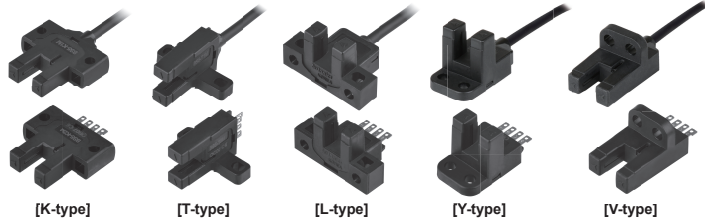


Autonics

Photomicro Sensor with Amplifier

BS5 SERIES

INSTRUCTION MANUAL



Thank you for choosing our Autonics product.
Please read the following safety considerations before use.

■ Safety Considerations

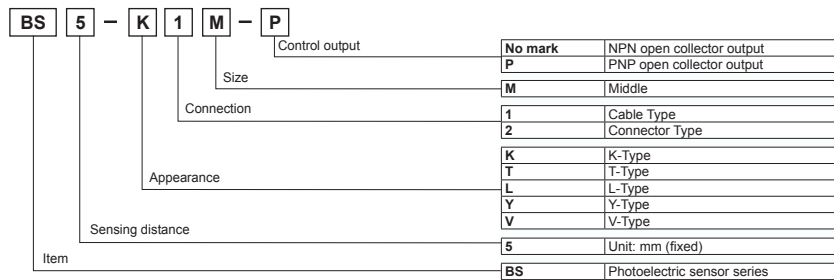
⚠ Please observe all safety considerations for safe and proper product operation to avoid hazards.
⚠ symbol represents caution due to special circumstances in which hazards may occur.

⚠ Warning Failure to follow these instructions may result in serious injury or death.
⚠ Caution Failure to follow these instructions may result in personal injury or product damage.

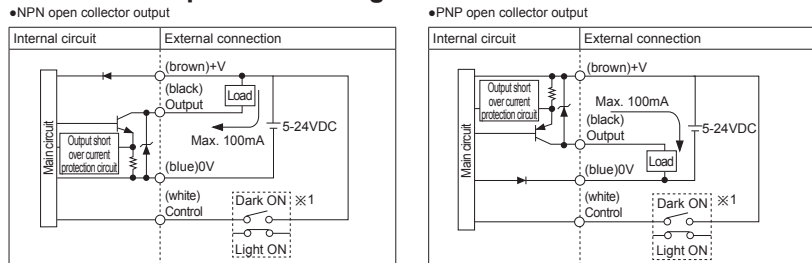
- ⚠ Warning**
- Fail-safe device must be installed when using the unit with machinery that may cause serious injury or substantial economic loss. (e.g. nuclear power control, medical equipment, ships, vehicles, railways, aircraft, combustion apparatus, safety equipment, crime/disaster prevention devices, etc.)
Failure to follow this instruction may result in fire, personal injury, or economic loss.
 - Do not disassemble or modify the unit.
Failure to follow this instruction may result in fire.
 - Do not connect, repair, or inspect the unit while connected to a power source.
Failure to follow this instruction may result in fire.
 - Check 'Connections' before wiring.
Failure to follow this instruction may result in fire.

- ⚠ Caution**
- Use the unit within the rated specifications.
Failure to follow this instruction may result in fire or product damage.
 - Use dry cloth to clean the unit, and do not use water or organic solvent.
Failure to follow this instruction may result in fire.
 - Do not use the unit in the place where flammable/explosive/corrosive gas, humidity, direct sunlight, radiant heat, vibration, impact, or salinity may be present.
Failure to follow this instruction may result in fire or explosion.

