OMRON

# Through-Beam Sensor with Visible Red LED

# E3Z-TA

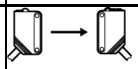
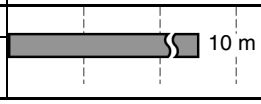
## Visible Beam Allows Visual Confirmation of the Detection Spot, for Easy Installation and Maintenance

- Built-in amplifier
- Mutual interference protection filter included in product offering
- Long sensing distance: 10 M
- Prewired or connector models
- Light-ON/Dark-ON switch-selectable
- Noise Immunity due to IC chip design
- IP67, CE approved

CE

# Ordering Information

## ■ Standard Models

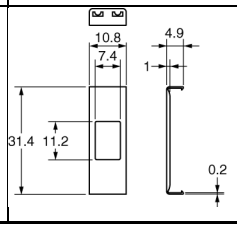
| Sensing method | Appearance | Connection method | Sensing distance | Part number | |
|---|---|---|---|---|---|
| | | | | NPN output | PNP output |
| Through-beam |  | Prewired (2 m) |  10 m | **E3Z-T61A** | **E3Z-T81A** |
| | | Connector | | **E3Z-T66A** | **E3Z-T86A** |

## ■ Accessories (Order Separately)

### Slit

| Slit width | Sensing distance (typical) | Minimum sensing target (typical) | Quantity | Part number |
|---|---|---|---|---|
| 0.5 mm dia. | 35 mm | 0.2 mm dia. | One for the emitter and one for the receiver | **E39-S65A** |
| 1 mm dia. | 150 mm | 0.4 mm dia. | | **E39-S65B** |
| 2 mm dia. | 550 mm | 0.7 mm dia. | | **E39-S65C** |
| 0.5×10 mm | 700 mm | 0.2 mm dia. | | **E39-S65D** |
| 1×10 mm | 1.5 m | 0.5 mm dia. | | **E39-S65E** |
| 2×10 mm | 3.5 m | 0.8 mm dia. | | **E39-S65F** |

### Mutual Interference Protection Filter

| Sensing distance | Dimensions | Comments | Quantity | Part number |
|---|---|---|---|---|
| 3 m |   | The arrow indicates the direction of polarized light. Mutual interference can be prevented by altering the direction of polarized light from or to adjacent emitters and receivers. | Two filters for the emitter and two for the receiver (total of four) | **E39-E11** |

## ■ Brackets (All E3Z Models Use Common Brackets)

To order, you'll find the appropriate brackets for the E3Z-TA when you refer to the basic E3Z Photoelectric Sensor data sheet on Omron's web site @www.omron.com/oei, or refer to the Sensing Products Catalog.

## ■ M8 Connectors (All E3Z Models Use Common Connectors)

To order M8 Connectors, see the basic E3Z Photoelectric Sensor data sheet on Omron's web site @www.omron.com/oei, or refer to the Sensing Products Catalog.

# Specifications

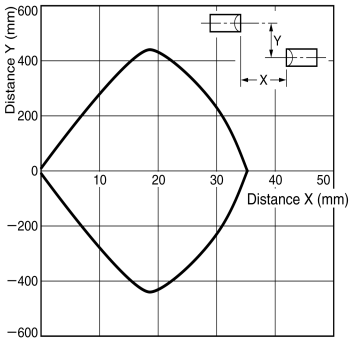
## ■ Ratings/Characteristics

| Item | | |
|---|---|---|
| | Sensing method | Through-beam |
| | NPN output | E3Z-T61A/T66A |
| | PNP output | E3Z-T81A/T86A |
| Sensing distance | | 10 m |
| Standard sensing target | | Opaque: 12-mm dia. min. |
| Directional angle | | Both emitter and receiver: 3° to 5° |
| Light source (wave length) | | Red LED (700 nm) |
| Power supply voltage | | 12 to 24 VDC ±10% |
| Current consumption | | Emitter: 15 mA<br>Receiver: 20 mA |
| Control output | | Load power supply voltage: 26.4 VDC max.<br>Load current: 100 mA max. (Residual voltage: 1 V max.)<br>Open collector output (NPN or PNP depending on model)<br>L-ON/D-ON switch-selectable |
| Circuit protection | | Protection from load short-circuit and reversed power supply connection |
| Response time | | Operation or reset: 1 ms max. |
| Sensitivity adjustment | | One-turn potentiometer |
| Ambient illumination (receiver side) | | Incandescent lamp: 3,000 lux max.<br>Sunlight: 10,000 lux max. |
| Ambient temperature | | Operating: −25°C to 55°C (−13°F to 131°F)<br>Storage: −40°C to 70°C (−40°F to 158°F) with no icing or condensation |
| Ambient humidity | | Operating: 35% to 85%/Storage: 35% to 95% (with no condensation) |
| Insulation resistance | | 20 MΩ min. at 500 VDC |
| Dielectric strength | | 1,000 VAC, 50/60 Hz for 1 min |
| Vibration resistance | | 10 to 55 Hz, 1.5-mm double amplitude or 300 $m/s^2$ for 2 hours each in X, Y, and Z directions |
| Shock resistance | | 500 $m/s^2$ 3 times each in X, Y, and Z directions |
| Degree of protection | | IP67 (IEC60529) |
| Connection method | | Prewired cable (standard length: 2 m) or M8 connector model |
| Indicator | | Operation indicator (orange)<br>Stability indicator (green)<br>Emitter has power indicator (orange) only. |
| Weight (packed state) | Prewired cable (2 m) | Approx. 120 g (4.23 oz.) |
| | Connector | Approx. 30 g (1.06 oz.) |
| Material | Case | PBT (polybutylene terephthalate) |
| | Lens | Methacrylate resin |
| Accessories | | Instruction manual |

