

# Ultracompact, Ultrathin Photoelectric Sensor with Built-in Amplifier

# E3T

## The Improved E3T Series with Easier, Smoother Mounting and Installation

- The series includes Through-beam, Long-distance (2 m) Sensors (E3T-ST3□).
- Easy installation with M3-mounting Sensors (E3T-ST□□M, E3T-FD□□M, and E3T-SL□□M).
- Small Cylindrical Sensors for one-point mounting are also available (E3T-C□□□(S)).
- Infrared Sensors added to the Series (E3T-□T□□(M)F).



Be sure to read *Safety Precautions* on page 15.

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

## Lineup Overview

| Appearance       |                                                                                                  | Sensing method | Through-beam | Retro-reflective | Diffuse-reflective | Limited-reflective | BGS-reflective |
|------------------|--------------------------------------------------------------------------------------------------|----------------|--------------|------------------|--------------------|--------------------|----------------|
| Rectangular type | Side-view<br> | M2-mounting    | ●            | ●                | ---                | ●                  | ---            |
|                  |                                                                                                  | M3-mounting    | ●            | ---              | ---                | ●                  | ---            |
|                  | Flat<br>      | M2-mounting    | ●            | ---              | ●                  | ---                | ●              |
|                  |                                                                                                  | M3-mounting    | ---          | ---              | ●                  | ---                | ---            |
| Cylindrical type | Top-view<br>  | ---            | ●            | ---              | ●                  | ---                | ---            |
|                  | Side-view<br> | ---            | ●            | ---              | ---                | ---                | ---            |

# E3T

## Ordering Information

**Sensors** [Refer to Dimensions on page 16.]

■ Red light □ Infrared light

**M2-mounting Sensors** A set of mounting screws is included with the Sensor.

| Sensing method                                       | Appearance | Sensing distance                                                  | Operation mode | Model                                   |                                         |
|------------------------------------------------------|------------|-------------------------------------------------------------------|----------------|-----------------------------------------|-----------------------------------------|
|                                                      |            |                                                                   |                | NPN output                              | PNP output                              |
| Through-beam<br>( Emitter + Receiver ) <sup>*1</sup> |            | 2 m                                                               | Light-ON       | E3T-ST31 2M <sup>*4</sup>               | E3T-ST33 2M <sup>*4</sup>               |
|                                                      |            | (Sensitivity Adjustment Unit can be used.)                        | Dark-ON        | E3T-ST32 2M <sup>*4</sup>               | E3T-ST34 2M <sup>*4</sup>               |
|                                                      |            | 1 m                                                               | Light-ON       | E3T-ST11 2M <sup>*4</sup>               | E3T-ST13 2M <sup>*4</sup>               |
|                                                      |            | (Sensitivity Adjustment Unit can be used.)                        | Dark-ON        | E3T-ST12 2M <sup>*4</sup>               | E3T-ST14 2M <sup>*4</sup>               |
|                                                      |            | 300 mm                                                            | Light-ON       | E3T-ST21 2M                             | E3T-ST23 2M                             |
|                                                      |            |                                                                   | Dark-ON        | E3T-ST22 2M                             | E3T-ST24 2M                             |
|                                                      |            | 2 m                                                               | Light-ON       | E3T-ST31F 2M                            | E3T-ST33F 2M                            |
|                                                      |            |                                                                   | Dark-ON        | E3T-ST32F 2M                            | E3T-ST34F 2M                            |
|                                                      |            | 1 m                                                               | Light-ON       | E3T-ST11F 2M                            | E3T-ST13F 2M                            |
|                                                      |            |                                                                   | Dark-ON        | E3T-ST12F 2M                            | E3T-ST14F 2M                            |
|                                                      |            | 300 mm                                                            | Light-ON       | E3T-ST21F 2M                            | E3T-ST23F 2M                            |
|                                                      |            |                                                                   | Dark-ON        | E3T-ST22F 2M                            | E3T-ST24F 2M                            |
|                                                      |            | 500 mm                                                            | Light-ON       | E3T-ST11 2M <sup>*4</sup>               | E3T-ST13 2M <sup>*4</sup>               |
|                                                      |            |                                                                   | Dark-ON        | E3T-ST12 2M <sup>*4</sup>               | E3T-ST14 2M <sup>*4</sup>               |
|                                                      |            | 300 mm                                                            | Light-ON       | E3T-ST21 2M                             | E3T-ST23 2M                             |
|                                                      |            |                                                                   | Dark-ON        | E3T-ST22 2M                             | E3T-ST24 2M                             |
| Retro-reflective                                     |            | Using the E39-R4 Reflector, provided 200 mm [30 mm] <sup>*2</sup> | Light-ON       | E3T-SR41 2M <sup>*3</sup> <sup>*4</sup> | E3T-SR43 2M <sup>*3</sup> <sup>*4</sup> |
|                                                      |            | Using the E39-R37-CA 100 mm [10 mm] <sup>*2</sup>                 | Dark-ON        | E3T-SR42 2M <sup>*3</sup> <sup>*4</sup> | E3T-SR44 2M <sup>*3</sup> <sup>*4</sup> |
| Diffuse-reflective                                   |            | 5 to 30 mm                                                        | Light-ON       | E3T-FD11 2M <sup>*4</sup>               | E3T-FD13 2M <sup>*4</sup>               |
|                                                      |            |                                                                   | Dark-ON        | E3T-FD12 2M <sup>*4</sup>               | E3T-FD14 2M <sup>*4</sup>               |
| Limited-reflective                                   |            | 5 to 15 mm                                                        | Light-ON       | E3T-SL11 2M <sup>*4</sup>               | E3T-SL13 2M <sup>*4</sup>               |
|                                                      |            |                                                                   | Dark-ON        | E3T-SL12 2M <sup>*4</sup>               | E3T-SL14 2M <sup>*4</sup>               |
|                                                      |            | 5 to 30 mm                                                        | Light-ON       | E3T-SL21 2M <sup>*4</sup>               | E3T-SL23 2M <sup>*4</sup>               |
|                                                      |            |                                                                   | Dark-ON        | E3T-SL22 2M <sup>*4</sup>               | E3T-SL24 2M <sup>*4</sup>               |
| BGS-reflective                                       |            | 1 to 15 mm                                                        | Light-ON       | E3T-FL11 2M <sup>*4</sup>               | E3T-FL13 2M <sup>*4</sup>               |
|                                                      |            |                                                                   | Dark-ON        | E3T-FL12 2M <sup>*4</sup>               | E3T-FL14 2M <sup>*4</sup>               |
|                                                      |            | 1 to 30 mm                                                        | Light-ON       | E3T-FL21 2M <sup>*4</sup>               | E3T-FL23 2M <sup>*4</sup>               |
|                                                      |            |                                                                   | Dark-ON        | E3T-FL22 2M <sup>*4</sup>               | E3T-FL24 2M <sup>*4</sup>               |

