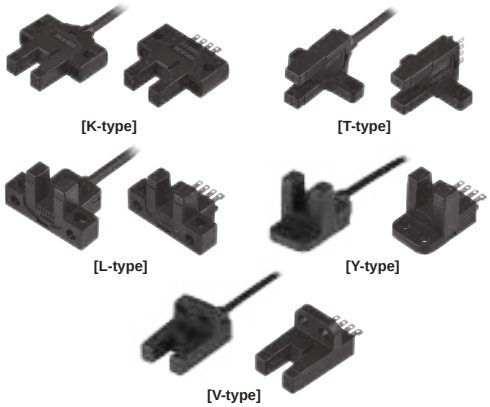
Photomicro Sensor

■ 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/cable
- 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 "Safety Considerations" in the instruction manual before using.**

CE

■ Ordering Information

BS 5 – K 2 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	Y-Type
	T	T-Type	V	V-Type
	L	L-Type		
Sensing distance	5	Unit: mm (fixed)		
Item	BS	Photo electronic sensor		

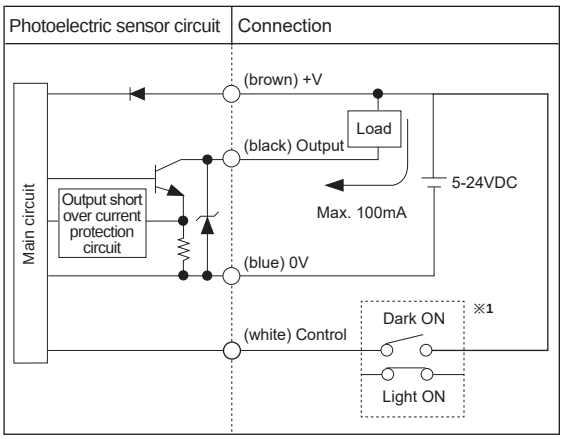
■ Specifications

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		Ø0.8×2mm opaque materials									
Hysteresis		0.05mm									
Response time		Light ON: max. 20μs, dark ON: max. 100μs									
Response frequency※1		2kHz									
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 cable					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. 1.2VDC⎓									
Protection circuit		Reverse polarity protection circuit, output short overcurrent protection circuit									
Indicator		Operation Indicator: red LED									
Connection		Cable type					Connector type				
Insulation resistance		Over 20MΩ (at 250VDC megger)									
Noise immunity		±240V the square wave noise (pulse width:1μs) by the noise simulator									
Dielectric strength		1,000VAC 50/60Hz for 1 minute									
Vibration		1.5mm amplitude at frequency of 10 to 55Hz in each X, Y, Z direction for 2 hours									
Shock		500m/s² (approx. 50G) in each X, Y, Z direction for 3 times									
Environment	Ambient illumination	Fluorescent lamp: max. 1000lx (receiver illumination)									
	Ambient temperature	-20 to 55℃, storage: -25 to 85℃									
	Ambient humidity	35 to 85%RH, storage: 35 to 85%RH									
Protection structure		IP50 (IEC standard)									
Material		Polybutylene terephthalate									
Cable		Ø3mm, 4-wire, 1m (AWG28, core diameter: 0.08mm, number of cores: 19, insulator out diameter: Ø0.88mm)					—				
Approval		CE									
Weight※2		Approx. 50g (approx. 30g)									

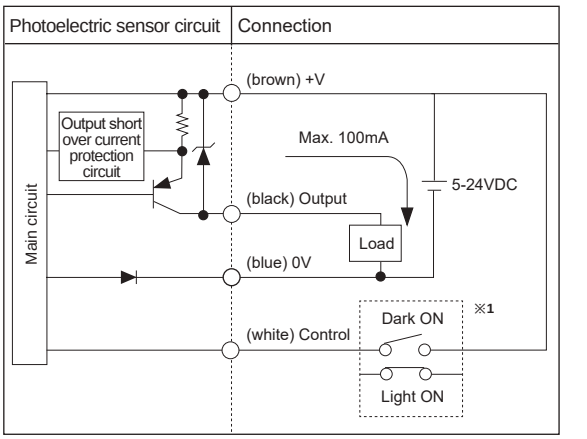
※1: The value from revolving the circle panel which duty ratio is 1:1. ※2: The weight includes packaging. The weight in parenthesis in for unit only.
※The temperature or humidity mentioned in Environment indicates a non freezing or condensation environment.

