

BS5 Series

Micro photo sensor

Line-up

■ Features

- Built-in miniature amplifier, NPN open collector output
- Various selection by installation position
(Appearance: K, T, L, Y, V 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
- Red LED status indication



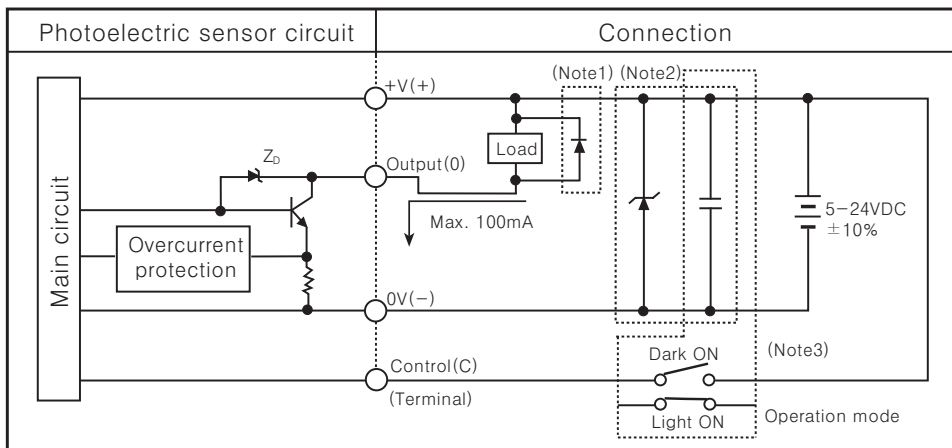
! Please read "Caution for your safety" in operation manual before using.



■ Specifications

| Type | Micro photo sensor | | | | |
|-------------------------|---|---------|---------|---------|---------|
| Model | BS5-K2M | BS5-T2M | BS5-L2M | BS5-Y2M | BS5-V2M |
| Sensing distance | 5mm fixed | | | | |
| Sensing type | Transmitted beam (Not modulated) | | | | |
| Sensing target | Min. 0.8×1.8mm opaque materials | | | | |
| 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 via control terminal | | | | |
| 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/s ² (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 mega) | | | | |
| Ambient illumination | Fluorescent lamp : Max. 1000lx | | | | |
| Ambient temperature | -20 ~ + 55℃ (at non-freezing status), Storage : -25 ~ + 85℃ | | | | |
| Ambient humidity | 35 ~ 85%RH (at non-freezing status) | | | | |
| Protection | IP50 (IEC standard) | | | | |
| Material | PBT | | | | |
| Approval | CE | | | | |
| Unit weight | Approx. 30g | | | | |

Control output diagram



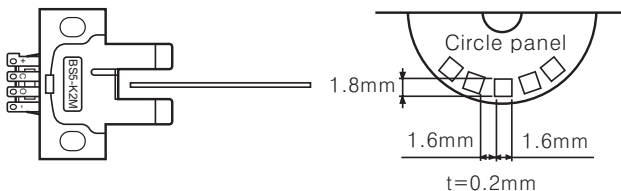
※ (Note1) There is Z_D (Zener Diode) absorbing the surge in output circuit, connect diode absorbing the surge at both terminals of load to protect the unit when connecting large inductive load.

※ (Note2) If there are surge in power line, connect ZD (30 to 35V) or Condenser (0.1 to 1 μ F/400 to 600V) to remove the surge.

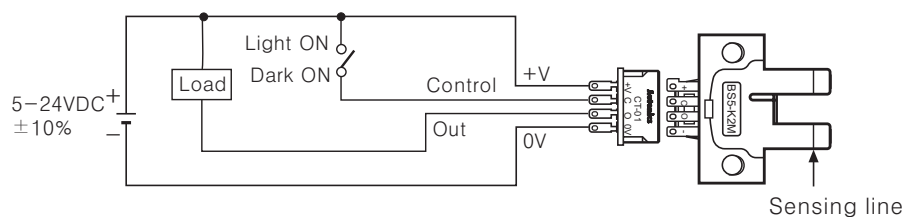
※ (Note3) Operation mode selection : Connect Control (C) terminal into terminal +V(+) to operate Light ON mode. Dark ON mode is available with disconnection status. Please connect a condenser (Over 0.1~1 μ F/50V) between terminal +V(+) and 0V for stable status in case of Light ON mode.

How to measure response frequency

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



Connections



※ Connect the unit using socket.

If it is soldered on terminal pin, product damage may result.

Operation mode

| Light ON mode | Receiver operation | ON | OFF | Operation indicator (Red LED) | ON | OFF | TR output | ON | OFF |
|---------------|--------------------|----|-----|-------------------------------|----|-----|-----------|----|-----|
| | | | | | | | | | |
| Dark ON mode | Receiver operation | ON | OFF | Operation indicator (Red LED) | 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.