**M3-mounting Sensors** A set of mounting screws is not included with the Sensor. Order a Screw Set separately if required.

| Sensing method                                       | Appearance | Sensing distance | Operation mode | Model         |               |
|------------------------------------------------------|------------|------------------|----------------|---------------|---------------|
|                                                      |            |                  |                | NPN output    | PNP output    |
| Through-beam<br>( Emitter + Receiver ) <sup>*1</sup> |            | 1 m              | Light-ON       | E3T-ST11M 2M  | E3T-ST13M 2M  |
|                                                      |            |                  | Dark-ON        | E3T-ST12M 2M  | E3T-ST14M 2M  |
|                                                      |            | 300 mm           | Light-ON       | E3T-ST21M 2M  | E3T-ST23M 2M  |
|                                                      |            |                  | Dark-ON        | E3T-ST22M 2M  | E3T-ST24M 2M  |
|                                                      |            | 1 m              | Light-ON       | E3T-ST11MF 2M | E3T-ST13MF 2M |
|                                                      |            |                  | Dark-ON        | E3T-ST12MF 2M | E3T-ST14MF 2M |
|                                                      |            | 300 mm           | Light-ON       | E3T-ST21MF 2M | E3T-ST23MF 2M |
|                                                      |            |                  | Dark-ON        | E3T-ST22MF 2M | E3T-ST24MF 2M |
| Diffuse-reflective                                   |            | 5 to 30 mm       | Light-ON       | E3T-FD11M 2M  | E3T-FD13M 2M  |
|                                                      |            |                  | Dark-ON        | E3T-FD12M 2M  | E3T-FD14M 2M  |
| Limited-reflective                                   |            | 5 to 15 mm       | Light-ON       | E3T-SL11M 2M  | E3T-SL13M 2M  |
|                                                      |            |                  | Dark-ON        | E3T-SL12M 2M  | E3T-SL14M 2M  |
|                                                      |            | 5 to 30 mm       | Light-ON       | E3T-SL21M 2M  | E3T-SL23M 2M  |
|                                                      |            |                  | Dark-ON        | E3T-SL22M 2M  | E3T-SL24M 2M  |

<sup>\*1</sup>. The model number of the Emitter is expressed by adding an "L" to the set model number in the table. Example: E3T-ST11-L 2M

The model number of the Receiver is expressed by adding a "D" to the set model number in the table. Example: E3T-ST11-D 2M

<sup>\*2</sup>. Values in parentheses indicate the minimum required distance between the Sensor and Reflector.

<sup>\*3</sup>. Models are available either with or without the E39-R37-CA Reflector included.

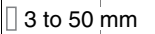
Models with E39-R37-CA Reflector: E3T-SR4□-S

Models without Reflector: E3T-SR4□-C

<sup>\*4</sup>. Models with robot (bending-resistant) cable are also available with "R" in the model number. (Example: E3T-ST11R 2M)

### Small Cylindrical Sensors

A set of mounting nuts is included with the Sensor.

| Sensing method                         | Appearance                                                                        | Sensing distance                                                                  | Operation mode | Model        |              |
|----------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|----------------|--------------|--------------|
|                                        |                                                                                   |                                                                                   |                | NPN output   | PNP output   |
| Through-beam<br>( Emitter + Receiver ) |  |  | Light-ON       | ---          | ---          |
|                                        |                                                                                   |                                                                                   | Dark-ON        | E3T-CT12 2M  | E3T-CT14 2M  |
|                                        |  |  | Light-ON       | ---          | ---          |
|                                        |                                                                                   |                                                                                   | Dark-ON        | E3T-CT22S 2M | E3T-CT24S 2M |
| Diffuse-reflective<br>(with adjuster)  |  |  | Light-ON       | E3T-CD11 2M  | E3T-CD13 2M  |
|                                        |                                                                                   |                                                                                   | Dark-ON        | ---          | ---          |

### Accessories (Order Separately)

Accessories for M2-mounting Sensors These accessories are not included with the Sensor. Order them separately if required.

