	PNP output
Pre-wired	E3X-NA11F	E3X-NA41F 2M

For complete specifications and additional models and accessories visit www.omron247.com

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Color (RGB) Digital Fiber Amplifier

The E3X-DAC-S detects the color and returned light intensity of a mark or object and compares it with a stored RGB ratio or intensity value. The RGB ratio or contrast difference allows the stable detection of differently colored, black, grey or white marks or objects.

- White LED for color independence
- Fast response time of 60 µs
- Timer function for variable ON or OFF delay up to 5 seconds
- Remote teaching or easy one-button teaching

Pre-wired

Item	Functions	Model (for pre-wired types with 2 m cable)	
		NPN output	PNP output
Standard models	Timer, response speed change	E3X-DAC11-S 2M	E3X-DAC41-S 2M
Advanced models	Standard models + simultaneous determination (2 colors) AND/OR output, remote setting	E3X-DAC21-S 2M	E3X-DAC51-S 2M
	Standard models + 4-color detection AND/OR output, bank switching	ESX-DAC21B-S 2M	E3X-DAC518-S 2M

Connector Versions

Item	Functions	Model	
		NPN output	PNP output
Standard models (fiber amplifier connector) *1	Timer, response speed change	E3X-DAC6-S	E3X-DAC8-S

*1 Order connector separately, see E3X-DA-S.

Digital Amplifier with Infrared LED

The digital fiber amplifiers with infrared LED are ideal for water detection applications or where visible light is not desired.

- Infrared LED
- LED power control and signal processing function

Pre-wired

Item	Model (for pre-wired types with 2 m cable length)	
	NPN output	PNP output
Infrared light	E3X-DAH11-S	E3X-DAH41-S

Connector Versions

Item	Model	
	NPN output	PNP output
Infrared light (fiber amplifier connector)*1	E3X-DAH6-S	E3X-DAH8-S

*1 Order connector separately, see E3X-DA-S.

Reduced Wiring Solution to Interface with Open Communication Networks

Build efficient sensor input slave blocks using E3X Communication Interface Units and multiple E3X sensors. This solution reduces wiring, saves space and shortens setup time.

- EtherCAT, CompoNet, DeviceNet and serial communication units available

- Connect up to 16 fiber-optic sensors to each unit (up to 30 with EtherCAT)

- Supports explicit message communications

- Use E3X-CN02 Cordless Slave Connector for each sensor

- Remote setting, monitoring and operating through CX-Integrator software

- Mobile Programming Console for simple setting and monitoring locally

Network Communication Interface Units

Network type	Maximum connectable amplifiers	Compatible sensor amplifiers	Model
EtherCAT	30 units	E3X-HD0, E3X-MDA0, E3S-DA0-S	E3X-ECT
CompoNet	16 units	E3X-HD0, E3X-MDA0, E3S-DA0-S	E3X-CRT
DeviceNet	16 units	E3X-DA7-S, E3X-DA9-S, E3X-DA6-S, E3X-DA8-S, E3X-DAG6-S, E3X-DAG8-S, E3X-DAB6-S, E3X-DAB8-S, E3X-DAH6-S, E3X-DAH8-S, E3X-DA6RM-S, E3X-DA8RM-S, E3X-DA6TW-S, E3X-DA8TW-S, E3X-DA6AT-S, E3X-DA8AT-S, E3X-MDA6, E3X-MDA8, E3C-LDA11, E3C-LDA41, E2C-EDA11, E2C-EDA41	E3X-DRT21S
	16 units	E3X-DA6, E3X-DA8, E3X-DAB6, E3X-DAB8, E3X-DAG6, E3X-DAG8, E3X-DA6TW, E3X-DA8TW, E3X-DA6-P	E3X-DRT21 SVER3
Serial RS-422	16 units	E3X-DA6, E3X-DA8, E3X-DAB6, E3X-DAB8, E3X-DAG6, E3X-DAG8, E3X-DA6TW, E3X-DA8TW, E3X-DA6-P	E3X-CIF11

Note: The E3NX-FA is not compatible with the above devices. Please use the E3NW EtherCAT device with the E3NX-FA series.

Connector

Item	Function	Model
Cordless slave connector	Replaces individual cabling for network communications	E3X-CN02

For complete specifications and additional models and accessories visit www.omron247.com

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Proximity Sensors

Contents

FOR MACHINES THAT NEVER STOP

Our proximity sensors are designed and tested to ensure
a long service life and achieve maximum machine availability
even in the harshest environments.
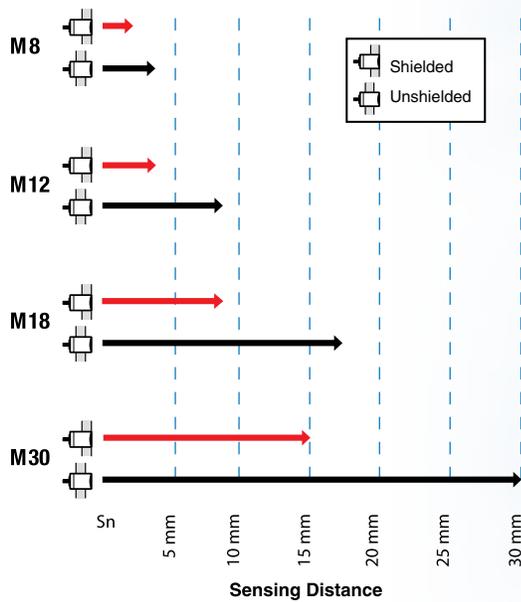
Cylindrical, Brass Housing, DC 2-Wire, DC 3-Wire and AC 2-Wire	E2E
Cylindrical brass housing, DC 3-Wire and antivalent (DC 4-Wire)	E2A
Long Barrel, cylindrical brass housing, DC 2-Wire, DC 3-Wire and AC 2-Wire	E2E2
Long Barrel, cylindrical brass housing, DC 2-Wire	E2A
Short or Long Barrel, cylindrical brass housing, DC 3-Wire	E2B

- Highest water resistance

- Highest electromagnetic noise immunity (e.g. from inverters)

- Antivalent output for cable breakage detection

- Wide connection range

Special Applications

Enhanced oil resistance	Chemical resistant plastic body	Detergent resistant	Metal chip immune
E2E-U	E2F	E2EH	E2FM
Tested oil resistance on commonly used lubricants	Polyarylate plastic housing	Stainless steel housing	All stainless steel body resists impacts, abrasive scouring

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Miniature housing:

E2EC	E2E small diameter	E2S

Compact square housing:

TL-W

Longer distance:

E2EM	E2Q5	E2A3

Special Applications

Chemical resistant	Remote amplifier	Weld spatter resistant
E2FQ	**E2C-EDA**	**E2EQ**
Fluoro plastic (PTFE) housing	Heat resistant; Small sensing heads to fit tight spaces	Rugged fluororesin coated brass housing

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Selection Table

Capacitive Sensors

Detect non-magnetic metals, glass, plastic, liquids, wood and leather, including liquids or solids inside non-metalic containers.

Standard cylindrical	Unthreaded cylindrical	Flat rectangular	Liquid level	Chemical resistant
E2K-X	E2K-C	E2K-F	E2K-L	E2KQ-X
ABS housing	Adjustable distance; ABS housing	Thin low-profile ABS housing for conveyor rail mounting	Detects clear and foamy liquids, mounts to sight glass and piping	Fluoroplastic resin coating

Proximity Sensors - Special Application

Inductive sensors that are specially tuned or sized to solve tough detection problems in challenging locations.

Miniature separate amplifier	Aluminum detection	Non-ferrous metals only	Cutting chip resistant
E2EC	E2CY	E2EY	E2EZ
For demanding mounting conditions	Separate amplifier with compact head	Aluminum; Copper; Brass	Machine tool applications

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Category	Inductive Proximity	Inductive Proximity	Inductive Proximity
Model	E2E	E2B	E2A
Product type	Standard cylindrical	Short or long barrel, standard or extended range cylindrical	Short or long barrel, extended range cylindrical
Maximum Shielded sensing distances	10 mm	15 mm	15 mm
Maximum Unshielded sensing distances	20 mm	30 mm	30 mm
DC supply voltage	12 to 24 VDC	10 to 30 VDC	12 to 24 VDC
AC supply voltage	24 to 240 VAC or 90 to 140 VAC 50/60 Hz	N/A	N/A
Load ratings	100, 200 or 300 mA max.	200 mA max.	100 mA max.
Output types	NPN, PNP, DC 2-Wire or SCR	NPN or PNP	NPN or PNP
Output state	N.O. or N.C.	N.O. or N.C.	N.O. or N.C.
Connections	Pre-wired, connector	Pre-wired, connector	Pre-wired, connector
IP rating	IP67	IP67	IP69K

Category	Inductive Proximity	Inductive Proximity	Inductive Proximity
Model	E2EM	E2A3	E2E2
Product type	Standard cylindrical, extended range cylindrical	Standard cylindrical, extra long-distance cylindrical	Long barrel cylindrical
Maximum Shielded sensing distances	15 mm	20 mm	10 mm
Maximum Unshielded sensing distances	30 mm	N/A (Shielded only)	20 mm
DC supply voltage	12 to 24 VDC	12 to 24 VDC	12 to 24 VDC
AC supply voltage	N/A	N/A	24 to 240 VAC or 90 to 140 VAC 50/60 Hz
Load ratings	100 mA and 200 mA max.	200 mA max.	100, 200 or 300 mA max.
Output types	NPN, PNP, or DC 2-wire	NPN or PNP	NPN, PNP, DC 2-Wire or SCR
Output state	N.O. or N.C.	N.O. or N.C.	N.O. or N.C.
Connections	Pre-wired, connector	Pre-wired, connector	Pre-wired, connector
IP rating	IP67	IP67	IP67

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Selection Table

Category	Inductive Proximity	Inductive Proximity	Inductive Proximity
Model	**E2EC**	**TL-W**	**E2Q5**
Product type	Subminiature cylindrical with long-distance detection	Flat rectangular proximity sensor	Long distance square proximity sensor
Maximum Shielded sensing distances	4 mm	5 mm	20 mm
Maximum Unshielded sensing distances	N/A (Shielded only)	20 mm	40 mm
DC supply voltage	12 to 24 VDC and 5 to 24 VDC	12 to 24 VDC	10 to 30 VDC
AC supply voltage	N/A	N/A	N/A
Load ratings	100 mA max.	100 mA and 200 mA max.	200 mA max.
Output types	NPN, PNP, or DC 2-Wire	NPN, PNP, or DC 2-wire	NPN or PNP
Output state	N.O. or N.C.	N.O. or N.C.	N.O. or N.O. + N.C.
Connections	Pre-wired	Pre-wired	M12 quick disconnect
IP rating	IP64 and IP67	IP67	IP67 and IP69K

Category	Inductive Proximity	Inductive Proximity	Inductive Proximity
Model	**E2S**	**E2F**	**E2FM**
Product type	Super-compact rectangular proximity sensor	Cylindrical proximity sensor with resin case and superb water resistance	Highly durable cylindrical proximity sensor for tough environments
Maximum Shielded sensing distances	N/A	10 mm	10 mm
Maximum Unshielded sensing distances	2.5 mm	N/A	N/A
DC supply voltage	12 to 24 VDC	12 to 24 VDC	12 to 24 VDC
AC supply voltage	N/A	90 to 140 VAC and 24 to 240 VAC	N/A
Load ratings	50 mA max.	100, 200, 300 and 500 mA max.	100 mA and 200 mA max.
Output types	NPN, PNP and DC 2-Wire	NPN, PNP and SCR	NPN, PNP and DC 2-Wire
Output state	N.O. or N.C.	N.O. or N.C.	N.O. or N.C.
Connections	Pre-wired	Pre-wired	Pre-wired, connector
IP rating	IP67	IP68	IP67

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Proximity Sensors

Category	Inductive Proximity	Inductive Proximity	Inductive Proximity
Model	E2EH	E2E-U	E2EQ
Product type	High temperature detergent resistant cylindrical proximity sensor	Oil resistant cylindrical	Spatter-resistant fluororesin coated proximity sensor
Maximum Shielded sensing distances	12 mm	10 mm	15 mm
Maximum Unshielded sensing distances	N/A	N/A	N/A
DC supply voltage	12 to 24 VDC	12 to 24 VDC	12 to 24 VDC
AC supply voltage	N/A	N/A	N/A
Load ratings	50 mA and 100 mA max.	100 mA max.	100 mA max.
Output types	NPN, PNP and DC 2-Wire	DC 2-wire	DC 2-Wire
Output state	N.O. or N.C.	N.O. or N.C.	N.O. or N.C.
Connections	Pre-wired, connector	Pre-wired, connector	Pre-wired, connector
IP rating	IP67, IP69K	IP67 and IP67g	IP67

Category	Inductive Proximity	Capacitive Proximity	Inductive Proximity
Model	E2KQ-X	E2FQ	E2C-EDA
Product type	Fluororesin coated, chemical resistant capacitive sensor with sensitivity adjuster	Fluororesin coated, chemical resistant Inductive sensor	High precision positioning proximity sensor with separate digital amplifier
Maximum Shielded sensing distances	N/A	10 mm	5 mm
Maximum Unshielded sensing distances	10 mm	N/A	7 mm
DC supply voltage	12 to 24 VDC	12 to 24 VDC	12 to 24 VDC
AC supply voltage	N/A	N/A	N/A
Load ratings	100 mA max.	100, 200 and 300 mA max.	50 mA max.
Output types	NPN	NPN, DC 2-wire and SCR	NPN and PNP
Output state	N.O. or N.C.	N.O.	N.O. or N.C.
Connections	Pre-wired	Pre-wired	Pre-wired, connector
IP rating	IP66	IP67	IP50, IP60, IP67

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For complete specifications and additional models and accessories visit www.omron247.com

Selection Table

Category	Inductive Proximity	Capacitive Proximity	Capacitive Proximity
Model	E2K-X	E2K-C	E2K-F
Product type	General purpose threaded cylindrical capacitive sensor	Long-distance cylindrical capacitive sensor with adjustable sensitivity	Flat proximity sensor
Maximum Shielded sensing distances	N/A	N/A	N/A
Maximum Unshielded sensing distances	15 mm	25 mm	10 mm
DC supply voltage	12 to 24 VDC	12 to 24 VDC and 24 to 240 VDC	12 to 24 VDC
AC supply voltage	100 to 220 VAC, 50/60 Hz	100 to 220 VAC, 50/60 Hz and 24 to 240 VAC 50/60 Hz	N/A
Load ratings	200 mA max.	200 mA and 250 mA max.	100 mA max.
Output types	NPN, PNP and SCR	NPN, PNP and SCR	NPN
Output state	N.O. or N.C.	N.O. or N.C.	N.O. or N.C.
Connections	Pre-wired	Pre-wired	Pre-wired
IP rating	IP66	IP66, IP67	IP64, IP66

Category	Capacitive Proximity
Model	E2K-L
Product type	Liquid level sensor
Maximum Shielded sensing distances	N/A
Maximum Unshielded sensing distances	1.5 mm
DC supply voltage	12 to 24 VDC
AC supply voltage	N/A
Load ratings	100 mA max.
Output types	NPN
Output state	N.O.
Connections	Pre-wired
IP rating	IP64, IP66

For complete specifications and additional models and accessories visit www.omron247.com

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Standard Cylindrical DC 2-Wire, DC 3-Wire, and AC Proximity Sensors

- DC 2-wire, DC 3-wire, AC/DC 2-wire, and AC 2-wire versions available

- Popular for Automotive, Food/Beverage, and Packaging Industries

- Thick nickel-plated brass (NPB) barrel

- Wrench flats for easy installation

- Solid potted internal circuitry withstands shocks

- IP67 and IP69K rated

- Flush mountable shielded versions

- Built-in circuit protection

- Sensor mounting and protective accessories, see Y92E

C

Ordering Information

E2E – ☐☐☐☐☐☐☐ – ☐☐ – ☐ – ☐ – ☐ ☐
❶ ❷ ❸ ❹ ❺ ❻ ❼ ❽ ❾ ❿ ⓫ ⓬ ⓭
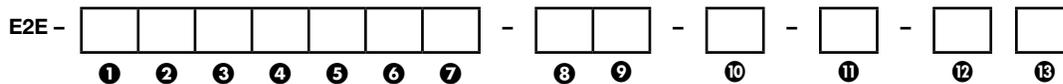
Code	Description
❶ Appearance	
C	Cylindrical (not threaded)
X	Cylindrical (threaded)
❷ Sensing Distance	
(number)	Sensing distance (unit: mm)
R	Indication of decimal point Example: R6 = 0.6 mm; 1R5 = 1.5 mm
❸ Shielding	
(blank)	Shielded models
M	Unshielded models
❹ Power Supply and Output Specifications Whether D models have polarity is defined by ❿.	
B	DC 3-wire PNP open-collector output
C	DC 3-wire NPN open-collector output
D	DC 2-wire polarity/no polarity
E	DC 3-wire NPN collector load built-in output
F	DC 3-wire PNP collector load built-in output
T	AC/DC 2-wire
Y	AC 2-wire

Code	Description
❺ Form of Output Switching Element	
1	Normally open (NO)
2	Normally closed (NC)
❻ Oscillation Frequency Type (Used to prevent mutual interference.)	
(blank)	Standard frequency
5	Different frequency
❼ Self-diagnosis	
(blank)	No
5	Yes
❽ Connection Method	
(blank)	Pre-wired
M1	M12-size metal connector
M3	M8-size metal connector

Note: Models are not available for all combinations of code numbers.

(continued from previous page)

E2E – [❶][❷][❸][❹][❺][❻][❼] – [❽][❾] – [❿] – [⓫] – [⓬][⓭]
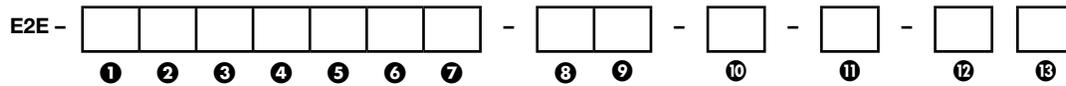
❾ Connector Specifications	
(blank)	Connector models DC 3-wire and AC 2-wire, DC 2-wire with self diagnosis output, DC 2 wire with old pin arrangement
G	Connector models DC 2-wire with IEC pin arrangement
J	Pre-wired connector models DC 3-wire and AC 2-wire, DC 2-wire with old pin arrangement
GJ	Pre-wired connector models DC 2-wire with IEC pin arrangement
TJ	Pre-wired Smartclick connector models DC 2-wire
TGJ	Pre-wired Smartclick connector models DC 2-wire with IEC pin arrangement

❿ DC 2-Wire Polarity	
(blank)	Polarity
T	No polarity

⓫ Cable Specifications	
(blank)	Standard PVC cable (oil resistant)
R	Flexible PVC cable (oil resistant)
U	Polyurethane cable (oil resistant and reinforced)

⓬ New Model	
N	New model (Applies only to DC 2-wire pre-wired and shielded models.) This is blank if the cable specification in ⓫ is R or U.

⓭ Cable Length	
(number) M	Cable length (unit: m) (Applicable to pre-wired models and pre-wired connector models. Examples: 2M, 0.3M

Note: Models are not available for all combinations of code numbers.

The purpose of this model number legend is to provide understanding of the meaning of specifications from the model number.

E2B Standard Environment DC 3-Wire

Standard Environment DC 3-Wire

- Popular applications: Material handling, Conveying, Machine tools
- All-around 360° visible output indicator
- IP67 water resistance
- Laser-etched part numbers that do not wear off
- M8 - M30 sizes, Single or Double sensing distances, Short or Long body

C

Ordering Information

E2B – ❶❷❸❹❺ – ❻ – ❼❽ – ❾
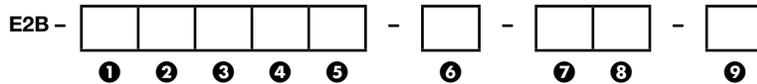
Examples:

E2B-M12LS04-M1-B1
Standard, M12, long barrel, shielded, Sn=4 mm, M12 connector, PNP-NO

E2B-S08KN04-WP-B1 5M
Standard, M8 stainless steel, short barrel, non-shielded, Sn=4 mm, pre-wired PVC cable, PNP-NO, cable length = 5 m

Code	Description
❶ Housing shape and material	
M	Cylindrical, metric threaded, brass
S	Cylindrical, metric threaded, stainless steel
❷ Housing Size	
08	8 mm
12	12 mm
18	18 mm
30	30 mm
❸ Barrel Length	
K	Standard length
L	Long body
❹ Shield	
S	Shielded
N	Non-shielded
❺ Sensing Distance	
(number)	Sensing distance Example: 02 = 2 mm; 16 = 16 mm

Code	Description
❻ Type of Connection	
WP	Pre-wired, PVC, dia 4 mm (standard)
M1	M12 connector (4 pin)
MC	M8 connector (3 pin)
❼ Power Source and Output	
B	DC, 3-wire, PNP open collector
C	DC, 3-wire, NPN open collector
❽ Operation Mode	
1	Normally open (NO)
2	Normally closed (NC)
❾ Cable Length	
(blank)	Connector type
(number)	Cable length

Note: Models are not available for all combinations of code numbers.

E2A Inductive Proximity Sensors

Increased Sensing Range DC Inductive

- DC 2-Wire, DC 3-Wire, DC 4-Wire (NO+NC)

- Popular in Food/Beverage, Bottling, and Packaging industries

- Extended (double) sensing distance

- IP67 and IP69K for wash down resistance

- Standard or Long body length

- Wide installation and connectivity range through modular concept

CE

Ordering Information

E2A ☐ – ☐☐☐☐☐ – ☐ – ☐☐ – ☐☐
❶   ❷❸❹❺❻   ❼   ❽❾   ❿ ⓫
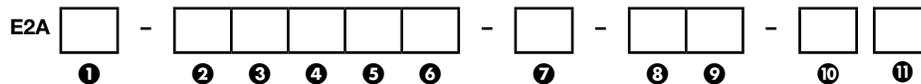
Examples:

E2A-M12LS04-M1-B1
Standard, M12, long barrel, shielded, Sn=4 mm, M12 connector, PNP-NO

E2A-M08KN04-WP-B1 5M
Standard, M8 stainless steel, short barrel, non-shielded, Sn=4 mm, pre-wired PVC cable, PNP-NO, cable length = 5 m

Code	Description
❶ Sensing Technology	
(blank)	Standard double distance
❷ Housing shape and material	
M	Cylindrical, metric threaded, brass
S	Cylindrical, metric threaded, stainless steel
❸ Housing Size	
08	8 mm
12	12 mm
18	18 mm
30	30 mm
❹ Barrel Length	
K	Standard length
L	Long body
❺ Shield	
S	Shielded
N	Non-shielded
❻ Sensing Distance	
(number)	Sensing distance Example: 02 = 2 mm; 16 = 16 mm

Code	Description
❼ Type of Connection	
WP	Pre-wired, PVC, dia 4 mm (standard)
M1	M12 connector (4-pole)
M3	M8 connector (4-pole)
M5	M8 connector (3-pole)
❽ Power Source and Output	
B	DC, 3-wire, PNP open collector
C	DC, 3-wire, NPN open collector
E	DC, 3-wire, NPN voltage output
F	DC, 3-wire, PNP voltage output
❾ Operation Mode	
1	Normally open (NO)
2	Normally closed (NC)
❿ Specials Example: Cable material, oscillating frequency)	
⓫ Cable Length	
(blank)	Connector type
(number)	Cable type

Note: Models are not available for all combinations of code numbers.

OMRON

Extended Range, DC 2-Wire Standard Cylindrical Sensors

- Nickel-Plated Brass (NPB) barrel
- Wrench flats for easy installation
- Solid potted internal circuitry withstands shocks
- IP67 rated, 1200 psi water washdown
- Built-in circuit protection
- Normally Open (NO) circuit type stocked; Normally Closed (NC) available

CE

C

DC 2-Wire Sensors, Pre-Wired with 2 m Cable

Size	Sensing Distance (mm)	Shielded	Circuit Type	Response Frequency	Body Material	Thread Length (overall length) mm	Model
M12	4.0	Yes	NO	1 kHz	NPB	33 (38)	E2EM-X4X1
M18	8.0			500 Hz			E2EM-X8X1
	16.0	No		400 Hz		50 (65)	E2EM-X16MX1
M30	15.0	Yes		250 Hz		43 (48)	E2EM-X15X1
	30.0	No		100 Hz		50 (70)	E2EM-X30MX1

DC 2-Wire with M12 Micro-Change® Connectors

NPN Normally Open (C1-M1)
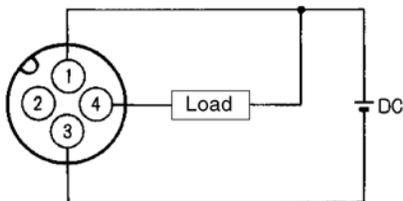
PNP Normally Open (B1-M1)

Size	Sensing Distance (mm)	Shielded	Circuit Type	Response Frequency	Body Material	Thread Length (overall length) mm	Model
M8	2.0	Yes	NPN-NO	1.5 kHz	NPB	30 (43)	E2EM-X2C1-M1
			PNP-NO				E2EM-X2B1-M1
M12	4.0		NPN-NO	500 Hz		33 (48)	E2EM-X4C1-M1
			PNP-NO				E2EM-X4B1-M1
M18	8.0		NPN-NO	300 Hz		38 (53)	E2EM-X8C1-M1
			PNP-NO				E2EM-X8B1-M1
M30	15.0		NPN-NO	100 Hz		38 (53)	E2EM-X15C1-M1
			PNP-NO				E2EM-X15B1-M1

Triple Distance Inductive Sensor in Cylindrical Brass Housing

The E2A3 family features an optimized sensing performance to achieve triple sensing distance for flush mounting requirements.

- Triple distance for enhanced sensor protection from mechanical damage

- IP67 and IP69K

DC 3-Wire Sensors, Pre-Wired
(For different cable materials and lengths, special housing length or special connectors, please refer to complete datasheet)

Size		Sensing Distance	Thread Length (overall length)	Output Type	Model (for pre-wired types with 2 m cable length)	
					Operation Mode NO	Operation Mode NC
M8	■	3.0 mm	27 (40) mm	PNP	E2A3-S08KS03-WP-B1 2M	E2A3-S08KS03-WP-B2 2M
				NPN	E2A3-S08KS03-WP-C1 2M	E2A3-S08KS03-WP-C2 2M
M12	■	6.0 mm	34 (50) mm	PNP	E2A3-M12KS06-WP-B1 2M	E2A3-M12KS06-WP-B2 2M
				NPN	E2A3-M12KS06-WP-C1 2M	E2A3-M12KS06-WP-C2 2M
M18	■	11.0 mm	39 (60) mm	PNP	E2A3-M18KS11-WP-B1 2M	E2A3-M18KS11-WP-B2 2M
				NPN	E2A3-M18KS11-WP-C1 2M	E2A3-M18KS11-WP-C2 2M
M30	■	20.0 mm	44 (65) mm	PNP	E2A3-M30KS20-WP-B1 2M	E2A3-M30KS20-WP-B2 2M
				NPN	E2A3-M30KS20-WP-C1 2M	E2A3-M30KS20-WP-C2 2M

DC 3-Wire Sensors, Connector Versions (M12)

Size		Sensing Distance	Connection	Thread Length (overall length)	Output Type	Model (for M12 connector types)	
						Operation Mode NO	Operation Mode NC
M8	■	3.0 mm		27 (44) mm	PNP	E2A3-S08KS03-M1-B1	E2A3-S08KS03-M1-B2
					NPN	E2A3-S08KS03-M1-C1	E2A3-S08KS03-M1-C2
M12	■	6.0 mm		34 (49) mm	PNP	E2A3-M12KS06-M1-B1	E2A3-M12KS06-M1-B2
			M12 Connector		NPN	E2A3-M12KS06-M1-C1	E2A3-M12KS06-M1-C2
M18	■	11.0 mm		39 (54) mm	PNP	E2A3-M18KS11-M1-B1	E2A3-M18KS11-M1-B2
					NPN	E2A3-M18KS11-M1-C1	E2A3-M18KS11-M1-C2
M30	■	20.0 mm		44 (59) mm	PNP	E2A3-M30KS20-M1-B1	E2A3-M30KS20-M1-B2
					NPN	E2A3-M30KS20-M1-C1	E2A3-M30KS20-M1-C2

Long-Barrel DC 2-Wire Proximity Sensors Reduce Wiring to Control Devices

- Nickel-plated brass (NPB) barrel

- Wrench flats for easy installation

- Solid potted internal circuitry withstands shocks

- IP67 rated, 1200 psi water washdown

- High visibility indicator

- Flush mountable shielded versions

- Built-in circuit protection

- Normally Open (NO) circuit type stocked; Normally Closed (NC) available

- Sensor mounting and protective accessories, see Y92E

CE

C

DC 2-Wire Sensors, Pre-Wired with 2 m Cable

Size	Sensing Distance (mm)	Shielded	Circuit Type	Response Frequency	Body Material	Thread Length (overall length) mm	Model
M12	3.0	Yes	NO	1000 Hz	NPB	55 (60)	E2E2-X3D1
			NC				E2E2-X3D2
	8.0	No	NO	800 Hz		48 (60)	E2E2-X8MD1
			NC				E2E2-X8MD2
M18	7.0	Yes	NO	500 Hz		60 (65)	E2E2-X7D1
			NC				E2E2-X7D2
	14.0	No	NO	400 Hz		50 (65)	E2E2-X14MD1
			NC				E2E2-X14MD2
M30	10.0	Yes	NO			65 (70)	E2E2-X10D1
			NC				E2E2-X10D2
	20.0	No	NO	100 Hz		52 (70)	E2E2-X20MD1
			NC				E2E2-X20MD2

Long-Barrel DC 3-Wire Proximity Sensors Built for Rugged Duty

- Nickel-plated brass (NPB) barrel

- Wrench flats for easy installation

- Solid potted internal circuitry withstands shocks

- IP67 rated, 1200 psi water washdown

- High visibility indicator

- Voltage output eliminates the need for pull up/down resistors (standard models)

- Flush mountable shielded versions

- Unshielded models offer longest sensing distances

- Built-in circuit and polarity protection

- Normally Open (NO) models stocked; Normally Closed (NC) available

- Sensor mounting and protective accessories, see Y92E

CE

DC 3-Wire Sensors, Pre-Wired with 2 m Cable

Size	Sensing Distance (mm)	Shielded	Circuit Type	Response Frequency	Body Material	Thread Length (overall length) mm	Model
M12	2.0	Yes	NPN-NO	1.5 kHz	NPB	55 (60)	E2E2-X2C1
			PNP-NO				E2E2-X2B1
	5.0	No	NPN-NO	400 Hz		48 (60)	E2E2-X5MC1
			PNP-NO				E2E2-X5MB1
M18		Yes	NPN-NO	600 Hz		60 (65)	E2E2-X5C1
			PNP-NO				E2E2-X5B1
	10.0	No	NPN-NO	200 Hz		50 (65)	E2E2-X10MC1
			PNP-NO				E2E2-X10MB1
M30		Yes	NPN-NO	400 Hz		65 (70)	E2E2-X10C1
			PNP-NO				E2E2-X10B1
	18.0	No	NPN-NO	100 Hz		52 (70)	E2E2-X18MC1
			PNP-NO				E2E2-X18MB1

DC 3-Wire Sensors with Built-in M12 Micro-Change® Connectors

NPN Normally Open (C1-M1)
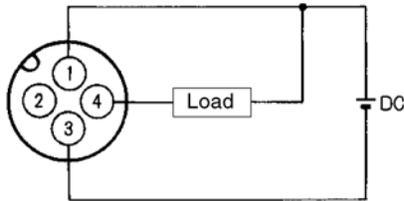
Note: Terminal 2 is not used

PNP Normally Open (B1-M1)
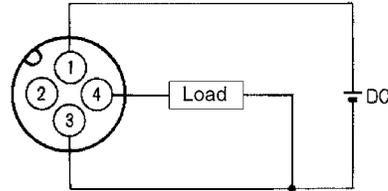
Note: Terminal 2 is not used

Size	Sensing Distance (mm)	Shielded	Circuit Type	Response Frequency	Body Material	Thread Length (overall length) mm	Model
M12	2.0	Yes	NPN-NO	1.5 kHz	NPB	55 (70)	E2E2-X2C1-M1
			PNP-NO				E2E2-X2B1-M1
	5.0	No	NPN-NO	400 Hz		48 (70)	E2E2-X5MC1-M1
			PNP-NO				E2E2-X5MB1-M1
M18		Yes	NPN-NO	600 Hz		60 (75)	E2E2-X5C1-M1
			PNP-NO				E2E2-X5B1-M1
	10.0	No	NPN-NO	200 Hz		50 (75)	E2E2-X10MC1-M1
			PNP-NO				E2E2-X10MB1-M1
M30		Yes	NPN-NO	400 Hz		65 (80)	E2E2-X10C1-M1
			PNP-NO				E2E2-X10B1-M1
	18.0	No	NPN-NO	100 Hz		52 (80)	E2E2-X18MC1-M1
			PNP-NO				E2E2-X18MB1-M1

C

E2E2 AC 2-Wire Proximity Sensors

Long-Barrel AC 2-Wire Proximity Sensors Built for Rugged Duty

- Nickel-plated brass (NPB) barrel

- Wrench flats for easy installation

- Solid potted internal circuitry withstands shocks

- IP67 rated, 1200 psi water washdown

- High visibility indicator

- Flush mountable shielded versions

- Normally Open (NO) models stocked; Normally Closed (NC) available

- Sensor mounting and protective accessories, see Y92E

CE

AC 2-Wire Sensors, Pre-Wired with 2 m Cable

Size	Sensing Distance (mm)	Shielded	Circuit Type	Response Frequency	Body Material	Thread Length (overall length) mm	Model
M12	2.0	Yes	NO	25 Hz	NPB	55 (60)	E2E2-X2Y1-US
	5.0	No				48 (60)	E2E2-X5MY1-US
M18		Yes				60 (65)	E2E2-X5Y1-US
	10.0	No				50 (65)	E2E2-X10MY1-US
M30		Yes				65 (70)	E2E2-X10Y1-US
	18.0	No				52 (70)	E2E2-X18MY1-US

AC 2-Wire Sensors with M12, 3-Pin Dual Key-Way Micro-Change® Connectors

Normally Open
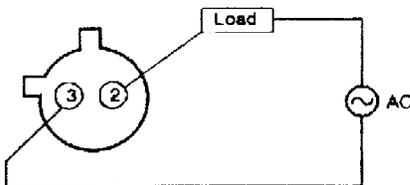
Size	Sensing Distance (mm)	Shielded	Circuit Type	Response Frequency	Body Material	Thread Length (overall length) mm	Model
M12	2.0	Yes	NO	25 Hz	NPB	55 (70)	E2E2-X2Y1-M4
	5.0	No				48 (70)	E2E2-X5MY1-M4
M18		Yes				60 (75)	E2E2-X5Y1-M4
	10.0	No				50 (75)	E2E2-X10MY1-M4
M30		Yes				65 (80)	E2E2-X10Y1-M4
	18.0	No				52 (80)	E2E2-X18MY1-M4

For complete specifications and additional models and accessories visit www.omron247.com

OMRON

Small Diameter, DC 3-Wire Proximity Sensor in Cylindrical Metal Housing

The E2E Small Diameter line with housing sizes from 3 mm dia to 5.4 mm dia is part of the E2E family and is the ideal solution where space is crucial. The metal housing provides high mechanical protection.

- Miniature housing sizes from 3 mm dia to 6.5 mm dia

- Stainless steel or brass housing

- 5 kHz switching frequency

- Mounting blocks, brackets and protective stainless steel tubes available

C

Ordering Information

E2E – ☐☐☐☐ – ☐ – ☐☐ ☐
     ❶❷❸❹   ❺   ❻❼ ❽
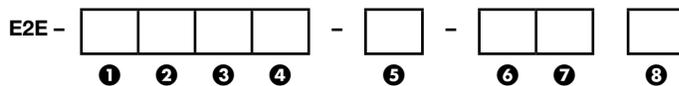
Code	Description
❶ Case Material and Shape	
C	SUS, cylindrical
S	SUS, threaded
❷ Size	
03	Outer diameter 3 mm
04	Outer diameter 4 mm
05	Outer diameter 5 mm
06	Outer diameter 6 mm
❸ Shielding	
S	Shielded models
N	Unshielded models
❹ Sensing Distance	
(number)	R8 = 0.8 mm, 12 = 1.2 mm, 02 = 2 mm, 03 = 3 mm, 04 = 4 mm
❺ Connecting Method	
WC	PVC pre-wired model
MC	M8 connector, 3-pin
CJ	M8 pre-wired connector, 3-pin

❻ Output Specifications	
B	DC 3-wire PNP open-collector output
C	DC 3-wire NPN open-collector output
❼ Operation Mode	
1	Normally open (NO)
2	Normally closed (NC)
❽ Cable Length	
(blank)	Connector models
(number) M	Cable length (Unit: m) (Applicable to pre-wired models 2M and pre-wired connector models 0.3M)

Note: Models are not available for all combinations of code numbers.

The purpose of this model number legend is to provide understanding of the meaning of specifications from the model number.

Subminiature Sensor with In-line Amplifier Offers Great Mounting Flexibility

- Small nickel-plated brass (NPB) sensing heads on 0.4 m cable fit space-confined installations

- Shielded sensing head allows the sensor to be flush mounted in metal

- Easy operation monitoring with LED indicator on the amplifier unit

- Robotic cable on DC 2-wire models withstands repeated flexing on robots and reciprocating machinery

- DC 2-wire models have cylindrical amplifiers; DC 3-wire rectangular amplifiers allow side-by-side mounting

- Normally Open (NO) circuit type stocked; Normally Closed (NC) available

- Rated IP67 (2-wire); IP64 (3-wire)

CE

DC 2-Wire Sensors

Size	Sensing Distance (mm)	Shielded	Circuit Type	Response Frequency	Body Material	Thread Length (overall length) mm	Model
3 mm dia.	0.8	Yes	NO	1.5 kHz	NPB	0 (12)	E2EC-CR8D1
			NC				E2EC-CR8D2
5.4 mm dia.	1.5		NO			0 (18)	E2EC-C1R5D1
			NC				E2EC-C1R5D2
8 mm dia.	3		NO	1 kHz			E2EC-C3D1
			NC				E2EC-C3D2
M12	4		NO			18 (23.6)	E2EC-X4D1
			NC				E2EC-X4D2

DC 3-Wire Sensors

Size	Sensing Distance (mm)	Shielded	Circuit Type	Response Frequency	Body Material	Thread Length (overall length) mm	Model
3 mm dia.	0.5	Yes	NPN-NO	1 kHz	NPB	0 (12)	E2EC-CR5C1
8 mm dia.	2.5					0 (18)	E2EC-C2R5C1

Accessories

Description		Model
Mounting brackets	Fits 5.4 mm dia. E2EC-C1R5D sensors, SUS304 strap	Y92E-F5R4
	Fits M12 size E2EC-X4D@ sensors	Y92E-B12

Subminiature, Flat-Pack DC Sensor Fits Tight Spaces

- Rated IP67 for water washdown

- Space-saving mounting area, as small as 10 x 27 mm (0.39 x 1.06 in), is ideal for conveyor wall mounting

- Mounts directly onto metal base or rail

- Rugged die-cast metal or heat-resistant ABS plastic housing

- Pre-wired with 2 m (6.56 ft.) length cable

- Built-in circuit protection

- DC 2-wire and DC 3-wire models

CE

C

DC 2-Wire Flat-Pack Inductive Sensors

Sensing distance (mm)	Shielded	Circuit Type	Response Frequency	Body material	Dimensions	Model
5	NO	NPN-NO	500 Hz	ABS	30.5 x 18 x 10	TL-W5MD1
		NON-NC				TL-W5MD2

DC 3-Wire Flat-Pack Inductive Sensors

Sensing Distance (mm)	Shielded	Circuit Type	Response Frequency	Body Material	Dimensions	Model
1.5	No	NPN-NO	1 kHz	ABS	25 x 8 x 5.5	TL-W1R5MC1*
3			600 Hz		27 x 10 x 6	TL-W3MC1*
		NPN-NC				TL-W3MC2*
5		NPN-NO	500 Hz		30.5 x 18 x 10	TL-W5MC1
		NPN-NC				TL-W5MC2
	Yes	NPN-NO	300 Hz	Die cast aluminum	50 x 24.9 x 10	TL-W5E1
		NPN-NC				TL-W5E2
		NPN-NO				TL-W5F1
		NPN-NC				TL-W5F2
20	No	NPN-NO	40 Hz	ABS	53 x 40 x 23	TL-W20ME1
		NPN-NC				TL-W20MF1

* Model includes mounting bracket.

E2Q5 Proximity Sensors

Long Distance Inductive Sensor in Short Plastic Body

- M12 Plug-in connection

- Integrated short circuit and reverse polarity protection

- Active face positioning:
  Y-axis 15°, X-axis 90° increments

$C\epsilon$

DC Models

Sensing Distance (mm)	Connection	Active Face	Model		
			Type	NO	NO+NC
20 mm shielded	Plug-in Connector	Changeable	NPN	E2Q5-N20E1-M1	E2Q5-N20E3-M1
			PNP	E2Q5-N20F1-M1	E2Q5-N20F3-M1
40 mm non-shielded			NPN	E2Q5-N40ME1-M1	E2Q5-N40ME3-M1
			PNP	E2Q5-N40MF1-M1	E2Q5-N40MF3-M1

E2S Proximity Sensors

World's Smallest Square Sensor with Built-In Amplifier

- 5.5 x 5.5 mm type allows smaller, space-saving machines and devices

- High response frequency (1 kHz) for fast machine processes

- Long sensing distance: (E2S-91, 1.6 mm) (E2S-92, 2.5 mm)

- Front and end sensing face versions match mounting needs

- DC 2-wire and DC 3-wire models

- Pre-wired with 3 m cable

- Rated IP67 for water washdown

$C\epsilon$

OMRON

E2K-X Proximity Sensors

Threaded, Cylindrical Sensor Detects Metallic and Non-Metallic Objects

- Non-contact detection of metallic and non-metallic targets including water, oil, glass, plastic and wood

- Detects level inside non-metallic containers

- Built-in amplifier switches loads up to 200 mA

- LED indicator and fixed sensitivity for simple installation

- Built-in circuit protection

- Heat-resistant ABS plastic sensor rated IP66

- Normally Open (NO) and Normally Closed (NC) available

- CE (all models), UL, CSA (AC models)

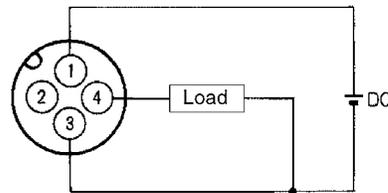- Sensor mounting and protective accessories, see Y92E

C

DC 3-Wire Models

Size	Sensing Distance (mm)	Shielded	Circuit Type	Response Frequency	Body Material	Thread Length (overall length) mm	Model
M12	4.0	NO	NPN-NO	100 Hz	ABS	40 (80)	E2K-X4ME1
			NPN-NC				E2K-X4ME2
			PNP-NO				E2K-X4MF1
			PNP-NC				E2K-X4MF2
M18	8.0		NPN-NO				E2K-X8ME1
			NPN-NC				E2K-X8ME2
			PNP-NO				E2K-X8MF1
			PNP-NC				E2K-X8MF2
M30	15.0		NPN-NO			50 (80)	E2K-X15ME1
			NPN-NC				E2K-X15ME2
			PNP-NO				E2K-X15MF1
			PNP-NC				E2K-X15MF2

AC 2-Wire Models

Size	Sensing Distance (mm)	Shielded	Circuit Type	Response Frequency	Body Material	Thread Length (overall length) mm	Model
M12	4.0	NO	SCR-NO	10 Hz	ABS	40 (80)	E2K-X4MY1
			SCR-NC				E2K-X4MY2
M18	8.0		SCR-NO				E2K-X8MY1
			SCR-NC				E2K-X8MY2
M30	15.0		SCR-NO			50 (80)	E2K-X15MY1
			SCR-NC				E2K-X15MY2

E2K-C Proximity Sensors

Cylindrical Sensor Offers Adjustable Detecting Distance

- Non-contact detection of metallic and non-metallic targets including water, oil, glass, plastic and wood

- Detects level inside non-metallic containers

- Settable detection distance from 3 to 25 mm with multi-turn adjuster

- Reliably detects foamy liquids in sight glass applications

- Built-in amplifier switches up to 200 mA

- Mounting bracket included

- AC 2-wire and DC 3-wire models available

- Heat-resistant ABS plastic sensor rated IP66

- Normally Open (NO) and Normally Closed (NC) available

- CE (all models), UL, CSA (AC models)

CE

DC 3-Wire Sensors

Size (dia.)	Sensing Distance (mm)	Shielded	Circuit Type	Response Frequency	Body Material	Thread Length (overall length) mm	Model
34 mm	3 to 25	No	NPN-NO	70 Hz	ABS	0 (89)	E2K-C25ME1
			NPN-NC				E2K-C25ME2
			PNP-NO				E2K-C25MF1
			PNP-NC				E2K-C25MF2

AC 2-Wire Sensors

Size (dia.)	Sensing Distance (mm)	Shielded	Circuit Type	Response Frequency	Body Material	Thread Length (overall length) mm	Model
34 mm	3 to 25	No	SCR-NO	10 Hz	ABS	0 (89)	E2K-C25MY1
			SCR-NC				E2K-C25MY2

Accessories

Barrel size	Description	Model
M30 (34 mm)	Sight Glass Mount for M30 (34 mm) Barrel Proximity Sensor	Y92E-SGM34

E2K-F Proximity Sensors

Thin Rectangular Plastic DC 3-Wire Sensor Fits Tight Spaces

- Non-contact detection of metallic and non-metallic targets including water, oil, glass, plastic and wood

- Detects level inside non-metallic containers

- Thin, 10 mm (0.39 inch) body is ideal for conveyor wall mounting

- Unshielded sensor has LED indicator and fixed sensitivity for simple installation

- Built-in amplifier provides NPN switching of loads to 100 mA

- Heat-resistant ABS plastic body rated IP66

CE

C

Flat-Pack Capacitive Sensors

Sensing Distance (mm)	Shielded	Circuit Type	Response Frequency	Body Material	Dimensions (H x W x D) mm	Model
10	No	NPN-NO	100 Hz	ABS	20.5 x 50 x 10.1	E2K-F10MC1
		NPN-NC				E2K-F10MC2
4-10		NPN-NO				E2K-F10MC1-A
		NPN-NC				E2K-F10MC2-A

E2K-L Proximity Sensors

Capacitive Liquid Level Sensor

- Mounts directly to sight glass and bypass pipes

- Sensors unaffected by liquid color

- Fits a wide range of pipe diameters: 8 to 11 mm or 12 to 26 mm

- Built-in amplifier with indicator and sensitivity adjuster

- Sensing heads rated IP66

CE

Watertight and Chemical-Resistant Short Barrel, Plastic Body Sensors

- IP68 watertight construction

- Polyarylate plastic housing offers good chemical resistance to acids and solvents

- Operation indicator on all models

- Short-circuit protection available on all DC and some AC models

- CE all models; UL and CSA (M18, M30 AC 2-wire)

- Sensor mounting and protective accessories, see Y92E

DC 3-Wire Models

Size	Sensing Distance (mm)	Shielded	Circuit Type	Response Frequency	Body Material	Thread Length (overall length) mm	Model
M8	1.5	Yes	NPN-NO	2 kHz	Polyarylate	20 (30)	E2F-X1R5E1
			NPN-NC				E2F-X1R5E2
			PNP-NO				E2F-X1R5F1
			PNP-NC				E2F-X1R5F2
M12	2.0		NPN-NO	1.5 kHz		24 (38)	E2F-X2E1
			NPN-NC				E2F-X2E2
			PNP-NO				E2F-X2F1
			PNP-NC				E2F-X2F2
M18	5.0		NPN-NO	600 Hz		29 (47)	E2F-X5E1
			NPN-NC				E2F-X5E2
			PNP-NO				E2F-X5F1
			NPN-NC				E2F-X5F2
M30	10.0		NPN-NO	400 Hz		38 (57)	E2F-X10E1
			NPN-NC				E2F-X10E2
			PNP-NO				E2F-X10F1
			NPN-NC				E2F-X10F2

AC 2-Wire Sensors
Without Short-Circuit Protection

Size	Sensing Distance (mm)	Shielded	Circuit Type	Response Frequency	Body Material	Thread Length (overall length) mm	Model
M8	1.5	Yes	SCR-NO	25 Hz	Polyarylate	29 (40)	E2F-X1R5Y1
			SCR-NC				E2F-X1R5Y2
M12	2.0		SCR-NO	25 kHz		29 (43)	E2F-X2Y1
			SCR-NC				E2F-X2Y2
M18	5.0		SCR-NO	25 Hz		29 (47)	E2F-X5Y1-US
			SCR-NC				E2F-X5Y2-US
M30	10.0		SCR-NO			38 (57)	E2F-X10Y1-US
			SCR-NC				E2F-X10Y2-US

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E2FM Proximity Sensors

All-Stainless Inductive Sensor Resists Abrasion and Chemicals

- One-piece 303 stainless steel face/barrel construction resists damage caused by work piece contact, scouring abrasion, and harsh chemicals

- Up to 0.8 mm thick sensing face for superior mechanical durability, wear resistance

- Operation not influenced by accumulation of aluminum or iron cutting chips and weld slag

- 20% longer sensing range (10 mm) with M30 models versus the CENELEC standard 8 mm

- Flush mountable in ferrous materials to protect sensor from side impact damage

- Thick insulation protects pig-tail lead for increased endurance in harsh environments

- IP67 enclosure rating

DC 3-Wire Sensors, Pre-Wired with 2 m Cable

Size	Sensing Distance (mm)	Shielded	Output Type	Response Frequency	Thread Length (overall length) mm	Model
M8	1.5	Yes	PNP-NO	200 Hz	25 (49)	E2FM-X1R5B1
			NPN-NO			E2FM-X1R5C1
M12	2.0		PNP-NO	100 Hz	33 (53)	E2FM-X2B1
			NPN-NO			E2FM-X2C1
M18	5.0		PNP-NO		36 (56)	E2FM-X5B1
			NPN-NO			E2FM-X5C1
M30	10.0		PNP-NO	50 Hz	43 (63.5)	E2FM-X10B1
			NPN-NO			E2FM-X10C1

C

E2FM Proximity Sensors (continued)

DC 3-Wire Sensors, Built-in M12 Connector

Size	Sensing Distance (mm)	Shielded	Circuit Type	Response Frequency	Thread Length (overall length) mm	Model
M8	1.5	Yes	PNP-NO	200 Hz	25 (53.5)	E2FM-X1R5B1-M1
			NPN-NO			E2FM-X1R5C1-M1
M12	2.0		PNP-NO	100 Hz	33 (53)	E2FM-X2B1-M1
			NPN-NO			E2FM-X2C1-M1
M18	5.0		PNP-NO		36 (56)	E2FM-X5B1-M1
			NPN-NO			E2FM-X5C1-M1
M30	10.0		PNP-NO	50 Hz	43 (63.5)	E2FM-X10B1-M1
			NPN-NO			E2FM-X10C1-M1

DC 2-Wire Sensors, Pre-Wired with 2 m Cable

Size	Sensing Distance (mm)	Shielded	Circuit Type	Response Frequency	Thread Length (overall length) mm	Model	
						Standard	with Flouroresin Coating
M8	1.5	Yes	NO, polarity	200 Hz	25 (49)	E2FM-X1R5D1	E2FM-QX1R5D1
M12	2.0			100 Hz	33 (53)	E2FM-X2D1	E2FM-QX2D1
M18	5.0		NO, polarity		36 (56)	E2FM-X5D1	E2FM-QX5D1
M30	10.0		NO, polarity	50 Hz	43 (63.5)	E2FM-X10D1	E2FM-QX10D1

E2FM extra strong sensing face

No interference by small metal chips on sensing surface

Cable resistant to welding spatter

For complete specifications and additional models and accessories visit www.omron247.com

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Heat and Detergent Resistant Inductive Sensor in Cylindrical Stainless Steel Housing

The heat and detergent resistant inductive sensors allow reliable metal object or machine part detection in demanding environments such as food processing.

- Temperature resistant up to 120°C

- SUS316L housing with heat resistant plastic sensing face

- IP69K for highest water resistance

- ECOLAB tested and certified detergent resistance

DC 3-Wire and DC 2-Wire Sensors, Pre-Wired

Size		Sensing Distance	Output Type	Model (for pre-wired types with 2 m cable length)	
				Operation Mode NO	Operation Mode NC
M12		3 mm	PNP	E2EH-X3B1 2M	E2EH-X3B2 2M
			NPN	E2EH-X3C1 2M	E2EH-X3C2 2M
			DC 2-wire	E2EH-X3D1 2M	E2EH-X3D2 2M
M18		7 mm	PNP	E2EH-X7B1 2M	E2EH-X7B2 2M
	■		NPN	E2EH-X7C1 2M	E2EH-X7C2 2M
			DC 2-wire	E2EH-X7D1 2M	E2EH-X7D2 2M
M30		12 mm	PNP	E2EH-X12B1 2M	E2EH-X12B2 2M
			NPN	E2EH-X12C1 2M	E2EH-X12C2 2M
			DC 2-wire	E2EH-X12D1 2M	E2EH-X12D2 2M

DC 3-Wire and DC 2-Wire Sensors, Connector versions (M12)

Size		Sensing Distance	Output Type	Model (for pre-wired types with 2 m cable length)	
				Operation Mode NO	Operation Mode NC
M12		3 mm	PNP	E2EH-X3B1-M1	E2EH-X3B2-M1
			NPN	E2EH-X3C1-M1	E2EH-X3C2-M1
			DC 2-wire	E2EH-X3D1-M1G	E2EH-X3D2-M1G
M18		7 mm	PNP	E2EH-X7B1-M1	E2EH-X7B2-M1
	■		NPN	E2EH-X7C1-M1	E2EH-X7C2-M1
			DC 2-wire	E2EH-X7D1-M1G	E2EH-X7D2-M1G
M30		12 mm	PNP	E2EH-X12B1-M1	E2EH-X12B2-M1
			NPN	E2EH-X12C1-M1	E2EH-X12C2-M1
			DC 2-wire	E2EH-X12D1-M1G	E2EH-X12D2-M1G

C

Oil Resistant Inductive Sensor in Cylindrical Brass Housing

The standard E2E family offers tested oil resistance on commonly used oils in the automotive industry for reliable long-life operation in automotive assembly lines.

- Oil resistant PUR cable

- M8, M12, M18 and M30 standard sizes

- IP67 (water and oil resistant)

DC 2-wire, Pre-Wired

Size		Sensing Distance	Model (for pre-wired types with 2 m cable length)	
			Operation Mode NO	Operation Mode NC
M8		2 mm	E2E-X2D1-U	E2E-X2D2-U
M12	■	3 mm	E2E-X3D1-U	E2E-X3D2-U
M18		7 mm	E2E-X7D1-U	E2E-X7D2-U
M30		10 mm	E2E-X10D1-U	E2E-X10D2-U

DC 2-wire, Pre-Wired with M12

Size		Sensing Distance	Model (for pre-wired types with 30 cm cable length and M12 connector)	
			Operation Mode NO	Operation Mode NC
M8		2 mm	E2E-X2D1-M1TGJ-U 0.3M	E2E-X2D2-M1TGJ-U 0.3M
M12	■	3 mm	E2E-X3D1-M1TGJ-U 0.3M	E2E-X3D2-M1TGJ-U 0.3M
M18		7 mm	E2E-X7D1-M1TGJ-U 0.3M	E2E-X7D2-M1TGJ-U 0.3M
M30		10 mm	E2E-X10D1-M1TGJ-U 0.3M	E2E-X10D2-M1TGJ-U 0.3M

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E2EQ DC 2-Wire Proximity Sensors

Weld-Spatter Resistant DC 2-Wire Cylindrical Sensors

- Rugged flouroplastic-coated brass barrel withstands high tightening torque

- Fluoroplastic resin face prevents weld slag build-up on sensor

- Stability and operation indicators standard

- Pre-wired and pig-tail connector models

CE

Pre-Wired with 2 m Cable

Size	Sensing Distance (mm)	Shielded	Output Type	Response Frequency	Body Material	Thread Length (overall length) mm	Model
M12	4.0	Yes	NO	1.0 kHz	Fluoroplastic resin coated brass	33 (38)	E2EQ-X4X1
M18	8.0			500 Hz		38 (43)	E2EQ-X8X1
M30	15.0			250 Hz		43 (48)	E2EQ-X15X1

M12 Connector on 300 mm Pigtail Lead

Size	Sensing Distance (mm)	Shielded	Output Type	Response Frequency	Body Material	Thread Length (overall length) mm	Model
M12	4.0	Yes	NO	1.0 kHz	Fluoroplastic resin coated brass	33 (38)	E2EQ-X4X1-M1J
M18	8.0			500 Hz		38 (43)	E2EQ-X8X1-M1J
M30	15.0			250 Hz		43 (48)	E2EQ-X15X1-M1J

C

Chemical Resistant Capacitive Sensor

- Complete fluoroplastic resin coating for superior chemical and oil resistance

- Detect ferrous and non-ferrous metals as well as other materials

- Adjustable sensitivity from 6 to 10 mm

- Built-in indicator located on cable connection face

- Rated IP66

CE

E2FQ Proximity Sensors

Chemical Resistant Inductive Sensor in Cylindrical PTFE Housing

The E2FQ features a full-body fluoroplastic housing for chemical resistance (e.g. against cleaning agents used in the semiconductor industry).

- Full body fluoroplastic housing for chemical resistance

- DC 2-wire and DC 3-wire models

CE

DC 2-Wire, Pre-Wired

Size		Sensing Distance	Output Type	Model (for pre-wired types with 2 m cable length)
				Operation Mode NO
M12	■	2 mm	DC 2-wire with polarity	E2FQ-X2D1
M18		5 mm		E2FQ-X5D1
M30		10 mm		E2FQ-X10D1

DC 3-Wire, Pre-Wired

Size		Sensing Distance	Output Type	Model (for pre-wired types with 2 m cable length)
				Operation Mode NO
M12		2 mm	PNP	E2FQ-X2F1
			NPN	E2FQ-X2E1
M18	■	5 mm	PNP	E2FQ-X5F1
			NPN	E2FQ-X5E1
M30		10 mm	PNP	E2FQ-X10F1
			NPN	E2FQ-X10E1

High Precision Positioning Inductive Proximity Sensor with Separate Amplifier

The separate amplifier inductive sensor family E2C-EDA offers high precision distance positioning and detection. The teach-in function allows simple installation, and with the window function (2 outputs) production tolerance checks can easily be set up and modified.

- Typically several hundred μm detection precision

- Precision distance teaching

- Window function (2 outputs) for production tolerance checks

Sensor Heads

Appearance				Sensing Distance	Repeat Accuracy	Model
Cylindrical	3 dia. x 18	■	–	0.6 mm	1 μm	E2C-EDR6-F
	5.4 dia. x 18			1 mm	1 μm	E2C-ED01[*1]
	8 dia. x 22			2 mm	2 μm	E2C-ED02[*1]
Screw	M10 x 22			2 mm	2 μm	E2C-EM02[*1]
Flat	30 x 14 x 4.8			5 mm	2 μm	E2C-EV05[*1]
Screw	M18 ×x 6.3	–	■	7 mm	5 μm	E2C-EM07M[*1]
Screw (heat resistant	M12 x 22	■	–	2 mm	2 μm	E2C-EM02H

[*1] For models with cut-to-length cables add '-F' for example E2C-ED01-F
For models with protective stainless steel spiral tubes add '-S' for example E2C-ED01-S

Amplifier Units with Cables

Item	Sensing Distance	Model	
		NPN Output	PNP Output
Twin-output models	Area output, open circuit detection, Differential operation	E2C-EDA11	E2C-EDA41
External-input models	Remote setting, Differential operation	E2C-EDA21	E2C-EDA51

Amplifier Units with Connector[*2]

Item	Sensing Distance	Model	
		NPN Output	PNP Output
Twin-output models	Area output, open circuit detection, Differential operation	E2C-EDA6	E2C-EDA8
External-input models	Remote setting, Differential operation	E2C-EDA7	E2C-EDA9

[*2] Order connector E3X-CN21 separately. See E3X-DA-S in Fiber-Optic Sensors for details.

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E2EV Proximity Sensors

Inductive Sensor Detects All Metals at Equal Distance

- One sensor detects all kinds of metal at equal distance

- Detect aluminum up to 3x conventional sensing distance

- Shielded for flush mounting in metal

- Sensing distance: 2 mm (M12); 5 mm (M18); 10 mm (M30)

- Rated IP67, resists water splash and oil contamination

E2CY Proximity Sensors

Inductive Sensor Detects Aluminum in Tight Spaces

- Compact sensing heads and separate amplifier for mounting flexibility

- Detect differences between object types, object position, distance within a range

- Monitor operation with excess gain level bar graph indicator and diagnostic output

- One-touch teaching for sensitivity adjustment

- Shielded for flush mounting in metal

- Sensing distance by sensing head:

  - 1.5 mm (M5 and unthreaded 5.4 mm dia.)

  - 2 mm (unthreaded 8 mm dia.)

  - 3 mm (flat)

- Pre-wired sensing heads and amplifier each
  with 2 m cable

- Sensing heads rated IP67

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E2EY Proximity Sensors

Inductive Sensor for Aluminum and Non-Ferrous Metals

- Detects non-magnetic ones such as aluminum, copper and brass and ignores ferrous materials

- Shielded for flush mounting in metal

- Sensing distance: 4 mm (M18) and 8 mm (M30)

- Rated IP67, resists water splash and oil contamination

E2EZ Proximity Sensors

Cutting Chip Resistant Inductive Sensor

- Detects objects without influence of accumulated aluminum and cast iron cutting chips

- Ideal for machine tool applications

- Sensing distance: 4 mm (M18) and 8 mm (M30)

- Shielded for flush mounting in metal

- DC 2-wire, DC 3-wire and AC 2-wire models

- Rated IP67, resists water splash and oil contamination

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Proximity Sensors

For complete specifications and additional models and accessories visit www.omron247.com

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Cordsets

Contents

D

Water- and Environment-Resistant M12 Connectors Save Wiring and Maintenance Effort

- Single-ended cables with M12 connectors satisfy IP67 requirements and ensure a 94V-0 fire retardant rating.

- Connectors make wiring a system more modular, simplify maintenance, and reduce downtime.

- Connectors with Cables and Connector Assemblies are available.

$_c \mathbf{\Re}_{US}$

XS2F - M12 Single-ended Cable with Socket

XS2F-M12PVC☐☐☐☐M PVC Cable
XS2F-M12PUR☐☐☐☐M PUR Cable

Dimensions

Straight

M12
5 dia.
45°
14.9 dia.
40.7
L
30
5
50
(40: For PUR cable)

Angled

25.3
L
28.3
30
5
50
(40: For PUR cable)
M12
5 dia.
45°
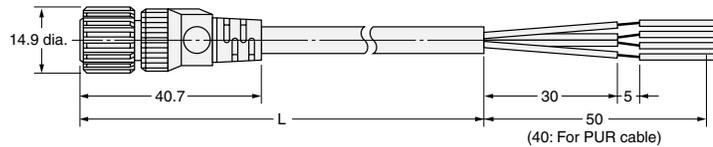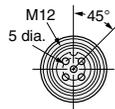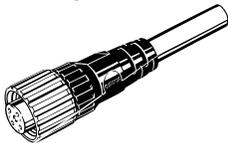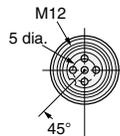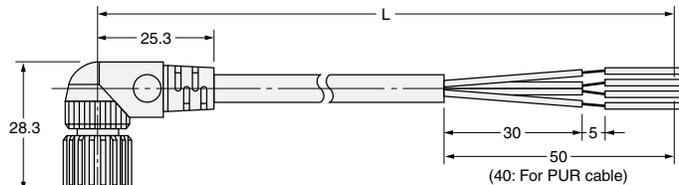
3 cores	4 cores	5 cores
Contact No. — Cable lead colors	Contact No. — Cable lead colors	Contact No. — Cable lead colors
① Brown ② — ③ Blue ④ Black	① Brown ② White ③ Blue ④ Black	① Brown ② White ③ Blue ④ Black ⑤ Green / Yellow

Connector	Size	Cores	Shape	Length (m)	PVC Cable Model	PUR Cable Model
Socket	M12	3	Angled	2	XS2F-M12PVC3A2M	XS2F-M12PUR3A2M
				5	XS2F-M12PVC3A5M	XS2F-M12PUR3A5M
				10	XS2F-M12PVC3A10M	XS2F-M12PUR3A10M
			Straight	2	XS2F-M12PVC3S2M	XS2F-M12PUR3S2M
				5	XS2F-M12PVC3S5M	XS2F-M12PUR3S5M
				10	XS2F-M12PVC3S10M	XS2F-M12PUR3S10M
		4	Angled	2	XS2F-M12PVC4A2M	XS2F-M12PUR4A2M
				5	XS2F-M12PVC4A5M	XS2F-M12PUR4A5M
				10	XS2F-M12PVC4A10M	XS2F-M12PUR4A10M
			Straight	2	XS2F-M12PVC4S2M	XS2F-M12PUR4S2M
				5	XS2F-M12PVC4S5M	XS2F-M12PUR4S5M
				10	XS2F-M12PVC4S10M	XS2F-M12PUR4S10M
		5	Angled	2	XS2F-M12PVC5A2M	XS2F-M12PUR5A2M
				5	XS2F-M12PVC5A5M	XS2F-M12PUR5A5M
			Straight	2	XS2F-M12PVC5S2M	XS2F-M12PUR5S2M
				5	XS2F-M12PVC5S5M	XS2F-M12PUR5S5M

Extension Cordsets, Two Single Key Molded M12 Sensor Connectors

Description				Model
Connector Type	Keyway	Cable Size	Length	Straight Connector
4-wire DC female socket and male plug	Single	22 AWG	2 m (6.56 ft.)	XS2W-D421-D81-F
			5 m (16.40 ft.)	XS2W-D421-G81-F

Plug and Socket Field Wireable Assemblies

Description				Model
Connector Type	Keyway	Cable Size	Length	Straight Connector
M12 male plug	Single	5 to 6 mm dia	58.7 mm	XS2G-D4S1
M12 female socket			54.9 mm	XS2C-D4S1
Insulation Displacement Contact				
M12 male plug	Single	2 to 8 mm dia.	66 m	XS5G-D418
M12 female socket			62.4 mm	XS5C-D418

Premium M12 Smartclick Connectors

- Single-ended cables with M12 connectors

- Smartclick offers a fast, one-step connection with only a 1/8th turn lock

- Smartclick can connect with standard screw-type M12 connectors

- IP67 water resistance

Dimensions

(Unit: mm)

Wiring Diagram

Terminal No. / Cable color of core sheath:
- ① Brown
- ② White
- ③ Blue
- ④ Black
(For DC/AC)
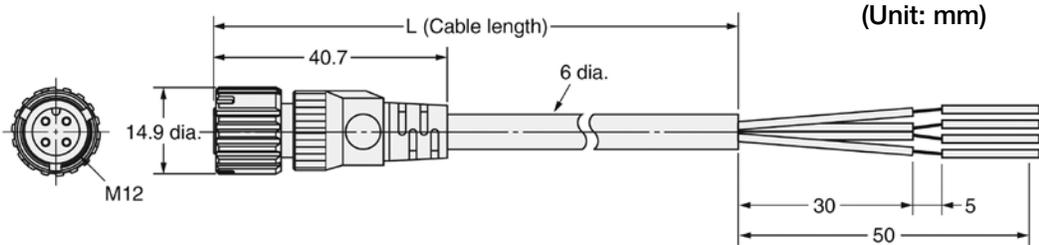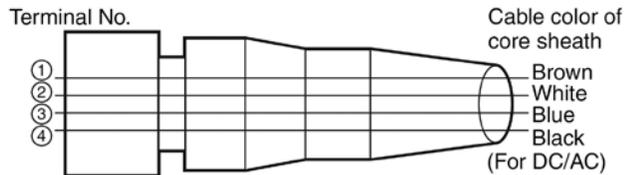
Note: The cover of the Standard Cable (XS5F-D421-□81-A) and the Oil-resistant Polyurethane Cable (XS5F-D421-□81-P) is black, and the cover of the Vibration-proof Robot Cable (XS5F-D421-□81-F) is warm gray.

Ordering Information

Cable type	Cable connection direction	No. of cable cores	Cable length	Model	Minimum Order
Standard cable	Straight	4	1	XS5F-D421-C80-A	
			2	XS5F-D421-D80-A	10
			3	XS5F-D421-E80-A	
			5	XS5F-D421-G80-A	5
			10	XS5F-D421-J80-A	
Vibration-proof robot cable			1	XS5F-D421-C80-F	
			2	XS5F-D421-D80-F	10
			3	XS5F-D421-E80-F	
			5	XS5F-D421-G80-F	5
			10	XS5F-D421-J80-F	
Oil-resistant poly-urethane cable			2	XS5F-D421-D80-P	10
			5	XS5F-D421-G80-P	5
			10	XS5F-D421-J80-P	

Compact, Watertight M8 Connectors

- Water-resistive, compact connector meets IP67 requirements.

- Using connectors for wiring ensures ease of equipment maintenance and reduces downtime required for equipment maintenance.

3 poles		4 poles	
Male	Female	Male	Female

Connectors with Cable Attached

XS3F - M8 Socket on One Cable End

XS3F-M8PVC☐☐☐☐M PVC Cable
XS3F-M8PUR☐☐☐☐M PUR Cable

Dimensions

(Unit: mm)

Straight

12.9
9 dia.
21.5
31.4
L
30
5
50
(40: For PUR cable)

Angled

(40: For PUR cable)
50
L
23.1
30
5
20.5
9 dia.

