

Photoelectric Sensors with Synchronous Detection



BY Series CATALOG

For your safety, read and follow the considerations written in the instruction manual, other manuals and Autonics website.

The specifications, dimensions, etc. are subject to change without notice for product improvement. Some models may be discontinued without notice.

Features

- Small size: W 12 × H 30 × L 16 mm
- Minimize malfunction by extraneous light by synchronizing emitter and receiver
- Reverse power protection circuit, output short overcurrent protection circuit
- Fast response speed: Max.1 ms

Ordering Information

This is only for reference, the actual product does not support all combinations. For selecting the specified model, follow the Autonics website.

BY ① 500 - T D T

① Detecting direction

No mark: Front

S: Side

Product Components

- Emitter × 1, Receiver × 1
- Bracket × 2
- Instruction manual
- M3 bolt × 4, M3 nut × 4

Specifications

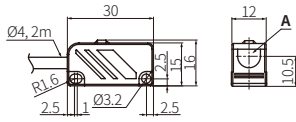
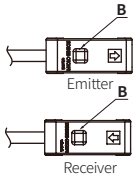
Model	BY□500-TDT
Sensing type	Through-beam
Sensing distance	500 mm
Sensing target	Opaque materials
Min. sensing target	≥ Ø 5 mm
Response time	≤ 1 ms
Light source	Infrared
Peak emission wavelength	940 nm
Operation mode	Dark ON mode
Indicator	Operation indicator (red)
Approval	ERC
Unit weight	≈ 150 g
Power supply	12-24 VDC± ±10% (ripple P-P: ≤ 10%)
Current consumption	Emitter: ≤ 30 mA, receiver: ≤ 30 mA
Control output	NPN open collector output
Load voltage	≤ 30 VDC±
Load current	≤ 100 mA
Residual voltage	≤ 1 VDC±
Protection circuit	Reverse power protection circuit, output short overcurrent protection circuit
Insulation resistance	≥ 20 MΩ (500 VDC± megger)
Noise immunity	±240 VDC± the square wave noise (pulse width: 1 μs) by the noise simulator
Dielectric strength	1,000 VAC~ 50/60 Hz for 1 min
Vibration	1.5 mm double amplitude at frequency of 10 to 55 Hz (for 1 min) in each X, Y, Z direction for 2 hours
Shock	500 m/s ² (≈ 50 G) in each X, Y, Z direction for 3 times
Ambient illuminance (receiver)	Sunlight: ≤ 11,000 lx, incandescent lamp: ≤ 3,000 lx
Ambient temperature	-10 to 60 °C, storage: -25 to 70 °C (no freezing or condensation)
Ambient humidity	35 to 85 %RH, storage: 35 to 85 %RH (no freezing or condensation)
Protection rating	IP50 (IEC standard)
Connection	Cable type
Cable spec.	Ø 4 mm, 4-wire (Emitter: 3-wire), 2 m
Wire spec.	AWG22 (0.08 mm, 60-core), insulator outer diameter: Ø 1.25 mm
Material	Case: ABS, sensing part: Acrylic, bracket: SPCC, bolt: SCM, nut: SCM

Dimensions

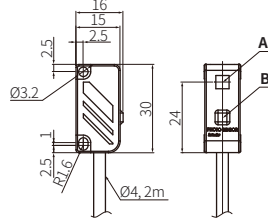
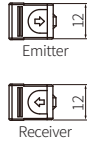
• Unit: mm, For the detailed drawings, follow the Autonics website.

A	Optical axis
B	Operation indicator (red)

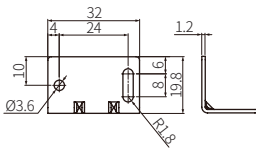
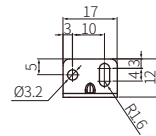
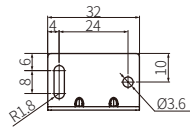
■ Front detection type



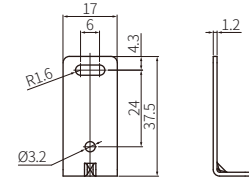
■ Side detection type



■ Bracket



Front detection type



Side detection type