OMRON

E3T Miniature Photoelectric Sensors

Ultra-Compact E3T Sensors with Visible Red Beam Fit and Perform Where Other Sensors Won't

» Ultra-Slim

» Easy to Use

» Powerful Technology

» Five Different Sensing Types to Choose From

E3T PHOTOELECTRIC

Automation...simple...powerful.

Key Features

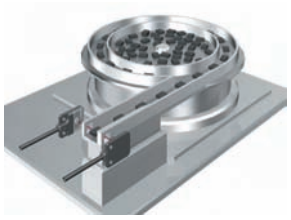
OMRON

Omron's E3T sensors offer an ideal detecting solution when space is at a minimum and yet a high power, pinpoint LED is needed for a wide variety of applications.

- **Compact Size** – Side view model dimensions: 18.5 H x 7 W x 9.5 D mm; Flat model dimensions: 19 H x 12 W x 3.5 D mm
- **Visible Red beam** simplifies alignment for installation and servicing
- **Highly visible indicators** for ease of operation
- **One-chip photo IC** ensures highly reliable detection
- **Capable of detecting extremely small targets** with 0.8 mm dia. pinpoint beam on convergent beam E3T-SL
- **Coaxial retro-reflective** model uses Omron's unique Fee Angle Optics to detect 2 mm objects at 100 mm
- **IP67 enclosure** rating for water washdown
- Separate Light-ON or Dark-ON operation models available
- All models pre-wired with 2 m cable
- Robotic cable versions available
- Ecological: RoHS compliant

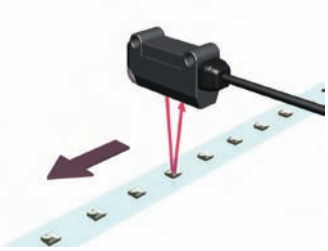
Through-beam Models (Side View E3T-ST/Flat E3T-FT)

- Long-distance detection–Side-view Models: 1m, Flat Models: 500 mm
- 300-mm Side-view and Flat models are also available to prevent mutual interference.
- Minimum detection object: 0.5 mm dia. (with slit attached)
- Optical axis accuracy of ±2° for installation reliability.
- Easily distinguish between color-coded Emitter and Receiver lenses.



Convergent-reflective Models (Side-view E3T-SL)

- Minimum detection object: 0.15 mm dia.
- Resistant to background and surrounding metal



Diffuse-reflective Models (Flat E3T-FD)

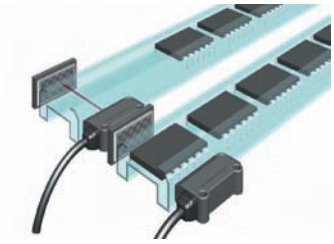
- Minimum detection object: 0.15 mm dia.
- Only 3.5 mm wide for installation in small gaps.

Retro-reflective Models (Side-view E3T-SR) *Twin-lens Optical System

Two models for optimized sensing characteristics with their reflectors.

E3T-SR2☐: Sensing distance: 200 mm with E39-R4

E3T-SR3☐: Sensing distance: 100 mm with E39-R37

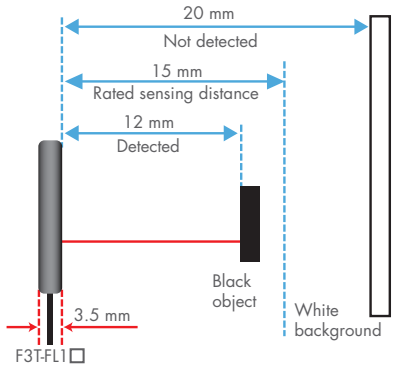


The Slimmest Background Suppression (BGS) Reflective Photoelectric Sensors in the World

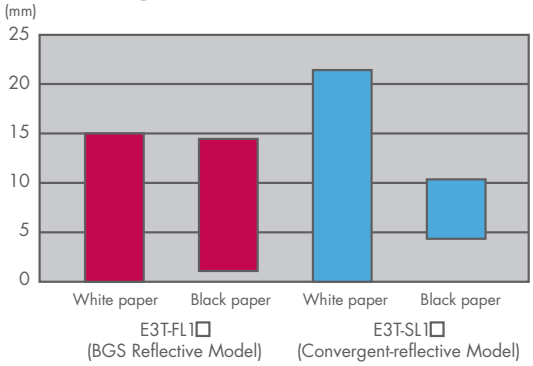
OMRON provides BGS performance sharper than the convergent-reflective sensors.

For example, the E3T-FL1☐ can stably detect a black object at 12 mm, including sensing distance variations, without being affected by a white background at 20 mm.

