

# Push-button Type Photomicro Sensors



## BS5-P 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

- Button operation enables accurate detection regardless of material, color, or reflectance of target object
- "Optimized for transport detection of semiconductor wafer enclosures (FOUP, FOSB, etc.)"
- Optical detection of button operation guarantees 5 million operations of the mechanical life cycle
- Total of 4 red LED indicators (side:2, top:2) for higher visibility of operation status
- Increased product durability with steel mounting brackets
- Emitter OFF function and check stable operation functions
- Built-in reverse polarity protection circuit and output short overcurrent protection circuit

### 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 5 - P 1 M ① - ② - ③**

#### ① Operation mode

- L: Light ON (Unpressed button, indicator + output ON)
- D: Dark ON (Pressed button, indicator + output ON)

#### ② Control output

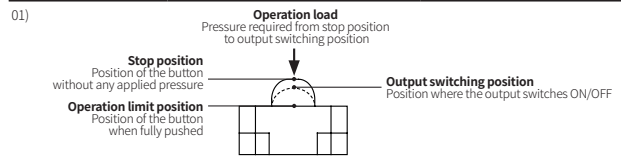
- No mark: NPN open collector output
- P: PNP open collector output

#### ③ Approvals

- No mark: CE Marking approved
- U: CE and UL Listed Marking approved

### Specifications

Model	BS5-P1M□-□-□	BS5-P1M□-□-□-□-□-□-□-□-□-□-□
Sensing type	Push button type	
Button stop position <sup>01)</sup>	5.0 ± 0.4 mm	
Button output switching position <sup>01)</sup>	4.0 ± 0.5 mm	
Button operation limit position <sup>01)</sup>	≤ 0 mm	
Operation load <sup>01)</sup>	≤ 3 N	
Light source	Infrared LED	
Peak emission wavelength	940 nm	
Emitter OFF	YES (External input <sup>02)</sup> )	
Check stable operation	YES (External input <sup>02)</sup> )	
Operation mode	Light ON (Unpressed button, indicator + output ON) / Dark ON (Pressed button, indicator + output ON) mode model	
Indicator	Operation indicator (red)	
Approval	CE ENEC	CE UL
Unit weight (packaged)	≈ 30 g (≈ 50 g)	≈ 30 g (≈ 50 g)



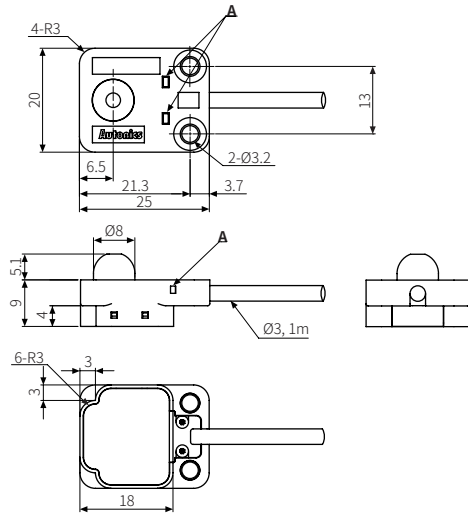
02)

External input	NPN output	PNP output
Emitter OFF	Short at 0 V or ≤ 0.25 VDC (outflow current ≤ 30 mA)	Short at +V or +V ≥ -0.25 VDC (absorption current ≤ 30 mA)
Emitter ON	Open (leakage current ≤ 0.4 mA)	Open (leakage current ≤ 0.4 mA)
Response time	≤ 1 ms	

Power supply	12-24 VDC ± 10% (ripple P-P: ≤ 10%)
Current consumption	≤ 35 mA
Control output	NPN open collector output / PNP open collector output model
Load voltage	≤ 26.4 VDC
Load current	≤ 50 mA
Residual voltage	NPN: ≤ 1.5 VDC, PNP: ≤ 1.5 VDC
Protection circuit	Reverse power protection circuit, output short overcurrent protection circuit
Insulation resistance	≥ 20 M.Ω (250 VDC megger)
Noise immunity	±240 VDC = the square wave noise (pulse width: 1 μs) by the noise simulator
Dielectric strength	1,000 VAC ~ at 50/60 Hz for 1 min
Vibration	1.5 mm double amplitude at 10 to 55 Hz frequency in each X, Y, Z direction for 2 hours
Shock	500 m/s <sup>2</sup> (≈ 50 G) in each X, Y, Z direction for 3 times
Mechanical life cycle	≥ 5,000,000 operations (1 operation = stop position - operation limit position - stop position)
Ambient illumination (receiver)	Fluorescent lamp: ≤ 1,000 lx
Ambient temperature	-20 to 55 °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	IP40 (IEC standard)
Connection method	Cable type
Cable spec.	∅ 3 mm, 4-wire, 1 m
Wire spec.	Refer to the specifications below depending on the models.
BS5-P1M□-□-□	AWG26 (0.08 mm, 30-core), insulator outer diameter: ∅ 0.93 mm
BS5-P1M□-□-□-□	AWG26 (0.08 mm, 28-core), insulator outer diameter: ∅ 0.9 mm
Material	Refer to the specifications below depending on the models.
BS5-P1M□-□-□	Case: PC + G, button: POM, sleeve: SUS304
BS5-P1M□-□-□-□	Case: PC, button: POM, sleeve: SUS304

## Dimensions

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



**A** Operation indicator (red)