Wiring Diagram

3 Poles	4 Poles
Contact No. Cable lead colors	Contact No. Cable lead colors
① Brown	① Brown
③ Blue	② White
④ Black	③ Blue
	④ Black
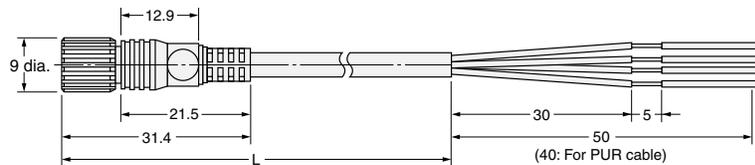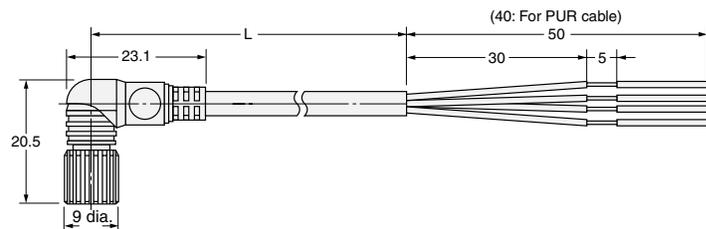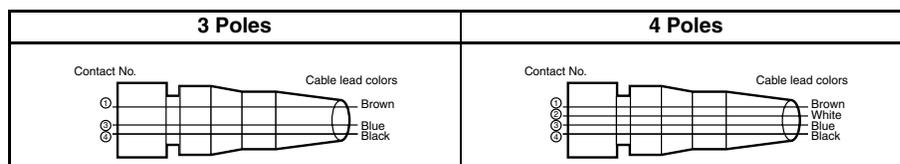
Connector	Size	Cable Material	Poles	Type	Length	Model
Socket	M8	PVC	3	Angled	2	XS3F-M8PVC3A2M
					5	XS3F-M8PVC3A5M
					10	XS3F-M8PVC3A10M
				Straight	2	XS3F-M8PVC3S2M
					5	XS3F-M8PVC3S5M
					10	XS3F-M8PVC3S10M
			4	Angled	2	XS3F-M8PVC4A2M
					5	XS3F-M8PVC4A5M
					10	XS3F-M8PVC4A10M
				Straight	2	XS3F-M8PVC4S2M
					5	XS3F-M8PVC4S5M
					10	XS3F-M8PVC4S10M
		PUR	3	Angled	2	XS3F-M8PUR3A2M
					5	XS3F-M8PUR3A5M
					10	XS3F-M8PUR3A10M
				Straight	2	XS3F-M8PUR3S2M
					5	XS3F-M8PUR3S5M
					10	XS3F-M8PUR3S10M
			4	Angled	2	XS3F-M8PUR4A2M
					5	XS3F-M8PUR4A5M
					10	XS3F-M8PUR4A10M
				Straight	2	XS3F-M8PUR4S2M
					5	XS3F-M8PUR4S5M
					10	XS3F-M8PUR4S10M

Extension Cordsets, Two Single Key Molded M8 Sensor Connectors

Description					Model
Connector Type	Keyway	Cable Size	Cable Type	Length	Straight Connector
4-wire DC female socket and male plug	Single	22 AWG	Robotic	1 m (3.28 ft.)	XS3W-M421-401-R
				2 m (6.56 ft.)	XS3W-M421-402-R

For complete specifications and additional models and accessories visit www.omron247.com

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Y96E-M12 Connector Cables

AC Cordsets with M12 Micro-Change® Connectors

- Quick-disconnect AC cordsets allow easy installation and replacement of AC sensors

- Female 3-pole dual keyway socket

- Oil-resistant, PVC jacketed cable with internal metal sheath protects conductors against cuts and abrasions

- Straight and right-angle connector cordsets available

- Rated IP67

- UL recognized, CSA certified

Micro-Change®: Registered trademark of Woodhead Industries

Description				Model	
Connector Type	Keyway	Cable Size	Length	Straight Connector	Right Angle Connector
3-wire AC, female Micro-Change® socket	Dual	22 AWG	6 ft.	Y96E-33SA6	Y96E-33RA6
			12 ft.	Y96E-33SA12	Y96E-33RA12
			20 ft.	Y96E-33SA20	Y96E-33RA20

D

Straight Connector Cordsets

Y96E-33SA□

Gold/palladium/ nickel plated brass contacts

14.7 (0.58)   46.74 (1.84)   1/2-20 UNF thread
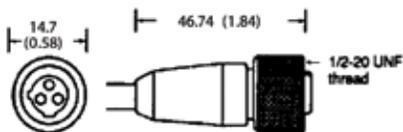
Face View Female Connector

0.578 in. (14.7 mm)

Red with White TR (L2) ① Green (ground)

③ ②

Red with Black TR (L1)
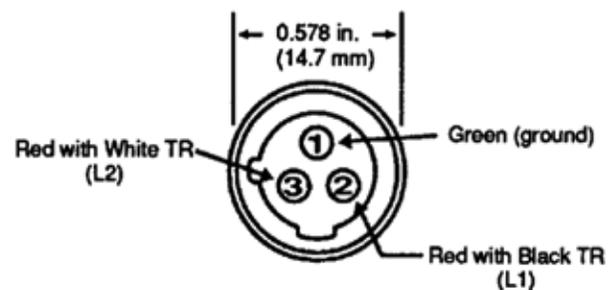
Right Angle Connector Cordsets

Y96E-33RA□

Gold/palladium/ nickel plated brass contacts

14.7 (0.58)   31.24 (1.23)   1/2-20 UNF thread

XW3D Connector Terminal Boxes
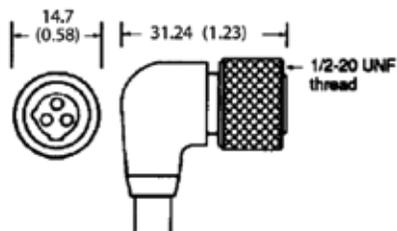
Simple Wiring of Sensor Actuators

- Greatly reduces wiring work

- Higher rated current to enable output applications.

- Compatible with other M12 screw connectors.

- Degree of protection : IP67 (IEC60529)
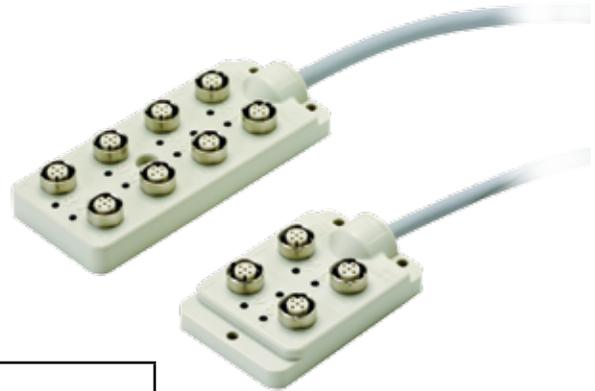
Ratings and Specifications

Rated current	4 A/port, 12 A/Box (power line)
Rated voltage	10 to 30 VDC
Contact resistance (connector)	40 mΩ max. (20 mV max., 100 mA max.)
Insulation resistance	100 mΩ min. (at 500 VDC)
Dielectric strength (connector)	500 VAC for 1 min. (leakage current: 1 mA max.)
Insertion tolerance	50 times min.
Ambient operating temperature range	−25 to 70°C

Ordering Information

Sensor type and wiring		3-Wire DC NPN/2-Wire DC 3-4	2-Wire DC 1-4/Without polarity 3-4	3-Wire DC PNP/2-Wire DC 1-4
Actuator wiring		Actuator wiring 1-4	–	Actuator wiring 3-4
No. of ports	No. of I/O	Model	Model	Model
4	4	XW3D-P455-G11	XW3D-P452-G11	XW3D-P453-G11
8	8	XW3D-P855-G11	XW3D-P852-G11	XW3D-P853-G11
4	8	XW3D-P458-G11	–	XW3D-P457-G11

Note: 1. "1-4" and "3-4" are the connector pin numbers that are wired.
  2. All cables are 5 m long.

E39-VA Hand-held Checker

Handheld Power Supply to Check Sensor Operation

- Portable Power Supply Unit for Sensors

- Check sensor operation via buzzer and LED indicator

- Low battery indicator for easy battery maintenance

- Use with both PNP and NPN three wire sensors

Ratings	Description	Model
Power supply voltage	18 V (use two 9 V dry-cell batteries)	E39-VA

Note: Two 9 VDC dry-cell batteries are included.

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Photomicrosensors

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Contents

E

SMALL SENSORS DELIVER PRECISE POSITIONING

Continuous miniaturization of robots and machinery for semiconductor, photovoltaic and electronics manufacturing require increasingly precise positioning data to maximize production yield and maintain high quality. Amplified Photomicrosensors deliver high precision in a simply mounted format. Embed them in rails for robots, X-Y positioning tables and conveyors for end-of-travel and home position inputs. All are designed for easy connection to PLCs and other controllers as part of a motion control solution.

• Wide choice of models: slotted, through-beam, reflective, and retro-reflective

• Special application solutions for liquid level detection, wafer carrier positioning, and object confirmation for robotic grippers

What kind of sensor do you need?

Slot Sensor

Slot width

| 5 mm | 13 mm | 5, 7, 10 mm | 5 mm | 5 mm | 3.6, 5 mm | 3.6, 5 mm | 3.6 mm |

| EE-SX97 | EE-SPX303N
EE-SPX403N | EE-SX47
EE-SX67 | EE-SX77
EE-SX87 | EE-SX95 | EE-SPX74
EE-SPX84 | EE-SPX-W | EE-SPX301
EE-SPX401 |

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| Through Beam Sensor | | Reflective sensors | | | Retro-Reflective Sensors | Application Specific Sensors | | |

Through Beam Sensor → Sensing distance

Reflective sensors → Sensing distance

Retro-Reflective Sensors → Sensing distance

Application Specific Sensors → What type of application?

| 1 m | 300 mm | 2-5 mm | 1-5 mm | 5 mm | 200 mm | Liquid level detection | Wafer carrier position detection | Pushbutton actuator for robotic gripper |

| EE-SPW311 EE-SPW411 | EE-SPW321 EE-SPW421 | EE-SPY31 EE-SPY41 | EE-SY671 EE-SY672 | EE-SPY30_ EE-SPY40_ | EE-SPZ-W | EE-SPY613 | EE-SPY801 EE-SPY-802 | EE-SA701 EE-SA801 |

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Selection Table

Type	Slotted Through-Beam			
Model	**EE-SX95**	**EE-SX77/87**	**EE-SX47/67**	**EE-SPX74/84**
Features	• Indicator visible from many directions • Mount using M2 or M3 Screws • Robot Cable option	• Compact size • Indicator visible from both sides • M3 mounting holes and slotted mounting holes for easy adjustment	• Visible indicator from many directions • Response frequency as high as 1 kHz • Robot Cable standard on pre-wired models	• 4 models • Connectors with locks for vibration applications • Mount with M3 screws
Housing material	Polybutylene terephthalate (PBT) (Case/Cover) Polycarbonate (PC) (Emitter/receiver)	Polybutylene terephthalate (PBT)	Polybutylene terephthalate (PBT) (Case/Cover) Polycarbonate (PC) (Emitter/receiver)	Polycarbonate (PC)
Sensing distance	5 mm slot width	5 mm slot width	5 mm slot width	3.6 or 5 mm slot width
Output type	NPN, PNP	NPN, PNP	NPN, PNP	NPN
Output configuration	Light-On or Dark-On	Light-On or Dark-On	Light-On/Dark-On (selectable)	Light-On or Dark-On
Supply voltage	5 – 24 VDC	5 – 24 VDC	5 – 24 VDC	5 – 24 VDC
Connection type	• Pre-wired (4 wire cable) (1 m std length)	• Pre-wired (3 wire cable) (2 m std length)	• 4 wire cable (1 m std length) • Solder Connector • Connector with 1 m Cable	• Special Connector (EE-1013 with 1 m cable)

For complete specifications and additional models and accessories visit www.omron247.com

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Type	Slotted Through-Beam			Diffuse Reflective
Model	EE-SX97	EE-SPX-W2A	EE-SPX-303N/403N	EE-SPY31_
Features	• Reduced mounting height from deeply embedded socket • 7 mounting shapes • Indicator visible from 4 directions • Locking connectors for secure wiring	• 4 models • Light Modulation to reduce external light interference • Bright Light Indicator	• Widest Slot type • Resistant to common noise	• Can be used in front of shiny background • Small object detection (0.05 mm dia.) • Light modulation reduces external light interference
Housing material	Polybutylene terephthalate (PBT) (Case/Cover) Polycarbonate (PC) (Emitter/receiver)	Polycarbonate (PC)	Polycarbonate (PC)	Polycarbonate PC (case) Polybutylene terephthalate PBT (holder)
Sensing distance	5 mm slot width	3.6 or 5 mm slot width	13 mm slot width	2 to 5 mm
Output type	NPN, PNP	NPN	NPN	NPN
Output configuration	Light-On and Dark-On	Light-On or Dark-On	Light-On or Dark-On	Light-On or Dark-On
Supply voltage	5 – 24 VDC	5 – 24 VDC	5 – 24 VDC	5 – 24 VDC
Connection type	• Commercially available connector: EE-1017 with 1 m or 3 m cable; EE-1017-R with 1 m or 3 m robotic cable	• Pre-wired (3 wire cable) (1 m std length)	• Connector with standard cable • Connector with robot cable • NPN to PNP Conversion connector	• Connector with standard cable • Connector with robot cable • NPN to PNP Conversion connector

E

Selection Table

Type	Diffuse Reflective		Through-beam	
Model	EE-SY671/672	EE-SPX301/401 EE-SPY301/401	EE-SPW311/411	EE-SPW321/421
Features	• Built in sensitivity adjustment • Built-in amplifier with 100 mA capacity • Bright indicator light	• Light Modulation, sensor not affected by external light • Optical Axis mark for easy adjustment	• Through Beam • Easy-to wire connector • Bright indicator light	• Cable mounted amplifier for space savings mounting • Through beam • Both sensor head and amplifier have indicating lights
Housing material	Polybutylene terephthalate (PBT) (Case/Cover) Polycarbonate (PC) (Emitter/receiver)	Polycarbonate (PC)	Polybutylene terephthalate (PBT) (Case/Cover) Polycarbonate (PC) (Emitter/receiver)	ABS Resin (case) Acrylic Resin (lens)
Sensing distance	1 to 5 mm	3 - 6 mm slot width or 5 mm distance	1 m	300 mm max. distance between sensing heads
Output type	NPN	NPN	NPN	NPN
Output configuration	Light-On/Dark-On (selectable)	Light-On or Dark-On	Light-On or Dark-On	Light-On or Dark-On
Supply voltage	5 – 24 VDC	5 – 24 VDC	5 – 24 VDC	12 – 24 VDC
Connection type	• Connector only • Connector with cable • Connector with robot cable	• Connector only • Connector with cable • NPN to PNP Conversion connector	• Connector with 2 m cable	• Pre-wired 2 m cable

For complete specifications and additional models and accessories visit www.omron247.com

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Photomicrosensors

Type	Retro-reflective	Liquid level	Pushbutton actuator	Wafer carrier positioning
Model	**EE-SPZ-A**	**EE-SPX613**	**EE-SA701-/801**	**EE-SPY801/802**
Features	• Longer sensing distance, simpler to align than diffuse and through-beam sensors • Supports connection with PLCs	• Can mount on 6 mm to 13 mm diameter pipe • Liquid level indicator • Built-in sensitivity selector	• Pushbutton actuator detects FOUP cassettes loading on robotic transfer arms • 5 million operation mechanical life	• Diffuse reflective sensors detect leg section of wafer carriers • Pedestals guide carrier for detection • Left- and right-hand models
Housing material	Polycarbonate (PC)	Polycarbonate (PC)	Polycarbonate (PC) (Base) Polyacetal (Actuator)	Ethylene tetrafluoro ethylene (ETFE) case Polybutylene terephthalate (PBT) base plate
Sensing distance	200 mm	6-13 mm dia. pipe	3.5-4.5 mm operating position	0-3 mm
Output type	NPN	NPN	NPN or PNP	NPN
Output configuration	Light-On or Dark-On	Light-On/Dark-On (selectable)	—	Dark-On
Supply voltage	5 – 24 VDC	12 – 24 VDC	12 – 24 VDC	12 – 24 VDC
Connection type	• Connector only • Connector with cable • NPN to PNP Conversion connector	• Pre-wired 1 m cable	• Pre-wired 1 m cable • Pre-wired 1 m robot cable	• Pre-wired with 2 m, talc-free cable

E

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EE-SX95☐ Slotted Photomicrosensors

Ultra-Small Size for Space Constrained Locations

- 5 body shapes enable easier fit and alignment

- Indicator light can be viewed from 4 directions for simple installation and operation

- Easy to mount with either M2 or M3 screws

- Flexible robot cable options available, ideal for moving part applications

- Wire selectable Dark-ON or Light-ON output

Sensors

Appearance	Sensor method	Sensing distance	Output configuration	Connection method (cable length)	Output type	Model
Standard 23.9 / 6 / 12	Through-beam (with slot)	Infrared light 5 mm (slot width)	Light-ON Dark-ON (2 outputs)	Pre-wired model with standard cable (1 m)	NPN	EE-SX950-W 1M [*1]
					PNP	EE-SX950P-W [*2]
				Pre-wired model with robot cage (1 m)	NPN	EE-SX950-R 1M [*1]
L-shaped 13.4 / 12 / 12				Pre-wired model with standard cable (1 m)	NPN	EE-SX951-W 1M [*1]
					PNP	EE-SX951P-W 1M [*2]
				Pre-wired model with robot cage (1 m)	NPN	EE-SX951-R 1M [*1]
F-shaped 11.7 / 13.4 / 12				Pre-wired model with standard cable (1 m)	NPN	EE-SX952-W 1M [*1]
					PNP	EE-SX952P-W 1M [*2]
				Pre-wired model with robot cage (1 m)	NPN	EE-SX952P-R 1M [*1]
R-shaped 11.7 / 13.4 / 12				Pre-wired model with standard cable (1 m)	NPN	EE-SX953-W 1M [*1]
					PNP	EE-SX953P-W 1M [*2]
				Pre-wired model with robot cage (1 m)	NPN	EE-SX953-R 1M [*1]
U-shaped 13.4 / 6 / 16				Pre-wired model with standard cable (1 m)	NPN	EE-SX954-W 1M [*1]
					PNP	EE-SX954P-W 1M [*2]
				Pre-wired model with robot cage (1 m)	NPN	EE-SX954-R 1M [*1]
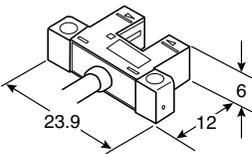
*1. A model with a 3 m cable is available.. The model number is EE-SX95☐-☐3M. (Example: EE-SX950-W 3M)
*2. A pre-wired model with PNP output and 1 m cable is available. The model number is EE-SX95☐P-R 1M. (Example: EE-SX950P-R 1M).

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Pre-Wired Photomicrosensors with Open Collector Output

- Standard, L-shaped, and T-shaped models available

- Pre-wired with 2 m flexible cable that conforms to machine contours

- Models available with Light-ON or Dark-ON output configurations

- Response frequency as high as 1 kHz

- Easy to monitor, indicators are visible from both sides

- Indicator turns OFF when light is interrupted; opposite operation models available

- Readily-visible, molded workpiece insertion mark allows fine-tuning of sensing position

- Allows standard M3-screw mounting

- Wide operating voltage range simplifies sensor connection to TTLs, relays, and programmable controllers (PLC)

- Ideal for use in end-of-travel, home position and operation trigger applications

E

Pre-Wired Slotted Photomicrosensors

Appearance	Sensor type	Slot width/depth	Dimensions H x W x D mm	Output form	Output Type	Model
Standard	Through-beam (slot)	5 mm W x 9 mm D	31.1 x 18 x 4.6	Light-ON	NPN	EE-SX870
					PNP	EE-SX870P
				Dark-ON	NPN	EE-SX770
					PNP	EE-SX770P
L-shaped			21 x 18 x 13	Light-ON	NPN	EE-SX871
					PNP	EE-SX871P
				Dark-ON	NPN	EE-SX771
					PNP	EE-SX771P
T-shaped			31.1 x 12.3 x 19.1	Light-ON	NPN	EE-SX872
					PNP	EE-SX872P
				Dark-ON	NPN	EE-SX772
					PNP	EE-SX772P

EE-SX47□/EE-SX67□
Slotted Photomicrosensors

Widest Variety of Body Shapes of Connector-Ready Slotted Sensors

- 8 body configurations available with connector, pre-wired cable or pre-wired connector

- Easy operation monitoring with bright LED indicator

- Choose Light-ON or Light-ON/Dark-ON output models

- Light modulation reduces external light interference

- Flexible robot cable is standard on all pre-wired models

- Wide operating voltage range simplifies sensor connection to TTLs, relays and programmable controllers (PLC)

Connector-Ready Slotted Photomicrosensors

Shape	Sensor type	Slot width/depth	Dimensions H x W x D mm	Output form	Indicator operation	Output Type	Model
Standard	Through-beam	5 mm W x 9 mm H	28.4 x 25.4 x 6.95	Light-ON	Light-ON	NPN	EE-SX470
				Light-ON/ Dark-ON selectable	Dark-ON		EE-SX670
					Light-ON		EE-SX670A
					Dark-ON	PNP	EE-SX670P
L-shaped			15.5 x 26.2 x 20.7	Light-ON	Light-ON	NPN	EE-SX471
				Light-ON/ Dark-ON selectable	Dark-ON		EE-SX671
					Light-ON		EE-SX671A
					Dark-ON	PNP	EE-SX671P
T-shaped		7 mm W x 9 mm H	28.4 x 29 x 13.7	Light-ON	Light-ON	NPN	EE-SX472
				Light-ON/ Dark-ON selectable	Dark-ON		EE-SX672
					Light-ON		EE-SX672A
					Dark-ON	PNP	EE-SX672P
Close-mounting vertical		5 mm W x 9 mm H	28.4 x 13.4 x 12.8	Light-ON	Light-ON	NPN	EE-SX473
				Light-ON/ Dark-ON selectable	Dark-ON		EE-SX673
					Light-ON		EE-SX673A
					Dark-ON	PNP	EE-SX673P
Close-mounting horizontal			15.5 x 13.6 x 27.7	Light-ON	Light-ON	NPN	EE-SX474
				Light-ON/ Dark-ON selectable	Dark-ON		EE-SX674
					Light-ON		EE-SX674A
					Dark-ON	PNP	EE-SX674P
T-shaped		10 mm W x 9 mm H	28.4 x 31 x 16.7		Light-ON	NPN	EE-SX675
						PNP	EE-SX675P
F-shaped		5 mm W x 9 mm H	28.4 x 13.2 x 13.7			NPN	EE-SX676
						PNP	EE-SX676P
R-shaped						NPN	EE-SX677
						PNP	EE-SX677P

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Connectors and Accessories (continued)

Appearance	Item	Description		Dimensions H x W x D mm	Model
	Solder connector	—		16.8 x 13.0 x 4.0	EE-1001
		Makes selectable operation models into Light-ON operation sensors. The L and positive (+) terminals are already short-circuited.			EE-1001-1
		Connector has locking mechanism		13.5 x 13 x 4	EE-1009
	Connector with cable	2 m cable		11.8 x 16.2 x 5.3	EE-1006

Pre-Wired Slotted Photomicrosensors

Shape	Sensor type	Slot width/ depth	Dimensions H x W x D mm	Output form	Connection Method (cable length)	Model	
						NPN Output	PNP Output
Standard	Through-beam	5 mm W x 9 mm H	28.4 x 25.4 x 6.95	Light-ON Dark-ON (select-able)	Pre-wired models (1 m)	EE-SX670-WR	EE-SX670P-WR
					Models with junction connectors (0.3 m)	EE-SX670-C1J-R	EE-SX670P-C1J-R
L-shaped			15.5 x 26.2 x 20.7		Pre-wired models (1 m)	EE-SX671-WR	EE-SX671P-WR
					Models with junction connectors (0.3 m)	EE-SX671-C1J-R	EE-SX671P-C1J-R
T-shaped		7 mm W x 9 mm H	28.4 x 29 x 13.7		Pre-wired models (1 m)	EE-SX672-WR	EE-SX672P-WR
					Models with junction connectors (0.3 m)	EE-SX672-C1J-R	EE-SX672P-C1J-R
Close-mounting vertical		5 mm W x 9 mm H	28.4 x 13.4 x 12.8		Pre-wired models (1 m)	EE-SX673-WR	EE-SX673P-WR
					Models with junction connectors (0.3 m)	EE-SX673-C1J-R	EE-SX673P-C1J-R
Close-mounting horizon-tal			15.5 x 13.6 x 27.7		Pre-wired models (1 m)	EE-SX674-WR	EE-SX674P-WR
					Models with junction connectors (0.3 m)	EE-SX674-C1J-R	EE-SX674P-C1J-R
T-shaped		10 mm W x 9 mm H	28.4 x 31 x 16.7		Pre-wired models (1 m)	EE-SX675-WR	EE-SX675P-WR
					Models with junction connectors (0.3 m)	EE-SX675-C1J-R	EE-SX675P-C1J-R
F-shaped		5 mm W x 9 mm H	28.4 x 13.2 x 13.7		Pre-wired models (1 m)	EE-SX676-WR	EE-SX676P-WR
					Models with junction connectors (0.3 m)	EE-SX676-C1J-R	EE-SX676P-C1J-R
R-shaped			28.4 x 13.2 x 13.7		Pre-wired models (1 m)	EE-SX677-WR	EE-SX677P-WR
					Models with junction connectors (0.3 m)	EE-SX677-C1J-R	EE-SX677P-C1J-R

E

EE-SX97 Slotted Photomicrosensors

Space Saving Sensor with Secure Connector

- Deeply embedded socket reduces overall mounting height
- 7 shapes to match most applications
- Light-ON and Dark-ON outputs wire selectable
- PNP and NPN output models
- Locking connector for secure wiring
- Indicator visible from 4 directions
- Power reverse polarity protection and output overcurrent with thermal
- Shutdown circuit built into NPN output models
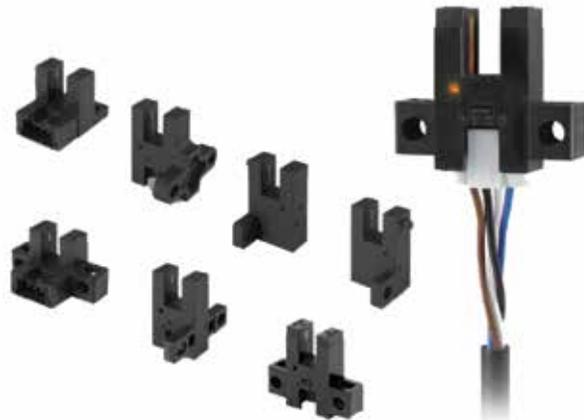
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Connector-Ready Slotted Photomicrosensors

Shape	Sensor type	Slot width/depth	Dimensions H x W x D mm	Output form	NPN output Model	PNP output model
Standard	Through beam with slot	5 W x 9 D mm	22 x 26 x 6.8	Dark-ON/ Light-ON/ (selectable)	EE-SX970-C1	EE-SX970PC1
L-shaped		5 W x 9 D mm	15.5 x 26.2 x 14.7		EE-SX971-C1	EE-SX971PC1
T-shaped		5 W x 9 D mm slot center 7 mm	22 x 13.7 x 26		EE-SX972-C1	EE-SX972PC1
Close-mounting		5 W x 9 D mm	15.5 x 13.4 x 21.7		EE-SX974-C1	EE-SX974PC1
T-shaped slot center 10 mm		5 W x 9 D mm slot center 10 mm	22 x 16.7 x 26		EE-SX975-C1	EE-SX975PC1
T-shaped		5 W x 9 D mm	22 x 15.9 x 13.2		EE-SX976-C1	EE-SX976PC1
F-shaped		5 W x 9 D mm	22 x 15.9 x 13.2		EE-SX977-C1	EE-SX977PC

Connector

Description	Cable length	Model
Connector with standard cable	1 m	EE-1017 1M
	3 m	EE-1017 3M
Connector with robotic cable	1 m	EE-1017-R 1M
	3 m	EE-1017-R 3M

EE-SPX74□/EE-SPX84□
Slotted Photomicrosensors

Connector-Ready Photomicrosensors with Open Collector Output

- Compact sensor for high-density mounting

- Standard, L-shaped, and T-shaped models available

- Easy to maintain, plugs into Connector cordset EE-1013

- Connector features built-in safety lock vibration and shock resistance

- Models available with Light-ON or Light-ON/Dark-ON output configurations

- Powerful light modulation against external light interference

- Easy operation monitoring with bright LED indicator

- Wide operating voltage range simplifies sensor connection to TTLs, relays, and programmable controllers (PLC)

- Ideal for use in end-of-travel, home position and operation trigger applications
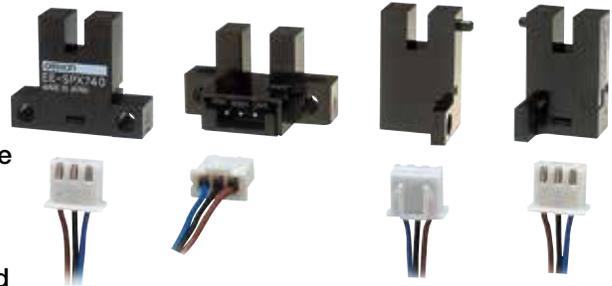
Plug-In Slotted Photomicrosensors

Shape	Sensor type	Slot width/depth	Dimensions H x W x D mm	Output form	Model
Standard	Through beam (slot)	3.6 mm W x 6.6 mm D	21.2 x 25 x 7.4	Light-ON	EE-SPX840
				Dark-ON	EE-SPX740
L-shaped, left tab			21.2 x 15.5 x 13	Light-ON	EE-SPX842
				Dark-ON	EE-SPX742
L-shaped, right tab				Light-ON	EE-SPX843
				Dark-ON	EE-SPX743
T-shaped		5 mm W x 9 mm H	15.4 x 27.2 x 15.5	Light-ON	EE-SPX841
				Dark-ON	EE-SPX741

Connector

Appearance	Item	Description	Dimensions H x W x D mm	Model
	Connector with cable	1 m cable	11.8 x 16.2 x 5.3	EE-1013

E

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Narrow Slot Sensors and Reflective Sensors with Plug in Connection

- Slotted DC sensor with plug-in connection for counting and presence/absence detection applications

- Light modulation reduces external light interference

- Light-ON and Dark-ON operation models

- Built-in Light-ON indicator

- Connector simplifies installation and maintenance: choose connector with 1 m cable (EE-1003) or solder terminals (EE-1002)

- Convert EE-SPX301/401 NPN output to PNP with EE-2001 output converter

Photomicrosensors

Appearance	Sensor type	Sensing distance	Dimensions H x W x D mm	Output type	Output form	Model
	Through beam with slot	3.6 W x 9 L mm slot	31.5 H x 26 W x 7 D mm	NPN	Dark-ON	EE-SPX301
					Light-ON	EE-SPX401
Horizontal type	Diffuse reflective	5 mm	27.5 H x 26 W x 7 D mm		Dark-ON	EE-SPY301
					Light-ON	EE-SPY401
Vertical type	Diffuse reflective	5 mm	27.5 H x 26 W x 7 D mm		Dark-ON	EE-SPY302
					Light-ON	EE-SPY402

Connectors and Accessories

Description	Model
Solder connector	EE-1002
Connector with cable 1 m length	EE-1003
Connector hold-down clip for EE-1003	EE-1003A
NPN/PNP conversion connector, 0.46 length	EE-2001

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Pre-Wired Photomicrosensors with Open Collector Output

- Compact sensor for high-density mounting

- Standard, L-shaped, and T-shaped models available

- Incorporating dust-proof slit

- Detects objects as small as 0.5 mm diameter

- Light-ON or Dark-ON output configurations models available

- Optical axis monitoring with a Light-ON indicator

- Light modulation effectively reduces external light interference

- Pre-wired with 2 m cable

CE
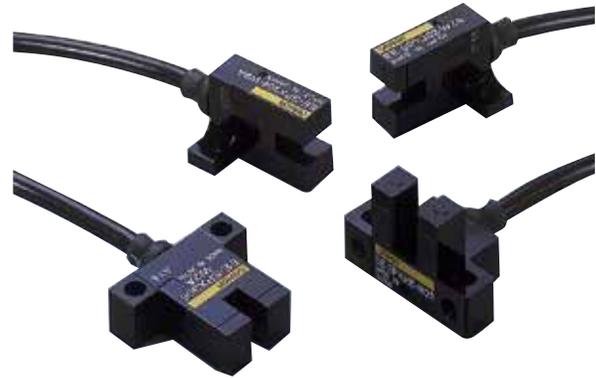
Pre-Wired Photomicrosensors

Appearance	Sensor type	Slot width/depth	Dimensions H x W x D mm	Output form	Output Type	Model
Standard	Through beam (slot)	3.6 mm W x 6.6 mm D	29.2 x 25 x 7.4	Light-ON	NPN	EE-SPX306-W2A
				Dark-ON		EE-SPX406-W2A
L-shaped, left tab			29.2 x 15.5 x 13	Light-ON		EE-SPX302-W2A
				Dark-ON		EE-SPX402-W2A
L-shaped, right tab			21.2 x 15.5 x 13	Light-ON		EE-SPX304-W2A
				Dark-ON		EE-SPX404-W2A
T-shaped		5 mm W x 9 mm H	15.5 x 27.2 x 22.5	Light-ON		EE-SPX305-W2A
				Dark-ON		EE-SPX405-W2A

E

EE-SPX303N/EE-SPX403N
Slotted Photomicrosensors

Connector-Ready Wide Slot Sensors

- Large slot width (13 mm W x 10 mm D)

- Models available with Light-ON or Dark-ON output configurations

- Powerful light modulation against external light interference

- Easy adjustment and optical axis monitoring with a Light-ON indicator

- Convert to PNP output with EE-2002 conversion connector

Wide Slot Photomicrosensors

Appearance	Sensor type	Slot width/depth	Dimensions H x W x D mm	Output form	Output Type	Model
	Through beam with slot	13 mm W x 10 mm D	26 x 26 x 7.4	Light-ON	NPN	EE-SPX303N
				Dark-ON		EE-SPX403N

Connectors and Accessories

Appearance	Item	Description	Dimensions H x W x D mm	Model
	Solder connector	Connector makes selectable operation sensors into Light-ON operation sensors. Short-circuits L and positive (+) terminals.	16.8 x 13.0 x 4.0	EE-1001
	Connector with cable	2 m cable	11.8 x 16.2 x 5.3	EE-1006
	Connector holder	For EE-1006	25.2 x 29.2 x 5.5	EE-1006A
	Connector with cable	2 m cable	13.5 x 13.0 x 4.0	EE-1010
	Connector with robotic cable			EE-1010R
	NPN/PNP conversion connector		16.2 x 11.8 x 5.3	EE-2002

For complete specifications and additional models and accessories visit www.omron247.com

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Connector-Ready Reflective Sensors

- Detect dark colored objects and targets in front of mirror-like backgrounds

- Detect objects as small as 0.05 mm diameter copper wire

- 2 to 5 mm sensing distance

- Vertical and horizontal mounting models available

- Easy to maintain, plugs into Connector cordset EE-1006

- Light modulation effectively reduces external light interference

- Easy operation monitoring with bright LED indicator

CE

Plug-in Reflective

Appearance	Sensor type	Slot width/depth	Dimensions H x W x D mm	Output form	Output type	Model
Horizontal	Convergent reflective	2-5 mm	29 x 26 x 8	Dark-ON	NPN	EE-SPY311
				Light-ON		EE-SPY411
Vertical				Dark-ON		EE-SPY312
				Light-ON		EE-SPY412

E

Reflective Sensors with Sensitivity Adjuster

- 1 to 5 mm sensing distance

- Vertical and horizontal mounting models available

- Light-ON/Dark-ON output wire selectable

- Light modulation effectively reduces external light interference

- Easy operation monitoring with bright LED indicator

Pre-Wired Photomicrosensors

Appearance	Sensor type	Sensing distance	Dimensions H x W x D mm	Output form	Output type	Model
Horizontal	Convergent reflective	1 to 5 mm	31.4 x 25.4 x 6.95	Light-ON/Dark-ON selectable	NPN	EE-SY671
Vertical			31.2 x 25.4 x 6.95			EE-SY672

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Long Distance Miniature Sensors with Built-In Amplifier

- 1 meter sensing distance with 5 mm diameter minimum object size

- Models available with Light-ON or Dark-ON output configurations

- Light modulation effectively reduces external light interference

- Easy operation monitoring with bright LED indicator

- Cordsets with 2 m cable supplied for emitter and receiver

- Convert to PNP output with EE-2002 conversion connector

- Extend cabling up to 10 m

CE

Pre-Wired Photomicrosensors

Appearance	Sensor type	Sensing Distance	Dimensions H x W x D mm	Output form	Output type	Model
(Receiver shown)	Through-beam	1 m	33.2 x 25.4 x 8.6	Light-ON	NPN	EE-SPW411
				Dark-ON		EE-SPW311

Connector Cordsets (Cordsets Included with Sensor)

Appearance	Sensor type	Description	Dimensions H x W x D mm	Model
Horizontal	Emitter cordset	2 m cable, 2 conductors	29 x 26 x 8	EE-1006L
Vertical	Receiver cordset	2 m cable, 3 conductors	16.2 x 11.8 x 5.3	EE-1006D

E

Miniature Sensing Heads with In-Line Cable Amplifier

- 30 cm sensing distance with 2 mm diameter minimum object size

- Detect objects as small as 0.5 mm using slit pairs supplied

- Operation indicators allow monitoring from the amplifier housing or sensor head

- Models available with Light-ON or Dark-ON output configurations

- Light modulation effectively reduces external light interference

- Slim amplifier (12 H x 7.5 W x 50 D mm) with NPN output for easy handling and mounting

- Pre-wired with 2 m, 3-conductor cable for simple wiring

- 0.5 or 1 m sensing head-to-amplifier cable lengths available

Pre-Wired Photomicrosensors

Appearance	Sensor type	Sensing distance	Dimensions H x W x D mm	Output form	Output type	Model
	Through-beam	30 cm	14 x 5.8 x 14, 0.5 m cable	Light-ON	NPN	EE-SPW421
			14 x 5.8 x 14, 1 m cable			EE-SPW421A
			14 x 5.8 x 14, 0.5 m cable	Dark-ON		EE-SPW321
			14 x 5.8 x 14, 0.5 m cable			EE-SPW321A

Slit Sets

Reduce beam size to detect smaller objects more accurately by applying slits to the emitter and receiver. Two sizes included with the sensor.

Size of aperture	Sensing distance	Minimum object size
0.5 x 3 mm	10 cm	Opaque: 0.5 mm dia.
1 x 3 mm	20 cm	Opaque: 1 mm dia.

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Liquid Level Sensor with Built-In Amplifier

- Detect liquid level in manufacturing processes used in food & beverage and semiconductor industries

- Fits 6-13 mm diameter transparent or semi-transparent pipe with a wall thickness of 1 mm

- Easy to install tie-wrap and rubber tube provided to prevent slippage

- Incorporates a sensitivity selector, built-in amplifier, and operation mode selector

- Built-in amplifier with NPN output saves space and wiring effort

- Pre-wired with 1 m, talc-free cable, safe for use in clean room equipment

CE

Liquid Level Photomicrosensor

Appearance	Sensor type	Sensing Distance	Dimensions H x W x D mm	Output form	Output type	Model
	Through-beam (slot)	6-13 mm diameter pipes, as transparent as FEP	16 x 26 x 19	Light-ON/ Dark-ON selectable	NPN	EE-SPX613

E

EE-SPZ-A
Retro-reflective Photomicrosensors with Lens

Longer Sensing Distance, Simpler to Align Than Diffuse and Through-Beam Sensors

- Photomicrosensor with light modulation for reduced external light interference

- Easy adjustment and optical axis monitoring with a light indicator

- Wide operating voltage range: 5 to 24 VDC

- Supports connection with Programmable Controllers (PLCs)

- Easy-to-wire connectors assure easy maintenance

Photomicrosensors

Appearance	Sensor type	Sensing distance	Output type	Output form	Model
	Retro-reflective type	200 mm	NPN output	Dark-ON	EE-SPZ301-A
				Light-ON	EE-SPZ401-A
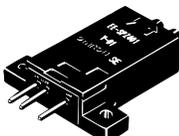
Accessories (Order Separately)

Type	Cable length	Model	Remarks
Connector	—	EE-1002	—
Connector with cable	1 m	EE-1003	—
NPN/PNP Conversion Connector	0.46 m (total length)	EE-2001	—
Connector Hold-Down Clip	—	EE-1003A	For EE-1003 only.
Reflector	—	E39-R1	—

For complete specifications and additional models and accessories visit www.omron247.com

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EE-SA701/EE-SA801
Pushbutton-type Photomicrosensors

Pushbutton Actuator Accurately Detects Presence of Difficult-to-Detect Objects

- Conforms to semiconductor standards to enable accurate detection of FOUP cassettes without being affected by the material, color, or reflectance of the cassette bottoms. Thin design enables mounting in a wider range of applications, e.g., on transfer arms

- Increased visibility with 4-direction indicator

- Optical detection of actuator operation provides a long life (mechanical life: 5 million operations min.)

- Models with PNP or NPN output

- Models are available with very flexible robot cable

CE

Pushbutton Type Photomicrosensor

Appearance	Sensor distance	Sensing method	Operation mode	Cable length	Model	
					NPN output	PNP output
	0 to 3.5 mm (pressed position) (see note. 1)	Pushbutton	ON with no load	1 m	EE-SA801A 1M	EE-SA801R 1M
				1 m (robot cable)	EE-SA801A-R 1M	EE-SA801R-R 1M
			OFF with no load		EE-SA701-R- 1M	EE-SA701P-R 1M

Note: 1. Distance from the top surface of the housing to the top of the actuator.

E

Wafer Carrier Position Sensor

- Unique optical system enables stable detection of almost all wafer-carriers

- Contact surfaces with the wafer carrier use a special chemical-resistant fluororesin

- Set the mounting position using optional pedestals

- Light modulation effectively reduces external light interference

- Pre-wired with 2 m, talc-free cable, safe for use in clean room equipment
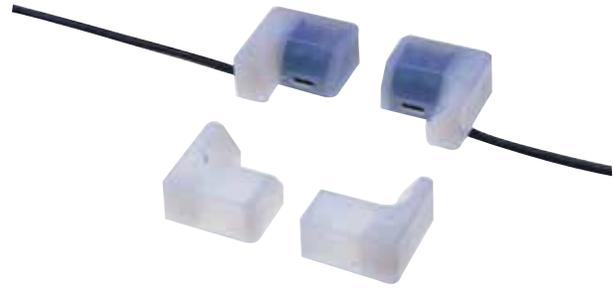
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Pre-Wired Photomicrosensors

Appearance	Sensor type	Sensing distance	Dimensions H x W x D mm	Output form	Output Type	Model
	Diffuse reflective	0-3 mm	15 x 32 x 30	Turns on when a wafer carrier is present	NPN	EE-SPY801
						EE-SPY802
	Pedestal (no sensor function)	—	15 x 32 x 30	Guides carrier for detection	—	EE9-C01
						EE9-C02

Application

Mount sensors to detect the support rails along the bottom of the wafer carrier.	Install a Sensor or Pedestal at each of the four corners indicated by a circle in the following diagram.
Wafer carrier side view (details omitted) (Side view) Sensor Sensor Wafer carrier leg section	A D Wafer carrier top view (details omitted) (Top view) B C
	Points A and C / Points B and D — EE-SPY801 or EE9-C01 / EE-SPY802 or EE9-C02

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Limit and Basic Switches

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Contents

F

DOWNSIZE WITHOUT COMPROMISE

D4C – Compact, flat, high-performing switches

With only a width of 16 mm, these compact and flat switches let you meet the demand for down-sizing without compromising on specifications. The reliable SPDT contact inside can switch up to 5 A/250 VAC resistive load. A full range of actuators is available to meet all your mechanical requirements.

- Slim, compact body sizes

- Wide range of actuators

- Strong metal housing, triple sealed with IP67 rating

- Pre-wired and quick-to-service connector models

Which type of switch is needed?

General purpose	Miniature switch

What type of actuator? | What type of actuator?

Plunger, lever, spring	Plunger, lever

IP67	IP67

D4A-N	WL	WL-N	D4C	D4CC

For complete specifications and additional models and accessories visit www.omron247.com   **OMRON**

Enclosed switch			Multiple switch	Tactile switch
What type of actuator?			What type of actuator?	What type of actuator?
Plunger, lever			Plunger	Plunger, wobble-stick

IP65	IP67			IP67	IP67

ZE/ZV/ZV2	D4E-_N	D4MC	SHL	VB	D5B

F

Selection Table

Type	Two circuit limit switch	Heavy duty limit switch	Enclosed switch, pre-wired	Enclosed switch, connector	High-capacity switch

Selection criteria				Model	WL/WL-N	D4A-N	D4C	D4CC	ZE/ZV/ZV2
	Degree of protection		IEC	IP67	IP67	IP67	IP67	IP65
	Contact type	SPDT		■	■	■	■	■
		DPDT		–	■	–	–	–
		SPST-NC		–	–	–	–	–
	Switch ratings (Resistive load)			• 10 A, 500 VAC • 6 A, 30 VDC • 0.8 A, 125 VDC • 0.4 A, 250 VDC	• 10 A, 480 VAC • 10 A, 14 VDC • 6 A, 30 VDC • 0.8 A, 125 VDC	• 5 A, 250 VAC • 4 A, 30 VDC • 0.4 A, 125 VDC • 0.2 A, 250 VDC	• 1 A, 125 VAC • 1 A, 30 VDC	• 15 A, 250 VAC • 10 A, 480 VAC • 10 A, 30 VDC • 0.5 A, 125 VDC • 0.25 A, 250 VDC
Features	Microload type			■	–	■	–	–
	Operation indicator			■	■	■	■	–
Actuators	Adjustable rod lever			■	■	–	–	–
	Adjustable roller lever			■	■	–	–	–
	Bevel plunger			–	–	–	–	–
	Center roller lever			■	–	■	■	–
	Coil spring			■	■	–	–	–
	Cross roller plunger			■	–	■	■	■
	Fork lever lock			■	■	–	–	–
	Hinge lever			–	–	–	–	–
	Hinge roller lever			–	–	–	–	–
	Horizontal roller plunger			■	■	–	–	–
	Horizontal ball plunger			■	■	–	–	–
	One-way action hinge roller lever			–	–	–	–	■
	Panel mount plunger			–	–	–	–	–
	Panel mount pin plunger			–	–	–	–	–
	Panel mount roller plunger			–	–	–	–	–
	Panel mount cross roller plunger			–	–	–	–	–
	Pin plunger			■	–	■	■	–
	Plastic rod			■	–	■	■	–
	Roller lever			■	■	■	■	■
	Roller plunger			■	■	■	■	■
	Sealed cross roller plunger			■	–	■	■	■
	Sealed plunger			■	–	■	■	■
	Sealed roller plunger			■	–	■	■	■
	Short hinge lever			–	–	–	–	–
	Short hinge roller lever			–	–	–	–	–
	Side plunger			■	■	–	–	–
	Side roller plunger			■	■	–	–	–
	Top ball plunger			■	■	–	–	–
	Top plunger			■	■	–	–	–
	Hemispherical ball			–	–	–	–	–
	Cone plunger			–	–	–	–	–
	Wire plunger			–	–	–	–	–

■ Standard　　□ Available　　– No/not available

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Type	Small sealed switch	Enclosed switch	Coil spring action switch	Multiple plunger switch	Tactile switch
Model	D4E-_N	D4MC	SHL	VB	D5B

			Small sealed switch	Enclosed switch	Coil spring action switch	Multiple plunger switch	Tactile switch
Selection criteria	Degree of protection	IEC	IP67	IP67	IP67	IP67	IP67
	Contact type	SPDT	■	■	■	■	–
		DPDT	–	–	–	■ (Up to 6PDT)	–
		SPST-NC	–	–	–		■
	Switch ratings (Resistive load)		• 5 A, 250 VAC • 5 A, 30 VDC • 0.5 A, 125 VDC • 0.25 A, 250 VDC	• 10 A, 250 VAC • 3 A, 480 VAC • 10 A, 14 VDC • 6 A, 30 VDC • 0.5 A, 125 VDC • 0.25 A, 250 VDC	• 10 A, 250 VAC • 2 A, 480 VAC • 10 A, 14 VDC • 0.4 A, 125 VDC • 0.2 A, 250 VDC	• 10 A, 250 VAC • 0.6 A, 125 VDC • 0.3 A, 250 VDC	• 1 mA, 5 VDC • 30 mA, 30 VDC
Features	Microload type		■	–	■	■	■
	Operation indicator		■	–	■	–	–
Actuators	Adjustable rod lever		–	–	–	–	–
	Adjustable roller lever		–	–	–	–	–
	Bevel plunger		–	–	–	■	–
	Center roller lever		–	–	–	–	–
	Coil spring		–	–	–	–	–
	Cross roller plunger		■	–	–	–	–
	Fork lever lock		–	–	–	–	–
	Hinge lever		–	■	■	–	–
	Hinge roller lever		■	■	■	–	–
	Horizontal roller plunger		–	–	–	–	–
	Horizontal ball plunger		–	–	–	–	–
	One-way action hinge roller lever		■	–	■	–	–
	Panel mount plunger		■	■	■	–	–
	Panel mount pin plunger					–	–
	Panel mount roller plunger		■	■	■	–	–
	Panel mount cross roller plunger		■	■	■	–	–
	Pin plunger		–	–	–	–	–
	Plastic rod		–	–	–	–	–
	Roller lever		■	■	■	–	–
	Roller plunger		■			■	–
	Sealed cross roller plunger		■	–	–	–	–
	Sealed plunger		■	–	–	–	–
	Sealed roller plunger		■	–	–	–	–
	Short hinge lever		–	■	■	–	–
	Short hinge roller lever		–	■	■	–	–
	Side plunger		–	–	–	–	–
	Side roller plunger		–	–	–	–	–
	Top ball plunger		–	–	–	–	–
	Top plunger		–	–	–	–	–
	Hemispherical ball		–	–	–	–	■
	Cone plunger		–	–	–	–	■
	Wire plunger		–	–	–	–	■

■ Standard   □ Available   — No/not available

F

GLOBAL STANDARD BASIC SWITCHES

Wide range offering the most standard basic switches

High precision and wide variety of styles meet wide range of applications.

- Long life, high-accuracy and high quality
- A large switching capacity of 15 A with high repeat accuracy
- Micro load models available
- Molded terminal-type models available

Which type of switch is needed?

High precision	High capacity	Direct current switch	High temperature	Two independent circuits
Maximum load rating	Maximum load rating	Maximum load rating	Maximum load rating	Maximum load rating
15A @ 250VAC	20A @ 250VAC	10A @ 125VDC/AC	1A @ 250VAC	10A @ 250VAC
SPDT	SPDT	SPDT	SPDT	DPDT
Z	A	X	TZ	DZ

OMRON
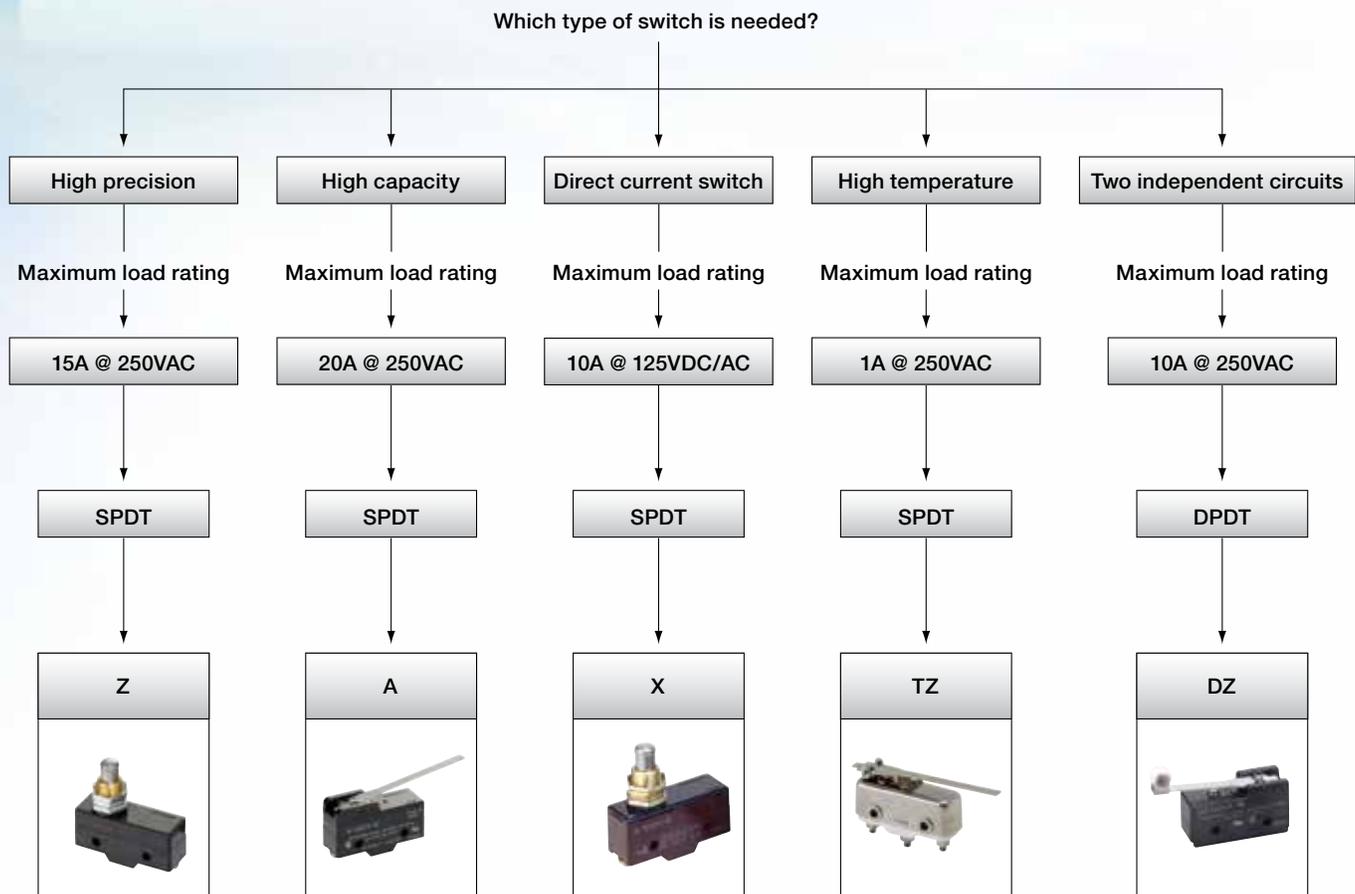
	Type	High precision switch	High capacity switch	Direct Current switch	High-temperature switch	Two independent circuits
Specifications	Model	**Z-15G**	**A-20G**	**X-10G**	**TZ-1G**	**DZ-10G**
	Contact type — SPDT	■	■	■	■	–
	Contact type — DPDT	–	–	–	–	■
	Switch ratings (Resistive load)	• 15A @ 250VAC • 6A @ 30VDC • 0.5A @ 125VDC	• 20A @ 250VAC • 6A @ 30VDC • 0.5A @ 125VDC	• 10A @ 125VDC/AC • 3A @ 250VDC/AC	• 1A @ 250VAC • 1A @ 30VDC	• 10A @ 250VAC • 0.5A @ 125VDC
Service Life	Mechanical (cycles)	• 20 million	• 1 million	• 1 million	• 100,000	• 1 million
	Electrical (cycles)	• 500,000	• 500,000	• 100,000	• 50,000	• 500,000
Actuators	Pin plunger	■	■	■	■	■
	Slim spring plunger	□	–	□	–	–
	Short spring plunger	□	□	□	–	–
	Panel mount plunger	■	■	■	–	–
	Panel mount roller plunger	■	■	■	–	–
	Panel mount cross roller plunger	□	□	□	–	–
	Leaf spring lever	□	–	□	–	–
	Roller leaf spring lever	□	–	–	–	–
	Short hinge lever	□	□	□	–	–
	Hinge lever	■	■	■	■	■
	Low-force hinge lever	□	–	□	–	–
	Low-force wire hinge lever	□	–	–	–	–
	Short hinge roller lever	■	□	■	■	■
	Short hinge cross roller lever	□	–	–	–	–
	Hinge roller lever	□	■	□	■	■
	Hinge cross roller lever	□	–	–	–	–
	One-way short hinge roller lever	□	–	–	–	–
	Reverse hinge lever	□	–	□	–	–
	Reverse short hinge roller lever	□	–	□	–	–
	Reverse hinge roller lever	□	–	□	–	–

■ Standard   □ Available   — No/not available

F

WL/WL-N General-Purpose Limit Switches

Robust Single-Pole/Double Break Switches with Built-In Actuators

- Rugged die-cast aluminum housing with high mechanical strength
- Rated IP67 with waterproof, oil-tight and dust-proof construction
- Easy to install and maintain
- Wide range of actuators:
  - Roller levers: Short, medium, long; flush mounting; flange mounting
  - Adjustable levers: Roller lever, rod lever
  - Fork roller levers
  - Plungers: Plain top, top roller, top ball, plain side, side roller, side ball
  - Wobble levers: Steel wire, nylon rod, coil spring
- Wide variety of standard, high-precision and overtravel models
- LED or neon lamp status indicator models available

Specifications

- Load rating: 10 A max. at 125 VAC, NEMA A600
- Contact configuration: SPDT double break
- Mechanical life: 15 million operations
- High temperature, low temperature, corrosion proof, hermetic, anti-coolant, spatter resistant types available

- Micro-load and "Long-Life" types available
- Class 1 protection against electric shock
- Connection: 1/2-14 NPT conduit entrance, terminal screw connections
- Enclosure rating: IP67; NEMA 3, 4, and 13

Type	Basic	High sensitivity overtravel	90-degree	High-precision overtravel
Action	45° 45°	80° 80°	90° 90°	45° 45°
Features	•Used with roller levers	•Operation is highly sensitive with only 10° pretravel •Overtravel is large, making setting the dog easier •Mounting is compatible with basic models	•Overtravel is large, •making setting the dog easier •Mounting is compatible with basic models	•Repeat accuracy is twice that of basic models •Operation is highly sensitive with only 5° pretravel •Ideal for positioning, e.g., with machine tools
One-way operation	Possible	Not possible	Not possible	Not possible
Head mounting	Any of 4 directions	Any of 4 directions	Any of 4 directions	Any of 4 directions

OMRON

Heavy-Duty SPDT and DPDT Switches with Plug-In Construction

- Oil-tight, watertight construction with double seal on the head, a complete gasket cover
- Plug-in construction reduces downtime for maintenance
- Convenient front mounting simplifies installation
- User-selectable operating direction for side rotary switches—CW, CCW, or both
- Position and lock the operating head at any of four 90° positions
- Wide operating temperature range: -40° to 100° C (side rotary)
- Side rotary switches accept a wide selection of levers
- DPDT, double-break models available for sequential operation and center neutral switching

Specifications

- Load rating: SPDT double break: 10 A max. at 125 VAC, NEMA A600
  - DPDT double break: 5 A max. at 125 VAC, NEMA B600
- Mechanical life:
  - SPDT double break: 50 million operations
  - DPDT double break: 30 million operations
- Connection: 1/2-14 NPT conduit entrance, terminal screw connections

- Enclosure rating: IP67; UL NEMA 3, 4, 4X, 6P, 12 and 13
- Class I protection against electrical shock
- Wide range of actuators:
  - Roller lever: Standard, high-sensitivity, low torque, maintained, sequential operation, center neutral operation
  - Adjustable lever: Side plunger, top plunger
  - Wobble lever: Spring wire, plastic rod, cat whisker, coil spring

F

Sealed, Compact, Slim Pre-Wired Limit Switch

- Rugged die-cast aluminum housing
- Rated IP67; triple-sealed construction
- Designed for easy gang mounting
- Standard cable offers high flexibility, outstanding oil and extreme temperature resistance
- Wide range of actuators:

Specifications

- Load rating: SPDT: 5 A max. at 250 VAC, NEMA B300
- Micro load versions available
- Enclosure rating: IP67; UL NEMA 3, 4 and 13
- Weather-resistant models available

Sealed, Compact, Slim Limit Switch with Connector

- Center roller lever models enable ganged mounting of up to 6 switches
- M12 4-pin connector reduces installation and maintenance time
- Rated IP67; triple-sealed construction for plungers provides oil-tight and water-tight protection
- AC and DC switching models
- Wide range of actuators

Specifications

- Load rating: SPDT, 1 A max. at 125 VAC, NEMA D150 or 1 A max. at 30 VDC
- Connection: M12 single keyway 4-pin connector
- Enclosure rating: IP67; UL NEMA 3, 4 and 13

OMRON

Compact Enclosed Limit Switch

- Suitable for applications demanding higher mechanical strength, dustproof and drip-proof properties
- Rated IP67; gasket diaphragm seal provides high environmental resistance
- High-precision and long life (10,000,000 mechanical operations)
- Wide range of actuators:
  - Panel mount plunger, roller plunger, cross roller plunger
  - Short and standard hinge lever
  - Standard, short and one-way action short hinge roller lever
- Screw terminals or pre-wired with 1 m cable

Specifications

- Control output: SPDT (form C), rated 10 A max. at 125 VAC (inductive load)
- NEMA A300 rated
- Dimensions: 44.8 H x 21.7 W x 50 D mm (switch body with boot)

Slim and Compact Enclosed Limit Switch with a Long Life

- Ideal for gang mounting
- Rated IP67; NEMA 3, 4 and 13
- Long service life (10,000,000 mechanical operations)
- Wide range of actuators:
  - Plunger, roller plunger, cross roller plunger
  - Sealed plunger, roller plunger, cross roller plunger
  - Standard and one-way action roller lever
  - Screw terminals, connector or pre-wired with 1 m cable models
  - Micro-load types available

Specifications

- Control output: SPDT (form C), rated 5 A max. at 125 VAC (inductive load)
- NEMA A300 rated
- Dimensions: 32.9 H x 18 W x 43 D mm (switch body)

F

Enclosed Limit Switch with Coil Spring Action

- Coil spring mechanism extends life of the switch
- Rated IP67; rigid zinc die-cast alloy housing
- Long service life (10,000,000 mechanical operations)
- Wide range of actuators:
  - Plunger panel mount plunger, roller plunger, cross roller plunger
  - Standard and short hinge lever
  - Standard and short hinge roller lever
  - One-way action standard and short hinge roller lever
- Screw terminals or pre-wired with cable models
- Molded terminal and indicator models available

Specifications

- Control output: SPDT (form C), rated 10 A max. at 250 VAC (resistive load)
- Microload types rated 0.1 A at 125 VAC/ 30 VDC (resistive load)

- UL & NEMA A300 rated
- Dimensions: 32.9 H x 17.5 W x 45.6 D mm (switch body)

D5B Limit Switches

Tactile Switches Detect Objects from Multiple Directions

- Detects object contact and operates even with a slight force
- Gold-plated contacts provide high contact reliability
- Switches micro current/voltage loads
- Long service life (10 million mechanical operations)
- Rated IP67 for resistance to dust, fine particles and water or oil splash
- Three sizes (M10, M8, and M5) to match total travel and operating force requirements
- Three actuator types: hemispheric, cone-shaped, and wobble-stick type
- Pre-wired with 1, 3 or 5 m cable

Specifications

- Control output: Normally closed; 1 mA at 5 VDC to 30 mA max. at 30 VDC (resistive load)
- Dimensions: M5 x 24.5 L mm (hemispheric); 27 L mm (cone-shaped); 64.1 L mm (wobble stick)

- M8 x 28 L mm (hemispheric); 32.5 L mm (cone-shaped); 92.8 L mm (wobble stick)
- M10 x 33.3 L mm (hemispheric); 39.3 L mm (cone-shaped)
- 111.1 L mm (wobble stick)

VB Limit Switches

Multiple Plunger Limit Switch

- Multiple plunger switches are ideal for machine tools and sequential control
- Robust solution offers 2 to 6 switches in one enclosure
- Easy to install and service; switch box has an oil drain
- Rated IP67; rugged die-cast aluminum housing
- Ground terminal models have EN/IEC approval (CE marking)
- Long service life (5,000,000 mechanical operations)
- Roller plunger or bevel plunger actuators
- G1/2 conduit entrance; screw terminals

Specifications

- Control output: SPDT (form C), rated 10 A max. at 125 VAC (resistive load)
- Microload types rated @ 0.1 A

- Dimensions: 68 H x 85 W x 58 D mm (2 switch model)
- 106 D mm (6 switch model)

F

OMRON

High-Capacity Switches

- Large 15 A, 125 VAC switching capacity and long service life
- Wide range of actuators:
  - Plunger: Pin, roller, cross roller
  - Roller arm lever: Standard and sealed
  - Sealed plunger: Pin, roller, cross roller
- Rugged die-cast aluminum housing
- Sealed switches rated IP65 (Z□-N)
- Three mounting styles available:
  - Side mounting (ZE)
  - Diagonal side mounting (ZV2) is ideal for gang mounting several switches
  - Flanged base mounting (ZV)

Specifications

- Load rating: SPDT, 15 A max. at 125 VAC, NEMA B300 or 1 A max. at 30 VDC
- Mechanical life: 10 million operations

- Connection: Screw terminals on internal switch face forward when the cover is opened
- Enclosure rating: IP65 (ZE-N); IP60 (ZE-Q)
- Micro load version available

OMRON

Best-selling Basic Switch Boasting High Precision and Wide Variety

- Long life with high-accuracy and high quality
- A large switching capacity of 15 A with high repeat accuracy
- A wide range of variations in contact form available: basic, split-contact, and maintained-contact
- Micro load models available
- Molded terminal-type models incorporate a finger protection safety terminal cover

Specifications

- Switch rating: 15 A, 250 VAC
- Contact form: SPDT
- Ambient operating temperature: -25ºC to +80ºC (with no icing)
- Ambient operating humidity: 35%RH to 85%RH

- Electrical operating frequency: 20 operations/minute maximum
- Electrical service life: 500,000 operations minimum

Ordering Information

Actuator	Dimensions H x W x D mm	Rating	Contact form	Mounting hole size	Terminal type	Model
Pin plunger	30 X 49.2 X 17.45	15 A, 250 VAC 10 A, 500 VAC 0.5 A, 125 VDC 0.25 A, 250 VDC	SPDT	4.2 mm	Screw terminal Size : M4	Z-15G-B
					Screw terminal Size : #6-32NC	Z-15G-B7-K
Panel mount plunger	48.3 X 49.2 X 17.45				Screw terminal Size : M4	Z-15GQ-B
Panel mount roller plunger	62.3 X 49.2 X 17.45					Z-15GQ22-B
Hinge lever	38 X 49.2 X 17.45					Z-15GW-B
Short hinge roller lever	42.5 X 49.2 X 17.45					Z-15GW22-B

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High-capacity Switch Handles 20 A Loads with Large Inrush Currents

- Long life with high-accuracy and high quality
- Directly switches loads such as motors, halogen lamps and solenoids
- Same shape as Omron snap action switch model Z except pin plunger position, yet endures inrush currents as large as 75 A

Specifications

- Switch Rating: 20 A, 250 VAC
- Contact form: SPDT
- Ambient operating temperature: -25°C to +80°C (with no icing)
- Ambient operating humidity: 35%RH to 85%RH

- Electrical operating frequency: 20 operations/minute maximum
- Electrical service life: 500,000 operations minimum

Ordering Information

Actuator	Dimensions H x W x D mm	Rating	Contact form	Mounting hole size	Terminal type	Model
Pin plunger	30 X 49.2 X 17.45	20 A, 250 VAC 15 A, 500 VAC 0.5 A, 125 VDC 0.25 A, 250 VDC	SPDT	4.2 mm	Screw terminal Size : M4	A-20G-B
				3.56 mm	Screw terminal Size : #6-32NC	A-20G-B7-K
Panel mount plunger	48.3 X 49.2 X 17.45			4.2 mm	Screw terminal Size : M4	A-20GQ-B
Panel mount roller plunger	62.3 X 49.2 X 17.45					A-20GQ22-B
Hinge lever	49 X 49.2 X 17.45					A-20GV-B
Hinge roller lever	57 X 49.2 X 17.45					A-20GV2-B

Direct Current Switch with Built-in Magnetic Blowout

- Can be used for either load rating of DC or AC for wide variety of applications
- Incorporates a small permanent magnet in the contact mechanism to deflect the arc to effectively extinguish it
- Ideal for switching DC circuits
- Wide variety of actuators for a wide scope of applications
- Same shape and mounting procedures as Omron's Model Z snap action switches.

Specifications

- Switch Rating: 10 A, 125 VAC
- Contact form: SPDT
- Ambient operating temperature: -25°C to +80°C (with no icing)
- Ambient operating humidity: 35%RH to 85%RH

- Electrical operating frequency: 20 operations/minute maximum
- Electrical service life: 100,000 operations minimum

Ordering Information

Actuator	Dimensions H x W x D mm	Rating	Contact form	Mounting hole size	Terminal type	Model
Pin plunger	30 X 49.2 X 17.45	10 A, 125 VDC/AC 3 A, 250 VDC/AC	SPDT	4.2	Screw terminal Size : M4	X-10G-B
Panel mount plunger	54 X 49.2 X 17.45					X-10GQ-B
Panel mount roller plunger	65 X 49.2 X 17.45					X-10GQ22-B
Hinge lever	49 X 49.2 X 17.45					X-10GW-B
Short hinge roller lever	52 X 49.2 X 17.45					X-10GW22-B

F

DPDT Basic Switch for Two Independent Circuit Control

- Compact DPDT contacts for size restricted applications
- Incorporates two completely independent built-in switches
- Ideal for switching the circuits operating on two different voltages, and for controlling two independent circuits

Specifications

- Ambient operating temperature: -25°C to +80°C (with no icing)
- Electrical service life: 500,000 operations minimum

Ordering Information

Actuator	Dimensions H x W x D mm	Rating	Contact form	Mounting hole size	Terminal type	Model
Pin plunger	25.5 X 49.2 X 17.45	10 A, 250 VAC 10 A, 30 VDC 0.5 A, 125 VDC 0.25 A, 250 VDC	DPDT	4.2 mm	Screw terminal Size : M3	DZ-10G-1B
Hinge roller lever	41.6 X 49.2 X 17.45					DZ-10GV2-1B
Hinge lever	54.5 X 49.2 X 17.45					DZ-10GW-1B
Short hinge roller lever	47.9 X 49.2 X 17.45					DZ-10GW22-1B

TZ Series General-Purpose Basic Switches

High-temperature Basic Switch for Extreme Applications

- Stable operation at an ambient temperature of 400°C
- Carefully chosen materials ensure high contact reliability at high ambient temperature

Specifications

- Ambient operating temperature: -65°C to +400°C (with no icing)
- Electrical service life: 50,000 operations minimum

Ordering Information

Actuator	Dimensions H x W x D mm	Rating	Contact form	Mounting hole size	Terminal type	Model
Pin plunger	25.5 X 49.2 X 17.45	1 A, 250 VAC 1 A, 30 VDC 0.4 A, 125 VDC	SPDT	3.56 mm	Screw terminal Size : M3.5	TZ-1G
Hinge lever	54.5 X 49.2 X 17.45					TZ-1GV
Short hinge roller lever	47.9 X 49.2 X 17.45					TZ-1GV22
Hinge roller lever	49 X 49.2 X 17.45					TZ-1GV2

OMRON

Measurement Sensors

OMRON

Contents

G

HIGH-PRECISION QUALITY INSPECTION

Zero defect becomes reality–scalable accuracy in inspection

The Smart displacement sensor family offers a modular and scalable approach to solve the most challenging measurement tasks. This powerful portfolio enables you to measure profiles, thickness, distance, evenness/warpage, as well as width, edge, and more. Several measurement profiles can be performed simultaneously, using a single- or multi-controller unit. Aided by Omron's advanced technologies, the highest accuracy over long distances, speed and reliability will be achieved.

