

# Transparent Object Detection Photoelectric Sensor E3S-DB

## Superb Detection of Many Types of Transparent Objects



- Double slits inside Sensor prevent incorrect operation.
- P-opaquin function\* improves detection of PET bottles and transparent films.
- Smart Teaching for optimum settings in as little as 3 seconds.
- Maximum sensing distance of 3.5 m.
- IP69K protection recommended for food and beverage industry. Third-party certification from Ecolab in Europe for detergent resistance.
- Variable connector and cable directions, and 360° indicators for greater usability.



\* This function uses polarization to opaque transparent objects that exhibit double refraction.



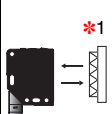
Refer to the **Safety Precautions** on page 7.

For the most recent information on models that have been certified for safety standards, refer to your OMRON website.

## Ordering Information

### Sensors (Refer to *Dimensions* on page 8.)

 Red light

| Sensing method                       | Appearance                                                                          | Sensitivity adjustment | Connection method                          | Sensing distance *2                                                                                   | Model           |                 |
|--------------------------------------|-------------------------------------------------------------------------------------|------------------------|--------------------------------------------|-------------------------------------------------------------------------------------------------------|-----------------|-----------------|
|                                      |                                                                                     |                        |                                            |                                                                                                       | NPN output      | PNP output      |
| Retro-reflective (with MSR function) |  | Smart Teaching         | Pre-wired (2 m)                            |  3.5 m             | E3S-DBN11 2M    | E3S-DBP11 2M    |
|                                      |                                                                                     |                        | Connector (M12)                            |                                                                                                       | E3S-DBN21       | E3S-DBP21       |
|                                      |                                                                                     |                        | M12 Smartclick pre-wired connector (0.3 m) |                                                                                                       | E3S-DBN31 0.3M  | E3S-DBP31 0.3M  |
|                                      |                                                                                     |                        | Pre-wired (2 m)                            |  Narrow beam 0.5 m | E3S-DBN12 2M    | E3S-DBP12 2M    |
|                                      |                                                                                     |                        | Connector (M12)                            |                                                                                                       | E3S-DBN22       | E3S-DBP22       |
|                                      |                                                                                     |                        | M12 Smartclick pre-wired connector (0.3 m) |                                                                                                       | E3S-DBN32 0.3M  | E3S-DBP32 0.3M  |
|                                      |                                                                                     | Eleven-turn adjuster   | Pre-wired (2 m)                            |  3.5 m             | E3S-DBN11T 2M   | E3S-DBP11T 2M   |
|                                      |                                                                                     |                        | Connector (M12)                            |                                                                                                       | E3S-DBN21T      | E3S-DBP21T      |
|                                      |                                                                                     |                        | M12 Smartclick pre-wired connector (0.3 m) |                                                                                                       | E3S-DBN31T 0.3M | E3S-DBP31T 0.3M |
|                                      |                                                                                     |                        | Pre-wired (2 m)                            |  Narrow beam 0.5 m | E3S-DBN12T 2M   | E3S-DBP12T 2M   |
|                                      |                                                                                     |                        | Connector (M12)                            |                                                                                                       | E3S-DBN22T      | E3S-DBP22T      |
|                                      |                                                                                     |                        | M12 Smartclick pre-wired connector (0.3 m) |                                                                                                       | E3S-DBN32T 0.3M | E3S-DBP32T 0.3M |

\*1. A Reflector is not included with the Sensor. Select a Reflector (sold separately) according to the application.

\*2. There is no close-range dead zone between the Sensor and Reflector.

## Accessories (Sold Separately)

**Sensor I/O Connectors (Connector on One End)** (A Connector is required for a Sensor with a connector or pre-wired connector.)  
Connectors are not provided with the Sensors. Be sure to order a Connector separately.

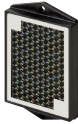
| Size               | Cable specifications       | Appearance                                                                                       | Cable length | Model           |
|--------------------|----------------------------|--------------------------------------------------------------------------------------------------|--------------|-----------------|
| *1<br>M12 (4 pins) | Fire-retardant robot cable | Straight<br> *2 | 2 m          | XS2F-D421-D80-F |
|                    |                            |                                                                                                  | 5 m          | XS2F-D421-G80-F |
|                    |                            | Straight<br> *2 | 2 m          | XS5F-D421-D80-F |
|                    |                            |                                                                                                  | 5 m          | XS5F-D421-G80-F |

\*1 Refer to your OMRON website for details on the XS2 and XS5.

\*2 The connectors will not rotate after they are connected.

**Reflectors** (A Reflector is required for each Retro-reflective Sensor.) (Refer to *Dimensions* on page 10.)

Reflectors are not provided with the Sensors. Be sure to order a Reflector separately.

| Appearance                                                                          | Sensing distance*<br>(reference value) | Model    | Quantity | Applicable Sensors | Remarks                      |
|-------------------------------------------------------------------------------------|----------------------------------------|----------|----------|--------------------|------------------------------|
|    | 3.5 m                                  | E39-R1S  | 1        | E3S-DB□□1(T)       | Standard model               |
|                                                                                     | 2 m                                    | E39-R1K  |          | E3S-DB□□1(T)       | Non-fogging reflective plate |
|    | 3 m                                    | E39-RP1  |          | E3S-DB□□1(T)       | Special Polarizing Reflector |
|  | 0.5 m (rated value)                    | E39-R21  |          | E3S-DB□□2(T)       | Narrow-beam Reflector        |
|  | 3.5 m (rated value)                    | E39-R8   |          | E3S-DB□□1(T)       | Standard model               |
|  | 1.5 m                                  | E39-RS10 |          | E3S-DB□□1(T)       | Sheets                       |
|                                                                                     | 0.5 m                                  |          |          | E3S-DB□□2(T)       |                              |
|  | 2.5 m                                  | E39-RS11 |          | E3S-DB□□1(T)       |                              |
|                                                                                     | 0.5 m                                  |          |          | E3S-DB□□2(T)       |                              |

**Note: 1.** If you use the Reflector at any distance other than the rated distance, make sure that the stability indicator lights properly when you install the Sensor.

**2.** Refer to *Engineering Data (Reference Value)* on page 4 for details.

\* There is no close-range dead zone between the Sensor and Reflector.

**Mounting Brackets** (Refer to *Dimensions* on page 11.)

A Mounting Bracket is not provided with the Sensor. It must be ordered separately as required.

| Type            | Appearance                                                                          | Model    | Quantity |
|-----------------|-------------------------------------------------------------------------------------|----------|----------|
| Bottom-mounting |  | E39-L192 | 1        |
| Side-mounting   |  | E39-L193 |          |

**Note:** For details, refer to the *Mounting Brackets* on E39-L/E39-S/E39-R which can be accessed from your OMRON website.