

# E3FA/E3RA PHOTOELECTRIC SENSORS

The next generation in sensing performance



**M18  
Plastic  
Housing**

- » Simplicity in setup & installation
- » Standard & special applications
- » Robust waterproof housing

# E3FA/E3RA Series – The All-Application Sensor

Omron's next generation of photoelectric sensors represents one of the largest varieties of dependable and easy-to-use photoelectric sensors on the market. Regardless of your industry or application, the E3FA/E3RA series is the right sensor for the job.

## Key Features

- » Universal M18 cylindrical plastic housing in straight or 90° angled (radial) models
- » Rugged IP67, IP69K housing withstands high-pressure and high-temperature wash down
- » Bright LED indicators provide status visibility from almost any angle
- » High power red LED for easy sensor alignment and dependable outputs in dusty environments
- » High EMC protection and ambient light immunity for detection stability in environments with excess noise or background light
- » Compact size and shape for increased installation flexibility



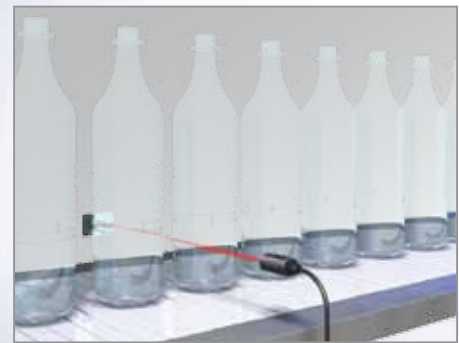
## Unrivalled Detection with Simplicity in Setup and Installation



The short body of the E3FA/E3RA fits in tighter mounting spaces.



Visible red LED light for easy alignment.



Transparent object detection sensors utilize Omron's unique technology for detecting objects with birefringent (double refraction) properties.



Bright LED indicators for status visibility and large sensor adjusters for use with a standard size screwdriver.



Flush, snap mounting option for quick and easy installation.



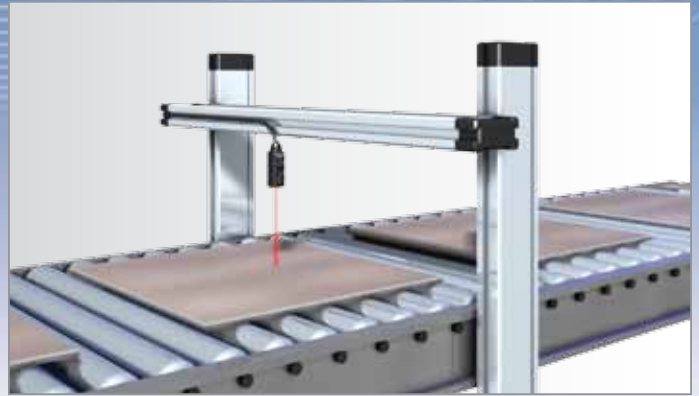
High power LED to compensate for dirt and misalignment.

# One Family for All Applications

## Special Models

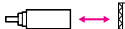
The E3FA series includes special models to solve challenging applications.

- » Background Suppression
- » Limited Distance Detection
- » Transparent Object Detection



Background suppression sensors for stable detection independent of color or background.