- Accurate and fast – models available with 0.25 µm at less than 110 µs sampling time

- Scalable – multi-controller connectivity allows coordinate measurement with multiple points

- Smart – data storage and remote control via networking capabilities

Displacement sensors

Confocal Type

Laser triangulation

All surfaces including glass, shiny, mirror and black matte surfaces

All surfaces including glass, shiny, mirror and black matte surfaces

General surfaces

Long distance, multitask type

Standard

Long distance, built-in amplifier

Standard, IP67 sensing heads

ZW

ZS-HL

ZS-L

ZX1

ZX2

ZX-L-N

For complete specifications and additional models and accessories visit www.omron247.com

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Measurement sensors		

Inductive	Contact	2D Profile	Position/ Diameter/Width

On/Off		Analog	On/Off		

On/Off	Inductive	Analog	On/Off	2D Profile	Position/Diameter/Width
E3NC	ZX-E	ZX-T	E9NC	ZG2	ZX-GT

G

Selection Table

		1D Smart laser measuring sensors			
	Model	**ZS-HL**	**ZS-L**	**ZX-L-N**	**ZW**
Selection criteria	Measurement range Z Min.	10 ±0.5 mm	20 ±1 mm	30 ±2 mm	2 ±1 mm
	Max.	1500 ±500 mm	350±135 mm	300 ±200 mm	40 +/- 6 mm
	Spot diameter Min.	–	–	–	40 µm
	Max	–	–	–	80 µm
	Resolution	0.25 µm	0.25 µm	0.25 µm	0.25 µm
	Resolution X	–	–	–	–
	Linearity (±% of full scale)	0.05%	±0.1%	0.2%	Note ¹
	Response time	110 µs	110 µs	150 µs	500 µs
	Spot beam	■	■	■	■
	Line beam	■	■	■	–
	IP-rating head	IP64/IP67	IP66 (0.5 m); IP67 (2 m)	IP50	IP40
	IP-rating controller	IP40	IP40	IP40	IP20
	Ambient operating temperature	0 to 50°C	0 to 50 C°	0 to 50°C	0 to 50°C
	Number of connectable sensors	9	9	5	1
Features	Thickness measurement	■	■	■	■
	Eccentricity	■	■	■	–
	Height	■	■	■	■
	Step	■	■	■	–
	Profile	–	–	–	–
	Distance	■	■	–	■
	Evenness	–	–	–	–
	Warpage	–	–	–	–
	Edge	–	–	–	–
	Width	–	–	–	–
	Peak	■	■	■	■
	Peak to peak	■	■	■	■
	Bottom	■	■	■	■
	Self-trigger	■	■	■	■
	Calibration	■	–	■	■
	Signal scaling	–	–	■	■
	PC-software	■	■	■	■
Application	Mirror	■	■	–	■
	Glass	■	■	–	■
	Metal	■	■	□	■
	Plastic	■	■	■	■
	Black rubber	■	■	–	■
	Paper	■	■	□	■
Supply voltage	VDC	21.6 to 26.4 VDC	21.6 to 26.4 VDC	12 to 24 VDC	21.6 to 26.4 VDC
Control I/O	4 to 20 mA	■	■	■	■
	1 to 5 VDC	–	■	■	-10 to +10 V
	Judgement output High/Pass/Low	■	■	■	■
	Trigger	■	■	■	■
Communication	RS-232C	■	■	■	■
	USB 2.0	■	■	–	–
	Ethernet	–	–	–	■

■ Standard   □ Available   — No/not available

Note¹: See lens specifications

For complete specifications and additional models and accessories visit www.omron247.com

OMRON

Measurement Sensors

		1D Smart laser measuring sensors	1D Smart laser measuring sensors	Inductive measuring sensors	Contact measuring sensors
	Model	**ZX1**	**ZX2**	**ZX-E**	**ZX-T**
Selection criteria	Measurement range Z Min.	50 ±10 mm	48 ±5 mm	0.5 mm	1 mm
	Max.	600+/-400 mm	100±35 mm	7 mm	10 mm
	Spot diameter Min.	0.17 mm	60 µm	–	–
	Max	0.56 mm	110 µm	–	–
	Resolution	2 to 80 µm	1.5 µm - 5 µm	1 µm	0.1 µm
	Resolution X	–	–	–	–
	Linearity (±% of full scale)	0.15 to 0.5% F.S.	±0.05 to 0.1% F.S.	0.5%	0.3%
	Response time	1 ms	30 µs	150 µs	1 ms
	Spot beam	■	■	–	–
	Line beam	■	■	–	–
	IP-rating head	IP67	IP67	IP67	IP67
	IP-rating controller	–	IP40	IP40	IP40
	Ambient operating temperature	-10 to +55°C	0 to +50°C	0 to 50°C	0 to 50°C
	Number of connectable sensors	1	5	5	7
Features	Thickness measurement	–	■	■	■
	Eccentricity	–	■	■	■
	Height	■	■	■	■
	Step	–	■	■	■
	Profile	–	–	–	–
	Distance	■	■	■	■
	Evenness	–	■	■	■
	Warpage	–	■	■	■
	Edge	–	–	–	–
	Width	–	■	–	–
	Peak	■	■	■	■
	Peak to peak	■	■	■	■
	Bottom	■	■	■	■
	Self-trigger	–	■	■	■
	Calibration	■	■	■	–
	Signal scaling	–	■	■	■
	PC-software	–	–	■	■
Application	Mirror	■	■	–	■
	Glass	■	■	–	■
	Metal	■	■	■	■
	Plastic	■	■	–	■
	Black rubber	■	■	–	■
	Paper	■	■	–	–
Supply voltage	VDC	10 to 30 VDC	10 to 30 VDC	12 to 24 VDC	12 to 24 VDC
Control I/O	4 to 20 mA	■	■	■	■
	1 to 5 VDC	–	■ and ±5 V	■	■
	Judgement output High/Pass/Low	■	■	■	■
	Trigger	■	■	■	■
Communication	RS-232C	–	–	■	■
	USB 2.0	–	–	–	–

■ Standard   □ Available   — No/not available
* For unit specifics see data sheets.

OMRON

Measurement Sensors

		Profile measuring sensor	Smart laser micrometer
	Model	**ZG2**	**ZX-GT**
Selection criteria	Measurement range Z Min.	22.3 ±0.5 mm	–
	Max.	210 ±48 mm	28 mm
	Spot diameter Min.	3 mm	–
	Max	70 mm	–
	Resolution	0.25 µm	10 µm
	Resolution X	* 631 pixels	–
	Linearity (±% of full scale)	0.5%	0.1%
	Response time	5 ms	0.5 ms
	Spot beam	–	–
	Line beam	■	■
	IP-rating head	IP66/67	IP40
	IP-rating controller	IP20	IP40
	Ambient operating temperature	0 to 50°C	0 to 50°C
	Number of connectable sensors	1	5
Features	Thickness measurement	■	■
	Eccentricity	■	■
	Height	■	■
	Step	■	–
	Profile	□	–
	Distance	■	–
	Evenness	–	–
	Warpage	–	–
	Edge	–	■
	Width	■	■
	Peak	■	■
	Peak to peak	■	■
	Bottom	■	■
	Self-trigger	■	■
	Calibration	■	–
	Signal scaling	–	■
	PC-software	■	■
Application	Mirror	■	■
	Glass	■	■
	Metal	■	■
	Plastic	■	■
	Black rubber	■	■
	Paper	■	■
Supply voltage	VDC	21.6 to 26.4 VDC	24 VDC
Control I/O	4 to 20 mA	■	■
	1 to 5 VDC	-10 to +10 V	■
	Judgement output High/Pass/Low	■	■
	Trigger	■	■
Communication	RS-232C	■	■
	USB 2.0	■	–

■ Standard   □ Available   — No/not available

* For unit specifics see data sheets.

For complete specifications and additional models and accessories visit www.omron247.com

OMRON

CMOS Laser Displacement Sensor with Built-in Amplifier

Smart sensor for simple measurements that do not require additional equipment for configuration. All-in-one laser now provides ease of use and stable measurements for any type of work piece. Different sensing distance ranges provide a solution for every application.

- Amplifier setup built into laser sensor

- Long distance model up to 1,000 mm

- Pre-wired connector version allows extension up to 20 m

- IP67 heads and Robotic cables

Ordering Information

Shape	Spot diameter	Connection method	Cable length	Sensing distance	NPN output model	PNP output model
	0.17 mm	Pre-wired	2 m	50 ± 10 mm 40 60	ZX1-LD50A61 2M	ZX1-LD50A81 2M
			5 m		ZX1-LD50A61 5M	ZX1-LD50A81 5M
		Pre-wired connector	0.5 m		ZX1-LD50A66 0.5M	ZX1-LD50A86 0.5M
	0.33 mm	Pre-wired	2 m	100 ± 35 mm 65 135	ZX1-LD100A61 2M	ZX1-LD100A81 2M
			5 m		ZX1-LD100A61 5M	ZX1-LD100A81 5M
		Pre-wired connector	0.5 m		ZX1-LD100A66 0.5M	ZX1-LD100A86 0.5M
	0.52 mm	Pre-wired	2 m	300 ± 150 mm 150 450	ZX1-LD300A61 2M	ZX1-LD300A81 2M
			5 m		ZX1-LD300A61 5M	ZX1-LD300A81 5M
		Pre-wired connector	0.5 m		ZX1-LD300A66 0.5M	ZX1-LD300A86 0.5M
	0.56 mm	Pre-wired	2 m	600 ± 400 mm 200 1,000	ZX1-LD600A61 2M	ZX1-LD600A81 2M
			5 m		ZX1-LD600A61 5M	ZX1-LD600A81 5M
		Pre-wired connector	0.5 m		ZX1-LD600A66 0.5M	ZX1-LD600A86 0.5M
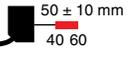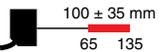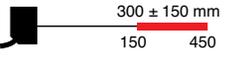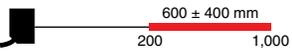
Extension Cables

Order extension cables for Pre-wired Connector Models only.

Cable length	Model
10 m	ZX0-XC10R
20 m	ZX0-XC20R

G

ZX2 Measurement Sensors

CMOS Laser Displacement Sensor

This next generation smart sensor provides stable measurements with ease of use. Achieve accurate measurements for distance and thickness calculations even with product in motion. The CMOS sensor provides repeatable measurements for any color or surface condition.

- 11 Segment display for easy configuration
- World's smallest CMOS head with laser life display
- 4 bank function for easy setup changeover
- IP67 heads and robotic cables

Ordering Information

Sensor Heads

Appearance	Optical system	Beam shape	Sensing distance	Resolution	Model
	Diffuse reflective	Line beam	50±10mm 40 60	1.5 µm	ZX2-LD50
		Spot beam			ZX2-LD50L
		Line beam	100±35mm 65 135	5 µm	ZX2-LD100
		Spot beam			ZX2-LD100L
	Regular reflective	Spot beam	48±5mm 43 53	1.5 µm	ZX2-LD50V

Amplifiers

Description	Power supply	Analog output (Switch selectable)	Discrimination output function	Output type	Model
Amplifier with 2 m cable	12 to 24 VDC	4 to 20 mA, 1 to 5 VDC, ±5 VDC	High, Pass, Low	NPN	ZX2-LDA11 2M
				PNP	ZX2-LDA41 2M

Sensor Head Extension Cables

Length	Model
1 m	ZX2-XC1R
4 m	ZX2-XC4R
9 m	ZX2-XC9R
20 m	ZX2-XC20R

Calculating Unit

Appearance	Model
	ZX2-CAL

Mounting Brackets

Contents	Applicable sensor heads	Model
Mounting bracket: 1	ZX2-LD50V, ZX2-LD50L, ZX-LD50	E39-L178
Nut plate: 1 Phillips screws (M3x30): 2	ZX-LD100L, ZX-LD100	E39-L179

Smart, Fast Laser Measurement Sensor

Smart ZX-L offers simple setup and measurement for applications where high resolution and fast response time are required. A wide range of interchangeable sensor heads provides great flexibility in solving demanding applications.

- Small and light sensor heads for easy integration

- High-speed response time of 150 µs

- Easy sensor head replacement

- Scalability through a modular platform concept

Ordering Information

Reflective Sensing Heads

Sensing method	Sensing distance	Beam shape	Resolution	Dimensions (H x W x D mm)	Model
Diffuse reflective	40 ±10 mm	Spot, 50 mm dia.	2 µm	39 x 33 x 17	ZX-LD40
	100 ±40 mm	Spot, 100 mm dia.	16 µm		ZX-LD100
	300 ±200 mm	Spot, 300 mm dia.	300 µm		ZX-LD300
	40 ±10 mm	Line, 75 µm x 2 mm	2 µm		ZX-LD40L
	100 ±40 mm	Line, 150 µm x 2 mm	16 µm		ZX-LD100L
	300 ±200 mm	Line, 450 µm x 2 mm	300 µm		ZX-LD300L
Regular reflective	30 ±2 mm	Spot, 75 mm dia.	0.25 µm	45 x 55 x 25	ZX-LD30V
		Line, 100 µm x 1.8 mm			ZX-LD30VL

Through-beam Sensing Heads

Sensing method	Sensing distance	Measuring width	Resolution	Dimensions (H x W x D mm)	Model
Through-beam	0 to 2000 mm	1 mm dia.	4 µm	15 x 15 x 34 emitter; 15 x 15 x 19 receiver	ZX-LT001
	0 to 500 mm	5 mm dia		20 x 20 x 42 emitter; 20 x 20 x 25 receiver	ZX-LT005
		10 mm dia.		20 x 64 x 68 emitter; 20 x 64 x 58 receiver	ZX-LT010
		30 mm dia.	12 µm		ZX-LT030

Amplifiers

Description	Power supply	Analog output (Switch selectable)	Discrimination output function	Output type	Model
Amplifier with 2 m cable	12 to 24 VDC	4 to 20 mA, 1 to 5 VDC, 0 to 5 VDC, ±4 VDC, ±5 VDC	High, Pass, Low	NPN	ZX-LDA11N 2M
				PNP	ZX-LDA41N 2M

Accessories

Please refer to data sheet for Attachments, Extension cables, Software, Calculating unit and Communications module.

G

ZS-L Measurement Sensors

Scalable Precision Laser Measurement Sensor

Smart ZS-L sensor offers high-precision, high-speed and high-sensitivity inspections and detects nearly all surfaces.

- Sensitive enough to measure thickness of coating or sealer on glass

- High resolution of 0.25 μm

- Fast response time of 110 μs for accurate measurements of moving work pieces

- Sensor head with 2D-CMOS technology delivers high dynamic sensing range to measure black rubber, plastic, shiny glass and mirror surfaces

Ordering Information

Sensing Heads

Sensing method	Measurement center distance	Measurement range	Beam type	Beam diameter	Resolution*	Model
Diffuse reflective	50 mm	±5 mm	50 - Line	900 x 60 μm	0.8 μm	ZS-LD50
		±15 mm	50S - Spot	50 μm		ZS-LD50S
	80 mm	50 mm +/-5 mm	80 - Line	900 x 60 μm	2 μm	ZS-LD80
	130 mm	±15 mm	130 - Line	900 x 70 μm	3 μm	ZS-LD130
	200 mm	±50 mm	200 - Line	900 x 100 μm	5 μm	ZS-LD200
	350 mm	±135 mm	350S - Spot	240 μm dia.	20 μm	ZS-LD350S
Regular reflective	20 mm	±1 mm	20T - Line	900 x 25 μm	0.25 μm	ZS-LD20T
		20 mm +/-1 mm	20ST - Spot	25 μm		ZS-LD20ST
	40 mm	±2.5 mm	40T - Line	2000 x 35 μm	0.4 μm	ZS-LD40T

*Resolution is the peak-to-peak displacement conversion value in the displacement output at the measuring center distance in high-precision mode, when the number of samples to average is set to 128, and the measuring mode is set to high-resolution mode. The standard work piece is white aluminum ceramic for diffuse reflection heads and glass in the regular reflection heads.

Controllers

Description	Supply voltage	Control outputs	Model
Sensor Controllers	24 VDC	NPN outputs	ZS-LDC11
		PNP outputs	ZS-LDC41
Multi-Controllers for Calculation	24 VDC	NPN outputs	ZS-MDC11
		PNP outputs	ZS-MDC41
Data Storage Units Support Data Logging	24 VDC	NPN outputs	ZS-DSU11
		PNP outputs	ZS-DSU41

Accessories

Extension cables, Software, Communications cables, Mounting adapters, and Controller Link connector.

OMRON

High-Precision Long Distance Laser Measurement Sensors

High performance sensors support critical quality inspection with precise measurements over long distances.

- Sensor heads support measuring center distances from 20 to 1,500 mm

- Achieves a maximum high resolution of 0.25 µm

- Solve tough inspection problems: Stable measurement of black rubber, black resin, glass and metal sheets, and printed circuit boards

- Fast response time of 110 µs for accurate measurements of moving work pieces

Ordering Information

Sensing Heads

Sensing method	Measuring range [Sensing distance]	Beam size/ measuring region	Resolution	FDA laser class	Model
Regular	20 mm ± 1 mm	1.0 mm x 20 µm	0.25 µm	Class II	ZS-HLDS2T 2M
Diffuse	5.2 mm ± 1 mm				
Regular	50 mm ± 5 mm	1.0 mm x 30 µm	0.1 µm		ZS-HLDS5T 2M
Diffuse	44 mm ± 4 mm				
Regular	100 mm ± 20 mm	3.5 mm x 60 µm	1.0 µm		ZS-HLDS10 2M
Diffuse	94 mm ± 16 mm				
Regular	600 mm ± 350 mm	16 mm x 0.3 mm	8 µm @ 250 mm, 40 µm @ 600 mm		ZS-HLDS60
	1500 mm ± 500 mm	40 mm x 1.5 mm	500 µm		ZS-HLDS150

Series Sensor Heads for Nozzle Gaps

Optical system	Sensing distance	Beam shape	Beam diameter	Resolution	Model
Regular reflective models	10 ± 0.5 mm	Line beam	900 x 25 µm	0.25 µm	ZS-LD10GT
	15 ± 0.75 mm				ZS-LD15GT

Series Sensor Controllers

Shape	Supply voltage	Control outputs	Model
	24 VDC	NPN outputs	ZS-HLDC11
		PNP outputs	ZS-HLDC41

Accessories

Extension cables, Software, Communications cables, Mounting adapters, Controller Link and Controller options.

G

OMRON

ZX-E Measurement Sensors

Smart Inductive Displacement Sensor

Smart ZX-E offers simple setup for applications requiring non-contact displacement measurements of metal objects. A wide range of interchangeable sensor heads provides great flexibility in solving demanding applications.

- Compact inductive sensor heads for easy integration

- High-speed response time of 150 µs

- Easy sensor head replacement

- Scalability through a modular platform concept

CE

Ordering Information

Inductive Sensing Heads

Shape	Dimensions	Sensing distance	Resolution	Model
Unthreaded cylindrical	3 dia. x 18 mm	0.5 mm	1 µm	ZX-EDR5T
	5.4 dia. x 18 mm	1 mm		ZX-ED01T
	8 dia. x 22 mm	2 mm		ZX-ED02T
Threaded cylindrical	M10 x 22 mm	2 mm		ZX-EM02T
	M18 x 46.3 mm	7 mm		ZX-EM07MT
Flat	30 x 14 x 4.8 mm	4 mm		ZX-EV04T
Heat-resistant, cylindrical	M12 x 22 mm	2 mm		ZX-EM02HT

Amplifiers

Description	Power supply	Analog output (Switch selectable)	Discrimination output function	Output type	Model
Amplifier with 2 m cable	12 to 24 VDC	4 to 20 mA, 1 to 5 VDC, 0 to 5 VDC, ±4 VDC, ±5 VDC	High, Pass, Low	NPN	ZX-EDA11 2M
				PNP	ZX-EDA41 2M

Accessories

Please refer to data sheet for Mounting brackets, Extension cables, Software, Calculating unit and Communications module.

OMRON

Smart Contact Displacement Sensor

Smart ZX-T offers simple setup for applications requiring high-precision contact displacement measurements to verify part shape and orientation.

• Slim sensor heads make it easy to integrate

• Fast response time of 1 ms

• Multipoint measurement with up to 7 sensors

• Dust-tight linear ball bearing construction assures long service life: 10 million mechanical operations minimum

Ordering Information

Contact Sensing Heads

Type	Sensing distance	Resolution	Tip size	Dimensions (sensing head)	Model
Short type	1 mm	0.1 µm	4.5 dia. mm	57.1 L x 6 dia. mm	ZX-TDS01T
Standard type	4 mm			86 L x 6 dia. mm	ZX-TDS04T
Low-load type					ZX-TDS04T-L
Standard type	10 mm	0.4 µm	5 dia. mm	123 L x 8 dia. mm	ZX-TDS10T
Ultra-low-load type			7.5 dia. mm	132.15 L x 8 dia. mm	ZX-TDS10T-L
Vacuum retracting type			5 dia. mm	129.5 L x 8 dia. mm	ZX-TDS10T-V
Vacuum retracting/Air push type			7 dia. mm	124.5 L x 8 dia. mm	ZX-TDS10T-VL

Amplifiers

Description	Power supply	Analog output (Switch selectable)	Discrimination output function	Output type	Model
Amplifier with 2 m cable	12 to 24 VDC	4 to 20 mA, 1 to 5 VDC, 0 to 5 VDC, ±4 VDC, ±5 VDC	High, Pass, Low	NPN	ZX-TDA11 2M
				PNP	ZX-TDA41 2M

Accessories

Please refer to data sheet for Actuator options, Mounting brackets, Extension cables, Software, Calculating unit and Communications module.

G

Ultra-compact, Lightweight Sensor Measures Any Material

The ZW confocal fiber displacement sensor delivers stable, non-contact, in-line measurement of heights, thicknesses and other dimensions. It solves the problems of traditional laser triangulation sensors: deviation between different material with inclination tolerance. The compact sensing head has no electronic parts to eliminate problems of installation space and mutual interference, electrical/magnetic noise, temperature rise and mechanical positioning.

- Ultra-compact sensing head: 24 x 24 mm; weighs only 105 g

- High flexibility fiber-optic cable from sensor to controller, extends up to 32 m

- Mount sensing head one time: no need to re-tune for changing materials

- Separate amplifier provides white LED light source, spectroscope and processor to convert reflected color light to distance

- Smart Monitor ZW Software simplifies setup and data collection/analysis

- EtherCAT models includes EtherNet/IP communications interface

Ordering Information

Sensor Heads

Measuring range	Spot diameter	Static resolution	Model*
7 ±1 mm	18 µm dia.	0.25 µm	ZW-S07□M
20 ±1 mm	40 µm dia.	0.25 µm	ZW-S20□M
30 ±1 mm	60 µm dia.	0.25 µm	ZW-S30□M
40 ±6 mm	80 µm dia.	0.25 µm	ZW-S40□M

*Note: Cable length (specified in meters) should be added in place of the box at the end of the part number.

Cables

Description	Feature	Cable length	Model
Sensor head to controller extension cable	Fiber-optic cable; includes Fiber Adapter ZW-XFC	2 m	ZW-XF02R
		5 m	ZW-XF05R
		10 m	ZW-XF10R
		20 m	ZW-XF20R
		30 m	ZW-XF30R
Fiber adapter	Coupler between fibers	-	ZW-XFC
Parallel I/O Cable	Input/Output Wiring	2 m	ZW-XCP2E
Controller to personal computer cable	RS-232C cable	2 m	ZX-XRS2
Controller to PLC/HMI cable	RS-232C cable	2 m	ZW-XPT2

Controllers and Software

Dimensions	Power supply	Output type	Software included	Model
124 x 72 x 128 mm	24 VDC	NPN	No	ZW-CE10T
124 x 72 x 128 mm	24 VDC	PNP	No	ZW-CE15T
Fiber Optic Cleaner				ZW-XCL
SYSMAC Software & License				Contact Omron or see website for details

ZX-GT Measurement Sensors

Wide Laser Beam CCD Measurement Sensor

Now you can accurately and reliably get precision measurements of 10 µm at a distance of up to 500 mm by using the ZX-GT. The ZX-GT provides unparalleled measurement precision with high-speed measurement of 2,000 samples per second. The ZX-GT's ability to measure glass and mirror surfaces along with its "Smart Recipe" PC software, makes the ZX-GT the most powerful and easy to use measurement sensor in its class.
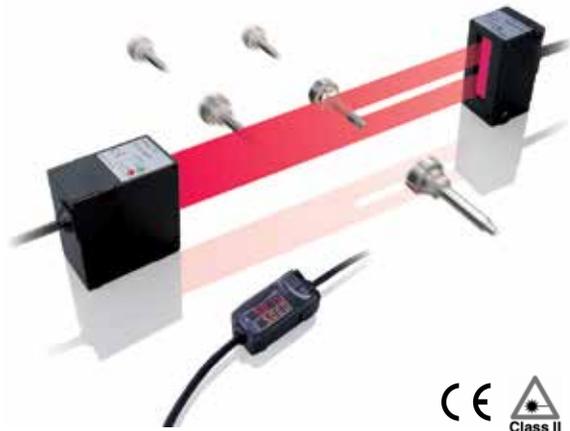
- 10 µm accuracy by 500 mm range

- High-speed processing of 2,000 images per second ensures fast, accurate in-line measurements

- Dedicated glass detection function

- "Smart Recipe" software makes setup easy

CE ⚠ Class II

Ordering Information

Sensor

Appearance	Optical system	Measuring width	Sensing distance	Resolution	Output type	Model
Separate type	Through-beam	28 mm	0 to 500 mm	10 µm	NPN	ZX-GT28S11
					PNP	ZX-GT28S41
Integrated type			40 mm		NPN	ZX-GT2840S11
					PNP	ZX-GT2840S41

Amplifiers

Appearance	Power supply	Output type	Model
	DC	NPN	ZX-GTC11
		PNP	ZX-GTC41

Accessories

Please refer to data sheet for Extension cables, Software, Calculating unit and Communications module.

G

ZG2 2D Laser Profiling Sensor

2D Measurement Sensor

The ZG2 sensor measures the height and width of entire objects simultaneously, using a wide laser beam.

- All-in-one controller with built-in LCD display

- Measure entire shapes in 2D, X and Z axis

- Immediate live feedback

- Fast 5 ms sampling time

- Accuracy as fine as 0.25 μm

$C \epsilon$ Class II
FDA Class IIIb

Ordering Information

Sensing Heads

Measurement mode	Measurement range regular reflective	Measurement range diffuse reflective	Beam size/ measuring region	Resolution X dir/Z dir	FDA laser class	Model
Regular reflective	22.3 ±0.5 mm	10.6 ±0.4 mm	3 mm	5 μm / 0.25 μm	Class II	ZG2-WDS3VT 0.5M
						ZG2-WDS3VT 2M
Diffuse reflective	44 ±2 mm	50 ±3 mm	8 mm	13 μm / 1 μm	Class IIIb	ZG2-WDS8T 0.5M
						ZG2-WDS8T 2M
	94 ±10 mm	100 ±12 mm	22 mm	35 μm / 2.5 μm		ZG2-WDS22 0.5M
						ZG2-WDS22 2M
	mode not available	210 ±48 mm	70 mm	111 μm / 6 μm		ZG2-WDS70 0.5M
						ZG2-WDS70 2M

Controller

Description	Power supply	Analog output (Switch selectable)	Discrimination output function	Output type	Model
Controller	24 VDC	4 to 20 mA, -10 to 10 VDC	All Pass/NG/ Error	NPN	ZG2-WDC11
				PNP	ZG2-WDC41
				NPN	ZG2-WDC11A
				PNP	ZG2-WDC41A

Note: Models with 'A' suffix includes Smart Monitor ZG Set-up Software.

Accessories

Extension cables, Software, Communications cables, Mounting adapters, and Controller Link connector.

OMRON

Rotary Encoders

OMRON

Contents

ACCURACY AND ROBUSTNESS MADE RELIABLE

Close the loop – angle, position and velocity on hand

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

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

```
                        ┌──────────────────┐
                        │ Rotary encoders  │
                        └────────┬─────────┘
              ┌──────────────────┴──────────────────┐
      ┌───────────────┐                      ┌───────────────┐
      │  Incremental  │                      │   Absolute    │
      └───────────────┘                      └───────────────┘
```

Small diameter	Standard	Narrow shaft	Rugged housing	Standard	Rugged housing	Plastic body
E6A2-C E6B2-C	E6C3-C	E6D-C	E6F-C	E6C3-A	E6F-A	E6CP-A

For complete specifications and additional models and accessories visit www.omron247.com   **OMRON**

Output		Incremental				
Model		E6A2-C	E6B2-C	E6D-C	E6C3-C	E6F-C
Type		Small diameter shaft	Small diameter shaft	Small diameter shaft	Standard	Rugged housing
Resolution range (Pulse/rev)	Min	10	10	10	100	100
	Max	500	2,000	6,000	3,600	1,000
Output	NPN	■	■	■	■	■
	PNP	–	■	–		
Size dia. (mm)		25	40	55	50	60
Max. force	Radial	10 N	30 N	50 N	80 N	120 N
	Axial	5 N	20 N	30 N	50 N	50 N
IP rating	IP50	■	■	■	–	–
	IP64	–	–	–	–	–
	IP65	–	–	–	■	■
Max. rotation frequency (rpm)		5,000	6,000	12,000	5,000	5,000

Output		Absolute		
Model		E6C3-A	E6F-A	E6CP-A
Type		Standard	Rugged housing	Lightweight, plastic body
Resolution range (Pulse/rev)	Min	6	256	10
	Max	1,024	1,024	256
Output	NPN	■	■	■
	PNP	■	■	–
Size dia. (mm)		50	60	50
Max. force	Radial	80 N	120 N	30 N
	Axial	50 N	50 N	20 N
IP rating	IP50	–	–	■
	IP64	–	–	–
	IP65	■	■	–
Max. rotation frequency (rpm)		5,000	5,000	1,000

■ Standard   □ Available   — No/not available

E6C3-A Rotary Encoders –Absolute

Water Resistant Encoder for Tough Environments

- IP65 drip-proof, oil-proof construction with sealed bearing

- 8 mm stainless steel shaft provides superior shaft loading performance: Radial: 8 kg-f; Axial: 5.1 kg-f

- NPN, or PNP open collector or voltage outputs

- Optimum angle control when combined with cam positioner (stand-alone H8PS or PLC-based) or encoder-input PLC position control modules

- Response frequency: 20 kHz max., 5,000 rpm max

- Pre-wired with 1 meter cable; 2 meter cable available, connector version available for direct connection to an H8PS Cam Positioning Unit

$C\,\epsilon$

Ordering Information

When ordering, specify the resolution in addition to the model number (example: E6C3-AG5C 360P/R 1M).

Size	Shaft	Supply Voltage	Output configuration	Output code	Resolution (pulses/ rotation)	Connection method	Model
50 dia. x 43 D mm	8 dia. x 15 L mm, stainless steel	12 to 24 VDC	NPN open-collector output	Gray	256, 360, 720	2 m connector for H8PS Cam Positioner	E6C3-AG5C-C
					256, 360, 720, 1,024	Pre-wired, 1 m cable	E6C3-AG5C
				Binary	32, 40		E6C3-AN5C
				BCD	6, 8, 12		E6C3-AB5C
			PNP open-collector output	Gray	256, 360, 720, 1,024		E6C3-AG5B
				Binary	32, 40		E6C3-AN5B
				BCD	6, 8, 12		E6C3-AB5B
		5 VDC	Voltage output	Binary	256		E6C3-AN1E
		12 VDC					E6C3-AN2E

E6CP-A Rotary Encoders – Absolute

Low-Cost Absolute Encoder, 50 mm Diameter

- High-precision detection of automatic machine timing, also ideal for robot limit signals

- Absolute encoder performance at the cost of an incremental encoder

- Gray code output eliminates reading mistakes

- Lightweight, plastic body construction, IP50 enclosure rating

- Shaft loading: Radial: 3 kg-f; Axial: 2 kg-f

- Open collector output

- Response frequency: 5 kHz max., 1,000 rpm max

- Pre-wired with 2 m cable, connector version available for direct connection to an H8PS Cam Positioning unit

CE

Ordering Information

Size	Shaft	Power supply voltage	Output configuration	Output code	Resolution (pulses/ rotation)	Connection method	Model
50 dia. x 55 D mm	6 dia. x 10 L mm	5 to 12 VDC	Open-collector output	Gray	256 (8-bit)	Pre-wired, 2 m cable	E6CP-AG3C
		12 to 24 VDC					E6CP-AG5C
						2 m cable with connector for H8PS Cam Positioner	E6CP-AG5C-C

E6F-A Rotary Encoders – Absolute

Rugged Encoder for High-Precision Detection

- 10 mm stainless steel shaft and rugged construction provide the highest shaft loading among Omron encoders: Radial: 12 kg-f, Thrust: 5 kg-f

- IP65f water and oil-proof construction

- High response speed for faster control: Gray code: 20 kHz; BCD: 10 kHz, 5,000 rpm max

- Combine with H8PS Cam Positioner or PLC encoder input module for optimum angle control

- Pre-wired with 2 m cable, connector version available for direct connection to an H8PS Cam Positioning unit

$C \epsilon$

Ordering Information

When ordering, specify the resolution in addition to the model number (example: E6C3-AG5C 360P/R 1M).

Size	Shaft	Power supply voltage	Output configuration	Output code	Resolution (pulses/ rotation)	Connection method	Model
60 mm dia. x 65 D mm	10 dia. x 20 L mm	5 to 12 VDC	NPN open collector	BCD	360	Pre-wired 2 m cable	E6F-AB3C
		12 to 24 VDC					E6F-AB5C
			PNP open collector				E6F-AB5B
			NPN open collector	Gray code	256, 360, 720	2 m cable with connector for H8PS Cam Positioner	E6F-AG5C-C
			NPN open collector		256, 360, 720, 1,024	Pre-wired 2 m cable	E6F-AG5C
			PNP open collector				E6F-AG5B

OMRON

E6A2-C Rotary Encoders – Incremental

Rugged Encoder for High-Precision Detection

- High response frequency and noise immunity make encoders ideal for factory automation applications with 10 to 500 pulses/revolution

- Space saving enclosure: 25 mm dia.

- 4 mm shaft with load rating of: Radial: 1 kg-f; Axial: 0.5 kg-f

- Open collector output, other output types available

- Output phases: A/A, B and A, B, Z (reversible) are available

- Response frequency: 20 kHz max., 5,000 rpm max

- Enclosure rating: IP50

- Pre-wired with 0.5 meter cable

Ordering Information

Size	Shaft	Supply voltage	Output configuration	Resolution (pulses/revolution)	Model
25 dia. x 31 D mm	4 dia. x 10 L mm	12 to 24 VDC	NPN open collector, 30 mA max	100	E6A2-CW5C 100P/R 05M
				200	E6A2-CW5C 200P/R 05M

E6B2-C Rotary Encoders – Incremental

General-Purpose Compact Encoders

- High resolution models (up to 2000 pulses per revolution available) substantially improve measuring accuracy

- Rugged construction: 6 mm shaft with load rating of: Radial: 3 kg-f; Axial: 2 kg-f

- Output phases: A, B, Z (reversible)

- Response frequency: up to 100 kHz max., 6,000 rpm max

- Protected against short-circuit and reversed connections for highly reliable operation

- Available with NPN and PNP open collector, voltage and line driver outputs

- Enclosure rating: IP50

- Pre-wired with 0.5- or 2 m cables

CE

Ordering Information

Size	Shaft	Supply voltage	Output configuration	Resolution (pulse/ revolution)	Cable length	Model
40 mm dia. x 44 D mm	6 dia. x 15 L mm	12 to 24 VDC	NPN open collector, 35 mA max	100	2 m	E6B2-CWZ6C 100P/R 2M
				200		E6B2-CWZ6C 200P/R 2M
				360	0.5 m	E6B2-CWZ6C 360P/R 05M
				360	2 m	E6B2-CWZ6C 360P/R 2M
				500		E6B2-CWZ6C 500P/R 2M
				600		E6B2-CWZ6C 600P/R 2M
				1000	0.5 m	E6B2-CWZ6C 1000P/R 05M
					2 m	E6B2-CWZ6C 1000P/R 2M
		5 VDC	Line driver: High: -20 mA or 2.5 V min Low: +20 mA or 0.5 V max		0.5 m	E6B2-CWZ1X 1000P/R 05M

E6C3-C Rotary Encoders – Incremental

Water Resistant Incremental Encoder for Tough Environments

- High resolution solutions from 100 to 3600 pulses/revolution

- IP65f drip-proof, oil-proof construction with sealed bearing

- 8 mm stainless steel shaft provides a load rating of: Radial: 88 kg-f; Axial: 5 kg-f

- Complementary outputs simplify interfacing to NPN or PNP input devices

- Output phases: A, B and Z (reversible)

- Response frequency: 125 kHz max. (65 kHz for Z-phase), 5,000 rpm max

- Surge protection built-in

- Voltage and line driver output versions available

- Pre-wired with 1 meter cable, 2 meter cable is available

Ordering Information

Size	Shaft	Supply Voltage	Output configuration	Resolution (pulse/revolution)	Model
50 dia. x 43 D mm	8 dia. x 15 L mm, stainless steel	12 to 24 VDC	Complementary output (NPN and PNP), 35 mA max.	100	E6C3-CWZ5GH 100P/R 1M
				200	E6C3-CWZ5GH 200P/R 1M
				360	E6C3-CWZ5GH 360P/R 1M
				500	E6C3-CWZ5GH 500P/R 1M
				720	E6C3-CWZ5GH 720P/R 1M
				800	E6C3-CWZ5GH 800P/R 1M
				1000	E6C3-CWZ5GH 1000P/R 1M
				2048	E6C3-CWZ5GH 2048P/R 1M
				2500	E6C3-CWZ5GH 2500P/R 1M
				3600	E6C3-CWZ5GH 3600P/R 1M
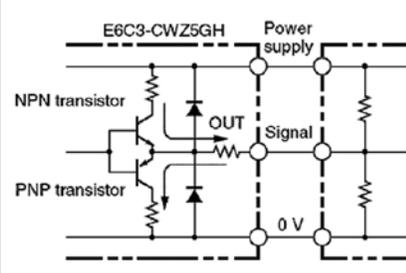
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E6D-C Rotary Encoders – Incremental

Rugged, High-Resolution Encoder

- Resolution as high as 6,000 pulses/revolution in a rugged construction

- Outputs: A, B (reversible) and Z (zero)

- 55 mm diameter housing

- Superb reliability and accuracy: phase error as small as 1/4T±0.07T

- High response frequency of 200 kHz, 12,000 rpm max

- 6 mm shaft with load rating of: Radial: 5 kg-f; Axial: 3 kg-f

$C \in$

Ordering Information

Size	Shaft	Supply voltage	Output configuration	Resolution (pulses/revolution)	Cable length	Model
44 mm dia. x 44 D mm	6 dia. x 15 L mm	12 VDC	NPN open collector, 35 mA max	720, 800, 1000, 1024, 1200, 1500, 1800, 2000, 2048, 2500, 3000, 3200, 3600, 4096, 5000, 6000	0.5 m	**E6D-CWZ2C□□□□P/R 05M**
		5 VDC				**E6D-CWZ1E□□□□P/R 05M**

E6F-C Rotary Encoders – Incremental

Rugged, High-Resolution Encoder

- 10 mm stainless steel shaft and rugged construction provides the highest shaft loading among Omron encoders; Radial: 12 kg-f, Thrust: 5 kg-f

- IP65f water and oil-proof construction

- 60 mm diameter housing

- Complementary output for longer cable length extension

- High response frequency of 83 kHz, 5,000 rpm max

$C \in$

- Output load short-circuit protection to reduce risks from incorrect wiring

- Pre-wired 2 m cable

Ordering Information

Size	Shaft	Supply voltage	Output configuration	Resolution (pulses/revolution)	Cable length	Model
60 mm dia. x 65 D mm	10 dia. x 20 L mm	12 to 24 VDC	Complementary NPN and PNP, ±30 mA	100, 200, 360, 500, 600, 1000	2 m	E6F-CWZ5GP/R 2M

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Contents

I

E5CC/EC/AC – HIGH PERFORMANCE WITH SIMPLICITY

E5CC/E5EC/E5AC – Temperature Controller

Sets new global standards in the crucial areas of precision, user friendliness and control performance.

- High-contrast, white LCD display visible from large distances and from any angle
- Easy to set up without power supply and operate intuitively via CX-Thermo software
- 50 ms sampling period

On-panel

How many control loops are required?

One loop

What type of control is needed?

Temperature control	Process control, Ramp/Soak
What input types are available?	What input types are available?
TC/Pt inputs	TC/Pt/V/mA inputs
What output types are available?	What output types are available?
Relay or Voltage (Pulse)	Voltage (Pulse)/Relay/Linear Current	Field Configurable: Relay/SSR/Voltage (Pulse)/Linear Current/Linear Voltage

Dial Display	Single Digital Display	Dual/Triple Digital Display	Triple Digital Display
E5C2	E5CSV	E5CB	E5_C	E5_C-T	E5_N-H/HT

For complete specifications and additional models and accessories visit www.omron247.com

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Where will you mount the controller?

In-panel

How many control loops are required?

Multi-loop	One Loop	Multi-loop
What type of control is needed?	**What type of control is needed?**	**What type of control is needed?**

Advanced Temp/ Process Control	Temperature Control	Temperature Monitor	Temp/Process control	Advanced Temp/ Process control
What input types are available?	**What input types are available?**	**What input types are available?**	**What input types are available?**	

TC/Pt/V/mA inputs	TC/Pt/V/mA inputs	TC/Pt inputs	TC/mV or Pt inputs	TC/Pt/V/mA inputs
What output types are available?	**What output types are available?**	**What output types are available?**	**What output types are available?**	

Field Configurable: Relay/Voltage (Pulse)/ Linear Current	Relay/Voltage (pulse)/ Linear Current	Relay	Voltage (pulse)/ Transistor/ Linear Current	Voltage (pulse)/ Current/Transistor
			What type of display is available?	

Dual Digital Display	Dual Digital Display	No Display	Optional display	No display

E5_R	E5DC	K8AK-TH	E5ZN	EJ1

Selection Table

Category	Temperature	Analog Temperature Controller	Compact Digital Temperature Controller	Digital Temperature Controller
Model	**K8AK-TH**	**E5C2**	**E5CSV**	**E5GN**
Selection criteria — Type	Basic	Basic	Basic	General purpose
Panel	DIN rail	In- & on-panel type	On-panel type	On-panel type
Loops	Single loop	Single loop	Single loop	Single loop
Size	22.5 w x 90 h x 100 w	1/16 DIN	1/16 DIN	1/32 DIN
Control mode — ON/OFF	■	■	■	■
PID	–	■ *1	–	–
2-PID *2	■	–	■	■
Operation	Heating & Cooling	Heating	Heating & Cooling	Heating & Cooling
Valve control *3	–	–	–	–
Features — Accuracy	Type K, J, T, E, B, R, S Thermocouple	±2%	±.05%	±0.3%
Auto-tuning	Pt100, Pt1000 RTD	–	■	■
Self-tuning	–	–	■	■
Transfer output	100-240 VAC	–	–	□
Remote input	24 VAC/DC	–	–	–
Number of alarms	–	–	Up to 2	2
Heater alarm	–	–	–	□
IP rating front panel	IP20	IP20	IP66; NEMA 4X	IP66; NEMA 4X
Display	–	SV analog dial	Single 3.5 digit	Dual 4 digit (color change)
Supply voltage — 110/240 VAC	■	■	■	■
24 VAC/VDC	■	–	□	□
Comms *5 — RS-485	–	–	–	□
Event IP	–	–	–	□
Quick Link Port port *6	–	–	–	■
DeviceNet	–	–	–	■
Modbus	–	–	–	■
Control output — Relay	–	■	■	■
SSR	–	–	–	–
Voltage (pulse)	–	■	■	■
Linear voltage	–	–	–	–
Linear current	–	–	–	–
Input type – linear — mA	–	–	–	□
mV	–	–	–	■
V	–	–	–	□
Input type – thermocouple — K	■	■	■	■
J	■	–	■	■
T	■	–	■	■
E	■	–	–	■
L	–	■	■	■
U	–	–	■	■
N	–	–	■	■
R	■	–	■	■
S	■	–	–	■
B	–	–	–	■
W	–	–	–	■
PLII	■	–	–	■
Input type – RTD — Pt100	■	■	■	■
JPt100	–	–	■	■
Themistor	–	■	□	–

■ Standard   □ Available   — No/not available

*1 P only
*2 2-PID is Omron's easy to use high performance PID algorithm
*3 Valve control = relay up and down
*4 Heater alarm = heater burnout & SSR failure detection

For complete specifications and additional models and accessories visit www.omron247.com

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Category		Digital Temperature Controller/Process Controller			
		E5CC/E5EC/E5AC	E5_C-T	E5DC	E5CC-U
Selection criteria	Model	**E5CC/E5EC/E5AC**	**E5_C-T**	**E5DC**	**E5CC-U**
	Type	General purpose	Ramp soak	General purpose	General purpose
	Panel	On-panel type	On-panel type	In-panel or On-panel	In-panel or On-panel
	Loops	Single loop	Single loop	Single loop	Single loop
	Size	1/16 DIN	1/4, 1/8, 1/16 DIN	22.5 mm wide	1/16 DIN
Control mode	ON/OFF	■	■	■	■
	PID	□	–	–	–
	2-PID *2	■	■	■	■
	Operation	Heating/Cooling	Heating/Cooling	Heating/Cooling	Heating/Cooling
	Valve control *3	–	□	□	–
Features	Accuracy	±0.3%	±0.3%	±0.3%	±0.3%
	Auto-tuning	■	■	■	■
	Self-tuning	■	■	■	■
	Transfer output	■	■	■	–
	Remote input	■	■	■	–
	Number of alarms	3	3 or 4	2	0, 1 or 2
	Heater alarm	■	■	■	–
	IP rating front panel	IP66, NEMA 4X	IP66, NEMA 4X	IP20, NEMA 1	IP66, NEMA 4X
	Display	Dual or Triple Display	Dual or Triple Display	Dual Display	Dual Display
Supply voltage	110/240 VAC	■	■	■	■
	24 VAC/VDC	■	■	■	■
Comms*5	RS-485	■	■	■	–
	Event IP	■	■	■	–
	Quick Link Port port*6	■	■	■	■
	DeviceNet	–	–	–	–
	Modbus	■	■	■	–
Control output	Relay	■	■	■	■
	Voltage (pulse)	■	■	■	■
	Linear voltage	■	■	■	■
	Linear current	■	■	■	■
Input type – linear	mA	■	■	■	■
	mV	■	■	■	■
Input type – thermocouple	K	■	■	■	■
	J	■	■	■	■
	T	■	■	■	■
	E	■	■	■	■
	L	■	■	■	■
	U	■	■	■	■
	N	■	■	■	■
	R	■	■	■	■
	S	■	■	■	■
	B	■	■	■	■
	W	■	■	■	■
	PLII	■	■	■	■
Input type – RTD	Pt100	■	■	■	■
	JPt100	■	■	■	■
	Themistor	–	–	–	–

■ Standard   □ Available   — No/not available

*5 PROFIBUS-DP communication option via PRT1-SCU11 for E5_N(-H), E5_R, EJ1
*6 QLP: Quick Link Port to connected TC to PC using the smart USB cable E58-CIFQ1

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Category		Digital Temperature Controllers		
	Model	**E5ZN**	**EJ1**	**E5_N-H**
Selection criteria	Type	Modular	Modular	Universal
	Panel	In-panel type	In-panel type	On-panel type
	Loops	Multi-loop	Multi-loop	Single loop
	Size	22.5 mm wide	31 x 96 mm	1/4, 1/8, 1/16 DIN
Control mode	ON/OFF	■	■	■
	PID	–	–	–
	2-PID *2	■	■	■
	Operation	Heating and cooling	Heating and cooling	Heating & Cooling
	Valve control *3	–	–	□
Features	Accuracy	±0.5%	±0.5%	±0.1%
	Auto-tuning	■	■	■
	Self-tuning	–	■	■
	Transfer output	■	□	□
	Remote input	■	–	□
	Number of alarms	2	4	3
	Heater alarm	□	□*4	□*4
	IP rating front panel	–	–	IP66; NEMA 4X
	Display	□	–	Dual or Triple Display
Supply voltage	110/240 VAC	–	–	■
	24 VAC/VDC	■	■	□
Comms*5	RS-232	–	■	□
	RS-485	■	■	□
	Event IP	–	■	□
	Quick Link Port port*6	–	■	■
	DeviceNet	□	□	–
	Modbus	–	■	■
Control output	Relay	–	–	■
	SSR	■	–	□
	Voltage (pulse)	–	■	■
	Linear voltage	■	–	■
	Linear current	■	■	■
Input type – linear	mA	–	■	■
	mV	0-50	■	■
	V	–	■	■
Input type – thermocouple	K	■	■	■
	J	■	■	■
	T	■	■	■
	E	■	■	■
	L	■	■	■
	U	■	■	■
	N	■	■	■
	R	■	■	■
	S	■	■	■
	B	■	■	■
	W	–	■	■
	PLII	–	■	■
Input type – RTD	Pt100	■	■	■
	JPt100	■	■	■
	Themistor	–	–	–

■ Standard □ Available — No/not available

*1 P only
*2 2-PID is Omron's easy to use high performance PID algorithm
*3 Valve control = relay up and down

*4 Heater alarm = heater burnout & SSR failure detection

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Category	Advanced Temperature/Digital Process Controllers		
Model	**E5_N-HT**	**E5AR**	**E5ER**
Selection criteria Type	Universal, Ramp/Soak	Advanced	Advanced
Panel	On-panel type	On-panel type	On-panel type
Loops	Single loop	Multi-loop	Multi-loop
Size	1/4, 1/8, 1/16 DIN	1/4 DIN	1/8 DIN
Control mode ON/OFF	■	■	■
PID	–	–	–
2-PID *2	■	■	■
Operation	Heating & Cooling	Heating & Cooling	Heating & Cooling
Valve Control *3	□	■	■
Features Accuracy	±0.1%	±0.1%	±0.1%
Auto-tuning	■	■	■
Self-tuning	■	–	–
Transfer output	□	■	■
Remote input	□	■	■
Number of alarms	2 or 3	4	4
Heater alarm	□	–	–
IP rating front panel	IP66; NEMA 4X	IP66; NEMA 4X	IP66; NEMA 4X
Display	Dual 4 digit	Triple 5 digit	Triple 5 digit
Supply voltage 110/240 VAC	■	■	■
24 VAC/VDC	□	□	□
Comms*5 RS-232	□	–	–
RS-485	□	□	□
Event IP	□	■	■
Quick Link port *6	■	■	■
DeviceNet	–	□	□
Modbus	■	■	■
Control output Relay	■	■	■
SSR	■	–	–
Voltage (pulse)	■	■	■
Linear voltage	■	–	–
Linear current	■	■	■
Input type – linear mA	■	■	■
mV	–	–	–
V	■	■	■
Input type – thermocouple K	■	■	■
J	■	■	■
T	■	■	■
E	■	■	■
L	■	■	■
U	■	■	■
N	■	■	■
R	■	■	■
S	■	■	■
B	■	■	■
W	■	■	■
PLII	■	–	–
Input type – RTD Pt100	■	■	■
JPt100	■	–	–
Themistor	–	–	–

■ Standard   □ Available   — No/not available

*2 2-PID is Omron´s easy to use high performance PID algorithm
*3 Valve control = relay up and down

*5 PROFIBUS-DP communication option via PRT1-SCU11 for E5_N(-H), E5_R, EJ1
*6 QLP: Quick Link port to connected TC to PC using the smart USB cable E58-CIFQ1

For complete specifications and additional models and accessories visit www.omron247.com

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E5CB   Temperature Controllers

1/16 DIN Size Basic Temperature Controller with Easy to Read Large Digital Display

- Easy to Read Large Character Display

- Improved visibility with character height of approx. 16 mm

- Depth beyond front panel: Only 60 mm

- Fewer parameters for simple setup

- Fast sampling at 250 ms

- Easy to set up without power supply and operate intuitively with CX-Thermo software

I

Specifications

- Universal Inputs:
  - Thermocouple input Type: K, J, T, R, or S
  - RTD Input Type: Pt100

- Accuracy:
  - Thermocouple: +/-0.5% of indicated value of +/- 1°C, which ever is greater
  - RTD: +/-0.5% of indicated value of +/- 1°C, which ever is greater

- Control Output:
  - Relay Output: SPST-NO 250 VAC 3 A
  - Output Voltage: 12 VDC +25%/-15%. Max load current 21 mA with short circuit protection

Temperature Controllers

Size	Power supply voltage	Input type	Alarm output	Control output	Model
E5CB 48 × 48 mm	100 to 240 VAC	Thermocouple	1	Relay output	E5CB-R1TC
		Platinum resistance thermometer			E5CB-R1P
		Thermocouple		Voltage output (for driving SSR)	E5CB-Q1TC
	24 VAC/VDC	Platinum resistance thermometer			E5CB-Q1P
		Thermocouple		Relay output	E5CB-R1TCD
		Platinum resistance thermometer			E5CB-R1PD
		Thermocouple		Voltage output (for driving SSR)	E5CB-Q1TCD
		Platinum resistance thermometer			E5CB-Q1PD

E5CC Temperature & Process Controllers

1/16 DIN Size Temperature & Process Controllers with High Visibility Display

- Fast and precise regulation: 50 ms sampling loop period time

- Easy to set up without power supply and operate intuitively via CX-Thermo software

- High-contrast, white LCD display visible from a far distance and from any angle (PV: 15.2 H mm)

- Useful alarm and diagnostic functions for secure operation

- Compact short body depth: 48 H x 48 W x 60 D mm

Specifications

- Universal Inputs:
  - Thermocouple: Types K, J, T, E, L, U, N, R, S, B, W, or PL II
  - Platinum RTD: Pt100 or JPt100
  - Infrared temperature sensor: 10°-70°C, 60°-120°C, 115° -165°C, 160°-260°C
  - Current: 4 to 20 mA or 0 to 20 mA
  - Voltage: 1 to 5 V, 0 to 5 V, or 0 to 10

- Accuracy:
  - Thermocouple: (±0.3% of indicated value or ±1°C, whichever is greater) ±1 digit max.
  - Platinum RTD: (±0.2% of indicated value or ±0.8°C, whichever is greater) ±1 digit
  - Analog: ±0.2% FS ±1 digit max.

- Control output:
  - Relay Output: SPST-NO, 250 VAC, 3 A (resistive load)
  - Voltage (pulse) Output: 12 VDC ±20% (PNP), max. load current: 21 mA, with short-circuit protection circuit
  - Current Output: 4 to 20 mA DC/0 to 20 mA DC, load: 500 Ω max., resolution: approx. 10,000

- Front Panel Rating: NEMA 4X / IP66

Ordering Information

Input	Output	Fixed option	Alarms	Model: AC110-240V	Model: AC/DC24V
Temp. & Analog	Out1: Relay	---	3 relays	E5CC-RX3A5M-000	E5CC-RX3D5M-000
		Event Input 2, Transfer output		E5CC-RX3A5M-006	E5CC-RX3D5M-006
		Event Input 2, Remote SP		E5CC-RX3A5M-007	E5CC-RX3D5M-007
	Out1: Voltage (pulse)	---		E5CC-QX3A5M-000	E5CC-QX3D5M-000
		Event Input 2, Heater Burnout SSR defect detection		E5CC-QX3A5M-001	E5CC-QX3D5M-001
		Communication 3-phase heater alarm		E5CC-QX3A5M-003	E5CC-QX3D5M-003
		Event Input 2, Transfer output		E5CC-QX3A5M-006	E5CC-QX3D5M-006
		Event Input 2, Remote SP		E5CC-QX3A5M-007	E5CC-QX3D5M-007
Temp. & Analog	Out1: Voltage (pulse)	---		E5CC-QQ3A5M-000	E5CC-QQ3D5M-000
		Event Input 2, Heater Burnout SSR defect detection		E5CC-QQ3A5M-001	E5CC-QQ3D5M-001
	Out1: Linear current	---		E5CC-CX3A5M-000	E5CC-CX3D5M-000
		Event Input 2, Transfer output		E5CC-CX3A5M-006	E5CC-CX3D5M-006
		Event Input 2, Remote SP		E5CC-CX3A5M-007	E5CC-CX3D5M-007

E5EC Temperature & Process Controllers

1/8 DIN Size Temperature & Process Controllers with High Visibility Display

- Fast and precise regulation: 50 ms sampling loop period time

- Easy to set up without power supply and operate intuitively via CX-Thermo software

- High-contrast, white LCD display visible from a far distance and from any angle (PV: 18 H mm)

- Useful alarm and diagnostic functions for secure operation

- Compact short body depth: 96 H x 48 W x 60 D mm

Specifications

- Universal Inputs:
  - Thermocouple: Types K, J, T, E, L, U, N, R, S, B, W, or PL II
  - Platinum RTD: Pt100 or JPt100
  - Infrared temperature sensor: 10°-70°C, 60°-120°C, 115° -165°C, 160°-260°C
  - Current: 4 to 20 mA or 0 to 20 mA
  - Voltage: 1 to 5 V, 0 to 5 V, or 0 to 10

- Accuracy:
  - Thermocouple: (±0.3% of indicated value or ±1°C, whichever is greater) ±1 digit max.
  - Platinum RTD: (±0.2% of indicated value or ±0.8°C, whichever is greater) ±1 digit
  - Analog: ±0.2% FS ±1 digit max.

- Control output:
  - Relay Output: SPST-NO, 250 VAC, 3 A (resistive load)
  - Voltage (pulse) Output: 12 VDC ±20% (PNP), max. load current: 21 mA, with short-circuit protection circuit
  - Current Output: 4 to 20 mA DC/0 to 20 mA DC, load: 500 Ω max., resolution: approx. 10,000

- Front Panel Rating: NEMA 4X / IP66

Ordering Information

Input	Output	Fixed option	Alarms	Order code (48 x 96 mm model)	
				AC110-240V	AC/DC24V
Temp. & Analog	Out1: Relay Out2: none	---	4 relays	E5EC-RX4A5M-000	E5EC-RX4D5M-000
		Event Input 2, Communication 3-phase heater alarm		E5EC-RX4A5M-009	E5EC-RX4D5M-009
		Event Input 4 Heater Burnout SSR defect detection		E5EC-RX4A5M-010	E5EC-RX4D5M-010
		Event Input 6, Remote SP Heater Burnout SSR defect detection Transfer output		E5EC-RX4A5M-011	E5EC-RX4D5M-011
	Out1: Relay Out2: Relay	---		E5EC-RR4A5M-000	E5EC-RR4D5M-000
		Event Input 2, Communication 3-phase heater alarm		E5EC-RR4A5M-009	E5EC-RR4D5M-009
		Event Input 4 Heater Burnout SSR defect detection		E5EC-RR4A5M-010	E5EC-RR4D5M-010
		Event Input 6, Remote SP Heater Burnout SSR defect detection Transfer output		E5EC-RR4A5M-011	E5EC-RR4D5M-011

1/4 DIN Size Temperature & Process Controllers with High Visibility Display

- Fast and precise regulation: 50 ms sampling loop period time

- Easy to setup without power supply and operate intuitively via CX-Thermo software

- High-contrast, white LCD display visible from a far distance and from any angle (PV:18 H mm)

- Useful alarm and diagnostic functions for secure operation

- Compact short body depth: 96 H x 96 W x 64 D mm

Specifications

- Universal Inputs:
  - Thermocouple: Types K,J,T,E,L,U,N,R,S,B,W, or PL II
  - Platinum RTD: Pt100 or JPt100
  - Infrared temperature sensor: 10°-70°C, 60°-120°C, 115°-165°C, 160°-260°C
  - Current: 4 to 20 mA or 0 to 20 mA
  - Voltage: 1 to 5 V, 0 to 5 V, or 0 to 10 V

- Accuracy:
  - Thermocouple: (±0.3% of indicated value or ±1°C, whichever is greater) ±1 digit max.
  - Platinum RTD: (±0.2% of indicated value or ±0.8°C, whichever is greater) ±1 digit
  - Analog: ±0.2% FS±1 digit max

- Control Output:
  - Relay Output, SPST-NO, 250 VAC, 5 A (resistive load)
  - Voltage (pulse) Output: 12 VDC ±20% (PNP), max. load current: 21 mA, with short-circuit protection circuit
  - Current Output: 4 to 20 mA DC / 0 to 20 mA DC, Load: 500Ω max., resolution approx. 10,000

- Front Panel Rating: NEMA 4X / IP66

Ordering Information

Input	Output	Fixed option	Alarms	Order code (96 x 96 mm model)	
				AC110-240V	AC/DC24V
Temp. & Analog	Out1: Relay	---	4	E5AC-RX4A5M-000	E5AC-RX4D5M-000
	Out2: none	Event Input 2, Communication 3-phase heater alarm		E5AC-RX4A5M-009	E5AC-RX4D5M-009
		Event Input 4, Heater Burnout SSR defect detection		E5AC-RX4A5M-010	E5AC-RX4D5M-010
		Remote SP Heater Burnout SSR defect detection, Transfer output		E5AC-RX4A5M-011	E5AC-RX4D5M-011
	Out1: Relay	---		E5AC-RR4A5M-000	E5AC-RR4D5M-000
	Out2: Relay	Event Input 2, Communication 3-phase heater alarm		E5AC-RR4A5M-009	E5AC-RR4D5M-009
		Event Input 4, Heater Burnout SSR defect detection		E5AC-RR4A5M-010	E5AC-RR4D5M-010
		Remote SP Heater Burnout SSR defect detection, Transfer output		E5AC-RR4A5M-011	E5AC-RR4D5M-011

E5DC Temperature & Process Controllers

Socket Mounted Temperature Controllers with High Visibility Display

- Fast and precise regulation: 50 ms sampling loop period

- Space saving size 85 x 22.5 mm (D x W) DIN rail mountable

- Removable terminal block for easy replacement

- Easy to setup without power supply and operate intuitively via CX-Thermo software

- High-contrast, white LCD display visible from far distances and from any angle (PV: 8.5 mm (H))

- Compact short body depth: 85 H x 22.5 W x 60 D mm

Specifications

- Universal Inputs:
  - Thermocouple: Types K,J,T,E,L,U,N,R,S,B,W, or PL II
  - Platinum RTD: Pt100 or JPt100
  - Infrared temperature sensor: 10°-70°C, 60°-120°C, 115°-165°C, 160°-260°C
  - Current: 4 to 20 mA or 0 to 20 mA
  - Voltage: 1 to 5 V, 0 to 5 V, or 0 to 10 V

- Accuracy:
  - Thermocouple: (±0.3% of indicated value or ±1°C, whichever is greater) ±1 digit max.
  - Platinum RTD: (±0.2% of indicated value or ±0.8°C, whichever is greater) ±1 digit max.
  - Analog: ±0.2% FS±/-1 digit max.

- Control Output:
  - Relay Output, SPST-NO, 250 VAC, 3 A (resistive load)
  - Voltage (pulse) Output: 12 VDC ±20% (PNP), max. load current: 21 mA, with short-circuit protection circuit
  - Current Output: 4 to 20 mA DC / 0 to 20 mA DC, Load: 500Ω max., resolution approx. 10,000

- Front Panel Rating: NEMA 1 / IP20

Ordering Information

Input	Output	Fixed option	Alarms	Model: 100-240 VAC	Model: 24 VAC/VDC
Temp. & Analog	Out 1: Relay	Communication only	0	E5DC-RX0ASM-015	E5DC-RX0DSM-015
		---	2	E5DC-RX2ASM-000	E5DC-RX2DSM-000
		Heater burnout and SSR defect detection, Communication		E5DC-RX2ASM-002	E5DC-RX2DSM-002
		Heater burnout and SSR defect detection, Event input 1		E5DC-RX2ASM-017	E5DC-RX2DSM-017
	Out 1: Voltage (pulse)	Communication only	0	E5DC-QX0ASM-015	E5DC-QX0DSM-015
		---	2	E5DC-QX2ASM-000	E5DC-QX2DSM-000
		Heater burnout and SSR defect detection, Communication		E5DC-QX2ASM-002	E5DC-QX2DSM-002
		Heater burnout and SSR defect detection, Event input 1		E5DC-QX2ASM-017	E5DC-QX2DSM-017
	Out 1: Current	Communication only	0	E5DC-CX0ASM-015	E5DC-CX0DSM-015
		---	2	E5DC-CX2ASM-000	E5DC-CX2DSM-000
		Communication only		E5DC-CX2ASM-015	E5DC-CX2DSM-015
		Event input		E5DC-CX2ASM-016	E5DC-CX2DSM-016

OMRON

1/16 DIN Size Socket Mounted Temperature Controllers, Designed for Simple Installation and Fast Servicing

- Plugs into standard 11-pin round socket

- Fast and precise regulation: 50 ms sampling loop period

- ON/OFF control or 2-PID with auto-tuning for superior performance

- Easy to setup without power supply and operate intuitively via CX-Thermo software

- High-contrast, white LCD display visible (PV: 15.2 mm (H))

- Fits DIN rail socket P2CF-11 or back mounted socket P3GA-11

Specifications

- Universal Inputs:
  - Thermocouple: Types K,J,T,E,L,U,N,R,S,B,W, or PL II
  - Platinum RTD: Pt100 or JPt100
  - Infrared temperature sensor: 10°-70°C, 60°-120°C, 115°-165°C, 140°-260°C
  - Current: 4 to 20 mA or 0 to 20 mA
  - Voltage: 1 to 5 V, 0 to 5 V, or 0 to 10 V

- Accuracy:
  - Thermocouple: (±0.3% of indicated value or ±1°C, whichever is greater) ±1 digit max.
  - Platinum RTD: (±0.2% of indicated value or ±0.8°C, whichever is greater) ±1 digit max.
  - Analog: ±0.2% FS+/-1 digit max.

- Control Output:
  - Relay Output, SPST-NO, 250 VAC, 3 A (resistive load)
  - Voltage (pulse) Output: 12 VDC ±20% (PNP), max. load current: 21 mA, with short-circuit protection circuit
  - Current Output: 4 to 20 mA DC / 0 to 20 mA DC, Load: 500Ω max., resolution approx. 10,000

- Front Panel Rating: NEMA 12 / IP50

Ordering Information

Input	Output	Alarms	Model: 100-240 VAC	Model: 24 VAC/VDC
Temp. & Analog	Out 1: Relay	0	E5CC-RW0AUM-000	E5CC-RW0DUM-000
		1	E5CC-RW1AUM-000	E5CC-RW1DUM-000
		2	E5CC-RW2AUM-000	E5CC-RW2DUM-000
	Out 1: Voltage (pulse)	0	E5CC-QW0AUM-000	E5CC-QW0DUM-000
		1	E5CC-QW1AUM-000	E5CC-QW1DUM-000
		2	E5CC-QW2AUM-000	E5CC-QW2DUM-000
	Out 1: Current	0	E5CC-CW0AUM-000	E5CC-CW0DUM-000
		1	E5CC-CW1AUM-000	E5CC-CW1DUM-000
		2	E5CC-CW2AUM-000	E5CC-CW2DUM-000

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1/16 DIN Size Ramp/Soak Temperature & Process Controller with High Visibility Display

- Set up to 8 program (patterns) with 32 segments (steps)

- Fast and precise regulation: 50 ms sampling loop period

- High-contrast, white LCD display visible from a far distance and from any angle (PV: 15.2 mm (H))

- Easy to setup without power supply and operate intuitively via CX-Thermo software

Specifications

- Universal Inputs:
  - Thermocouple: Types K,J,T,E,L,U,N,R,S,B,W, or PL II
  - Platinum RTD: Pt100 or JPt100
  - Infrared temperature sensor: 10°-70°C, 60°-120°C, 115°-165°C, 140°-260°C
  - Current: 4 to 20 mA or 0 to 20 mA
  - Voltage: 1 to 5 V, 0 to 5 V, or 0 to 10 V

- Program Control:
  - Number of programs: 8
  - Number of segments: 32
  - Segment times: 0 h 0 min to 99 h 59 min/ 0 min 0 s to 99 min 59 s

- Compact short body depth: 48 H x 48 W x 60 D mm

- Accuracy:
  - Thermocouple: (±0.3% of indicated value or ±1°C, whichever is greater) ±1 digit max.
  - Platinum RTD: (±0.2% of indicated value or ±0.8°C, whichever is greater) ±1 digit max.
  - Analog: ±0.2% FS+/-1 digit max.

- Control Output:
  - Relay Output, SPST-NO, 250 VAC, 3 A (resistive load)
  - Voltage (pulse) Output: 12 VDC ±20% (PNP), max. load current: 21 mA, with short-circuit protection circuit
  - Current Output: 4 to 20 mA DC / 0 to 20 mA DC, Load: 500Ω max., resolution approx. 10,000

- Front Panel Rating: NEMA 4X / IP66

Ordering Information

Input	Output	Fixed option	Alarms	Model: 100-240 VAC	Model: 24 VAC/VDC
Temp. & Analog	Out 1: Relay, Out 2: None	---	3	E5CC-TRX3A5M-000	E5CC-TRX3D5M-000
		Heater burnout and SSR defect detection, Event Input 2	3	E5CC-TRX3A5M-001	E5CC-TRX3D5M-001
		Heater burnout and SSR defect detection 2 (3-phase heaters), Communications	3	E5CC-TRX3A5M-003	E5CC-TRX3D5M-003
		Communications, Event input 2	3	E5CC-TRX3A5M-004	E5CC-TRX3D5M-004
		Event Input 4, Transfer output	3	E5CC-TRX3A5M-006	E5CC-TRX3D5M-006
	Out 1: Voltage (pulse), Out 2: None	---	3	E5CC-TQX3A5M-000	E5CC-TQX3D5M-000
		Heater burnout and SSR defect detection, Event Input 2	3	E5CC-TQX3A5M-001	E5CC-TQX3D5M-001
		Heater burnout and SSR defect detection 2 (3-phase heaters), Communications	3	E5CC-TQX3A5M-003	E5CC-TQX3D5M-003
		Communications, Event input 2	3	E5CC-TQX3A5M-004	E5CC-TQX3D5M-004
		Event Input 4, Transfer output	3	E5CC-TQX3A5M-006	E5CC-TQX3D5M-006
	Out 1: Current, Out 2: None	---	3	E5CC-TCX3A5M-000	E5CC-TCX3D5M-000
		Communications, Event input 2	3	E5CC-TCX3A5M-004	E5CC-TCX3D5M-004
		Event Input 4, Transfer output		E5CC-TCX3A5M-006	E5CC-TCX3D5M-006

Note: Please reference E5CC-T datasheet for other models and options.

1/8 DIN Size Ramp/Soak Temperature & Process Controller with High Visibility Display

- Set up to 8 program (patterns) with 32 segments (steps)

- Fast and precise regulation: 50 ms sampling loop period

- High-contrast, white LCD display visible from a far distance and from any angle (PV: 18 mm (H))

- Models available with up to 4 auxiliary outputs and up to 6 event inputs and a transfer output

- Easy to setup without power supply and operate intuitively via CX-Thermo software

Specifications

- Universal Inputs:
  - Thermocouple: Types K,J,T,E,L,U,N,R,S,B,W, or PL II
  - Platinum RTD: Pt100 or JPt100
  - Infrared temperature sensor: 10°-70°C, 60°-120°C, 115°-165°C, 140°-260°C
  - Current: 4 to 20 mA or 0 to 20 mA
  - Voltage: 1 to 5 V, 0 to 5 V, or 0 to 10 V

- Program Control:
  - Number of programs: 8
  - Number of segments: 32
  - Segment times: 0 h 0 min to 99 h 59 min/ 0 min 0 s to 99 min 59 s

- Compact short body depth: 96 H x 48 W x 60 D mm

- Accuracy:
  - Thermocouple: (±0.3% of indicated value or ±1°C, whichever is greater) ±1 digit max.
  - Platinum RTD: (±0.2% of indicated value or ±0.8°C, whichever is greater) ±1 digit max.
  - Analog: ±0.2% FS+/-1 digit max.

- Control Output:
  - Relay Output, SPST-NO, 250 VAC, 5 A (resistive load)
  - Voltage (pulse) Output: 12 VDC ±20% (PNP), max. load current: 21 mA, with short-circuit protection circuit
  - Current Output: 4 to 20 mA DC / 0 to 20 mA DC, Load: 500Ω max., resolution approx. 10,000

- Front Panel Rating: NEMA 4X / IP66

Ordering Information

Input	Output	Fixed option	Alarms	Model: 100-240 VAC	Model: 24 VAC/VDC
Temp. & Analog	Out 1: Relay, Out 2: None	---	0	E5EC-TRX4ASM-000	E5EC-TRX4DSM-000
		Heater burnout and SSR defect detection, RS-485	2	E5EC-TRX4ASM-008	E5EC-TRX4DSM-008
		Heater burnout and SSR defect detection, Transfer output	6	E5EC-TRX4ASM-019	E5EC-TRX4DSM-019
	Out 1: Voltage (pulse), Out 2: None	---	0	E5EC-TQX4ASM-000	E5EC-TQX4DSM-000
		Heater burnout and SSR defect detection, RS-485	2	E5EC-TQX4ASM-008	E5EC-TQX4DSM-008
		Heater burnout and SSR defect detection, Transfer output	6	E5EC-TQX4ASM-019	E5EC-TQX4DSM-019
	Out 1: Current, Out 2: None	---	1	E5EC-TCX4ASM-000	E5EC-TCX4DSM-000
		RS-485	2	E5EC-TCX4ASM-004	E5EC-TCX4DSM-004
		Transfer output	6	E5EC-TCX4ASM-021	E5EC-TCX4DSM-021
		Transfer output, RS-485	4	E5EC-TCX4ASM-022	E5EC-TCX4DSM-022

Note: Please reference E5EC-T datasheet for other models and options.