# Engineering Data

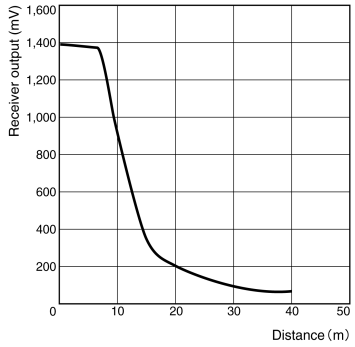
## ■ Parallel Operating Range (Typical)

### E3Z-T□A



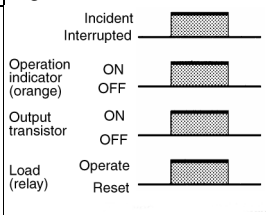
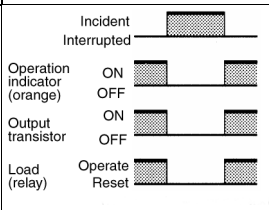
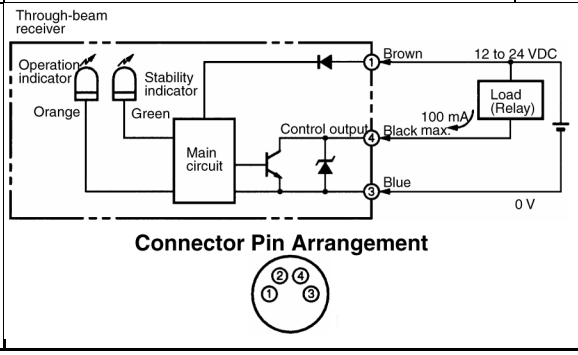

## ■ Receiver Output vs. Distance (Typical)

### E3Z-T□A

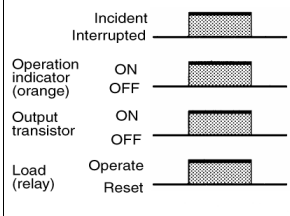
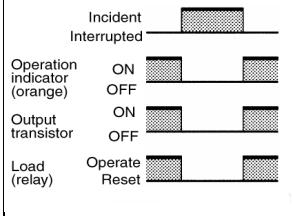
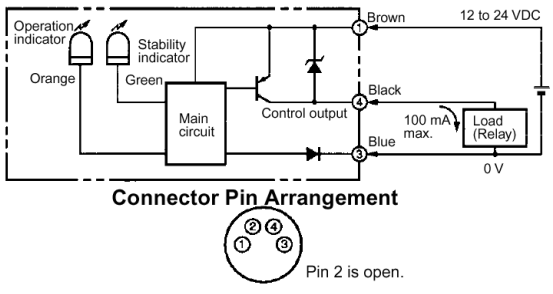


# Operation

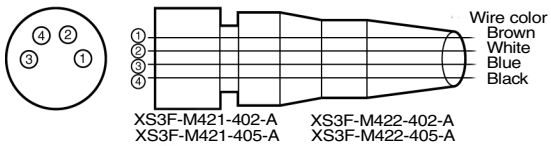
## ■ NPN Output

| Model | E3Z-T61A/E3Z-T66A | |
|---|---|---|
| Output transistor status | Light ON | Dark ON |
| Timing chart |  |  |
| Mode selector | Light ON (L/ON) | Dark ON (D/ON) |
| Output circuit |  | |

## ■ PNP Output

| Model | E3Z-T81A/T86A | |
|---|---|---|
| Output transistor status | Light ON | Dark ON |
| Timing chart |  |  |
| Mode selector | Light ON (L/ON) | Dark ON (D/ON) |
| Output circuit |  | |