| Name                                                                          |          | Applicable Sensor | Model    | Quantity                                                                                 | Dimensions page | Remarks                                                                                                      |
|-------------------------------------------------------------------------------|----------|-------------------|----------|------------------------------------------------------------------------------------------|-----------------|--------------------------------------------------------------------------------------------------------------|
| Slit for Through-beam Side-view Sensors                                       | 0.5 dia. | E3T-ST3□□         | E39-S63  | 2<br>(One each for Emitter and Receiver; common with Slit widths of 1 dia. and 0.5 dia.) | 21              | Sensing distance 200 mm,<br>Minimum detectable object (reference value) 0.5-mm dia.                          |
|                                                                               |          | E3T-ST1□□         |          |                                                                                          |                 | Sensing distance 100 mm,<br>Minimum detectable object (reference value) 0.5-mm dia.                          |
|                                                                               |          | E3T-ST2□□         |          |                                                                                          |                 | Sensing distance 30 mm,<br>Minimum detectable object (reference value) 0.5-mm dia.                           |
|                                                                               | 1 dia.   | E3T-ST3□□         |          |                                                                                          |                 | Sensing distance 600 mm,<br>Minimum detectable object (reference value) 1-mm dia.                            |
|                                                                               |          | E3T-ST1□□         |          |                                                                                          |                 | Sensing distance 300 mm,<br>Minimum detectable object (reference value) 1-mm dia.                            |
|                                                                               |          | E3T-ST2□□         |          |                                                                                          |                 | Sensing distance 100 mm,<br>Minimum detectable object (reference value) 1-mm dia.                            |
| Slit for Through-beam Flat Sensors                                            | 0.5 dia. | E3T-FT1□□         | E39-S64  | Sensing distance 50 mm,<br>Minimum detectable object (reference value) 0.5-mm dia.       |                 |                                                                                                              |
|                                                                               |          | E3T-FT2□□         |          | Sensing distance 30 mm,<br>Minimum detectable object (reference value) 0.5-mm dia.       |                 |                                                                                                              |
|                                                                               | 1 dia.   | E3T-FT1□□         |          | Sensing distance 100 mm,<br>Minimum detectable object (reference value) 1-mm dia.        |                 |                                                                                                              |
|                                                                               |          | E3T-FT2□□         |          | Sensing distance 50 mm,<br>Minimum detectable object (reference value) 1-mm dia.         |                 |                                                                                                              |
| Sensitivity Adjustment Unit for Through-beam Side-view Sensors with Red Light |          | E3T-ST3□          | E39-E10  | 1                                                                                        |                 | Sensing distance (reference value) 1,200 to 1,800 mm                                                         |
|                                                                               |          | E3T-ST1□          |          |                                                                                          |                 | Sensing distance (reference value) 300 to 800 mm                                                             |
| Mounting Brackets for Side-view Sensors *1                                    |          | E3T-S□□□□         | E39-L116 | 1                                                                                        | 22              | Nut plate provided                                                                                           |
|                                                                               |          |                   | E39-L117 |                                                                                          |                 |                                                                                                              |
|                                                                               |          |                   | E39-L118 |                                                                                          | 23              |                                                                                                              |
| Mounting Brackets for Flat Sensors *1                                         |          | E3T-F□□□□         | E39-L119 |                                                                                          |                 |                                                                                                              |
|                                                                               |          | E39-L120          |          |                                                                                          |                 |                                                                                                              |
| Screw Set for Side-view Sensors *2*3                                          |          | E3T-S□□□□         | E39-L164 | 2 for each                                                                               | ---             | Material: Iron (Same type as provided with the Sensor.)<br>Contents: Set screws (M2×14), Hexagonal nuts      |
| Screw Set for Flat Sensors *2*3                                               |          | E3T-F□□□□         | E39-L165 |                                                                                          |                 | Material: Iron (Same type as provided with the Sensor.)<br>Contents: Set screws (M2×8), Hexagonal nuts       |
| SUS Screw Set for Flat Sensors *2                                             |          | E3T-F□□□□         | E39-L172 | 2                                                                                        |                 | Material: SUS304<br>Contents: Bolt with hexagonal hole (M2×6)                                                |
| SUS Screw Set for Side-view Sensors *2                                        |          | E3T-S□□□□         | E39-L173 | 2 for each                                                                               |                 | Material: SUS304<br>Contents: Bolt with hexagonal hole (M2×12), Hexagonal nuts, Spring washers, Flat washers |

\*1. When using Through-beam Sensors (E3T-ST□□, E3T-FT□□), order one Bracket for the Emitter and one for the Receiver.

\*2. Order two Sets, one for the Emitter and one for the Receiver, for Through-beam Sensors (E3T-ST□□ or E3T-FT□□).

This is the Screw Set for mounting the Sensor to the Mounting Bracket. Order this Set if you lose the screws. Do not use this Screw Set to mount the Mounting Bracket to the equipment.

\*3. This is included with the Sensor.

### Accessories for M3-mounting Sensors

These accessories are not included with the Sensor. Order them separately if required.

| Name                                      | Applicable Sensor | Model      | Quantity                                 | Dimensions page | Remarks                                                                                                      |
|-------------------------------------------|-------------------|------------|------------------------------------------|-----------------|--------------------------------------------------------------------------------------------------------------|
| Slits for Through-beam Side-view Sensors  | 0.5 dia.          | E3T-ST1□M□ | 2<br>(One each for Emitter and Receiver) | 21              | Sensing distance 100 mm, Minimum detectable object (reference value) 0.5-mm dia.                             |
|                                           |                   | E3T-ST2□M□ |                                          |                 | Sensing distance 30 mm, Minimum detectable object (reference value) 0.5-mm dia.                              |
|                                           | 1 dia.            | E3T-ST1□M□ |                                          |                 | Sensing distance 300 mm, Minimum detectable object (reference value) 1-mm dia.                               |
|                                           |                   | E3T-ST2□M□ |                                          |                 | Sensing distance 100 mm, Minimum detectable object (reference value) 1-mm dia.                               |
| Mounting Bracket for Side-view Sensors *1 | E3T-S□□□M□        | E39-L166   | 1                                        | 24              | Nut plate provided                                                                                           |
| Mounting Bracket for Flat Sensors         | E3T-FD□□M         | E39-L167   |                                          |                 | ---                                                                                                          |
| Back-mounting Spacer for Flat Sensors     |                   | E39-L168   |                                          |                 | Use this Spacer when mounting a Flat Sensor (E3T-FD□□M) from the back.                                       |
| SUS Screw Set for Flat Sensors *2         | E3T-FD□□M         | E39-L170   | 2                                        | ---             | Material: SUS304<br>Contents: Bolt with hexagonal hole (M3×6)                                                |
| SUS Screw Set for Side-view Sensors *2*3  | E3T-S□□□M□        | E39-L171   | 2 for each                               |                 | Material: SUS304<br>Contents: Bolt with hexagonal hole (M3×15), Hexagonal nuts, Spring washers, Flat washers |

\*1. When using Through-beam Sensors (E3T-ST□□M□), order one Bracket for the Emitter and one for the Receiver.

\*2. This is the Screw Set for mounting the Sensor to the Mounting Bracket. Order this Set if you lose the screws. Do not use this Screw Set to mount the Mounting Bracket to the equipment.

