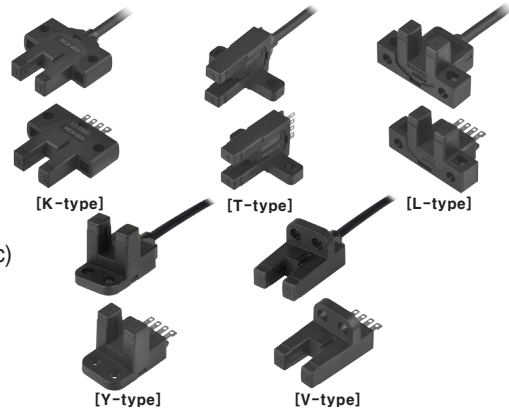


Micro photo sensor

■ 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

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



■ Ordering information

BS 5 - K 1 M - P

Control output	No mark	NPN open collector output	
	P	PNP open collector output	
Size	M	Middle	
Connection type	1	Cable type	
	2	Connector type	
Appearance	K	K-Type	Y-Type
	T	T-Type	V-Type
	L	L-Type	
Sensing distance	5	Unit: mm(fixed)	
Item	BS	Photo electronic sensor	

■ Specifications

Model	NPN open collector output	BS5-K1M	BS5-T1M	BS5-L1M	BS5-Y1M	BS5-V1M	BS5-K2M	BS5-T2M	BS5-L2M	BS5-Y2M	BS5-V2M
	PNP open collector output	BS5-K1M-P	BS5-T1M-P	BS5-L1M-P	BS5-Y1M-P	BS5-V1M-P	BS5-K2M-P	BS5-T2M-P	BS5-L2M-P	BS5-Y2M-P	BS5-V2M-P
Sensing type	Through-beam(Not modulated)										
Sensing distance	5mm fixed										
Sensing target	0.8×2mm Opaque materials										
Hysteresis	0.8×2mm Opaque materials										
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(940nm)										
Operation mode	Light ON, Dark ON selectable by control wire						Light ON, Dark ON selectable by control terminal				
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, output short-circuit protection										
Indicator	Operation Indicator: red LED										
Connection	Cable type						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(for 1 min.) in each of X, Y, Z directions for 2 hours										
Shock	500m/s ² (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										
Cable	Ø3mm, 4-wire, 1m(AWG28, Core diameter: 0.08mm, Number of cores: 19, Insulator out diameter: Ø0.88mm)						—				
Approval	—						CE				
Weight ^{*1}	Approx. 50g(approx. 30g)										

※1: The weight is with packaging and the weight in parentheses is only unit weight.

※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

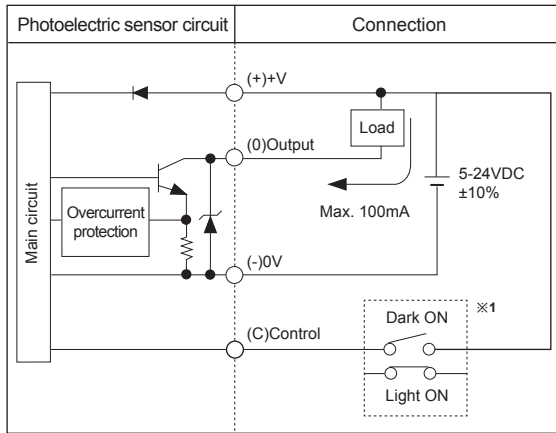
(T) Software

(U) Other

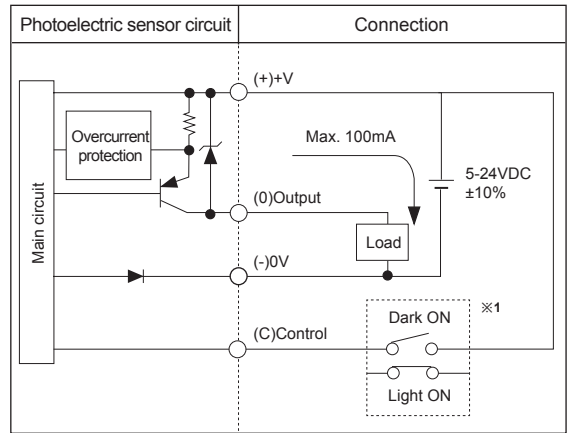
BS5 Series

Control output diagram

• NPN open collector output



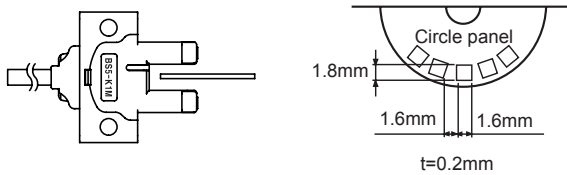
• PNP open collector output



※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

Cable type	Connector type
<p>① Load connection for NPN output</p>	<p>② Load connection for PNP output</p>