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E5AC-T Temperature & Process Controllers

1/4 DIN Size Ramp/Soak Temperature & Process Controller with High Visibility Display

- Set up to 8 program (patterns) with 32 segments (steps)

- Fast and precise regulation: 50 ms sampling loop period

- High-contrast, white LCD display visible from a far distance and from any angle (PV: 25 mm (H))

- Models available with up to 4 auxiliary outputs and up to 6 event inputs and a transfer output

- Easy to setup without power supply and operate intuitively via CX-Thermo software

Specifications

- Universal Inputs:
  - Thermocouple: Types K,J,T,E,L,U,N,R,S,B,W, or PL II
  - Platinum RTD: Pt100 or JPt100
  - Infrared temperature sensor: 10°-70°C, 60°-120°C, 115°-165°C, 140°-260°C
  - Current: 4 to 20 mA or 0 to 20 mA
  - Voltage: 1 to 5 V, 0 to 5 V, or 0 to 10 V

- Program Control:
  - Number of programs: 8
  - Number of segments: 32
  - Segment times: 0 h 0 min to 99 h 59 min/ 0 min 0 s to 99 min 59 s

- Compact short body depth: 96 H x 96 W x 60 D mm

- Accuracy:
  - Thermocouple: (±0.1% of indicated value or ±10°C, whichever is greater) ±1 digit max.
  - Platinum RTD: (±0.1% of indicated value or ±0.2°C, whichever is greater) ±1 digit max.
  - Analog: ±0.1% FS+/-1 digit max.

- Control Output:
  - Relay Output, SPST-NO, 250 VAC, 3 A (resistive load)
  - Voltage (pulse) Output: 12 VDC ±20% (PNP), max. load current: 21 mA, with short-circuit protection circuit
  - Current Output: 4 to 20 mA DC / 0 to 20 mA DC, Load: 500Ω max., resolution approx. 10,000

- Front Panel Rating: NEMA 4X / IP66

Ordering Information

Input	Output	Fixed option	Alarms	Model: 100-240 VAC	Model: 24 VAC/VDC
Temp. & Analog	Out 1: Relay, Out 2: None	---	0	E5AC-TRX4ASM-000	E5AC-TRX4DSM-000
		Heater burnout and SSR defect detection, RS-485	2	E5AC-TRX4ASM-008	E5AC-TRX4DSM-008
		Heater burnout and SSR defect detection, Transfer output	6	E5AC-TRX4ASM-019	E5AC-TRX4DSM-019
	Out 1: Voltage (pulse), Out 2: None	---	0	E5AC-TQX4ASM-000	E5AC-TQX4DSM-000
		Heater burnout and SSR defect detection, RS-485	2	E5AC-TQX4ASM-008	E5AC-TQX4DSM-008
		Heater burnout and SSR defect detection, Transfer output	6	E5AC-TQX4ASM-019	E5AC-TQX4DSM-019
	Out 1: Current, Out 2: None	---	0	E5AC-TCX4ASM-000	E5AC-TCX4DSM-000
		RS-495	2	E5AC-TCX4ASM-004	E5AC-TCX4DSM-004
		Transfer output	6	E5AC-TCX4ASM-021	E5AC-TCX4DSM-021
		Transfer output, Communications	4	E5AC-TCX4ASM-022	E5AC-TCX4DSM-022

Note: Please reference E5AC-T datasheet for other models and options.

1/32 DIN Size Temperature & Process Controllers with Smart Functions

- Universal temperature input available with screw terminals or cage clamp terminals

- Smart display can be set to automatically alternate between Temperature Controller status (auto/manual, RUN/STOP, and alarms) and the PV or SV

- Control output ON/OFF counter for relays supports preventive maintenance

- Switch among 3 colors as status changes to make the PV display more informative

- Simple PC setup using serial communication models and CX-Thermo software

Specifications

- Temperature Input Models:
  - Thermocouple: K, J, T, E, L, U, N, R, S, B, W, or PL II
  - Platinum RTD: Pt100 or JPt100
  - Infrared temperature sensor: 10 to 260°C, 4 ranges
  - Voltage input: 0 to 50 mV

- Indication Accuracy:
  - Thermocouple input: ±0.3% of PV
  - Pt input: ±0.2% of PV

- Models with Analog Inputs:
  - Current input: 4 to 20 mA or 0 to 20 mA
  - Voltage input: 1 to 5 V, 0 to 5 V, or 0 to 10 V

Ordering Information

Control method	Control mode	No. of auxiliary outputs	Communications	Additional functions	Screw terminal model	Cage clamp terminal model
Input Voltage Selection: 100 to 240 VAC, 50/60 Hz (add AC100240) or 24 VAC/VDC (add ACDC24) to the model number						
Relay output	Standard	---	---	---	E5GN-RT	E5GN-RT-C
	Standard or heat/cool	1	---	---	E5GN-R1T	E5GN-R1T-C
		1	---	2 event inputs	E5GN-R1BT	E5GN-R1BT-C
		1	RS-232C	---	E5GN-R101T-FLK	E5GN-R101T-C -FLK
		1	RS-485	---	E5GN-R103T-FLK	E5GN-R103T-FLK
		2	---	2 event inputs	E5GN-R2BT	E5GN-R2BT-C
		2	RS-485	---	E5GN-R203T-FLK	E5GN-R203T-C -FLK
Voltage output for SSR	Standard	---	---	---	E5GN-QT	E5GN-QT-C
	Standard or heat/cool	1	---	---	E5GN-Q1T	E5GN-Q1T-C
		1	---	2 event inputs	E5GN-Q1BT	E5GN-Q1BT-C
		1	RS-232C	---	E5GN-Q101T-FLK	E5GN-Q101T-C -FLK
		1	RS-485	---	E5GN-Q103T-FLK	E5GN-Q103T-C -FLK
		2	---	2 event inputs	E5GN-Q2BT	E5GN-Q2BT-C
		2	RS-485		E5GN-Q203T-FLK	E5GN-Q203T-C -FLK
Current output	Standard or heat/cool	1	---		E5GN-C1T	E5GN-C1T-C
		1	---	2 event inputs	E5GN-C1BT	E5GN-C1BT-C
		1	RS-232C	Transfer output using control output	E5GN-C101T-FLK	E5GN-C101T-C -FLK
		1	RS-485		E5GN-C103T-FLK	E5GN-C103T-FLK

Note: Analog input E5GN-L models available, please see complete datasheet.

Advanced, High-Performance 1/16 DIN Size Temperature & Process Controllers

- Easy-to-read, high-resolution, 11-segment display with 5 digits/0.01°C or F

- Achieve high-speed disturbance recovery from 60 ms sampling rate

- Flexible logic operations (AND, OR, and delays) with contact outputs set from CX-Thermo software

- Optional units include event inputs, communications, 1-phase and 3-phase heater burnout, transfer output, and a second control output

Specifications

- Universal Inputs:
  - Thermocouple: Types K, J, T, L, E, U, N, R, S, B, W, or PL II
  - Platinum RTD input: Pt100 and JPt100
  - Current input: 4-20 mA, 0 to 20 mA
  - Voltage: 1 to 5 V, 0 to 5 V or 0 to 10 V

- Thermocouple: (±0.1% of indicated value or ±1°C, whichever is greater) ±1 digit max.

- Platinum RTD: (±0.1% of indicated value or ±0.5°C, whichever is greater) ±1 digit max.

- Analog Input: ±0.1% FS ±1 digit max.

- CT input: ±5% FS ±1 digit max.

- Relay Output: SPST-NO, 3 A at 250 VAC
  - 100,000 electrical operations (standard)

- Voltage Output: 12 VDC ±15% for SSR, 21 mA max. load with short-circuit protection

- Current Output: 4-20 mA DC/0 to 20 mA DC, 600 Ω max., approx. 10,000 resolution

- Linear Voltage Input: 0 to 10 VDC (load: 1 kΩ min.), approx. 10,000 resolution

Temperature & Process Controllers

Supply voltage	Auxiliary outputs	Control outputs	Model (only black models listed)
100-240 VAC, 50/60 Hz	2	Relay (See note)	E5CN-HR2M-500 AC100-240
		Voltage (See note)	E5CN-HQ2M -500 AC100-240
		Current (See note)	E5CN-HC2M-500 AC100-240
		Linear voltage	E5CN-HV2M-500 AC100-240
24 VAC, 50/60 Hz, 24 VDC		Relay (See note)	E5CN-HR2MD-500 ACDC24
		Voltage (See note)	E5CN-HQ2MD-500 ACDC24
		Current (See note)	E5CN-HC2MD-500 ACDC24
		Linear voltage	E5CN-HV2MD-500 ACDC24

Note: To order these specific models in silver add "W" to the part number (e.g. E5CN-HR2M-W-500 AC100-240); models with linear voltage output only available in black

Advanced, High-Performance 1/16 DIN Size Ramp/Soak Temperature & Process Controller

- Set up to 8 program patterns with 32 segments (steps) each

- Preventive maintenance for relays in the Temperature Controller using a Control Output On/Off Counter

- Flexible logic operations (AND, OR, and delays) with contact outputs set from CX-Thermo Software

- Achieve high-speed disturbance recovery from 60 ms sampling rate

Specifications

- Universal Input:

- Thermocouple: Types K, J, T, L, E, U, N, R, S, B, W, or PL II

- Platinum RTD input: Pt100 and JPT100

- Current input: 4-20 mA, 0-20 mA

- Voltage: 1 to 5 V, 0 to 5 V or 0 to 10 V

- Thermocouple: (±0.1% of indicated value or ±1 °C, whichever is greater) ±1 digit max.

- Platinum RTD: (±0.1% of indicated value or ±0.5 °C, whichever is greater) ±1 digit max.

- Analog Input: ±0.1% FS ±1 digit max.

- CT Input: ±5% FS ±1 digit max.

- Relay Output: SPST-NO. 3 A at 250 VAC

- 100,000 electrical operations (standard)

- Voltage Output: 12 VDC ±15%% for SSR, 21 mA max. load with short-circuit protection

- Current Output: 4-20 mA DC, 0 to 20 mA DC, 600Ω max., approx. 10,000 resolution

Ramp/Soak Temperature & Process Controllers

Supply voltage	Auxiliary outputs	Control outputs	Model (only black models listed)
100-240 VAC, 50/60 Hz	2	Relay	E5CN-HTR2M-500AC100-240
		Current	E5CN-HTC2M-500AC100-240
		Linear voltage	E5CN-HTV2M-500AC100-240
24 VAC, 50/60 Hz, 24 VDC	2	Relay	E5CN-HTR2MD-500AC/DC24
		Voltage	E5CN-HTQ2MD-500AC/DC24
		Current	E5CN-HTC2MD-500AC/DC24
		Linear voltage	E5CN-HTV2MD-500AC/DC24

Universal Compact Digital Process Controllers

The E5_N-H series of process controllers take the proven concept of the general purpose E5_N series to a process level. Main features of the E5_N-H series are universal inputs, process outputs and options such as transfer output, remote set point and set value programmer.

- Control mode: ON/OFF or 2-PID, Valve control

- Control output: Relay, voltage (pulse), SSR, linear current and voltage

- Power supply: 100-240 VAC or 24 VDC/VAC

- Fast sampling period of 60 ms

- Easy PC connection for parameter cloning, setting and tuning

- Clear and intuitive set-up and operation

Specifications

- Universal inputs:
  - Thermocouple: Types K, J, T, L, E, U, N, R, S, B, W, or PLII
  - Platinum RTD: Pt100 and JPt100
  - Current input: 4-20 mA, 0 to 20 mA
  - Voltage input:1 to 5V, 0 to 5V, or 0 to 10V

- Indication Accuracy:
  - Thermocouple: ± 0.1% of indicated value or ±1°C, whichever is greater ±1 digit max.
  - Platinum RTD: ± 0.1% of indicated value or ±0.5°C, whichever is greater ±1 digit max.
  - Analog input: ± 0.1% FS ± 1 digit max.

Process Controllers

Control method	Auxiliary output	Control output 1 & 2	Heater burnout	Transfer output	Model 1/4 DIN - E5AN-H models (96 x 96 mm) 1/8 DIN - E5EN-H models (48 x 96 mm)
Basic	2 alarm relays	None fitted, 2 slots*	1-phase	---	E5_N-HAA2HBM-500 AC100240
		2 SSR outputs fitted	1-phase	---	E5_N-HSS2HBM-500 AC100240
		None fitted, 2 slots*	3-phase	4 to 20 mA	E5_N-HAA2HHBFMD-500 AC100240
		2 SS outputs fitted	3-phase	4 to 20 mA	E5_N-HSS2HHBFMD-500 AC100240
	3 alarm relays	None fitted, 2 slots*	---	4 to 20 mA	E5_N-HAA3HHBFMD-500 AC100240
		2 SS outputs fitted	---	4 to 20 mA	E5_N-HSS3HHBFMD-500 AC100240
Valve	2 alarm relays	2 relay outputs fitted	---	---	E5_N-HPRR2BM-500 AC100240
		2 relay outputs fitted	---	4 to 20 mA	E5_NHPRR2BFMD-500 AC100240

*Select 2 Control Output Units from chart below: Relay, SSR, Voltage pulse (NPN or PNP), Current or Linear voltage
 All E5EN-H/E5AN-H have 2 event inputs and Remote Set point 4 to 20 mA input.

Output Option Boards

Output option	Model
Relay	E53-RN
Voltage (pulse) 12 VDC PNP	E53-QN
Voltage (pulse) 12 VDC NPN	E53-Q
Voltage (pulse) 24 VDC NPN	E53-Q4

Output option	Model
Linear 4 to 20 mA	E53-C3N
Linear 0 to 20 mA	E53-C3DN
Linear 0 to 10 V	E53-V34N
Linear 0 to 5 V	E53-V35N

Advanced, High-Performance 1/4 and 1/8 DIN Size Ramp/Soak Temperature & Process Controllers

- Set up to 8 program patterns with 32 segments (steps) each

- Preventive maintenance for relays in the Temperature Controller using a Control Output ON/Off Counter

- Flexible logic operations (AND, OR, and delays) with contact outputs set from CX-Thermo Software

- Achieve high-speed disturbance recovery from 60 ms sampling rate

Specifications

- Universal Input:
  - Thermocouple: Types K, J, T, L, E, U, N, R, S, B, W, or PL II
  - Platinum RTD input: Pt100 and JPT100
  - Current input:4-20 mA, 0-20 mA
  - Voltage: 1 to 5 V, 0 to 5 V or 0 to 10 V

- Indication Accuracy:
  - Thermocouple: (±0.1% of indicated value or ±1 °C, whichever is greater) ±1 digit max.
  - Platinum RTD: (±0.1% of indicated value or ±0.5 °C, whichever is greater) ±1 digit max.

- Analog Input: ±0.1% FS ±1 digit max.
- CT Input: ±5% FS ±1 digit max.

- Output Types:
  - Relay Output: SPST-NO. 3 A,at 250 VAC 100,000 electrical operations (standard
  - Voltage Output: 12 VDC ±15% for SSR, 21 mA max. load with short-circuit protection
  - Current Output: 4-20 mA DC, 0 to 20 mA DC, 600Ω max., approx. 10,000 resolution

Ramp/Soak Temperature & Process Controllers

Control type	Auxiliary outputs	Control output 1/2	Heater burnout	Output Functions			Model
				Event inputs	Transfer output	RSP	1/4 DIN - E5AN-HT (96 x 96 mm) 1/8 DIN - E5EN-HT (48 x 96 mm)
Basic	3	Control Output Unit x 2	---	2	4 to 20 mA output	4 to 20 mA output	E5_N-HTAA3BFM-500AC100-240
	2		1	2	----		E5_N-HTAA2HBM-500AC100-240
	2		2	2	4 to 20 mA output		E5_N-HTAA2HHBFM-500AC100-240
Valve	2	Control Output Unit x 2	---	2	---	4 to 20 mA output	E5_N-HTPRR2BM-500AC100-240
	2		---	2	4 to 20 mA output		E5_N-HTPRR2BFM-500AC100-240

*Select 2 Control Output Units from chart below: Relay, SSR, Voltage pulse (NPN or PNP), Current or Linear voltage
 All E5EN-H/E5AN-H have 2 event inputs and Remote Set point 4 to 20 mA input.

Output Option Boards

Output option	Model
Relay	E53-RN
Voltage (pulse) 12 VDC, PNP	E53-QN
Voltage (pulse) 24 VDC, NPN	E53-Q3
Voltage (pulse) 24 VDC, PNP	E53-Q4

Output option	Model
Linear 4 to 20 mA	E53-C3N
Linear 0 to 20 mA	E53-C3DN
Linear 0 to 10 V	E53-V34N
Linear 0 to 5 V	E53-V35N

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Simple to Set and Operate 1/16 DIN Size Controllers

- Easy setting using internal DIP and rotary switches
- ON/OFF or PID control (with on-demand auto-tuning) selectable
- Clearly visible digital display with character height of 13.5 mm
- Deviation indicator makes monitoring more effective
- Models with two alarms are ideal for temperature alarm applications
- Setting change protection prohibits tampering
- Sampling rate (500 ms) and selectable control period (2 and 20 s) improves response
- 8-mode alarm output and sensor error detection

- Input shift adjusts display to reflect known sensor offsets
- Accuracy ±0.5% of value
- °C or °F field selectable
- RoHS compliant
- Water-resistant front panel rated NEMA 4X/IP66
- Compact: Measures 48 H x 48 W x 78 D mm

Specifications

- Multi-input (thermocouple/platinum resistance thermometer) type: K, J, L, T, U, N, R, Pt100, JPt100

- Relay Output: SPST-NO, 3 A at 250 VAC; 100,000 electrical operations
- Voltage Output: 12 VDC for SSR, 21 mA max. load with short-circuit protection

Ordering Information

Power supply voltage	Number of alarm points	Control output	TC/Pt multi-input Case color: Black Scale marked in °C	TC input Case color: Light gray Scale marked in °C	Pt Input Case color: Light gray Scale marked in °C	TC/Pt multi-input Case color: Black Scale marked in °F
100 to 240 VAC, 50/60 Hz	0	Relay	E5CSV-RT AC100-240	---	---	E5CSV-RT-F AC100-240
		Voltage (for driving SSR)	E5CSV-QT AC100-240			E5CSV-QT-F AC100-240
	1	Relay	E5CSV-R1T AC100-240	E5CSV-R1KJ-W	E5CSV-R1P-W	E5CSV-R1T-F AC100-240
		Voltage (for driving SSR)	E5CSV-Q1T AC100-240	E5CSV-Q1KJ-W	E5CSV-Q1P-W	E5CSV-Q1T-F AC100-240
	2 (See note)	Relay	E5CSV-R2T AC100-240	---	---	E5CSV-R2T-F AC100-240
		Voltage (for driving SSR)	E5CSV-Q2T AC100-240			E5CSV-Q2T-F AC100-240
24 VAC/VDC	0	Relay	E5CSV-RTD AC/DC24			---
		Voltage (for driving SSR)	E5CSV-QTD AC/DC24			
	1	Relay	E5CSV-R1TD AC/DC24			E5CSV-R1T-DF AC/DC24
		Voltage (for driving SSR)	E5CSV-Q1TD AC/DC24			E5CSV-Q1T-DF AC/DC24
	2 (See note)	Relay	E5CSV-R2TD AC/DC24			---
		Voltage (for driving SSR)	E5CSV-Q2TD AC/DC24			

Note: Models with two alarm outputs always use the upper limit alarm mode for the alarm 2 output.

E5C2 Temperature Controllers

1/16 DIN Sized, Analog-Set Temperature Controller

- Fits standard 8-pin round sockets

- ON/OFF control models and proportional control models available

- Front panel offset adjustment on proportional control models

- Dual scale models available

- Contact or voltage output models

- Type J or K thermocouples, platinum RTD and thermistor input models

- Panel mount hardware included

- Sockets, protective cover, and other accessories available separately

Specifications

- Thermocouple Input: Type K or J models

- Platinum RTD Input: Pt100

- Relay Output: SPDT, 3 A at 250 VAC resistive load

- Voltage (pulse) Output: 5 VDC, 10 mA max. with short-circuit protection circuit

- Voltage Types Available:
  - 100 to 120 VAC 50/60 Hz
  - 200 to 240 VAC 50/60 Hz

Ordering Information

Input type	Temperature range	Setting accuracy	Voltage	Control type	Control output	Model
Thermocouple (K)	32°F - 1112°F	±2% max. of full scale	100/120 VAC, 50/60 Hz	ON/OFF	Relay	E5C2-R20K-W AC100-240 32-1112
Thermocouple (J)	0°C - 200°C and 32°F - 392°F					E5C2-R20J-W AC100-240 32-392
	0°C - 400°C and 32°F - 752°F					E5C2-R20J-W AC100-240 32-752
	0°C - 200°C and 32°F - 392°F			Proportional		E5C2-R40J-W AC100-240 32-392
	0°C - 400°C and 32°F - 752°F					E5C2-R40J-W Ac100-240 32-752

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Space Saving, Ultra Slim 22.5 mm Temperature Monitoring Relays

Prevent equipment against damage from excessive temperature increases.

- Universal-input support for thermocouple and RTD sensors

- Set Value Protection - prohibits changes to set values of the temperature monitoring relay

- Wide range of functions: alarm mode (upper and lower limit), enable/disable latch, selectable temperature setting: Fahrenheit or degrees Celsius

- Simple rotary and DIP switch settings

- Alarm status identification with LED indicator

Specifications

- Temperature sensor inputs:

  - K8AK-TH11S - Thermocouple Types K, J, T, E; Platinum RTD Pt100

  - K8AK-TH12S - Thermocouple Types K, J, T, E, B, R, S, PLII

- Relay capacity: 3 A @ 250 VAC or 30 VDC (resistive load)

- DIN track mounting

- Dimensions: 90 H x 22.5 W x 100 D mm

Ordering Information

Description	Features	Relay Output	Model
Temperature range 0 to 999° C/F	Thermocouple/RTD inputs, 1° C/F setting unit	SPDT 3 A @ 250 VAC (resistive load)	K8AK-TH11S 100-240VAC
			K8AK-TH11S 24VAC/DC
Temperature Range 0 to 1800° C, 0 to 3200° F	Thermocouple/RTD inputs, 10° C/F setting unit		K8AK-TH12S 100-240VAC
			K8AK-TH12S 24VAC/DC

E5AR/E5ER Temperature Controllers

1/4 and 1/8 DIN Digital Controllers Offer 5-Digit, 3-Row Display

- A short 50 ms sampling period provides high-speed response

- Single-loop PID control or Single-loop heating and cooling control; multi-loop control models available

- Displays PV, SP, and MV data simultaneously in a 3-row, reverse LCD display with backlight

- Multi-loop (2 or 4 Loop types) control models offer cascade and proportional control all in one unit

- Position-proportional relay output models available for motor/valve control

Specifications

- Input Types:
  - Thermocouple: Types K, J, T, E, L, U, N, R, S, B, W
  - Platinum RTD inputs: Pt100
  - Current Input: 4 to 20 mA DC, 0 to 20 mA DC (including remote SP input)
  - Voltage Input: 1 to 5 VDC, 0 to 5 VDC, 0 to 10 VDC (including remote SP input (Input impedance: 150 Ω for current input, approx. 1 MΩ for voltage input)

- Accuracy:
  - Temperature: ±0.1% of PV, ±1 digit
  - Analog Input: ±0.1% FS ±1 digit max.

- Output Types:
  - Voltage (pulse) Output: 12 VDC, 40 mA max. with short-circuit protection circuit
  - Current output: 0 to 20 mA DC, 4 to 20 mA DC; load: 500 Ω max. (including transfer output) (Resolution: Approx. 54,000 for 0 to 20 mA DC; Approx. 43,000 for 4 to 20 mA DC)

- Control Method: PID or ON/OFF control

Ordering Information

Size	Voltage	Control type	Control outputs	Additional features			Model
				Auxiliary outputs	Event inputs	Serial communications	
1/4 DIN	100-240 VAC, 50/60 Hz	1 Loop	2 points: Pulse voltage and Pulse voltage/current	4	2	No	E5AR-Q4B AC100-240
		1 Loop	4 points: Pulse voltage and Pulse voltage/current and Current (2 points)		6	RS-485	E5AR-QC43DB-FLK AC100-240
1/8 DIN	100-240 VAC, 50/60 Hz	1 Loop	2 points: Pulse voltage and Pulse voltage/current	4	2	No	E5ER-Q4B AC100-240
		1 Loop	4 points: Pulse voltage and Pulse voltage/current and Current (2 points)		6	RS-485	E5ER-QC43DB-FLK AC100-240

Note: For 2 or 4 loop controllers visit www.omron247.com

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DIN Track Mounting Modular Temperature Controller

- Two temperature control loops per unit occupy just 30 mm rack space
- Easily expands to 32 control loops with up to 16 E5ZN units
- Plug-in temperature controllers can be replaced without changing terminal wiring
- No power supply and communications wiring required between units when multiple units are mounted side-by-side
- CX-Thermo support software simplifies setup and monitoring via PC
- Optional 1/16 DIN Setting Display Unit for in-panel setting/monitoring
- Field selectable heating or heat/cool control
- One event input per unit

- Serial RS-485 communications built in
- Optional DeviceNet communications unit available
- Dimensions: 134.7 H x 30 W x 112 D mm (socket mounted first unit); 22.5 W for additional units

Specifications

- Thermocouple Input: Types K, J, T, E, L, U, N, R, S, B
- Platinum RTD Input: Pt100, JPt100
- Voltage Output for SSR: 12 VDC ±15% (PNP); 21 mA max.; short-circuit protection

- Transistor Output: 100 mA at 30 VDC
- Analog Current Output: 4 to 20/0 to 20 mA DC; 350 Ω max.
- Transfer Output Accuracy: ±0.5% FS +0.7 mA or ±0.5% FS +0.175 V

Modular Temperature Controllers

Input type	Accuracy	Supply voltage	Control output	Auxiliary output	Additional functions	Model
Thermocouple	±0.5% or ±1°C, (whichever is greater) ±1 digit max.	24 VDC	Voltage for SSR	Transistor output: 2 pts (sinking)	Heater burnout alarm (Use E54-CT1 or E54-CT3 current transformer as detector)	E5ZN-2QNH03TC-FLK
Platinum RTD						E5ZN-2QNH03P-FLK
Thermocouple				Transistor output: 2 pts (sourcing)		E5ZN-2QPH03TC-FLK
Platinum RTD						E5ZN-2QPH03P-FLK
Thermocouple			Transistor	Transistor output: 2 pts (sinking)		E5ZN-2TNH03TC-FLK
Platinum RTD						E5ZN-2TNH03P-FLK
Thermocouple				Transistor output: 2 pts (sourcing)		E5ZN-2TPH03TC-FLK
Platinum RTD						E5ZN-2TPH03P-FLK
Thermocouple			Analog current output	Transistor output: 2 pts (sinking)	Transfer output (linear voltage output)	E5ZN-2CNF03TC-FLK
Platinum RTD						E5ZN-2CNF03P-FLK
Thermocouple				Transistor output: 2 pts (sourcing)		E5ZN-2CPF03TC-FLK
Platinum RTD						E5ZN-2CPF03P-FLK

Terminal Units

Description	Application	Dimensions	Model
Terminal units (include bus system without backplane)	For first E5ZN unit or DeviceNet unit. Equipped with terminals for power supply, communications and setting devices.	134.7 H x 30 W x 46 D mm	E5ZN-SCT24S-500
	For second and additional E5ZN units.	134.7 H x 22.5 W x 46 D mm	E5ZN-SCT18S-500

Modular In-Panel Temperature/ Process Controller Easily Integrates with Host Devices

- Improves setup through high-speed program-less communications with PLCs, HMIs and Power Controller

- System expandable up to 256 loops for large area control

- Sampling period of 250 ms

- Multi-input units (2 or 4 loops): RTD, thermocouple, current and voltage inputs

- RS-232C/RS-4485 with Modbus RTU and CompoWay/F communications, and dedicated port for G3ZA power controller

- One operation loads all parameters for up to 16 controllers connected to DeviceNet unit

Specifications

- Universal Inputs:
  - Thermocouple: Types K,J,T,E,L,U,N,R,S,B,W, or PL II
  - Platinum RTD: Pt100 or JPt100
  - Infrared temperature sensor: 10°-260°C
  - Current: 4 to 20 mA or 0 to 20 mA
  - Voltage: 1 to 5 V, 0 to 5 V, or 0 to 10 V

- Accuracy:
  - Temperature Input: (±0.5% of indicated value or ±1°C) ±1 digit max.
  - Analog Input: ±0.5% FS+/-1 digit

Temperature/Process Controller Basic Units

Power supply	Control loops	Control outputs 1 and 2	Control outputs 3 and 4	Functions	Communication functions	Terminal	Model
24 VDC from the End Unit	2	2 voltage outputs for SSR	2 transistor outputs (NPN)	2 heater burnout alarms; 2 event inputs	G3ZA Power Controller port: RS-485

From End Unit: Port A or B: RS-485 | M3 terminal | EJ1N-TC2A-QNHB |
						Cage clamp	EJ1N-TC2B-QNHB
	4		2 voltage outputs for SSR	None		M3 terminal	EJ1N-TC4A-QQ
						Cage clamp	EJ1N-TC4B-QQ
	2	2 current outputs	2 transistor outputs (NPN)	2 event inputs		M3 terminal	EJ1N-TC2A-CNB
						Cage clamp	EJ1N-TC2B-CNB

Communications Units

Name	Power supply	Auxiliary output	Event inputs	Communication functions	Terminal	Model
High function unit (HFU) (See Note)	24 VDC supplied from End Unit	Transistor output: 4 points (sinking)	4	Port C: RS-485 or RS-232C selectable End Unit Port A: RS-485	M3 terminal	EJ1N-HFUA-NFLK
					4 points (sinking)	EJ1N-HFUB-NFLK
				Port C: RS-422 End Unit Port A: RS-485	M3 terminal	EJ1N-HFUA-NFL2
					Cage clamp	EJ1N-HFUB-NFL2
		None	None	DeviceNet	Cage clamp	EJ1N-HFUB-DRT
End unit	24 VDC	Transistor output: 2 points (sinking)	None	Port A or B: RS-485 Connector: Port A	M3 terminal	EJ1C-EDUA-NFLK
					Detachable connector	EJ1C-EDUC-NFLK

Note: The End Unit is always required for connection to a Basic Controller Unit or HFU. An HFU cannot operate without a Basic Unit. External communications cannot be performed using a Basic Unit alone.

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Power Supplies

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Contents

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RELIABLE DC POWER FOR YOUR PANEL

Keep critical equipment operational
with Omron Smart Display Power Supplies

Omron is a world leader in the development and manufacturing of industrial switching power supplies. More than 25 years ago we launched our first compact line, the S82K, and since 2002, our S8VS compact series has been an automatic choice with customers. We expand on this legacy with the introduction of the S8VK series. To provide the perfect solution to match every customer's need, we have launched 3 different families within the S8VK series:

- The standard S8VK-G models
- The redundancy units S8VK-R models
- The three-phase S8VK-T models

Which type of power supply you are looking for?

Single-phase → Three-phase

Din Rail Mount?

Cost Effective | Redundancy

S8VK-G | S8VK-R

Three-phase → 120-960 W → S8VK-T

Preventative Maintenance support?

Yes | No

60-480 W | 15-150 W | 15-1500 W | 15-600 W | 60-600 W

S8VS-A/-B | S8VM-A/-P | S8VM | S8JX-G | S8JX-P
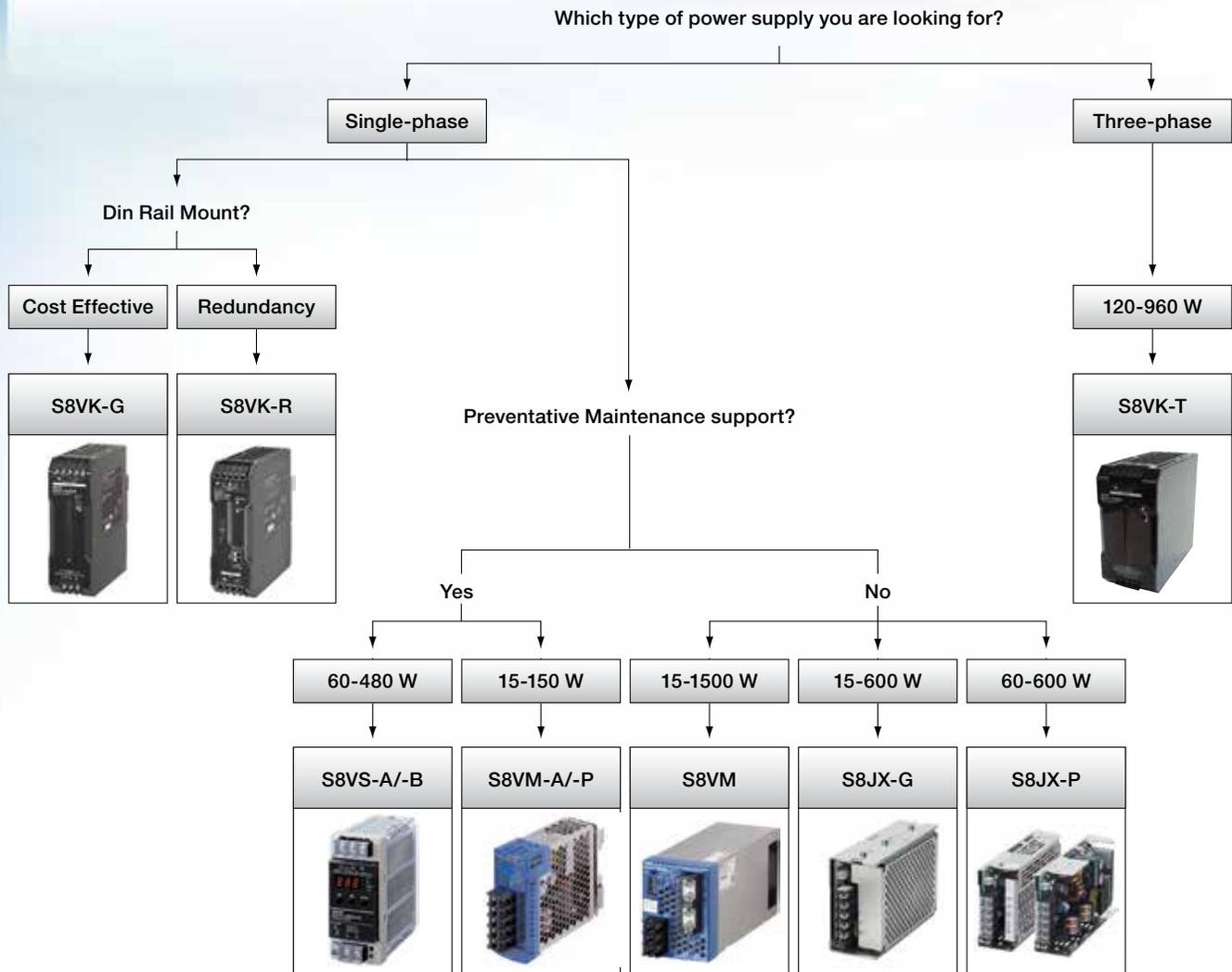
Category	Compact Power Supplies					
Model	S8VK-G				S8VK-R	S8VS
Phases	Single-phase				DC Input Voltage	Single-phase
Rated voltage	100 to 240 VAC				5 to 30 VDC	100 to 240 VAC
Voltage	5 V	12 V	24 V	48 V	–	24 V
Power — 15 W	■	■	■	–	–	–
25 W	–	–	–	–	–	–
30 W	■	■	■	–	–	–
35 W	–	–	–	–	–	–
50 W	–	–	–	–	–	–
60 W	–	■	■	–	–	1.3 A
90 W	–	–	–	–	–	7.5 A
100 W	–	–	–	–	–	–
120 W	–	–	■	–	–	5 A
150 W	–	–	–	–	–	–
180 W	–	–	–	–	–	7.5 A
240 W	–	–	■	■	–	10 A
300 W	–	–	–	–	–	–
480 W	–	–	■	■	–	20 A
Functions — SEMI F47-0200 (200 VAC input)	F47-0706 (200 to 240 VAC)				–	■
Capacitor back-up	–	–	–	–	–	□
Undervoltage alarm	■	■	■	■	–	■
Overvoltage protection	■	■	■	■	–	■
Overload protection	■	■	■	■	–	■
DIN-rail mounting	■	■	■	■	–	■
Screw mounting (with bracket)	■	■	■	■	–	–
EMI Class B	■	■	■	■	–	–
UL Class 2	■	■	■		–	■ 60 W only
Parallel operation	■	■	■	■	–	–
Series operation	■	■	■	■	–	■
Service life display/output	–	–	–	–	–	□ 60-480 W
Load run-time display/output	–	–	–	–	–	□ 60-480 W

■ Standard   □ Available   — No/not available

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Selection Table

Category	Slim Power Supplies			Slim Power Supplies			
Model	**S8VM**			**S8JX-G**			
Selection Criteria Phases	Single-phase			Single-phase			
Rated voltage	100 to 240 VAC			100 to 240 VAC			
Voltage	5 V	12 V	24 V	5 V	12 V	15 V	24 V
Power 15 W	3.0 A	1.3 A	0.65 A	3 A	1.3 A	1 A	0.65 A
25 W	–	–	–	–	–	–	–
30 W	6.0 A	2.5 A	1.3 A	–	–	–	–
35 W	–	–	–	7 A	3 A	2.4 A	1.5 A
50 W	–	4.3 A	2.2 A	10 A	4.2 A	–	2.1 A
60 W	–	–	–	–	–	–	–
90 W	–	–	–	–	–	–	–
100 W	20.0 A	8.5 A	4.5 A	20 A	8.5 A	–	4.5 A
120 W	–	–	–	–	–	–	–
150 W	27.0 A	12.5 A	6.5 A	30 A	13 A	–	6.5 A
180 W	–	–	–	–	–	–	–
240 W	–	–	–	–	–	–	–
300 W	–	27 A	14 A	–	–	–	14 A
480 W	–	–	–	–	–	–	–
600 W	–	53 A	27 A	–	–	–	27 A
960 W	–	–	–	–	–	–	–
1500 W	–	–	70 A	–	–	–	–
Functions SEMI F47-0200 (200 VAC input)	■	■	■	■	■	■	■
Undervoltage alarm	–	–	■	–	–	–	–
Overvoltage protection	–	■	■	■	■	■	■
Overload protection	–	■	■	■	■	■	■
DIN-rail mounting	–	■	■	■	■	■	■
Screw mounting (with bracket)	–	■	■	■	■	■	■
EMI Class B	–	■	■	–	–	–	–
UL Class 2	–	–	–	–	–	–	–
Parallel operation	–	–	–	–	–	–	–
Series operation	–	■	■	■	■	■	■

■ Standard   □ Available   — No/not available

For complete specifications and additional models and accessories visit www.omron247.com

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Category	Power Factory Correction Power Supplies				Slim Power Supplies

Selection Criteria	**Model**	**S8JX-P**				**S8VK-T**
	Phases	Single-phase				Three-phase
	Rated voltage	–				340 to 576 VAC
	Voltage	5 V	12 V	24 V	48 V	24 V
Power	50 W	■	■	■	■	–
	60 W	–	–	–	–	–
	90 W	–	–	–	–	–
	100 W	■	■	■	■	–
	120 W	–	–	–	–	5 A
	150 W	■	■	■	■	–
	180 W	–	–	–	–	–
	240 W	–	–	–	–	10 A
	300 W	■	■	■	■	–
	480 W	–	–	–	–	20 A
	600 W	■	■	■	■	–
	960 W	–	–	–	–	40 A
Functions	SEMI F47-0200 (200 VAC input)	F47-0706 (200 to 240 VAC)				–
	Undervoltage alarm	■	■	■	■	–
	Overvoltage protection	■	■	■	■	■
	Overload protection	■	■	■	■	■
	DIN-rail mounting	■	■	■	■	■
	Screw mounting (with bracket)	■	■	■	■	□
	EMI Class B	–	–	–	–	■
	UL Class 2	–	–	–	–	–
	Parallel operation	–	–	–	–	■
	Series operation	■	■	■	■	■

■ Standard   □ Available   – No/not available

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S8VK-G Switch Mode Power Supply

Reliable and Easy Operation – Worldwide

- Wide operating temperature range: -40°C to 70°C

- 15 W, 30 W, 60 W sizes conform to UL Class 2 Output

- Universal input for worldwide applications: 100 to 240 VAC

- Power boost function at 120%

- Can withstand up to 5G of shock & vibration

- 5-year warranty

Specifications

- Supply voltage: 100 to 240 VAC

- Output voltage: 5 VDC, 12 VDC, 24 VDC, 48 VDC

- Overload protection

- Overvoltage protection

Ordering Information

Power rating	Input voltage	Output voltage	Output current	Boost Current	Model
15 W	Single Phase 100 to 240 VAC 90 to 350 VDC	5 V	3 A	3.6 A	S8VK-G01505
		12 V	1.2 A	1.44 A	S8VK-G01512
		24 V	0.65 A	0.78 A	S8VK-G01524
30 W		5 V	5 A	6 A	S8VK-G03005
		12 V	2.5 A	3 A	S8VK-G03012
		24 V	1.3 A	1.56 A	S8VK-G03024
60 W		12 V	4.5 A	5.4 A	S8VK-G06012
		24 V	2.5 A	3 A	S8VK-G06024
120 W		24 V	5 A	6 A	S8VK-G12024
240 W		24 V	10 A	12 A	S8VK-G24024
		48 V	5 A	6 A	S8VK-G24048
480 W		24 V	20 A	24 A	S8VK-G48024
		48 V	10 A	12 A	S8VK-G48048

Compact Din Rail Mount Redundancy Units

- Wide input voltage: 5–30 VDC
- Status confirmation with operating LED
- Output signal for detection of failed power supply
- Wide operating temperature: -40°C to 70°C
- 5-year warranty

Specifications

- Supply voltage: 5 to 30 VDC

Ordering Information

Input voltage	Output voltage	Output current	Model
5 to 30 VDC	5 to 30 VDC	10 A	S8VK-R10
10 to 60 VDC	10 to 60 VDC	20 A	S8VK-R20

J

DIN Rail Mount Power Supplies with Smart Display

Models with Smart Display for diagnostics and output monitoring show output voltage, output current, and peak hold current.

- Ultra-compact size with wide power range of 60-480 W saves panel space

- Unique LED displays and alarm output (60-480 W models) shorten troubleshooting and support preventive maintenance
  - Power supply service life monitor ("A" type)
  - Run-time for connected load monitor ("B" type)

- RoHS compliant

- Power Factor Correction function standard

- Meets international safety standards: UL, cUL, UL508 Listed, SEMI F47 and CE

- 5-year warranty

- Alarm outputs (90 - 480 W LED models) available: 1 undervoltage outputs, 1 for lifetime or run-time

Ordering Information

Input voltage	Power rating	Output voltage	Output current	Dimensions H x W x D mm	Model
100 to 240 VAC, 50/60 Hz	60 W	24 VDC	2.5 A	95 x 40 x 108.3	S8VS-06024A
					S8VS-06024B
	90 W		3.75 A	115 x 50 x 121.3	S8VS-09024AS
					S8VS-09024A
					S8VS-09024B
	120 W		5 A		S8VS-12024A
					S8VS-12024B
	180 W		7.5 A	115 x 75 x 125.3	S8VS-18024A
					S8VS-18024B
	240 W		10 A	115 x 100 x 125.3	S8VS-24024A
					S8VS-24024B
	480 W		20 A	115 x 150 x 127.2	S8VS-48024A
					S8VS-48024B

S8VM Single-Phase Power Supplies

Reliable DC Source with Unique Undervoltage Alarm

- Slim DIN-rail mounting units help downsize machine panels

- Overvoltage protection (standard) of 105% to 160% rated load current

- Undervoltage alarm option signals an error and helps identify the source

- Terminal block protects fingers against electric shock

- Enclosed and open frame models available

- RoHS compliant

- Power Factor Correction function standard

- 5-year warranty

J

Ordering Information

Input voltage	Power rating	Output voltage	Output current	Undervoltage alarm	Efficiency	Dimensions H x W x D mm	Model
100 to 240 VAC, 50/60 Hz	15 W	24 VDC	0.65 A	Yes	80% min.	84.5 x 33.5 x 84.5	S8VM-01524AD
	30 W		1.3 A	Yes	81% min.	84.5 x 33.5 x 99.5	S8VM-03024AD
	50 W		2.2 A	Yes	80% min.	84.5 x 33.5 x 124.5	S8VM-05024AD
	100 W		4.5 A	Yes	82% min.	84.5 x 35 x 164.5	S8VM-10024AD
	150 W		6.5 A	Yes	83% min.	84.5 x 44 x 164.5	S8VM-15024AD
	15 W	5 VDC	3.0 A	N/A	75% min.	84.5 x 33.5 x 84.5	S8VM-01505CD
		12 VDC	1.3 A	N/A	78% min.		S8VM-01512CD
		24 VDC	0.65 A	N/A	80% min.		S8VM-01524CD
	30 W	5 VDC	6.0 A	N/A	75% min.	84.5 x 33.5 x 99.5	S8VM-03005CD
		12 VDC	2.5 A	N/A	79% min.		S8VM-03012CD
		24 VDC	1.3 A	N/A	81% min.		S8VM-03024CD
	50 W	5 VDC	10.0 A	N/A	80% min.	84.5 x 33.5 x 124.5	S8VM-05005CD
		12 VDC	4.3 A	N/A	79% min.		S8VM-05012CD
		24 VDC	2.2 A	N/A	80% min.		S8VM-05024CD
	100 W	5 VDC	20.0 A	N/A	81% min.	84.5 x 35 x 164.5	S8VM-10005CD
		12 VDC	8.5 A	N/A	81% min.		S8VM-10012CD
		24 VDC	4.5 A	N/A	82% min.		S8VM-10024CD
	150 W	5 VDC	27.0 A	N/A	81% min.	84.5 x 44 x 164.5	S8VM-15005CD
		12 VDC	12.5 A	N/A	81% min.		S8VM-15012CD
		24 VDC	6.5 A	N/A	83% min.		S8VM-15024CD
	300 W		14 A; Peak current: 16.5 A (200 VAC)	N/A	81% min.	83.5 x 62.5 x 188	S8VM-30024C
	600 W		27 A; Peak current: 31 A (200 VAC)	N/A	81% min.	83.8 x 101.8 x 192	S8VM-60024C
	1500 W		65 A (100 VAC), 70 A (200 VAC); Peak current: 105 A (200 VAC)	N/A	82% min.	82 x 126.5 x 327	S8VM-15224C

Note: Optional mounting brackets available.

Cost-Effective Power Supplies with Multiple Mounting Options

- Wide power range of 15 - 600 W and voltages (5, 12, 15, 24, 48 VDC)

- Universal input voltage

- Multiple mounting options

- Series operation: connect up to 2

- Parallel operation on 300 and 600 W

- Built-in overload and overvoltage protection

- Approvals: UL, cUL, UL508 Listed, CE, SEMI F47, VDE

- Adjustable voltage output (-10% to 15%)

- 5-year warranty

- 48 V output available

Ordering Information

Power rating	Output voltage	Output current	Dimensions H x W x D mm	Part numbers			
				Open frame		Covered frame	
				Front* mount	DIN-rail mount	Front* mount	DIN-rail mount
15 W	5 V	3 A	96 x 39.5 x 114.5	S8JX-G01505	S8JX-G01505D	S8JX-G01505C	S8JX-G01505CD
	12 V	1.3 A		S8JX-G01512	S8JX-G01512D	S8JX-G01512C	S8JX-G01512CD
	15 V	1 A		S8JX-G01515	S8JX-G01515D	S8JX-G01515C	S8JX-G01515CD
	25 V	0.65 A		S8JX-G01524	S8JX-G01524D	S8JX-G01524C	S8JX-G01524CD
35 W	5 V	7 A	96 x 39.5 x 114.5	S8JX-G03505	S8JX-G03505D	S8JX-G03505C	S8JX-G03505CD
	12 V	3 A		S8JX-G03512	S8JX-G03512D	S8JX-G03512C	S8JX-G03512CD
	15 V	2.4 A		S8JX-G03515	S8JX-G03515D	S8JX-G03515C	S8JX-G03515CD
	24 V	1.5 A		S8JX-G03524	S8JX-G03524D	S8JX-G03524C	S8JX-G03524CD
50 W	5 V	10 A	97 x 40 x 124.5	S8JX-G05005	S8JX-G05005D	S8JX-G05005C	S8JX-G05005CD
	12 V	4.2 A		S8JX-G05012	S8JX-G05012D	S8JX-G05012C	S8JX-G05012CD
	24 V	2.1 A		S8JX-G05024	S8JX-G05024D	S8JX-G05024C	S8JX-G05024CD
100 W	5 V	10 A	97 x 50 x 174.5	S8JX-G10005	S8JX-G10005D	S8JX-G10005C	S8JX-G10005CD
	12 V	8.5 A		S8JX-G10012	S8JX-G10012D	S8JX-G10012C	S8JX-G10012CD
	24 V	4.5 A		S8JX-G10024	S8JX-G10024D	S8JX-G10024C	S8JX-G10024CD
150 W	24 V	6.5 A	97 x 50 x 174.5	S8JX-G15024	S8JX-G15024D	S8JX-G15024C	S8JX-G15024CD
300 W	24 V	14 A	96 x 110 x 204.8	-	-	S8JX-G30024C	S8JX-G30024CD
600 W	24 V	27 A	92 x 150 x 184.2	-	-	S8JX-G60024C	-

* Front mount models can also be side- or bottom-mounted. Front mounting bracket included. See datasheet for other optional mounting bracket details.

Optional Mounting Brackets

Description	Part number
Mounting Bracket A (bottom mounting for 50 W models)	S82Y-JX05B
Mounting Bracket B (bottom mounting for 100 W: 24 V models)	S82Y-JX10B
Mounting Bracket C (bottom mounting for 100 W: 5 V and 12 V models and 150 W models)	S82Y-JX15B
Mounting Bracket D (front mounting for 100 W: 5 V and 12 V models and 150 W models)	S82Y-JX15F

S8JX-P Single-Phase Power Supplies

Dependable Power Supplies with EMI Class B and Power Factor Correction

- Wide selection of power ranges (50 to 600 W) of and voltages (5, 12, 24, 48)

- Conforms to EMI EN55011 Class B

- Universal input voltage

- Series operation: connect up to 2 units

- Parallel operation on 300 and 600 W

- Approvals: UL, CUL, UL508 Listed, CE, SEMI 476, VDE

- Adjustable voltage output (-10% to 15%)

- 5-year warranty

J

Ordering Information

Power rating	Output Voltage	Output Current	Dimensions H x W x D	Model			
				Open Frame		**Closed Frame**	
				Front Mount	**DIN-rail Mount**	**Front Mount**	**DIN-rail Mount**
50 W	5 V	10 A	92 x 42 x 118	S8JX-P05005	S8JX-P05005D	S8JX-P05005C	S8JX-P05005CD
	12 V	4.2 A		S8JXT-P05012	S8JX-P05012D	S8JX-P05012C	S8JX-P05012CD
	24 V	2.1 A		S8JX-P05024	S8JX-P05024D	S8JX-P05024C	S8JX-P05024CD
	48 V	1.1 A		S8JX-P05048	S8JX-P05048D	S8JX-P05048C	S8JX-P05048CD
100 W	5 V	20 A	92 x 42 x 148	S8JX-P10005	S8JX-P10005D	S8JX-P10005C	S8JX-P10005CD
	12 V	8.5 A		S8JX-P10012	S8JX-P10012D	S8JX-P10012C	S8JX-P10012CD
	24 V	4.5 A		S8JX-P10024	S8JX-P10024D	S8JX-P10024C	S8JX-P10024CD
	48 V	2.1 A		S8JX-P10048	S8JX-P10048D	S8JX-P10048C	S8JX-P10048CD
150 W	5 V	30 A	92 x 42 x 148	S8JX-P15005	S8JX-P15005D	S8JX-P15005C	S8JX-P15005CD
	12 V	13 A		S8JX-P15012	S8JX-P15012D	S8JX-P15012C	S8JX-P15012CD
	24 V	6.5 A		S8JX-P15024	S8JX-P15024D	S8JX-P15024C	S8JX-P15024CD
	48 V	3.3 A		S8JX-P15048	S8JX-P15048D	S8JX-P15048C	S8JX-P15048CD
300 W	24 V	14 A peak current 16.5 A (200 VAC)	110 x 77.6 x 239.8	—	—	S8JX-P300224	S8JX-P300224CD
600 W	24 V	27 A peak current 31 A (200 VAC)	92 x 110 x 239.8	—	—	S8JX-P60024C	S8JX-P60024CD

3-Phase Switch Mode Power Supply

- Wide operation range: -40 to 70°C

- Power boost function at 120%

- Double pole on output terminal with one extra negative terminal

- Wide input range:
  3 x 380 to 480 VAC (3 x 320 to 576 VAC)

- Possible for 2 phases input usage with derating:
  2 x 380 to 480 VAC (2 x 340 to 576 VAC)

- DC input availability:
  450 to 600 VDC (450 to 810 VAC)

- Protection: NEMA 1/IP20

Ordering Information

Input voltage	Power rating	Output voltage	Output current	Boost Current	Model
3x 380 to 480 VAC 2x 380 to 480 VAC 450 to 600 VDC	120 W	24 V	5 A	6 A	S8VK-T12024
	240 W		10 A	12 A	S8VK-T24024
	480 W		20 A	24 A	S8VK-T48024
	960 W		40 A	48 A	S8VK-T96024

Contents

K

WHEN TIMING ACCURACY MATTERS!

H5CX-N – The most complete digital timer

The H5CX-N series offers multiple functions and timing ranges for precise timing control, as well as real twin-timing and memory function. These and other added-value features ensure that the H5CX-N covers almost every possible user requirement in timers.

- 15 different time functions
- Three color display value: red, orange or green
- Models with instantaneous contact outputs
- 10 different timing ranges to choose from: 0.001 s to 9999 h

Which type of timer is needed?

Analog

Which mounting method is required?

DIN rail	Plug-in/Panel

17.5 mm	22.5 mm	28 x 21.5 mm	36 x 36 mm	1/16 DIN
0.1 s Minimum time setting	0.1 s Minimum time setting	0.1 s Minimum time setting	0.1 s Minimum time setting	0.05 s Minimum time setting
H3DS	H3DK	H3YN	H3JA	H3CR

For complete specifications and additional models and accessories visit www.omron247.com

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                    Digital                                    Weekly/Yearly

    Which mounting method is required?              Which mounting method is required?

                 DIN rail/Panel                     DIN rail/Panel              Panel

        1/16 DIN          1/16 DIN           1/4 DIN        72 x 72 mm         1/16 DIN

        0.1 s            0.001 s             1 min           1 min              1 min
   Minimum time      Minimum time      Minimum time     Minimum time       Minimum time
      setting           setting            setting          setting            setting

        H3CA             H5CX-N             H5L              H5S                H5F
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Selection Table

Category	Analog Solid State Timer			

Selection criteria

	H3DS-M	H3DS-S	H3DS-A	H3DS-F
Model	H3DS-M	H3DS-S	H3DS-A	H3DS-F
Mounting	DIN-rail			
Width	17.5 mm			
Type	Multi-functional		ON-delay (fixed)	Twin timer

Contact configuration

Time limit	■	■	■	■
Instantaneous	–	–	–	–
Programmable contacts	–	–	–	–
14 pins	–	–	–	–
11 pins	–	–	–	–
8 pins	–	–	–	–
Screw terminals	■	■	■	■
Screw-less clamp terminals	□	□	□	□
Screw-less clamp sockets	–	–	–	–

Inputs

Voltage input	□	□	□	–

Outputs

Transistor		–	–	–	–
Relay		■	■	■	■
SCR		–	–	–	–
Relay output type	SPDT	■	■	■	■
	SPST-NO	–	–	–	–
	DPDT	–	–	–	–
	4PDT	–	–	–	–

Features

Time range	Total time range	0.1 s to 120 h	1 s to 120 h	2 s to 120 h	0.1 s to 12 h
	Number of sub ranges	7	7	7	6
Supply voltage		24 to 230 VAC, or 24 to 48 VDC	24 to 230 VAC, or 24 to 48 VDC	24 to 230 VAC, or 24 to 48 VDC	24 to 230 VAC, or 24 to 48 VDC
Number of operating modes		8	4	1	2

Functions

ON-delay	■	■	–	–
Flicker OFF start	■	–	–	■
Flicker ON start	■	■	–	■
Signal ON-/OFF-delay	■	–	–	–
Signal OFF-delay	■	–	–	–
Interval (signal or power start)	■	■	–	–
One-shot output (ON-delay)	■	■	–	–
ON-delay (fixed)	–	–	■	–
Independent ON/OFF time setting	–	–	–	–
Star-delta	–	–	–	–

Remarks

Transistor	–	–	–	–

■ Standard   □ Available   – No/not available

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Category	Analog Solid State Timer			

		H3DK-M	H3DK-S	H3DK-F	H3DK-H
Selection criteria	Model	H3DK-M	H3DK-S	H3DK-F	H3DK-H
	Mounting	DIN-rail			
	Width	22.5 mm			
	Type	Multi-functional		Twin timer	Power OFF-delay
Contact configuration	Time limit	■	■	■	■
	Instantaneous	■	■	–	■
	Programmable contacts	■	■	–	–
	14 pins	–	–	–	–
	11 pins	–	–	–	–
	8 pins	–	–	–	–
	Screw terminals	■	■	■	■
	Screw-less clamp terminals	–	–	–	–
	Screw-less clamp sockets	–	–	–	–
Inputs	Voltage input	■	–	–	–
Outputs	Transistor	–	–	–	–
	Relay	■	■	■	■
	SCR	–	–	–	–
	Relay output type — SPDT	■	■	■	■
	Relay output type — SPST-NO	–	–	–	–
	Relay output type — DPDT	□	■	–	–
	Relay output type — 4PDT	–	–	–	–
Features	Time range — Total time range	0.1 s to 1200 h	0.1 s to 1200 h	0.1 s to 1200 h	0.1 to 12 s 1.0 to 120 s
	Time range — Number of sub ranges	8	8	8	2 (model dependent)
	Supply voltage	24 to 240 VAC/DC, or 12 VDC	24 to 240 VAC/DC, or 12 VDC	24 to 240 VAC/DC, or 12 VDC	100 to 120 VAC, 200 to 240 VAC, or 24 to 48 VAC/DC
	Number of operating modes	8	4	2	1
Functions	ON-delay	■	■	–	–
	Flicker OFF start	■	–	■	–
	Flicker ON start	■	■	■	–
	Signal ON-/OFF-delay	■	–	–	–
	Signal OFF-delay	■	–	–	■
	Interval (signal or power start)	■	■	–	–
	One-shot output (ON-delay)	■	■	–	–
	ON-delay (fixed)	–	–	–	–
	Independent ON/OFF time setting	–	–	–	–
	Star-delta	–	–	–	–
Remarks	Transistor	–	–	–	–

■ Standard   □ Available   — No/not available

Selection Table

Category		Analog Solid State Timer				
Selection criteria	Model	H3CR-A	H3CR-F	H3CR-H	H3YN	H3JA
	Mounting	Socket/on panel				
	Width	1/16 DIN	1/16 DIN	1/16 DIN	21.5 x 28 mm	36 x 36 mm
	Type	Multi-functional	Twin timer	Power OFF-delay	Miniature	Miniature
Contact configuration	Time limit	■	■	■	■	■
	Instantaneous	■	–	■	–	–
	Programmable contacts	–	–	–	–	–
	14 pins	–	–	–	■	–
	11 pins	□	■	■	–	–
	8 pins	□	■	■	■	■
	Screw terminals	–	–	–	–	–
	Screw-less clamp terminals	–	–	–	–	–
	Screw-less clamp sockets	–	–	–	□	–
Inputs	Voltage input	□	–	–	–	–
Outputs	Transistor	□	–	–	–	–
	Relay	□	■	■	■	■
	SCR	–	–	–	–	–
	Relay output type — SPDT	□	–	□	–	■
	Relay output type — SPST-NO	–	–	–	–	–
	Relay output type — DPDT	□	■	□	■	■
	Relay output type — 4PDT	–	–	–	■	–
Features — Time range	Total time range	0.05 s to 300 h, 0.1 s to 600 h (model dependent)	0.05 s to 30 h or 1.2 s to 300 h (model dependent)	0.05 s to 12 s, 0.05 to 12 min	0.1 s to 10 h (model dependent)	0.1 s to 3 h
	Number of sub ranges	9	14	4	2	1 range per model, 12 models
	Supply voltage	• 100 to 240 VAC / 100 to 125 VDC • 24 to 48 VAC / 12 to 48 VDC	• 100 to 240 VAC / 100 to 125 VDC • 24 to 48 VAC / 12 to 48 VDC	• 100 to 240 VAC / 100 to 125 VDC • 24 to 48 VAC / 12 to 48 VDC	• 24, 100 to 120, 200 to 230 VAC • 12, 24, 48, 100 to 110, 125 VDC	• 100-120 VAC • 200-240 VAC • 24 VAC • 12 VDC • 24 VDC
	No. of operating modes	6 (model dependent)	1	1	4	1
Functions	ON-delay	□	–	–	■	■
	Flicker OFF start	□	■	–	■	–
	Flicker ON start	□	□	–	■	–
	Signal ON-/OFF-delay	□	–	–	–	–
	Signal OFF-delay	□	–	■	–	–
	Interval (signal or power start)	□	–	–	■	–
	One-shot output (ON-delay)	□	–	–	–	–
	ON-delay (fixed)	–	–	–	–	–
	Independent ON/OFF time setting	–	–	–	–	–
	Star-delta	–	–	–	–	–
Remarks	Transistor	□	–	–	–	–

■ Standard   □ Available   — No/not available

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Category	Digital Timer		Weekly Timer		
Model	**H5CX-N**	**H3CA**	**H5S**	**H5L**	**H5F**
Mounting	Socket/on panel		DIN rail/panel		
Width	1/16 DIN	1/16 DIN; 75 x 45 mm	72 x 72 mm	1/4 DIN	1/16 DIN
Type	Multi-functional	Multi-functional with LCD bar graph display	Digital weekly and yearly timer	Digital weekly timer with large display	Digital daily timer
Contact configuration					
Time limit	■	■	–	–	–
Instantaneous	■	■	–	–	–
Programmable contacts	■	–	■	■	■
14 pins	–	–	–	–	–
11 pins	■	■	–	–	–
8 pins	■	■	–	–	–
Screw terminals	□	□ H3CA-FA	■	■	■
Screw-less clamp terminals	–	–	–	–	–
Screw-less clamp sockets	–	–	–	–	–
Inputs					
Voltage input	–	–	–	–	–
Outputs					
Transistor	□	–	–	–	–
Relay	□	■	■	■	■
SCR	–	–	–	–	–
Relay output type — SPDT	□	■	–	–	–
Relay output type — SPST-NO	–	–	2 @ 15 A weekly or yearly, 4 @ 3 A yearly	2 @ 15 A	1 @ 15 A
Relay output type — DPDT	–	■	–	–	–
Relay output type — 4PDT	–	–	–	–	–
Features					
Time range — Total time range	0.001 s to 9999 h configurable	0.1 s to 9990 h	0.00 to 23.59 h	0.00 to 23.59 h	0.00 to 23.59 h
Time range — Number of sub ranges	10	7	3	1	1
Supply voltage	• 100 to 240 VAC • 24 VAC • 12 to 24 VDC	• 24 to 240 VAC • 12 to 240 VDC • see datasheet for H3CA-8	• 100 to 240 VAC • 24 VDC	• 100 to 240 VAC	• 100 to 240 VAC
No. of operating modes	15	8	–	–	–
Functions					
ON-delay	■	■	–	–	–
Flicker OFF start	■	■	–	–	–
Flicker ON start	■	■	–	–	–
Signal ON-/OFF-delay	■	■	–	–	–
Signal OFF-delay	■	■	–	–	–
Interval (signal or power start)	■	■	–	–	–
One-shot output (ON-delay)	■	■	–	–	–
ON-delay (fixed)	■	–	–	–	–
Independent ON/OFF time setting	■	–	■	■	■
Star-delta	–	–	–	–	–
Remarks					
Transistor	■	–	–	–	–

■ Standard   □ Available   — No/not available

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MULTI-FUNCTIONAL PRESET COUNTER

H7CX-N – Designed with value-added features

The H7CX-N series offers the ultimate in versatility and intuitive programming.

- 7 basic functions in one
- Choose green, orange, or red color for present value
- Twin counter mode
- Character height: 12 mm (4 digit models) and 10 mm (6 digit models)
- Display 6 digits from -99999 up to 999999

Totalizer					Pre-set counter		
Which size is required?					Single and dual presets?		
48 x 24 mm (1/32 DIN)			72 x 36 mm				
Which type of application?					No	Yes	
Totalizer	Time	Speed	Totalizer Time	Totalizer Time	48x48 mm (1/16 DIN)	48x48 mm (1/16 DIN)	72x72 mm
H7EC	H7ET	H7ER	H7GP	H7HP	H7CN	H7CX-N	H7BX

For complete specifications and additional models and accessories visit www.omron247.com

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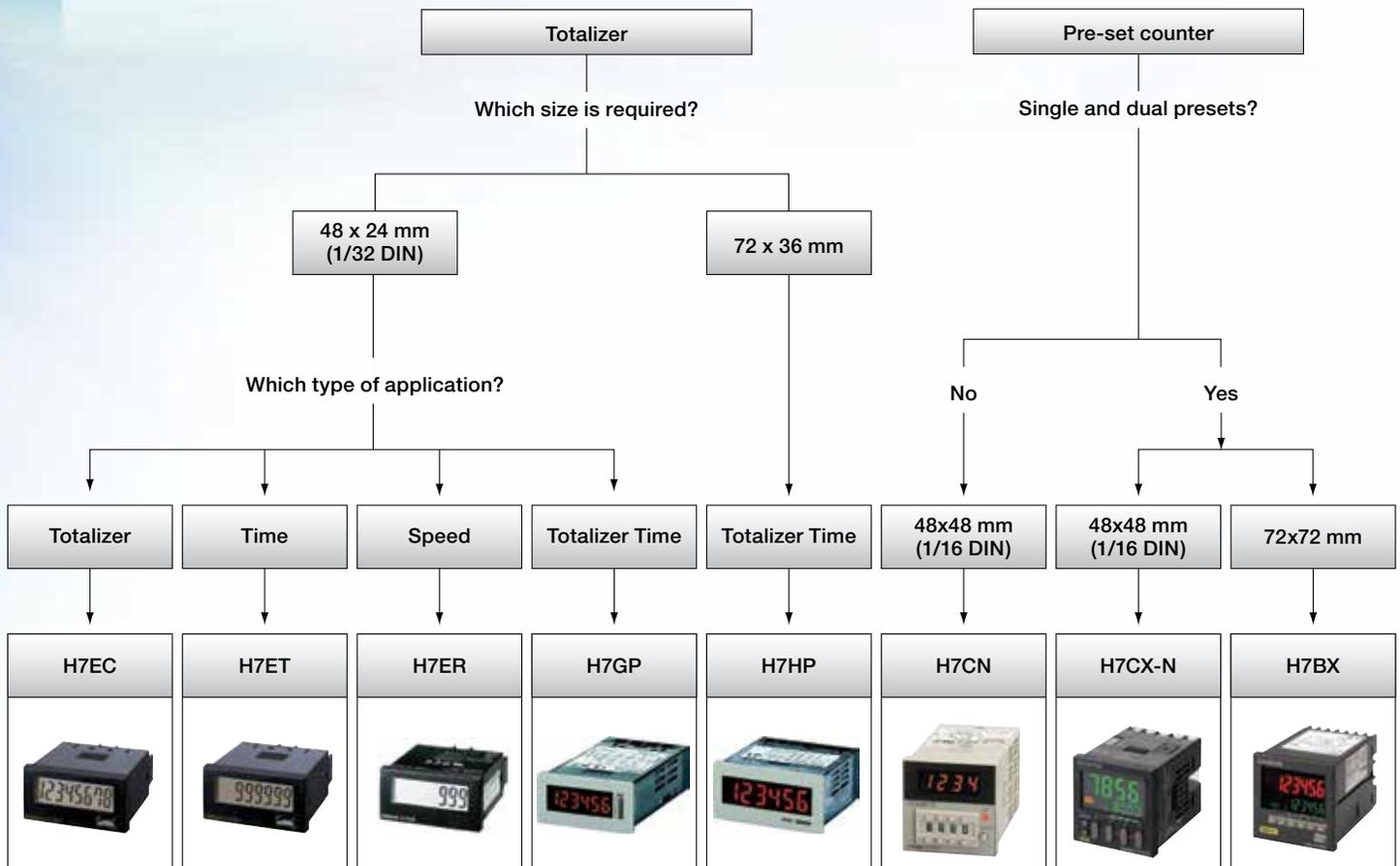
Category	Self-powered Count Totalizer	Self-powered Time Totalizer	Self-powered Tachometer	Pre-set Counter

Selection criteria

Model	H7EC	H7ET	H7ER	H7CN
Display	LCD	LCD	LCD	LED
Size	1/32 DIN	1/32 DIN	1/32 DIN	1/16 DIN

Outputs

Control outputs	–	–	–	Relay (SPST-NO or SPDT) or solid state open-collector
5 stage	–	–	–	–
Total	■	–	–	■
Time	–	■	–	–
Preset	–	–	–	■
Batch	–	–	–	–
Dual	–	–	–	–
Tachometer	–	–	■	–

Inputs

Control inputs	• No-voltage • PNP/NPN • DC-voltage • AC/DC multi-voltage	• No-voltage • PNP/NPN • DC-voltage • AC/DC multi-voltage	• No-voltage • PNP/NPN • DC-voltage	See datasheet regarding inputs

Features

Dual operation	–	–	–	–
Number of digits	8	7	4 or 5	PV: 4, SV: 4
NPN/PNP switch	–	–	–	–
Back-lit	□	□	□	–
External reset	■	■	–	■
Manual reset	■	■	–	■
Number of banks	–	–	–	–
Memory backup	–	–	–	EEPROM
Built-in sensor power supply	–	–	–	–
IP rating (front face)	IP66/NEMA 4	IP66/NEMA 4	IP66/NEMA 4	–

Terminals

Screw Terminals	■	■	■	–
8-pin socket	–	–	–	■
11-pin socket	–	–	–	■

Supply voltage

100 to 240 VAC	–	–	–	■
24 VAC, 12-24 VDC	–	–	–	–
24 VDC	□	□	□	–
12 to 48 VDC	–	–	–	■

Functions

Up	■	■	■	■
Down	–	–	–	■
Up/down	–	–	–	–
Reversible	–	–	–	■
Speed	20 Hz or switchable 30 Hz / 1 kHz	–	1 or 10 kHz	0.01 to 30 Hz or 0.01 to 5 kHz
Counting range	0 to 99999999	0.0 h to 999999.9 h <--> 0.0 h to 3999 d 23.9 h or 0 s to 999 h 59 min 59 s <--> 0.0 min to 9999 h 59.9 min	1000 s^{-1} or 1000 min^{-1}; 1000 s^{-1} or 1000 min^{-1} <--> 10000 min^{-1}	0 to 9999

Color

Beige	□	□	□	■
Black	■	■	■	–

■ Standard   □ Available   — No/not available

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Counters

Counter Type	Multi-function	Multi-function	Total Count/ Total Time	Total Count/ Total Time

Selection criteria

	H7CX-N	H7BX	H7GP	H7HP
Model	**H7CX-N**	**H7BX**	**H7GP**	**H7HP**
Display	LCD negative transmissive	LCD negative transmissive	LCD negative transmissive	LCD negative transmissive
Size	1/16 DIN	72 x 72 mm	48 x 24 mm	72 x 36 mm

Outputs

Control outputs	1 relay (SPDT), transistor	Contact and NPN transistor	–	–
5 stage	■	■	–	–
Total	■	■	■	■
Time	–	■	■	■
Preset	■	■	–	–
Batch	■	■	–	–
Dual	■	■	–	–
Tachometer	■	■	–	–

Inputs

Control inputs	• No-voltage • PNP/NPN	• No-voltage • PNP/NPN	• PNP/NPN	• PNP/NPN

Features

Dual operation	■	■	–	–
Number of digits	PV: 4, SV: 4 or PV: 6, SV: 6	PV: 6, SV: 6	6 or 8 digits	6 digits
NPN/PNP switch	■	■	–	–
Back-lit	■	■	■	■
External reset	■	■	■	■
Manual reset	■	8 (16- and 32-output models only)	–	–
Memory backup	10 year data storage	10 year data storage	20 year data storage	20 year data storage
Built-in sensor power supply	–	–	–	–
IP rating (front face)	IP66/NEMA 4	IP54	IP66/NEMA 4	IP66/NEMA 4

Terminals

Screw Terminals	■	■	■	■
8-pin socket	–	–	–	–
11-pin socket	■	–		

Supply voltage

100 to 240 VAC	■	■	■	■
24 VAC, 12-24 VDC	■	■	■	■
24 VDC	–	–	–	–
12 to 48 VDC	–	–	–	–

Functions

Up	■	■	■	■
Down	■	■	–	–
Up/down	■	■	–	–
Reversible	■	–	–	–
Speed	0.01 to 30 Hz or 0.01 to 5 kHz	0.01 to 30 Hz or 0.01 to 5 kHz	–	–
Counting range	–99999 to 999999	–99999 to 999999	–99999 to 999999	0 to 999999

Color

Beige	–	–	■	■
Black	■	■	■	■

■ Standard   □ Available   — No/not available

For complete specifications and additional models and accessories visit www.omron247.com

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Space-Saving 1/16 DIN Timer with All-in-one Functionality

Easy-to-set timing and security functions satisfy multiple design needs with a single part, reducing your stock. High accuracy setting and operation in all modes assures reliable performance.