\*3. Order two Sets, one for the Emitter and one for the Receiver, for Through-beam Sensors (E3T-ST□□M□).

### Accessories for Small Cylindrical Sensors

| Name                                             | Applicable Sensor     | Model   | Quantity                                   | Dimensions Page | Remarks                                                                      |
|--------------------------------------------------|-----------------------|---------|--------------------------------------------|-----------------|------------------------------------------------------------------------------|
| SUS Nut Set for Through-beam Sensors *1          | E3T-CT□□<br>E3T-CT□□S | E39-M5  | 4 (Hexagonal nuts),<br>2 (Toothed washers) | ---             | Material: SUS303<br>(Same type as provided with the Sensor.)                 |
| SUS Nut Set for Diffuse-reflective Sensors       | E3T-CD□□              | E39-M6  | 2 (Hexagonal nuts),<br>1 (Toothed washers) |                 |                                                                              |
| Adjustment Driver for Diffuse-reflective Sensors |                       | E39-G17 | 1                                          |                 | This Driver is used to turn the sensitivity adjuster. Provided with E3T-CD□□ |

\*1. This Nut Set is for the Emitter/Receiver. This is the Nut Set for mounting the Sensor. Order this Set if you lose the screws.

### Accessories for All Sensors

| Name                                               | Applicable Sensor | Model         | Quantity | Dimensions Page | Remarks                                                                                                                                                                    |
|----------------------------------------------------|-------------------|---------------|----------|-----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Small Reflectors<br>(for Retro-reflective Sensors) | E3T-SR4□          | E39-R4        | 1        | 20              | Sensing distance 200 mm [30 mm] *1<br>Minimum detectable object 2-mm dia.<br>Provided with the E3T-SR4□                                                                    |
|                                                    | E3T-SR4□-S        | E39-R37-CA *2 |          |                 | Sensing distance 100 mm [10 mm] *1<br>Minimum detectable object 2-mm dia.<br>Provided with the E3T-SR4□-S                                                                  |
| Tape Reflectors<br>(for Retro-reflective Sensors)  | E3T-SR4□-C        | E39-RS1-CA *2 |          | 21              | Sensing distance 100 mm [10 mm] *1<br>Minimum detectable object 2-mm dia.<br>Use Tape Reflectors in combination with the E3T-SR4□-C, which does not come with a Reflector. |
|                                                    |                   | E39-RS2-CA *2 |          |                 |                                                                                                                                                                            |
|                                                    |                   | E39-RS3-CA *2 |          |                 |                                                                                                                                                                            |

\*1. Values in parentheses indicate the minimum required distance between the Sensor and Reflector.

\*2. The E3T-SR4□ cannot be used with the E39-R37 or E39-RS1/2/3 (without CA) Tape Reflectors.  
The E39-□-CA Reflector is for use only with the E3T-SR4□. It cannot be used with other Sensors.

