

Autonics

PHOTO MICRO SENSOR BUILT AMPLIFIER

BS5-□2M SERIES

M A N U A L



Thank you very much for selecting Autonics products.
For your safety, please read the following before using.

Caution for your safety

※Please keep these instructions and review them before using this unit.

※Please observe the cautions that follow;

Warning Serious injury may result if instructions are not followed.

Caution Product may be damaged, or injury may result if instructions are not followed.

※The following is an explanation of the symbols used in the operation manual.

Caution: Injury or danger may occur under special conditions.

Warning

●In case of using this unit with machineries(Nuclear power control, medical equipment, vehicle, train, airplane, combustion apparatus, entertainment or safety device etc), it is required to install fail-safe device, or contact us.
It may cause a fire, human injury or property loss.

Warning

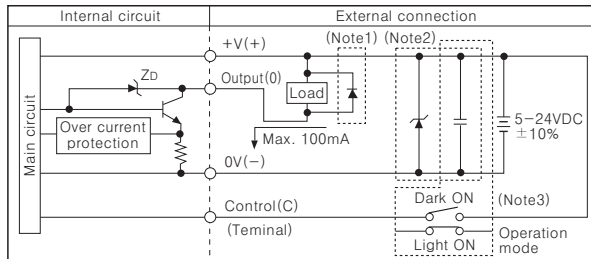
Cable Connection

There is no reverse polarity protection circuit, therefore it can be damaged by wrong connection. Please check each terminal layout, range of power voltage and connection after cutting off power line.

Ordering information

BS 5 - K 2 M	
Size	M Middle
Connection	2 Connector Type
Appearance	K K-Type
	T T-Type
	L L-Type
	Y Y-Type
Sensing distance	V V-Type
	5 Unit : mm(fixed)
Series name	BS Photoelectric sensor

Control output circuit diagram



※(Note1)There is ZD(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.

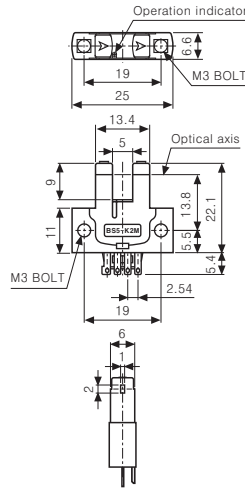
※(Note2)If there are surge in power line, connect ZD(30 to 35V) or Condenser(0.1 to 1μF/400 to 600V) to remove the surge.

※(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 0.1~1μF/50V) between terminal +V(+) and 0V for stable status in case of Light ON mode.

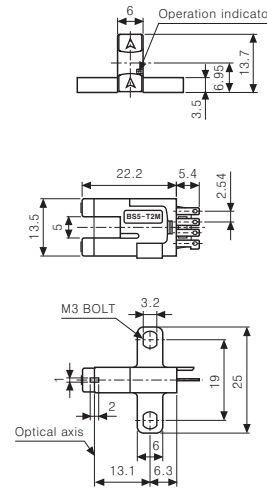
※The above specifications are subject to change without notice.

Dimensions

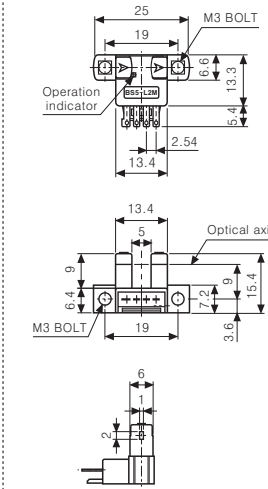
BS5-K2M



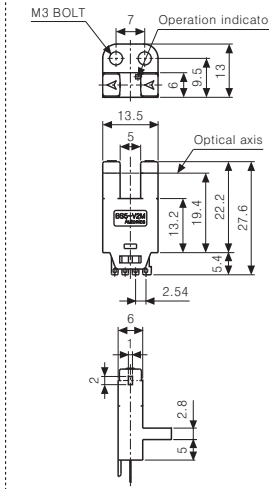
BS5-T2M



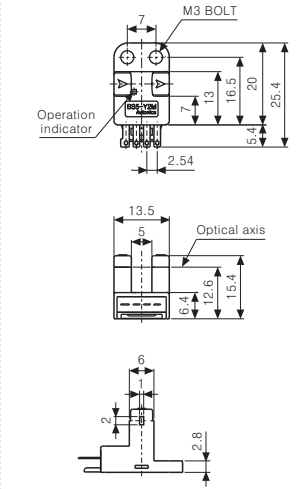
BS5-L2M



BS5-V2M



BS5-Y2M



(Unit:mm)