■ Control Output Diagram

● NPN open collector output



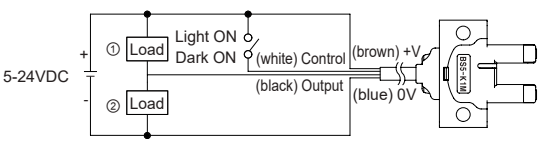
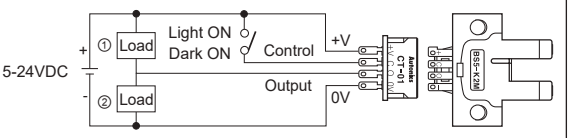
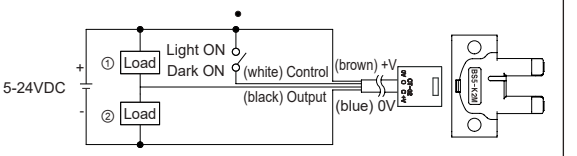
● PNP open collector output



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

※If short-circuit the control output terminal or supply current over the rated specification, normal control signal is not output due to the output short over current protection circuit.

■ Connections

Cable Type	Connector Type
	  ※Connect the unit using the connector (CT-01, sold separately), the connector cable (CT-02, sold separately). If it is soldered on terminal pin directly without the connector, the connector cable. It may cause product damage.

①Load connection for NPN output ②Load connection for PNP output

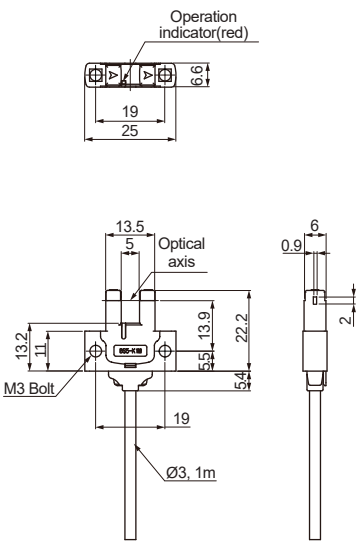
■ Operation Mode

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

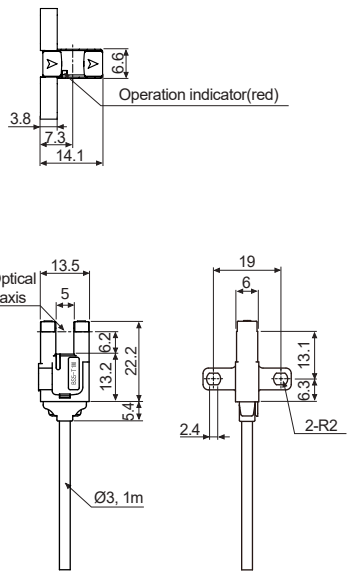
▣ Dimensions

(unit: mm)

