

# Groove-Depth 6.5 mm Photomicro Sensors



## BS3 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

- Ultra compact size
- Select appearance depending on the installation environment (K, F, R, U, L type)
- Minimize malfunction and improve visibility
  - Minimize sensing part, gap and flush of the body to reduce malfunctions caused by a foreign substance
  - Built-in the operation indicator can be checked in many 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> (approx. 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 3 - ① 1 ② - ③

#### ① Appearance

F	
K	
L	
R	
U	



#### ② Indicator

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

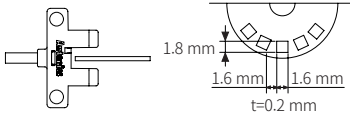
#### ③ Control output

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

## Specifications

<b>Series</b>	<b>BS3</b>
<b>Sensing type</b>	Through-beam
<b>Sensing distance</b>	5 mm
<b>Sensing target</b>	Opaque materials
<b>Min. sensing target</b>	≥ 0.8 mm × 1.8 mm
<b>Hysteresis</b>	≤ 0.05 mm
<b>Response time</b>	Received light: ≤ 20 μs, Interrupted light: ≤ 100 μs
<b>Response frequency<sup>01)</sup></b>	2 kHz
<b>Light source</b>	Infrared LED
<b>Peak emission wavelength</b>	940 nm
<b>Operation mode</b>	Built-in Light ON / Dark ON
<b>Indicator</b>	Operation indicator (red)
<b>Approval</b>	CE  RoHS 
<b>Unit weight</b>	≈ 50 g

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



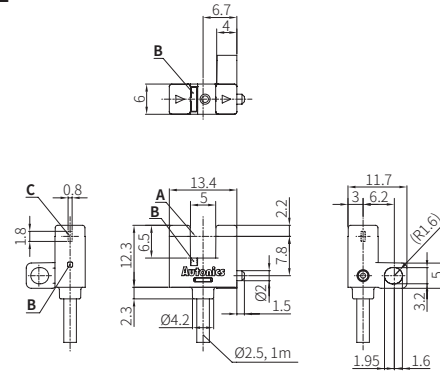
<b>Power supply</b>	5-24 VDC± ±10% (ripple P-P: ≤ 10%)
<b>Current consumption</b>	≤ 15 mA
<b>Control output</b>	NPN open collector output / PNP open collector output model
Load voltage	≤ 24 VDC±
Load current	≤ 50 mA
Residual voltage	NPN: ≤ 1.2 VDC±, PNP: ≤ 1.2 VDC±
<b>Protection circuit</b>	Reverse power polarity protection circuit, output short overcurrent protection circuit
<b>Insulation resistance</b>	≥ 20 MΩ (250 VDC± megger)
<b>Noise immunity</b>	± 240 VDC± square wave noise (pulse width 1 μs) by the noise simulator
<b>Dielectric strength</b>	1,000 VAC~ 50/60 Hz for 1 min
<b>Vibration</b>	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
<b>Shock</b>	15,000 m/s <sup>2</sup> (≈ 1,500 G) in each X, Y, Z direction for 3 times
<b>Ambient illuminance (receiver)</b>	Fluorescent lamp: ≤ 1,000 lx
<b>Ambient temperature</b>	-20 to 55 °C, storage: -25 to 85 °C (no freezing or condensation environment)
<b>Ambient humidity</b>	35 to 85%RH, storage: 35 to 85%RH (no freezing or condensation environment)
<b>Protection rating</b>	IP50 (IEC standard)
<b>Connection method</b>	Cable type
<b>Cable spec.</b>	Ø 2.5 mm, 4-wire, 1 m
<b>Wire spec.</b>	AWG28 (0.08 mm, 19-core), insulator outer diameter: Ø 0.65 mm
<b>Material</b>	Case: PBT, sensing part: PC

## Dimensions

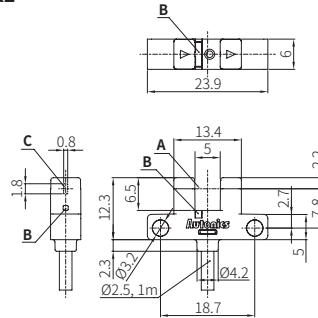
Unit: mm, For the detailed drawings, follow the Autonics website.

<b>A</b>	Optical axis
<b>B</b>	Operation indicator (red)
<b>C</b>	Sensing window

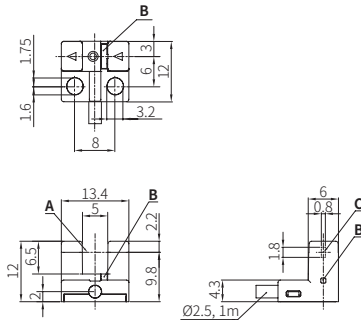
### BS3-F1



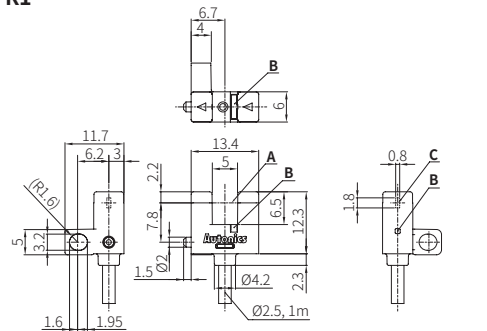
### BS3-K1



### BS3-L1



### BS3-R1



### BS3-U1