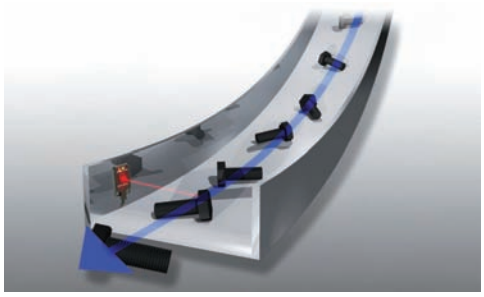
Ultra slim at 3.5 mm, black/white error of only 15%, hysteresis of 0.5 mm max. (E3T-FL1☐), and sensing capability to 2 mm or less (E3T-FL2☐).



Dramatic Improvement in Black/White Error



Application Detecting Passage or Accumulation of Parts on a Feeder

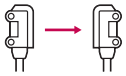
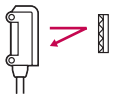
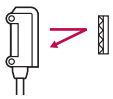
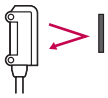


Specifications

E3T Specifications	
Voltage Range	12 to 24 VDC
Load rating	NPN or PNP open collector, 50 mA max.
Operation	Separate models for Light-ON or Dark-ON
Light Source (wavelength)	Red LED (650 nm)
Current consumption (max.)	Emitter: 10 mA ; Receiver 20 mA (through-beam) All others: 20 mA (all others)
Response time	1 ms max.
Circuit protection	Power source reverse polarity (all) Output reverse polarity (all) Output short-circuit (all) Mutual interference (reflective models)
Directional angle	2° to 20° (through-beam emitter, retro-reflective) 2° to 70° (through-beam receiver) 3° to 25° (flat through-beam)
Differential distance	6 mm (flat diffuse, side convergent) 2 mm (side convergent E3T-SL1) 0.5 mm (E3T-FL1 BGS reflective) 2 mm (E3T-FL2 BGS reflective)
Black/white error	15% max. (BGS reflective)
Operating ambient	-25°C to 55°C, 35% to 85% RH
Enclosure rating	IP67
Connection	2 m cable (all models)
Dimensions	Flat: 19 H x 12 W x 3.5 D mm Side-view: 18.5 H x 7 W x 9.5 D mm

Sensors

Red light

Sensing method	Appearance		Connection method	Sensing distance	Operation mode	Model	
						NPN output	PNP output
Through-beam		Side-view 	Pre-wired	1 m (Sensitivity Adjustment Unit can be used.)	Light-ON	E3T-ST11 *2	E3T-ST13
					Dark-ON	E3T-ST12 *2	E3T-ST14
				300 mm	Light-ON	E3T-ST21	E3T-ST23
					Dark-ON	E3T-ST22	E3T-ST24
		Flat 		500 mm	Light-ON	E3T-FT11 *2	E3T-FT13
					Dark-ON	E3T-FT12 *2	E3T-FT14
				300 mm	Light-ON	E3T-FT21	E3T-FT23
					Dark-ON	E3T-FT22	E3T-FT24
NEW Retro-reflective		Side-view 		10 to 200 mm includes E39-R4 reflector	Light-ON	E3T-SR21 *2	E3T-SR23
					Dark-ON	E3T-SR22 *2	E3T-SR24
		Side-view 		10 to 100 mm includes E39-R37 reflector	Light-ON	E3T-SR31 *2	E3T-SR33
					Dark-ON	E3T-SR32 *2	E3T-SR34
Diffuse-reflective		Flat 		5 to 30 mm	Light-ON	E3T-FD11 *2	E3T-FD13
					Dark-ON	E3T-FD12 *2	E3T-FD14
Convergent-reflective		Side-view 		5 to 15 mm	Light-ON	E3T-SL11 *2	E3T-SL13
					Dark-ON	E3T-SL12 *2	E3T-SL14
				5 to 30 mm	Light-ON	E3T-SL21 *2	E3T-SL23
					Dark-ON	E3T-SL22 *2	E3T-SL24
NEW BGS reflective		Flat 		1 to 15 mm	Light-ON	E3T-FL11 *2	E3T-FL13
					Dark-ON	E3T-FL12 *2	E3T-FL14
				1 to 30 mm	Light-ON	E3T-FL21 *2	E3T-FL23
					Dark-ON	E3T-FL22 *2	E3T-FL24

Notes:
1. Retroreflective sensors include a reflector optimized for sensing characteristics.
2. Robotics cable is an available option for models marked with *2. To order add an "R" suffix. (Example: E3T-ST11R)