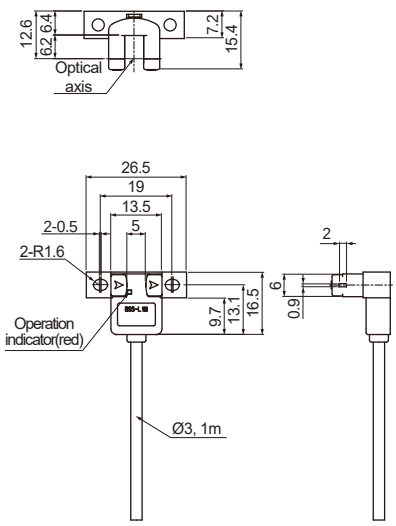
• BS5-K1M / BS5-K1M-P



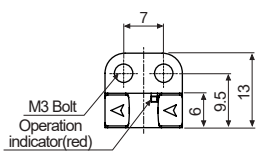
• BS5-T1M / BS5-T1M-P

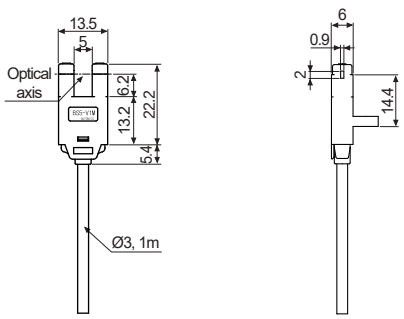


• BS5-L1M / BS5-L1M-P

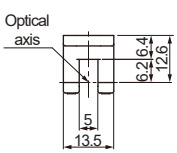


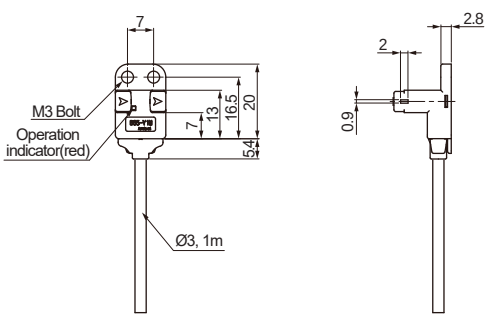
• BS5-V1M / BS5-V1M-P





• BS5-Y1M / BS5-Y1M-P



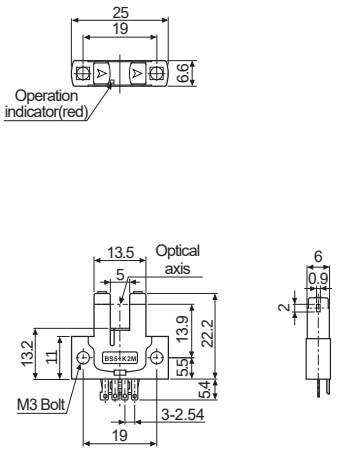


※When using photoelectric sensors closely over two units, it may result in malfunction due to mutual interference.
※When installing the product, tighten the screw with a tightening torque of 0.49N·m.

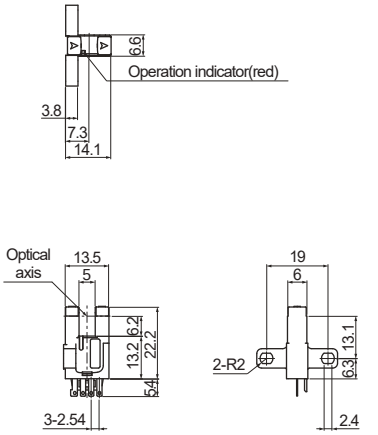
▣ Dimensions

(unit: mm)

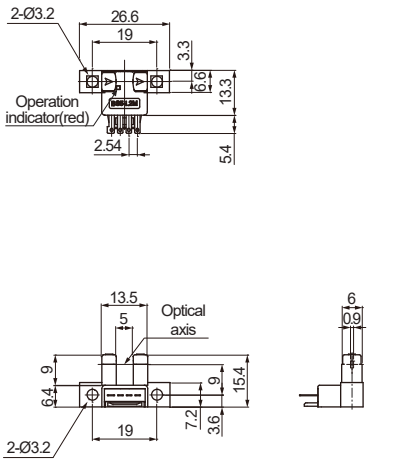
● BS5-K2M / BS5-K2M-P



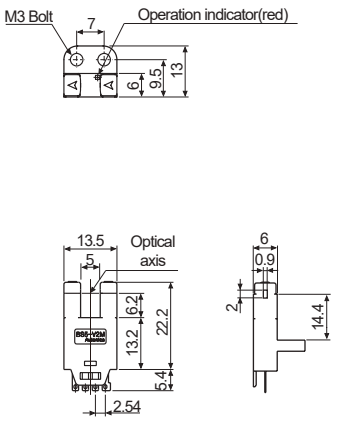
● BS5-T2M / BS5-T2M-P



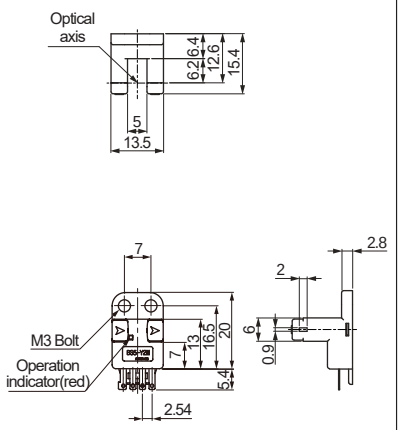
● BS5-L2M / BS5-L2M-P



● BS5-V2M / BS5-V2M-P

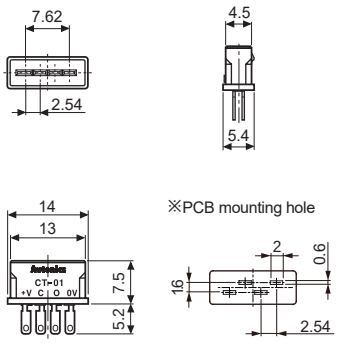


● BS5-Y2M / BS5-Y2M-P

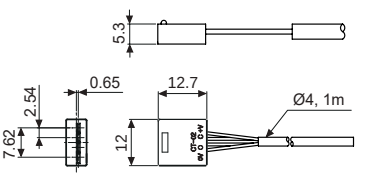


● Connector type (sold separately)

● Connector (CT-01)



● Connector (CT-02)



※Cable: Ø4mm, 4-wire, 1m
(AWG22, Core wire diameter: 0.08mm, No. of core wire: 60, Insulator out diameter: Ø1.2mm)
※Cable length is available to option.