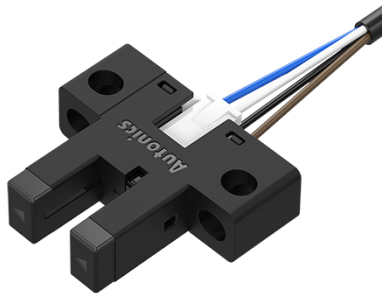


# Groove-Depth 9 mm Photomicro Sensors with Built-In Connector



## BS4 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

- Minimize the external size with the assembled connector insertion part
  - Dedicated sold separately and universal connector cables available
  - Various shapes available for installation flexibility (K, L, R, T, TA, F, Y types)
- Minimize malfunction and improved visibility
  - Minimize sensing part and body level to reduce malfunctions caused by foreign substances
  - Built-in operation indicators viewable from multiple directions
- Selectable models for the operation of indicator
  - Indicator turns ON under the light received condition
  - Indicator turns ON under the light interrupted condition
- Resistant structure for shock and vibration
  - Shock 15,000 m/s<sup>2</sup> (≈ 1,500 G), vibration 10 to 2,000 Hz (1.5 mm double amplitude)
- Selectable operation modes (Light ON/Dark ON)
- High-frequency response : 2 kHz

### Ordering Information

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

BS 4 - ① 2 ② - ③

#### ① Appearance

K		Y	
T	 Distance from the center of sensing to mounting surface: 7 mm	TA	 Distance from the center of sensing to mounting surface: 10 mm
L		F	
		R	

#### ② Indicator

- M: Turns ON under the light received condition
- R: Turns ON under the light interrupted condition

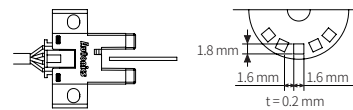
#### ③ Control output

- No mark: NPN open collector output
- P: PNP open collector output

### Specifications

Series	BS4
Sensing type	Through-beam
Sensing distance	5 mm
Sensing target	Opaque materials
Min. sensing target	≥ 0.8 mm × 1.8 mm
Hysteresis	≤ 0.05 mm
Response time	Received light: ≤ 20 μs, Interrupted light: ≤ 80 μs
Response frequency	2 kHz <sup>01)</sup>
Light source	Infrared LED
Peak emission wavelength	940 nm
Operation mode	Built-in Light ON / Dark ON
Indicator	Operation indicator (Red)
Approval	CE, RoHS
Unit weight	≈ 2.4 g

01) Response frequency is the value getting from revolving the circle panel below.



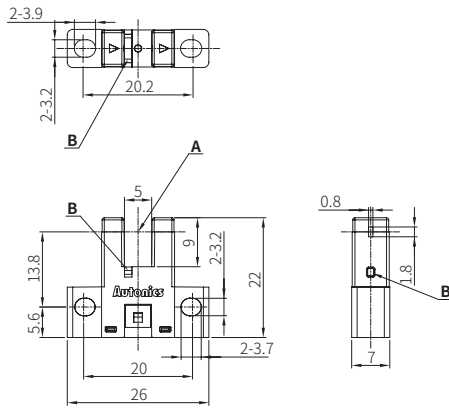
Power supply	5-24 VDC ± 10% (ripple P-P: ≤ 10%)
Current consumption	≤ 15 mA
Control output	NPN open collector output / PNP open collector output Model
Load voltage	≤ 24 VDC
Load current	≤ 50 mA
Residual voltage	NPN: ≤ 1.2 VDC, PNP: ≤ 1.2 VDC
Protection circuit	Reverse power polarity protection circuit, output short overcurrent protection circuit
Insulation resistance	≥ 20 MΩ (250 VDC = megger)
Noise immunity	± 240 VDC = 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 (max. acceleration 196 m/s <sup>2</sup> ) at frequency of 10 to 2,000 Hz in each X, Y, Z direction for 2 hours
Shock	15,000 m/s <sup>2</sup> (≈ 1,500 G) in each X, Y, Z direction for 3 times
Ambient illuminance (receiver)	Fluorescent lamp: ≤ 1,000 lx
Ambient temperature	-20 to 55°C, Storage: -25 to 85°C (no freezing or condensation environment)
Ambient humidity	35 to 85%RH, Storage: 35 to 85%RH (no freezing or condensation environment)
Protection rating	IP50 (IEC standard)
Connection method	Connector type
Material	Case: PBT, sensing part: PC

## Dimensions

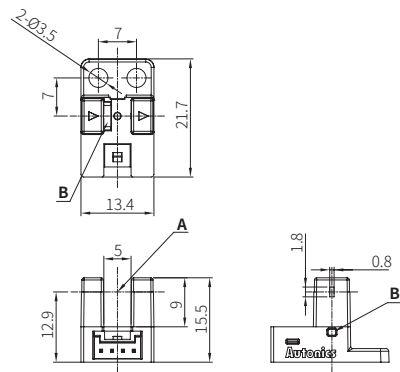
• Unit: mm, For the detailed drawings, follow the Autonics website.

