Mapping Sensor

E3C-T1

Optimized for Sensing Wafers. Compact Narrow-view Sensor using OMRON's Unique "Pin-point" LED.

- Safer and better cost performance in comparison with laser-adopted sensors.
- Incorporates OMRON's unique "pin-point" red LED with a visible 1.2-mm-diameter spot at a sensing distance of 120 mm (typical). More clearly visible by using the Turbo function.
- Provided with flexible cord that can be bent and applied to the moving part.
- 0.1-ms ultra-high-speed response.

Applications

Wafer Mapping

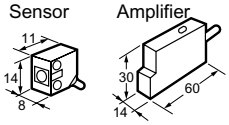
Certain detection when there is only one wafer.
Wafers with specular surface can also be detected.

Detection of Wafer Inclination in a Cassette

The narrow-view beam ensures high-precision detection.

Ordering Information

Red light

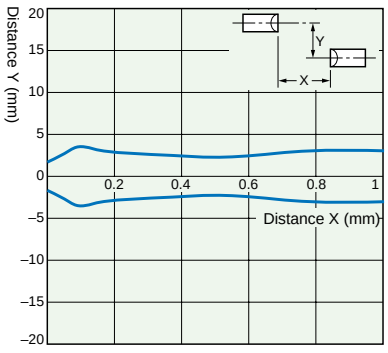
Sensor type	Shape	Sensing distance	Model
Through-beam	Sensor / Amplifier 	500mm	E3C-T1 (sensor and amplifier)

Rating/performance

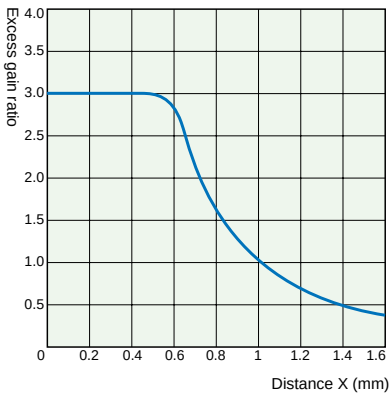
Item / Model		E3C-T1
Sensing distance		500 mm
Min. sensing object		Opaque 0.5 dia. min.
Directional angle		1° max.
Light source (wave length)		Red light emitting diode (pin-point light source LED) (670 mm)
Power supply voltage		12 to 24 V DC ±10%; ripple (p-p) 1 V or less
Current consumption		50 mA or less (70 mA or less when turbo switch is on)
Control output		Load power supply voltage: 24 VDC or less; Load current: 100 mA or less (residual voltage 1 V or less); NPN open collector output
Response time		0.1 ms max. for both operating and release
Ambient illuminance		Incandescent lamp: 3,000 lux max. Sunlight 10,000 lux max.
Ambient temperature		Operating: -10 to +40°C, Storage: -25 to 70°C (with no icing or condensation)
Ambient humidity		Operating/Storage: 35% to 85% RH (with no condensation)
Insulation resistance		20 M Ω min. at 500 VDC
Dielectric strength		1,000 VAC at 50/60 Hz for 1 minute
Vibration resistance		Destruction: 10 to 55 Hz, 1.5-mm double amplitude for 2 hrs each in X, Y, and Z directions
Shock resistance		Sensor: 500 m/s^2, 3 times each in X, Y, and Z directions, amplifier: 300 m/s^2, 3 times each in X, Y, and Z directions
Protective structure		Sensor: IEC Standard IP64; amplifier: IEC Standard IP20
Connection method		Sensor: pull-out cable type (standard length: 1 m); amplifier: terminal block input, pull-out cable type (standard length: 2 m)
Weight (Packed state)		Approx. 130 g
Material	Case	ABS
	Cover	Polycarbonate
	Lens	Acrylics
Accessories		Clamp, sensitivity adjustment driver, caution label, operation manual

Characteristic data (typical)

