# BS5 Series

Photo micro sensor

▣ Features

- Built-in miniature amplifier, NPN open collector output
- Various selection by installation position
  (Appearance: K, T, L Type)
- Light ON / Dark ON selectable
- High speed response frequency : 2kHz
- Wide range of power source: 5-24VDC
  (Easy to connect with various IC, Relay,
  Programmable Controller etc)
- Dust resistance structure: Protecting by window of
  Emitter/ Receiver
- Enable to check the status of operation by Red LED indicator

T2M   **L2M**   **K2M**
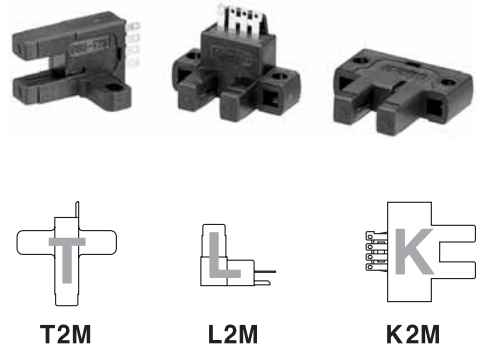
⚠ **Please read "Caution for your safety" in operation manual before using.**

CE

▣ Specifications

Type	Photo micro sensor		
Model	**BS5-K2M**	**BS5-T2M**	**BS5-L2M**
Sensing distance	Fixed 5mm		
Sensing type	Transmitted beam (Not modulated)		
Sensing target	Opaque material of Min. 0.8×1.8mm		
Hysteresis	0.05mm		
Power supply	5-24VDC ±10% (Ripple P-P : Max. 10%)		
Current consumption	Max. 30mA (at 26.4VDC)		
Control output	NPN open collector output ☞ Load voltage : Max. 30VDC, Load current : Max. 100mA Residual voltage : Max. 1.2V		
Operation mode	Light ON / Dark ON mode selectable by control wire		
Operation indicator	Red LED		
Response time	Received light : Max. 20μs, Interrupted light : Max. 100μs		
Response frequency	2kHz (Please see the measuring range of frequency response)		
Connection	Connector type		
Light emitting element	RED		
Light receiving element	Photo TR		
Vibration	1.5mm amplitude at frequency of 10 ~ 55Hz in each of X, Y, Z directions for 2 hours		
Shock	500m/s² (50G) in X, Y, Z directions for 3 times		
Noise strength	±240V the square wave noise (pulse width:1μs) by the noise simulator		
Dielectric strength	1,000VAC 50/60Hz for 1minute		
Insulation resistance	Min. 20MΩ (at 250VDC)		
Ambient illumination	Fluorescent lamp : Max. 1000lx		
Ambient temperature	−20 ~ + 55℃ (at non-freezing status), Storage : −25 ~ + 85℃		
Ambient humidity	35 ~ 85%RH (Storage : 35 ~ 85%RH)		
Protection	IP50 (IEC standard)		
Material	PA-6		
Approval	CE		
Unit weight	Approx. 30g		

Autonics

Photo Micro Sensor

▪Control output diagram

Photoelectric sensor circuit	Connection

※S/W OFF : Dark ON, S/W ON : Light ON
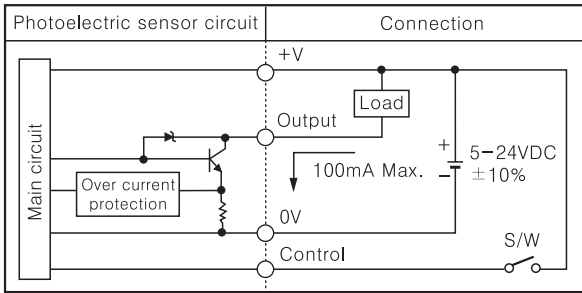
+V
Output
Load
100mA Max.
5-24VDC ±10%
0V
Control
S/W
Main circuit
Over current protection

▪How to measure response frequency

Response frequency value is from revolving of below circle panel.