<b>A</b>	Optical axis
<b>B</b>	Operation indicator (Red)

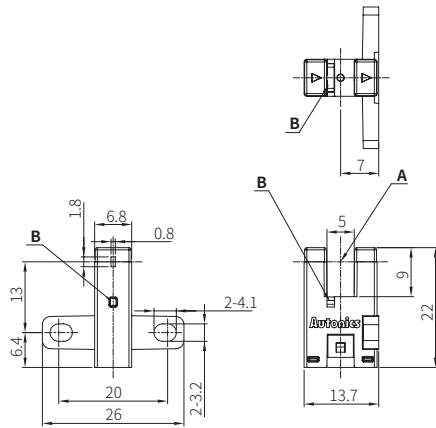
### ■ BS4-K



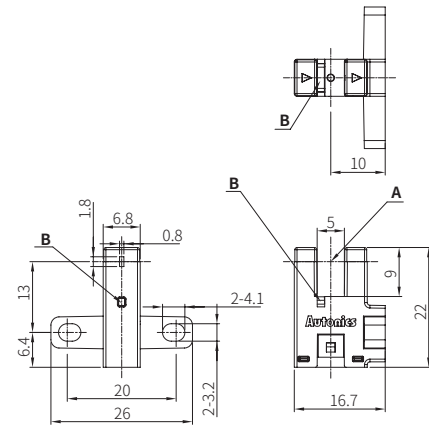
### ■ BS4-Y



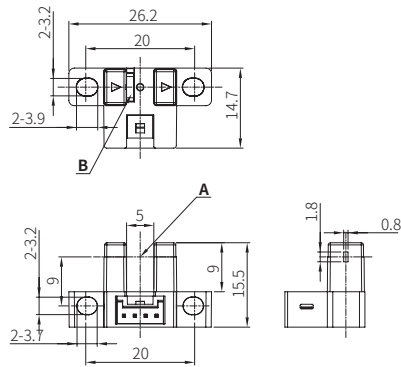
### ■ BS4-T



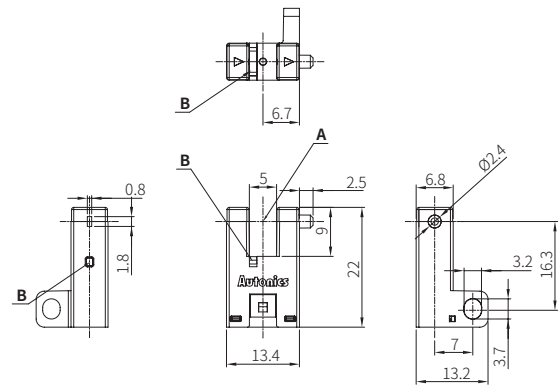
### ■ BS4-TA



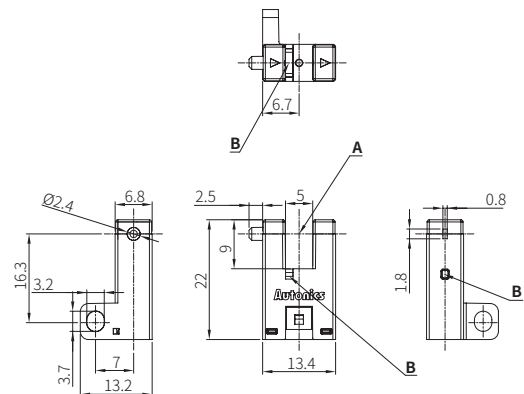
### ■ BS4-L



### ■ BS4-F



### ■ BS4-R



## Sold Separately

- Connector: CT-03□, CT-04□

Model	Cable			Connector
	Length	Feature	Spec.	
CT-03	1 m	Standard cable	Ø 4 mm, 4-wire	• Manufacturer: J.S.T. Mfg. Co., Ltd. • Housing: PAP-04V-S • Contact: SPHD-001T-P0.5
CT-04	3 m			
CT-03F	1 m	Flexible cable		
CT-04F	3 m			

## Sold Separately: Connector

- Unit: mm, For the detailed drawings, follow the Autonics website.
- The cable length differs from each model.