### Structure of Sensor I/O Connector




| Classification | Wire color | Connector pin No. | Use |
|---|---|---|---|
| DC | Brown | 1 | Power supply (+V) |
| | White | 2 | Pin 2 is not used. |
| | Blue | 3 | Power supply (0 V) |
| | Black | 4 | Output |

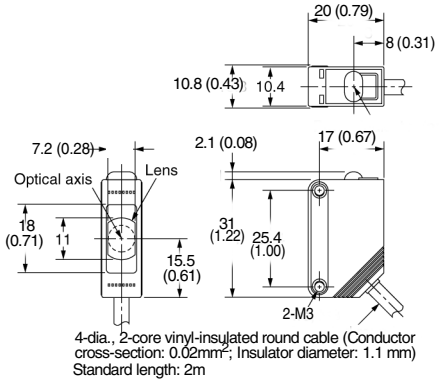
# Dimensions

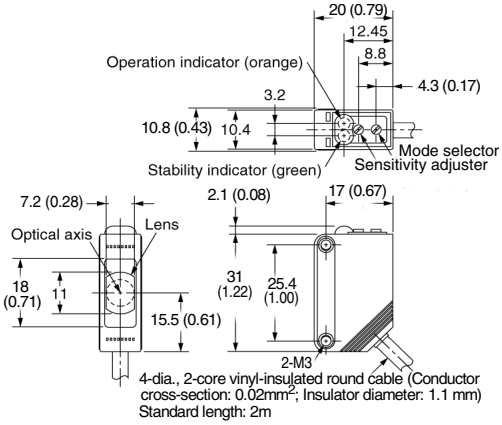
Unit: mm (inch)

## ■ Sensors

### Prewired Through-beam Models

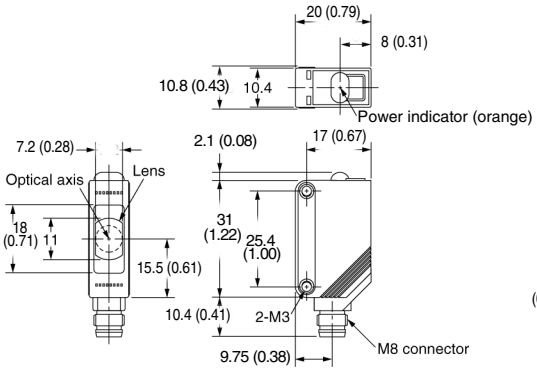
**E3Z-T61A**
**E3Z-T81A**

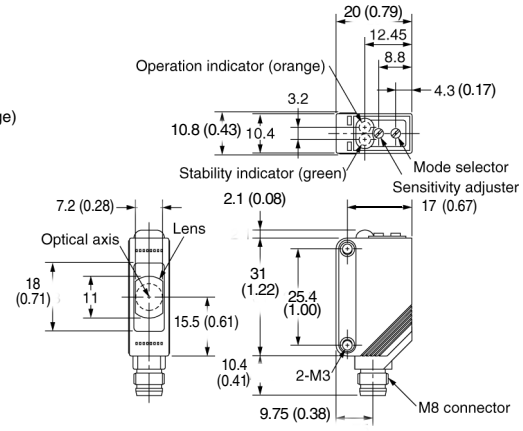



### Through-beam Models with Connector

**E3Z-T66A**
**E3Z-T86A**




## ■ Accessories

### Brackets, M8 Connectors, and Slits

For dimensions of Brackets, M8 Connectors, or Slits, see the Dimensions Section in the basic E3Z Photoelectric Sensor data sheet on Omron's web site @www.omron.com/oei, or refer to the E3Z in Omron's Sensing Products Catalog.

# Precautions

To ensure safe sensor operation, please follow these precautions.

## ■ Wiring

### Power Supply Voltage

Make sure that the power supply to the Sensor is within the rated voltage range.

### Load Short-Circuiting

Do not short-circuit the load, or the Sensor may be damaged.

### Polarity

Correct polarity wiring is required to prevent damage to the sensor.

### Connection without Load

Do not connect the power supply to the Sensor when no load is connected, or the internal elements may explode or burn.

## ■ Operating Environment

Do not use the Sensor in locations with explosive or flammable gas.

## ■ Settings

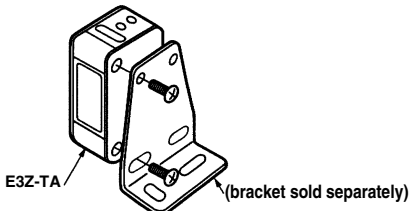
### Power Reset Time

When the E3Z-TA is turned ON, there is a 100 ms delay time before operation. If the load and the Sensor are connected to independent power supplies, be sure to turn ON the sensor *before* turning ON the load.

