

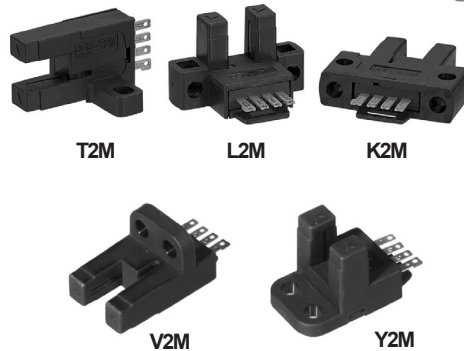
## Micro photo sensor

### ■ Features

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

PNP model

Line-up



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



### ■ Ordering information

BS 5 - K 2 M - P

Item	BS	5	-	K	2	M	-	P	
Sensing distance									
Appearance				K	T	L			
Connection type				2					
Size				M					
Control output				No mark	NPN open collector output				
				P	PNP open collector output				

### ■ Specifications

Model	NPN open collector output PNP open collector output	BS5-K2M BS5-K2M-P	BS5-T2M BS5-T2M-P	BS5-L2M BS5-L2M-P	BS5-Y2M BS5-Y2M-P	BS5-V2M BS5-V2M-P
Sensing distance	5mm fixed					
Sensing type	Through-beam(Not modulated)					
Sensing target	ø0.8×1mm Opaque materials					
Hysteresis	0.05mm					
Response time	Light ON : Max. 20μs, Dark ON : Max. 100μs					
Response frequency	2kHz(refer to the measuring range of frequency response)					
Power supply	5-24VDC ±10%(Ripple P-P : Max. 10%)					
Current consumption	Max. 30mA(at 26.4VDC )					
Light source	Infrared LED(950nm)					
Operation mode	Light ON / Dark ON selectable by control wire					
Control output	NPN or PNP open collector output ●Load voltage : Max. 30VDC ●Load current : Max. 100mA ●Residual voltage : Max. 1.2V					
Protection circuit	Reverse power polarity protection, Overcurrent protection					
Indicator	Operation Indicator: red LED					
Connection	Connector type					
Insulation resistance	Min. 20MΩ(at 250VDC megger)					
Noise resistance	±240V the square wave noise(pulse width:1μs) by the noise simulator					
Dielectric strength	1,000VAC 50/60Hz for 1minute					
Vibration	1.5mm amplitude at frequency of 10 to 55Hz in each of X, Y, Z directions for 2 hours					
Shock	500m/s <sup>2</sup> (approx. 50G) in each of X, Y, Z directions for 3 times					
Environment	Ambient illumination	Fluorescent lamp : Max. 1000lx (Receiver illumination)				
	Ambient temperature	-20 to 55°C, storage : -25 to 85°C				
	Ambient humidity	35 to 85%RH, storage : 35 to 85%RH				
Protection	IP50(IEC standard)					
Material	PBT					
Approval	CE					
Unit weight	Approx. 30g					

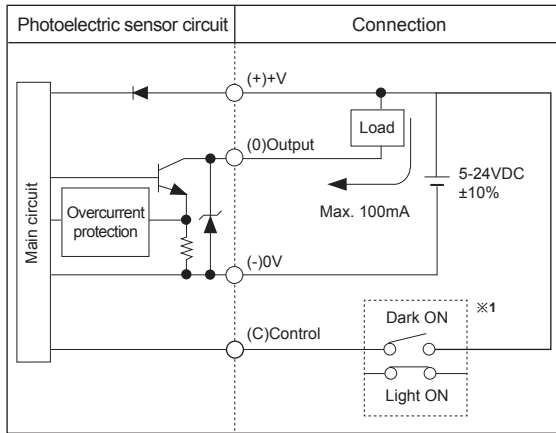
※The temperature or humidity mentioned in Environment indicates a non freezing or condensation environment.

- (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 mode power supply
- (Q) Stepper motor& Driver&Controller
- (R) Graphic/ Logic panel
- (S) Field network device
- (T) Software
- (U) Other

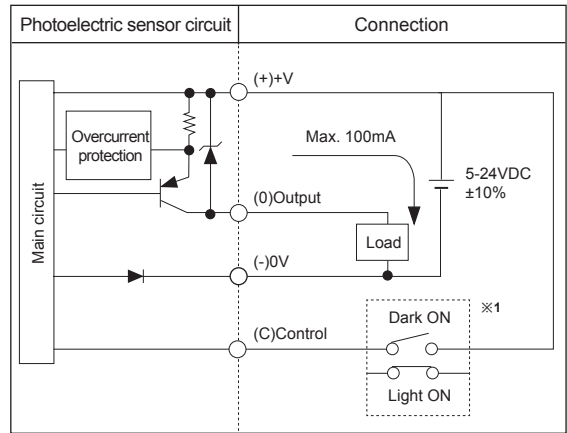
# BS5 Series

## Control output diagram

### • NPN open collector output



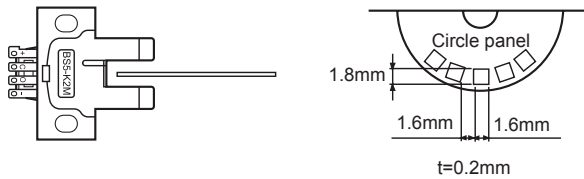
### • PNP open collector output



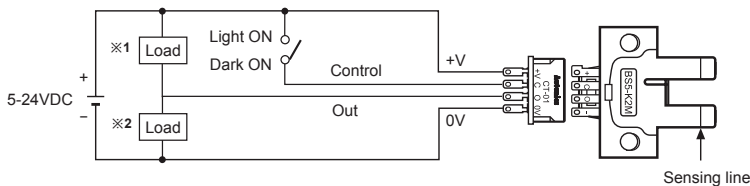
※1: Operation mode selection : Connect Control(C) terminal into terminal +V(+) to operate Light ON mode.  
Dark ON mode is available with disconnection status.

