# Slim Photoelectric Sensor for Long Sensing Distance



## ■ Features

- Easy to mount by Flat type
- Realization of 3m sensing distance as small size
- Protection structure IP67 (IEC standard)

**Please read "Safety Considerations" in the instruction manual before using.**

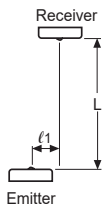
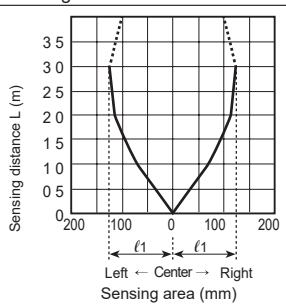
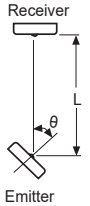
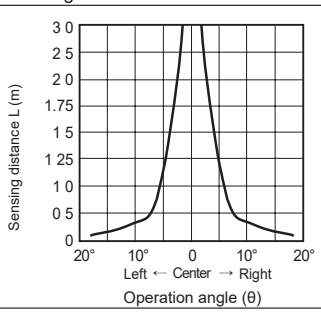
CE

## ■ Specifications

| | | | |
|---|---|---|---|
| Model | NPN open collector output | **BPS3M-TDT** | **BPS3M-TDTL** |
| | PNP open collector output | **BPS3M-TDT-P** | **BPS3M-TDTL-P** |
| Sensing type | | Through-beam | |
| Sensing target | | Opaque materials of min. Ø5mm | |
| Operation mode | | Dark ON | Light ON |
| Sensing distance | | 3m | |
| Response time | | Max. 1ms | |
| Power supply | | 12-24VDC⎓ ±10% (ripple P-P: max. 10%) | |
| Current consumption | | Max. 20mA | |
| Light source | | Infrared LED (850nm) | |
| Control output | | NPN or PNP open collector output<br>●Load voltage: max. 30VDC⎓ ●Load current: max. 100mA<br>●Residual voltage - NPN: max. 1VDC⎓, PNP: Max. 2.5VDC | |
| Protec ion circuit | | Reverse polarity protection circuit, output short overcurrent protection circuit | |
| Indicator | | Emitter - power indicator: red LED, receiver - operation indicator: red LED | |
| Insulation resistance | | Over 20MΩ (at 500VDC megger) | |
| Noise immunity | | ±240V the square wave noise (pulse width: 1μs) by the noise simulator | |
| Dielectric strength | | 1,000VAC 50/60Hz for 1 minute | |
| Vibra ion | | 1.5mm amplitude at frequency of 10 to 55Hz (for 1 min) in each X, Y, Z direction for 2 hours | |
| Shock | | 500m/s² (approx. 50G) in each X, Y, Z direction for 3 times | |
| Environ-ment | Ambient illumination | Sunlight: max. 11,000lx, incandescent lamp: max. 3,000lx (receiver illumination) | |
| | Ambient temperature | -25 to 65℃, storage: -25 to 70℃ | |
| | Ambient humidity | 35 to 85%RH, storage: 35 to 90%RH | |
| Protec ion structure | | IP67 (IEC standard) | |
| Material | | Case: polycarbonate, bolt: steel chromium molybdenum, nut: steel chromium molybdenum | |
| Cable | | Ø3mm, 3-wire, 2m (emitter of through-beam type: Ø3mm, 2-wire, 2m)<br>(AWG24, core diameter: 0.08mm, number of cores: 40, insulator out diameter: Ø1mm) | |
| Accessory | | M3 bolt: 4, M3 nut: 4 | |
| Approval | | CE | |
| Unit weight | | Approx. 66g | |

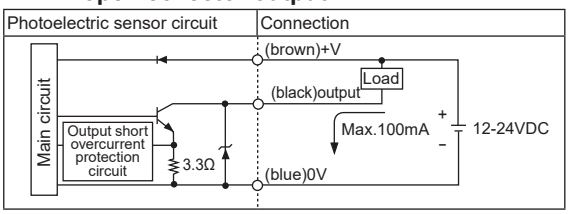
※The temperature or humidity mentioned in Environment indicates a non freezing or condensation environment.

