# **Autonics**

PHOTO MICRO SENSOR BUILT AMPLIFIER BS5- 2M SERIES

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

# Caution for your safety

XPlease keep these instructions and review them before using this unit.

XPlease observe the cautions that follow:

Marning Serious 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

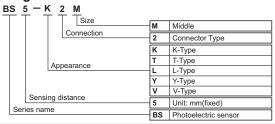
1. In case of using this unit with machinery(Ex: nuclear power control, medical equpment, ship, vehicle, train, airplane, combustion apparatus, safety device, crime/disaster prevention equipment, etc) which may cause damages to human life or property, it is required to install fail-safe device. It may cause a fire, human injury or damage to property.

## **⚠** Caution

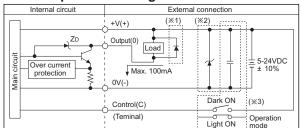
#### 1. Cable Connection

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 connect after cutting off power line.

# Ordering information



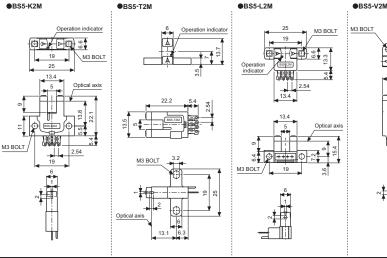
# Control output circuit diagram



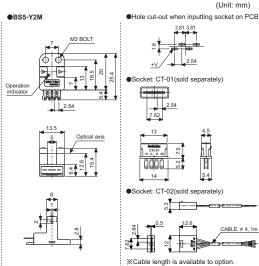
- (X1)There is ZD(Zener Diode) absorbing the surge in output circuit, connect diode absorbing the surge at both terminals of load to protect the unit when connecting large inductive load. (%2) If there are surge in power line, connect ZD(30 to 35V) or Condenser(0.1 to 1µF/400 to 600V) to decrease the surge.
- (X3)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 to  $1\mu$ F/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



# Operation indicator Operation 895-V2M



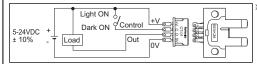
Specifications

Туре		Photo micro sensor				
Model		BS5-K2M	BS5-T2M	BS5-L2M	BS5-Y2M	BS5-V2M
Sensing distance		5mm fixed				
Min.sensing target		ø 0.8 × 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 voltge: 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 *1		2kHz				
Light emitting element		Infrared LED				
Light receiving element		Photo transistor				
Vibration		1.5mm or 300m/s² amplitude at frequency of 10 to 55Hz in each of X, Y, Z directions for 2 hours				
Shock		500m/s²(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 megger)				
	Ambient illumination	Fluorescent lamp: Max. 1,000/x(Receiver illumination)				
Environ- ment	Ambient temperature	-20 to 55°C, S	Storage: -25 to 8	5°C		
IIICIIL	Ambient humidity	35 to 85%RH, Storage: 35 to 85%RH				
Protection		IP50(IEC standard)				
Material		PBT				
Approval		C€				
Unit weight		Approx. 30g				
X:The te	mperature or humidity	v mentioned in I	nvironment indi	cates a non free	ezing or condens	ation environm

\*The temperature or humidity mentioned in Environment indicates a non freezing or condensation environment. X1: 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 directly without socket, it may cause product damage.

# 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

BS5 series does not conform with surge noise strength. Please supply surge-protected power for proper installation complied with EN standards.

#### 2. Do not connect over 3m of power line or signal cable.

#### 3 External light source

There is no protection of external light source in this unit which is for built-in, please intercept external light source from the receiver

Do not wire with power line or high voltage line, use seperated conduit to avoid malfunction or damage by inductive current

### 5. 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.

# 6. Soldering(When soldering on terminals directly)

Keep the temperature max, 260°C and do not heat the terminal for more than 3 secs. Solder 1.5mm away from terminal source part.

#### 7. Installation

Use M3 screws and tighten with max. 0.49N•m(5.0kgf•cm) torque. When screwing, use washer(ø 6). Be sure that sensing part is not to be touched by any objects. If the sensing part is damaged, it may cause malfunction

# 8 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.

#### 9 Others

Avoid installing the sensor adjacent to;

①Severe vapor or dust

②Water, oil, or chemicals such as organic matter, strong flux & alkali, etc.

3Strong direct ray of the sun

10. Installation environment

①It shall be used indoor ②Altitude Max. 2000m ③Pollution Degree 2 ④Installation CategoryII XPlease keep the above precautions to avoid malfunction and damages.

# Major products

Proximity sensors Area sensors Door/Door side sensors Counters Rotary encoders

Power controllers

■ Temperature controllers

Temperature/Humidity transducers

Laser welding/soldering system

Laser marking system(CO<sub>2</sub>, Nd:YAG)

Stepping motors/drivers/motion controllers

Panel meters

Fiber optic sensors Pressure sensors Timers

Photoelectric sensors

#### Display units Sensor controllers Graphic/Logic panels ■ Tachometer/Pulse(Rate) meters

Korea

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EP-KE-08-0320B