## How to measure response frequency

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



## Connections



※1: The load connection of NPN open collector output

※2: The load connection of PNP open collector output

※Connect the unit using socket. If it is soldered on terminal pin directly without socket, it may cause product damage.

## Operation mode

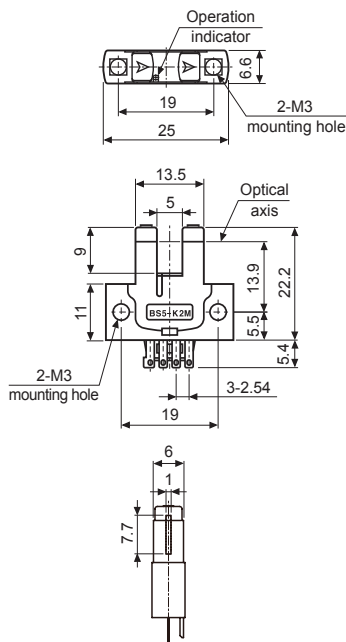
Operation mode	Light ON	Dark ON
Receiver operation	Received light Interrupted light	Received light Interrupted light
Operation indicator (red LED)	ON OFF	ON OFF
Transistor output	ON OFF	ON OFF

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

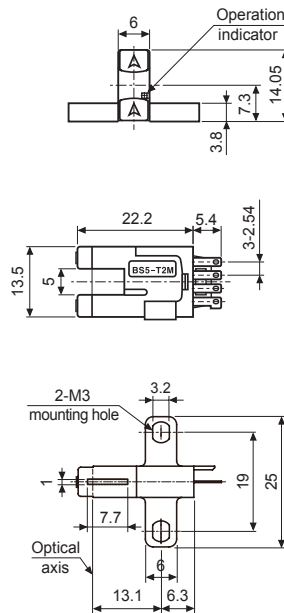
## ■ Dimensions

(unit: mm)

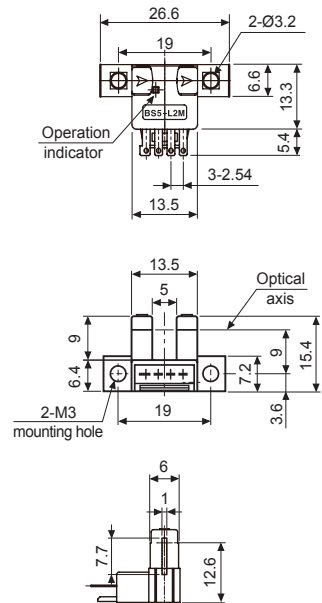
### ● BS5-K2M / BS5-K2M-P



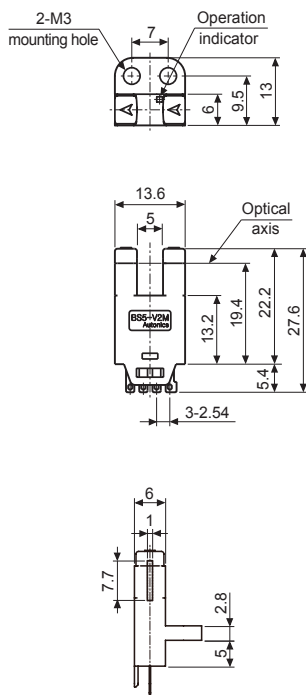
### ● BS5-T2M / BS5-T2M-P



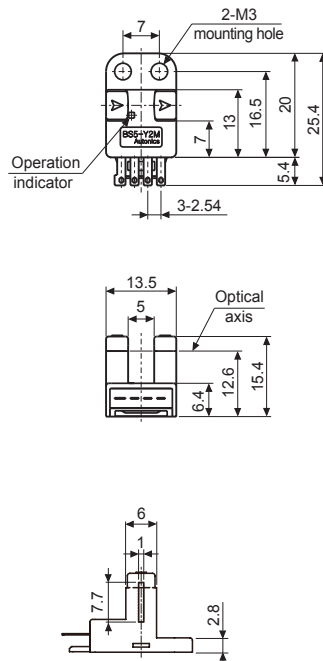
### ● BS5-L2M / BS5-L2M-P



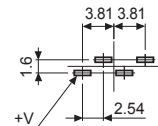
### ● BS5-V2M / BS5-V2M-P



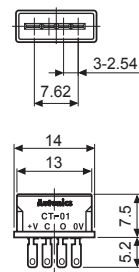
### ● BS5-Y2M / BS5-Y2M-P



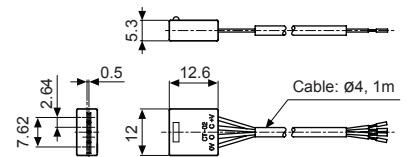
### ● PCB mounting hole



### ● Socket: CT-01(sold separately)



### ● Socket: CT-02(sold separately)



※ Cable:  $\phi 4$ , 4-wire, Length: 1m  
(AWG22, Core wire diameter: 0.08mm,  
No. of core wire: 60, Insulator out diameter:  
 $\phi 1.2$ )

※ Cable length is available to option.

(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  
mode power  
supply

(Q)  
Stepper  
motor &  
Driver&Controller

(R)  
Graphic/  
Logic  
panel

(S)  
Field  
network  
device

(T)  
Software

(U)  
Other