


# BS5 Series

## Micro photo sensor

### ■ Features


- Built-in amplifier, NPN open collector output
- Various selection by installation position  
(Appearance: K, T, L, Y, V type)
- Light ON / Dark ON mode 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



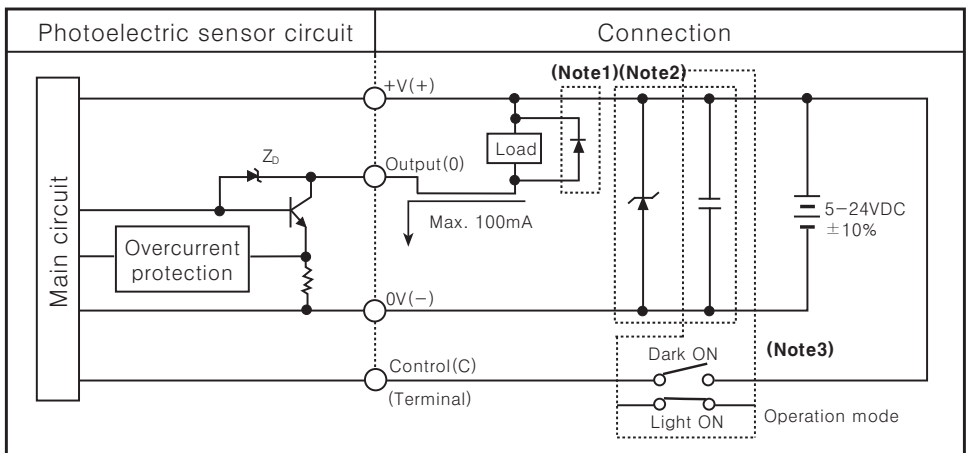
 Please read "Caution for your safety" in operation manual before using.



### ■ Specifications

Type	Micro photo sensor				
Model	BS5-K2M	BS5-T2M	BS5-L2M	BS5-Y2M	BS5-V2M
Sensing distance	5mm fixed				
Sensing type	Through-beam (Not modulated)				
Sensing target	Min. 0.8×1mm 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 by 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	Infrared LED				
Light receiving element	Photo transistor				
Vibration	1.5mm or 300m/s <sup>2</sup> amplitude at frequency of 10 to 55Hz in each of X, Y, Z directions for 2 hours				
Shock	500m/s <sup>2</sup> (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 megger)				
Ambient illumination	Fluorescent lamp : Max. 1000lx (Receiver illumination)				
Ambient temperature	–20 to 55°C (at non-freezing status), Storage : –25 to 85°C				
Ambient humidity	Operation & Storage : 35 to 85%RH (at non-dew status)				
Protection	IP50 (IEC standard)				
Material	PBT				
Approval					
Unit weight	Approx. 30g				

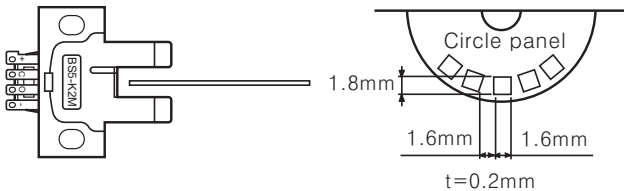
## ■ Control output diagram



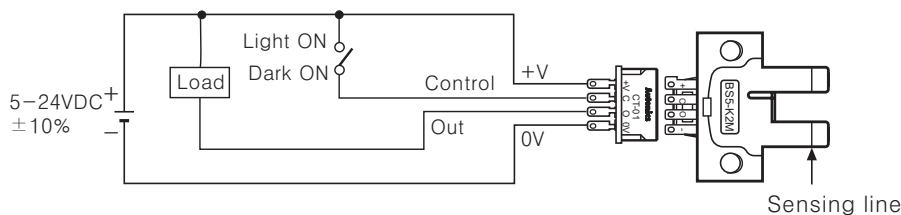
- ※ **(Note1)** There is  $Z_D$  (Zener Diode) absorbing the surge in output circuit, connect diode absorbing the surge at both terminals of load to protect the unit when connecting large inductive load.
- ※ **(Note2)** If there are surge in power line, connect  $Z_D$  (30 to 35V) or Condenser (0.1 to  $1\mu F$  / 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 to  $1\mu F$  / 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	Dark ON mode	Receiver operation	ON	OFF
Operation indicator (Red LED)	ON			Operation indicator (Red LED)	ON		
	OFF				OFF		
TR output	ON			TR output	ON		
	OFF				OFF		

- ※ If the control output terminal is short-circuited or overcurrent condition exists, the control output will turn off due to protection circuit.