- Short body: Only 59 mm depth for 24 VAC/ VDC models, 78 mm depth for 100-240 VAC models

- Waterproof/dust proof front (UL 508 Type 4X and IP66)

- Isolated inputs and power eliminates unwanted circuit paths

- Built-in output cycle counter supports predictive maintenance

- Green and orange display shows change in output status

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Type	Time specifications	Operating modes	Connection type	Inputs	Output type	Supply voltage	Model
H5CX-A series 4-digit models	0.001 to 9.999 s 0.01 to 99.99 s 0.1 to 999.9 s 1 to 9999 s 1 s to 99 min 59 s 0.1 to 999.9 min 1 to 9999 min 1 min to 99 h 59 min 0.1 to 999.9 h 1 to 9999 h	Timer Mode A: Signal ON Delay I A-1: Signal ON Delay II A-2: Power ON Delay I A-3: Power ON Delay II b: Repeat cycle 1 b-1: Repeat cycle 2 d: Signal OFF Delay E: Interval F: Cumulative Z: ON/OFF-duty-adjustable flicker S: Stopwatch	Screw terminals	Signal, Reset, Gate (NPN/PNP input)	Contact output (time-limit SPDT)	100 to 240 VAC	H5CX-A-N
						12 to 24 VDC/ 24 VAC	H5CX-AD-N
			11-pin socket			100 to 240 VAC	H5CX-A11-N
			11-pin socket	Signal, Reset (NPN input)		12 to 24 VDC/ 24 VAC	H5CX-A11D-N
H5CX-L series 4-digit models			8-pin socket			100 to 240 VAC	H5CX-L8-N
		Twin Timer Mode t-off: Flicker OFF Start 1 t-on: Flicker ON Start 1 t-off-1: Flicker OFF Start 2 t-on-1: Flicker ON Start 2				12 to 24 VDC/ 24 VAC	H5CX-L8D-N
		Timer Mode A-2: Power ON Delay I b: Repeat cycle 1 E: Interval Z: ON/OFF-duty-adjustable flicker Twin Timer Mode t-off: Flicker OFF Start 1 t-on: Flicker ON Start 1		None	Contact output (time-limit SPDT + instantaneous SPDT) Models with instantaneous contact outputs	100 to 240 VAC	H5CX-L8E-N
						12 to 24 VDC/ 24 VAC	H5CX-L8ED-N
H5CX-B series 6-digit model	0.01 to 9999.99 s 1 s to 99 h 59 min 59 s 0.1 to 99999.9 min 0.1 to 99999.9 h	A: Signal ON Delay I F-1: Cumulative	Screw terminals	Signal, Reset, Gate (NPN/PNP input)	Transistor output (DPST)	12 to 24 VDC	H5CX-BWSD-N

1/16 DIN, Digital-Set Timer with LCD Bar Graph Display

- 8 field selectable operation modes or ON-delay only model

- Time remaining LCD bar graph and LCD output indicator

- Two available mounting options: DIN rail or socket (8 or 11 pin)

- Universal AC/DC Supply voltage timer available

- Selectable no-voltage start, reset, gate and check inputs expand capabilities

- Time limit or instantaneous output, select SPDT or DPDT models (3 A @ 250 VAC)

- Panel mounting adapters, sockets and accessories available

Specifications

- Timing functions: Multi-mode: ON-delay, Repeat cycle, Signal Interval/OFF-delay, Signal-OFF delay (I & II), Interval, Cycle and Signal ON-delay/OFF-delay, ON-delay only

- Timing ranges: 7 ranges: 0.1 seconds to 9990 hours

- Repeat accuracy: ±0.3% of range, ±0.05 second

- Control output: 10 mA to 3 A at 250 VAC

Solid-State Timers with 8 Selectable Functions

Dimensions H x W x D mm	Supply voltage	Output type	Output rating	Inputs	Input rating	Connection type	Model
48 x 48 x 89	24 to 240 VAC, 50/60 Hz, 12 to 240 VDC	Relay	SPDT, 3 A at 250 VAC	Start, Reset, Gate	No-voltage	11-pin socket	H3CA-A
75 x 45 x 101						Front mounted screw terminals	H3CA-FA

Solid-State Timers - ON-delay Only

Dimensions H x W x D mm	Supply voltage	Output type	Output rating	Inputs	Input rating	Connection type	Model
48 x 48 x 89	Specify 24 VAC, 100/110/120 VAC, or 200/220/240 VAC, 50/60 Hz	Relay (time limit or instantaneous)	SPDT, 3 A at 250 VAC	Start, Reset, Gate	No-voltage	8-pin socket	H3CA-8H
	Specify 12, 24, 48 or 110 VDC	Relay					H3CA-8

H3CR Multi-Mode Timers

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1/16 DIN Analog-Set Timer

- Use for delay timing, repeatable cycles or duration (interval) timing
- Select 4 (8-pin) or 6 (11-pin) function models to handle most applications
- Repeat cycle models with independent ON and OFF periods available
- Power-OFF delay models available
- 5 A DPDT relay switches when timing cycle completes
- Short, 80 mm (3.15 inch) panel mounting depth with socket allows space-efficient control panel design

Ordering Information
Multi-Mode Timers H3CR-A

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Output	Number of pins	Supply voltage	Time range	Operating mode	Model
Relay DPDT	11	100 to 240 VAC/ 100 to 125 VDC	0.05 s to 300 h	On-delay, Flicker OFF start, Flicker ON start, Signal ON/OFF-delay, Signal OFF-delay, Interval Signal ON/OFF-delay II, One-shot	H3CR-A AC100-240/DC100-125
		24 to 48 VAC/ 12 to 48 VDC			H3CR-A AC24-48/DC12-48
	8	100 to 240 VAC/ 100 to 125 VDC		ON-delay, Flicker ON-start, Interval, One-shot	H3CR-A8 AC100-240/DC100-125
		24 to 48 VAC/ 12 to 48 VDC			H3CR-A8 AC24-48/DC12-48
		100 to 240 VAC/ 100 to 125 VDC			H3CR-A8E AC100-240/DC100-125
		24 to 48 VAC/VDC			H3CR-A8E AC24-48/DC12-48

Twin Timers (Repeat Cycle) H3CR-F

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Output	Number of pins	Supply voltage	Time range	Operating mode	Model
Relay DPDT	11	100 to 240 VAC	0.05 s to 30 h	Flicker OFF start (When timing starts the off output indicator will illuminate. On time and off time can be independently set)	H3CR-F AC100-240/DC100-125
		24 VAC/VDC			H3CR-F AC24-48/DC12-48
	8	100 to 240 VAC			H3CR-F8 AC100-240/DC100-125
		24 VAC/VDC			H3CR-F8 AC24-48/DC12-48

Power Off Delay Timers
See datasheet.

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For complete specifications and additional models and accessories visit www.omron247.com

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H3YN Solid State Timers

T324

Analog-Set Relay Timers with Multiple Operating Modes

- Space-saving and easy to operate

- Miniature timer offers selectable timing modes

- Seconds/minutes timing range models in stock; minutes/hours models available

- Monitor relay status using independent Power-ON and Time-Up indicators

- Socket-mount timers simplify installation and maintenance

- Sockets, hold-down clips and mounting accessories available separately

Specifications

- Supply voltage: 100-120 VAC, 200-230 VAC, or 24 VAC, 50/60 Hz; 24 VDC

- Timing functions: ON-delay, Interval and Repeat cycle with OFF-start or ON-start (DIP switch selectable)

- Timing ranges: 4 ranges: 0.1 second to 10 minutes; 0.1 minute to 10 hours

- Repeat accuracy: ±1% FS max.

- Control output: DPDT, 5 A at 250 VAC (H3YN-2), 4PDT, 5 A at 250 VAC (H3YN-4)

H3JA Solid State Timers

Economical, Compact, Plug-in Timer

- ON-delay time limit operation with automatic resetting

- DIN size (36 x 36 mm), fits standard 8-pin socket

- Wide choice of time ranges: 1, 3, 5, 10, 30, 60 seconds/3, 5,10, 30, 60 minutes/3 hours

- Time-limit 5 A DPDT contact models stocked; 7 A SPDT models available

- Dual LEDs indicate power and output status

- Large transparent setting knob

- Surface, flush and DIN track mountable

Specifications

- Supply voltage: 100-120 VAC, 200-240 VAC, or 24 VAC, 50/60 Hz; 12 VDC or 24 VDC

- Timing functions: ON-delay, time limit; automatic resetting

- Timing ranges: 0.1 to 1 second, 0.3 to 3 seconds, 0.5 to 5 seconds, 1 to 10 seconds, 3 to 30 seconds, 6 to 60 seconds, 0.3 to 3 minutes, 0.5 to 5 minutes

- Repeat accuracy: ±2% max.

- Control output: DPDT, 100 mA to 5 A at 125/250 VAC (resistive load)

OMRON

DIN 22.5 mm Width Timers, Track-Mount, Analog Set

Space-saving slim track-mount timers easily fit into panel designs. Multi-function models with switch selectable dual time limit and instantaneous outputs satisfy multiple design needs with a single part, reducing your stock.

Features

• 4- and 8-function models

• All sub-series include models with 12 VDC power supply

• Finger-safe terminal block and captive screws according to EN 50274

• EMC (EN 61812-1) compliance for application in heavy or light industrial, commercial and residential environments

CE c**UL**us LR CCC

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Ordering Information

Type	Time specifications	Operating modes	Connection type	Inputs	Output type	Supply voltage	Model
H3DK-M series 8-mode timer	0.1 to 1.2 s 1 to 12 s 10 to 120 s 1 to 12 min 10 to 120 min 1 to 12 hr 10 to 120 hr 100 to 1,200 hr	Timer Mode A ON Delay B: Repeat cycle OFF start B2: Repeat cycle ON start C: Signal ON/OFF Delay D: Signal OFF Delay E: Interval G: Signal ON/OFF delay J: One-shot output	9 screw terminals	Voltage input	Contact output (DPDT time-limit or SPDT time-limit + instantaneous SPDT), switch selected	24 to 240 VAC/VDC	H3DK-M2
						12 VDC	H3DK-M2A
					Contact output (SPDT time-limit)	24 to 240 VAC/VDC	H3DK-M1
						12 VDC	H3DK-M1A
H3DK-S Series 4-mode timer		A: ON Delay B2: Repeat cycle ON start E: Interval J: One-shot output	6 screw terminals	–	Contact output (DPDT time-limit or SPDT time-limit + instantaneous SPDT), switch selected	24 to 240 VAC/VDC	H3DK-S2
						12 VDC	H3DK-S2A
					Contact output (SPDT time-limit)	24 to 240 VAC/VDC	H3DK-S1
						12 VDC	H3DK-S1A
H3DK-F Repeat cycle timer		Repeat cycle, ON start, Independent ON and OFF time settings	6 screw terminals	–	Contact output (SPDT time-limit)	24 to 240 VAC/VDC	H3DK-F
						12 VDC	H3DK-FA

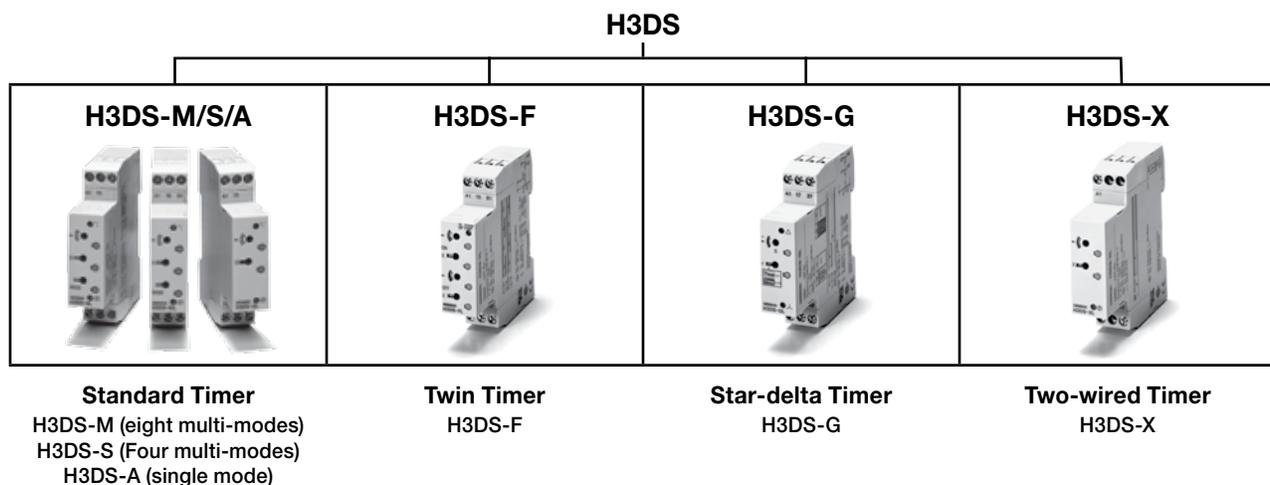**OMRON**

H3DS Solid State Timers

Ultra-slim 17.5 mm Timers, Track-Mount Analog Set

- Eight operating modes (H3DS-M) and four operating modes (H3DS-S) to cover a wide range of applications

- Offers wide time setting range of 0.10 s to 120 h

- Smart Dial/Selector-Locking Mechanism prevents the dials and selectors on the timer's front panel from being operated without authorization (can only be unlocked and locked with an optional pen-type Lock Key)

- Additional single function models available: Repeat cycle independent ON/OFF, ON-delay, ON-delay timer 2 wire

- Finger protection terminal block prevents shock, meets VDE0106/P100

- High immunity to inverter noise

$_c$(UL) **LR** CE

Specifications

- Supply voltage: 24 to 230 VAC/24 to 48 VDC

- Timing functions: ON-delay (Signal or Power); Repeat-cycle OFF-start (Signal or Power); Repeat-cycle ON-start (Signal or Power); Signal ON/OFF-delay; Signal OFF-delay; Interval (Signal or Power); Signal ON/OFF-delay; One-shot (Signal or Power)

- Timing ranges: 0.1 to 1.2 s, 1 to 12 s, 0.1 to 1.2 min., 1 to 12 min., 0.1 to 1.2 h, 1 to 12 h, 10 to 120 h

- Repeat accuracy: ±1% max. of full scale

- Control output: 5 A at 250 VAC/30 VDC (resistive load)

H3DS

H3DS-M/S/A	H3DS-F	H3DS-G	H3DS-X
Standard Timer	**Twin Timer**	**Star-delta Timer**	**Two-wired Timer**
H3DS-M (eight multi-modes) H3DS-S (Four multi-modes) H3DS-A (single mode)	H3DS-F	H3DS-G	H3DS-X

OMRON

Weekly and Yearly Timers with AM/PM Display

- Control lighting, HVAC systems and production equipment for energy saving operation

- Independent Day Keys provide easier operation

- Temporary holiday setting function makes it easy to turn OFF output for holidays and non-operating days

- Easy-to-use, prompted programming with test mode for easy program checking

- Automatic or manual operation following power failure

- Field-adjustable ON/OFF, cycle and pulse output

- Battery back-up for memory protection

- 2-circuit models include time counter and total counter functions with alarm indicator

- Compact DIN size 72 x 72 mm

- Protective cover and other accessories available separately

Ordering Information

Control cycle	Number of outputs	Temperature compensation	Mounting method	Supply voltage	Model
Weekly	2 circuits	N	Flush Mounting	100 to 240 VAC	H5S-WB2
		N		24 VDC	H5S-WB2D
		N	Surface Mounting/Track Mounting	100 to 240 VAC	H5S-WFB2
		N		24 VDC	H5S-WFB2D
Yearly		Y	Flush Mounting	100 to 240 VAC	H5S-YB2-X
		Y		24 VDC	H5S-YB2D-X
		Y	Surface Mounting/Track Mounting	100 to 240 VAC	H5S-YFB2-X
		Y		24 VDC	H5S-YFB2D-X
	4 circuits	Y	Flush Mounting	100 to 240 VAC	H5S-YB4-X
		Y		24 VDC	H5S-YB4D-X
		Y	Surface Mounting/Track Mounting	100 to 240 VAC	H5S-YFB4-X
		Y		24 VDC	H5S-YFB4D-X

K

1/4 DIN Size Weekly Timer, Easy Programming and Large Display

- Set programs with just five switches
- 24 program steps available
- Two independent 15 A control circuits
- Manual override switch for each output
- 10-year battery backup for memory
- Large, easy-to-read LCD display
- Multiple-day operation
- Designed for track mounting; panel and surface mounting hardware included

Specifications

- Supply voltage: 100 to 240 VAC
- Timing functions: Weekly timer, 24 hrs x 7 days, ON or OFF programming
- Timing ranges: 00:00 to 23:59 (hours: minutes), one minute cycle minimum
- Repeat accuracy: ±0.01%, ±0.05 s max.
- Control output: 15 A at 250 VAC (resistive load)

1/16 DIN Size Timer with Simple Programming

- Control up to 12 ON/OFF operations per day (24 for pulse output operation) for one independent circuit
- Special holidays can be handled easily with the holiday setting function
- Adjustments for sudden schedule changes can be made easily using output override and automatic return operation
- Operation program can be easily checked with the program check function
- Enables pulse output operation and summer time setting
- Incorporates finger-safe terminals
- Flush, surface, and DIN track mounting options

Specifications

- Supply voltage: 100 to 240 VAC
- Timing functions: Daily timer, ON or OFF programming
- Timing ranges: 24 h × 7 days (Operation days can be specified) 1 to 59 s, or 1 to 60 min. Pulse-output operation (Pulse width can be set in units of 1 s from 1 to 59 s and in units of 1 min from 1 to 60 min)
- Repeat accuracy: ±0.01%, ±0.05 s max.
- Control output: SPST-NO contact, 15 A at 250 VAC, resistive load. 10 A at 24 VDC, resistive load. Minimum applied load: 100 mA at 5 VDC (failure level: P, reference value).

OMRON

Advanced 1/16 DIN Size Preset Counters

- Space-saving counter solves most counting and positioning applications

- Small and flexible: Only 59 mm depth (24 VAC/VDC) or 78 mm depth (100-240 VAC)

- Waterproof, dust-proof front panel (UL508 Type 4X and IP66)

- High visibility character height: 4 digit models (12 mm) and 6 digit models (10 mm)

- Protect settings with 5 levels of key access

- Built-in Tachometer functions:
  - One-input measurement
  - Independent measurement for 2 inputs
  - Differential input for 2 inputs
  - Absolute ratio for 2 inputs
  - Error ratio between 2 inputs

- Isolated power supply and input circuits prevent unwanted circuit paths

- Built-in output counter supports preventive maintenance

- Switchable display colors show output status changes at a glance

Ordering Information

Classification	Counting action	Settings	Display digits	Output	Supply voltage	Model
Preset counter	1-stage preset counter Total and preset counter	1-stage	4 digits	Contact output (SPDT)	100 to 240 VAC	H7CX-A114-N
					12 to 24 VDC/24 VAC	H7CX-A114D1-N
			6 digits		100 to 240 VAC	H7CX-A11-N
					12 to 24 VDC/24 VAC	H7CX-A11D1-N
			4 digits		100 to 240 VAC	H7CX-A4-N
					12 to 24 VDC/24 VAC	H7CX-A4D-N
			6 digits		100 to 240 VAC	H7CX-A-N
					12 to 24 VDC/24 VAC	H7CX-AD-N
Preset counter/ Tachometer	1-stage preset counter 2-stage preset counter Total and preset counter Batch counter Dual counter Twin counter	2-stage	4 digits	Contact output (SPST + SPDT)	100 to 240 VAC	H7CX-A4W-N
	1-stage preset counter 2-stage preset counter Total and preset counter Batch counter Dual counter Twin counter		6 digits		100 to 240 VAC	H7CX-AW-N
					12 to 24 VDC/24 VAC	H7CX-AWD1-N
				Contact (SPDT) Transistor (SPST)	100 to 240 VAC	H7CX-AU-N
					12 to 24 VDC/24 VAC	H7CX-AUD1-N
Tachometer	Tachometer	1-stage (1 input and output)		Contact output (SPDT)	100 to 240 VAC	H7CX-R11-N
					12 to 24 VDC/24 VAC	H7CX-R11D1-N
		1-stage (2 inputs and outputs)		Contact output (SPDT + SPST)	100 to 240 VAC	H7CX-R11W-N
					12 to 24 VDC/24 VAC	H7CX-R11WD1-N

K

Subminiature Totalizer, Time Counter, LCD Tachometer

The self-powered H7E series features a large display with 8.6 mm character height. It includes models with backlight for improved visibility in dimly lit places. The 1/32 DIN size family includes total counters, time counters and tachometers.

- 1/32 DIN size: 24 H x 48 W x 55.5 D mm

- Black or light-grey housing

- Make all basic settings with a DIP switch

- 8 digits (H7EC), 7 digits (H7ET), 5 digits (H7ER), 8.6 mm character height

- Dual input speed: 30 Hz <-> 1 kHz (H7EC)

- Dual time ranges in each model (H7ET)

- Dual revolution display (H7ER)

Ordering Information

H7EC Count Totalizer

Count input	Max. counting speed	Display	Model	
			Light grey body	Black body
No-voltage	30 Hz <-> 1 kHz (switchable)	7-segment LCD	H7EC-N	H7EC-N-B
PNP/NPN universal DC voltage input	30 Hz <-> 1 kHz (switchable)	7-segment LCD	H7EC-NV	H7EC-NV-B
		7-segment LCD with backlight	H7EC-NV-H	H7EC-NV-BH
AC/DC multi-voltage input	20 Hz	7-segment LCD	H7EC-NFV	H7EC-NFV-B

H7ET Time Totalizer

Timer input	Display	Model			
		Time range 999999.9h <-> 3999d23.9h (switchable)		Time range 999h59m59s <-> 9999h59.9m (switchable)	
		Light grey body	Black body	Light grey body	Black body
No-voltage input	7-segment LCD	H7ET-N	H7ET-N-B	H7ET-N1	H7ET-N1-B
PNP/NPN universal DC voltage input	7-segment LCD	H7ET-NV	H7ET-NV-B	H7ET-NV1	H7ET-NV1-B
	7-segment LCD with blacklight	H7ET-NV-H	H7ET-NV-BH	H7ET-NV1-H	H7ET-NV1-BH
AC/DC multi-voltage input	7-segment LCD	H7ET-NFV	H7ET-NFV-B	H7ET-NFV1	H7ET-NFV1-B

H7ER Tachometer

Count input	Display	Model			
		Max. revolutions displayed (applicable encoder resolution)			
		1,000 s-1 (1 pulse/rev.) 1,000 min-1 (60 pulse/rev.)		1,000.0 s-1 (10 pulse/rev) 1,000.0 min-1 (600 pulse/rev) <-> 10,000 min-1 (60 pulse/rev) (switchable)	
		Light grey body	Black body	Light grey body	Black body
No-voltage input	7-segment LCD	H7ER-N	H7ER-N-B	-	-
PNP/NPN universal DC voltage input	7-segment LCD	H7ER-NV	H7ER-NV-B	H7ER-NV1	H7ER-NV1-B
	7-segment LCD with blacklight	H7ER-NV-H	H7ER-NV-BH	H7ER-NV1-H	H7ER-NV1-BH

OMRON

H7BX Digital Counters

72 x 72 mm Multi-Function Counter with a Bright, Easy-to-view, Negative Transmissive LCD

- Provides a total and preset counter, batch counter, dual counter, and tachometer

- Large highly visible display with backlit transmissive LCD

- Selectable display color (red/green) enables checking output status at a distance

- Easy operation with a key for each digit

- Perform all basic settings with a DIP switch

- Wide range of inputs accepted for NPN/PNP inputs (multi-inputs) and 2-wire DC sensors

- Degree of protection: IP54 equivalent (front section only)

Specifications

- Supply voltage: 100 to 240 VAC, 24 VAC/12 to 24 VDC

- Inputs: Voltage or no-voltage inputs; 12 VDC external power supply

- Ranges: Counting -99,999 to 999,999 (6-digit); tachometer 0 to 999,999 (6 digits)

- Control output: Contact output: 3 A at 250 VDC/30 VDC (resistive load); transistor output: 100 mA max. at 30 VDC max.

- Output functions: One-shot and sustained outputs with up to 12 user selections

- Reset time: 1 ms or 20 ms selectable

K

H7CN Digital Counters

1/16 DIN, Single Preset Counter with Four-Digit LED Display

- Simple to set and operate
- Easy-to-read 10 mm-high LED display
- Contact (SPST-NO or SPDT) or solid-state (open-collector) outputs
- Single counting speed per model: 30 cps models stocked; 5 kcps available
- Separate UP, DOWN and REVERSIBLE counting models
- Memory protection circuit available on AC models
- 8-pin or 11-pin round socket models available
- Panel-mount adapter, sockets and accessories available separately

Specifications

- Supply voltage: 100-240 VAC, 50/60 Hz
- Counting functions: 1-stage (single preset) UP counter
- Counting ranges: 0 to 9,999 (4-digit)
- Output functions: Sustained output until reset

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Compact Count and Time Totalizers

- Large easy to ready 8.5 mm transmissive LCD displays

- NEMA protection when used with Y92S-33 rubber gasket

- High-visibility, negative transmissive LCD display with built-in LED backlight

- Short (80 mm) body

- Switch between NPN and PNP operation

- Units can be externally or manual reset

- Dimensions: 24 H x 44 W x 80 D mm

Ordering Information
H7GP-C Totalizing Counter

Count input	Max. counting speed	Counting Range	Display	Supply Voltage	Model	
					Light grey body	Black body
NPN or PNP	30 cps or 5 cps (selectable)	99999.6	8 mm, 6-digit	100 to 240 VAC	H7GP-C	H7GP-CB
				12 to 24 VDC	H7GP-CD	H7GP-CDB

H7GP-T Time Totalizer

Count input	Max. counting speed	Time Range	Display	Supply Voltage	Model	
					Light grey body	Black body
NPN or PNP	30 cps or 5 cps (selectable)	99999.9 h or 99 h 59 m 59 s	8 mm, 6-digit	100 to 240 VAC	H7GP-T	H7GP-TB
				12 to 24 VDC	H7GP-TD	H7GP-TDB

Compact Count and Time Totalizers

- Large easy to ready displays: 6-digit (15 mm); 8-digit (12 mm) models

- NEMA protection when used with Y92S-33 rubber gasket

- High-visibility, negative transmissive LCD display with built-in LED backlight

- Short (66 mm) body

- Switch between NPN and PNP operation

- Units can be externally or manual reset

- Dimensions: 32 H x 67.7 W x 65.8 D mm

Ordering Information
H7HP-A Counter/Timer

Count input	Max. counting speed	Time Range	Display	Supply Voltage	Model	
					Light grey body	Black body
NPN or PNP	30 cps or 5 cps (selectable)	99999.9 h or 99 h 59 m 59 s	15 mm, 6-digit	100 to 240 VAC	H7HP-A	H7HP-AB
				12 to 24 VDC	H7HP-AD	H7HP-ADB

H7HP-C Totalizer

Count input	Max. counting speed	Counting Range	Display	Supply Voltage	Model	
					Light grey body	Black body
NPN or PNP	30 cps or 5 cps (selectable)	99999999	12 mm, 8-digit	100 to 240 VAC	H7HP-C8	H7HP-C8B
				12 to 24 VDC	H7HP-C8D	H7HP-D8D8

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Digital Panel Meters

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Contents

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Digital Panel Meters

LOOKING FOR PERFECT MEASURING & READ-OUT?

K3HB-V – For perfect weighing

With our K3HB series, we cover a wide range of applications. One of them is the weighing indicator which performs perfect measurement in any weighing application. The instrument can be equipped with a load-cell power supply of 10 V/100 mA. Several option boards for communication, contact output boards or event inputs are also available. On top of these, you can get direct DeviceNet communication.

- High-speed sampling 20 ms
- Equipped with position meter
- Two-color display for easy recognition

Which size is required?

48 x 24 mm (1/32 DIN)

Process/Frequency/Rate

General purpose

Which application is required?

Process

Temperature

Frequency/ Rate

K3GN

K3MA-J

K3MA-L

K3MA-F

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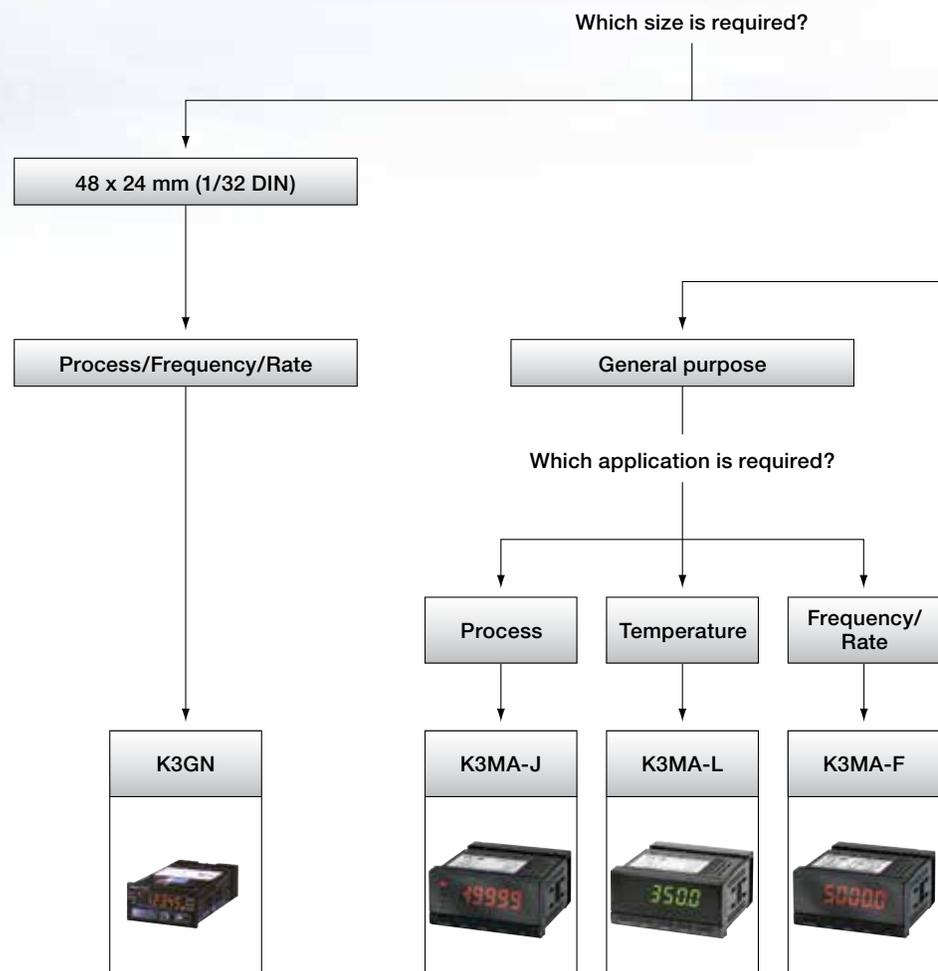
96 x 48 mm (1/8 DIN)

Advanced

Which application is required?

Process	Temperature	Weighing	Linear sensor	Rotary pulse	Time interval	Up/down counting pulse
K3HB-X	K3HB-H	K3HB-V	K3HB-S	K3HB-R	K3HB-P	K3HB-C

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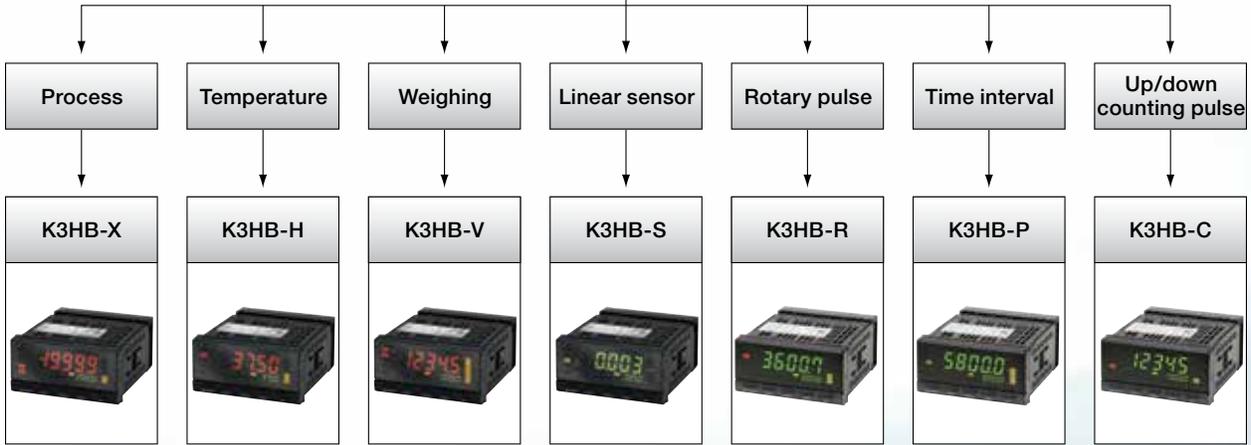
Selection Table

	Category	Multifunctional Digital Panel Indicator	Process Indicator	Temperature Indicator	Frequency/Rate Indicator
Selection Criteria					
	Model	K3GN	K3MA-J	K3MA-L	K3MA-F
	Size	1/32 DIN	1/8 DIN	1/8 DIN	1/8 DIN
Features	Color change display	■	■	■	■
	Number of digits	5	5	4	5
	Leading zero suppression	■	■	■	■
	Forced zero function	■	■	■	■
	Min./max. hold function	■	■	■	■
	Average processing	■	■	■	■
	User selectable inputs	■	■	■	■
	Start-up compensating time	■	–	–	■
	Key protection	■	■	■	■
	Decimal pt. position setting	■	■	■	■
	Accuracy	±0.1% of full scale			
	Input range	0 to 20 mA, 4 to 20 mA or 0 to 5 V, 1 to 5 V, -5 to 5 V, -10 to 10 V or 0 to 30 Hz or 0 to 5 kHz	0 to 20 mA, 4 to 20 mA or 0 to 5 V, 1 to 5 V, -5 to 5 V, -10 to 10 V	Pt100, JPt100 or thermocouple K, J, T, E, L, U, N, R, S, B	0 to 30 Hz or 0 to 5 kHz
	Sample rate	250 ms	250 ms	500 ms	–
	Features	Remote/local processing, parameter initialization, programmable output configuration, process value hold	Teaching, comparative output pattern selection, parameter initialization, programmable output configuration, process value hold	Programmable output configuration, process value hold	Teaching, comparative output pattern selection, programmable output configuration, process value hold
	Sensor power supply	–	–	–	■
	Front protection – IP rating	IP66/NEMA 4	IP66/NEMA 4	IP66/NEMA 4	IP66/NEMA 4
	Supply voltage	24 VDC	24 VAC/VDC or 100 to 240 VAC	24 VAC/VDC or 100 to 240 VAC	24 VAC/VDC or 100 to 240 VAC
Inputs	NPN	■	–	–	■
	PNP	■	–	–	■
	Temperature	–	–	–	–
	Contact	–	–	–	■
	Voltage pulse	–	–	–	■
	Load cell	–	–	–	–
	DC voltage	■	■	–	–
	DC current	■	■	–	–
	AC voltage	–	–	–	–
	AC current	–	–	–	–
Outputs	Relay	■	■	■	■
	NPN	■	–	–	–
	PNP	■	–	–	–
	Linear	–	–	–	–
	BCD	–	–	–	–
	Comms	■	–	–	–

■ Standard   □ Available   — No/not available

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	Category	Process Indicator	Temperature Indicator	Weighing Indicator	Linear Sensor Indicator
Selection Criteria					
	Model	K3HB-X	K3HB-H	K3HB-V	K3HB-S
	Size	1/8 DIN	1/8 DIN	1/8 DIN	1/8 DIN
Features	Color change display	■	■	■	■
	Number of digits	5	5	5	5
	Leading zero suppression	■	■	■	■
	Forced zero function	■	■	■	■
	Min./max. hold function	■	■	■	■
	Average processing	■	■	■	■
	User selectable inputs	■	■	■	■
	Start-up compensating time	–	–	–	–
	Key protection	■	■	■	■
	Decimal pt. position setting	■	■	■	■
	Accuracy	±0.1% of full scale (DC voltage & DC current), ±0.5% of full scale (AC voltage & AC current)	Thermocouple: ±0.3%of full scale, Pt-100: ±0.2% of full scale	±0.1% of full scale	One input: ±0.1% of full scale, two inputs: ±0.2% of full scale
	Input range	0.000 to 10.000 A 0.0000 to 19.999 mA -199.99 to 199.99 mA 4.000 to 20.000 mA 0.0 to 400.0 V 0.0000 to 1.999 V -199.99 to 199.99 V 1.0000 to 5.0000 V	Pt100, thermocouple K, J, T, E, L, U, N, R, S, B, W	0.00 to 199.99 mV, 0.000 to 19.999 mV, 100.00 mV, 199.99 mV	0 to 20 mA, 4 to 20 mA, 0 to 5 V, -5 to 5 V, -10 to 10 V
	Sample rate	20 ms	20 ms	20 ms	0.5 ms
	Features	Scaling, teaching, averaging, output hysteresis, output OFF-delay, output test, bank selection, reset, comparative output	Scaling, teaching, averaging, output hysteresis, output OFF-delay, output test, bank selection, reset, comparative output	Scaling, teaching, averaging, output hysteresis, output OFF-delay, output test, bank selection, reset, comparative output	Scaling, 2-input calculation, teaching, averaging, output hysteresis, output OFF-delay, output test, bank selection, reset, comparative output
	Sensor power supply	□	□	□	□
	Front protection – IP rating	IP66/NEMA 4	IP66/NEMA 4	IP66/NEMA 4	IP66/NEMA 4
	Supply voltage	100 to 240 VAC or 24 VAC/VDC	100 to 240 VAC or 24 VAC/VDC	100 to 240 VAC or 24 VAC/VDC	100 to 240 VAC or 24 VAC/VDC
Inputs	NPN	□	□	□	□
	PNP	□	□	□	□
	Temperature	–	■	–	–
	Contact	–	–	–	–
	Voltage pulse	–	–	–	–
	Load cell	–	–	■	–
	DC voltage	□	–	–	■
	DC current	□	–	–	■
	AC voltage	□	–	–	–
	AC current	□	–	–	–
Outputs	Relay	□	□	□	□
	NPN	□	□	□	□
	PNP	□	□	□	□
	Linear	□	□	□	□
	BCD	–	–	–	–
	Comms	□	□	□	□

■ Standard   □ Available   — No/not available

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Selection Table

	Category	Up/Down Counting Pulse Indicator	Time Interval Indicator	Rotary Pulse Indicator
Selection Criteria				
	Model	K3HB-C	K3HB-P	K3HB-R
	Size	1/8 DIN	1/8 DIN	1/8 DIN
Features	Color change display	■	■	■
	Number of digits	5	5	5
	Leading zero suppression	■	■	■
	Forced zero function	■	■	■
	Min./max. hold function	■	■	■
	Average processing	■	■	■
	User selectable inputs	■	■	■
	Start-up compensating time	–	–	■
	Key protection	■	■	■
	Decimal pt. position setting	■	■	■
	Accuracy	–	±0.08% rgd ±1 digit	±0.006% rgd ±1 digit ±0.02% rgd ±1 digit
	Input range	No voltage contact: 30 Hz, voltage pulse: 50 kHz, open collector: 50 kHz	No voltage contact: 30 Hz, voltage pulse: 50 kHz, open collector: 50 kHz	No voltage contact: 30 Hz, voltage pulse: 50 kHz, open collector: 50 kHz
	Sample rate	–	–	–
	Features	Scaling, measurement operation selection, output hysteresis, output OFF-delay, output test, display value selection, display color selection, key protection, bank selection, display refresh period, maximum/minimum hold, reset	Scaling, measurement operation selection, output hysteresis, output OFF-delay, output test, teaching, display value selection, display color selection, key protection, bank selection, display refresh period, maximum/minimum hold, reset	Scaling, measurement operation selection, averaging, previous average value comparison, output hysteresis, output OFF-delay, output test, teaching, display value selection, display color selection, key protection, bank selection, display refresh period, maximum/minimum hold, reset
	Sensor power supply	□	□	□
	Front protection – IP rating	IP66/NEMA 4	IP66/NEMA 4	IP66/NEMA 4
	Supply voltage	100 to 240 VAC or 24 VAC/VDC	100 to 240 VAC or 24 VAC/VDC	100 to 240 VAC or 24 VAC/VDC
Inputs	NPN	■	■	■
	PNP	■	■	■
	Temperature	–	–	–
	Contact	–	–	–
	Voltage pulse	■	■	■
	Load cell	–	–	–
	DC voltage	–	–	–
	DC current	–	–	–
	AC voltage	–	–	–
	AC current	–	–	–
Outputs	Relay	□	□	□
	NPN	□	□	□
	PNP	□	□	□
	Linear	□	□	□
	BCD	□	□	□
	Comms	□	□	□

■ Standard   □ Available   — No/not available

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K3HB-X, -H, -V, -S Digital Panel Indicators

Process, Temperature, Weighing and Linear Sensor Indicators

These indicators with analog input, feature a color change display for easy monitoring. K3HB series is high-speed, with a sample rate of 50 Hz, and even 2,000 Hz for K3HB-S.

- Communications: DeviceNet, RS-232C, RS-485
- 1/8 DIN size, IP66 rated NEMA 4 housing

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Ordering Information

Type of indicator	Input sensor type and range	Model
Process indicator K3HB-X	DC current input, from ±199.99 mA, to 4.000 to 20.000 mA	K3HB-XAD 100-240VAC
		K3HB-XAD 24VAC/VDC
	DC voltage input from ±199.99 V to 1.0000 to 5.0000 V	K3HB-XVD 100-240VAC
		K3HB-XVD 24VAC/VDC
Temperature indicator K3HB-H	Temperature input Pt100, thermocouple K, J, T, E, L, U, N, R, S, B, W	K3HB-HTA 100-240VAC
		K3HB-HTA 24VAC/VDC
Weighing indicator K3HB-V	Load cell input (DC low voltage input), 0.00 to 199.99 mV, 0.000 to 19.999 mV, 100.00 mV, 199.99 mV	K3HB-VLC 100-240VAC
		K3HB-VLC 24VAC/VDC

Sensor Power Supply/Output Boards

Slot	Output		Sensor power supply	Communications	Applicable indicator types	Model
B	Relay	PASS: SPDT	12 VDC ±10%, 80 mA	-	K3HB-X, -H, -S	K33-CPA
	Linear current	DC0(4) - 20 mA		-	K3HB-X, -H, -S	K33-L1A
	Linear voltage	DC0(1) - 5 V, 0 to 10 V		-	K3HB-X, -H, -S	K33-L2A
	Sensor power supply only			-	K3HB-X, -H, -S	K33-A
				RS-232C	K3HB-X, -H, -S	K33-FLK1A
				RS-485	K3HB-X, -H, -S	K33-FLK3A
	Relay	PASS: SPDT	10 VDC ±5%, 100 mA	-	K3HB-V	K33-CPB
	Linear current	DC0(4) - 20 mA		-	K3HB-V	K33-L1B
	Linear voltage	DC0(1) - 5 V, 0 to 10 V		-	K3HB-V	K33-L2B
	Sensor power supply only			-	K3HB-V	K33-B
				RS-232C	K3HB-V	K33-FLK1B
				RS-485	K3HB-V	K33-FLK3B

Relay/Transistor Output Boards

Slot	Output		Communications	Model
C	Relay	H/L: SPDT each	-	K34-C1
		HH/H/LL/L: SPST-NO each	-	K34-C2
	Transistor	NPN open collector: HH/H/PASS/L/LL	-	K34-T1
		PNP open collector: HH/H/PASS/L/LL	-	K34-T2
	-	-	DeviceNet	K34-DRT

Event Input Boards

Slot	Output	Number of points	Communications	Model
DT	NPN open collector	5	M3 terminal blocks	K35-1
	PNP open collector	5	M3 terminal blocks	K35-3

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K3HB-C, -P, -R Digital Panel Indicators

Rotary Pulse, Timer Interval and Up/Down Counting Pulse Indicators

These indicators with analog input feature a clear and easy-to-use color change display. All models are equipped with NEMA 4 IP66 housing. K3HB-R and -C are high-speed, with a color rate up to 50 kHz.

- Position meter indication for easy monitoring
- Communications: DeviceNet, RS-232C, RS-485
- Double display with 5 digits in two colors
- 1/8 DIN size, IP66 rated NEMA 4 housing

K3HB-P

K3HB-R

Ordering Information

Type of indicator	Input ranges	Input sensor	Model
Rotary pulse indicator K3HB-R	No voltage contact: 30 Hz max. Voltage pulse: 50 kHz max. Open collector: 50 kHz max.	NPN input/ voltage pulse	K3HB-RNB 100-240VAC
			K3HB-RNB 24VAC/VDC
		PNP input	K3HB-RPB 100-240VAC
			K3HB-RPB 24VAC/VDC
Timer interval indicator K3HB-P		NPN	K3HB-PNB 100-240VAC
		PNP	K3HB-PPB 100-240VAC
Up/down counting pulse indicator K3HB-C		PNP	K3HB-CNB 24VAC/VDC
		NPN	K3HB-CNB 100-240VAC
		NPN	K3HB-CPB 24VAC/VDC
		PNP	K3HB-CPB 24VAC/VDC
		PNP	K3HB-CPB 100-240VAC

Sensor Power Supply/Output Boards

Slot	Output		Sensor power supply	Communications	Model
B	Relay	PASS: SPDT	12 VDC ±10%, 80 mA	-	K33-CPA
	Linear current	DC0(4) - 20 mA		-	K33-L1A
	Linear voltage	DC0(1) - 5 V, 0 to 10 V		-	K33-L2A
	-	-		-	K33-A
	-	-		RS-232C	K33-FLK1A
	-	-		RS-485	K33-FLK3A

Relay/Transistor Output Boards

Slot	Output		Communications	Model
C	Relay	H/L: SPDT each	-	K34-C1
		HH/H/LL/L: SPST-NO each	-	K34-C2
	Transistor	NPN open collector: HH/H/PASS/L/LL	-	K34-T1
		PNP open collector: HH/H/PASS/L/LL	-	K34-T2
	-	-	DeviceNet	K34-DRT
	BCD + transistor	NPN open collector: HH/H/PASS/L/LL	-	K34-BCD

Event Input Boards

Slot	Output	Number of points	Communications	Model
D	NPN open collector	5	M3 terminal blocks	K35-1
	NPN open collector	5	M3 terminal blocks	K35-3

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Digital Panel Meters Offer Built-in Outputs

The K3MA series is available as a process meter, a frequency/rate meter or a temperature meter. All are equipped with the same quality display and have the same short mounting depth of 80 mm.

- 1/8 DIN size housing: 97 L x 96 W x 48 H mm
- Highly visible, 2-color negative transmissive backlit LCD display
- 14.2 mm high characters

- 5 digits (-19,999 to 99,999), K3MA-L: 4 digits
- 1/8 DIN size, IP66 rated NEMA 4 housing

Ordering Information

K3MA-L **Quick Link** **X329** omron247.com
K3MA-F **Quick Link** **X323** omron247.com

Indicator	Supply voltage	Input type and ranges	Output	Model
Process meter	100 to 240 VAC	DC voltage: 0 to 5 V, 1 to 5 V, -5 to 5 V, -10 to 10 V	2 relay contact outputs (SPST-NO)	K3MA-J-A2 100-240VAC
	24 VAC/VDC		2 relay contact outputs (SPST-NO)	K3MA-J-A2 24VAC/VDC
Temperature meter	100 to 240 VAC	Platinum-resistance thermometer: Pt100, JPt100	1 relay contact output (SPDT)	K3MA-L-C 100-240VAC
	24 VAC/VDC		1 relay contact output (SPDT)	K3MA-L-C 24VAC/VDC
Frequency/ rate meter	100 to 240 VAC	Rotary pulse - No voltage: 0.05 to 30.00 Hz	2 relay contact outputs (SPST-NO)	K3MA-F-A2 100-240VAC
	24 VAC/VDC		2 relay contact outputs (SPST-NO)	K3MA-F-A2 24VAC/VDC

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Intelligent Digital Panel Meter, 1/32 DIN Size

The K3GN has three main functions are process meter, RPM processor/tachometer and digital data display for PC/PLC.

- 5-digit display with programmable display color, in red or green
- Very compact 1/32 DIN housing: 24 H x 48 W x 83 D mm
- 1/8 DIN size, IP66 rated NEMA 4 housing

Ordering Information

Input type	Supply voltage	Output	Model	
			No communications	RS-485
DC voltage/current, NPN	24 VDC	Dual relays (SPST-NO)	K3GN-NDC 24 DC	K3GN-NDC-FLK 24 DC
DC voltage/current, PNP		Dual relays (SPST-NO)	K3GN-PDC 24 DC	K3GN-PDC-FLK 24 DC

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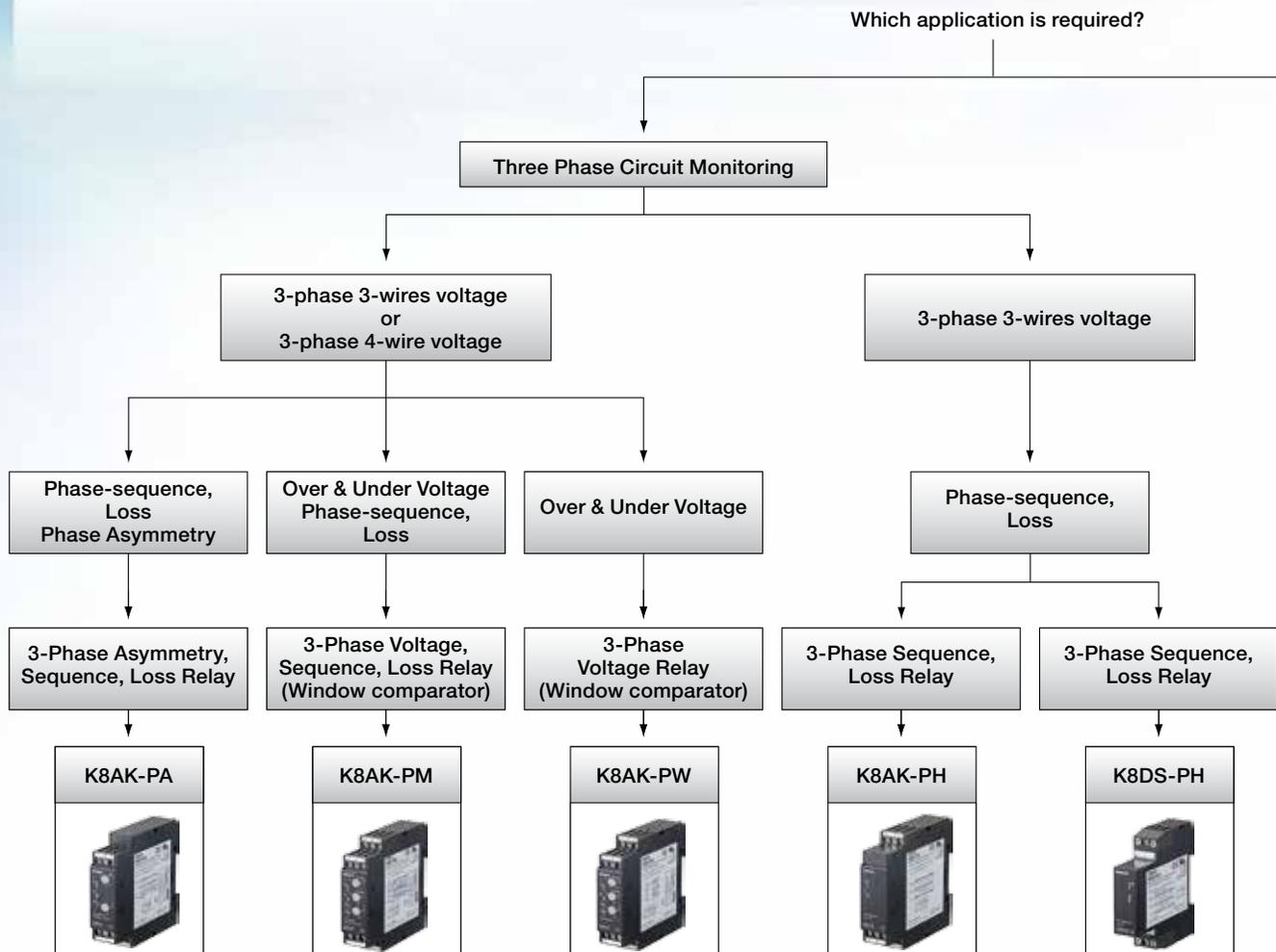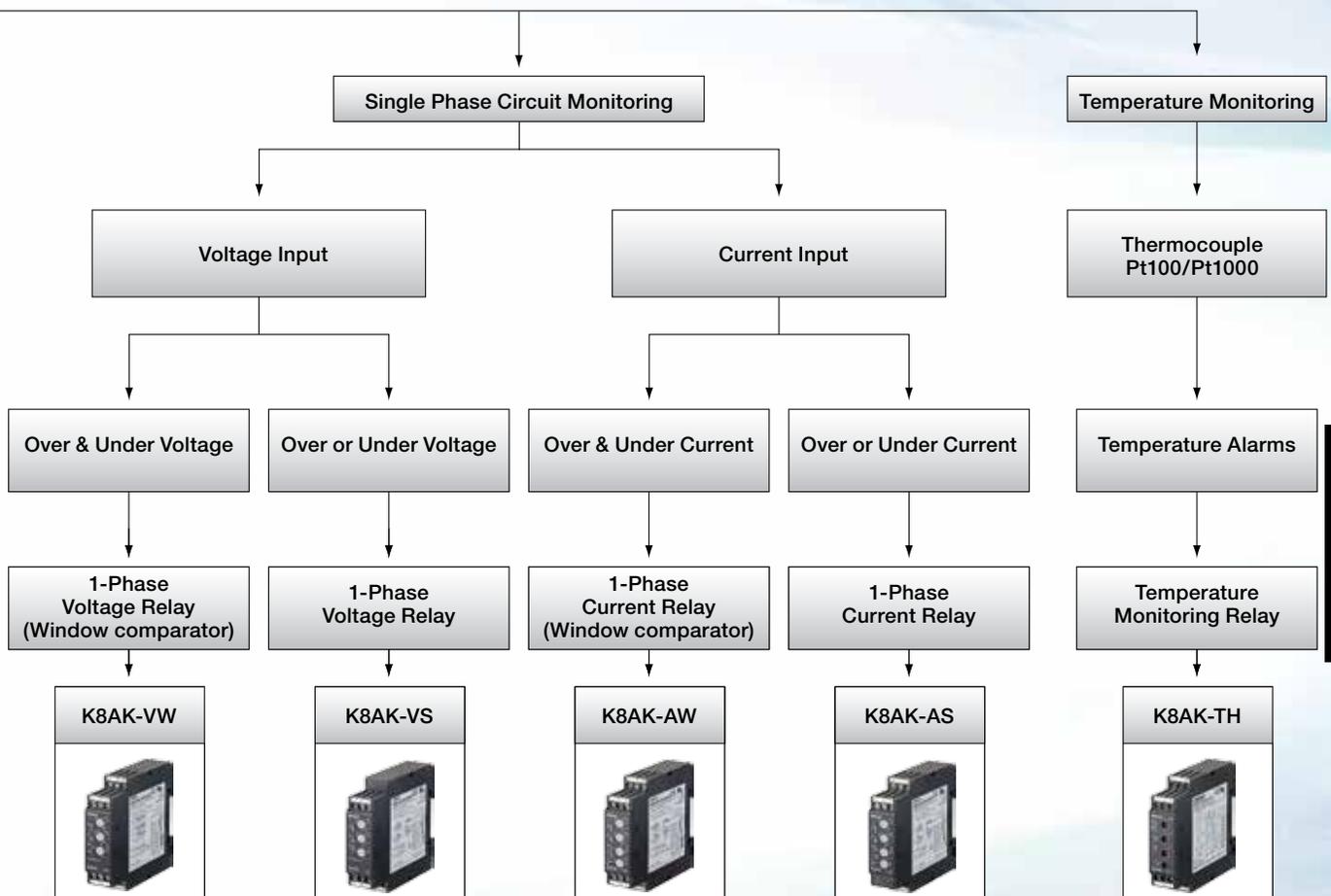
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Contents

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MONITORING RELAYS

The K8AK/K8DS series power monitoring relays can detect problems such as:

- Over- and under-currents, and over- and under-voltages

- Phase losses (where voltage is not supplied to one or more phases because of disconnected power lines, loose terminals, or contact failures)

- Phase-sequence problems (which can result, for example, in motors rotating backwards)

- Voltage asymmetries where the voltages of different phases are different because of phase losses or other causes).

The relays are available in various single- and three-phase versions for currents up to 200 A and voltages up to 600 V. The 17.5 mm and 22.5 mm wide DIN-rail mounting devices save space in control panels.

Which application is required?

Three Phase Circuit Monitoring

3-phase 3-wires voltage or 3-phase 4-wire voltage			3-phase 3-wires voltage

Phase-sequence, Loss Phase Asymmetry	Over & Under Voltage Phase-sequence, Loss	Over & Under Voltage	Phase-sequence, Loss

3-Phase Asymmetry, Sequence, Loss Relay	3-Phase Voltage, Sequence, Loss Relay (Window comparator)	3-Phase Voltage Relay (Window comparator)	3-Phase Sequence, Loss Relay	3-Phase Sequence, Loss Relay

K8AK-PA	K8AK-PM	K8AK-PW	K8AK-PH	K8DS-PH

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                                    ┌───────────────────────────────┐                    ┌─────────────────────────┐
                                    │ Single Phase Circuit Monitoring│                    │  Temperature Monitoring │
                                    └───────────────────────────────┘                    └─────────────────────────┘
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Single Phase Circuit Monitoring	Temperature Monitoring

Voltage Input	Current Input	Thermocouple Pt100/Pt1000

Over & Under Voltage	Over or Under Voltage	Over & Under Current	Over or Under Current	Temperature Alarms

1-Phase Voltage Relay (Window comparator)	1-Phase Voltage Relay	1-Phase Current Relay (Window comparator)	1-Phase Current Relay	Temperature Monitoring Relay

K8AK-VW	K8AK-VS	K8AK-AW	K8AK-AS	K8AK-TH

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Selection Table

Type	Temperature	1-Phase			
Model	**K8AK-TH**	**K8AK-AS**	**K8AK-AW**	**K8AK-VS**	**K8AK-VW**
Mounting	DIN Rail	DIN Rail	DIN Rail	DIN Rail	DIN Rail
Size	22.5W x 90H x 100D	22.5W x 90H x 100D	22.5W x 90H x 100D	22.5W x 90H x 100D	22.5W x 90H x 100D
Type	Temperature Monitoring	Current Monitoring	Overcurrent/ Undercurrent Monitoring	Voltage Monitoring	Overvoltage/ undervoltage monitoring
Range	• Type K, J, T, E, B, R, S Thermocouple	• 2-500 mA • 0.1-8 A • 10-200 A	• 2-500 mA • 0-5 A • 0-200 A	• 1-150 V • 20-600 V	• 1-10 V • 60-300 V
Power Supply	100-240 VAC	100-240 VAC	100-240 VAC	100-240 VAC	100-240 VAC
Power Supply	24 VAC/DC	24 VAC/DC	24 VAC/DC	24 VAC/DC	24 VAC/DC
Relay SPDT	■	■	■	■	–
Relay 2x SPDT	–	–	–	–	■
Relay DPDT	–	–	–	–	–
Reset mode: manual	–	■	■	■	■
Reset Mode: Automatic	–	■	■	■	■
Operation Time (With Timer)	–	0.1-30 Sec.	0.1-30 Sec.	0.1-30 Sec.	0.1-30 Sec.
Startup Lock	–	■	■	■	■
Power (Green)	■	■	■	■	■
Relay Output (Yellow)	■	■	■	■	■
Alarm Output (Red)	■	■	■	■	■

Row groups (left side labels): Selection criteria, Input, Output, Features, Indicators

■ Standard   □ Available   – No/not available

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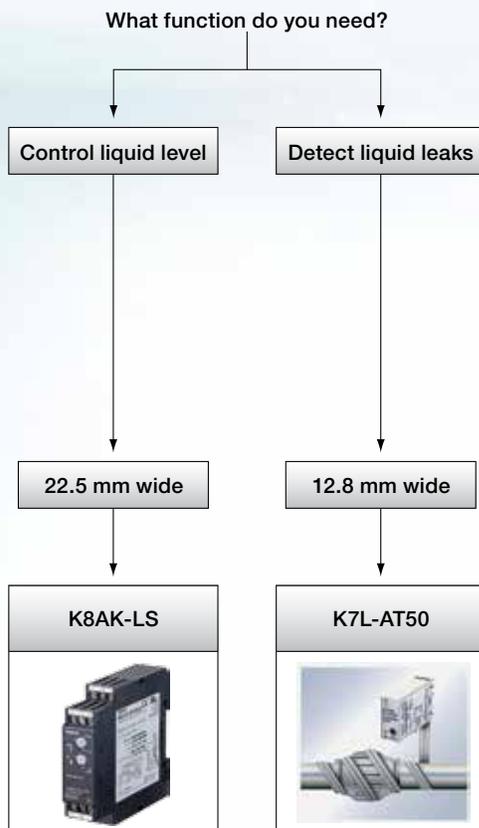| Type	3-Phase				
Model	**K8AK-PH**	**K8AK-PW**	**K8AK-PA**	**K8AK-PM**	**K8DS-PH**
Selection criteria — Mounting	DIN Rail	DIN Rail	DIN Rail	DIN Rail	DIN Rail
Size	22.5W x 90H x 100D	22.5W x 90H x 100D	22.5W x 90H x 100D	22.5W x 90H x 100D	17.5W x 73H x 80D
Type	Phase-Sequence Phase-Loss Monitoring	Voltage Monitoring	Asymmetry and Phase-Sequence Phase-Loss Monitoring	Phase-Sequence Phase-Loss Monitoring	Phase-Sequence Phase-Loss Monitoring
Input — Range	• 200-480 VAC 3-Phase	• 200-240 or 380-480 VAC 3-Phase, 3-Wire • 115-138 or 220-277 VAC 3 Phase, 4-Wire	• 200-240 or 380-480 VAC 3-Phase, 3-Wire • 115-138 or 220-277 VAC 3 Phase, 4-Wire	• 200-240 or 380-480 VAC 3-Phase, 3-Wire • 115-138 or 220-277 VAC 3 Phase, 4-Wire	• 200-480 VAC 3-Phase, 3-Wire
Power Supply	200-480 VAC 3-Phase	200-240 or 380-480 VAC 3-Phase, 3-Wire	200-240 or 380-480 VAC 3-Phase, 3-Wire	200-240 or 380-480 VAC 3-Phase, 3-Wire	200-480 VAC 3-Phase, 3-Wire
Power Supply	–	115-138 or 220-227 VAC 3-Phase, 4-Wire	115-138 or 220-227 VAC 3-Phase, 4-Wire	115-138 or 220-227 VAC 3-Phase, 4-Wire	–
Output — Relay SPDT	–	■	■	■	■
Relay 2x SPDT	–	–	–	–	–
Relay DPDT	■	–	–	–	–
Reset mode: manual	–	–	–	–	–
Features — Reset Mode: Automatic	■	■	■	■	■
Operation Time (With Timer)	–	–	–	–	–
Startup Lock	–	–	–	–	–
Power (Green)	■	■	■	■	■
Indicators — Relay Output (Yellow)	■	■	■	■	■
Alarm Output (Red)	–	■	■	■	–

■ Standard   □ Available   — No/not available

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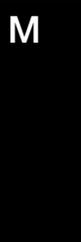
LIQUID LEVEL CONTROLS AND DETECTORS

K8AK-LS

- Ideal for liquid level control for industrial facilities and equipment
- Floatless level control for liquid supply and drainage operations
- Self holding (ON or OFF) outputs can be easily selected to match application

What function do you need?

Control liquid level → 22.5 mm wide → K8AK-LS

Detect liquid leaks → 12.8 mm wide → K7L-AT50

Category	Liquid Level Controller	Leakage Detection
Model	K8AK-LS	K7L-AT50
Function	Floatless level control for liquid supply and drainage operations	Detects liquid spills using a conductive sensing band and socket-mount controller
Compatible liquids	Distilled water, city water, well water, industrial water, sea water, and sewage with specific impedance	Water, ammonia, and Hydrogen Peroxide
Operating resistance	10 to 100 kΩ	0 to 50 MΩ (variable)
Inputs	Conductive electrodes: SUS304 or SUS316, 1 m long segments	Sensing band: Polyethylene standard; PTFE fluororesin for high temperature and organic solvents, 10 m max. length
Supply voltage	100-120 VAC, 21 VAC/VDC	12 to 24 VDC
Dimensions	90 H x 22.5 W x 100 D mm	85.5 H x 19.5 W x 84 D mm max. in socket

Overvoltage or Undervoltage Monitoring Relays
featuring single or dual contacts

Designed to protect single-phase applications from overvoltage and undervoltage conditions.

- K8AK-VW features two independent SPDT (5 A @ 240 VAC) contacts

- K8AK-VS features one SPDT (5 A @ 250 VAC) contact

- Input frequency of 40 to 500 Hz supported

- Can be configured for manual or automatic reset

- Monitor output status via LED indicators

- Dimensions: 90 H x 22.5 W x 100 D mm

Ordering Information

K8AK-VS Voltage Monitoring

Description	Features	Setting Range*	Input Voltage	Output	Model
Single phase Overvoltage or Undervoltage Relay	2 independent current adjustment knobs, Operating time adjustment knob, Startup lock adjustment knob	0 to 10 V AC/DC 0 to 30 V AC/DC 15 to 150 V AC/DC	24 VAC/VDC	"SPDT, 5 A @ 250 VAC (resistive load)"	K8AK-VS2 24 VAC/DC
			100 to 240 VAC		K8AK-VS2 100-240 VAC
		20 to 200 V AC/DC 30 to 300 V AC/DC 60 to 600 V AC/DC	24 VAC/VDC		K8AK-VS3 24 VAC/DC
			100 to 240 VAC		K8AK-VS3 100-240 VAC

K8AK-VW Overvoltage and Undervoltage

Description	Features	Setting Range*	Input Voltage	Output	Model
Single-phase Overvoltage and Undervoltage Relay	2 independent current adjustment knobs, Operating time adjustment knob, Startup lock adjustment knob, 2 independent SPDT relays	0 to 10 V AC/DC 0 to 30 V AC/DC 15 to 150 V AC/DC	24 VAC/VDC	"2 - SPDT, 5 A @ 250 VAC (resistive load)"	K8AK-VW2 24 VAC/DC
			100 to 240 VAC		K8AK-VW2 100-240 VAC
		20 to 200 V AC/DC 30 to 300 V AC/DC 60 to 600 V AC/DC	24 VAC/VDC		K8AK-VW3 24 VAC/DC
			100 to 240 VAC		K8AK-VW3 100-240 VAC

*The range is selected using connected terminals.

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Ultra-Slim 22.5 mm Single Phase Current Monitoring Relays

- Monitor for overcurrent or undercurrent in industrial equipment

- Automatic and Manual resetting is supported by one relay

- Startup lock time and operating time can be set independently

- Output relay can be switched between normally open and normally closed contacts

- Monitor output status from LED indicator

Specifications

- Operating time range: 0.1 to 30 s
- Startup lock time range: 0 to 30 s
- Output relay One SPDT (NO/NC switched using DIP switch)
- Maximum switching current: 5 A
- Ambient Operating Temperature: -4 to 140°F (-20 to 60°C)

Ordering Information

Setting Range	Supply Voltage	Model
2 to 20 mA AC/DC	24 VAC/VDC	K8AK-AS1 24VAC/DC
10 to 100 mA AC/DC 50 to 500 mA AC/DC	100 to 240 VAC	K8AK-AS1 100-240VAC
0.1 to 1 A AC/DC	24 VAC/VDC	K8AK-AS2 24VAC/DC
0.5 to 5 A AC/DC 0.8 to 8 A AC/DC	100 to 240 VAC	K8AK-AS2 100-240VAC
10 to 100 mA AC*	24 VAC/VDC	K8AK-AS3 24VAC/DC
20 to 200 mA AC*	100 to 240 VAC	K8AK-AS3 100-240VAC

*K8AK-AS3 is designed to be used in combination with OMRON K8AC-CT200L Current Transformer (CT). (Direct input is not possible)

K8AK-AW Current Monitoring Relays

Ultra-Slim 22.5 mm Single Phase Overcurrent and Undercurrent Monitoring Relays

K8AK-AW designed to protect single-phase applications from overcurrent and undercurrent conditions.

- Startup lock time and operating time can be independently set

- Monitor output status via LED indicators

- Two independent SPDT (5 A @ 240 VAC) contacts

- Can be configured for manual or automatic reset

- Dimensions: 90 H x 22.5 W x 100 D mm

Ordering Information

Setting Range	Supply Voltage	Output	Model
2 to 20 mA	24 VAC/VDC	2 – SPDT relay, 5 A @ 250 VAC	K8AK-AW1 24VAC/DC
10 to 100 mA 50 to 500 mA	100 to 240 VAC		K8AK-AW1 100-240VAC
0.1 to 1 A AC/DC	24 VAC/VDC		K8AK-AW2 24VAC/DC
0.5 to 5 A AC/DC	100 to 240 VAC		K8AK-AW2 100-240VAC
10 to 100 mA AC*	24 VAC/VDC		K8AK-AW3 24VAC/DC
20 to 200 mA AC*	100 to 240 VAC		K8AK-AW3 100-240VAC

*K8AK-AW3 is designed to be used in combination with OMRON K8AC-CT200L Current Transformer (CT). (Direct input is not possible)

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K8AK-PA/PM/PW Phase Monitoring Relays

Ultra-Slim 3-Phase Voltage Monitoring Relays

K8AK-P series can monitor a 3-phase (3-wire or 4-wire) system on a global basis.