## Ratings and Specifications

| Sensing method<br>Appearance                |                 | Through-beam                                                                                                                                                                                             |                          |                        |                          |                       |                          |                                                                                     |                          |                     |                          |
|---------------------------------------------|-----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|------------------------|--------------------------|-----------------------|--------------------------|-------------------------------------------------------------------------------------|--------------------------|---------------------|--------------------------|
|                                             |                 | Rectangular type (Side-view)                                                                                                                                                                             |                          |                        |                          |                       |                          | Rectangular type (Flat)                                                             |                          |                     |                          |
| Item                                        |                 |                                                                                                                         |                          |                        |                          |                       |                          |  |                          |                     |                          |
| NPN output                                  | Light-ON        | E3T-ST31                                                                                                                                                                                                 | E3T-ST31F                | E3T-ST11<br>E3T-ST11M  | E3T-ST11F<br>E3T-ST11MF  | E3T-ST21<br>E3T-ST21M | E3T-ST21F<br>E3T-ST21MF  | E3T-FT11                                                                            | E3T-FT11F                | E3T-FT21            | E3T-FT21F                |
|                                             | Dark-ON         | E3T-ST32                                                                                                                                                                                                 | E3T-ST32F                | E3T-ST12<br>E3T-ST12M  | E3T-ST12F<br>E3T-ST12MF  | E3T-ST22<br>E3T-ST22M | E3T-ST22F<br>E3T-ST22MF  | E3T-FT12                                                                            | E3T-FT12F                | E3T-FT22            | E3T-FT22F                |
| PNP output                                  | Light-ON        | E3T-ST33                                                                                                                                                                                                 | E3T-ST33F                | E3T-ST13<br>E3T-ST13M  | E3T-ST13F<br>E3T-ST13MF  | E3T-ST23<br>E3T-ST23M | E3T-ST23F<br>E3T-ST23MF  | E3T-FT13                                                                            | E3T-FT13F                | E3T-FT23            | E3T-FT23F                |
|                                             | Dark-ON         | E3T-ST34                                                                                                                                                                                                 | E3T-ST34F                | E3T-ST14<br>E3T-ST14M  | E3T-ST14F<br>E3T-ST14MF  | E3T-ST24<br>E3T-ST24M | E3T-ST24F<br>E3T-ST24MF  | E3T-FT14                                                                            | E3T-FT14F                | E3T-FT24            | E3T-FT24F                |
| Sensing distance                            |                 | 2 m                                                                                                                                                                                                      |                          | 1 m                    |                          | 300 mm                |                          | 500 mm                                                                              |                          | 300 mm              |                          |
| Standard sensing object                     |                 | Opaque, 3-mm dia. min.                                                                                                                                                                                   |                          | Opaque, 2-mm dia. min. |                          |                       |                          | Opaque, 1.3-mm dia. min.                                                            |                          |                     |                          |
| Minimum detectable object (reference value) |                 | Opaque, 3-mm dia.                                                                                                                                                                                        |                          | Opaque, 2-mm dia.      |                          |                       |                          | Opaque, 1.3-mm dia.                                                                 |                          |                     |                          |
| Hysteresis (white paper)                    |                 | ---                                                                                                                                                                                                      |                          |                        |                          |                       |                          |                                                                                     |                          |                     |                          |
| Black/white error                           |                 | ---                                                                                                                                                                                                      |                          |                        |                          |                       |                          |                                                                                     |                          |                     |                          |
| Directional angle                           |                 | Emitter: 2° to 20°<br>Receiver: 2° to 70°                                                                                                                                                                |                          |                        |                          |                       |                          | Emitter: 3° to 25°<br>Receiver: 3° min.                                             |                          |                     |                          |
| Light source (wavelength)                   |                 | Red LED<br>(650 nm)                                                                                                                                                                                      | Infrared LED<br>(860 nm) | Red LED<br>(650 nm)    | Infrared LED<br>(860 nm) | Red LED<br>(650 nm)   | Infrared LED<br>(860 nm) | Red LED<br>(650 nm)                                                                 | Infrared LED<br>(860 nm) | Red LED<br>(650 nm) | Infrared LED<br>(860 nm) |
| Power supply voltage                        |                 | 12 to 24 VDC ±10%, ripple (p-p) 10% max.                                                                                                                                                                 |                          |                        |                          |                       |                          |                                                                                     |                          |                     |                          |
| Current consumption                         |                 | 30 mA max. (Emitter 10 mA max., Receiver 20 mA max.)                                                                                                                                                     |                          |                        |                          |                       |                          |                                                                                     |                          |                     |                          |
| Control output                              |                 | Load power supply voltage: 26.4 VDC max.<br>Load current: 50 mA max. (residual voltage: 2 V max. for load current of 10 to 50 mA, 1 V max. for load current of less than 10 mA)<br>Open-collector output |                          |                        |                          |                       |                          |                                                                                     |                          |                     |                          |
| Indicators                                  |                 | Operation indicator (orange), Stability indicator (green)                                                                                                                                                |                          |                        |                          |                       |                          |                                                                                     |                          |                     |                          |
| Protection circuits                         |                 | Power supply and control output reverse polarity protection,<br>Output short-circuit protection                                                                                                          |                          |                        |                          |                       |                          |                                                                                     |                          |                     |                          |
| Response time                               |                 | Operate or reset: 1 ms max.                                                                                                                                                                              |                          |                        |                          |                       |                          |                                                                                     |                          |                     |                          |
| Ambient illumination                        |                 | Incandescent lamp: 5,000 lx max., Sunlight: 10,000 lx max.                                                                                                                                               |                          |                        |                          |                       |                          |                                                                                     |                          |                     |                          |
| Ambient temperature range                   |                 | Operating: -25 to 55°C<br>Storage: -40 to 70°C<br>(with no icing or condensation)                                                                                                                        |                          |                        |                          |                       |                          |                                                                                     |                          |                     |                          |
| Ambient humidity range                      |                 | Operating: 35% to 85%<br>Storage: 35% to 95%<br>(with no condensation)                                                                                                                                   |                          |                        |                          |                       |                          |                                                                                     |                          |                     |                          |
| Insulation resistance                       |                 | 20 MΩ min. at 500 VDC                                                                                                                                                                                    |                          |                        |                          |                       |                          |                                                                                     |                          |                     |                          |
| Dielectric strength                         |                 | AC1,000V, 50/60 Hz for 1 min.                                                                                                                                                                            |                          |                        |                          |                       |                          |                                                                                     |                          |                     |                          |
| Vibration resistance (destruction)          |                 | 10 to 2,000 Hz, 1.5-mm double amplitude or 300 m/s <sup>2</sup> for 0.5 hours each in X, Y, and Z directions                                                                                             |                          |                        |                          |                       |                          |                                                                                     |                          |                     |                          |
| Shock resistance (destruction)              |                 | 1,000 m/s <sup>2</sup> 3 times each in X, Y, and Z directions                                                                                                                                            |                          |                        |                          |                       |                          |                                                                                     |                          |                     |                          |
| Degree of protection *1                     |                 | IEC 60529 IP67                                                                                                                                                                                           |                          |                        |                          |                       |                          |                                                                                     |                          |                     |                          |
| Connection method                           |                 | Pre-wired (standard length: 2 m)                                                                                                                                                                         |                          |                        |                          |                       |                          |                                                                                     |                          |                     |                          |
| Weight (packed state)                       |                 | Approx. 40 g                                                                                                                                                                                             |                          |                        |                          |                       |                          |                                                                                     |                          |                     |                          |
| Materials                                   | Case            | PBT (polybutylene terephthalate)                                                                                                                                                                         |                          |                        |                          |                       |                          |                                                                                     |                          |                     |                          |
|                                             | Display window  | Denatured polyarylate                                                                                                                                                                                    |                          |                        |                          |                       |                          |                                                                                     |                          |                     |                          |
|                                             | Lens            | Denatured polyarylate                                                                                                                                                                                    |                          |                        |                          |                       |                          |                                                                                     |                          |                     |                          |
|                                             | Hexagonal nuts  | ---                                                                                                                                                                                                      |                          |                        |                          |                       |                          |                                                                                     |                          |                     |                          |
|                                             | Toothed washers | ---                                                                                                                                                                                                      |                          |                        |                          |                       |                          |                                                                                     |                          |                     |                          |
| Conformity standards                        |                 | CE Marking, ISO13849-1 (PLc, cat1) *1                                                                                                                                                                    |                          |                        |                          |                       |                          |                                                                                     |                          |                     |                          |
| MTTFd (Year)                                |                 | E3T-ST□□/E3T-FT□□: 398<br>E3T-ST□□F/E3T-FT□□F: 393                                                                                                                                                       |                          |                        |                          |                       |                          |                                                                                     |                          |                     |                          |
| Accessories *2                              |                 | Instruction manual, Set screws for mounting (Side-view Sensors: M2 × 14, Flat Sensors: M2 × 8), Nuts                                                                                                     |                          |                        |                          |                       |                          |                                                                                     |                          |                     |                          |

\*1. Degree of protection conforming to ISO13849-1 (PLC, cat1) is IP54 for E3T-ST series and IP67 for E3T-FT series. Conforms to December 2023.  
Refer to the Instruction Sheet and Information for ISO13849-1 Compliance on our website ([www.fa.omron.co.jp/products/family/435/download/manual.html](http://www.fa.omron.co.jp/products/family/435/download/manual.html)) for conformance to ISO 13849-1.