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

Operation mode

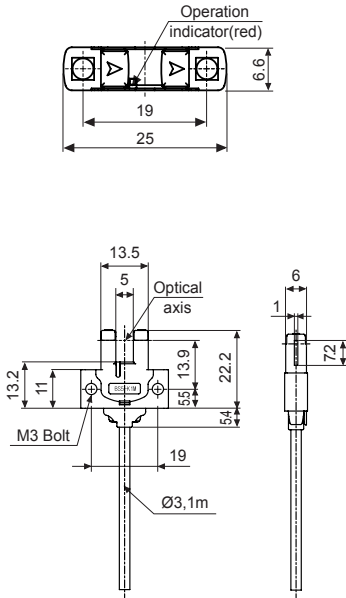
Operation mode	Light ON	Dark ON
Receiver operation	<p>Received light</p>	<p>Received light</p>
Operation indicator (red LED)	<p>ON</p>	<p>ON</p>
Transistor output	<p>ON</p>	<p>ON</p>

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

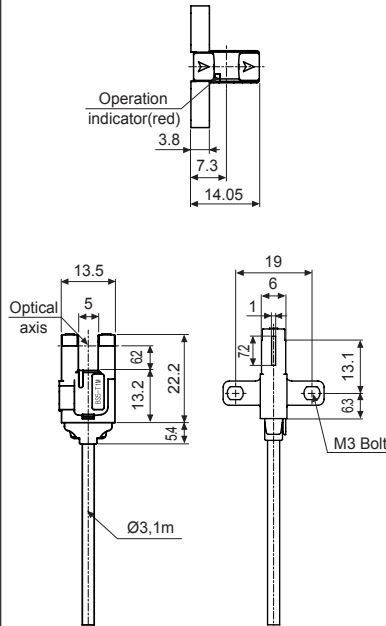
■ Dimensions

(unit: mm)