- Monitor 3-phase voltage asymmetry (K8AK-PA)

- Monitor overvoltage, undervoltage, phase sequences and phase loss (K8AK-PM)

- Monitor overvoltages and undervoltages (K8AK-PW)

- K8AK-PA features one SPDT (5 A @ 250 VAC, resistive loads)

- K8AK-PM and –PW feature two independent SPDT (5 A @ 250 VAC, resistive loads) relays which allows for separate outputs for overvoltage and undervoltage detection

- Easy to configure global power specifications which can be configured by adjusting external DIP switches

- Output relay can be configured between normally open and normally closed contacts

- Monitor output status from LED indicators mounted on front of K8AK-P units

Ordering Information

Description	Features	3-Phase, 3-Wire	3-Phase, 4-Wire	Output	Model
3-Phase asymmetry, phase sequence, phase loss	Asymmetry Rate and Operation time settings, Power Indicator, Relays status indicator, Alarm Indicator	200, 220, 230, 240 VAC	115, 0127, 133, 138 VAC	SPDT Relay (5 A @ 250 VAC)	K8AK-PA1
		380, 400, 415, 480 VAC	220, 230, 240, 277 VAC		K8AK-PA2
3-Phase undervoltage, overvoltage, phase sequence, phase loss	Overvoltage , Undervoltage and Operation Time settings, Relay Indicator, Alarm Indicator, Power Indicator	200, 220, 230, 240 VAC	115, 0127, 133, 138 VAC	2 independent SPDT Relays (5 A @ 250 VAC)	K8AK-PM1
		380, 400, 415, 480 VAC	220, 230, 240, 277 VAC		K8AK-PM2
3-Phase undervoltage, overvoltage	Overvoltage , Undervoltage and Operation Time settings, Relay Indicator, Alarm Indicator, Power Indicator	200, 220, 230, 240 VAC	115, 0127, 133, 138 VAC	2 independent SPDT Relays (5 A @ 250 VAC)	K8AK-PW1
		380, 400, 415, 480 VAC	220, 230, 240, 277 VAC		K8AK-PW2

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Ultra-Slim 3-Phase Phase-sequence and Phase-loss Relays

K8AK-PH and K8DS-PH are designed to protect three-phase applications from transient phase-sequence and phase-loss.

- Capable to distinguish between positive phases, reversed phases, and phase loss when unit is energized (K8DS-PH)

- Capable of detecting phase loss when motor is in operating condition

- SPDT relay (5 A @ 240 VAC, resistive loads)

- Output and relay status can be monitored using LED indicators

- K8AK-PH slim 22.5 mm width

- K8DS-PH slim 17.5 mm width

Ordering Information

Description	Features	Rated Input Voltages	Relay Output	Mounting Dimensions	Model
3-Phase phase sequence, phase loss	Power Indicator, Relay Indicator	200 to 480 VAC	5 A @ 250 VAC (resistive load)	100 x 22.5 x 90 mm	K8AK-PH1
3-Phase phase sequence, phase loss	Power Indicator, Relay Indicator	200 to 480 VAC	5 A @ 250 VAC (resistive load)	100 x 17.5 x 90 mm	K8DS-PH1

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Space Saving, Ultra Slim 22.5 mm Temperature Monitoring Relays

Prevent equipment against damage from excessive temperature increases.

- Universal-input support for thermocouple and RTD sensors

- Set Value Protection - prohibits changes to set values of the temperature monitoring relay

- Wide range of functions: alarm mode (upper and lower limit), enable/disable latch, selectable temperature setting: degrees Fahrenheit or Celsius

- Simple rotary and DIP switch settings

- Alarm status identification with LED indicator

Specifications

- Temperature sensor inputs:

  - K8AK-TH11S - Thermocouple Types K, J, T, E; Platinum RTD Pt100

  - K8AK-TH12S - Thermocouple Types K, J, T, E, B, R, S, PLII

- Relay capacity: 3 A @ 250 VAC or 30 VDC (resistive load)

- DIN track mounting

- Dimensions: 90 H x 22.5 W x 100 D mm

Ordering Information

Description	Features	Relay Output	Model
Temperature range 0 to 999° C/F	Thermocouple/RTD inputs, 1° C/F setting unit	SPDT 3 A @ 250 VAC (resistive load)	K8AK-TH11S 100-240VAC
			K8AK-TH11S 24VAC/DC
Temperature Range 0 to 1800° C, 0 to 3200° F	Thermocouple/RTD inputs, 10° C/F setting unit		K8AK-TH12S 100-240VAC
			K8AK-TH12S 24VAC/DC

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Ultra-Slim 22.5 mm Liquid Level Controller

Protect equipment against damage from unforeseen spills and leaks.

- Reliable, floatless level control for automatic water supply and drainage in industrial facilities and equipment

- Adjustable sensitivity for conductive liquids ranging from distilled water, city water, well water, industrial water, sea water and sewage with specific resistance from 10 to 100 kΩ impedance

- Delay timer to prevent relay contact chatter from waves

- Relay status identification with LED indicator

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- Relay capacity: 5 A @ 250 VAC or 30 VDC (resistive load)

- Timer setting: 0.1 to 10 s

- DIN track mounting

- Dimensions: 90 H x 22.5 W x 100 D mm

Ordering Information-Floatless, Conductive Level Controller

Features	Input Voltage	Output	Model
3-electrode system for water supply or drainage control; order electrodes, holders and sockets separately. Adjustable operating resistance sensitivity.	24 VAC/VDC	SPDT 5 A @ 250 VAC/30 VDC	K8AK-LS 24VAC/DC
	100 to 240 VAC		K8AK-LS 100-240VAC

Accessories-Electrode Rods

Application	Model
Purified water service, industrial water, and sewage	F03-60-SUS304
Purified water service, industrial water, sewage, and weak alkaline solutions	F03-60-SUS316

Accessories-Electrode Holders, Covers, Separator

Application	Model
For 3 pole electrode (For general-purpose use such as water supply lines and purified water)	PS-3S
For 4 pole electrode (For general-purpose use such as water supply lines and purified water)	PS-4S
For 35 pole electrode (For general-purpose use such as water supply lines and purified water)	PS-5S
Areas with limited space	PS-31 SUS304 300 mm
Liquids with low resistance	BF-1
When mounting accuracy is required	BF-3/5
Resistance to high-temperature or high-pressure liquids	BS-1
Resistance against corrosion	BS-1T
Long distance installations from liquid	PH-1/2
Protective Cover (Electrode Holders for PS series)	F03-11
Mounting Piece (Electrode Holder for PS series)	F03-12
One Pole Separator	F03-14 1P
Three Pole Separator	F03-14 3P
Five Pole Separator	F03-14 5P

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K7L-AT50   Liquid Leak Detector

Protect your Process Equipment from Liquid Spills and Leaks

- Detects liquid leaks by monitoring the resistance between conductive sensing bands

- Four selectable sensing ranges for liquids with impedance high as 50 MΩ

- Ideal for all grades of water, ammonia (NH3), hydrogen peroxide (H202), hydrochloric acid (HCl), phosphoric acid (H3PO4), fluorine (F) and isopropyl alcohol (IPA)

- Track-mount sockets and plug-in sensor amplifier simplify installation and maintenance

Liquid Leakage Sensor

Description	Input signal	Output signal	Dimensions (mm)	Supply voltage	Model
Liquid Leakage Sensor Amplifier	0 to 50 MΩ impedance	NPN open collector, 100 mA at 30 VDC	28.8 H x 12.8 W x 46 D	24 VDC	K7L-AT50

Sensing Bands

Description	Specification and appearance	Model
Sensing band, 1 m length	Sheath: polyethylene; Core: 316 stainless steel; 8 W x 1.7 H mm	F03-16PE-1M
Sensing band, 2 m length		F03-16PE-2M
Sensing band, 5 m length		F03-16PE-5M
Sensing band, 10 m length		F03-16PE-10M
Sensing band, 25 m length		F03-16PE-25M
Sensing band, 50 m length		F03-16PE-50M
Adhesive backed sensing band mounting bracket; 30 per pack	Material: Polyethylene; 13 L x 32 W x 3 H mm	F03-26PES
Screw mount sensing band bracket with two M3.5 dia. hole; 30 per pack	Material: Polyethylene; 13 L x 32 W x 3 H mm	F03-26PEN
Terminal block; 10 per pack	17 H x 29.1 W x 25 D mm Connects Sensing Band to Wiring Cable for sensor amplifier	F03-20
Socket with finger-protection	85.5 H x 16 W x 61 D mm Mounts sensor amplifier to DIN rail	P2RF-08-E
Socket	71.5 H x 19.5 W x 54 D mm Mounts sensor amplifier to DIN rail	P2RF-08

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Electromechanical & Solid State Relays

Contents

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NONBENDABLE!

G2RV-SL500 – Reduce wiring time by using push-in technology and cross bars

With the G2RV-SL500 series, only two steps are required to achieve a reliable connection between wire and terminal. Just remove the isolation and push in the wire. Cross bars make your life even easier, as they can be tailored by breaking pins away to meet your configuration requirements.

- No tools required
- Fits stranded wires (with ferrules) 0.5 - 2.5 mm²
- Fits solid wires 0.5 - 4.0 mm²

Plug-in industrial relay – switching capacity up to 15 A

Interface/Power	General purpose/Power

1-pole SPDT	2-pole DPDT	1-pole SPDT	2-pole DPDT	3-pole 3PDT

6 A	10 A	5 A	15 A	10 A	10 A

Mech. flag LED indicator	LED indicator	LED indicator	Mech. flag LED indicator

Slim outline 6mm width	Two position test button			Two position test button

G2RV	G2R-1-S	G2R-2-S	LY1	LY2	MKS	MY2	MKS

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	High power relays – up to 40 A

	DC-switching

3-pole 3PDT	4-pole 4PDT		SPST-NO, SPST-NO/ SPST-NC	4-pole, 4PST-NO 3PST-NO/SPST-NC DPST-NO/DPST-NC		
10 A	10 A	5 A	10 A	25 A	30 A	40 A
LED indicator		Slim outline 6mm width	Operation indicators			Mirror contact
			Two position test button			
LY3	LY4	MY4	MKS(X)	G7J	MJN / MGN	G7Z

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Selection Table

Category	Interface/Power			General purpose/Power		
Family	**G2RV**	**G2R□-S**		**MY**		
Selection criteria						
1-pole	■	■	–	–	–	–
2-pole	–	–	■	■	–	–
3-pole	–	–	–	–	–	–
4-pole	–	–	–	–	■	■
Contact configuration	SPDT	SPDT	DPDT	DPDT	4PDT	4PDT bifurcated
Max. switching current	6 A	10 A	5 A	10 A	5 A	5 A
Min. switching current	1 mA at 100 VDC	100 mA at 5 VDC	10 mA at 5 VDC	1 mA at 5 VDC	1 mA at 1 VDC	0.1 mA at 1 VDC
Gold clad/plate	□	–	□	–	■	■
Width max. (Relay only)	6.2 mm	13.0 mm	13.0 mm	21.5 mm	21.5 mm	21.5 mm
Features						
LED indication	■	□	□	□	□	□
Mechanical flag	■	■	■	■	■	■
Push-to-test button	–	–	–	–	–	–
Two position test button	–	□	□	□	□	□
Label	□	□	□	□	□	□
Diode (DC coil)	■	□	□	□	□	□
Varistor (AC coil)	–	–	–	–	–	–
RC circuit (AC coil)	■	–	–	□	□	□
Socket mounting	□	□	□	□	□	□
Flange mounting	–	□	□	□	□	□
PCB mounting	–	□	□	□	□	□
Wiring to socket						
Screw	□	□	□	□	□	□
Rise-up clamp	□	□	□	□	□	□
Screw-less clamp	□	□	□	□	□	□

■ Standard   □ Available   — No/not available

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Category	General purpose/Power								
Family	LY					MKS		MKS(X)	
1-pole	■	–	–	–	–	–	–	■	–
2-pole	–	■	■	–	–	■	–	–	■
3-pole	–	–	–	■	–	–	■	–	–
4-pole	–	–	–	–	■	–	–	–	–
Contact configuration	SPDT	DPDT	DPDT bifurcated	3PDT	4PDT	DPDT	3PDT	SPST-NO	SPST-NO/SPST-NC
Max. switching current	15 A	10 A	7 A	10 A	10 A	10 A	10 A	10 A, 220 VDC; 15 A, 250 VAC	5 A, 220 VDC; 15 A, 250 VAC
Min. switching current	100 mA at 5 VDC	100 mA at 5 VDC	10 mA at 5 VDC	100 mA at 5 VDC	100 mA at 5 VDC	10 mA at 1 VDC	10 mA at 1 VDC	10 mA at 24 VDC	10 mA at 24 VDC
Gold clad/plate	–	–	■	–	–	–	–	–	–
Width max. (Relay only)	21.5 mm	21.5 mm	21.5 mm	31.5 mm	41.5 mm	34.5 mm	34.5 mm	34.5 mm	34.5 mm
LED indication	□	□	□	□	□	□	□	□	□
Mechanical flag	–	–	–	–	–	■	■	–	–
Push-to-test button	□	□	□	□	□	–	–	–	–
Two position test button	–	–	–	–	–	□	□	□	□
Label	–	–	–	–	–	□	□	–	–
Diode (DC coil)	□	□	□	□	□	□	□	□	□
Varistor (AC coil)	–	–	–	–	–	□	□	–	–
RC circuit (AC coil)	□	□	□	□	□	□	□	Optional for socket	Optional for socket
Socket mounting	□	□	□	□	□	□	□	□	□
Flange mounting	□	□	□	□	□	–	–	–	–
PCB mounting	□	□	□	□	□	–	–	–	–
Screw	□	□	□	□	□	□	□	□	□
Rise-up clamp	–	–	–	–	–	□	□	–	–
Screw-less clamp	–	–	–	–	–	–	–	–	–

Row groupings (left labels): Selection criteria, Features, Wiring to socket

■ Standard   □ Available   — No/not available

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Electromechanical Relays

Category	High power						General purpose/Power			High power		
Family	G7J			G7Z			MJN			MGN		
1-pole	–	–	–	–	–	–	■	–	–	■	–	–
2-pole	–	–	–	–	–	–	–	■	–	–	■	■
3-pole	–	–	–	–	–	–	–	–	■	–	–	–
4-pole	■	■	■	■	■	■	SPDT	DPST DPDT	3PDT	SPST	DPST	DPDT
Contact configuration	4PST-NO	3PST-NO/SPST-NC	DPST-NO/DPST-NC	4PST-NO	3PST-NO/SPST-NC	DPST-NO/DPST-NC	10 A	30 A	10 A	30 A	30 A	30 A
Max. switching current	25 A	25 A	25 A	40 A	40 A	40 A	38.7 mm	38.7 mm	38.7 mm	63.5 mm	63.5 mm	84.3 mm
Min. permissible load	100 mA at 24 VDC	100 mA at 24 VDC	100 mA at 24 VDC	2 A at 24 VDC	2 A at 24 VDC	2 A at 24 VDC	□	□	□	–	–	–
Auxiliary contact block Mirror contact	–	–	–	■	■	■	–	–	–	–	–	–
Momentary test button	–	–	–	–	–	–	□	□	□	–	–	–
Relay terminal — Screw	□	□	□	■	■	■	□	□	□	■	■	■
Relay terminal — Quick-connect	□	□	□	–	–	–	□	□	□	–	–	–
Relay terminal — PCB terminals	□	□	□	–	–	–	–	–	–	–	–	–
Mounting — Screw	–	–	–	■	■	■	–	–	–	■	■	■
Mounting — DIN rail	–	–	–	■	■	■	□	□	□	–	–	–
Mounting — Bracket (screw)	□	□	□	–	–	–	–	–	–	–	–	–
Mounting — Flange (screw)	–	–	–	–	–	–	□	□	□	–	–	–

■ Standard   □ Available   — No/not available

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Relay Type	DIN rail mount socket		Back connecting socket			
			Quick Connect/Solder Terminal		PCB Terminal	
	Socket	Hold down clip	Socket	Hold down clip	Socket	Hold down clip
G2R-1-S	P2RF-05 P2RF-05-E P2RF-05-S	– – P2CM-S	P2R-05A	–	P2R-057P P2R-05P	– –
G2R-2-S	P2RF-08 P2RF-08-E P2RF-08-S	– – P2CM-S	P2R-08A	–	P2R-057P P2R-08P	– –
LY1, LY2	PTF08A PTF08A-E	PYC-A1 *3 PYC-A1 *3	PT08	PYC-P *4	PT08-0	PYC-P *4
LY3	PTF11A	PYC-A1 *3	PT11	PYC-P *4	PT11-0	PYC-P *4
LY4	PTF14A PTF14A-E	PYC-A1 *3 PYC-A1 *3	PT14	PYC-P *4	PT14-0	PYC-P *4
MJN without mounting flange	PTF11PC	PYMJN-S	PTF11QDC	PYMJN-PCB	PTFPCB	PYMJN-PCB
MKK	PF113A	PFC-A1	PL11	PLC	PLE11-0	PLC-10
MKS2P	PF083A PF083A-E PF083A-D	PFC-A1 PFC-A1 –	–	–	–	–
MKS3P	PF113A PF113A-E PF113A-D	PFC-A1 PFC-A1 –	–	–	–	–
MKS(X)	P7MF-06 P7MF-06-D	PYC-A2 PYC-A2	–	–	P7M-06P	PYC-A2
MY2(S) without Latching lever	PYF08A-E PYF08A-N PYF08S	PYC-A1 PYC-A1 PYCM-08S	PY08 PY08-Y1		PY08-02	PYC-P or PYC-P2
MY2(S) with Latching lever	PYF08A-E PYF08A-N PYF08S	PYC-E1 PYC-E1 PYCM-08S	PY08	PYC-P2	PY08-02	PYC-P2
MY4(S)	PYF14A-E PYF14A-N PYF14S	PYC-A1 PYC-A1 PYCM-14S	PY14 PY14-Y1	PYC-P or PYC-P2 -	PY14-02	PYC-P or PYC-P2
MY2K	PYF14A-E	PYC-A1	PY14	PYC-P	PY14-02	PYC-P
MY4(Z)H	PYF14A-E	PYC-A1	–	–	–	–
MJN	PTF11PC PTF21PC	PYMJN-S	PTF11QDC	PYMNB-PCB	PTFPCB	PYMNB-PCB

Note:
1. -E and -N models are finger-protect construction. Round terminals cannot be used. Use Y-shaped terminals.
2. -S or S types are screwless terminal styles.
3. RC circuit type need to use Y92H-3 hold down clips.
4. Push button type need to use PYC-P2, RC circuit need to use PYC-1 hold down clips.

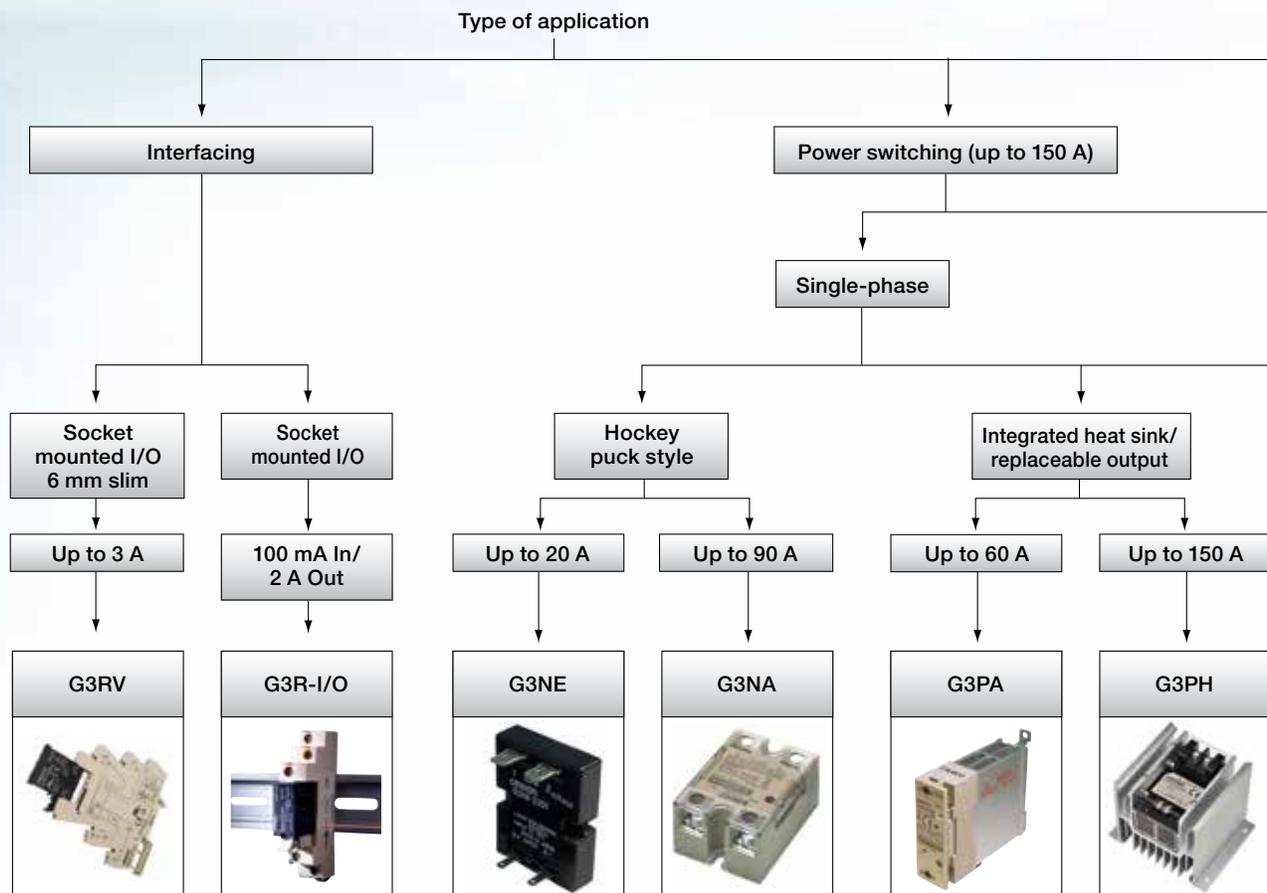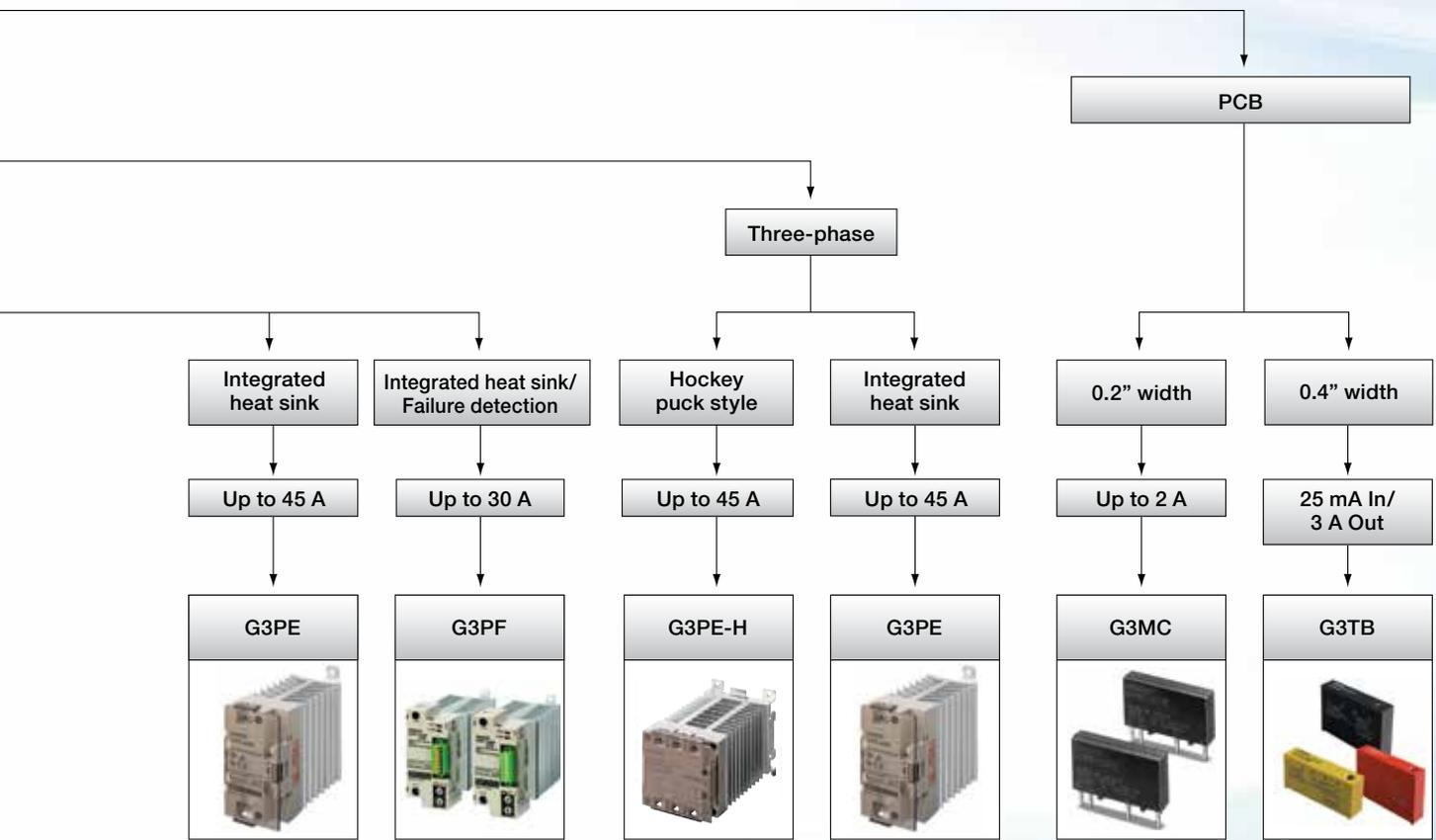| Relay Type	Mounting	Adaptor	Front connecting socket
	Bracket	Track Mount/Panel Mount	Track Mount/Panel Mount
G7J-(All)	R99-04-FOR-G5F	–	–

N

VARIOUS KINDS OF SOLID STATE RELAYS

G3□ series – Reliable interfacing and power switching

Omron offers Solid State Relays (SSRs) in a wide variety of output currents and voltages to handle frequently cycling loads. Control-panel mount types with built-in heat-sink (G3PE) and without (G3NA) are ideal for power switching. Compact SSRs for I/O Interfacing include ultra-slim G3RV and G3R.

- Industrial 6 mm 'slim' SSR which is G2RV compatible (G3RV)

- G2RS compatible high-speed interface solutions (G3R-I/O)

- G3NA with 5-90 A output current, G3PE up to 45 A

- Output voltages up to 660 VAC / 200 VDC available on G3NA

- Effectively absorbing of external surge thanks to the built-in varistor/surge pass circuit

Type of application

| Interfacing | Power switching (up to 150 A) |

Single-phase

| Socket mounted I/O 6 mm slim | Socket mounted I/O | Hockey puck style | Integrated heat sink/ replaceable output |

| Up to 3 A | 100 mA In/ 2 A Out | Up to 20 A | Up to 90 A | Up to 60 A | Up to 150 A |

| G3RV | G3R-I/O | G3NE | G3NA | G3PA | G3PH |

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				PCB	
		Three-phase			
Integrated heat sink	Integrated heat sink/ Failure detection	Hockey puck style	Integrated heat sink	0.2" width	0.4" width
Up to 45 A	Up to 30 A	Up to 45 A	Up to 45 A	Up to 2 A	25 mA In/ 3 A Out
G3PE	G3PF	G3PE-H	G3PE	G3MC	G3TB

N

Selection Table

Category	Socket mounted			Panel mounted
Model	G3RV	G3R-I/O		G3NE
		Input Module	Output Module	
Application Signal Switching	■	■	□	–
Heater Control	□	–	□	■
Motor Control	□	–	□	■
Load Voltage/current Rating A Max. current rating	2 A (AC) 3 A (DC)	100 mA (DC)	2 A (AC, DC)	20 A (AC)
VAC 200 V Range	75 to 264 V	–	75 to 264 V	75 to 264 V
400 V Range	–	–	–	–
600 V Range	–	–	–	–
VDC DC Output Range	3 to 26.4	4 to 32 V	4 to 60 V 40 to 200 V	–
Input Voltage DC	■	■	■	■
AC	■	■	–	–
Features Built-in Heat Sink	–	–	–	–
Zero-cross Circuit	□	–	□	□
Built-in Varistor	–	–	–	■
LED Indicator	■	■	■	–
Protective Cover	–	–	–	–
Mounting DIN-Rail	■	–	–	□
Panel	–	–	–	■
Socket (DIN, Panel)	■	■	■	■
PCB	N/A	N/A	N/A	■
Safety Standards UL Recognized	■	■	■	■
UL Listed	■	–	–	–
CSA	■	■	■	■
CE	■	■	■	■
TÜV	■	■	■	■
VDE	–	–	–	–

■ Standard   □ Available   – No/not available

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Category	Panel mounted				
				G3PE	
Model	G3NA	G3PA	G3PH	1-phase	3-phase
Application					
Signal Switching	–	–	–	–	–
Heater Control	■	■	■	■	■
Motor Control	■	□	–	–	–
Load Voltage/current Rating — A — Max. current rating	90 A (AC) 10 A (DC)	60 A (AC)	150 A (AC)	45 A (AC)	45 A (AC)
VAC — 200 V Range	19 to 264 V	19 to 264 V	75 to 264 V	75 to 264 V	75 to 264 V
VAC — 400 V Range	180 to 528 V	150 to 440 V 180 to 528 V	180 to 528 V	180 to 528 V	180 to 528 V
VAC — 600 V Range	360 to 660 V	–	–	–	–
VDC — DC Output Range	4 to 220 V	–	–	–	–
Input Voltage — DC	–	■	■	■	■
AC	■	□ by using G32A-B	□ by using G32A-B	□ by using G32A-B	□ by using G32A-B
Features — Built-in Heat Sink	–	■	■	■	■
Zero-cross Circuit	■	□	□	□	■
Built-in Varistor	■	■	■	■	■
LED Indicator	■	■	■	■	■
Protective Cover	■	■	■	■	■
Replaceable Power Cartridge	–	■	■	–	–
Mounting — DIN-Rail	□	■	–	■	□
Panel	■	■	■	■	■
Socket (DIN, Panel)	–	–	–	–	–
PCB	–	–	–	–	–
Safety Standards — UL Recognized	■	■	cULus	■	■
UL Listed	–	–	–	–	–
CSA	■	■	cULus	■	■
CE	■	■	■	■	■
TÜV	■	–	■	■	■
VDE	–	■	–	–	–

■ Standard   □ Available   — No/not available

N

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Selection Table

		Panel mounted	PCB mounted		
Category					
				G3TB	
Model		G3PF	G3MC	Input Module	Output Module
Application	Signal Switching	–	□	■	□
	Heater Control	■	□	–	□
	Motor Control	–	□	–	□
Load Voltage/ current Rating	**A** — Max. current rating	35 A (AC)	2 A (AC)	25 mA	3 A (AC)
	VAC — 200 V Range	75 to 264 V	75 to 132 V 75 to 264 V	–	75 to 264 V
	400 V Range	180 to 528 V	–	–	–
	600 V Range	–	–	–	–
	VDC — DC Output Range	–	–	4 to 32 V	4 to 60 V 40 to 200 V
Input Voltage	DC	■	■	■	■
	AC	□ by using G32A-B	–	■	–
Features	Built-in Heat Sink	■	–	–	–
	Zero-cross Circuit	■	■	□	□
	Non-Zero-cross Circuit	–	■	□	□
	Built-in Varistor	■	–	–	–
	LED Indicator	■	–	■	□
	Protective Cover	■	–	–	–
	Alarm Output	■	–	–	–
	Built-in Failure Detection	■	–	–	–
	SSR Open Circuits Detection	■	–	–	–
	SSR Short Circuit Detections	■	–	–	–
Mounting	DIN-Rail	■	–	–	–
	Panel	■	–	–	–
	Socket (DIN, Panel)	–	–	–	–
	PCB	–	■	■	■
Safety Standards	UL Recognized	□	■	■	■
	UL Listed	–	–	–	–
	CSA	■	■	■	■
	CE	■	–	–	–
	TÜV	■	–	–	–
	VDE	–	■	–	–

■ Standard   □ Available   — No/not available

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G2RV Industrial Plug-in Relay

General Purpose Plug-in Ultra Slim Relay Switching 6 A @ 250 VAC

The G2RV is an ultra-slim 6 mm wide DIN mount relay-socket unit with maintenance friendly features.

- Mechanical indicator and socket LED provide quick verification relay is functioning

- Large terminal-receptacle area: 20 to 14 AWG

- Electrical Life of 100K Cycles lasting performance

- Interface and cable accessories allow PLC control of G2RV Relays

- Cross (Buss) bars provide a quick and easy way to connect multiple G2RV Relays together

- RoHS Compliant; Relay-Socket models cULus Listed; VDE, CE, and cULus approved

- For PLC input control use gold plated contact versions with suffix "-AP"
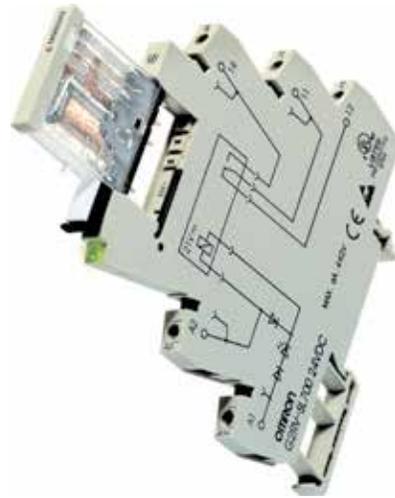
Ordering Information

Rated resistive load	Contact form	Socket terminals	LED indicator on socket	Coil voltage	Model
6 A @ 250 VAC	SPDT	Push-in	Yes	110 VAC	G2RV-SL500 AC110
				24 VDC	G2RV-SL500 DC24(DC21)
6 A @ 250 VAC	SPDT	Screw	Yes	24 VAC/24 VDC	G2RV-SL700 AC/DC24
				110 VAC	G2RV-SL700 AC110
				230 VAC	G2RV-SL700 AC230
				12 VDC	G2RV-SL700 DC12(DC11)
				24 VDC	G2RV-SL700 DC24(DC21)

Note: Model number contains relay and socket.

N

Slim and Space-saving Plug-in Relay

The G2R☐-S is a maintenance-friendly 5 A - 10 A 1/2 inch wide general purpose relay.

- Mechanical indicator comes standard allowing user to verify contact operation

- Space saving 16 mm wide DIN mount socket

- Finger safe G2R☐-S socket

- Energy efficient DC coil (530 mW consumption)

- RoHS Compliant; UL, CSA, CE, and VDE Approved

Ordering Information

Rated resistive load	Contact form	Terminal type	LED indicator	Diode	Two position test button	Coil voltage	Model
10 A @ 250 VAC	SPDT	Plug-in	No	No	No	120 VAC	G2R-1-S AC120 (S)
10 A @ 250 VAC	SPDT	Plug-in	No	No	No	24 VDC	G2R-1-S DC24 (S)
10 A @ 250 VAC	SPDT	Plug-in	Yes	No	No	120 VAC	G2R-1-SN AC120 (S)
10 A @ 250 VAC	SPDT	Plug-in	Yes	Yes	No	24 VDC	G2R-1-SND DC24 (S)
10 A @ 250 VAC	SPDT	Plug-in	Yes	Yes	Yes	24 VDC	G2R-1-SNDI DC24 (S)
5 A @ 250 VAC	DPDT	Plug-in	No	No	No	24 VDC	G2R-2-S DC24 (S)
5 A @ 250 VAC	DPDT	Plug-in	Yes	No	No	120 VAC	G2R-2-SN AC120 (S)
5 A @ 250 VAC	DPDT	Plug-in	Yes	Yes	No	24 VDC	G2R-2-SND DC24 (S)
5 A @ 250 VAC	DPDT	Plug-in	Yes	Yes	Yes	24 VDC	G2R-2-SNDI DC24 (S)
5 A @ 250 VAC	DPDT	Plug-in	Yes	No	Yes	120 VAC	G2R-2-SNI AC120 (S)

Note: Corresponding sockets can be found on page N-vii.

OMRON

MY Industrial Plug-in Relay

Miniature General Purpose Relay

The MY is a multi-pole long life general purpose relay ideal for various applications.

- DPDT models: 500K electrical life cycles; 4PDT models: 200K (100K bifurcated) at Rated Load

- MY2K Latching relays: Great option for reduced energy consumption

- MY4Z bifurcated models can switch loads under 1 mA at 1 VDC; great for PLC Control

- RoHS Compliant; UL, CSA, CE, VDE, SEV, IMQ and Lloyd Approved

CE VDE RU CS S M LR

Ordering Information

MY

Factory rated resistive load	Contact Form	Mount-ing Style	Bifurcat-ed model	LED indicator	LED indica-tor/Lockable test button	Diode	Coil voltage	Model
5 A @ 250 VAC	DPDT	Socket	No	Yes	No	No	24 VDC	MY2N DC24(S)
5 A @ 250 VAC	DPDT	Socket	No	Yes	No	No	24 VAC	MY2N AC24(S)
5 A @ 250 VAC	DPDT	Socket	No	Yes	No	No	110/120 VAC	MY2N AC110/120(S)
5 A @ 250 VAC	DPDT	Socket	No	Yes	No	No	220/240 VAC	MY2N AC220/240(S)
5 A @ 250 VAC	DPDT	Socket	No	No	Yes	Yes	24 VDC	MY2N-D2 DC24(S)
5 A @ 250 VAC	DPDT	Socket	No	No	Yes	No	12 VDC	MY2IN DC12(S)
5 A @ 250 VAC	DPDT	Socket	No	No	Yes	No	24 VDC	MY2IN DC24(S)
5 A @ 250 VAC	DPDT	Socket	No	No	Yes	No	24 VAC	MY2IN AC24(S)
5 A @ 250 VAC	DPDT	Socket	No	No	Yes	No	110/120 VAC	MY2IN AC110/120(S)
5 A @ 250 VAC	DPDT	Socket	No	No	Yes	No	110/120 VAC	MY2IN AC220/240(S)
3 A @ 250 VAC	4PDT	Socket	No	Yes	No	No	24 VAC	MY4N AC24(S)
3 A @ 250 VAC	4PDT	Socket	No	Yes	No	No	110/120 VAC	MY4N AC110/120(S)
3 A @ 250 VAC	4PDT	Socket	No	No	Yes	No	12 VDC	MY4N DC12(S)
3 A @ 250 VAC	4PDT	Socket	No	No	Yes	No	24 VAC	MY4IN AC24(S)
3 A @ 250 VAC	4PDT	Socket	No	No	Yes	No	24 VDC	MY4IN DC24(S)
3 A @ 250 VAC	4PDT	Socket	No	No	Yes	No	110/120 VAC	MY4IN AC110/120(S)
3 A @ 250 VAC	4PDT	Socket	No	No	Yes	No	110/120 VAC	MY4IN AC220/240(S)
3 A @ 250 VAC	4PDT	Socket	No	Yes	No	No	24 VDC	MY4N-D2 DC24(S)
3 A @ 250 VAC	4PDT	Socket	Yes	Yes	Yes	No	24 VDC	MY4ZIN DC24(S)
3 A @ 250 VAC	4PDT	Socket	Yes	Yes	No	No	110/120 VAC	MY4ZN AC110/120(S)
3 A @ 250 VAC	4PDT	PCB	No	No	No	No	12 VDC	MY4-02 DC12

Note: Corresponding sockets can be found on page N-vii.

MYK

Factory rated resistive load	Contact form	Terminal type	Bifurcated model	Two position test button	LED indicator	Diode	Coil voltage	Model
3 A @ 250 VAC	DPDT	Plug-in	No	No	No	No	120 VAC	MY2K-US AC120*

*This model is a latching relay.

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N

Long Life General Purpose Relay with HP Rating Ideal for HVAC and Appliance Market

The LY is a reliable multi-pole general purpose relay with Plug-in, Quick Connect and PCB Terminals.

- 500K electrical life DPDT models; 200K for SPDT, 3PDT, and 4PDT models at rated load

- HP rating ideal for Appliances and HVAC Systems

- RoHS Compliant; CE, UL, CSA, SEV, VDE and TÜV Approved

Ordering Information

Rated resistive	Contact form	Mounting Style	UL horsepower	LED indicator	Diode	Coil voltage	Model
15 A @ 110 VAC	SPDT	Socket	0.5 HP @120 VAC	No	No	12 VDC	LY1 DC12
15 A @ 110 VAC	SPDT	Socket	0.5 HP @120 VAC	No	No	24 VDC	LY1 DC24
15 A @ 110 VAC	SPDT	Socket	0.5 HP @120 VAC	No	No	24 VAC	LY1 AC24
15 A @ 110 VAC	SPDT	Socket	0.5 HP @120 VAC	No	No	110/120 VAC	LY1 AC110/120
15 A @ 110 VAC	SPDT	Flange	0.5 HP @120 VAC	No	No	24 VDC	LY1F DC24
10 A @ 110 VAC	DPDT	Socket	0.5 HP @120 VAC	No	No	12 VDC	LY2 DC12
10 A @ 110 VAC	DPDT	Socket	0.5 HP @120 VAC	No	No	24 VDC	LY2 DC24
10 A @ 110 VAC	DPDT	Socket	0.5 HP @120 VAC	No	No	24 VAC	LY2 AC24
10 A @ 110 VAC	DPDT	Socket	0.5 HP @120 VAC	No	No	110/120 VAC	LY2 AC110/120
10 A @ 110 VAC	DPDT	Socket	0.5 HP @120 VAC	Yes	Yes	110/120 VAC	LY2N AC110/120
10 A @ 110 VAC	DPDT	PCB	0.5 HP @120 VAC	No	No	12 VDC	LY2-0 DC12
10 A @ 110 VAC	DPDT	Socket	0.5 HP @120 VAC	No	No	110/120 VAC	LY2-0 AC110/120
10 A @ 110 VAC	3PDT	Socket	0.5 HP @ 240 VAC	No	No	12 VDC	LY3 DC12
10 A @ 110 VAC	3PDT	Socket	0.5 HP @ 240 VAC	No	No	24 VDC	LY3 DC24
10 A @ 110 VAC	3PDT	Socket	0.5 HP @ 240 VAC	No	No	24 VAC	LY3 AC24
10 A @ 110 VAC	3PDT	Socket	0.5 HP @ 240 VAC	No	No	110/120 VAC	LY3 AC110/120
10 A @ 110 VAC	4PDT	Socket	0.5 HP @ 240 VAC	No	No	12 VDC	LY4 DC12
10 A @ 110 VAC	4PDT	Socket	0.5 HP @ 240 VAC	No	No	24 VDC	LY4 DC24
10 A @ 110 VAC	4PDT	Socket	0.5 HP @ 240 VAC	No	No	24 VAC	LY4 AC24
10 A @ 110 VAC	4PDT	Socket	0.5 HP @ 240 VAC	No	No	110/120 VAC	LY4 AC110/120

Note: Corresponding sockets can be found on page N-vii.

MKS Industrial Plug-in Relay

General Purpose Relay with Octal Base, Latching Test Button

Two- and three-pole socket mount relays with UL Rated 10 A resistive Load @ 250 VAC/ 30 VDC, and 100K cycles.

- Mechanical indicator comes standard, allowing user to verify contact operation

- Manual and latched position testing possible when using MKS Test Button Models

- LED indicator models come with white name plate ideal for marking key notes

- RoHS Compliant; cULus Recognized; CE, and TÜV Approved

- Various internal connection for MRO purpose: Standard type (-5), non-Standard type (-2 or blank)

Ordering Information

Rated resistive Load (NO Contact)	Contact Form	Mounting Style	Mechanical indicator	Mechanical indicator/LED indicator	Mechanical indicator/LED indicator/Push-to-test button	Coil voltage	Model
10 A @ 250 VAC/30 VDC	DPDT	Socket	Yes	No	No	12 VDC	MKS2P DC12
10 A @ 250 VAC/30 VDC	DPDT	Socket	Yes	No	No	24 VDC	MKS2P DC24
10 A @ 250 VAC/30 VDC	DPDT	Socket	Yes	No	No	24 VAC	MKS2P AC24
10 A @ 250 VAC/30 VDC	DPDT	Socket	Yes	No	No	120 VAC	MKS2P AC120
10 A @ 250 VAC/30 VDC	DPDT	Socket	No	Yes	No	12 VDC	MKS2PN DC12
10 A @ 250 VAC/30 VDC	DPDT	Socket	No	Yes	No	24 VDC	MKS2PN DC24
10 A @ 250 VAC/30 VDC	DPDT	Socket	No	Yes	No	24 VAC	MKS2PN AC24
10 A @ 250 VAC/30 VDC	DPDT	Socket	No	Yes	No	120 VAC	MKS2PN AC120
10 A @ 250 VAC/30 VDC	DPDT	Socket	No	No	Yes	12 VDC	MKS2PIN DC12
10 A @ 250 VAC/30 VDC	DPDT	Socket	No	No	Yes	24 VDC	MKS2PIN DC24
10 A @ 250 VAC/30 VDC	DPDT	Socket	No	No	Yes	24 VAC	MKS2PIN AC24
10 A @ 250 VAC/30 VDC	DPDT	Socket	No	No	Yes	120 VAC	MKS2PIN AC120
10 A @ 250 VAC/30 VDC	3PDT	Socket	Yes	No	No	12 VDC	MKS3P-5 DC12
10 A @ 250 VAC/30 VDC	3PDT	Socket	Yes	No	No	24 VDC	MKS3P-5 DC24
10 A @ 250 VAC/30 VDC	3PDT	Socket	Yes	No	No	24 VAC	MKS3P-5 AC24
10 A @ 250 VAC/30 VDC	3PDT	Socket	Yes	No	No	120 VAC	MKS3P-5 AC120
10 A @ 250 VAC/30 VDC	3PDT	Socket	No	Yes	No	12 VDC	MKS3PI-5 DC12
10 A @ 250 VAC/30 VDC	3PDT	Socket	No	Yes	No	24 VDC	MKS3PI-5 DC24
10 A @ 250 VAC/30 VDC	3PDT	Socket	No	Yes	No	24 VAC	MKS3PI-5 AC24
10 A @ 250 VAC/30 VDC	3PDT	Socket	No	Yes	No	120 VAC	MKS3PI-5 AC120
10 A @ 250 VAC/30 VDC	3PDT	Socket	No	No	Yes	12 VDC	MKS3PIN-5 DC12
10 A @ 250 VAC/30 VDC	3PDT	Socket	No	No	Yes	24 VDC	MKS3PIN-5 DC24
10 A @ 250 VAC/30 VDC	3PDT	Socket	No	No	Yes	24 VAC	MKS3PIN-5 AC24
10 A @ 250 VAC/30 VDC	3PDT	Socket	No	No	Yes	120 VAC	MKS3PIN-5 AC120

Note: Corresponding sockets can be found on page N-vii.

N

MJN Industrial Plug-in Relay

Multi-Pole 10-30 A General Purpose Relay with 600 VAC Maximum Switching Voltage

The MJN is an SPDT, DPDT, and 3PDT general purpose relay ideal for motor applications.

- UL and CSA Recognized as motor controllers up to 600 VAC

- 10 A models have UL 1/3 HP @ 120 VAC

- Rugged power divider offers 3/16" clearance and 3/8" creepage

- MJN models have max. 15 A @ 600 VAC load rating

- MJN capable of switching 277 VAC loads

- 10 A DPDT latching models available; a good option for reducing power consumption.

Ordering Information

Rated resistive Load (NO Contact)	Contact Form	Mounting Style	Latching Model	LED indi-cator	Test Button	Coil Voltage	Model
10 A @ 240 VAC/28 VDC	SPDT	Socket	No	No	No	12 VDC	MJN1C DC12
10 A @ 240 VAC/28 VDC	SPDT	Socket	No	No	No	24 VDC	MJN1C DC24
10 A @ 240 VAC/28 VDC	SPDT	Socket	No	No	No	24 VAC	MJN1C AC24
10 A @ 240 VAC/28 VDC	SPDT	Socket	No	No	No	120 VAC	MJN1C AC120
10 A @ 240 VAC/28 VDC	SPDT	Flange	No	No	No	12 VDC	MJN1CF DC12
30 A @ 28 VDC	SPDT	Flange	No	No	No	120 VAC	MJN1Z-E-RP AC120
10 A @ 240 VAC/28 VDC	DPDT	Socket	No	No	No	12 VDC	MJN2C DC12
10 A @ 240 VAC/28 VDC	DPDT	Socket	No	No	No	24 VDC	MJN2C DC24
10 A @ 240 VAC/28 VDC	DPDT	Socket	No	No	No	24 VAC	MJN2C AC24
10 A @ 240 VAC/28 VDC	DPDT	Socket	No	No	No	120 VAC	MJN2C AC120
10 A @ 240 VAC/28 VDC	DPDT	Socket	No	No	No	110 VDC	MJN2C DC110
20 A @ 277 VAC/28 VDC	DPDT	Flange	No	No	No	120 VAC	MJN2C-E AC120
10 A @ 240 VAC/28 VDC	DPDT	Flange	No	No	No	24 VAC	MJN2CF AC24
10 A @ 240 VAC/28 VDC	DPDT	Flange	Yes	No	No	120 VAC	MJN2CK AC120
10 A @ 240 VAC/28 VDC	3PDT	Socket	No	No	No	12 VDC	MJN3C DC12
10 A @ 240 VAC/28 VDC	3PDT	Socket	No	No	No	24 VDC	MJN3C DC24
10 A @ 240 VAC/28 VDC	3PDT	Socket	No	No	No	24 VAC	MJN3C AC24
10 A @ 240 VAC/28 VDC	3PDT	Socket	No	No	No	120 VAC	MJN3C AC120
10 A @ 240 VAC/28 VDC	3PDT	Socket	No	Yes	Yes	120 VAC	MJN3C-IN AC120
10 A @ 240 VAC/28 VDC	3PDT	Socket	No	Yes	No	24 VDC	MJN3C-N DC24
10 A @ 240 VAC/28 VDC	3PDT	Socket	No	Yes	No	110 VDC	MJN3C-N DC110

Note: Corresponding sockets can be found on page N-vii.

For complete specifications and additional models and accessories visit www.omron247.com

OMRON

Plug-in Relay with High Switching Capacity (10 A@ 220 VDC)

- MKS-X Socket Mount Relays are at least 4 mm shorter versus main competitors

- Manual and latched position testing possible when using MKS-X Test Button Models

- Wide range of coil voltages available

- RoHS Compliant; cULus Recognized; CE, and TÜV Approved

Ordering Information

Rated resistive load (NO Contact)	Contact form	Terminal type	Two position test button	LED indicator	Coil voltage	Model
15 A @ 250 VAC	SPST-NO	Plug-In	Yes	Yes	120 VAC	MKS1TIN-10 AC120
10 A @ 220 VDC	SPST-NO	Plug-In	No	No	240 VAC	MKS1XT-10 AC240
10 A @ 220 VDC	SPST-NO	Plug-In	No	No	24 VDC	MKS1XT-10 DC24
10 A @ 220 VDC	SPST-NO	Plug-In	Yes	No	120 VAC	MKS1XTI-10 AC120
10 A @ 220 VDC	SPST-NO	Plug-In	Yes	No	24 VDC	MKS1XTI-10 DC24
10 A @ 220 VDC	SPST-NO	Plug-In	Yes	Yes	24 VDC	MKS1XTIN-10 DC24
10 A @ 220 VDC	SPST-NO	Plug-In	No	Yes	24 VDC	MKS1XTN-10 AC24
5 A @ 220 VDC	SPST-NO + SPST-NC	Plug-In	No	No	24 VDC	MKS2XT-11 DC24
5 A @ 220 VDC	SPST-NO + SPST-NC	Plug-In	Yes	Yes	120 VAC	MKS2XTIN-11 AC120

Note: Corresponding sockets can be found on page N-vii.

N

Multi-Pole Relay for Heavy Duty Load

The G7J is a multi-pole relay ideal for switching motors, compressors, and pump controls.

- UL 3 HP @ 277 VAC (NO contact)

- UL 3-phase rating of 5 HP @ 277 VAC

- UL general use rating of 25 A @ 240 VAC

- UL 1.5 kW @ 120 VAC Tungsten Rating (NO contact)

- RoHS Compliant; UL, CSA, CE and VDE Approved

Ordering Information

Rated resistive load (NO Contact)	Contact form	Terminal type	Coil voltage	Model
25 A @ 220 VAC	DPST-NO, DPST-NC	Screw	200/240 VAC	G7J-2A2B-B-W1 AC200/240
25 A @ 220 VAC	DPST-NO, DPST-NC	Screw	24 VDC	G7J-2A2B-B-W1 DC24
25 A @ 220 VAC	DPST-NO, DPST-NC	Quick-Connect	100/120 VAC	G7J-2A2B-T-W1 AC100/120
25 A @ 220 VAC	3PST-NO, SPST-NC	Screw	24 VDC	G7J-3A1B-BZ DC24
25 A @ 220 VAC	3PST-NO, SPST-NC	Screw	100/120 VAC	G7J-3A1B-W1 AC100/120
25 A @ 220 VAC	4PST-NO	Screw	100/120 VAC	G7J-4A-B-W1 AC100/120
25 A @ 220 VAC	4PST-NO	Screw	200/240 VAC	G7J-4A-B-W1 AC200/240
25 A @ 220 VAC	4PST-NO	Screw	24 VDC	G7J-4A-B-W1 DC24

Note: For Metal mounting Bracket, add "-W1" to the Part Number before the Coil voltage suffix.

G7Z Industrial High Power Relay

Multi-Pole High Power Relay

The G7Z can switch Contactor Range (40 A @ 440 VAC) and contribute to space saving.

- 40% less volume versus typical IEC 50 A contactor–great for limited space panels

- 3.7 W approximate power consumption about 50% lower than typical IEC 50 A contactor

- 4PST-NO models can carry up to 160 A by wiring all 4 NO Contacts in parallel

- Ideal applications are: solar energy systems, robotic equipment, and grinding machines

- Auxiliary contacts can switch loads under 10 mA @ 5 VDC = controllable by PLC

- RoHS Compliant; CE, cULus, TÜV and CCC Approved

Ordering Information

Rated resistive load (NO Contact)	AC inductive load rating (NO Contact)	Contact form	Auxiliary Contact	Coil voltage	Model
40 A @ 440 VAC	22 A @ 440 VAC	DPST-NO, DPST-NC	-	24 VDC	G7Z-2A2B DC24
40 A @ 440 VAC	22 A @ 440 VAC	DPST-NO, DPST-NC	DPST-NC	24 VDC	G7Z-2A2B-02Z DC24
40 A @ 440 VAC	22 A @ 440 VAC	DPST-NO, DPST-NC	SPST-NO/ SPST-NC	24 VDC	G7Z-2A2B-11Z DC24
40 A @ 440 VAC	22 A @ 440 VAC	3PST-NO, SPST-NC	SPST-NO/ SPST-NC	24 VDC	G7Z-3A1B-11Z DC24
40 A @ 440 VAC	22 A @ 440 VAC	4PST-NO	DPST-NC	24 VDC	G7Z-4A-02Z DC24
40 A @ 440 VAC	22 A @ 440 VAC	4PST-NO	SPST-NO/ SPST-NC	24 VDC	G7Z-4A-11Z DC24
40 A @ 440 VAC	22 A @ 440 VAC	4PST-NO	DPST-NO	24 VDC	G7Z-4A-20Z DC24

N

OMRON

MGN Industrial High Power Relay

Heavy-Duty General Purpose Relay with Class F Coil Insulation

The MGN is a rugged general purpose relay with high maximum operating temperature– great for heavy duty HVAC and Motor Loads.

- UL rating of 30 A @ 240 VAC/28 VDC and 20 A @ 600 VAC

- UL Ballast rating of 3.6 kW @ 120 VAC

- -45°C to +115°C DC coil operating temperature

- Short Circuit Current Rating (SCCR) of 5 kA @ 600 VAC

- Magnetic blow-out models switch up to 20 A @ 125 VDC (resistive)

- cULus Listed

Ordering Information

Rated resistive load	Contact form	Terminal type	Size in inches (L x W x H)	UL horsepower rating	Coil voltage	Model
30 A @ 240 VAC	SPDT	Screw	2.5 x 2.5 x 2.2	1.5 HP @ 120 VAC	24 VAC	MGN1C-AC24
30 A @ 240 VAC	SPDT	Screw	2.5 x 2.5 x 2.2	1.5 HP @ 120 VAC	120 VAC	MGN1C-AC120
30 A @ 240 VAC	DPST-NO	Screw	2.5 x 2.5 x 2.2	1.5 HP @ 120 VAC	120 VAC	MGN2A-AC120
30 A @ 240 VAC	DPST-NO	Screw	2.5 x 2.5 x 2.2	1.5 HP @ 120 VAC	24 VDC	MGN2A-DC24
30 A @ 240 VAC	DPDT	Screw	3.4 x 2.5 x 2.4	1.5 HP @ 120 VAC	120 VAC	MGN2C-AC120
30 A @ 240 VAC	DPDT	Screw	3.4 x 2.5 x 2.4	1.5 HP @ 120 VAC	12 VDC	MGN2C-DC12
30 A @ 240 VAC	DPDT	Screw	3.4 x 2.5 x 2.4	1.5 HP @ 120 VAC	24 VDC	MGN2C-DC24
20 A @ 125 VAC	DPDT	Screw	3.4 x 2.5 x 2.4	1.5 HP @ 120 VAC	24 VDC	MGN2CM-DC24

OMRON

Compact 5-20 A Panel Mount Solid State Relay

The G3NE is a space-saving solid state relay which can switch 5 A, 10 A, or 20 A load @ 100-240 VAC.

- G3NE Relays have 65% less volume versus standard "hockey puck" SSRs

- Fast wiring possible using quick-connect input and output terminals

- Different size quick connect terminals prevent miss wiring: Input terminals require #110/Output terminals require #250

- Built in varistor prevents surges to protect output loads

- RoHS Compliant; "-US" Models have UL, CSA, and TÜV Approval

Ordering Information

Input voltage	Load voltage	Load current	Size in mm L x W x H	Zero cross	Mounting	Model
5 VDC	100 to 240 VAC	0.1 to 5 A	48 x 38 x 12	Yes	Panel	G3NE-205T-US DC5
12 VDC	100 to 240 VAC	0.1 to 5 A	48 x 38 x 12	Yes	Panel	G3NE-205T-US DC12
24 VDC	100 to 240 VAC	0.1 to 5 A	48 x 38 x 12	Yes	Panel	G3NE-205T-US DC24
5 VDC	100 to 240 VAC	0.1 to 10 A	48 x 38 x 12	Yes	Panel	G3NE-210T-US DC5
12 VDC	100 to 240 VAC	0.1 to 10 A	48 x 38 x 12	Yes	Panel	G3NE-210T-US DC12
24 VDC	100 to 240 VAC	0.1 to 10 A	48 x 38 x 12	Yes	Panel	G3NE-210T-US DC24
5 VDC	100 to 240 VAC	0.1 to 10 A	48 x 38 x 12	Yes	Panel	G3NE-210T-2-US DC5
5 VDC	100 to 240 VAC	0.1 to 20 A	48 x 38 x 12	Yes	Panel	G3NE-220T-US DC5
12 VDC	100 to 240 VAC	0.1 to 20 A	48 x 38 x 12	Yes	Panel	G3NE-220T-US DC12
24 VDC	100 to 240 VAC	0.1 to 20 A	48 x 38 x 12	Yes	Panel	G3NE-220T-US DC24

N

G3NA Solid State Relays

The Reliable Choice for "Hockey Puck Style" Solid State Relay. Available in a wide range of Load Current (5 A to 90 A) and Load Voltage (max. 660 VAC)

All G3NAs feature industry standard mounting holes for usability and versatility (optional heat sink is available). LED provides quick verification of G3NA operational status.

- Minimize surge and input noise by utilizing AC load models with zero cross

- Included plastic cover provides finger protection for workers' safety

- Built in varistor prevents surges to protect output loads

- All models have UL and CSA Approval: "UTU" models also have TÜV Approval. RoHS compliant.

Ordering Information

Input voltage	Load voltage	Load current	Size in mm L x W x H	Zero cross	Mounting	Model
5 to 24 VDC	24 to 240 VAC	0.1 to 5 A	58 x 43 x 30	Yes	Panel	G3NA-205B DC5-24
100 to 120 VAC	24 to 240 VAC	0.1 to 10 A	58 x 43 x 30	Yes	Panel	G3NA-210B AC100-120
5 to 24 VDC	24 to 240 VAC	0.1 to 10 A	58 x 43 x 30	Yes	Panel	G3NA-210B DC5-24
5 to 24 VDC	24 to 240 VAC	0.1 to 10 A	58 x 43 x 30	Yes	Panel	G3NA-210B-UTU DC5-24
100 to 120 VAC	24 to 240 VAC	0.1 to 20 A	58 x 43 x 30	Yes	Panel	G3NA-220B AC100-120
5 to 24 VDC	24 to 240 VAC	0.1 to 20 A	58 x 43 x 30	Yes	Panel	G3NA-220B DC5-24
5 to 24 VDC	24 to 240 VAC	0.1 to 40 A	58 x 43 x 30	Yes	Panel	G3NA-240B DC5-24
5 to 24 VDC	200 to 480 VAC	0.2 to 40 A	58 x 43 x 30	Yes	Panel	G3NA-440B-2 DC5-24
100 to 240 VAC	24 to 240 VAC	1.0 to 75 A	58 x 43 x 30	Yes	Panel	G3NA-275B-UTU-2 AC100-240
5 to 24 VDC	24 to 240 VAC	1.0 to 90 A	58 x 43 x 30	Yes	Panel	G3NA-290B-UTU-2 DC5-24
5 to 24 VDC	5 to 200 VDC	0.1 to 10 A	58 x 43 x 27	No	Panel	G3NA-D210B DC5-24
5 to 24 VDC	400 to 600 VAC	0.5 to 50 A	58 x 43 x 30	Yes	Panel	G3NA-650B DC5-24

OMRON

G3PH Solid State Relay with Built-in Heat Sink

High Power Solid State Relay with Heat Sink, Features Replaceable Output Power Cartridge

Applicable Load: 75 or 150 A @ 240 or 480 VAC

- Models available with zero crossing and non-zero crossing

- Conforms to cULus standards and EN standards (TÜV certification)

Ordering Information

Insulation method	Operation indicator	Zero cross function	Applicable output load	Rated input voltage	Model
Photocoupler	Yes (yellow)	Yes	75 A, 100 to 240 VAC	5 to 24 VDC	G3PH-2075B DC5-24
				100 to 240 VAC	G3PH-2075B AC100-240
			150 A, 100 to 240 VAC	5 to 24 VDC	G3PH-2150B DC5-24
				100 to 240 VAC	G3PH-2150B AC100-240
		No	75 A, 100 to 240 VAC	5 to 24 VDC	G3PH-2075BL DC5-24
			150 A, 100 to 240 VAC	5 to 24 VDC	G3PH-2150BL DC5-24
		Yes	75 A, 180 to 480 VAC	5 to 24 VDC	G3PH-5075B DC5-24
				100 to 240 VAC	G3PH-5075B AC100-240
			150 A, 180 to 480 VAC	5 to 24 VDC	G3PH-5150B DC5-24
				100 to 240 VAC	G3PH-5150B AC100-240
		No	75 A, 180 to 480 VAC	5 to 24 VDC	G3PH-5075BL DC5-24
			150 A, 180 to 480 VAC	5 to 24 VDC	G3PH-5150BL DC5-24

N

G3PA Solid State Relay with Built-in Heat Sink

Solid State Relay with Built-in Heat Sink and Replaceable Power Cartridge

The G3PA is a DIN rail mounted Solid State Relay which can switch 10 - 60 A Loads.

- Quick and easy DIN rail mounting

- High Insulation voltage between input and output with 4,000 VAC

- Side-by-side mounting of 3 relays possible with G3PA linking terminals

- Reduce replacement cost and wiring time by using G3PA power cartridges

- 3 phase switching with G3PAs possible with G32A-D accessory cartridge

- RoHS Compliant; All G3PA models are certified by UL and CSA. "-VD" models are certified by UL, CSA and VDE

Ordering Information

Input voltage	Load voltage	Load current	Size in mm L x W x H	Zero cross	Mounting	Model
24 VAC	24 to 240 VAC	0.1 to 10 A	100 x 27 x 100	Yes	DIN/panel	G3PA-210B-VD AC24
5 to 24 VDC	24 to 240 VAC	0.1 to 10 A	100 x 27 x 100	Yes	DIN/panel	G3PA-210B-VD DC5-24
5 to 24 VDC	24 to 240 VAC	0.1 to 10 A	100 x 27 x 100	No	DIN/panel	G3PA-210BL-VD DC5-24
5 to 24 VDC	24 to 240 VAC	0.1 to 10 A	100 x 37 x 100	Yes	DIN/panel	G3PA-220B-VD DC5-24
5 to 24 VDC	24 to 240 VAC	0.5 to 40 A	100 x 47 x 100	Yes	DIN/panel	G3PA-240B-VD DC5-24
5 to 24 VDC	24 to 240 VAC	0.5 to 60 A	110 x 100 x 100	Yes	DIN/panel	G3PA-260B-VD DC5-24
12 to 24 VDC	180 to 400 VAC	0.5 to 20 A	100 x 37 x 100	Yes	DIN/panel	G3PA-420B-VD DC12-24
12 to 24 VDC	180 to 400 VAC	0.5 to 30 A	100 x 47 x 100	Yes	DIN/panel	G3PA-430B-VD DC12-24
12 to 24 VDC	200 to 480 VAC	0.5 to 30 A	100 x 47 x 100	Yes	DIN/panel	G3PA-430B-VD-2 DC12-24
12 to 24 VDC	200 to 480 VAC	0.5 to 50 A	110 x 100 x 100	Yes	DIN/panel	G3PA-450B-VD-2 DC12-24

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Compact, Slim-profile SSRs with Built-in Heat Sink

The G3PE is capable of suppressing transient voltages (min. 30 kV).

- Quick and easy DIN rail mounting.

- 3-phase types are also available (G3PE-□□□B-3H type)

- Single-phase 15 A and 25 A models occupy less than 1" of DIN track width

- Side-by-side mounting of eight relays possible for single phase models

- Minimize surge and input noise by utilizing zero cross models

- All models are RoHS Compliant and have UL, CSA, CE, and TÜV Approvals

Ordering Information

Input voltage	Load voltage	Load current	Size in mm L x W x H	Zero cross	Number of poles	Model
12 to 24 VDC	100 to 240 VAC	0.1 to 15 A	100 x 22.5 x 100	Yes	1	G3PE-215B DC12-24
12 to 24 VDC	100 to 240 VAC	0.1 to 15 A	100 x 22.5 x 100	Yes	1	G3PE-225B DC12-24
12 to 24 VDC	100 to 240 VAC	0.5 to 35 A	100 x 44.5 x 100	Yes	1	G3PE-235B DC12-24
12 to 24 VDC	100 to 240 VAC	0.5 to 45 A	100 x 44.5 x 100	Yes	1	G3PE-245B DC12-24
12 to 24 VDC	200 to 480 VAC	0.5 to 15 A	100 x 80 x 155	Yes	3	G3PE-515B-3N DC12-24
12 to 24 VDC	200 to 480 VAC	0.5 to 25 A	100 x 80 x 155	Yes	2	G3PE-525B-2N DC12-24
12 to 24 VDC	200 to 480 VAC	0.5 to 25 A	120 x 80 x 155	Yes	3	G3PE-525B-3N DC12-24
12 to 24 VDC	200 to 480 VAC	0.5 to 35 A	120 x 80 x 155	Yes	2	G3PE-535B-2N DC12-24
12 to 24 VDC	200 to 480 VAC	0.5 to 35 A	140 x 80 x 155	Yes	3	G3PE-535B-3N DC12-24
12 to 24 VDC	200 to 480 VAC	0.5 to 45 A	140 x 110 x 155	Yes	3	G3PE-545B-3N DC12-24
12 to 24 VDC	100 to 240 VAC	0.5 to 45 A	80 x 80 x 35	Yes	3	G3PE-245B-3H DC12-24

* G3PE-□□□B-3H type is not built-in heat sink type.

N

G3PF Solid State Relay

Built-in Current Transformer with Heater Burnout and Relay Failure Detection

Can handle up to 35 A @ 240 VAC with up to 2 alarm outputs when failure occurs.

- Current transformer is built into the SSR, therefore eliminating unnecessary CT wiring

- Heater burnout detection for single-phase or three-phase heaters

- Built-in CT can detect SSR short circuit failures

- Alarm indicator shows if a heater burnout or SSR short-circuit failure has occurred

- Rotary switches can be used to easily set the heater burnout detection level

Ordering Information

Input terminal model	Zero cross function	Alarm output	Applicable load	Model
M3 terminals	Yes	1 output (Heater Burnout Detection, SSR short-circuit Failure Detection, Common	2 to 25 A @ 100 to 240 VAC	G3PF-225B DC24
			2 to 35 A @ 100 to 240 VAC	G3PF-235B DC24
Screwless clamp terminals		2 outputs (Heater Burnout Detection, SSR Short-circuit Failure Detection	2 to 35 A @ 100 to 240 VAC	G3PF-235B-CTB DC24
Compact slotted screw terminals			2 to 35 A @ 100 to 240 VAC	G9PF-235B-STB DC24

G3RV 6 mm Solid State Relays

Solid State Plug-in Ultra-Slim Relay

The G3RV is an ultra-slim 6 mm wide solid state relay in a DIN mount relay-socket unit with maintenance-friendly features.
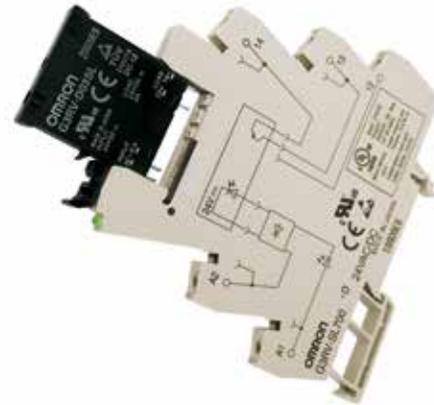
- LED indicator allows verification of current flow of input

- Large plug-in terminal ensures reliable connection

- PLC interface and cable accessories are available

- Easily connect multiple G3RV Relays together with cross bars

- RoHS Compliant; cULus Listed, CE and TÜV Approval

Ordering Information

Terminal wiring connection	Input voltage	Load voltage	Load current	Zero cross	Model
Push-in	230 VAC	100 to 240 VAC	0.1 to 2 A	Yes	G3RV-SL500-A AC230
Push-in	24 VDC	100 to 240 VAC	0.1 to 2 A	Yes	G3RV-SL500-A DC24
Push-in	230 VAC	5 to 24 VDC	100 µA to 3 A	–	G3RV-SL500-D AC230
Push-in	24 VDC	5 to 24 VDC	100 µA to 3 A	–	G3RV-SL500-D DC24
Screw	110 VAC	100 to 240 VAC	0.1 to 2 A	Yes	G3RV-SL700-A AC110
Screw	230 VAC	100 to 240 VAC	0.1 to 2 A	Yes	G3RV-SL700-A AC230
Screw	24 VDC	100 to 240 VAC	0.1 to 2 A	Yes	G3RV-SL700-A DC24
Screw	110 VAC	100 to 240 VAC	0.1 to 2 A	No	G3RV-SL700-AL AC110
Screw	110 VAC	5 to 24 VDC	100 µA to 3 A	–	G3RV-SL700-D AC110
Screw	24 VDC	5 to 24 VDC	100 µA to 3 A	–	G3RV-SL700-D DC24

Note: Model number contains relay and socket.