## ■ Connections

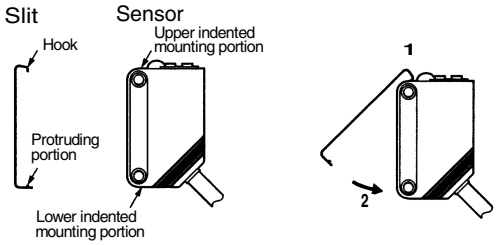
### M8 Metal Connector

- Turn OFF the power before disconnecting the sensor.
- Remove the connector cover before connecting or disconnecting the metal connector.
- Secure the connector cover by hand. Do not use pliers, or the connector may be damaged.
- The proper tightening torque range is between 0.3 and 0.4 N·m.

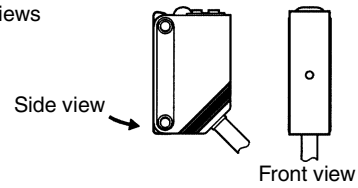



## ■ Mounting and Adjusting Slits

- Hook the upper protruding portion of the Slit to the upper indented mounting portion of the Sensor and adjust the position of the Slit so that the Slit will be parallel to the lens side of the Sensor. (See area 1, in the illustration below.)
- Then, press the lower protruding portion of the Slit onto the indented mounting portion of the Sensor until the Slit snaps in. (See area 2, shown below.)

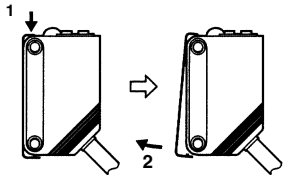



- Mounting views




### Removal Method

- Press the upper portion of the Slit. (See area 1, shown below.)
- Then, disconnect the lower protruding portion of the Slit from the Sensor and remove the Slit. (See area 2, shown below.)




**ALL DIMENSIONS SHOWN ARE IN MILLIMETERS.**
To convert millimeters into inches, multiply by 0.03937. To convert grams into ounces, multiply by 0.03527.

OMRON

**OMRON ELECTRONICS LLC**
One East Commerce Drive
Schaumburg, IL 60173
**1-800-55-OMRON**

**OMRON ON-LINE**
Global - http://www.omron.com
USA - http://www.omron.com/oei
Canada - http://www.omron.com/oci

**OMRON CANADA, INC.**
885 Milner Avenue
Scarborough, Ontario M1B 5V8
**416-286-6465**

Cat. No. CEDSAX4 11/01 Specifications subject to change without notice Printed in USA

# OCEAN CHIPS
## Океан Электроники
## Поставка электронных компонентов

Компания «Океан Электроники» предлагает заключение долгосрочных отношений при поставках импортных электронных компонентов на взаимовыгодных условиях!

Наши преимущества:

- Поставка оригинальных импортных электронных компонентов напрямую с производств Америки, Европы и Азии, а так же с крупнейших складов мира;
- Широкая линейка поставок активных и пассивных импортных электронных компонентов (более 30 млн. наименований);
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Помощь Конструкторского Отдела и консультации квалифицированных инженеров;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Поставка электронных компонентов под контролем ВП;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- При необходимости вся продукция военного и аэрокосмического назначения проходит испытания и сертификацию в лаборатории (по согласованию с заказчиком);
- Поставка специализированных компонентов военного и аэрокосмического уровня качества (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Actel, Aeroflex, Peregrine, VPT, Syfer, Eurofarad, Texas Instruments, MS Kennedy, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits, General Dynamics и др.);

Компания «Океан Электроники» является официальным дистрибьютором и эксклюзивным представителем в России одного из крупнейших производителей разъемов военного и аэрокосмического назначения «**JONHON**», а так же официальным дистрибьютором и эксклюзивным представителем в России производителя высокотехнологичных и надежных решений для передачи СВЧ сигналов «**FORSTAR**».

AVIC JONHON

**«JONHON»** (основан в 1970 г.)

Разъемы специального, военного и аэрокосмического назначения:

(Применяются в военной, авиационной, аэрокосмической, морской, железнодорожной, горно- и нефтедобывающей отраслях промышленности)

**«FORSTAR»** (основан в 1998 г.)

ВЧ соединители, коаксиальные кабели, кабельные сборки и микроволновые компоненты:

(Применяются в телекоммуникациях гражданского и специального назначения, в средствах связи, РЛС, а так же военной, авиационной и аэрокосмической отраслях промышленности).

FORSTAR®

Телефон: 8 (812) 309-75-97 (многоканальный)
Факс: 8 (812) 320-03-32
Электронная почта: ocean@oceanchips.ru
Web: http://oceanchips.ru/
Адрес: 198099, г. Санкт-Петербург, ул. Калинина, д. 2, корп. 4, лит. А