## Ordering Information

| Setup                                                                               | Sensor type                                                                         |                                                                                     | Sensing distance                | PNP            |               | NPN            |               |
|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|---------------------------------|----------------|---------------|----------------|---------------|
|                                                                                     |                                                                                     |                                                                                     |                                 | Pre-wired (2m) | M12 connector | Pre-wired (2m) | M12 connector |
| Straight                                                                            |    | Through-beam *1                                                                     | 20m                             | E3FA-TP11 2M   | E3FA-TP21     | E3FA-TN11 2M   | E3FA-TN21     |
|                                                                                     |    | Retro-reflective<br>(using reflector E39-R1S<br>sold separately.)                   | 0.1 to 4m                       | E3FA-RP11 2M   | E3FA-RP21     | E3FA-RN11 2M   | E3FA-RN21     |
|                                                                                     |   | Retro-reflective (coaxial)<br>(using reflector E39-R1S<br>sold separately.)         | 0 to 500mm                      | E3FA-RP12 2M   | E3FA-RP22     | E3FA-RN12 2M   | E3FA-RN22     |
|                                                                                     |  | Diffuse-reflective                                                                  | 100mm                           | E3FA-DP11 2M   | E3FA-DP21     | E3FA-DN11 2M   | E3FA-DN21     |
|                                                                                     |                                                                                     |                                                                                     | 300mm                           | E3FA-DP12 2M   | E3FA-DP22     | E3FA-DN12 2M   | E3FA-DN22     |
|                                                                                     |                                                                                     |                                                                                     | 1m                              | E3FA-DP13 2M   | E3FA-DP23     | E3FA-DN13 2M   | E3FA-DN23     |
|                                                                                     | Special Applications                                                                |  | BGS (Background<br>suppression) | 100mm          | E3FA-LP11 2M  | E3FA-LP21      | E3FA-LN11 2M  |
|                                                                                     |                                                                                     |                                                                                     | 200mm                           | E3FA-LP12 2M   | E3FA-LP22     | E3FA-LN12 2M   | E3FA-LN22     |
|  |                                                                                     | Limited distance reflective                                                         | 10 to 50mm                      | E3FA-VP11 2M   | E3FA-VP21     | E3FA-VN11 2M   | E3FA-VN21     |
|  |                                                                                     | Transparent detection<br>(using reflector E39-RP1 sold<br>separately.)              | 100 to 500mm                    | E3FA-BP11 2M   | E3FA-BP21     | E3FA-BN11 2M   | E3FA-BN21     |
|                                                                                     |                                                                                     |                                                                                     | 0.1 to 2m                       | E3FA-BP12 2M   | E3FA-BP22     | E3FA-BN12 2M   | E3FA-BN22     |
| Radial                                                                              |                                                                                     |  | Through-beam *1                 | 15m            | E3RA-TP11 2M  | E3RA-TP21      | E3RA-TN11 2M  |
|                                                                                     |                                                                                     |                                                                                     |                                 |                |               |                |               |
|                                                                                     |  | Retro-reflective<br>(using reflector E39-R1S<br>sold separately.)                   | 0.1 to 3m                       | E3RA-RP11 2M   | E3RA-RP21     | E3RA-RN11 2M   | E3RA-RN21     |
|                                                                                     |  | Diffuse-reflective                                                                  | 100mm                           | E3RA-DP11 2M   | E3RA-DP21     | E3RA-DN11 2M   | E3RA-DN21     |
|                                                                                     |                                                                                     |                                                                                     | 300mm                           | E3RA-DP12 2M   | E3RA-DP22     | E3RA-DN12 2M   | E3RA-DN22     |
|                                                                                     |                                                                                     |                                                                                     | 700mm                           | E3RA-DP13 2M   | E3RA-DP23     | E3RA-DN13 2M   | E3RA-DN23     |

\*1 The set type includes the emitter and receiver.

Note: All sensors are 10-30 VDC. Light-On/Dark-On selectable by wiring.



Use this document as a guide to find the right E3FA/E3RA sensor for your application. Enter the **Quick Link Code** in the Search Center of the Omron website ([www.omron247.com](http://www.omron247.com)) to download comprehensive E3FA/E3RA product documentation such as datasheets, brochures, manuals and CAD files.

# Accessories

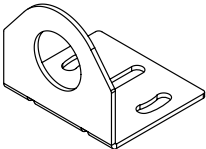
## Reflectors

Reflectors required for Retro-reflective Sensors: A Reflector is not provided with the Sensor. Be sure to order a Reflector separately.

| Sensor   | Sensing distance | Appearance                                                                        | Model   | Quantity | Remarks                 |
|----------|------------------|-----------------------------------------------------------------------------------|---------|----------|-------------------------|
| E3FA-R□1 | 0.1 to 4 m       |  | E39-R1S | 1        | for E3FA-R□ and E3RA-R□ |
| E3FA-R□2 | 0 to 500 mm      |                                                                                   |         |          |                         |
| E3FA-B□1 | 100 to 500 mm    |  | E39-RP1 | 1        | for E3FA-B□             |
| E3FA-B□2 | 0.1 to 2 m       |                                                                                   |         |          |                         |

## Mounting Brackets

A Mounting Bracket is not included with the Sensor. Order a Mounting Bracket separately if required.

| Sensor    | Appearance                                                                          | Model (Material)  | Quantity | Remarks                |
|-----------|-------------------------------------------------------------------------------------|-------------------|----------|------------------------|
| All types |    | E39-L183 (SUS304) | 1        | Mounting bracket       |
|           |  | E39-L182 (POM)    | 1        | Flush mounting bracket |

## Sensor I/O connectors

Models for Connectors: A Connector is not provided with the Sensor. Be sure to order a Connector separately.

| Sensor    | Size | Cable    | Appearance                                                                                   | Cable Type |        | Remarks         |
|-----------|------|----------|----------------------------------------------------------------------------------------------|------------|--------|-----------------|
| All types | M12  | Standard | Straight  | 2 m        | 4-wire | XS2F-M12PVC4S2M |
|           |      |          |                                                                                              | 5 m        |        | XS2F-M12PVC4S5M |
|           |      |          | Angle     | 2 m        |        | XS2F-M12PVC4A2M |
|           |      |          |                                                                                              | 5 m        |        | XS2F-M12PVC4A5M |

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