(A) Photo electric sensor

(B) Fiber optic sensor

(C) Door/Area sensor

(D) Proximity sensor

(E) Pressure sensor

(F) Rotary encoder

(G) Connector/Socket

(H) Temp. controller

(I) SSR/Power controller

(J) Counter

(K) Timer

(L) Panel meter

(M) Tacho/Speed/Pulse meter

(N) Display unit

(O) Sensor controller

(P) Switching power supply

(Q) Stepping motor & Driver & Controller

(R) Graphic/Logic panel

(S) Field network device

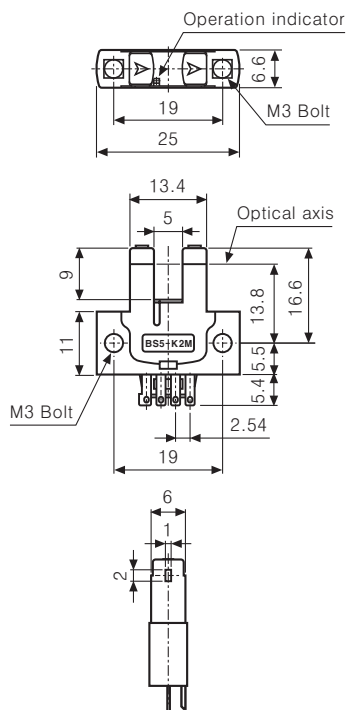
(T) Production stoppage models & replacement

# BS5 Series

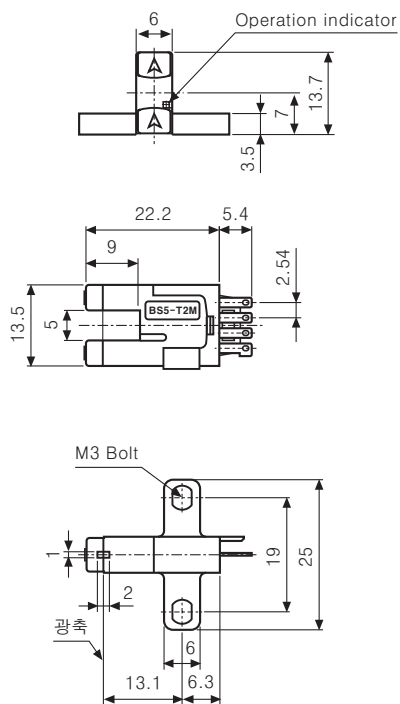
## ■ Dimensions

(Unit:mm)

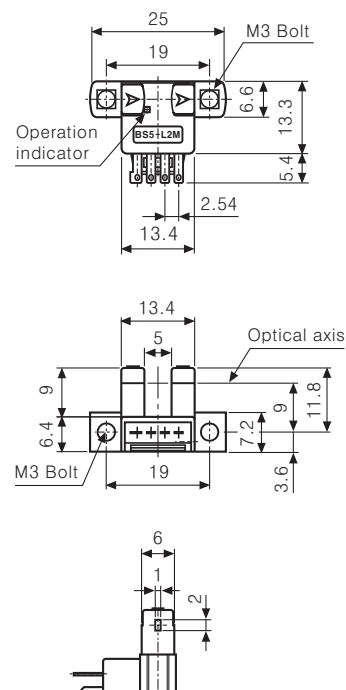
### ●BS5-K2M



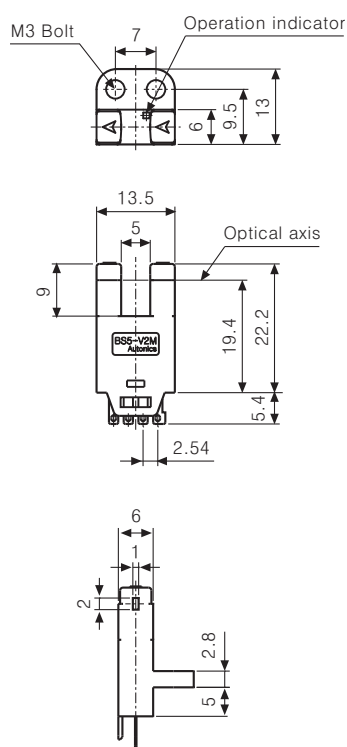
### ●BS5-T2M



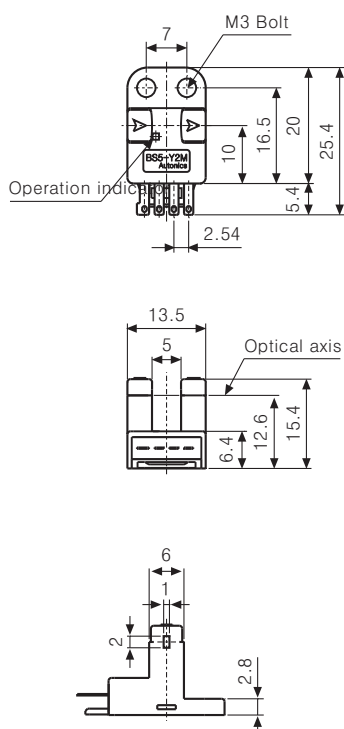
### ●BS5-L2M



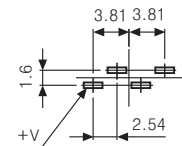
### ●BS5-V2M



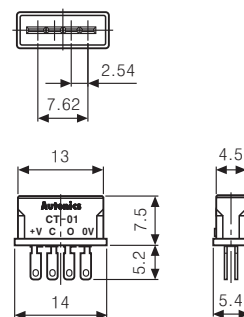
### ●BS5-Y2M



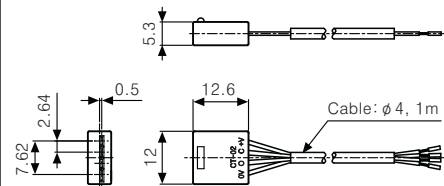
### ●PCB mounting hole



### ●Socket : CT-01(Sold separately)



### ●Socket : CT-02(Sold separately)



※Cable length is customizable.