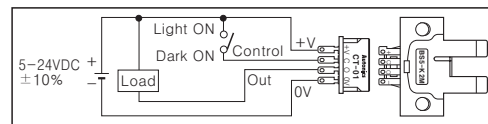
Specifications

Type	Photo micro sensor				
Model	BS5-K2M	BS5-T2M	BS5-L2M	BS5-Y2M	BS5-V2M
Sensing distance	5mm fixed				
Min.sensing target	φ0.8×1mm 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	Light ON : Max. 20μs, Dark ON : Max. 100μs				
Response frequency	2kHz(Not1)				
Light emitting element	Infrared LED				
Light receiving element	Photo transistor				
Vibration	1.5mm or 300m/s ² amplitude at frequency of 10-55Hz in each of X, Y, Z directions for 2 hours				
Shock	500m/s ² (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 mega)				
Ambient illumination	Fluorescent lamp : Max. 1,000lx(Receiver illumination)				
Ambient temperature	Operation:-20~55℃(at non-freezing status), Storage:-25~85℃				
Ambient humidity	Operation & Storage : 35-85%RH(at non-dew status)				
Protection	IP50(IEC standard)				
Material	PBT				
Approval	CE				
Unit weight	Approx. 30g				

※(Note1)Response frequency is the value getting from revolving the circle panel below.



Connection



※Connect the unit using socket.
If it is soldered on terminal pin, product damage may result.

Operation mode

Operation mode	Light ON		Dark ON	
Receiver operation	ON	OFF	ON	OFF
Operation indicator (Red LED)	ON	OFF	ON	OFF
TR output	ON	OFF	ON	OFF

Caution for using

- Surge**
BS5 series does not conform with Surge noise strength. Please apply surge-protected power for proper installation complied with EN standards.
 - External light source.**
There is no protection of external light source in this unit, please intercept external light source from the receiver.
 - Connection**
Do not wire with power line or high voltage line, use separated conduit to avoid malfunction or damage by inductive current.
 - Noise generator**
If there are machines generating noise at surrounding photo micro sensor(Switching regulator, inverter motor etc.) be sure to earth F.G terminals of machines.
 - Soldering(When soldering on terminals directly)**
Keep the temperature max. 260 and do not heat the terminal for more than 3 secs. Do the soldering 1.5 mm away from terminal source part.
 - Installation**
Use M3 screws and tighten with max. 0.49N • m(5.0kgf • cm) torque. When screwing, use washer(φ6). Be sure that sensing part is not to be touched by any objects. If the detecting part damaged, it may cause malfunction.
 - Maintenance**
If the sensor is installed at place where there are a lot of dust and humidity, clear the receiver and the emitter with dry cloth. Pollution of the receiver and the emitter can occur malfunction of the sensor.
 - Others**
Avoid installing the sensor adjacent to :
Corrosive gas, oil or dust, vapor, strong flux & alkali, acid, and strong direct ray of the sun.
- ※Please keep the above precautions to avoid malfunction and damages.

Major products

- Proximity sensors
- Area sensors
- Door/Door side sensors
- Counters
- Rotary encoders
- Power controllers
- Panel meters
- Temperature controllers
- Temperature/Humidity transducers
- Stepping motors/drivers/motion controllers
- Laser marking system(CO₂, Nd:YAG)
- Laser welding/soldering system
- Photoelectric sensors
- Fiber optic sensors
- Pressure sensors
- Timers
- Display units
- Sensor controllers
- Graphic/Logic panels
- Tachometer/Pulse(Rate) meters

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Satisfiable Partner For Factory Automation

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