## ■ Feature Data

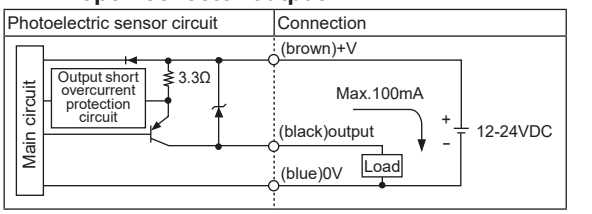
| Measuring method | Parallel shifting characteristic | Measuring method | Sensor angle characteristic |
|---|---|---|---|
|  |  |  |  |

## ■ Control Output Diagram

**● NPN open collector output**




**● PNP open collector output**




※If short-circuit the control output terminal or supply current over the rated specification, normal control signal is not output due to the output short over current protection circuit.

## ■ Operation Mode

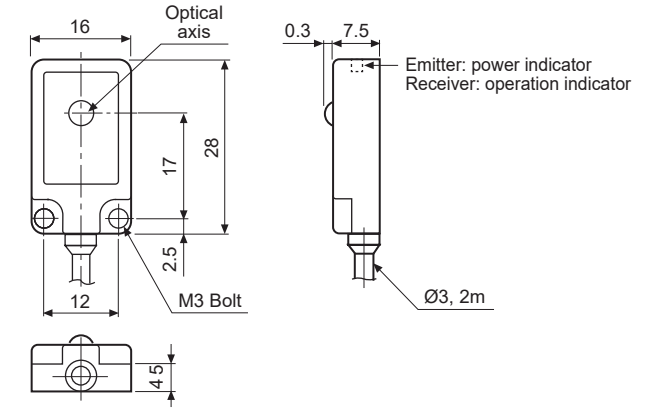
| Operation mode | Light ON | Dark ON |
|---|---|---|
| Receiver operation | Received light<br>Interrupted light | Received light<br>Interrupted light |
| Opera ion indicator (red LED) | ON<br>OFF | ON<br>OFF |
| Transistor output | ON<br>OFF | ON<br>OFF |

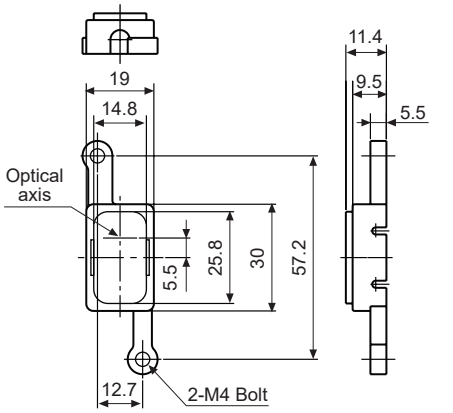
※Dark ON mode is standard and Light ON (Received Light: ON) mode is customizable.

## ■ Connections

| NPN open collector output | PNP open collector output |
|---|---|
| **● BPS3M-TDT1**<br>(brown)+V<br>(blue)0V<br>12-24VDC<br>(emitter) | **● BPS3M-TDT1**<br>(brown)+V<br>(blue)0V<br>12-24VDC<br>(emitter) |
| **● BPS3M-TDT2 / BPS3M-TDTL2**<br>(brown)+V<br>(black)Output<br>Load<br>(blue)0V<br>12-24VDC<br>(receiver) | **● BPS3M-TDT2-P / BPS3M-TDTL2-P**<br>(brown)+V<br>(black)Output<br>(blue)0V<br>Load<br>12-24VDC<br>(receiver) |

## ■ Dimensions




**●Cover (sold separately)** (unit: mm)