If a slit (E39-S63/S64) is attached to the sensor, it is not applicable to ISO13849-1 (PLC, cat1).

\*2. Only the *Instruction Manual* is included with an M3-mounting Sensor (E3T-ST□□M(F)). Order the Set of Mounting Screws separately if required.

| Sensing method                              |                 | Through-beam                                                                                                             |                                                                                   | Retro-reflective (without M.S.R. function)                                                                                                                                                               |
|---------------------------------------------|-----------------|--------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Appearance                                  |                 | Cylindrical type (Top-view)                                                                                              | Cylindrical type (Side-view)                                                      | Rectangular type (Side-view)                                                                                                                                                                             |
| Item                                        |                 |                                         |  |                                                                                                                       |
| NPN output                                  | Light-ON        | ---                                                                                                                      | ---                                                                               | E3T-SR41                                                                                                                                                                                                 |
|                                             | Dark-ON         | E3T-CT12                                                                                                                 | E3T-CT22S                                                                         | E3T-SR42                                                                                                                                                                                                 |
| PNP output                                  | Light-ON        | ---                                                                                                                      | ---                                                                               | E3T-SR43                                                                                                                                                                                                 |
|                                             | Dark-ON         | E3T-CT14                                                                                                                 | E3T-CT24S                                                                         | E3T-SR44                                                                                                                                                                                                 |
| Sensing distance                            |                 | 1 m                                                                                                                      | 500 mm                                                                            | 200 mm [30 mm] * (Using the E39-R4)<br>100 mm [10 mm] * (Using the E39-R37-CA)                                                                                                                           |
| Standard sensing object                     |                 | Opaque, 4-mm dia. min.                                                                                                   | Opaque, 5-mm dia. min.                                                            | Opaque, 27-mm dia. min.                                                                                                                                                                                  |
| Minimum detectable object (reference value) |                 | ---                                                                                                                      | ---                                                                               | 2-mm dia. (Sensing distance 100 mm)                                                                                                                                                                      |
| Hysteresis (white paper)                    |                 | ---                                                                                                                      | ---                                                                               | ---                                                                                                                                                                                                      |
| Black/white error                           |                 | ---                                                                                                                      | ---                                                                               | ---                                                                                                                                                                                                      |
| Directional angle                           |                 | Receiver: 2°                                                                                                             | Receiver: 10°                                                                     | 2° to 20°                                                                                                                                                                                                |
| Light source (wavelength)                   |                 | Red LED (630 nm)                                                                                                         | Red LED (625 nm)                                                                  | Red LED (650 nm)                                                                                                                                                                                         |
| Power supply voltage                        |                 | 12 to 24 VDC ±10%, ripple (p-p) 10% max.                                                                                 |                                                                                   | ---                                                                                                                                                                                                      |
| Current consumption                         |                 | 30 mA max. (Emitter 15 mA max., Receiver 15 mA max.)                                                                     |                                                                                   | 20 mA max.                                                                                                                                                                                               |
| Control output                              |                 | Load power supply voltage: 30 VDC max.<br>Load current: 80 mA max. (residual voltage: 1 V max.)<br>Open-collector output |                                                                                   | Load power supply voltage: 26.4 VDC max.<br>Load current: 50 mA max. (residual voltage: 2 V max. for load current of 10 to 50 mA, 1 V max. for load current of less than 10 mA)<br>Open-collector output |
| Indicators                                  |                 | Operation indicator (orange), Stability indicator (green)                                                                |                                                                                   | ---                                                                                                                                                                                                      |
| Protection circuits                         |                 | Power supply reverse polarity protection,<br>Output short-circuit protection                                             |                                                                                   | Power supply and control output reverse polarity protection, Output short-circuit protection, Mutual interference prevention                                                                             |
| Response time                               |                 | Operate or reset: 0.5 ms max.                                                                                            |                                                                                   | Operate or reset: 1 ms max.                                                                                                                                                                              |
| Ambient illumination                        |                 | Incandescent lamp: 3,000 lx max.                                                                                         |                                                                                   | Incandescent lamp: 5,000 lx max., Sunlight: 10,000 lx max.                                                                                                                                               |
| Ambient temperature range                   |                 | Operating: -25 to 55°C<br>Storage: -30 to 70°C<br>(with no icing or condensation)                                        |                                                                                   | Operating: -25 to 55°C<br>Storage: -40 to 70°C<br>(with no icing or condensation)                                                                                                                        |
| Ambient humidity range                      |                 | Operating or Storage: 35% to 85% (with no condensation)                                                                  |                                                                                   | Operating: 35% to 85%<br>Storage: 35% to 95%<br>(with no condensation)                                                                                                                                   |
| Insulation resistance                       |                 | 20 MΩ min. at 500 VDC                                                                                                    |                                                                                   | ---                                                                                                                                                                                                      |
| Dielectric strength                         |                 | AC500V, 50/60 Hz for 1 min.                                                                                              |                                                                                   | AC1,000V, 50/60 Hz for 1 min.                                                                                                                                                                            |
| Vibration resistance (destruction)          |                 | 10 to 55 Hz, 1.5-mm double amplitude for 2 hours each in X, Y, and Z directions                                          |                                                                                   | 10 to 2,000 Hz, 1.5-mm double amplitude or 300 m/s <sup>2</sup> for 0.5 hours each in X, Y, and Z directions                                                                                             |
| Shock resistance (destruction)              |                 | 500 m/s <sup>2</sup> 3 times each in X, Y, and Z directions                                                              |                                                                                   | 1,000m/s <sup>2</sup> 3 times each in X, Y, and Z directions                                                                                                                                             |
| Degree of protection                        |                 | IEC 60529 IP65                                                                                                           |                                                                                   | IEC 60529 IP67                                                                                                                                                                                           |
| Connection method                           |                 | Pre-wired (standard length: 2 m)                                                                                         |                                                                                   | ---                                                                                                                                                                                                      |
| Weight (packed state)                       |                 | Approx. 60 g                                                                                                             |                                                                                   | Approx. 20 g                                                                                                                                                                                             |
| Materials                                   | Case            | SUS303                                                                                                                   |                                                                                   | PBT (polybutylene terephthalate)                                                                                                                                                                         |
|                                             | Display window  | Polysulfone                                                                                                              |                                                                                   | Denatured polyarylate                                                                                                                                                                                    |
|                                             | Lens            | Polysulfone                                                                                                              |                                                                                   | Methacrylic resin                                                                                                                                                                                        |
|                                             | Hexagonal nuts  | SUS303                                                                                                                   |                                                                                   | ---                                                                                                                                                                                                      |
|                                             | Toothed washers | SUS303                                                                                                                   |                                                                                   | ---                                                                                                                                                                                                      |
| MTTFd (Year)                                |                 | 428                                                                                                                      | 442                                                                               | 696                                                                                                                                                                                                      |
| Accessories                                 |                 | Instruction manual, Hexagonal nuts, Toothed washers                                                                      |                                                                                   | Instruction manual, Set screws for mounting (M2×14), Nuts, E39-R4 (E3T-SR4□ only), E39-R37-CA (E3T-SR4□-S only)                                                                                          |