■ Ordering Information

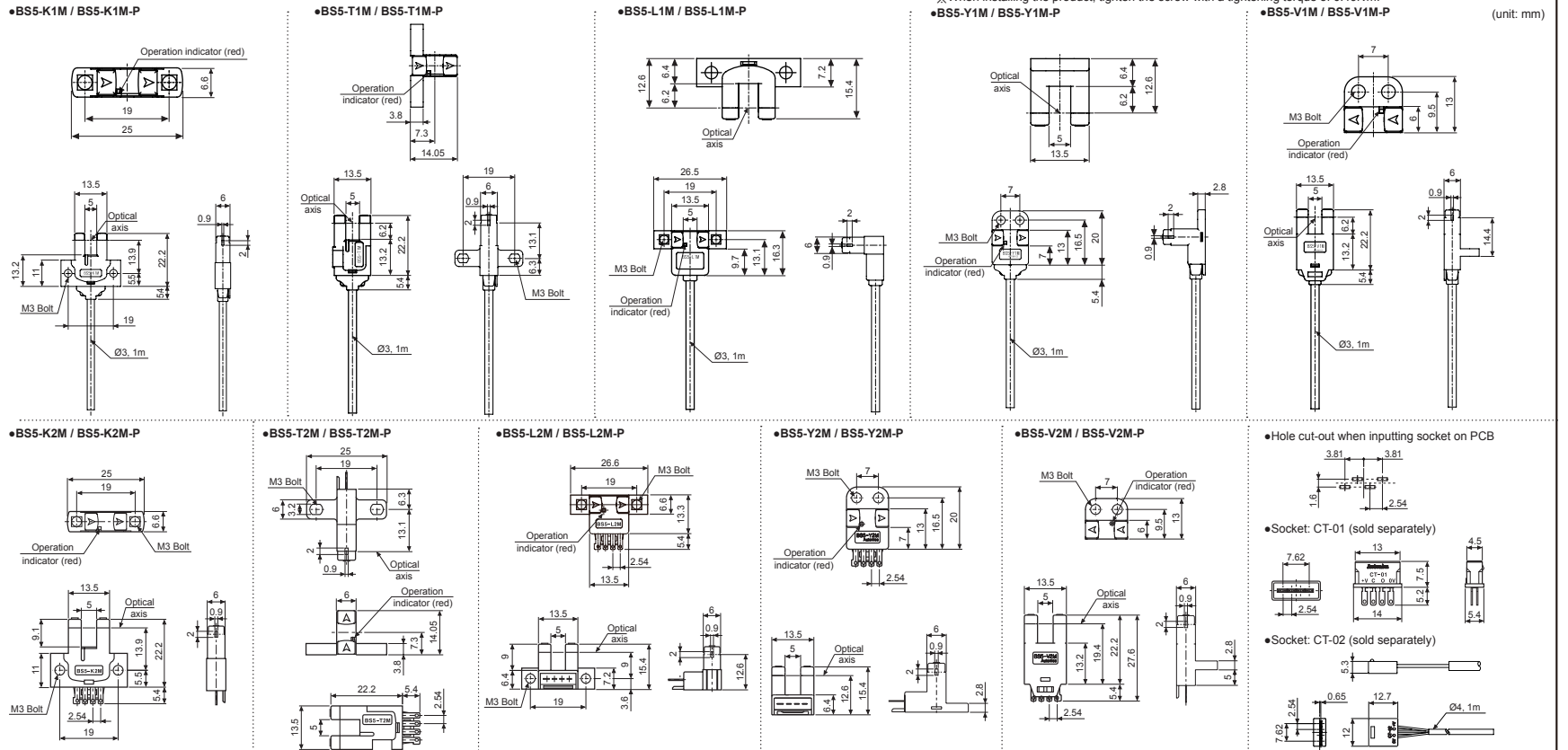


■ Control Output Circuit Diagram



※1: Operation mode selection: Connect (white)Control cable (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.
※The above specifications are subject to change and some models may be discontinued without notice.
※Be sure to follow cautions written in the instruction manual and the technical descriptions (catalog, homepage).

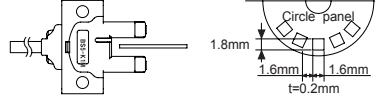
■ Dimensions



■ Specifications

Model	BS5-K1M	BS5-T1M	BS5-L1M	BS5-Y1M	BS5-V1M	BS5-K2M	BS5-T2M	BS5-L2M	BS5-Y2M	BS5-V2M
Sensing type	Through-beam (not modulated)									
Sensing distance	5mm fixed									
Sensing target	0.8×2mm 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 wire					Light ON / Dark ON selectable by control terminal				
Control output	NPN or PNP open collector output • Load voltage: max. 30VDC±10% • Load current: max. 100mA • Residual voltage: max. 1.2VDC±10%									
Protection circuit	Reverse power 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 (for 1 min.) in each X, Y, Z direction for 2 hours									
Shock	500m/s ² (approx. 50G) in X, Y, Z directions for 3 times									
Environment	Ambient illumination: Fluorescent lamp: max. 1,000lx (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 structure	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 ^{※2}	Approx. 50g (approx. 30g)									

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



※2: The weight includes packaging. The weight in parentheses is for unit only.
※The temperature or humidity mentioned in Environment indicates a non freezing or condensation environment.

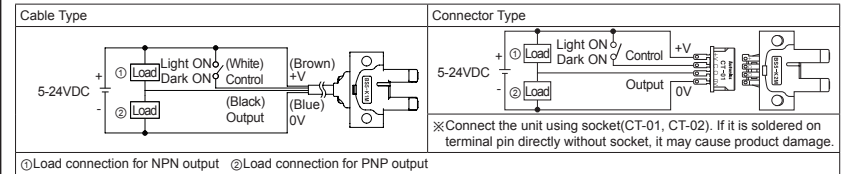
■ Operation Mode

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

■ Caution during Use

- Follow instructions in 'Cautions during Use'. Otherwise, it may cause unexpected accidents.
- Use the product, 0.5 sec after supplying power.
When using separate power supply for the sensor and load, supply power to sensor first.
- 5-24VDC power supply should be insulated and limited voltage/current or Class 2, SELV power supply device.
- Wire as short as possible and keep away from high voltage lines or power lines, to prevent inductive noise.
- When using sensor with the equipment which generates noise (switching regulator, inverter, servo motor, etc.), ground F.G. terminal of the equipment.
- This unit may be used in the following environments.
 Ⓐ Indoors (in the environment condition rated in 'Specifications')
 Ⓑ Altitude max. 2,000m
 Ⓒ Pollution degree 2
 Ⓓ Installation category II

■ Connection



■ Major Products

- Photoelectric Sensors
- Fiber Optic Sensors
- Door Sensors
- Door Side Sensors
- Area Sensors
- Proximity Sensors
- Pressure Sensors
- Rotary Encoders
- Connectors/Sockets
- Switching Mode Power Supplies
- Control Switches/Lamps/Buzzers
- I/O Terminal Blocks & Cables
- Stepper Motors/Drivers/Motion Controllers
- Graphic/Logic Panels
- Field Network Devices
- Laser Marking System(Fiber, CO₂, Nd:YAG)
- Laser Welding/Cutting System
- Temperature Controllers
- Temperature/Humidity Transducers
- SSRs/Power Controllers
- Counters
- Timers
- Panel Meters
- Tachometers/Pulse(Rate)Meters
- Display Units
- Sensor Controllers

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