N

G3R-I/O Solid State Relays

Space Saving Input/Output Socket Mounted Solid State Relay

The G3R-I/O is a high isolation solid state relay ideal for PLC applications.

- High Insulation voltage between input and output with 4,000 VAC

- Process high-speed inputs using G3R-IDZR models: 0.1 ms max. On/Off time

- Applicable load up to 2 A @ 240 VAC with AC output models

- LED indicator allows verification of current flow of input

- Terminal arrangement equivalent with G2RS relay (socket: P2R series)

- RoHS Compliant; All G3R-I/O have UL and CSA approval, "-UTU" models have UL, CSA and TÜV approval

Ordering Information

Input voltage	Load voltage	Load current	Size in mm L x W x H	Zero cross	Mounting	Model
5 VDC	4 to 32 VDC	0.1 to 100 mA	29 x 13 x 28	No	Socket	G3R-IDZR1SN DC5
12 to 24 VDC	4 to 32 VDC	0.1 to 100 mA	29 x 13 x 28	No	Socket	G3R-IDZR1SN DC12-24
5 to 24 VDC	100 to 240 VAC	0.05 to 2 A	29 x 13 x 28	Yes	Socket	G3R-OA202SZN DC5-24
5 to 24 VDC	100 to 240 VAC	0.05 to 2 A	29 x 13 x 28	Yes	Socket	G3R-OA202SZN-UTU DC5-24
5 to 24 VDC	48 to 200 VDC	0.01 to 1.5 A	29 x 13 x 28	No	Socket	G3R-OD201SN DC5-24
5 to 24 VDC	5 to 48 VDC	0.01 to 2 A	29 x 13 x 28	No	Socket	G3R-ODX02SN DC5-24
5 to 24 VDC	5 to 48 VDC	0.01 to 2 A	29 x 13 x 28	No	Socket	G3R-ODX02SN-UTU DC5-24

Note: Corresponding sockets can be found on page N-vii.

OMRON

G3MC PCB Solid State Relays

Ultra-Slim PCB Solid State Relays with Reinforced Insulation

PCB mount DC input and AC output SSR.

- 4.5 mm thin design for high-density PCB applications

- DC input and AC output for applicable load of 1 A (at 40°C) and 2 A (at 25°C)

- High Insulation voltage between input and output with 3,000 VAC for "-1" model

- RoHS Compliant; All G3MC models have UL, CSA approval and "-VD" models have additional VDE approval

Ordering Information

Input voltage	Load voltage	Load current	Size in mm L x W x H	Zero cross	Insulation (input/output)	Model
5 VDC	100 to 120 VAC	0.1 to 1 A	24.5 x 4.5 x 13.5	Yes	2500 VAC	G3MC-101P DC5
5 VDC	100 to 120 VAC	0.1 to 1 A	24.5 x 4.5 x 13.5	Yes	2500 VAC	G3MC-101P-VD DC5
5 VDC	100 to 240 VAC	0.1 to 2 A	24.5 x 4.5 x 20.5	Yes	2500 VAC	G3MC-202P-VD DC5
24 VDC	100 to 240 VAC	0.1 to 2 A	24.5 x 4.5 x 20.5	Yes	3000 VAC	G3MC-202P-VD-1 DC24
5 VDC	100 to 240 VAC	0.1 to 2 A	24.5 x 4.5 x 20.5	No	2500 VAC	G3MC-202PL-VD DC5
12 VDC	100 to 240 VAC	0.1 to 2 A	24.5 x 4.5 x 20.5	No	2500 VAC	G3MC-202PL-VD DC12

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OMRON

G3TB PCB Solid State Relays

Input/Output Color–Coded PCB Solid-State Relays with LED Indicator Models

The G3TB is a PCB mount Input/Output solid state relay with width (10 mm width).

- High Insulation voltage between input and output with 4,000 VAC

- Easy to identify (black: AC output, Yellow: AC Input, Red: DC output, White: DC input)

- RoHS Compliant; "-US" Models have UL and CSA Approval

Ordering Information

Input voltage	Load voltage	Load current	Size in mm L x W x H	Zero cross	Relay color	Model
100 to 240 VAC	4 to 32 VDC	25 mA max.	44 x 10 x 21	No	Yellow	G3TB-IAZR02P-US AC100-240
4 to 24 VDC	4 to 32 VDC	25 mA max.	44 x 10 x 21	–	White	G3TB-IDZR02P-US DC5-24
5 to 24 VDC	100 to 240 VAC	0.05 to 3 A	44 x 10 x 31	Yes	Black	G3TB-OA203PZ-US DC5-24
4 to 24 VDC	5 to 48 VDC	0.01 to 3 A	44 x 10 x 31	–	Red	G3TB-ODX03PM-US DC4-24

OMRON

Pushbuttons & Indicators

Contents

SUB-ASSEMBLED PUSHBUTTON SWITCHES

A22R - Full range with IP65 rating

All our 22 mm pushbuttons are rated IP65 to increase their reliability in your application. The short mounting depth, ease of assembly and uniform lighting make them ideal for all control panels.

- Easy assembly and installation
- Metal or plastic bezel
- Wide range of shapes and colors

Which application is required?

Pushbutton switches	Indicator	Selector switches
Panel cutout dimensions?	Panel cutout dimensions?	Panel cutout dimensions?

16 dia.	22 dia.	16 dia.	22 dia.	16 dia.
Illumination?	Illumination?	Illumination?	Illumination?	Illumination?

Yes	No	Yes	No	Yes	Yes	Yes	No	Keyed
Plastic bezel	Plastic bezel	Metal bezel	Metal bezel	Plastic bezel	Plastic bezel	Plastic bezel	Plastic bezel	Plastic bezel
A16L	A16	A22RL	A22R	M16	M22R	A165W	A165S	A165K

For complete specifications and additional models and accessories visit www.omron247.com

OMRON

Buzzer

Flat type pushbutton switches

Non-lighted pushbutton switches

Panel cutout dimensions?

Panel cutout dimensions?

Panel cutout dimensions?

22 dia.

22 dia.

Illumination?

Illumination?

16 dia.

30 dia.

Illumination?

Illumination?

Yes

No

Keyed

No

Yes

No

No

No

Plastic bezel

Plastic bezel

Plastic bezel

Selector Switch?

Metal bezel

Metal bezel

Metal bezel

Plastic bezel

Yes

No

Metal bezel

A22RW

A22RS

A22RK

M2BJ

A3UL

A3US-SB-2M-C

A3U-TB

ZAP

Selection Table

Category	Pushbutton switch				Indicator		Buzzer
Model	A16/A165	A22R	A3U	ZAP	M16/M165	M22R	M2JB-B
Selection criteria — Mounting	Nut-mounting						
Size	16 mm	22 mm	22 mm	30 mm	16 mm	22 mm	16 mm
Shape	☐☐☐○	○	○	○	☐☐☐○	○	☐
Pushbutton color — LED-lighted — Red	■	■	■	–	■	■	–
Yellow	■	■	■	–	■	■	–
Pure yellow	■	–	–	–	■	–	–
Green	■	■	■	–	■	■	–
White	■	■	■	–	■	■	–
Blue	■	■	■	–	■	■	–
Non-lighted — Red	■	■	■	■	–	–	–
Yellow	■	■	■	■	–	–	–
Green	■	■	■	■	–	–	–
White	■	■	■	■	–	–	–
Blue	■	■	■	■	–	–	–
Black	■	■	■	■	–	–	■
Features — Momentary operation	■	■	■	■	–	–	–
Self-holding	■	■	–	–	–	–	–
2-position selector	–	–	–	–	–	–	–
3-position selector	–	–	–	–	–	–	–
Number of contacts	1 or 2	1 or 2	1 or 2	1 or 2	–	–	–
IP rating	IP40/IP65	IP65	IP40	–	IP40/IP65	IP65	IP40
Legend plate	■	■	■	–	■	■	–
Switch ratings (Resistive load)	• 5 A, 125 VAC • 3 A, 250 VAC • 3 A, 30 VDC	• 3 A, 240 VAC	• 0.1 A, 30 VDC	• 15 A, 250 VAC • 0.5 A, 125 VDC	–	–	–
Terminals — Solder	■	–	–	–	■	–	■
PCB	■	–	–	–	■	–	–
Screw-less clamp	■	–	–	–	■	–	–
Screw	–	■	–	■	–	■	–
Connector	–	–	■	–	–	–	–
LED Operating voltage — 5 VDC	■	–	■	–	■	–	–
6 VDC	–	■	–	–	–	■	–
12 VDC	■	■	■	–	■	■	–
24 VDC	■	■	■	–	■	■	–
110 VAC	■	–	–	–	■	–	–
220 VAC	■	■	–	–	■	■	–
Form — SPDT	■	–	■	■	–	–	–
DPDT	■	–	■	■	–	–	–
SPST-NO	–	■	–	–	–	–	–
SPST-NC	–	■	–	–	–	–	–
SPST-NO + SPST-NC	–	■	–	–	–	–	–
DPST-NO	–	■	–	–	–	–	–
DPST-NC	–	■	–	–	–	–	–

■ Standard   ☐ Available   – No/not available

For complete specifications and additional models and accessories visit www.omron247.com

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Category	Selector switch						

			A165W	A165S	A165K	A22RW	A22RS	A3US	A22RK
Selection criteria		Model	A165W	A165S	A165K	A22RW	A22RS	A3US	A22RK
		Mounting						Nut-mounting	
		Size	16 mm	16 mm	16 mm	22 mm	22 mm	22 mm	22 mm
		Shape	▭▭◯	▭▭◯	▭▭◯	◯	◯	◯	◯
Pushbutton color	**LED-lighted**	Red	■	–	–	■	–	–	–
		Yellow	■	–	–	■	–	–	–
		Pure yellow	–	–	–	–	–	–	–
		Green	■	–	–	■	–	–	–
		White	–	–	–	–	■	–	–
		Blue	–	–	–	■	–	–	–
	Non-lighted	Red	–	–	–	–	–	–	–
		Yellow	–	–	–	–	–	–	–
		Green	–	–	–	–	–	–	–
		White	–	–	–	–	–	–	–
		Blue	–	–	–	–	–	–	–
		Black	–	■	■	–	■	■	■
Features		Momentary operation	–	–	–	–	–	–	–
		Self-holding	–	–	–	–	–	–	–
		2-position selector	■	■	■	■	–	■	■
		3-position selector	■	■	■	■	–	–	■
		Number of contacts	1 or 2	1 or 2	1 or 2	1 or 2	–	1	1 or 2
		IP rating	IP65	IP65	IP65	IP65	IP65	IP40	IP65
		Legend plate	–	–	–	–	■	–	–
		Switch ratings (Resistive load)	• 5 A, 125 VAC • 3 A, 250 VAC • 3 A, 30 VDC	• 5 A, 125 VAC • 3 A, 250 VAC • 3 A, 30 VDC	• 5 A, 125 VAC • 3 A, 250 VAC • 3 A, 30 VDC	• 3 A, 240 VAC	• 3 A, 240 VAC	• 0.1 A, 30 VDC	• 3 A, 240 VAC
Terminals		Solder	■	■	■	–	–	–	–
		PCB	■	■	■	–	–	–	–
		Screw-less clamp	■	■	■	–	–	–	–
		Screw	–	–	–	■	■	–	■
		Connector	–	–	–	–	–	■	–
LED Operating voltage		5 VDC	■	–	–	–	–	–	–
		6 VDC	–	–	–	■	–	–	–
		12 VDC	■	–	–	■	–	–	–
		24 VDC	■	–	–	■	–	–	–
		110 VAC	■	–	–	–	–	–	–
		220 VAC	■	–	–	■	–	–	–
Form		SPDT	■	■	■	–	–	■	–
		DPDT	■	■	■	–	–	–	–
		SPST-NO	–	–	–	■	■	–	■
		SPST-NC	–	–	–	■	■	–	■
		SPST-NO + SPST-NC	–	–	–	■	■	–	■
		DPST-NO	–	–	–	■	■	–	■
		DPST-NC	–	–	–	■	■	–	■

■ Standard   ▢ Available   — No/not available

M22R Series Pilot Lights

22 mm Dia. Pilot Lights

- Pilot lights indicate status of machinery and processes on control panels

- Bright LED light source is easy to read under most lighting conditions

- Easy mounting and removal of socket unit

- Short mounting depth, less than 40.5 mm below panel

Specifications

- Current consumption:
  20 mA @ 12 V AC/DC ±5%
  20 mA@ 24 V AC/DC ±5%

- Enclosure rating: IP65

Pilot lights		Model
Round flat pilot light 🔴🟡🟢⚪🔵		M22R

• LED Lamp Ratings		
Model	**Operating Voltage**	**Current Consumption**
M22R-E*-12A	AC/DC 12 V ± 5%	20 mA
M22R-E*-24A	AC/DC 24 V ± 5%	20 mA
M22R-E*-T1	AC120 V (110 to 130 V)	20 mA
M22R-E*-T2	AC200 V (190 to 230 V)	20 mA

OMRON

22 mm Dia. Lighted and Non-Lighted Pushbutton Switches

- Robust and aesthetic design
- Shiny metal bezel
- Smooth rounded edges
- Short mounting depth, less than 46.8 mm below panel

Specifications

- Rated load: 3 A at 240 VAC
- Enclosure rating: IP65
- Rated durability service life:
  - Mechanical:
    3,000,000 operations - Momentary switch
    300,000 operations – Alternate switch
  - Electrical: 500,000 operations

Non-Lighted		Model
Round flat ⬤⬤⬤⬤⬤⬤		A22R-F
Round projection ⬤⬤⬤⬤⬤⬤		A22R-T

Lighted		Model
Lighted round flat ⬤⬤⬤⬤⬤		A22RL-F
Lighted round projection ⬤⬤⬤⬤⬤		A22RL-T

• LED Lamp Ratings		
Model	Operating Voltage	Current Consumption
A22R-6A	AC/DC 6 V ± 5%	20 mA
A22R-12A	AC/DC 12 V ± 5%	20 mA
A22R-24A	AC/DC 24 V ± 5%	20 mA
• Voltage reduction unit (for LED lamp)		
Model	Operating Voltage	Current Consumption
A22R**-T1	AC120 V (110 to 130 V)	20 mA
A22R**-T2	AC200 V (190 to 230 V)	20 mA

A22RS/A22RW Series
Selector Switches

22 mm Dia. Lighted and Non-Lighted Selector Switches

- 2- and 3-position switches with manual or automatic reset to meet panel building needs

- New "super-bright" LED used in all lighted models

- Short mounting depth, less than 46.8 mm below panel

- "Snap-in" switch unit for quick and easy tool-free assembly

- Shiny metal bezel

Specifications

- Rated load: 3 A at 240 VAC

- Enclosure rating: IP65

- Rated durability service life:
  - Mechanical: 300,000 operations
  - Electrical: 500,000 operations

Non-Lighted		Model
Non-lighted selector switch ●		A22RS

Lighted		Model
Lighted selector switch ● ● ● ●		A22RW

A22RK Series Keyed Selector Switches

22 mm Dia. Keyed Non-Lighted Selector Switches

- Design in extra security with keyed selector switches; only authorized operators are allowed to change settings using the key

- 2- and 3-position switches with manual or automatic reset to meet panel building needs

- Short mounting depth, less than 46.8 mm below panel

- "Snap-in" switch unit for quick and easy tool-free assembly

- Shiny metal bezel

Specifications

- Rated load: 3 A at 240 VAC

- Enclosure rating: IP65

- Rated durability service life:
  - Mechanical: 300,000 operations
  - Electrical: 500,000 operations

Keyed		Model
Keyed selector switch ●		A22RK

For complete specifications and additional models and accessories visit www.omron247.com

OMRON

22 mm Dia. Flat-type Lighted and Non-Lighted Pushbutton Switches and Selector Switch

Easy connector enables less assembly and less wiring.

- 50 mm body length

- Easy one push to connect the Operation and Switch units

Specifications

- Rated load: 0.1 A @ 30 VDC
- Rated durability service life:
  - Mechanical:
    1,000,000 operations - Pushbutton switches
    250,000 operations - Selector switch
  - Electrical:
    200,000 operations - Pushbutton switches
    1000,000 operations - Selector switch
- Enclosure: IP40

Pushbutton switches		Model
Lighted		A3U
Non-lighted		A3UL

Selector switch		Model
Non-lighted		A3US

16 mm Dia. Lighted and Non-Lighted Pushbutton Switches

- Wide range of options to match most panel building needs

- Protection: IP65 oil-resistant models (A165) and standard IP40 models (A16)

- Lighting: Non-lighted (A16 and A165) and lighted (A16L and A165L)

- New "ultra-bright" LED used in all lighted models

- Short mounting depth, less than 28.5 mm below panel

- "Snap-in" switch unit for quick and easy tool-free assembly

- RoHS compliant

Specifications

- Rated load (SPDT, DPDT):
  - 5 A at 125 VAC, 3 A at 250 VAC (NO & NC)
  - 3 A at 30 VDC
- Operating force:
  - SPDT 2.45N/DPDT:4.41N(IP40); SPDT:2.94N/DPDT4.91 N (IP65)

- Rated durability service life:
  - Mechanical: Momentary operation: 2,000,000 operations min.; Alternating operation: 200,000 operations min.
  - Electrical: 100,000 operations min.
- Approvals:
  - UL: UL508, File No. E41515
  - cUL: CSA C22 No. 14
  - TÜV: EN60947-5-1:2004
  - CCC: GB14048.5

Round Projection		Model
Lighted		A16L-T, A165L-T
Non-Lighted		A16-T, A165-T
Lighted, 110 VAC transformer		A16L-T-T1, A165L-T-T1
Lighted, 220 VAC transformer		A16L-T-T2, A165L-T-T2

Square		Model
Unlit, 2-way guard		A16-A, A165-A
Lit, 2-way guard		A16L-A, A165L-A
Lighted square 2-way guard, 110 VAC transformer		A16L-A-T1, A165L-A-T1
Lighted square 2-way guard, 220 VAC transformer		A16L-A-T2, A165L-A-T2

Rectangular		Model
Unlit, 2-way guard		A16-J, A165-J
Lit, 2-way guard		A16L-J, A165L-J
Lighted rectangular 2-way guard 110 VAC transformer		A16L-J-T1, A165L-J-T1
Lighted rectangular 2-way guard, 220 VAC transformer		A16L-J-T2, A165L-J-T2

16 mm Dia. Lighted and Non-Lighted Selector Switches

- Knob-style selector switches provide users a reliable way to start or choose between machine operations

- 2- and 3-position switches with manual or automatic reset to meet panel building needs

- IP65-rated for oil resistance

- Lighting: Non-lighted (A165S) and lighted (A165W)

- New "ultra-bright" LED used in all lighted models

- Short mounting depth, less than 28.5 mm below panel

- "Snap-in" switch unit for quick and easy tool-free assembly

- RoHS compliant

- Use optional legend plates to identify the selections

Specifications

- Rated load (SPDT, DPDT):
  - 5 A at 125 VAC, 3 A at 250 VAC (NO & NC)
  - 3 A at 30 VDC
- Operating force:
  - SPDT/DPDT: 0.1 Nm

- Rated durability service life:
  - Mechanical: 250.000 operations min.
  - Electrical: 100,000 operations min.
- Approvals:
  - UL: UL508, File No. E41515
  - cUL: CSA C22 No. 14
  - TÜV: EN60947-5-1:2004
  - CCC: GB14048.5

Non-lighted		Model
Square base selector switch ●		A165S-A
Rectangular base selector switch ●		A165S-J
Round base selector switch ●		A165S-T

Lighted		Model
Lighted square base selector switch ●●●		A165W-A
Lighted rectangular base selector switch ●●●		A165W-J
Lighted round base selector switch ●●●		A165W-T

A165K Series Keyed Selector Switches

16 mm Dia. Keyed Selector Switches

- Design in extra security with keyed selector switches; only authorized operators are allowed to change settings using the key

- 2- and 3-position switches with manual or automatic reset to meet panel building needs

- IP65-rated for oil resistance

- Short mounting depth, less than 28.5 mm below panel

- "Snap-in" switch unit for quick and easy tool-free assembly

- RoHS compliant

- Use optional legend plates to identify the selections

Specifications

- Rated load (SPDT, DPDT):
  - 5 A at 125 VAC, 3 A at 250 VAC (NO & NC)
  - 3 A at 30 VDC
- Operating force:
  - SPDT/DPDT: 0.1 Nm

- Rated durability service life:
  - Mechanical: 250,000 operations min.
  - Electrical: 100,000 operations min.
- Approvals:
  - UL: UL508, File No. E41515
  - cUL: CSA C22 No. 14
  - TÜV: EN60947-5-1:2004
  - CCC: GB14048.5

Keyed switches		Model
Square base keyed selector switch ●		A165K-A
Rectangular base keyed selector switch ●		A165K-J
Round base keyed selector switch ●		A165K-T

16 mm Dia. Pilot Lights

- Pilot lights indicate status of machinery and processes on control panels

- Bright LED light source is easy to read under most lighting conditions

- Easy mounting and removal of socket unit

- Standard IP40 and oil-resistant IP65 models

- Short mounting depth, less than 28.5 mm below panel

- RoHS compliant

- Use optional legend plates to identify indicators

Specifications

- Current consumption:
  - 8 mA @ 5 VDC ±5%
  - 8 mA @12 VAC/VDC ±5%
  - 8 mA @ 24 VAC/VDC ±5%
  - 8 mA @ 110 VAC/VDC
  - 8 mA @ 220 VAC/VDC

- Approvals:
  - UL: UL508, File No. E76675
  - cUL: CSA C22 No. 14

Keyed switches		Model
Square pilot light		M16-A, M165-A
Rectangular pilot light		M16-J, M165-J
Round pilot light		M16-T, M165-T

M2BJ Series Buzzers

16 mm Dia. Panel-Mounted Buzzers

- Intermittent or continuous sound selected by jumper setting

- Complements the A16 range of Pushbuttons, Selector Switches and Key Switches

- RoHS compliant

- LEDs incorporated on high-sound model indicators

Specifications:

Current consumption:
- Standard sound types:
  - DC: 7 mA max.
  - AC: 20 mA max.
- High-sound (includes LED) types:
  - DC: 50 mA max.
  - AC: 100 mA max.

Buzzers		Model
Standard sound buzzer ●		M2BJ-B
High volume sound buzzer ●		M2BJ-BH

ZAP Series Non-lighted Pushbutton Switches

30 mm Dia. Non-lighted Pushbutton Switches

- Using a Basic Switch enables direct switching of large-capacity loads

- Shock-absorbing structure of Operation unit protects the Switch

- IP65 rated pushbutton structure enables use in dusty locations and resists oil and water splashes

- Pushbuttons are available in three shapes and six colors

Specifications

- Rated load: 15 A at 250 VAC, 0.5 A at 125 VDC

- Electrical durability: 500,000 operations minimum

Shape of Operation Unit	Output	Operation Unit Color					
		Blue (-A)	Black (-B)	Green (-G)	Red (-R)	White (-W)	Yellow (-Y)
36 dia with 25 dia button	1	ZAP-A	ZAP-B	ZAP-G	ZAP-R	ZAP-W	ZAP-Y
	2	2ZAP-A	2ZAP-B	2ZAP-G	2ZAP-R	2ZAP-W	2ZAP-Y
36 dia with 25 dia button	1	ZAP-1A	ZAP-1B	ZAP-1G	ZAP-1R	ZAP-1W	ZAP-1Y
	2	2ZAP-1A	2ZAP-1B	2ZAP-1G	2ZAP-1R	2ZAP-1W	2ZAP-1Y
40 dia button	1	ZAP-2A	ZAP-2B	ZAP-2G	ZAP-2R	ZAP-2W	ZAP-2Y
	2	2ZAP-2A	2ZAP-2B	2ZAP-2G	2ZAP-2R	2ZAP-2W	2ZAP-2Y

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MAKING SAFETY SIMPLE —
OMRON'S CONCEPT FOR THE FUTURE

Today, forward-thinking manufacturers clearly realize the new role of increased safety on the factory floor.

- Recently adopted international safety standards have shifted the way systems are evaluated.

- Safety is a corporate responsibility, not an obstruction to productivity.

- Safety is essential to increased productivity and profitability.

"The modern user of safety products demands a new vision."

Poised at the leading-edge of safety solutions worldwide, Omron's STI safety products focus on making safety work.

We are aware of the many demands of automation safeguarding. Consequently, our automation safety products meet or exceed local and international safety standards.

Omron is committed to providing safeguarding solutions that meet your needs for safety and productivity. We design and engineer our products by listening to and working closely with our customers and authorized distributors. We also provide you with:

- Experienced assistance

- Expert guidance in application, integration and maintenance

- World-class support through Omron's global network of 250 sales locations in 65 countries

Machine and Process Safeguarding

ENHANCED WORKER SAFETY

A4EG

❶ Safety Light Curtains

The MS4800 and F3SJ models are simple to install, and available in a wide selection of protected heights and resolutions.

See page P-i.

F3SJ-A

F3SJ-B

F3SJ-E

MSF4800

MS4800

❽ Enabling Switches

Provides the additional protection needed during set-up, programming and servicing of robotic and automatic equipment.

• Has distinct clicks for three easily discernible positions

See page R-i.

❷ Safety Laser Scanners

Our OS32C is a very compact safety laser scanner. It has 70 zone configurations for complex guarding parameters.

See www.sti.com for Safety Laser Scanners

OS32C

New Industry First!
EtherNet/IP capable of status and measurement data reporting.

❸ Safety Interlock Switches

Tamper resistant switches enhance mechanical guarding methods.

• Guardlocking switches
• Hinge pin switches
• Non-contact switches
• Limit switches
• Tongue switches
• Explosion-proof versions

See page R-i.

OMRON

❼ Safety Programmable Controllers
❼ Safety Monitoring Relays

The G9SP stand-alone programmable safety controller for mid-sized applications supports direct connection to safety mats and non-contact switches. The NE1A DeviceNet safety network controller is well-suited for large complex applications, while safety monitoring relays are ideal for ensuring control reliability in smaller applications.

- Multiple input versions
- Delayed outputs
- Two-hand control
- Stop motion sensing

See www.sti.com for Programmable Controllers and page S-i for Safety Monitoring Relays

NX-S

NE1A

G9SP

G9SX

❻ Perimeter Guarding

PA4600 models are available with single and multiple-beam models with an operating range to 70 meters. They're perfect when installing fences is not practical.

See page P-i.

PA4600
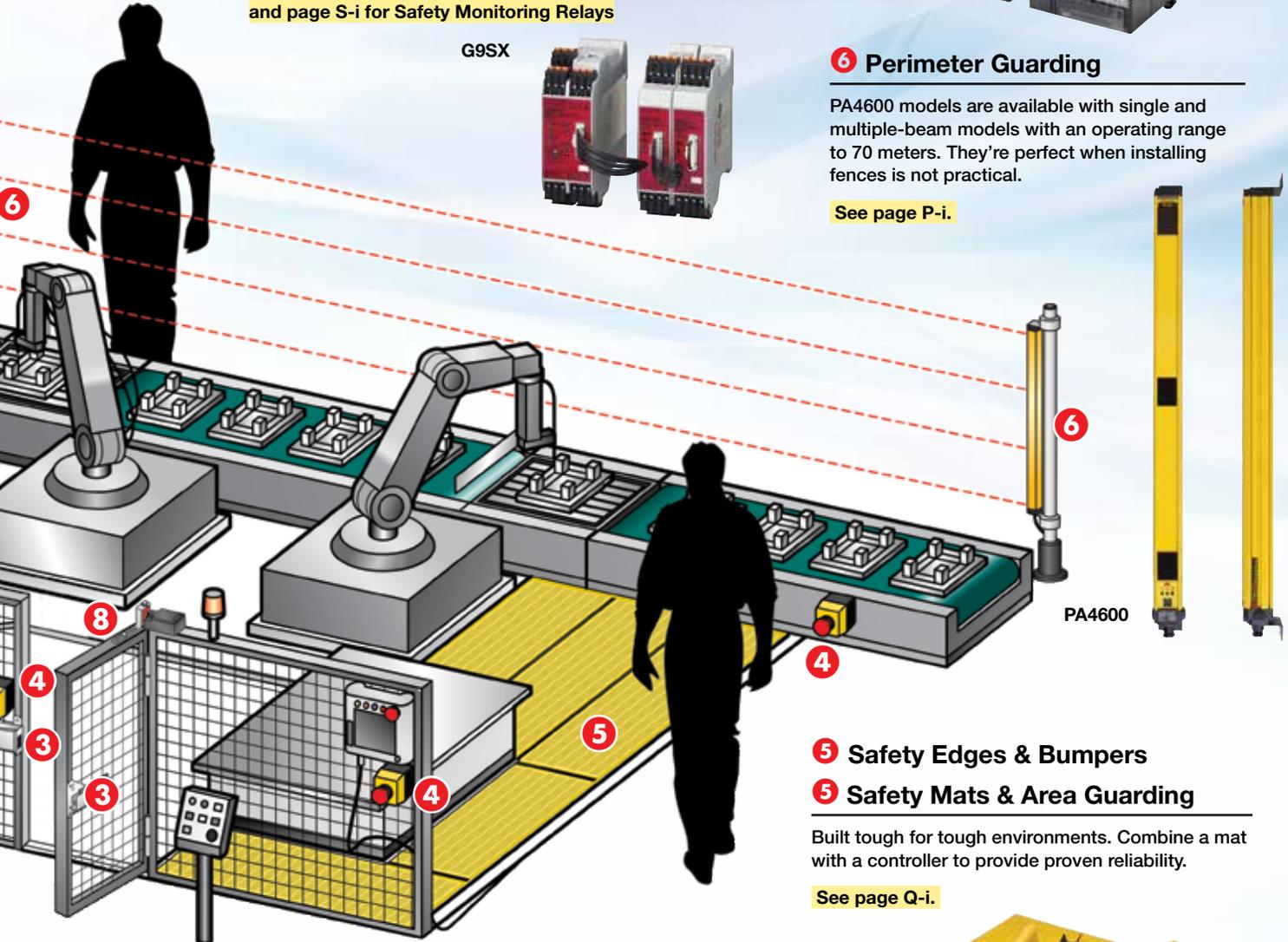
❺ Safety Edges & Bumpers
❺ Safety Mats & Area Guarding

Built tough for tough environments. Combine a mat with a controller to provide proven reliability.

See page Q-i.

❹ Emergency Stop Devices

- Enclosed and panel-mounted models available with key-operated reset.
- Combination rope and push button actuated emergency stop switches.
- Heavy duty housing offering rope spans to 200 meters

See page T-i.

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For complete specifications and additional models and accessories visit www.sti.com

iii

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Safety Light Curtains & Perimeter Access Guarding

OMRON

Contents

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Rapid Delivery Products are normally in stock and available for quick shipment.

"Easy" Safety Light Curtains

- Fast and easy installation

- Resolution: 25 mm (1.01 in.)

- Range: 7 m (23 ft.)

- Protected heights: 185 to 1105 mm (7.28 to 43.50 in.)

- Very compact size: 30 x 30 mm (1.18 x 1.18 in.)

- Cross-talk prevention

- 3 m integrated cables

Rapid Delivery Ordering Information

Model	Part Number	Description
F3SJ-E0185P25	11082-7001	F3SJ-E SYSTEM, 25 MM RESOLUTION, 185 MM PROTECTED HEIGHT
F3SJ-E0305P25	11082-7003	F3SJ-E SYSTEM, 25 MM RESOLUTION, 305 MM PROTECTED HEIGHT
F3SJ-E0465P25	11082-7005	F3SJ-E SYSTEM, 25 MM RESOLUTION, 465 MM PROTECTED HEIGHT
F3SJ-E0625P25	11082-7007	F3SJ-E SYSTEM, 25 MM RESOLUTION, 625 MM PROTECTED HEIGHT
F3SJ-E0785P25	11082-7009	F3SJ-E SYSTEM, 25 MM RESOLUTION, 785 MM PROTECTED HEIGHT
F3SJ-E0945P25	11082-7011	F3SJ-E SYSTEM, 25 MM RESOLUTION, 945 MM PROTECTED HEIGHT
F3SJ-E1105P25	11082-7013	F3SJ-E SYSTEM, 25 MM RESOLUTION, 1105 MM PROTECTED HEIGHT
F39-LJB1	11083-0001	F3SJ-E/B TOP/BOTTOM BRACKET, INCLUDES 4 PCS
F39-LJB4	11083-0007	F3SJ-E/B COMPATIBLE MOUNTING BRACKET, USE WHEN REPLACING F3SJ-A OR F3SN, INCLUDES 4 PCS

F3SJ-B Safety Light Curtains

"Basic" Safety Light Curtains

- Fast and easy installation

- Resolution: 25 mm (1.01 in.)

- Range: 7 m (23 ft.)

- Protected heights: 185 to 2065 mm (7.28 to 81.26 in.)

- Very compact size: 30 x 30 mm (1.18 x 1.18 in.)

- Cascaded designs possible – 3 segments

- Simple muting

- Cross-talk prevention

Rapid Delivery Ordering Information

Model	Part Number	Description
F3SJ-B0185P25	11037-7001	F3SJ-B SYSTEM, 25 MM RESOLUTION, 185 MM PROTECTED HEIGHT
F3SJ-B0305P25	11037-7003	F3SJ-B SYSTEM, 25 MM RESOLUTION, 305 MM PROTECTED HEIGHT
F3SJ-B0465P25	11037-7005	F3SJ-B SYSTEM, 25 MM RESOLUTION, 465 MM PROTECTED HEIGHT
F3SJ-B0625P25	11037-7007	F3SJ-B SYSTEM, 25 MM RESOLUTION, 625 MM PROTECTED HEIGHT
F3SJ-B0785P25	11037-7009	F3SJ-B SYSTEM, 25 MM RESOLUTION, 785 MM PROTECTED HEIGHT
F3SJ-B0945P25	11037-7011	F3SJ-B SYSTEM, 25 MM RESOLUTION, 945 MM PROTECTED HEIGHT
F3SJ-B1105P25	11037-7013	F3SJ-B SYSTEM, 25 MM RESOLUTION, 1105 MM PROTECTED HEIGHT
F3SJ-B1265P25	11037-0015	F3SJ-B SYSTEM, 25 MM RESOLUTION, 1265 MM PROTECTED HEIGHT
F3SJ-B1505P25	11037-0018	F3SJ-B SYSTEM, 25 MM RESOLUTION, 1505 MM PROTECTED HEIGHT
F3SP-B1P	11042-6001	F3SJ-A/B CONTROL UNIT
F39-JD3A	11077-1003	F3SJ-B CONNECTOR CABLE, SINGLE-ENDED, 3 M PAIR
F39-JD7A	11077-1004	F3SJ-B CONNECTOR CABLE, SINGLE-ENDED, 7 M PAIR
F39-JD10A	11077-1005	F3SJ-B CONNECTOR CABLE, SINGLE-ENDED, 10 M PAIR
F39-JD15A	11077-1006	F3SJ-B CONNECTOR CABLE, SINGLE-ENDED, 15 M PAIR
F39-JD20A	11077-1007	F3SJ-B CONNECTOR CABLE, SINGLE-ENDED, 20 M PAIR
F39-JDR5B	11077-1008	F3SJ-B CONNECTOR CABLE, DOUBLE-ENDED, 0.5 M PAIR
F39-JD1B	11077-1009	F3SJ-B CONNECTOR CABLE, DOUBLE-ENDED, 1 M PAIR
F39-JD3B	11077-1010	F3SJ-B CONNECTOR CABLE, DOUBLE-ENDED, 3 M PAIR
F39-JD5B	11077-1011	F3SJ-B CONNECTOR CABLE, DOUBLE-ENDED, 5 M PAIR
F39-JD7B	11077-1012	F3SJ-B CONNECTOR CABLE, DOUBLE-ENDED, 7 M PAIR
F39-JD10B	11077-1013	F3SJ-B CONNECTOR CABLE, DOUBLE-ENDED, 10 M PAIR
F39-JD15B	11077-1014	F3SJ-B CONNECTOR CABLE, DOUBLE-ENDED, 15 M PAIR
F39-JD20B	11077-1015	F3SJ-B CONNECTOR CABLE, DOUBLE-ENDED, 20 M PAIR
F39-LJB1	11083-0001	F3SJ-E/B TOP/BOTTOM BRACKET, INCLUDES 4 PCS
F39-LJB4	11083-0007	F3SJ-E/B COMPATIBLE MOUNTING BRACKET, USE WHEN REPLACING F3SJ-A OR F3SN, INCLUDES 4 PCS
F39-CN10	11083-1001	F3SJ-B MUTING KEY CAP
F39-JBR2W	11083-1002	F3SJ-B CONNECTION CABLE FOR EXTENSION, 0.2 M

OMRON

F3SJ-A Safety Light Curtains

"Advanced" Safety Light Curtains

- Resolution: 14 mm (0.55 in.), 20 mm (0.79 in.), 25 mm (1.01 in.) 30 mm (1.18 in.), or 55 mm (2.17 in.)

- Range: 7 m (23 ft.) or 9 m (29.5 ft.) dependent on minimum object resolution and protected height

- Protected heights: 14 mm protected heights from 245 to 1631 mm (9.6 to 64 in.), 20 mm, 25 mm and 30 mm protected heights from 245 to 2495 mm (9.6 to 98 in.), 55 mm from 270 to 2470 mm (10.6 to 97 in.)

- Very compact size – 30 x 24 mm (1.18 x 0.94 in.)

- Cascaded designs possible – 4 segments, up to 400 beams

- Partial muting and position detection muting

- Cross-talk prevention

Rapid Delivery Ordering Information

Model	Part Number	Description
F3SJ-A0245P20	40560-2001	F3SJ-A SYSTEM, 20 MM RESOLUTION, 245 PROTECTIVE HEIGHT
F3SJ-A0245P30	40560-3001	F3SJ-A SYSTEM, 30 MM RESOLUTION, 245 PROTECTIVE HEIGHT
F3SJ-A0305P20	40560-2003	F3SJ-A SYSTEM, 20 MM RESOLUTION, 305 PROTECTIVE HEIGHT
F3SJ-A0320P30	40560-3004	F3SJ-A SYSTEM, 30 MM RESOLUTION, 320 PROTECTIVE HEIGHT
F3SJ-A0395P30	40560-3007	F3SJ-A SYSTEM, 30 MM RESOLUTION, 395 PROTECTIVE HEIGHT
F3SJ-A0455P20	40560-2008	F3SJ-A SYSTEM, 20 MM RESOLUTION, 455 PROTECTIVE HEIGHT
F3SJ-A0470P30	40560-3010	F3SJ-A SYSTEM, 30 MM RESOLUTION, 470 PROTECTIVE HEIGHT
F3SJ-A0605P20	40560-2013	F3SJ-A SYSTEM, 20 MM RESOLUTION, 605 PROTECTIVE HEIGHT
F3SJ-A0620P30	40560-3016	F3SJ-A SYSTEM, 30 MM RESOLUTION, 620 PROTECTIVE HEIGHT
F3SJ-A0695P30	40560-3019	F3SJ-A SYSTEM, 30 MM RESOLUTION, 695 PROTECTIVE HEIGHT
F3SJ-A0755P20	40560-2018	F3SJ-A SYSTEM, 20 MM RESOLUTION, 755 PROTECTIVE HEIGHT
F3SJ-A0770P30	40560-3022	F3SJ-A SYSTEM, 30 MM RESOLUTION, 770 PROTECTIVE HEIGHT
F3SJ-A0870P30	40560-3026	F3SJ-A SYSTEM, 30 MM RESOLUTION, 870 PROTECTIVE HEIGHT
F3SJ-A0905P20	40560-2023	F3SJ-A SYSTEM, 20 MM RESOLUTION, 905 PROTECTIVE HEIGHT
F3SJ-A0920P30	40560-3028	F3SJ-A SYSTEM, 30 MM RESOLUTION, 920 PROTECTIVE HEIGHT
F3SJ-A1025P20	40560-2027	F3SJ-A SYSTEM, 20 MM RESOLUTION, 1025 PROTECTIVE HEIGHT
F3SJ-A1045P30	40560-3033	F3SJ-A SYSTEM, 30 MM RESOLUTION, 1045 PROTECTIVE HEIGHT
F3SJ-A1220P30	40560-3040	F3SJ-A SYSTEM, 30 MM RESOLUTION, 1220 PROTECTIVE HEIGHT
F3SJ-A1495P30	40560-3045	F3SJ-A SYSTEM, 30 MM RESOLUTION, 1495 PROTECTIVE HEIGHT
F39-CN6	11033-0007	F3SJ-A KEY CAP FOR MUTING
F39-LJ1	11033-0008	F3SJ-A MOUNTING BRACKETS, STANDARD MOUNTING
F39-LJ2	11033-0009	F3SJ-A MOUNTING BRACKETS, FLAT SIDE MOUNTING
F39-LJ3	11033-0010	F3SJ-A MOUNTING BRACKETS, FREE-LOCATION MOUNTING
F39-GWUM	11033-0155	F3SJ-A SD-MANAGER SETTING SUPPORT SOFTWARE
F39-TC5P01	11033-0180	F3SJ-A CONNECTOR TERMINAL BOX WITH MUTING SENSOR OUTPUT MODE (PNP)
F39-TC5P02	11033-0181	F3SJ-A CONNECTOR TERMINAL BOX WITH OVERRIDE MODE (PNP)
F39-CN8	11033-0184	F3SJ-A SHORT-CIRCUIT CONNECTOR
F39-JC3A	11034-1001	F3SJ-A CONNECTOR CABLE, SINGLE-ENDED, 3 M PAIR
F39-JC7A	11034-1002	F3SJ-A CONNECTOR CABLE, SINGLE-ENDED, 7 M PAIR
F39-JC10A	11034-1003	F3SJ-A CONNECTOR CABLE, SINGLE-ENDED, 10 M PAIR
F39-JC15A	11034-1004	F3SJ-A CONNECTOR CABLE, SINGLE-ENDED, 15 M PAIR
F39-JC20A	11034-1071	F3SJ-A CONNECTOR CABLE, SINGLE-ENDED, 20 M PAIR
F3SP-B1P	11042-6001	F3SJ-A/B CONTROL UNIT

For complete specifications and additional models and accessories visit www.sti.com   **OMRON**

MiniSafe® Light Curtains

- Resolutions: 14 mm (0.55 in.), 20 mm (0.79 in.), 30 mm (1.18 in.), and 40 mm (1.57 in.)

- Ranges: 7 m (23 ft.) for 14 mm resolution systems; and 20 m (65 ft.) for 20, 30 and 40 mm resolution systems

- Protected Heights: 280 to 2120 mm (11 to 83.5 in.)

- Compact size: 50 x 38 mm (2 x 1.5 in.)

- "Two-box" design — no separate control box; no cable between transmitter and receiver

- Individual Beam Indicators

- Quick and easy fixed blanking programming option "SB1"

- Simple cascading models

P

Rapid Delivery Ordering Information

Model	Part Number	Description
MS4800S-20-0320	70230-1180	MS4800 SYSTEM, STANDARD, 20 MM RESOLUTION, 320 PROTECTED HEIGHT
MS4800S-20-0440	70230-1183	MS4800 SYSTEM, STANDARD, 20 MM RESOLUTION, 440 PROTECTED HEIGHT
MS4800S-20-0600	70230-1187	MS4800 SYSTEM, STANDARD, 20 MM RESOLUTION, 600 PROTECTED HEIGHT
MS4800S-20-0760	70230-1191	MS4800 SYSTEM, STANDARD, 20 MM RESOLUTION, 760 PROTECTED HEIGHT
MS4800S-20-0920	70230-1195	MS4800 SYSTEM, STANDARD, 20 MM RESOLUTION, 920 PROTECTED HEIGHT
MS4800S-20-1080	70230-1199	MS4800 SYSTEM, STANDARD, 20 MM RESOLUTION, 1080 PROTECTED HEIGHT
MS4800S-20-1200	70230-1202	MS4800 SYSTEM, STANDARD, 20 MM RESOLUTION, 1200 PROTECTED HEIGHT
MS4800S-30-0440	70230-1222	MS4800 SYSTEM, STANDARD, 30 MM RESOLUTION, 440 PROTECTED HEIGHT
MS4800S-30-0600	70230-1226	MS4800 SYSTEM, STANDARD, 30 MM RESOLUTION, 600 PROTECTED HEIGHT
MS4800S-30-0720	70230-1229	MS4800 SYSTEM, STANDARD, 30 MM RESOLUTION, 720 PROTECTED HEIGHT
MS4800S-30-0760	70230-1230	MS4800 SYSTEM, STANDARD, 30 MM RESOLUTION, 760 PROTECTED HEIGHT
MS4800S-30-0840	70230-1232	MS4800 SYSTEM, STANDARD, 30 MM RESOLUTION, 840 PROTECTED HEIGHT
MS4800S-30-0920	70230-1234	MS4800 SYSTEM, STANDARD, 30 MM RESOLUTION, 920 PROTECTED HEIGHT
MS4800S-30-1040	70230-1237	MS4800 SYSTEM, STANDARD, 30 MM RESOLUTION, 1040 PROTECTED HEIGHT
MS4800S-30-1200	70230-1241	MS4800 SYSTEM, STANDARD, 30 MM RESOLUTION, 1200 PROTECTED HEIGHT
MS4800S-30-1400	70230-1246	MS4800 SYSTEM, STANDARD, 30 MM RESOLUTION, 1400 PROTECTED HEIGHT
MS4800S-30-1520	70230-1249	MS4800 SYSTEM, STANDARD, 30 MM RESOLUTION, 1520 PROTECTED HEIGHT
MS4800-CBLRX-10 M	40451-0100	MS4800 SPARE RECEIVER CABLE, 10 M
MS4800-CBLRX-15 M	40451-0150	MS4800 SPARE RECEIVER CABLE, 15 M
MS4800-CBLRX-30 M	40451-0300	MS4800 SPARE RECEIVER CABLE, 30 M
MS4800-CBLTX-10 M	40452-0100	MS4800 SPARE TRANSMITTER CABLE, 10 M
MS4800-CBLTX-15 M	40452-0150	MS4800 SPARE TRANSMITTER CABLE, 15 M
MS4800-CBLTX-30 M	40452-0300	MS4800 SPARE TRANSMITTER CABLE, 30 M

RM-1 Resource Module

Resource Module —
Converts Solid-State Outputs to Force-Guided Relay Outputs

- Converts the solid-state safety outputs of one STI safety device to electromechanical force-guided safety relay outputs

- Compatible with MS4800, F3SJ, PA4600 and OS32C

- 55 mm DIN enclosure with removable terminal blocks

- CE approved

File No. LR90200-34

Rapid Delivery Ordering Information

Model	Part Number	Description
RM-1	43763-0010	RM-1, 24 VDC, DIN-RAIL MOUNT

RM-2, RM-2AC & RM-2AC-IP
Resource Module

Resource Module —
Converts Solid-State Outputs to Force-Guided Relay Outputs

- Converts the solid-state safety and auxiliary outputs of one STI safety device to electromechanical force-guided safety relay outputs

- Available for DC or AC input power

- Provides connection points for all safety device functions including MPCE monitoring and 24 VDC power

- Compatible with MS4800, F3SJ, PA4600 and OS32C

- Enclosures —
  RM-2: 100 mm DIN, IP20
  RM-2AC: 150 mm DIN, IP20
  RM-2AC-IP: metal chassis, IP65

File No. LR90200-34

- CE approved

- Removable terminal blocks

Rapid Delivery Ordering Information

Model	Part Number	Description
RM-2	43776-0010	RM-2, 24 VDC, DIN-RAIL MOUNT
RM-2AC	40344-0010	RM-2AC, 100-240 VAC, DIN-RAIL MOUNT
RM-2AC-IP	40525-0010	RM-2AC-IP, 100-240 VAC, METAL CHASSIS

For complete specifications and additional models and accessories visit www.sti.com

OMRON

Resource Module — Mute Module
• Type 4 safety product, when used in combination with a Type 4 safety light curtain
• Provides muting controls for up to two light curtains
• Diagnostic display
• Solid-state safety outputs
• 100 mm DIN box enclosure
• Removable terminal blocks
• DeviceNet option
• Compatible with MS4800, F3SJ, PA4600 and OS32C

Input Signals
• Input Power +24 VDC
• Two independent channels, each channel is comprised of one light curtain and up to four mute sensors
• Start
• EDM (MPCE monitoring)
• Mute enable

Output Signals
• Two independent PNP safety outputs
• NPN & PNP auxiliary outputs
• Mute lamp drivers (2)
• Mute auxiliary (NPN)
• Mute armed (NPN)

P

Indicators
• Diagnostic display
• Machine Run
• Machine Stop
• Interlock
• OSSD input active (light curtains)
• Sensor input active (sensors)
• Mute Enable active

Rapid Delivery Ordering Information

Model	Part Number	Description
RM-3	43983-0010	RM-3, MUTE MODULE, 24 VDC, DIN-RAIL MOUNT

RM-X Resource Module

SpeedSPEC
RMX
sti.com

Resource Module — Converts Solid-State Outputs to Force-Guided Relay Outputs

• Converts the solid-state safety outputs of one STI safety device to electromechanical force-guided safety relay outputs
• Compatible with MS4800, F3SJ, PA4600 and OS32C
• CE approved
• 22.5 mm DIN enclosure

File No. LR90200-34

Rapid Delivery Ordering Information

Model	Part Number	Description
RM-X	40152-0010	RM-X, RELAY EXPANSION MODULE

PA4600 Perimeter Access Guarding Device

Perimeter Access Guarding Device

- 1 to 6 beams available

- Operating range of 70 m

- Compact size — 46 x 55 mm (1.81 x 2.17 in.)

- Simple "two-box" design — no separate control box required

- Individual Beam Indicators

Rapid Delivery Ordering Information

Model	Part Number	Description
PA46-1-000-Q2-NO1-PN	70170-1045	PA4600 SYSTEM, 1 BEAM, M-12 QD, NO1, PNP
PA46-2-600-Q2-NO1-PN	70170-1042	PA4600 SYSTEM, 2 BEAMS, 600 MM SPACING, QD, NO1, PNP
PA46-3-400-Q2-NO1-PN	70170-1039	PA4600 SYSTEM, 3 BEAMS, 400 MM SPACING, QD, NO1, PNP
CBL-LCRX-10 M	40552-0100	PA4600 RECEIVER CABLE, 10 M
CBL-LCRX-15 M	40552-0150	PA4600 RECEIVER CABLE, 15 M
CBL-LCRX-30 M	40552-0300	PA4600 RECEIVER CABLE, 30 M
CBL-LCTX-10 M	40553-0100	PA4600 TRANSMITTER CABLE, 10 M
CBL-LCTX-15 M	40553-0150	PA4600 TRANSMITTER CABLE, 15 M
CBL-LCTX-30 M	40553-0300	PA4600 TRANSMITTER CABLE, 30 M

For complete specifications and additional models and accessories visit www.sti.com

OMRON

Safety Mats, Edges & Bumpers

Contents

Q

Rapid Delivery Products
are normally in stock and
available for quick shipment.

For complete specifications and additional models and accessories visit www.sti.com

OMRON

Quick-Disconnect
Universal Safety Mat System

Heavy-Duty Four-Wire Presence Sensing
Mats with Removable Cable, Category 3
Controllers and Perimeter Trim

Patented Connector

CE TÜV CSP us

System

When UMQ series mats are combined with
an MC3, MC4 or MC6 controller (with com-
plete diagnostics), the result is a system that
meets the standard EN 1760-1:1998 and is
entitled to display the CE mark. See below
for an overview of the various components.

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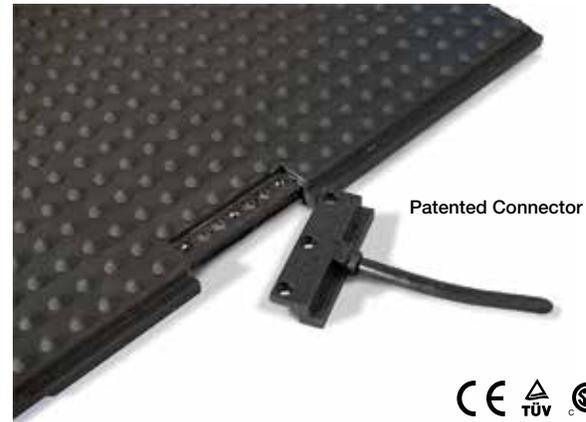
Rapid Delivery Ordering Information

Other custom sizes and configurations available.
Please use the SpeedSPEC code above for ordering information.

Model	Part Number	Description
UMQ-1260-A	70220-1002	UMQ UNIVERSAL BLACK MAT - 12 X 60 IN
UMQ-1872-A	70220-1010	UMQ UNIVERSAL BLACK MAT - 18 X 72 IN
UMQ-2412-A	70220-1011	UMQ UNIVERSAL BLACK MAT - 24 X 12 IN
UMQ-2418-A	70220-1012	UMQ UNIVERSAL BLACK MAT - 24 X 18 IN
UMQ-2424-A	70220-1013	UMQ UNIVERSAL BLACK MAT - 24 X 24 IN
UMQ-2460-A	70220-1015	UMQ UNIVERSAL BLACK MAT - 24 X 60 IN
UMQ-2472-A	70220-1017	UMQ UNIVERSAL BLACK MAT - 24 X 72 IN
UMQ-3030-A	70220-1021	UMQ UNIVERSAL BLACK MAT - 30 X 30 IN
UMQ-3060-A	70220-1023	UMQ UNIVERSAL BLACK MAT - 30 X 60 IN
UMQ-3072-A	70220-1025	UMQ UNIVERSAL BLACK MAT - 30 X 72 IN
UMQ-3612-A	70220-1026	UMQ UNIVERSAL BLACK MAT - 36 X 12 IN
UMQ-3624-A	70220-1028	UMQ UNIVERSAL BLACK MAT - 36 X 24 IN
UMQ-3636-A	70220-1030	UMQ UNIVERSAL BLACK MAT - 36 X 36 IN
UMQ-3654-A	70220-1031	UMQ UNIVERSAL BLACK MAT - 36 X 54 IN
UMQ-3660-A	70220-1032	UMQ UNIVERSAL BLACK MAT - 36 X 60 IN
UMQ-3672-A	70220-1034	UMQ UNIVERSAL BLACK MAT - 36 X 72 IN
UMQ-4224-A	70220-1037	UMQ UNIVERSAL BLACK MAT - 42 X 24 IN
UMQ-4236-A	70220-1039	UMQ UNIVERSAL BLACK MAT - 42 X 36 IN
UMQ-4254-A	70220-1041	UMQ UNIVERSAL BLACK MAT - 42 X 54 IN
UMQ-4260-A	70220-1042	UMQ UNIVERSAL BLACK MAT - 42 X 60 IN
UMQ-4824-A	70220-1047	UMQ UNIVERSAL BLACK MAT - 48 X 24 IN
UMQ-4836-A	70220-1049	UMQ UNIVERSAL BLACK MAT - 48 X 36 IN
UMQ-4848-A	70220-1051	UMQ UNIVERSAL BLACK MAT - 48 X 48 IN
UMQ-4866-A	70220-1054	UMQ UNIVERSAL BLACK MAT - 48 X 66 IN
UMQ-4872-A	70220-1055	UMQ UNIVERSAL BLACK MAT - 48 X 72 IN
UMQ5 CABLE	19251-0050	5 M QUICK-DISCONNECT CABLE
UMQ10 CABLE	19251-0100	10 M QUICK-DISCONNECT CABLE

OMRON

MC3, MC4 and MC6 Series Safety Mat Controllers

The MC Series safety mat controllers are used in conjunction with a four-wire, normally open, safety mat where perimeter guarding is required. These control reliable controllers send a stop signal to the guarded machine when an object of sufficient weight is detected on the active mat area.

The MC Series controllers, when combined with a four-wire UM or UMQ series mat, provide access guarding and improved productivity. The work area is fully visible and accessible.

The controller meets the requirement of EN 1760-1:1998, EN 13849-1, ANSI/RIA 15.06-1999 (R2009), ANSI B11.19-2010, OSHA 1910-217C. CSA and UL508.

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MC6

- Universal power input
- Up to 6 mat zone inputs
- Six mat zone status indicator LEDs
- Select from Automatic Start, Start/Restart Interlock or Start Interlock operating modes
- MPCE monitoring

- Remote access to reset functions
- 2-digit numeric display for fault diagnostics
- Surface mount, lockable metal enclosure

Options

- Lid-mounted reset key switch
- Quick disconnect for incoming power and relay outputs
- Quick disconnects up to 6 mat zone inputs
- Solid-state safety output module
- Safety relay output module

Rapid Delivery Ordering Information

Model	Part Number	Description
MC3	43767-0010	MC3 MAT CONTROLLER
MC4-0004	43815-0004	MC4 MAT CONTROLLER, 24 VDC, 4 CONNECTORS
MC4-0010	43815-0010	MC4 MAT CONTROLLER, 100-240 VAC, 0 CONNECTORS
MC4-0011	43815-0011	MC4 MAT CONTROLLER, 100-240 VAC, 1 CONNECTOR
MC4-0012	43815-0012	MC4 MAT CONTROLLER, 100-240 VAC, 2 CONNECTORS
MC4-0013	43815-0013	MC4 MAT CONTROLLER, 100-240 VAC, 3 CONNECTORS
MC4-0014	43815-0014	MC4 MAT CONTROLLER, 100-240 VAC, 4 CONNECTORS
MC6AC-0016	43938-0016	MC6 MAT CONTROLLER, AC 6 CONNECTORS
MC6DC-0012	43939-0012	MC6 MAT CONTROLLER, DC, 2 CONNECTORS
MC6DC-0016	43939-0016	MC6 MAT CONTROLLER, DC, 6 CONNECTORS

OMRON

Safety Edges
(SGE & SCS Series Profiles)

- Profile materials NBR (SCS series only), EPDM or TPE

- Available in six sizes for SGE Series and two sizes for SCS Series

Applicable Controllers

- SCC-1224 Single-Channel Controller

- SCC-1224ND Single-Channel Controller

- SCC-2124 Dual-Channel Controller

- SCC-2224 Dual-Channel Controller

Ordering Information

All edges are custom. Please use the SpeedSPEC code above for ordering information.

C€

Q

SCSF   Safety Bumpers

Safety Bumpers

- Foam rubber covered in polyurethane, mounted on an aluminum base

- Available in lengths up to 3000 mm; Standard sizes:
  53 mm x 100 mm
  100 mm x 200 mm
  150 mm x 300 mm
  200 mm x 400 mm

Ordering Information

All bumpers are custom. Please use the SpeedSPEC code above for ordering information.

C€

Single and Dual-Channel Safety Edge Controllers
for use with All Safety Edges and Safety Bumpers

- Power requirements

  – 120 VAC or 24 VDC is acceptable for the SCC-1224 single channel units

  – 24 VDC is acceptable for SCC-2124/2224 dual channel units

- Inputs

  – Single channel units accept a single two-wire edge or bumper system

  – Dual channel units accept 1 or 2 two-wire edge or bumper systems

- Outputs

  – Single channel units have two safety outputs and one auxiliary output for signaling

  – Dual channel units have either 1 or 2 safety outputs, and either 1 or 2 auxiliary outputs with DIP switch selection for input channel relationship

- External Device Monitoring –EDM is provided on all units with aN/C loop between Z1 and Z2

- Monitored Reset Modes

  – Monitored manual reset mode that requires closure of the reset circuit followed by opening of the circuit is available on all units

  – Automatic reset mode that occurs upon closure of the reset circuit is available on all units

- Delayed Auxiliary Output – Delayed opening of the auxiliary output for reversal of a door or gate may be selected on all units except SCC1224ND

CE TÜV

Rapid Delivery Ordering Information

Model	Part Number	Description
SCC-1224	43872-0020	SCS EDGE CONTROLLER, AUX CONTACT MOMENTARILY CLOSES WHEN ACTIVATED
SCC-1224ND	43872-0021	SCS EDGE CONTROLLER, AUX CONTACT REMAINS CLOSED WHEN ACTIVATED

OMRON

Safety Switches

OMRON

Contents

R

Rapid Delivery Products are normally in stock and available for quick shipment.

Guard Lock Safety-Door Switch

- Holding force of 3,000 N

- Two safety circuits and two monitor contacts provide an array of monitoring patterns.

- Standard gold-clad contacts enable use with ordinary loads and microloads.

- Models with trapped keys prevent workers from being locked in hazardous work areas.

- Models with rear release buttons allow people to unlock the Switch and escape if they are locked into hazardous areas.

- IP67 degree of protection

Rapid Delivery Ordering Information

Model	Part Number	Description
D4JL-2NFA-C5	11022-0004	D4JL BASE MODEL, SPECIAL RELEASE KEY, GREEN, MECHANICAL LOCK, 2NC/1NO+2NC/1NO
D4JL-2NFA-D5	11022-0036	D4JL BASE MODEL, SPECIAL RELEASE KEY, ORANGE, MECHANICAL LOCK, 2NC/1NO+2NC/1NO
D4JL-2NFA-C6	11022-0068	D4JL BASE MODEL, SPECIAL RELEASE KEY+REAR RELEASE, GREEN, MECHANICAL LOCK, 2NC/1NO+2NC/1NO
D4JL-K1	11022-0001	D4JL OPERATION KEY, HORIZONTAL MOUNT
D4JL-K2	11022-0002	D4JL OPERATION KEY, VERTICAL MOUNT
D4JL-K3	11022-0254	D4JL OPERATION KEY, ADJUSTABLE MOUNT (HORIZONTAL)
D4JL-SK40	11022-0194	D4JL MOUNTING SLIDE KEY

OMRON

Guard Lock Safety-Door Switch

- Best-selling guard lock safety-door switch available in several compact, multi-contact models

- Selectable Operation Key insertion direction and adjustable mounting ensure installation flexibility

- Built-in switches with multiple-contact construction are available

- Key holding force of 1,300 N minimum

- Can be used for either standard loads or microloads

- Lineup includes models with a conduit size of M20

- IP67 degree of protection

- Variety of metallic heads available

Rapid Delivery Ordering Information

Model	Part Number	Description
D4NL-4EFA-B-NPT	11025-0174	D4NL BASE MODEL, M20, 2NC/1NO+1NC/1NO, PLASTIC, MECHANICAL LOCK, NPT
D4NL-4EFG-B-NPT	11025-0176	D4NL BASE MODEL, M20, 2NC/1NO+1NC/1NO, PLASTIC, 24 VDC SOLENOID LOCK, NPT
D4NL-4FFA-B-NPT	11025-0178	D4NL BASE MODEL, M20, 2NC/1NO+2NC, PLASTIC, MECHANICAL LOCK, NPT
D4NL-4FFG-B-NPT	11025-0180	D4NL BASE MODEL, M20, 2NC/1NO+2NC, PLASTIC, 24 VDC SOLENOID LOCK, NPT
D4NL-4EDA-B4-NPT	11025-0189	D4NL BASE MODEL, M20, 2NC/1NO+1NC/1NO, METAL, MECHANICAL LOCK, SPECIAL RELEASE KEY, NPT
D4NL-4GDA-B4-NPT	11025-0190	D4NL BASE MODEL, M20, 3NC+1NC/1NO, METAL, MECHANICAL LOCK, SPECIAL RELEASE KEY, NPT
D4NL-4EDG-B4-NPT	11025-0191	D4NL BASE MODEL, M20, 2NC/1NO+1NC/1NO, METAL, 24 VDC SOLENOID LOCK, SPECIAL RELEASE KEY, NPT
D4NL-4GDG-B4-NPT	11025-0192	D4NL BASE MODEL, M20, 3NC+1NC/1NO, METAL, 24 VDC SOLENOID LOCK, SPECIAL RELEASE KEY, NPT
D4NL-4GDA-B4S-NPT	11025-0336	D4NL BASE MODEL, M20, 3NC+1NC/1NO, METAL, MECHANICAL LOCK, SPECIAL RELEASE KEY, FRONT KEY, NPT
D4DS-K1	11018-0011	D4NL, D4NS OPERATION KEY, HORIZONTAL MOUNTING
D4DS-K2	11018-0012	D4NL, D4NS OPERATION KEY, VERTICAL MOUNTING
D4DS-K3	11018-0013	D4NL, D4NS OPERATION KEY, ADJUSTABLE MOUNTING (HORIZONTAL)
D4DS-K5	11018-1005	D4NL, D4NS OPERATION KEY, ADJUSTABLE MOUNTING (HORIZONTAL/VERTICAL)
D4NL-RK	11025-9001	D4NL SPECIAL RELEASE KEY

R

OMRON

Super Small Class 6-Contact Guard Lock Safety-Door Switch

- Wiring time is reduced with two types of wiring methods capable of one-touch attachment and removal

- A wide variety of built-in switches can be used for various devices.
  (4-, 5-, and 6-contact models are available)

- Key holding force of 1,300 N

- It is possible to change the key insertion point without detaching the head

- Drive solenoids directly from the controller

- Lockout slide key prevents workers from becoming trapped inside the hazardous area.

SLIDE KEY

TERMINAL BLOCK TYPE   CONNECTOR TYPE

- The vertical door switch can be easily mounted on 40 x 40 mm aluminum frames.

- Plastic material makes the key suitable for lightweight doors.

Rapid Delivery Ordering Information

Model	Part Number	Description
D4SL-N3HFG-DN	11079-2158	D4SL-N BASE MODEL, SOLENOID LOCK, 3NC+2NC, M20 CONDUIT WITH M20-TO-NPT ADAPTER, PLASTIC HEAD
D4SL-N2NFG-D4N	11079-2200	D4SL-N BASE MODEL, SOLENOID LOCK, 2NC/1NO+2NC/1NO, G 1/2 CONDUIT, PLASTIC HEAD
D4SL-N3NFA-D	11079-2225	D4SL-N BASE MODEL, SOLENOID RELEASE, 2NC/1NO+2NC/1NO, M20 CONDUIT WITH M20-TO-NPT ADAPTER, PLASTIC HEAD
D4SL-N3NFA-DN	11079-2226	D4SL-N BASE MODEL, SOLENOID RELEASE, 2NC/1NO+2NC/1NO, M20 CONDUIT WITH M20-TO-NPT ADAPTER, PLASTIC HEAD
D4SL-N3NFA-D4	11079-2227	D4SL-N BASE MODEL, SOLENOID RELEASE, 2NC/1NO+2NC/1NO, M20 CONDUIT WITH M20-TO-NPT ADAPTER, PLASTIC HEAD
D4SL-N3NFG-D	11079-2229	D4SL-N BASE MODEL, SOLENOID LOCK, 2NC/1NO+2NC/1NO, M20 CONDUIT WITH M20-TO-NPT ADAPTER, PLASTIC HEAD
D4SL-N3NFG-DN	11079-2230	D4SL-N BASE MODEL, SOLENOID LOCK, 2NC/1NO+2NC/1NO, M20 CONDUIT WITH M20-TO-NPT ADAPTER, PLASTIC HEAD
D4SL-N3NFG-D4	11079-2231	D4SL-N BASE MODEL, SOLENOID LOCK, 2NC/1NO+2NC/1NO, M20 CONDUIT WITH M20-TO-NPT ADAPTER, PLASTIC HEAD
D4SL-N3QFA-D	11079-2241	D4SL-N BASE MODEL, SOLENOID RELEASE, 3NC+2NC/1NO, M20 CONDUIT WITH M20-TO-NPT ADAPTER, PLASTIC HEAD
D4SL-NK1	11079-3001	D4SL-N OPERATION KEY, HORIZONTAL
D4SL-NK2	11079-3002	D4SL-N OPERATION KEY, VERTICAL
D4SL-NK3	11079-3003	D4SL-N OPERATION KEY, ADJUSTABLE (HORIZONTAL)
D4SL-NK1S	11079-3004	D4SL-N OPERATION KEY, HORIZONTAL MOUNTING (SHORT)
D4SL-NK1G	11079-3005	D4SL-N OPERATION KEY, HORIZONTAL (RUBBER BUSHING)
D4SL-NK2G	11079-3006	D4SL-N OPERATION KEY, VERTICAL (RUBBER BUSHING)
D4SL-NSK10-LK	11079-4001	D4SL-N SLIDE KEY
D4SL-CN3	11079-0106	D4SL CONNECTOR CABLE, 3 M
D4SL-CN5	11079-0107	D4SL CONNECTOR CABLE, 5 M

Safety Interlock Switch with Guard Door Locking

- High locking force of 1,200 N (270 lb.) locks guard door shut until machine is safe to enter

- IP67 (NEMA 6) enclosure enables the TL4019 to withstand water washdown

- Door and lock monitoring—the TL4019 has a total of 4 contacts: 2N/C safety + 1 contact for door position monitoring + 1 contact for lock monitoring

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Conforms to EN1088, EN60947-5-1, EN292, EN60204-1
UL and C-UL listed, BG approved

Rapid Delivery Ordering Information

Model	Part Number	Description
TL4019-10241TM	44534-0010	TL4019 (FLAT ACTUATOR), 24 VAC/DC, 2N/C+2 N/O, 3XM20 W/NPT ADAPTER
TL4019-20241TM	44534-0030	TL4019 (FLAT ACTUATOR), 24 VAC/DC, 2N/C+2 N/O, 3XM20 W/NPT ADAPTER
TL4019-30241TM	44534-0050	TL4019 (FLAT ACTUATOR), 24 VAC/DC, 2N/C+1N/O+1N/O, 3XM20 W/NPT ADAPTER
TL4019-30242TM	44534-0070	TL4019 (FLAT ACTUATOR), 24 VAC/DC, 2N/C+1N/O+1N/C, 3XM20 W/NPT ADAPTER
TL4019-10241F1M	44534-0310	TL4019 (FLEX1 ACTUATOR), 24 VAC/DC, 2N/C+2 N/O, 3XM20 W/NPT ADAPTER
TL4019-30242F1M	44534-0370	TL4019 (FLEX1 ACTUATOR), 24 VAC/DC, 2N/C+1N/O+1N/C, 3XM20 W/NPT ADAPTER
TL4019-40241TM	44534-0410	TL4019 (FLAT ACTUATOR), 24 VAC/DC, 2N/C+1N/O+1N/O, 3XM20 W/NPT ADAPTER
TL4019-40242TM	44534-0430	TL4019 (FLAT ACTUATOR), 24 VAC/DC, 2N/C+1N/O+1N/C, 3XM20 W/NPT ADAPTER
TL4019-40241SM	44534-0510	TL4019 (90-DEGREE ACTUATOR), 24 VAC/DC, 2N/C+1N/O+1N/O, 3XM20 W/NPT ADAPTER
TL4019-50241SM	44534-0570	TL4019 (90-DEGREE ACTUATOR), 24 VAC/DC, 1N/C+1N/C+1N/O, 3XM20 W/NPT ADAPTER
TL4019-40241F1M	44534-1710	TL4019 (FLEX1 ACTUATOR), 24 VAC/DC, 2N/C+1N/O+1N/O, 3XM20 W/NPT ADAPTER
TL4019-40242F1M	44534-1730	TL4019 (FLEX1 ACTUATOR), 24 VAC/DC, 2N/C+1N/O+1N/C, 3XM20 W/NPT ADAPTER
TL4019-10241	44534-2010	TL4019 BASE MODEL, 24 VAC/DC, 2N/C+2 N/O, 3XM20 (SWITCH ONLY)
TL4019-20241	44534-2030	TL4019 BASE MODEL, 24 VAC/DC, 2N/C+2 N/O, 3XM20 (SWITCH ONLY)
TL4019-30241	44534-2050	TL4019 24 VAC/DC, 2N/C+1N/O+1N/O, 3XM20 (SWITCH ONLY)
TL4019-31101	44534-2060	TL4019 BASE MODEL, 110 VAC, 2N/C+1N/O+1N/O, 3XM20 (SWITCH ONLY)
TL4019-30242	44534-2070	TL4019 BASE MODEL, 24 VAC/DC, 2N/C+1N/O+1N/C, 3XM20 (SWITCH ONLY)
TL4019-30243	44534-2090	TL4019 BASE MODEL, 24 VAC/DC, 2N/C+1N/C+1N/O, 3XM20 (SWITCH ONLY)
TL4019-40241	44534-2110	TL4019 BASE MODEL, 24 VAC/DC, 2N/C+1N/O+1N/O, 3XM20 (SWITCH ONLY)
TL4019-41101	44534-2120	TL4019 BASE MODEL, 110 VAC, 2N/C+1N/O+1N/O, 3XM20 (SWITCH ONLY)
TL4019-40242	44534-2130	TL4019 BASE MODEL, 24 VAC/DC, 2N/C+1N/O+1N/C, 3XM20 (SWITCH ONLY)
TL4019-40243	44534-2150	TL4019 BASE MODEL, 24 VAC/DC, 2N/C+1N/C+1N/O, 3XM20 (SWITCH ONLY)
TL4019-50241	44534-2170	TL4019 BASE MODEL, 24 VAC/DC, 1N/C+1N/C+1N/O, 3XM20 (SWITCH ONLY)
TL4019-30241RR	44534-3050	TL4019 BASE MODEL, 24 VAC/DC, 2N/C+1N/O+1N/O, 3XM20
SA34-T	44534-0700	TL4019 REPLACEMENT FLAT ACTUATOR
SA34-TOT	44534-0701	TL4019 REPLACEMENT FLAT ACTUATOR OT
SA34-5	44534-0710	TL4019 REPLACEMENT 90-DEGREE ACTUATOR
SA34-F2	44534-0720	TL4019 REPLACEMENT FLEX 2 ACTUATOR
SA34-F2OT	44534-0721	TL4019 REPLACEMENT FLEX 2 ACTUATOR OT
SA34-F1	44534-0730	TL4019 REPLACEMENT FLEX 1 ACTUATOR
SA34-F1OT	44534-0731	TL4019 REPLACEMENT FLEX 1 ACTUATOR OT
SA34-TRB	44534-0740	TL4019 REPLACEMENT FLAT ACTUATOR RB
SA34-TRBOT	44534-0741	TL4019 REPLACEMENT FLAT ACTUATOR OTRB
SA34-SRB	44534-0750	TL4019 REPLACEMENT 90-DEGREE ACTUATOR RB
SM34-LED61	44534-0761	TL4019 LED LID KIT
SM34-KLR02	44534-0802	TL4019 KEY LOCK RELEASE (2 KEYS INCLUDED)
SBLK34-R50	44534-8050	TL4019 SLIDE BOLT INTERIOR LEVER KIT (USE WITH REAR RELEASE SLIDE BOLTS ONLY)
SBRH-R60	44534-8060	TL4019 REAR RELEASE T-HANDLE

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Safety Interlock Switch with Guard Door Locking

- High locking force of 1,500 N (337 lb.) locks guard door shut until machine is safe to enter

- IP67 (NEMA 6) enclosure withstands water washdown

- Door and lock monitoring—the TL4024 has a total of 4 contacts: 2N/C safety + 1 contact for door position monitoring + 1 contact for lock monitoring

- Unlocking is possible with a back load on the door to satisfy the demands of high cycle time applications

- Narrow profile enables mounting to 2 in. square tubing or in applications with space restrictions

- Rotatable head—the rotatable head provides 8 actuator entry positions to satisfy most installation requirements

- Optional key release—this option on power-to-unlock models allows manual unlocking of the guard door

Conforms to EN1088, EN60947-5-1, EN292, EN60204-1
UL and C-UL listed, BG approved

- Optional slide bolt with integral door handle aids installation on sliding and swinging guard doors

- Two LED (red/green) status indicators on the lid may be wired to suit the application

Rapid Delivery Ordering Information

Model	Part Number	Description
TL4024-10242TM	44535-0010	TL4024 BASE MODEL, 24 VAC/DC, 2N/C+ 1N/O+1N/C, FLAT ACTUATOR
TL4024-10242SM	44535-0110	TL4024 BASE MODEL, 24 VAC/DC, 2N/C+ 1N/O+1N/C, 90-DEGREE ACTUATOR
TL4024-10242	44535-2010	TL4024 BASE MODEL, 24 VAC/DC, 2N/C+1N/O+1N/C, 3 X .05 IN. NPT CONDUIT
TL4024-10243	44535-2030	TL4024 BASE MODEL, 24 VAC/DC, 2N/C+1N/O+1N/O, 3 X .05 IN. NPT CONDUIT
SA35-F1	44535-0750	TL4024 REPLACEMENT FLEX 1 ACTUATOR

Safety-door Hinge Switch

- Compact, plastic-body safety-door hinge switch designed for saving space in machines

- Lineup includes three contact models with 2NC/1NO and 3NC contact forms in addition to the previous contact forms 1NC/1NO, and 2NC. Models with MBB contacts are also available

- M12-connector models are available, saving on labor and simplifying replacement

- Standardized gold-clad contacts provide high contact reliability. Can be used with both standard loads and microloads.