\* Values in parentheses indicate the minimum required distance between the Sensor and Reflector.

| Sensing method<br>Appearance                |                 | Diffuse-reflective                                                                                                                                                                                       |                                                                                                                          | Limited-reflective                                                                                                                                                                                       |                                        | BGS-reflective                                                                      |                                        |
|---------------------------------------------|-----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------|-------------------------------------------------------------------------------------|----------------------------------------|
|                                             |                 | Rectangular type (Flat)                                                                                                                                                                                  | Cylindrical type (Top-view)                                                                                              | Rectangular type (Side-view)                                                                                                                                                                             |                                        | Rectangular type (Flat)                                                             |                                        |
| Item                                        |                 |                                                                                                                         |                                         |                                                                                                                       |                                        |  |                                        |
| NPN output                                  | Light-ON        | E3T-FD11<br>E3T-FD11M                                                                                                                                                                                    | E3T-CD11                                                                                                                 | E3T-SL11<br>E3T-SL11M                                                                                                                                                                                    | E3T-SL21<br>E3T-SL21M                  | E3T-FL11                                                                            | E3T-FL21                               |
|                                             | Dark-ON         | E3T-FD12<br>E3T-FD12M                                                                                                                                                                                    | ---                                                                                                                      | E3T-SL12<br>E3T-SL12M                                                                                                                                                                                    | E3T-SL22<br>E3T-SL22M                  | E3T-FL12                                                                            | E3T-FL22                               |
| PNP output                                  | Light-ON        | E3T-FD13<br>E3T-FD13M                                                                                                                                                                                    | E3T-CD13                                                                                                                 | E3T-SL13<br>E3T-SL13M                                                                                                                                                                                    | E3T-SL23<br>E3T-SL23M                  | E3T-FL13                                                                            | E3T-FL23                               |
|                                             | Dark-ON         | E3T-FD14<br>E3T-FD14M                                                                                                                                                                                    | ---                                                                                                                      | E3T-SL14<br>E3T-SL14M                                                                                                                                                                                    | E3T-SL24<br>E3T-SL24M                  | E3T-FL14                                                                            | E3T-FL24                               |
| Sensing distance                            |                 | 5 to 30 mm<br>(50 × 50 mm white paper)                                                                                                                                                                   | 3 to 50 mm<br>(100 × 100 mm white paper)                                                                                 | 5 to 15 mm<br>(50 × 50 mm white paper)                                                                                                                                                                   | 5 to 30 mm<br>(50 × 50 mm white paper) | 1 to 15 mm<br>(50 × 50 mm white paper)                                              | 1 to 30 mm<br>(50 × 50 mm white paper) |
| Standard sensing object                     |                 | ---                                                                                                                                                                                                      |                                                                                                                          |                                                                                                                                                                                                          |                                        |                                                                                     |                                        |
| Minimum detectable object (reference value) |                 | 0.15-mm dia.<br>(sensing distance 10 mm)                                                                                                                                                                 | ---                                                                                                                      | 0.15-mm dia.<br>(sensing distance 10 mm)                                                                                                                                                                 |                                        | 0.15-mm dia. non-glossy object<br>(sensing distance 10 mm)                          |                                        |
| Hysteresis (white paper)                    |                 | 6 mm max.                                                                                                                                                                                                | 15% or less of the sensing distance                                                                                      | 2 mm max.                                                                                                                                                                                                | 6 mm max.                              | 0.5 mm max.                                                                         | 2 mm max.                              |
| Black/white error                           |                 | ---                                                                                                                                                                                                      |                                                                                                                          |                                                                                                                                                                                                          |                                        |                                                                                     | 15% max.                               |
| Directional angle                           |                 | ---                                                                                                                                                                                                      |                                                                                                                          |                                                                                                                                                                                                          |                                        |                                                                                     |                                        |
| Light source (wavelength)                   |                 | Red LED (650 nm)                                                                                                                                                                                         | Infrared LED (870 nm)                                                                                                    | Red LED (650 nm)                                                                                                                                                                                         |                                        |                                                                                     |                                        |
| Power supply voltage                        |                 | 12 to 24 VDC ±10%, ripple (p-p) 10% max.                                                                                                                                                                 |                                                                                                                          |                                                                                                                                                                                                          |                                        |                                                                                     |                                        |
| Current consumption                         |                 | 20 mA max.                                                                                                                                                                                               |                                                                                                                          |                                                                                                                                                                                                          |                                        |                                                                                     |                                        |
| Control output                              |                 | Load power supply voltage: 26.4 VDC max.<br>Load current: 50 mA max. (residual voltage: 2 V max. for load current of 10 to 50 mA, 1 V max. for load current of less than 10 mA)<br>Open-collector output | Load power supply voltage: 30 VDC max.<br>Load current: 80 mA max. (residual voltage: 1 V max.)<br>Open-collector output | Load power supply voltage: 26.4 VDC max.<br>Load current: 50 mA max. (residual voltage: 2 V max. for load current of 10 to 50 mA, 1 V max. for load current of less than 10 mA)<br>Open-collector output |                                        |                                                                                     |                                        |
| Indicators                                  |                 | Operation indicator (orange), Stability indicator (green)                                                                                                                                                |                                                                                                                          |                                                                                                                                                                                                          |                                        |                                                                                     |                                        |
| Protection circuits                         |                 | Power supply and control output reverse polarity protection,<br>Output short-circuit protection,<br>Mutual interference prevention                                                                       | Power supply reverse polarity protection,<br>Output short-circuit protection                                             | Power supply and control output reverse polarity protection,<br>Output short-circuit protection,<br>Mutual interference prevention                                                                       |                                        |                                                                                     |                                        |