(A)
Counter

(B)
Timer

(C)
Temp.
controller

(D)
Power
controller

(E)
Panel
meter

(F)
Tacho/
Speed/
Pulse
meter

(G)
Display
unit

(H)
Sensor
controller

(I)
Switching
power
supply

(J)
Proximity
sensor

(K)
Photo
electric
sensor

(L)
Pressure
sensor

(M)
Rotary
encoder

(N)
Stepping
motor &
Driver &
Controller

(O)
Graphic
panel

(P)
Field
network
device

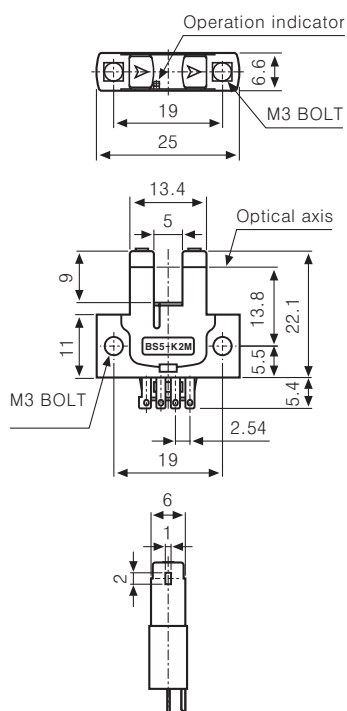
(Q)
Production
stoppage
models &
replacement

BS5 Series

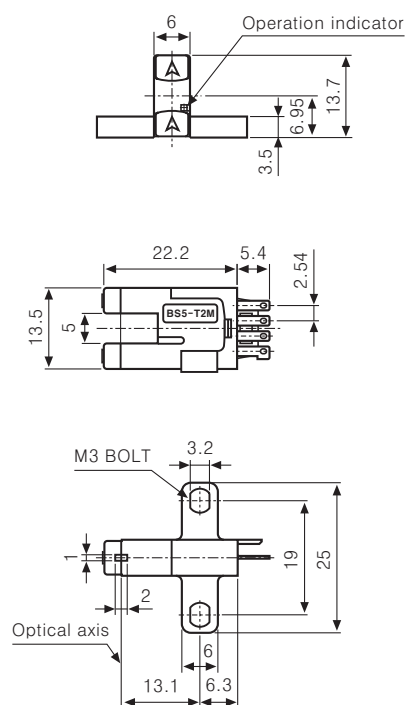
■ Dimensions

(Unit:mm)

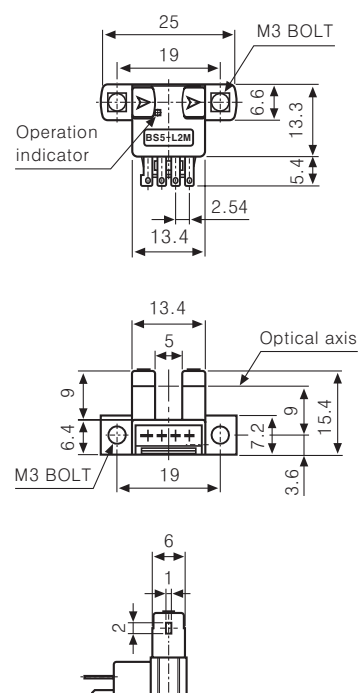
●BS5-K2M



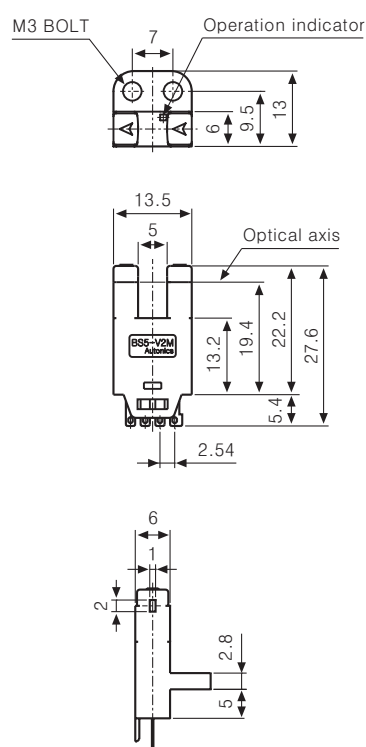
●BS5-T2M



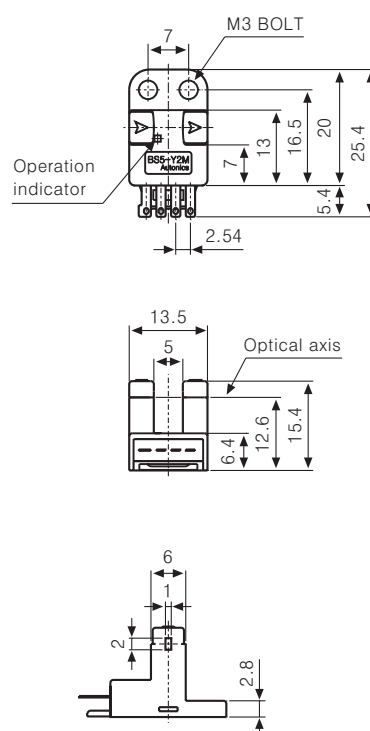
●BS5-L2M



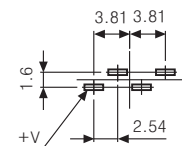
●BS5-V2M



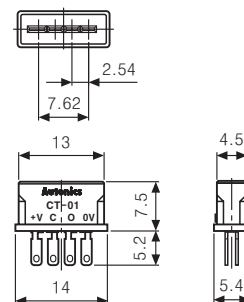
●BS5-Y2M



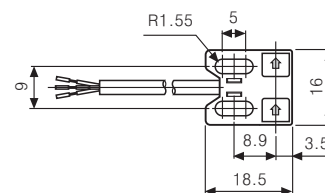
●PCB mounting hole



●Socket : CT-01 (Sold separately)



●Socket : CT-02 (Sold separately)



※ Cable : 4P, ϕ 4, 1m
 ※ Cable length is customizable.