Rapid Delivery Ordering Information

Model	Part Number	Description
D4NH-4CAS-NPT	11024-0105	D4NH BASE MODEL, SHAFT ACTUATOR, 1-CONDUIT, NPT, 2NC/1NO
D4NH-4CBC-NPT	11024-0107	D4NH BASE MODEL, ARM LEVER ACTUATOR, 1-CONDUIT, NPT, 2NC/1NO
D4NH-4BBC-NPT	11024-0108	D4NH BASE MODEL, ARM LEVER ACTUATOR, 1-CONDUIT, NPT, 2NC
D4NH-4ABC-NPT	11024-0109	D4NH BASE MODEL, ARM LEVER ACTUATOR, 1-CONDUIT, NPT, 1NC/1NO

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Most Diverse and Flexible Line of Coded Magnetic Safety Interlock Switches and Controllers

- Combine door switch monitoring and E-stop monitoring by using the CM-S41 controller

- Monitor is single switch to CAT4 with the CM-S30 controller

- Monitor multiple switches to CAT3 using CM-S4 or CM-S30 controllers

- Monitoring multiple switches on individual channels can be achieved by using the CM-S21 or CM-S41 controllers. Easily expand your system by using the CM-SE expansion module.

- All CM switches are rated IP67

- Stainless steel switches are available for harsh environments

CE ℅ℓus TÜV
Conforms to EN292, EN60204-1, EN954-1, EN1088, EN60947-5-3, EN947-5-3, EN50081, EN50082, EN61000-6-2, ISO 13849-1
UL and C-UL listed, TUV certified

Rapid Delivery Ordering Information

Model	Part Number	Description
CM-S4	44536-0040	CM-S4 BASE MODEL, CONTROL (24 VAC/DC) 1N/O+1N/O AUX.
CM-S1PC3	44536-0100	CM-S1 BASE MODEL, SWITCH & ACT WITH 1N/O+1N/C, 3 M CABLE
CM-S1PC5	44536-0105	CM-S1 BASE MODEL, SWITCH & ACT WITH 1N/O+1N/C, 5 M CABLE
CM-S21-24	44536-0120	CM-S21 BASE MODEL, CONTROL (24 VAC/DC) 2N/O+1N/C AUX.
CM-S2PC3	44536-0200	CM-S2 BASE MODEL, SWITCH & ACT WITH 1N/O+1N/C, 3 M CABLE
CM-S221PC5	44536-0221	CM-S221PC5 BASE MODEL, SWITCH & ACT WITH 2NO+1NC, 5 M CABLE
CM-S521PC5	44536-0521	CM-S521 BASE MODEL, SWITCH & ACT WITH 2N/C+1N/O, 5 M CABLE
CM-S621PC5	44536-0621	CM-S5621 BASE MODEL, SWITCH & ACT WITH 2N/C+1N/O, 5 M CABLE
CM-S621PC10	44536-1621	CM-S621 BASE MODEL, SWITCH & ACT WITH 2N/C+1N/O, 10 M CABLE
CM-S31SC3	44536-3100	CM-S31 BASE MODEL, SWITCH+ACT, 3 M CABLE
CM-S31SC5	44536-3105	CM-S31 BASE MODEL, SWITCH+ACT, 5 M CABLE

OMRON

Compact Non-contact Door Switch/ Flexible Safety Unit

- Up to 30 units can be connected to a single G9SX (15 units with G9SP) Controller

- Troubleshooting is made easy with the switch's two-color diagnostic LED display patterns

- Photocoupler monitor output allows connection to a general-purpose PLC (NPN type)

D40Z

- Supports ISO 13849-1 (Safety Category 4/PLe)

- Non-magnetic actuator will not attract metal fillings

D40A

- Magnetic actuator

D40Z

D40A

Rapid Delivery Ordering Information

Model	Part Number	Description
D40A-1C5	11008-6002	D40A BASE MODEL, SWITCH AND ACTUATOR, 5 M CABLE
D40Z-1C2	11081-0001	D40Z BASE MODEL, SWITCH AND ACTUATOR, 2 M CABLE
D40Z-1C5	11081-0002	D40Z BASE MODEL, SWITCH AND ACTUATOR, 5 M CABLE
D40Z-1C-A	11081-0003	D40Z BASE MODEL, ACTUATOR ONLY

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OMRON

Magnetically Actuated Safety Interlock Switches

- Large selection—choose from a large selection of contact configurations housed in plastic to satisfy most application requirements

- NEMA 6 enclosure enables the MA Series switches to satisfy most application requirements (MA 3, 4, 5 are NEMA 4)

- Misalignment tolerant—the non-contact actuation of the switches makes them very tolerant to misalignment of up to 10 mm (0.39 in.)

- Variety of terminations—select various cable lengths or terminal strip termination for easy installation. Cable connector on selected models

CE UL c us
Conforms to EN1088, EN292, EN60204-1
UL and C-UL listed

- Long life—the MA Series is designed for a minimum of one million actuations

Rapid Delivery Ordering Information

Model	Part Number	Description
MA-1APC4	44507-0020	MA-1 BASE MODEL (AC ONLY), 1N/C, 4 M CABLE SWITCH+ACTUATOR
MA-1APC8	44507-0180	MA-1 BASE MODEL (AC ONLY), 1N/C, 8M CABLE SWITCH+ACTUATOR
MA-10APC2	44507-0110	MA-10 BASE MODEL (110 VAC ONLY), 1N/C, 2 M CABLE, SWITCH+ACTUATOR
MA-10APC4	44507-0330	MA-10 BASE MODEL (110 VAC ONLY), 1N/C, 4 M CABLE, SWITCH+ACTUATOR
MA-15DP21C3	44507-1540	MA-15 BASE MODEL (24 VDC ONLY), 2N/C+1N/O 3 M CABLE, SWITCH+ACT'R (300 MA MAX.)
MA-15DP21C5	44507-1541	MA-15 BASE MODEL (24 VDC ONLY), 2N/C+1N/O 5 M CABLE, SWITCH+ACT'R (300 MA MAX.)
MA-15DP21CC	44507-1549	MA-15 BASE MODEL (24 VDC ONLY), 2N/C+1N/O CONNECTOR, MALE M12, SW+ACT'R (300 MA MAX.)
MA16DP11C3	44507-1620	MA-16 BASE MODEL (24 VDC ONLY), 1N/C, 1N/O, 3 M CABLE, SWITCH & ACTUATOR
MA16DP11C6	44507-1621	MA-16 BASE MODEL (24 VDC ONLY), 1N/C, 1N/O, 6 M CABLE, SWITCH & ACTUATOR
MA16DP10C3	44507-1610	MA-16 BASE MODEL (24 VDC ONLY), 1N/C, 3 M CABLE, SWITCH & ACTUATOR
MA16DP10C6	44507-1611	MA-16 BASE MODEL (24 VDC ONLY), 1N/C, 6 M CABLE, SWITCH & ACTUATOR
MA16DP21C3	44507-1640	MA-16 BASE MODEL (24 VDC ONLY), 2N/C, 1N/O, 3 M CABLE, SWITCH & ACTUATOR
MA-16AP11C6	44507-1661	MA-16 BASE MODEL (AC ONLY), 1N/C, 1N/O 6 M CABLE, SWITCH & ACTUATOR
MA-16AP11C3	44507-1660	MA-16 BASE MODEL (AC ONLY), 1N/C, 1N/O, 3 M CABLE, SWITCH & ACTUATOR
MA-16AP10C3	44507-1650	MA-16 BASE MODEL (AC ONLY), 1N/C, 3 M CABLE, SWITCH & ACTUATOR
MA-16AP10C6	44507-1651	MA-16 BASE MODEL (AC ONLY), 1N/C, 6 M CABLE, SWITCH & ACTUATOR
MA-2DPC15	44507-0370	MA-2 BASE MODEL (24 VDC ONLY), 1N/C+1N/O, 15 M CABLE, SWITCH+ACTUATOR
MA-2DPCC	44507-0650	MA-2 BASE MODEL (24 VDC ONLY), 1N/C+1N/O, CONNECTOR 4-PIN MICRO DC, SWITCH+ACTUATOR
MA-2APC4	44507-0040	MA-2 BASE MODEL (AC ONLY), 1N/C+1N/O, 4 M CABLE, SWITCH+ACTUATOR
MA-20DPCC	44507-0630	MA-20 BASE MODEL (24 VDC ONLY), 2N/C, CONNECTOR 4-PIN MICRO DC M12, SWITCH+ACTUATOR
MA-21DPCC	44507-0670	MA-21 BASE MODEL (24 VDC ONLY), 2N/C+1N/O, CONNECTOR, SWITCH+ACTUATOR
MA-34DS11C3	44507-3420	MA-34 BASE MODEL, 1N/C+1N/O, 3 M CABLE, SWITCH+ACTUATOR
MA-35DS21C3	44507-3540	MA-35 BASE MODEL, 2N/C+1N/O, 3 M CABLE, SWITCH+ACTUATOR (300 MA MAX.)
MA-35DS21C5	44507-3541	MA-35 BASE MODEL, 2N/C+1N/O, 5 M CABLE, SWITCH+ACTUATOR (300 MA MAX.)
MA-35DS21CC	44507-3549	MA-35 BASE MODEL, 2N/C+1N/O, M12 MALE CONNECTOR, SWITCH+ACTUATOR (300 MA MAX.)
MA-36DS11C3	44507-3620	MA-36 BASE MODEL, 1N/C+1N/O, 3 M CABLE, SWITCH & ACTUATOR
MA-36AS10C3	44507-3650	MA-36 BASE MODEL, 1N/C, 3 M CABLE, SWITCH & ACTUATOR
MA-4APTC	44507-0060	MA-4 BASE MODEL (AC ONLY), 1N/C+1N/O, TERMINAL CONNECTION, SWITCH+ACTUATOR
SA07-MA00	44507-0700	MA 1-5, 20 & 21 REPLACEMENT ACTUATOR RED ABS PLASTIC
SA07-MA10	44507-0710	MA 6, 9 & 10 REPLACEMENT ACTUATOR RED ABS PLASTIC
SA07-MA16	44507-0716	MA-10-16 REPLACEMENT ACTUATOR RED ABS PLASTIC

OMRON

Stainless Steel Magnetically Actuated Safety Interlock Switches and Actuators

- Stainless steel cases—both switch and actuator are housed in stainless steel for applications that require the use of this robust and corrosion resistant material

- Large selection—choose from a variety of contact configurations housed in stainless steel to satisfy the most demanding applications

- NEMA 6 enclosure enables the MA-S Series switches to satisfy most application requirements

- Misalignment tolerant—the non-contact actuation of the MA-S Series switches makes them very tolerant to misalignment of up to 10 mm (0.39 in.)

- High temperature—the MA-S switches and cables are designed to operate in temperatures up to 125°C (257°F)

- Long life—the MA-S Series safety interlock switches are designed for a minimum of one million actuations

CE   UL
Conforms to EN1088, EN292, EN60204-1
UL and C-UL listed

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Rapid Delivery Ordering Information

Model	Part Number	Description
MA-S21DSC3	44507-0450	MA-S21 BASE MODEL, 2N/C+1N/O, 3 M CABLE, SWITCH+ACTUATOR

Magnetic Ferroresonant Stand-alone Safety Interlock Switch

- Tamper resistant—the combination of magnetic and ferroresonant signals required to close the safety contacts makes the MFS very tamper resistant

- Standalone—use for lower risk applications as a stand-alone safety switch allowing direct switching of relays and contactors up to 2 A at 230 VAC

- MFS-11 provides a visible LED which illuminates green when the actuator is in range and contacts are closed

- MFS-12 provides a dual color LED indicator. LED illuminates green when the actuator is in range and the contacts are closed. LED illuminates Red when the actuator is out of range and contacts are open.

- Compact size—mounts easily on 1-in. square tubing

- Use with safety monitoring relays in applications requiring a higher level of safety reliability

- NEMA 4 enclosure enables water washdown cleaning

CE ℂℝ us
Conforms to EN1088, EN292, EN60204-1, EN954-1, EN947-5-3, EN60947-5-1, EN50081, EN50082, EN61000-6-2
UL and C-UL listed

Rapid Delivery Ordering Information

Model	Part Number	Description
MFS-11P11C3	44508-1120	MFS BASE MODEL, SWITCH & ACTUATOR, 1N/C+1N/O, 3 M CABLE
MFS-11P11C6	44508-1121	MFS BASE MODEL, SWITCH & ACTUATOR, 1N/C+1N/O, 6 M CABLE
MFS-11P11CC5	44508-1128	MFS BASE MODEL, SWITCH & ACTUATOR, 1N/C+1N/O, M12 MALE CONNECTOR + 5 M CABLE
MFS-11P20C10	44508-1132	MFS BASE MODEL, SWITCH & ACTUATOR, 2N/C, 10 M CABLE
MFS-12P21C6	44508-1133	MFS BASE MODEL,-12 SWITCH & ACTUATOR, 2N/C+1N/O, 6 M CABLE
MFS-12P21CC5	44508-1134	MFS-12 BASE MODEL, SWITCH & ACTUATOR, 2N/C+1N/O, M12 MALE CONNECTOR + 5 M CABLE
MFS-11P20CC	44508-1139	MFS BASE MODEL, SWITCH & ACTUATOR, 2N/C, M12 MALE CONNECTOR

For complete specifications and additional models and accessories visit www.sti.com

OMRON

Safety Limit Switch

- Snap-action contact with certified direct opening operation

- Direct opening mechanism (NC contacts only) added to enable opening contacts when faults occur, such as fused contacts

- Safety of lever settings ensured using a mechanism that engages a gear between the operating position indicator plate and the lever

- Equipped with a mechanism that indicates the applicable operating zone, as well as push-button switching to control left and right motion

- Head seal structure strengthened to improve seal properties (TÜV: IEC IP67, UL: NEMA 3, 4, 4X, 6P, and 13)

- Wide standard operating temperature range: –40 to 80°C

- Models with gold-plated contacts to enable handling microloads

- Certified standards: UL, CSA, EN (TÜV), and CCC

Rapid Delivery Ordering Information

Model	Part Number	Description
D4B-4111N-NPT	11012-0020	D4B-N BASE MODEL, ROLLER LEVER, NPT,1NC/1NO
D4B-4113N-NPT	11012-4029	D4BN-N BASE MODEL, 1NC/1NO, SNAP ACTION, NPT
D4B-4115N-NPT	11012-0024	D4B-N BASE MODEL, ROLLER LEVER, STAINLESS STEEL, NPT, 1NC/1NO
D4B-4116N-NPT	11012-0025	D4B-N BASE MODEL, ADJUSTABLE ROLLER LEVER, NPT, 1NC/1NO
D4B-4117N-NPT	11012-4028	D4B-N BASE MODEL, ADJUSTABLE ROD LEVER, NPT, 1NC/1NO
D4B-4170N-NPT	11012-0026	D4B-N BASE MODEL, TOP PLUNGER, NPT, 1NC/1NO
D4B-4171N-NPT	11012-0022	D4B-N BASE MODEL, TOP ROLLER PLUNGER, M20+NPT, 1NC/1NO, SNAP ACTION
D4B-4A13N-NPT	11012-4027	D4B-N BASE MODEL, NPT, 2NC
D4B-4A71N-NPT	11012-0023	D4B-N BASE MODEL, TOP ROLLER PLUNGER, NPT, 2NC

Small Safety Limit Switch

- Smallest class of safety limit switches

- Extra small limit switch with a direct opening mechanism (four-contact model)

- High-sensitivity safety limit switch

- Four contacts in either 2NC + 2NO or 4NC versions

- Degree of protection: IP67 (EN60947-5-1)

- Certified standards: UL, EN (TÜV), and CC

Rapid Delivery Ordering Information

Model	Part Number	Description
D4F-302-1R	11019-0007	D4F BASE MODEL, 2NC+2NO, ROLLER PLUNGER, 1 M CABLE, HORIZONTAL
D4F-102-3R	11019-0021	D4F BASE MODEL, 1NC+1NO, ROLLER PLUNGER, 3 M CABLE, HORIZONTAL
D4F-202-3R	11019-0022	D4F BASE MODEL, 2NC, ROLLER PLUNGER, 3 M CABLE, HORIZONTAL
D4F-302-3R	11019-0023	D4F BASE MODEL, 2NC+2NO, ROLLER PLUNGER, 3 M CABLE, HORIZONTAL
D4F-120-3D	11019-0025	D4F BASE MODEL, 1NC+1NO, ROLLER LEVER, 3 M CABLE, VERTICAL
D4F-302-3D	11019-0031	D4F BASE MODEL, 2NC+2NO, ROLLER PLUNGER, 3 M CABLE, VERTICAL
D4F-120-5R	11019-0033	D4F BASE MODEL, 1NC+1NO, ROLLER LEVER, 5 M CABLE, HORIZONTAL
D4F-320-5R	11019-0035	D4F BASE MODEL, 2NC+2NO, ROLLER LEVER, 5 M CABLE, HORIZONTAL
D4F-220-5D	11019-0042	D4F BASE MODEL, 2NC, ROLLER LEVER, 5 M CABLE, VERTICAL
D4F-320-5D	11019-0043	D4F BASE MODEL, 2NC+2NO, ROLLER LEVER, 5 M CABLE, VERTICAL
D4F-420-5D	11019-0044	D4F BASE MODEL, 4NC, ROLLER LEVER, 5 M CABLE, VERTICAL
D4F-302-5D	11019-0047	D4F BASE MODEL, 2NC+2NO, ROLLER PLUNGER, 5 M CABLE, VERTICAL

OMRON

Safety Limit Switch

- Upgraded safety limit switches based on the popular D4D, providing a full lineup conforming to international standards

- Lineup includes three contact models with 2NC/1NO and 3NC contact forms in addition to the previous contact forms 1NC/1NO, and 2NC. Models with MBB contacts are also available

- M12-connector models are available, saving on labor and simplifying replacement

- Standardized gold-clad contacts provide high contact reliability. Can be used with both standard loads and microloads

- Conforms to EN115, EN81-1, and EN81-2 (slow-action models only)

- Lineup includes both slow-action and snap-action models with Zb contacts

- Certified standards: UL, EN (TÜV), and CCC

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Rapid Delivery Ordering Information

Model	Part Number	Description
D4N-4120-NPT	11023-0707	D4N BASE MODEL,1NC/1NO, ROLLER LEVER, SNAP ACT, M20+NPT
D4N-412G-NPT	11023-0702	D4N BASE MODEL,1NC/1NO, ADJ ROLLER LEVER, SNAP ACT, M20+NPT
D4N-4132-NPT	11023-0705	D4N BASE MODEL, 1NC/1NO, ROLLER PLUNGER, M20+NPT
D4N-4162-NPT	11023-0704	D4N BASE MODEL,1NC/1NO, ONE WAY ROLLER HORIZONTAL, SNAP ACT, M20+NPT
D4N-4172-NPT	11023-0703	D4N BASE MODEL,1NC/1NO, ONE WAY ROLLER VERTICAL, SNAP ACT, M20+NPT

Pull-reset Safety Limit Switch

- A series of pull-reset models now available

- Lineup includes three contact models with 2NC/1NO and 3NC contact forms in addition to the previous contact forms 1NC/1NO and 2NC

- M12-connector models are available, saving on labor and simplifying replacement

- Standardized gold-clad contacts provide high contact reliability. Can be used with both standard loads and microloads

- Conforms to EN115, EN81-1 and EN81-2

- Certified standards: UL, EN (TÜV), and CCC

Rapid Delivery Ordering Information

Model	Part Number	Description
D4N-4A32R-NPT	11023-0694	D4N-R BASE MODEL, 1NC+1NO, SLOW ACT, TOP ROLLER PLUNGER, M20+NPT
D4N-4A2GR-NPT	11023-0697	D4N-R BASE MODEL, 1NC+1NO, SLOW ACT, ADJ ROLLER LEVER, M20+NPT
D4N-4A20R-NPT	11023-0698	D4N-R BASE MODEL, 1NC+1NO, SLOW ACT, ROLLER LEVER, M20+NPT
D4N-4B2GR-NPT	11023-0699	D4N-R BASE MODEL, 2NC, SLOW ACT, ADJ ROLLER LEVER, M20+NPT

Slim Safety Door Switches with IP67 Rating

- Slim design with a width of only 17 mm (three-contact models)

- Reversible design allowing either front or rear mounting

- Built-in Switches with two- or three-terminal contact construction are available

- Operation Key with rubber mounting hole to absorb vibration and shock

- IP67 degree of protection

Rapid Delivery Ordering Information

Model	Part Number	Description
D4GS-N1R-5	11021-0023	D4GS-N BASE MODEL, 1NC+1NO, HORIZONTAL, 5 M CABLE
D4GS-N2R	11021-0025	D4GS-N BASE MODEL, 2NC, HORIZONTAL, 1 M CABLE
D4GS-N2T	11021-0026	D4GS-N BASE MODEL, 2NC, VERTICAL, 1 M CABLE
D4GS-N2R-5	11021-0031	D4GS-N BASE MODEL, 2NC, HORIZONTAL, 5 M CABLE
D4GS-N3R-3	11021-0035	D4GS-N BASE MODEL, 2NC+1NO, HORIZONTAL, 3 M CABLE
D4GS-N3R-5	11021-0037	D4GS-N BASE MODEL, 2NC+1NO, HORIZONTAL, 5 M CABLE
D4GS-N4R	11021-0039	D4GS-N BASE MODEL, 3NC, HORIZONTAL, 1 M CABLE
D4GS-NK1	11021-0045	D4GS-N OPERATION KEY, HORIZONTAL MOUNTING
D4GS-NK2	11021-0046	D4GS-N OPERATION KEY, VERTICAL MOUNTING
D4GS-NK4	11021-0047	D4GS-N OPERATION KEY, ADJUSTABLE MOUNTING (VERTICAL)

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OMRON

Safety-Door Switch

- Multi-contact, labor-saving, environment-friendly, next-generation safety-door switch

- Lineup includes three contact models with 2NC/1NO and 3NC contact forms and MBB models in addition to the previous contact forms 1NC/1NO, and 2NC

- M12-connector models are available, saving on labor and simplifying replacement.

- Standardized gold-clad contacts provide high contact reliability. Applicable to both standard loads and microloads.

- Variety of metallic heads available

Rapid Delivery Ordering Information

Model	Part Number	Description
D4NS-4CF-NPT	11027-0098	D4NS BASE MODEL, 2NC+1NO, M20+NPT
D4NS-4DF-NPT	11027-0099	D4NS BASE MODEL, 3NC, M20+NPT
D4NS-4BF-NPT	11027-0101	D4NS BASE MODEL, 2NC, M20+NPT
D4NS-4AF-NPT	11027-0104	D4NS BASE MODEL, 1NC+1NO, M20+NPT
D4DS-K1	11018-0011	D4NS, D4NL OPERATION KEY, HORIZONTAL MOUNTING
D4DS-K2	11018-0012	D4NS, D4NL OPERATION KEY, VERTICAL MOUNTING
D4DS-K3	11018-0013	D4NS, D4NL OPERATION KEY, ADJUSTABLE MOUNTING (HORIZONTAL)
D4DS-K5	11018-1005	D4NS, D4NL OPERATION KEY, ADJUSTABLE MOUNTING (HORIZONTAL/VERTICAL)

Small Tongue-Operated Safety Interlock Switch

- Small size—these switches are ideal for guarding applications with space restrictions. Fits on 1 inch square tubing.

- NEMA 6 (IP67) enclosure enables these switches to withstand water washdown cleaning

- Rotatable head gives eight possible actuator entry points for versatile installation. A blanking plug is supplied for the unused entry.

- Long life—these switches, with their stainless steel actuators, are designed for a minimum of one million actuations

- Available with two contact poles. Contact configurations of 1 N/O and 1N/C or 2N/C are available to meet requirements of dual channel safety monitoring

- An optional stainless steel guide is available for demanding applications

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Conforms to EN1088, EN292,
EN60947-5-1, EN60204-1
UL and C-UL listed

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Rapid Delivery Ordering Information

Model	Part Number	Description
T2008-11SM	44540-0010	T2008 BASE MODEL, 1N/C+1 N/O, M16, 90 ACT'R + ADAPTER
T2008-02SM	44540-0020	T2008 BASE MODEL, 2N/C, M16, 90 ACT'R + ADAPTER

Universal Tongue-Operated Safety Interlock Switch

- Strong and versatile—the compact size of the strong, glass-filled thermoplastic housing allows this switch to be used in most applications

- NEMA 6 enclosure enables these switches to withstand water washdown cleaning

- Rotatable head gives eight possible actuator entry points for versatile installation. A blanking plug is supplied for the unused entry.

- Long life—these switches, with their stainless steel actuators, are designed for a minimum of two million actuations

- Available in 2 or 4 contact pole versions. The 4 contact pole version provides 2 poles for dual channel safety monitoring and 2 additional poles for status monitoring.

- An optional stainless steel guide is available for demanding applications

Conforms to EN1088, EN292, EN60947-5-1, EN60204-1 UL and C-UL listed, BG approved

Rapid Delivery Ordering Information

Model	Part Number	Description
T4012-011	44538-2010	T4012 BASE MODEL, 1N/C+1N/O, M20
T4012-020	44538-2020	T4012 BASE MODEL, 2N/C, M20
T4012-020TM	44538-0120	T4012 BASE MODEL, 2N/C, M20/NPT ADAPTER
T4012-022	44538-2040	T4012 BASE MODEL, 2N/C+2N/O, M20
T4012-022TM	44538-0140	T4012 BASE MODEL, 2N/C+2N/O, M20/NPT ADAPTER
T4012-031	44538-2030	T4012 BASE MODEL, 3N/C+1N/O, M20
T4012-031TM	44538-0130	T4012 BASE MODEL, 3N/C+1 N/O, M20/NPT ADAPTER
SRH34-90	44534-0790	T4012 REPLACEMENT HEAD
SBRL34-P70	44534-8070	T4012 PLASTIC SLIDE BOLT FOR RIGHT OR LEFT HAND DOOR
SBR34-MR30	44534-8130	T4012 BOLT FOR RIGHT-HUNG DOOR (YELLOW METAL)
SBL34-MR40	44534-8140	T4012 BOLT FOR LEFT-HUNG DOOR (YELLOW METAL)

For complete specifications and additional models and accessories visit www.sti.com

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Heavy-Duty Metal-Body Safety Interlock Switch

- Rugged enclosure—the all metal housing and stainless steel actuator of the T4016 makes it suitable for harsh environments

- NEMA 6/IP67 enclosure enables these switches to withstand water washdown cleaning.

- Rotatable head gives eight possible actuator entry points for versatile installation. A blanking plug is supplied for the unused entry.

- Long life—these switches, with their stainless steel actuators, are designed for a minimum of two million actuations

- A variety of 4 contact pole versions provides 2 poles for dual channel safety monitoring and 2 additional poles for status monitoring

Rapid Delivery Ordering Information

Model	Part Number	Description
T4016-031SM	44539-0010	T4016 BASE MODEL,3NC+1NO, 90 ACTUATOR, 3 X 0.5 INCH NPT CONDUIT OPENINGS
T4016-031TM	44539-0110	T4016 BASE MODEL,3NC+1NO, FLAT ACTUATOR, 3 X 0.5 INCH NPT CONDUIT OPENINGS
T4016-031F1M	44539-0210	T4016 BASE MODEL, 3NC+1NO, FLEX 1 ACTUATOR, 3 X 0.5 INCH NPT CONDUIT OPENINGS
T4016-031	44539-2010	T4016 BASE MODEL, 3N/C+1N/O, 3 X 0.5 INCH NPT CONDUIT OPENINGS
SAG-SS80	44534-0780	T4016 STAINLESS STEEL ALIGNMENT GUIDE
SA35-TRB	44535-0700	T4016 REPLACEMENT FLAT ACTUATOR RB
SA35-SRB	44535-0710	T4016 REPLACEMENT 90-DEGREE ACTUATOR RB
SBR-M00	44535-8000	T4016 BRACKET WITH HANDLE FOR RIGHT-HUNG DOOR (YELLOW)
SBL-M00	44535-8010	T4016 BRACKET WITH HANDLE FOR LEFT-HUNG DOOR (YELLOW)

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Compact Universal Tongue-Operated Safety Interlock Switch

- Strong and versatile—the compact size of the strong, glass-filled polyester housing can be used in many applications

- NEMA 6 enclosure enables these switches to withstand water washdown cleaning

- Rotatable head gives four possible actuator entry points for versatile installation. A blanking plug is supplied for the unused entry

- Small swing radius allows use on doors with a swing radius as small as 64 mm (2.5 in.) when using the optional flexible 1 actuator with alignment guide

- Vibration resistant—optional catch and retainer keeps vibrating guard doors shut, preventing unwanted opening of guard doors on vibrating machines
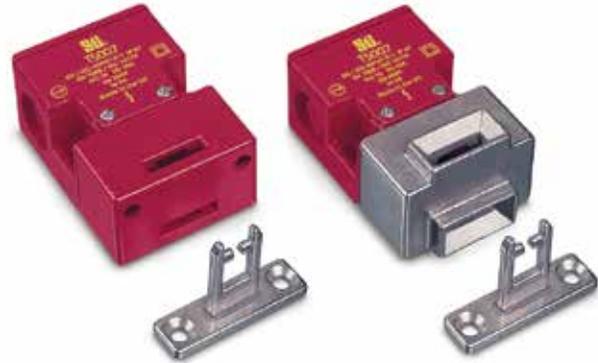
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Conforms to EN1088, EN292,
EN60947-5-1, EN60204-1
UL and C-UL listed

- Optional connector makes installation quick and easy

- An optional stainless steel head is available

Rapid Delivery Ordering Information

Model	Part Number	Description
T5007-02F1M	44526-0120	T5007 BASE MODEL, FLEX 1, 2N/C, 3 X M20 WITH NPT ADAPTER
T5007-02FF1SCC	44526-1122	T5007 BASE MODEL, FLEX 1, 2N/C, STAINLESS STEEL HEAD, FRONT ENTRY, CONNECTOR
T5007-02SCC	44526-0022	T5007 BASE MODEL, 2N/C, CONNECTOR
T5007-02SM	44526-0020	T5007 BASE MODEL, 2N/C, 3 X M20 WITH NPT ADAPTER
T5007-11F1M	44526-0110	T5007 BASE MODEL, FLEX 1, 1N/C+1N/O, 3 X M20 WITH NPT ADAPTER
T5007-11FF1SM	44526-1110	T5007 BASE MODEL, FLEX 1, 1N/C+1N/O, STAINLESS STEEL HEAD, FRONT ENTRY, 3 X M20 WITH NPT ADAPTER
T5007-11FSSM	44526-1010	T5007 BASE MODEL, 1N/C+1N/O, STAINLESS STEEL HEAD, FRONT ENTRY, 3 X M20 WITH NPT ADAPTER
T5007-11SM	44526-0010	T5007 BASE MODEL, 1N/C+1N/O, 3 X M20 WITH NPT ADAPTER
SA01-F2	44501-0780	T5007, T5009 REPLACEMENT FLEXIBLE 2 ACTUATOR WITH GUIDE
SA19-F1	44519-0710	T5007, TL8012, TL5012, T5009, T4011 REPLACEMENT FLEXIBLE ACTUATOR WITH GUIDE
SA26-S	44526-0700	T5007 SPARE STANDARD ACTUATOR FOR T5007
SLD26-01	44526-0801	T5007, T4011, T5009, TL8012-S SWITCH LOCKING DEVICE

For complete specifications and additional models and accessories visit www.sti.com

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Universal Tongue-Operated Safety Interlock Switch

- Strong and versatile—the compact size of the strong, glass-filled polyester housing and metal reinforced cam allows this popular switch to be used in most applications

- NEMA 6 enclosure enables these switches to withstand water washdown cleaning

- Rotatable head gives four possible actuator entry points for versatile installation. A blanking plug is supplied for the unused entry

- Small swing radius allows use on doors with a swing radius as small as 2.5 in. when using the optional flexible actuators

- Hi-Hold models reduce nuisance rips and allow the switch to also serve as the gate catch without the need to mount any additional hardware

- 4 contact poles provide 2 poles for dual channel safety monitoring and 2 additional poles for status monitoring

HI-HOLD MODELS AVAILABLE

Conforms to EN1088, EN292, EN60947-5-1, EN60204-1
UL and C-UL listed

- Optional connector makes installation easy

- Optional stainless steel head is available

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Rapid Delivery Ordering Information

Model	Part Number	Description
T5009-021F1M	44501-0120	T5009 BASE MODEL, FLX1 2N/C+1NO BBM, 3 X M20/NPT
T5009-021SM	44501-0110	T5009 BASE MODEL, 2NC+1NO BBM, STD ACTUATOR, 3 X M20/NPT
T5009-6040N	44501-1045	T5009-6 BASE MODEL, 4NC BBM, 3 X 1/2 NPT
SM01-MCK40	44501-0740	T5009 CATCH KIT
SA01-S	44501-0750	T5009 REPLACEMENT STANDARD ACTUATOR
SA01-STD	44501-0755	T5009 STANDARD SPARE ACTUATOR, PLASTIC HEADED SWITCHES
SA01-FLX1	44501-0760	T5009 FLEX 1 SPARE ACTUATOR, PLASTIC OR STAINLESS STEEL HEADED SWITCHES
SA01-FLX2	44501-0765	T5009 FLEX 2 SPARE ACTUATOR, PLASTIC OR STAINLESS STEEL HEADED SWITCHES
SA01-F2	44501-0780	T5009, T5007 REPLACEMENT FLEXIBLE 2 ACTUATOR WITH GUIDE
SA19-F1	44519-0710	T5009, TL8012, TL5012, T5007, T4011 REPLACEMENT FLEXIBLE ACTUATOR WITH GUIDE
SLD26-01	44526-0801	T5009, T4011, T5007, TL8012-S SWITCH LOCKING DEVICE

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Capacitive Palm Button

- No physical pressure required to actuate switch—reduces the likelihood of wrist injury caused by repetitive motion

- Excellent sensitivity—sensor is designed to operate even if operator is wearing gloves

- RFI Immunity—special circuitry inhibits output in the presence of RFI that would otherwise cause false triggering of output

- AC version is UL Recognized—meets the applicable requirements in the proposed first edition of UL 491

- Saves time and money

- Easy mounting in a single hole

- Wiring is simplified because terminals are clearly identified and easily accessible

- No special power supplies are required because switch is available in either 120 VAC or 24 VDC versions

Rapid Delivery Ordering Information

Model	Part Number	Description
TS-10	44527-0010	TOUCHSTART BASE MODEL, 120 VAC, REV. 2

Enabling Grip Switch with Distinct Feel for Three Easily Discernible Positions

- The difficult task of configuring safety circuits is now easily achieved by combining the A4EG with the G9SX-GS

- In addition to the standard models, the lineup also includes models with an emergency stop switch and models with a momentary operation switch

- An optional Holding Key (sold separately) provides a versatile method for selecting modes

- Equipped with conduit connector

Rapid Delivery Ordering Information

Model	Part Number	Description
A4EG-C000041	11073-0001	A4EG BASE MODEL, SWITCH ONLY, 2NC SAFETY, 1 AUX
A4EG-BM2B041	11073-0003	A4EG BASE MODEL, SWITCH ONLY, 2NC SAFETY, 2NO FUNCTION
A4EG-OP2	11073-0005	A4EG MOUNTING BRACKET
A4EG-OP3	11073-0006	A4EG HOLDING KEY
SC09-9M310	44509-0310	A4EG CABLE, 10-PIN MINI MALE, 9 MS
SC09-9M320	44509-0320	A4EG CABLE, 8-PIN MINI MALE, 9 MS
SC09-9M330	44509-0330	A4EG CABLE, 4-PIN MINI MALE, 10 MS
SC12-M16CG80	44512-0080	M16 CORD GRIP (4-5 MM ID)
SC12-M20CG90	44512-0090	M20 CORD GRIP (4-5 MM ID)

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Safety Key Selector Switch

- Key-type selector switch with direct opening mechanism

- Selector Switch for secure equipment activation during maintenance

- 30 types of exclusive keys make it more difficult to disable

- The trapped key of the D4JL Guard Lock Safety-door Switch has the same shape as the locking key of the D4SL-SK10-LK Slide Key Unit. Units can be combined to improve safety. (Specify the same key type.)

- Common to the switch part of Emergency Stop Switch A22E. (Non-lighted model only)

Rapid Delivery Ordering Information

Model	Part Number	Description
A22TK-2LL-02-K01	11004-8009	A22TK BASE MODEL, 2N/C, LEFT KEY RELEASE, LEFTN/C CLOSED, KEY INCLUDED
A22TK-2LR-12-K01	11004-8022	A22TK BASE MODEL, 1N/O+2N/C, LEFT KEY RELEASE, RIGHTN/C CLOSED, KEY INCLUDED
A22TK-2RL-02-K01	11004-8033	A22TK BASE MODEL, 2N/C, RIGHT KEY RELEASE, LEFTN/C CLOSED, KEY INCLUDED
A22TK-2RL-12-K01	11004-8034	A22TK BASE MODEL, 1N/O+2N/C, RIGHT KEY RELEASE, LEFTN/C CLOSED, KEY INCLUDED
A22Z-3466-1	11003-0053	A22E LEGEND PLATE, 60-DIA.
A22Z-B101Y	11003-0061	A22E CONTROL BOX
A22Z-EG1	11004-0001	A22E E-SHOP SHROUD FOR EMERGENCY OFF "EMO", YELLOW

Safety Monitoring & Force-Guided Relays

OMRON

Contents

S

Rapid Delivery Products are normally in stock and available for quick shipment.

G9SA Safety Monitoring Relays

Safety Relay Unit

- Four kinds of 45-mm wide units are available:
  A 3-pole model, a 5-pole model, and models with 3 poles and 2 OFF-delay poles, as well as a two-hand controller.
  Also available are 17.5 mm wide expansion units with 3 poles and 3 OFF-delay poles.

- Simple expansion connection

- OFF-delay models have 15-step OFF-delay settings

- Conforms to EN standards (BG approval)

- Both DIN track mounting and screw mounting are possible

Rapid Delivery Ordering Information

Model	Part Number	Description
G9SA-301 AC/DC24	11054-6001	G9SA BASE MODEL, 3NO+1NC, 45 MM, E-STOP CONTROL
G9SA-301 AC100-240	11054-6012	G9SA BASE MODEL, 3NO+1NC, 45 MM, E-STOP CONTROL
G9SA-321-T075 AC/DC24	11054-6003	G9SA BASE MODEL, 3NO IMMEDIATE, 2NO DELAYED, 7.5 SEC.
G9SA-501 AC/DC24	11054-6002	G9SA BASE MODEL, 5NO+1NC, 45 MM, E-STOP CONTROL
G9SA-EX301	11054-6007	G9SA BASE MODEL, 3NO+1NC, EXP MODULE, 45 MM, NO DELAY

SR101A Safety Monitoring Relays

Single-Channel Monitoring Relay

- Power requirements—the SR101A will accept 24 VAC/DC or 115 VAC

- Inputs—a singleN/C input channel, not monitored, is provided

- Outputs—the SR101A has two N/O outputs to route power to the coils of power contactors

- External Device Monitoring (EDM) is provided with aN/C loop between S11 and S21 on the SR101A

- Reset mode—an automatic reset mode is provided with the SR101A

Conforms to EN60204-1, EN954-1, VDE 0113-1
UL and C-UL listed
TÜV Rheinland approved

Rapid Delivery Ordering Information

Model	Part Number	Description
SR101A01	44510-1011	SR101 BASE MODEL, 24 VAC/DC, 1 INPUT, 2 OUTPUTS

For complete specifications and additional models and accessories visit www.sti.com

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Dual-Channel Monitoring Relay

- Power requirements—the SR103AM will accept 24 VAC/DC or 115 VAC
- Inputs—the SR103AM will accept single or dualN/C inputs or dual inputs from a light curtain
- Outputs—the SR103AM has 3 N/O outputs to route power to the coils of power contactors, plus 1N/C auxiliary output for signaling purposes
- External Device Monitoring (EDM) is provided with aN/C loop between S11/S12 and S21 on the SR103AM
- Monitored manual or automatic/manual reset modes are available on the SR103AM.

Conforms to EN60204-1, EN954-1, VDE 0113-1
UL and C-UL listed
TÜV Rheinland approved

- Monitored manual reset requires closure of the reset circuit followed by opening of the circuit. Reset occurs when circuit is opened. Auto reset requires only closure of the reset circuit as reset occurs when circuit is closed

Rapid Delivery Ordering Information

Model	Part Number	Description
SR103AM01	44510-1031	SR103 BASE MODEL, 24 VAC/DC, 2 INPUTS, 3 OUTPUTS, 1N/C AUX.
SR103AM02	44510-1032	SR103 BASE MODEL, 110 VAC, 2 INPUTS, 3 OUTPUTS, 1N/C AUX.

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Two-Hand Control Monitoring Relay

- Power requirements—the SR104P will accept 24 VAC/DC and 115 VAC
- Inputs—controls and monitors two-hand control switches to ensure that both switches are operated within 0.5 seconds of each other
- Outputs—the SR104P has 2 N/O outputs to route power to the coils of power contactors
- External Device Monitoring (EDM) is provided with aN/C loop between X1 and X2 on the SR104P

Conforms to EN574 Cat. IIIC, EN60204-1, EN954-1, VDE 0113-1
UL and C-UL listed, BG approved

Rapid Delivery Ordering Information

Model	Part Number	Description
SR104P01	44510-1041	SR104 BASE MODEL, 24 VAC/DC, 2 HAND CONTROL UNIT, 2 OUTPUTS
SR104P02	44510-1042	SR104 BASE MODEL, 110 VAC, 2 HAND CONTROL UNIT, 2 OUTPUTS

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Safety Expansion Unit

- Power requirements—the SR106ED will accept 24 VAC/DC or 115 VAC
- Outputs—the SR106ED has 3 N/O delayed outputs to route power to the coils of power contactors (delay selectable from 1 to 30 sec.)
- Auxiliary Output—the SR106ED has 1N/C auxiliary for monitoring by the safety monitoring relay
- PLC Compatible—The N/O off delayed output makes it possible to use the SR106ED on machines with

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Conforms to EN60204-1, EN954-1, VDE 0113-1
UL and C-UL listed
TÜV Rheinland approved

programmable logic controllers that require some time to execute an orderly shutdown

Rapid Delivery Ordering Information

Model	Part Number	Description
SR106ED01	44510-1061	SR106 BASE MODEL, 24 VAC/DC, 1 INPUT, 3 OFF DELAYED OUTPUTS, 1 AUX.

SR107, 108 & 109AD
Safety Monitoring Relays

SpeedSPEC
SR107AD
sti.com

Dual-Channel Monitoring Relay

- Power requirements—the SR107AD, SR108AD and SR109AD will accept 24 VAC/DC
- Inputs—the SR107AD, SR108AD and SR109AD will accept single or dualN/C inputs or dual PNP solid-state inputs from a light curtain
- Outputs—the SR107AD, SR108AD and SR109AD have a total of 4 N/O outputs with 3, 2 or 1 of the outputs with a time delay of 1-30 sec.
- External Device Monitoring (EDM) is provided with aN/C loop between S12 and S21 on the SR107AD, SR108AD and SR109AD
- Reset mode—a monitored manual start or an auto/manual start may be configured with the SR107AD, SR108AD and SR109AD. Monitored manual reset requires closure of the reset circuit followed

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Conforms to EN60204-1, EN954-1, EN292, VDE 0113-1
UL and C-UL listed, BG approved

by opening of the circuit. Reset occurs when circuit is opened. Auto reset requires only closure of the reset circuit as reset occurs when circuit is closed.
- PLC Compatible—The N/O off delayed outputs make it possible to use the SR107AD, SR108AD and SR109AD on machines with Programmable Logic Controllers that require some time to execute an orderly shutdown

Rapid Delivery Ordering Information

Model	Part Number	Description
SR108AD01	44510-1081	SR108 BASE MODEL, 24 VAC/DC, 2 INPUTS, 2 OUTPUTS, 2 DELAYED OUTPUTS

Stop Motion Sensing Unit

- Power requirements—the SR125SMS45 will accept 24 VDC or 110 VAC

- Motion detection input—the SR125SMS45 detects the stop condition of all types of AC or DC motors by sensing the motor's back EMF across terminals Z1, Z2 and Z3

- Drive compatible—the SR125SMS45 will function with electronic motor control devices such as variable speed controllers, DC injection brakes, etc.

- Selectable speed limit—the SR125SMS45 has 1 N/O and 1N/C outputs that are switched when motor speed reaches the adjustable preset limit (0.01 to 0.10 V) for the particular output

- Auxiliary output—the SR125SMS45 has 2 solid state auxiliary signaling outputs

Conforms to EN60204-1, EN292, and EN692
UL listed, CSA and BG approved

Rapid Delivery Ordering Information

Model	Part Number	Description
SR125SMS4501	44510-1271	SR125 BASE MODEL, 24 VDC, BACK EMF SENSING, 1NO+1NC, 2 SOLID STATE

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SR131A Safety Monitoring Relays

Dual-Channel Monitoring Relay

- Power requirements—the SR131A will accept 24 VDC

- Inputs—The SR131A is designed to monitor two magnetically encoded non-contact switches with 1N/C and 1 N/O contacts

- Outputs—the SR131A has 2 N/O outputs to route power to the coils of external device power contactors plus 2N/C auxiliary solid state outputs for signaling purposes

- External Device Monitoring (EDM) is provided with aN/C loop between Y1 and Y2 on the SR131A

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Conforms to EN60204-1, EN954-1, EN292, and EN1088
UL and C-UL listed, CSA and BG approved

- Selectable reset modes—automatic/manual reset mode is available on the SR131A

Rapid Delivery Ordering Information

Model	Part Number	Description
SR131A00	44510-1310	SR131 BASE MODEL, 24 VDC, 2 INPUTS (TWO), 2 OUTPUTS, 2 SOLID STATE AUX.

SR203 M & 203AM Safety Monitoring Relays

Dual-Channel Monitoring Relay

- Power requirements—the SR203 M/A will accept 24 VAC/DC or 115 VAC

- Inputs—the SR203 M/A will accept single or dualN/C inputs or dual PNP inputs from a light curtain

- Outputs—the SR203 M/A has 3 N/O outputs to route power to the coils of power contactors, plus 1N/C auxiliary output for signaling purposes

- External Device Monitoring (EDM) is provided with aN/C loop between S12 and S34 on the SR203 M/A

CE c UL us

Conforms to EN60204-1, EN954-1, ISOTR 12100
UL and C-UL listed

- Monitored manual or automatic/manual reset modes are available on the SR203 M/A

- The SR203 M/A have removable terminal blocks

Rapid Delivery Ordering Information

Model	Part Number	Description
SR203A01	44510-2031	SR203 BASE MODEL, 24 VAC/DC, 2 INPUTS, 3 OUTPUTS, 1N/C AUX.

Dual-Channel Safety Monitoring Relay

- Power requirements—the SR208AD/209AD will accept 24 VAC/DC or 115 VAC

- Inputs—the SR208AD/209AD will accept single or dual N/C inputs or dual PNP inputs from a light curtain

- Outputs—the SR208AD has 2 N/O immediate outputs plus 3 N/O delayed outputs. The SR209AD has 2 N/O immediate outputs plus 2 N/O and 1N/C delayed outputs to route power to the coils of power contactors (selectable from 0.5 to 10 sec.)

- External Device Monitoring (EDM) is provided with aN/C loop between Y1 and Y2 on the SR208AD/209AD

- Reset mode—monitored manual or automatic/manual reset modes are available on the SR208/209AD

- PLC Compatible—The N/O off delayed outputs make it possible to use the SR208AD/209AD on machines with Programmable Logic Controllers that require some time to execute an orderly shutdown. TheN/C on delayed output of the SR209AD may be used to apply power for unlocking a solenoid locking switch

- The SR208AD/209AD have removable terminal blocks

Rapid Delivery Ordering Information

Model	Part Number	Description
SR208AD01	44510-2081	SR208 BASE MODEL, 24 VAC/DC, 2 INPUTS, 2 OUTPUTS, 3 DELAYED OUTPUTS
SR209AD01	44510-2091	SR209 BASE MODEL, 24 VAC/DC, 2 INPUTS, 2 OUTPUTS, DELAYED OUTPUTS 2N/O+1N/C

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G7SA Force-Guided Relays

Compact, Slim Relays Conforming to EN Standards

- Relays with forcibly guided contacts (EN50205 Class A, certified by VDE)

- Supports the CE marking of machinery (Machinery Directive)

- Helps avoid hazardous machine status when used as part of an interlocking circuit

- Four-pole and six-pole relays are available

- The relay's terminal arrangement simplifies PWB pattern design

- Reinforced insulation between inputs and outputs. Reinforced insulation between some poles of different polarity

Rapid Delivery Ordering Information

Model	Part Number	Description
G7SA-2A2B DC24	11051-0002	G7SA BASE MODEL, 2NO+2NC, 24 VDC, FORCE GUIDED RELAY
G7SA-3A1B DC24	11051-0001	G7SA BASE MODEL, 3NO+1NC, 24 VDC, FORCE GUIDED RELAY
G7SA-3A3B DC24	11051-0005	G7SA BASE MODEL, 3NO+3NC, 24 VDC, FORCE GUIDED RELAY
G7SA-4A2B DC24	11051-0004	G7SA BASE MODEL, 4NO+2NC, 24 VDC, FORCE GUIDED RELAY
G7SA-5A1B DC24	11051-0003	G7SA BASE MODEL, 5NO+1NC, 24 VDC, FORCE GUIDED RELAY
P7SA-10F	11059-0012	G7SA 4 POLE SOCKET, TRACK MOUNTING, NO LED
P7SA-10F-ND DC24	11059-0010	G7SA 4 POLE SOCKET, TRACK MOUNTING, LED
P7SA-10P	11059-0008	G7SA 4 POLE SOCKET, BACK MOUNTING, NO LED
P7SA-14F	11059-0009	G7SA 6 POLE SOCKET, TRACK MOUNTING, NO LED
P7SA-14F-ND DC24	11059-0011	G7SA 6 POLE SOCKET, TRACK MOUNTING, LED
P7SA-14P	11059-0007	G7SA 6 POLE SOCKET, BACK MOUNTING, NO LED

G7S-☐-E Force-Guided Relays

Lineup Now Includes 10-A Models

- Relays with forcibly guided contacts (EN50205 Class A, certified by VDE)

- Supports the CE marking of machinery (Machinery Directive)

- Helps avoid hazardous machine status when used as part of an interlocking circuit

- Track-mounting and back-mounting sockets are available

Rapid Delivery Ordering Information

Model	Part Number	Description
G7S-3A3B-E DC24	11052-0001	G7S-E BASE UNIT, 6 POLES, 3PST-NO, 3PST-NC
G7S-4A2B-E DC24	11052-0002	G7S-E BASE UNIT, 6 POLES, 4PST-NO, DPST-NC
P7S-14F-END DC24	11060-0001	G7S-E, TRACK-MOUNT SOCKET, 24 VDC

For complete specifications and additional models and accessories visit www.sti.com

OMRON

Emergency Stop Devices

OMRON

Contents

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Rapid Delivery Products
are normally in stock and
available for quick shipment.

OMRON

Emergency Stop Switch (16 mm diameter)

- Separate construction with one of the smallest class of depths in the world

- Direct opening mechanism to open contacts in emergencies, such as when they are welded

- Conforms to EN418

- Includes a safety lock to prevent misuse

- Features separate construction that allows the switch to be separated for easier wiring and one-piece-like construction that allows easier handling

- Models available with 3 contacts built into a single block (A165E-U)

Rapid Delivery Ordering Information

Model	Part Number	Description
A165E-S-01	11002-7007	A165E BASE MODEL, NON-LIGHTED, 30 DIA., SPST-NC
A165E-S-02	11002-7008	A165E BASE MODEL, NON-LIGHTED, 30 DIA., DPST-NC
A165E-S-03U	11002-7012	A165E BASE MODEL, NON-LIGHTED, 30 DIA., TPST-NC

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OMRON

Emergency Stop Switch
(22 mm or 25 mm diameter)

- Install in 22-dia. or 25-dia. panel cutout

- Direct opening mechanism to open the circuit when the contact welds

- Safety lock mechanism prevents operating errors

- Easy mounting and removal of Switch Blocks using a lever

- Mount three Switch Units in series to improve wiring efficiency (with non-lighted Switch Units, three Units can be mounted for multiple contacts)

- Finger protection mechanism on Switch Unit provided as a standard feature

- Install using either round, or forked crimp terminals
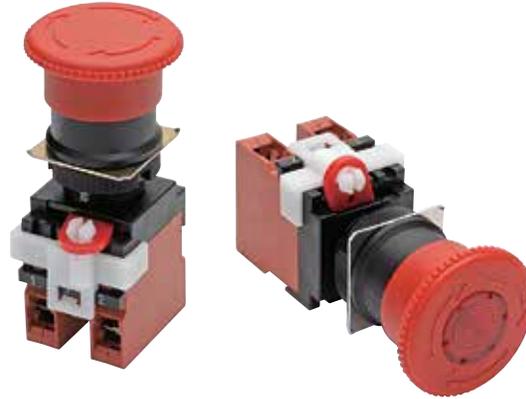
- Non-lighted versions are IP65 (oil resistant). Lighted versions are IP65

- A lock plate is provided as a standard feature to ensure that the control box and switch are not easily separated

Rapid Delivery Ordering Information

Model	Part Number	Description
A22E-L-02	11004-7013	A22E BASE MODEL, NON-LIGHTED, PUSH-LOCK, TURN RESET, 2NC, 60 DIA.
A22EL-M-24A-02	11004-7010	A22E BASE MODEL, LIGHTED, PUSH-LOCK, TURN RESET, 2NC, 24V, NO REDUCTION, 40 DIA.
A22E-M	11004-2002	A22E BASE MODEL, NON-LIGHTED, PUSH-LOCK, TURN RESET, 40 DIA.
A22E-M-01	11004-7001	A22E BASE MODEL, NON-LIGHTED, PUSH-LOCK, TURN RESET, 1NC, 40 DIA.
A22E-M-02	11004-7002	A22E BASE MODEL, NON-LIGHTED, PUSH-LOCK, TURN RESET, 2NC, 40 DIA.
A22E-M-11	11004-7004	A22E BASE MODEL, NON-LIGHTED, PUSH-LOCK, TURN RESET, 1NC+1NO, 40 DIA.
A22E-M-12	11004-7051	A22E BASE MODEL, NON-LIGHTED, PUSH-LOCK, TURN RESET, 2NC+1NO, 40 DIA.
A22E-MP-02	11004-7034	A22E BASE MODEL, NON-LIGHTED, PUSH-PULL, 2NC, 40 DIA.
A22E-MP-11	11004-7036	A22E BASE MODEL, NON-LIGHTED, PUSH-PULL, 1NC+1NO, 40 DIA.
A22E-S-01	11004-7024	A22E BASE MODEL, NON-LIGHTED, PUSH-LOCK, TURN RESET, 1NC, 30 DIA.
A22E-S-02	11004-7025	A22E BASE MODEL, NON-LIGHTED, PUSH-LOCK, TURN RESET, 2NC, 30 DIA.

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Common Features

- IP67 (NEMA 6) enclosure enables the switch to withstand water washdown cleaning

- Integral E-stop—the E-stop button provides emergency stopping capability at the extreme end of the installation and is field serviceable

- Tension indicator makes system setup and rope tension maintenance easy

- 4N/C safety contacts and 2 N/O auxiliary contacts satisfy the most demanding applications

- Vibration tolerant—the snap-acting switch contacts protect against nuisance tripping due to vibration

- Indicator beacon—the indicator beacon, available in 24 VDC or 120 VAC, can be wired to flash red to indicate a tripped switch or glow a constant green to indicate a properly reset switch

- Rubber bellows contain UV inhibitor making the switches suitable for outdoor applications

ER1022

Rope spans up to 125 m (410 ft.)

Conforms to IEC947-5-1, IEC947-5-5, EN418, UL508, BS5304
UL and C-UL listed, TUV certified

SpeedSPEC ER1022 sti.com

Rapid Delivery Ordering Information

Model	Part Number	Description
ER1022-042 MELL	44506-6410	ER1022 BASE MODEL, 4N/C+2N/O, M20, E STOP, LED 24 VDC, L
ER1022-042 MELR	44506-6510	ER1022 BASE MODEL, 4N/C+2N/O, M20, E STOP, LED 24 VDC, R
ER1022-042NELL	44506-6420	ER1022 BASE MODEL, 4N/C+2N/O, 1/2 IN. NPT, E STOP, LED 24 VDC, L
ER1022-042NELR	44506-6520	ER1022 BASE MODEL, 4N/C+2N/O, 1/2 IN. NPT, E STOP, LED 24 VDC, R

ER1032

Rope spans up to 200 m (656 ft.)

Conforms to IEC947-5-1, IEC947-5-5, EN418, UL508, BS5304
UL and C-UL listed, TUV certified

SpeedSPEC ER1032 sti.com

Rapid Delivery Ordering Information

Model	Part Number	Description
ER1032-042 MEL	44506-7410	ER1032 BASE MODEL, 4N/C+2N/O, M20, E STOP, LED 24 VDC, D
ER1032-042NEL	44506-7420	ER1032 BASE MODEL, 4N/C+2N/O, 1/2 IN. NPT, E STOP, LED 24 VDC, D
ER1032-042NELAC	44506-7421	ER1032 BASE MODEL, 4N/C+2N/O, 1/2 IN. NPT, E STOP, LED 120 VAC, D

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Compact Rope Pull Emergency Stop Switch

- Compact size allows this switch to be used on smaller machines with a mounting width of 40 mm (1.57 in.) and covering rope spans up to 40 m (131 ft.)

- Tension indicator makes system setup and rope tension maintenance easy

- Contact arrangements of 2N/C + 1 N/O or 3N/C

- IP67 (NEMA 6) enclosure enables the ER5018 switch to withstand water washdown cleaning

- Heavy-duty housing—the die-cast housing and stainless steel eye nut makes the ER5018 suitable for demanding industrial applications

- Integral E-Stop—the optional E-stop provides emergency stopping at the extreme end of the installation

- Reset button—the blue reset button must be pushed in order to return to "machine run" condition following switch actuation by a pulled or slacked rope

- Vibration tolerant—the snap-acting switch contacts protect against nuisance tripping due to vibration

- Rubber bellows contain UV inhibitor making the switches suitable for outdoor applications

CE $\quad$ UL $\quad$ TÜV

Conforms to IEC947-5-1, IEC947-5-5, EN418, UL508, BS5304
UL and C-UL listed, TUV certified

Rapid Delivery Ordering Information

Model	Part Number	Description
ER5018-021M	44506-4010	ER5018 BASE MODEL, 2N/C+1N/O, M20
ER5018-021N	44506-4020	ER5018 BASE MODEL, 2N/C+1N/O, 1/2 IN. NPT
ER5018-021NE	44506-4120	ER5018 BASE MODEL, 2N/C+1N/O, 1/2 IN. NPT, E STOP

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ER6022 Emergency Stop Devices

SpeedSPEC
ER6022
sti.com

Rope Pull Emergency Stop Switch

- Rope spans up to 80 m (262 ft.) means fewer number of switches required per application

- Tension indicator makes system setup and rope tension maintenance easy

- Contact arrangements of 2N/C + 1 N/O, 3N/C + 1 N/O or 2N/C + 2 N/O

- IP67 (NEMA 6) enclosure enables the ER6022 switch to withstand water wash-down cleaning

- Reset button—the blue reset button must be pushed in order to return to "machine run" condition following switch actuation by a pulled or slacked rope

- Indicator beacon—the optional dual indicator beacon, available in 24 VDC or 120 VAC, can be wired to flash red to indicate a tripped switch or glow a constant green to indicate a properly reset switch

- E-stop button—the ER6022 has two mounting positions where the optional E-stop button may be installed; the E-stop button may be added or replaced in the field

- Rubber bellows contain UV inhibitor making the switches suitable for outdoor applications

Conforms to IEC947-5-1, IEC947-5-5, EN418, UL508, BS5304
UL and C-UL listed, TUV certified

Rapid Delivery Ordering Information

Model	Part Number	Description
ER6022-021M	44506-5010	ER6022-BASE MODEL, 2N/C+1N/O, M20
ER6022-021ME	44506-5210	ER6022-BASE MODEL, 2N/C+1N/O, M20, E STOP
ER6022-021MEL	44506-5410	ER6022-BASE MODEL, 2N/C+1N/O, M20, E STOP, LED
ER6022-021NE	44506-5220	ER6022-BASE MODEL, 2N/C+1N/O, 1/2 IN. NPT, E STOP
ER6022-021NEL	44506-5420	ER6022-BASE MODEL, 2N/C+1N/O, 1/2 IN. NPT, E STOP, LED
ER6022-021NELAC	44506-5423	ER6022-BASE MODEL, 2N/C+1N/O, 1/2 IN. NPT, E STOP, 120 VAC LED
ER6022-022 MLSS	44506-5910	ER6022-BASE MODEL, 2NC+2NO,3 X M20, LED
ER6022-022N	44506-5080	ER6022-BASE MODEL, 2N/C+2N/O, 1/2 IN. NPT
ER6022-022NE	44506-5280	ER6022-BASE MODEL, 2N/C+2N/O, 1/2 IN. NPT, E-STOP
ER6022-022NEL	44506-5480	ER6022-BASE MODEL, 2N/C+2N/O, 1/2 IN. NPT, E-STOP, LED
ER6022-022NELSS	44506-5960	ER6022-BASE MODEL, 2NC+2NO,3 X 1/2 IN. NPT, E-STOP, LED

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OMRON

For complete specifications and additional models and accessories visit www.sti.com

Stainless Steel Rope Pull Emergency Stop Switch

- Rope spans up to 100 m (328 ft.) means fewer number of switches required per application

- Tension indicator maintains the proper rope tension

- Contact arrangements of 3N/C + 1 N/O or 2N/C + 2 N/O

- IP67 (NEMA 6) enclosure withstands water washdown cleaning

- 316 stainless steel cast housing and stainless steel hardware

- Reset button—the blue reset button must be pushed in order to return to "machine run" condition following switch actuation by a pulled or slacked rope

- Vibration tolerant—the snap-acting switch contacts protect against nuisance tripping due to vibration

- Indicator beacon—the dual indicator beacon is optional on the ER6022-SS; the indicator beacon can be wired to flash red to indicate a tripped switch or glow a constant green to indicate a properly reset switch

- Optional E-stop button—may be added or replaced in the field

- Rubber bellows contain UV inhibitor making the switches suitable for outdoor applications

- Extreme Cold Version—for applications down to -40°C

Conforms to IEC947-5-1, IEC947-5-5, EN418, UL508, BS5304
UL and C-UL listed, TUV certified

Model Number Index

Model Number Index

OMRON

NEMA Ratings

NEMA (National Electrical Manufacturers Association) ratings ensure protection against the following environmental conditions.

Environmental Conditions	Type of Enclosure													
	1	2	3	3R	3S	4	4X	5	6	6P	11	12	12K	13
Accidental contact with the enclosed equipment	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Falling dirt	X	X	--	--	--	X	X	X	X	X	X	X	X	X
Falling liquids, light splashing	--	X	--	--	--	X	X	--	X	X	X	X	X	X
Dust, lint, fibers and flyings (non-combustible, non-ignitable)	--	--	--	--	--	X	X	X	X	X	--	X	X	X
Windblown dust	--	--	X	--	X	X	X	--	X	X	--	--	--	--
Hosedown and splashing water	--	--	--	--	--	X	X	--	X	X	--	--	--	--
Oil and coolant seepage	--	--	--	--	--	--	--	--	--	--	--	X	X	X
Oil or coolant spraying and splashing	--	--	--	--	--	--	--	--	--	--	--	--	--	X
Corrosive agents	--	--	--	--	--	--	X	--	--	X	X	--	--	--
Occasional temporary submersion	--	--	--	--	--	--	--	--	X	X	--	--	--	--
Occasional prolonged submersion	--	--	--	--	--	--	--	--		X	--	--	--	--

IP Ratings

The IEC (International Electrotechnical Commission) defines degrees of protection provided by electrical enclosures with respect to personnel, equipment within the enclosure and ingress of water. The degree of protection is expressed by the letters "IP" followed by two numerals (Example: IP67). See the table below for an explanation of the numerals.

The following information is drawn from publication IEC 60529 of 2004 and 529 of 1989.

By contrast to NEMA, "IP" ratings do not apply to protection against the risk of explosion or conditions such as humidity, corrosive gases, fungi or vermin. Also, different parts of a piece of equipment can have different degrees of protection and still comply with the standards. An example would be the opening in the base of an enclosure.

1st characteristic numeral		2nd characteristic numeral	
Protection against contact and penetration of solid bodies.		Protection against the penetration of liquids.	
0	Not protected	0	Not protected
1	Protection against solid objects greater than 50 mm	1	Protection against dripping water
2	Protection against solid objects greater than 12 mm	2	Protection against dripping water when tilted up to 15°
3	Protection against solid objects greater than 2.5 mm	3	Protection against spraying water
4	Protection against solid objects greater than 1 mm	4	Protection against splashing water
5	Dust protected	5	Protection against water jets
6	Dust tight	6	Protection against heavy seas
--		7	Protection against the effects of immersion
--		8	Protection against submersion
--		9K	Protection against steam jet cleaning

WORKING FOR THE BENEFIT OF SOCIETY

Our approach to product development and business is guided by core values based on serving the needs of society. This is reflected in the Omron corporate motto...

"At work for a better life, a better world for all."

Conceived by Omron's founder Kazuma Tateisi, these words reflect his pioneering idea that a company should fulfill its responsibility to society rather than solely focusing on productivity, efficiency, sales and profits. Our unending commitment to identifying social needs is embedded in Omron's corporate DNA, along with a challenge-oriented spirit capable of responding to those needs.

The Omron Foundation in the Americas funds charitable donations for disaster relief and recovery efforts, and matches individual employee donations to social support, education, and cultural enrichment organizations. Each year on May 10, Omron employees around the world actively participate in charitable activities to honor the core values established by the company's founder. Throughout the year, Omron offers team and individual opportunities at partner charitable organizations to underscore the need for social responsibility as a corporate priority.

ENVIRONMENTAL PROTECTION
Providing environmentally safe products to the world.

Omron's social responsibility also takes the form of decisions and actions that help preserve and restore the environment. Far in advance of directives banning the use of harmful chemicals in making electronics (RoHS), Omron adopted an ECO policy that works to eliminate these and other pollutants. The policy also mandates significant reductions in power consumption to conserve energy and natural resources for future generations.