| Response time                               |                 | Operate or reset: 1 ms max.                                                                                                                                                                              | Operate or reset: 0.5 ms max.                                                                                            | Operate or reset: 1 ms max.                                                                                                                                                                              |                                        |                                                                                     |                                        |
| Ambient illumination                        |                 | Incandescent lamp: 5,000 lx max., Sunlight: 10,000 lx max.                                                                                                                                               | Incandescent lamp: 3,000 lx max.                                                                                         | Incandescent lamp: 5,000 lx max., Sunlight: 10,000 lx max.                                                                                                                                               |                                        |                                                                                     |                                        |
| Ambient temperature range                   |                 | Operating: -25 to 55°C<br>Storage: -40 to 70°C<br>(with no icing or condensation)                                                                                                                        | Operating: -25 to 55°C<br>Storage: -30 to 70°C<br>(with no icing or condensation)                                        | Operating: -25 to 55°C<br>Storage: -40 to 70°C<br>(with no icing or condensation)                                                                                                                        |                                        |                                                                                     |                                        |
| Ambient humidity range                      |                 | Operating: 35% to 85%<br>Storage: 35% to 95%<br>(with no condensation)                                                                                                                                   | Operating or Storage: 35% to 85%<br>(with no condensation)                                                               | Operating: 35% to 85%<br>Storage: 35% to 95%<br>(with no condensation)                                                                                                                                   |                                        |                                                                                     |                                        |
| Insulation resistance                       |                 | 20 MΩ min. at 500 VDC                                                                                                                                                                                    |                                                                                                                          |                                                                                                                                                                                                          |                                        |                                                                                     |                                        |
| Dielectric strength                         |                 | 1,000 VAC, 50/60 Hz for 1 min.                                                                                                                                                                           | 500 VAC, 50/60 Hz for 1 min.                                                                                             | 1,000 VAC, 50/60 Hz for 1 min.                                                                                                                                                                           |                                        |                                                                                     |                                        |
| Vibration resistance (destruction)          |                 | 10 to 2,000 Hz,<br>1.5-mm double amplitude or<br>300 m/s <sup>2</sup> for 0.5 hours each in X, Y, and Z directions                                                                                       | 10 to 55Hz, 1.5-mm double amplitude for 2 hours each in X, Y, and Z directions                                           | 10 to 2,000 Hz, 1.5-mm double amplitude or 300 m/s <sup>2</sup> for 0.5 hours each in X, Y, and Z directions                                                                                             |                                        |                                                                                     |                                        |
| Shock resistance (destruction)              |                 | 1,000 m/s <sup>2</sup> 3 times each in X, Y, and Z directions                                                                                                                                            | 500 m/s <sup>2</sup> 3 times each in X, Y, and Z directions                                                              | 1,000m/s <sup>2</sup> 3 times each in X, Y, and Z directions                                                                                                                                             |                                        |                                                                                     |                                        |
| Degree of protection                        |                 | IEC 60529 IP67                                                                                                                                                                                           | IEC 60529 IP65                                                                                                           | IEC 60529 IP67                                                                                                                                                                                           |                                        |                                                                                     |                                        |
| Connection method                           |                 | Pre-wired (standard length: 2 m)                                                                                                                                                                         |                                                                                                                          |                                                                                                                                                                                                          |                                        |                                                                                     |                                        |
| Weight (packed state)                       |                 | Approx. 20 g                                                                                                                                                                                             | Approx. 40 g                                                                                                             | Approx. 20 g                                                                                                                                                                                             |                                        |                                                                                     |                                        |
| Materials                                   | Case            | PBT (polybutylene terephthalate)                                                                                                                                                                         | SUS303                                                                                                                   | PBT (polybutylene terephthalate)                                                                                                                                                                         |                                        |                                                                                     |                                        |
|                                             | Display window  | Denatured polyarylate                                                                                                                                                                                    | Epoxy                                                                                                                    | Denatured polyarylate                                                                                                                                                                                    |                                        |                                                                                     |                                        |
|                                             | Lens            | Denatured polyarylate                                                                                                                                                                                    | Polysulfone                                                                                                              | Denatured polyarylate                                                                                                                                                                                    |                                        |                                                                                     |                                        |
|                                             | Hexagonal nuts  | ---                                                                                                                                                                                                      | SUS303                                                                                                                   | ---                                                                                                                                                                                                      |                                        |                                                                                     |                                        |
|                                             | Toothed washers | ---                                                                                                                                                                                                      | SUS303                                                                                                                   | ---                                                                                                                                                                                                      |                                        |                                                                                     |                                        |
| MTTFd (Year)                                |                 | 696                                                                                                                                                                                                      | 494                                                                                                                      | 696                                                                                                                                                                                                      |                                        | 653                                                                                 |                                        |
| Accessories                                 |                 | Instruction manual, Set screws for mounting (M2 × 8), Nuts *                                                                                                                                             | Instruction manual, Hexagonal nuts, Toothed washers, Adjustment driver                                                   | Instruction manual, Set screws for mounting (M2 × 14), Nuts *                                                                                                                                            |                                        | Instruction manual, Set screws for mounting (M2 × 8), Nuts                          |                                        |

\* Only the *Instruction Manual* is included with an M3-mounting Sensor (E3T-FD□□M or E3T-SL□□M). Order the Set of Mounting Screws separately if required.