Parallel Operating Range

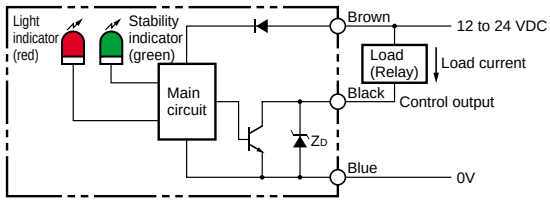


Operating Range



Output Circuit Diagram

NPN output

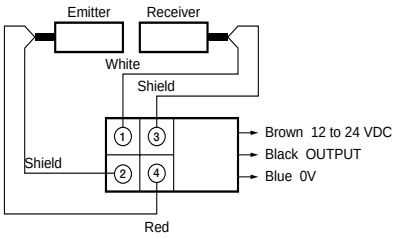
Model	Operating status of output transistor	Timing chart	Mode selection switch	Output circuit
E3C-T1	Light ON	Incident / Interrupted; Light indicator (red) ON / OFF; Output transistor ON / OFF; Load (Relay) Operate / Reset (Between brown and black)	L•ON (LIGHT ON)	
	Dark ON	Incident / Interrupted; Light indicator (red) ON / OFF; Output transistor ON / OFF; Load (Relay) Operate / Reset (Between brown and black)	DARK ON (D/ ON)	

Precautions

Important

Sensor and Amplifier Connections

Be sure to connect the E3C-T1L or E3C-T1D Sensor Unit to the dedicated E3C-T1A Amplifier Unit. Be sure that the length of the bare core of each cord is 20 mm maximum. Securely tighten all terminal screws after wiring.



Operating Environment

Do not use the E3C-T1 in places with explosive or flammable gas.

Correct Use

● For adjustment

Optical axis adjustment

The E30-T1 is used for the detection of minute objects. Therefore, the beam spot is very small and it may take some time to adjust the optical axis.

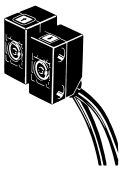
For mounting, move the emitter and receiver in the upward, downward, left, and right directions so as to set them in the center of the area that will turn the light indicator on. Then, mount the emitter and receiver securely.

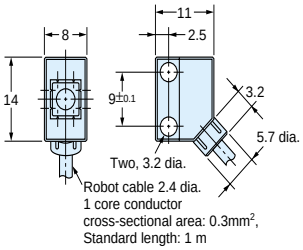
Dimensions (Unit: mm)

Sensors

E3C-T1L (Emitter)
E3C-T1D (Receiver)

CAD file: E3C_22

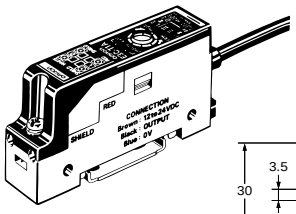


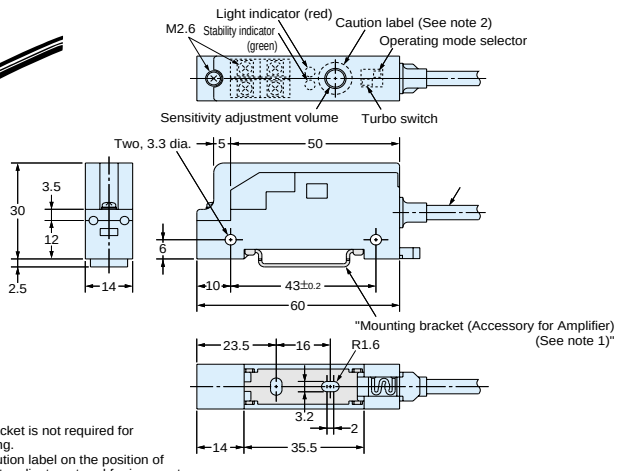


Amplifier

E3C-T1A

CAD file: E3C_08





"Note: 1. The mounting bracket is not required for DIN-track mounting.
2. Please stick a caution label on the position of ◌ after a sensitivity adjustment end for incorrect operation prevention."