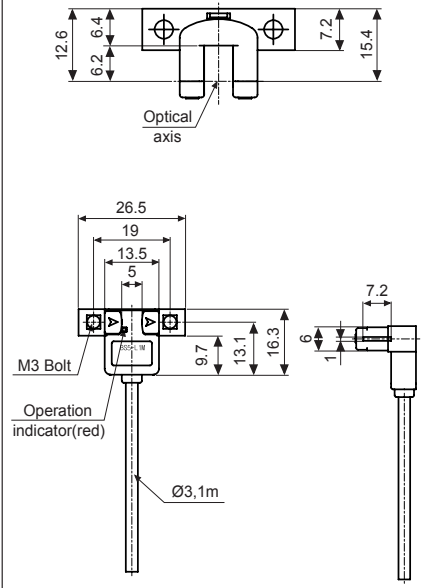
• BS5-K1M / BS5-K1M-P



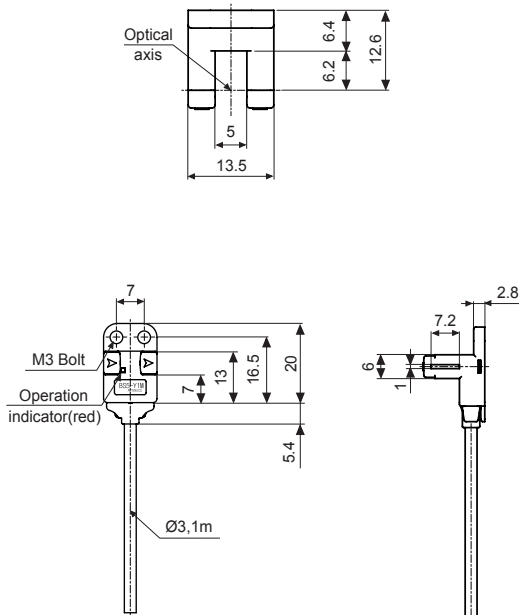
• BS5-T1M / BS5-T1M-P



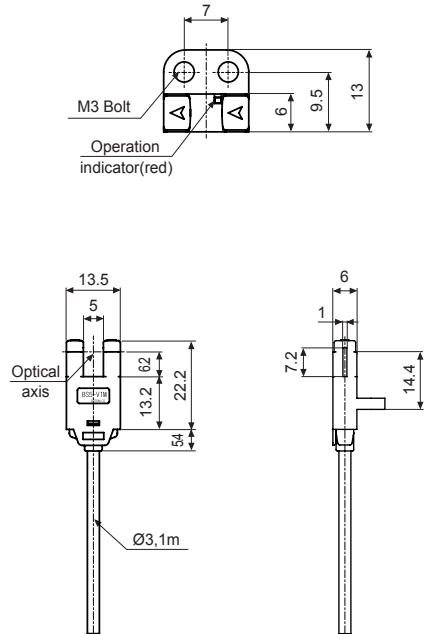
• BS5-L1M / BS5-L1M-P



• BS5-V1M / BS5-V1M-P



• BS5-Y1M / BS5-Y1M-P



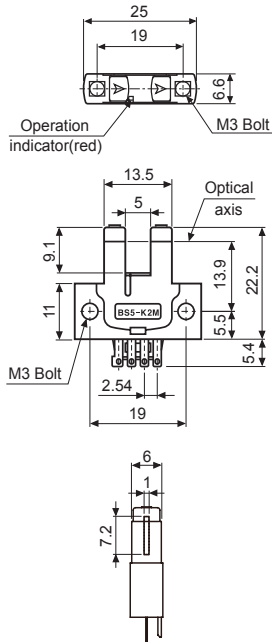
(A)	Photo electric sensor
(B)	Fiber optic sensor
(C)	Door/Area sensor
(D)	Proximity sensor
(E)	Pressure sensor
(F)	Rotary encoder
(G)	Connector/ Socket
(H)	Temp. controller
(I)	SSR/ Power controller
(J)	Counter
(K)	Timer
(L)	Panel meter
(M)	Tacho/ Speed/ Pulse meter
(N)	Display unit
(O)	Sensor controller
(P)	Switching mode power supply
(Q)	Stepper motor& Driver&Controller
(R)	Graphic/ Logic panel
(S)	Field network device
(T)	Software
(U)	Other

BS5 Series

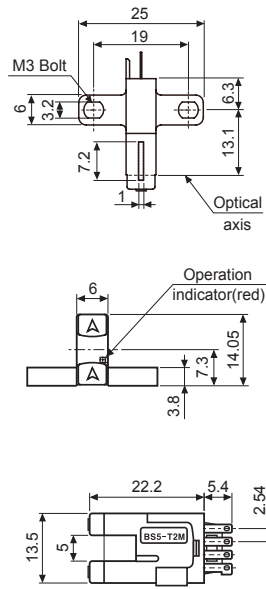
■ Dimensions

(unit: mm)

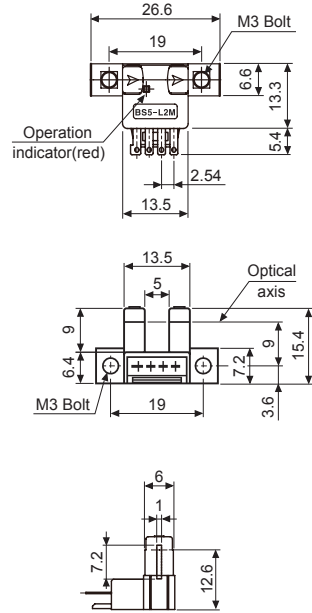
● BS5-K2M / BS5-K2M-P



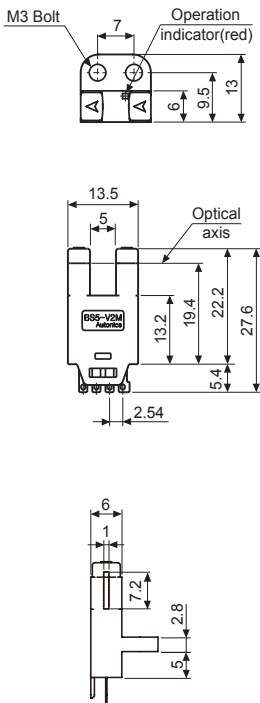
● BS5-T2M / BS5-T2M-P



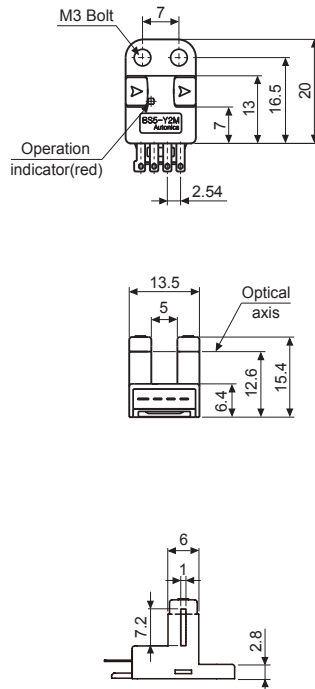
● BS5-L2M / BS5-L2M-P



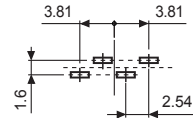
● BS5-V2M / BS5-V2M-P



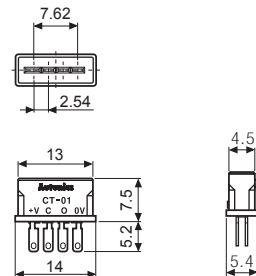
● BS5-Y2M / BS5-Y2M-P



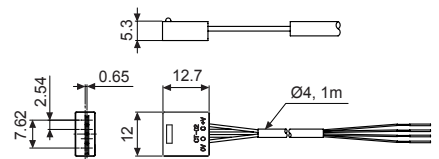
● PCB mounting hole



● Socket: CT-01(sold separately)



● Socket: CT-02(sold separately)



※Cable: \varnothing 4mm, 4-wire, Length: 1m
 (AWG22, Core diameter: 0.08mm,
 No. of cores: 60, Insulator diameter: \varnothing 1.2mm)
 ※Cable length is available to option.