Circle panel
1.8mm
1.6mm 1.6mm
t=0.2mm

▪Operation mode

Light ON mode	Receiver operation	ON / OFF		Dark ON mode	Receiver operation	ON / OFF	
	Operation indicator (LED)	ON / OFF			Operation indicator (LED)	ON / OFF	
	TR output	ON / OFF			TR output	ON / OFF	
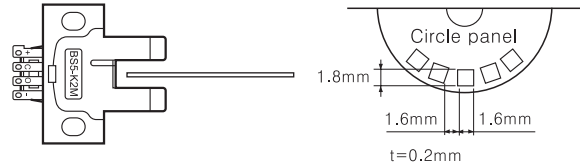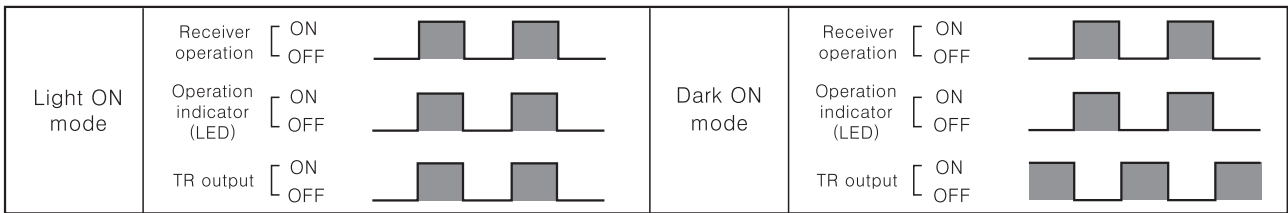
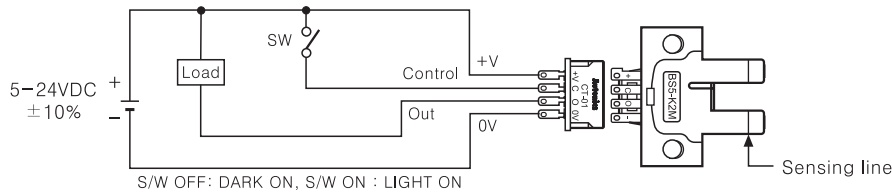※If the control output terminal is short−circuited or overcurrent condition is existed, the control output will turn off due to protection circuit.
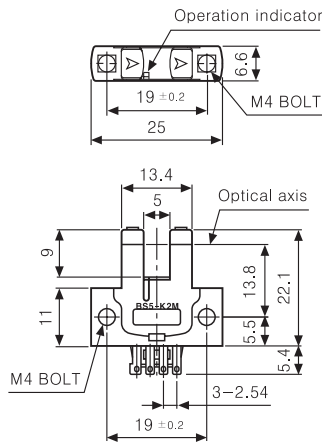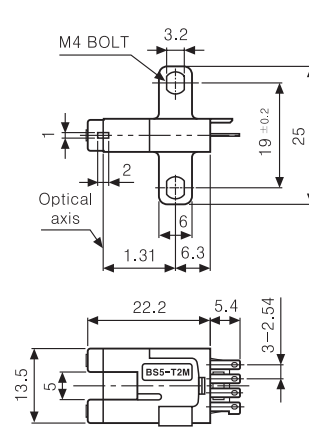
▪Connections

5-24VDC ±10%
Load
SW
Control
Out
+V
0V
BS5-K2M
Sensing line
S/W OFF: DARK ON, S/W ON : LIGHT ON

▪Dimensions

(Unit:mm)

●BS5-K2M

Operation indicator
6.6
19 ±0.2
25
M4 BOLT
13.4
5
Optical axis
9
11
13.8
22.1
5.5
5.4
M4 BOLT
3-2.54
19 ±0.2
6
1
2

●BS5-T2M

M4 BOLT
3.2
19 ±0.2
25
Optical axis
1.31
6.3
2
6
1
22.2
5.4
13.5
5
3-2.54

●PCB mounting hole

3.81 3.81
1.6
2.54
+V

6
Operation indicator
13.7
3.5

●BS5-L2M

25
19 ±0.2
M4 BOLT
6.6
13.3
5.4
Operation indicator
BS5-L2M
2.54
13.4
13.4
5
Optical axis
9
6.4
9
7.2
15.4
M4 BOLT
19 ±0.2
3.6
6
1
2

●Socket : CT-01(Option)

2.54
7.62
13
14
Autonics CT-01 +V C O 0V
7.5
5.2
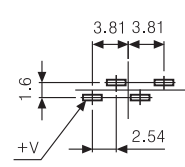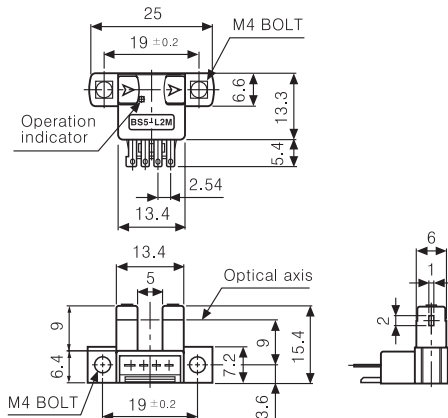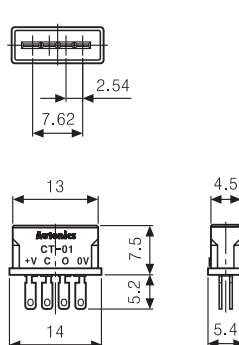
●Socket : CT-02(Option)

R1.55
5
9
16
8.9
3.5
18.5
4.5
5.4
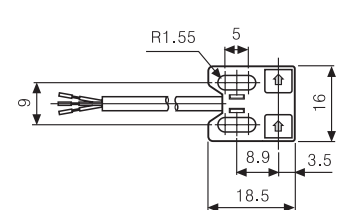
※Cable : 4P, φ4, 1m
※It is able to produce optionally for the length of cable.