

**PHOTOELECTRIC SENSOR  
BJG 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.
- ⚠ Injury or danger may occur under special conditions.

**Warning**

1. In case of using this unit with machinery (Nuclear power control, medical equipment, vehicle, train, airplane, combustion apparatus, entertainment or safety device etc), it is required to install fail-safe device.  
It may cause serious human or a fire and damage to property.
2. Do not disassemble or modify this unit. Please contact us if it is required.  
It may cause a fire or give an electric shock.

**Caution**

1. This unit shall not be used outdoors.  
It might shorten the life cycle of the product or give an electric shock.
2. Do not use this unit in place with flammable or explosive gas.  
It may cause a fire or explosion.
3. Please observe rating specification.  
It may shorten the life cycle or damage to the product.
4. Do not use this unit beyond rating power and do not supply AC power at DC power type.  
It may cause damage to the product.
5. Please check the polarity of power and wrong wiring.  
It may cause damage to the product.
6. Do not use this unit in place with vibration or impact.  
It may cause damage to the product.
7. In cleaning the unit, do not use water or an oil-based detergent.  
It might cause an electric shock or fire.

**Ordering information**

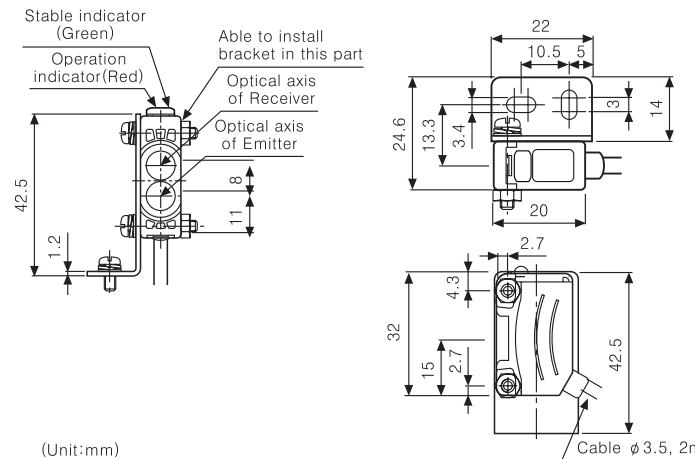
|                       |                         |
|-----------------------|-------------------------|
| <b>BJG 30 - D D T</b> |                         |
| T                     | Solid-state output (TR) |
| D                     | DC power                |
| D                     | Diffuse reflective      |
| Sensing distance      | 30mm                    |
| BJG                   | Series name             |

※ The above specifications are subject to change and some models may be discontinued without notice.

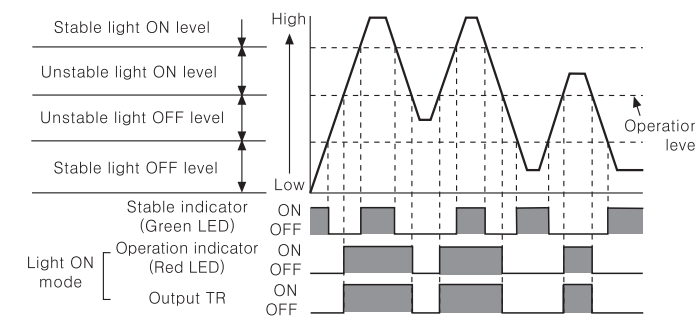
**Specification**

|                             |  |
|-----------------------------|--|
| Model                       | <b>BJG30-DDT</b>   |
| Sensing type                | Diffuse reflective   |
| Power supply                | 12~24VDC ±10% (Ripple P-P: Max. 10%)   |
| Power consumption           | Max. 30mA  |
| Sensing distance            | 0~30mm (Non-glossy white paper 100×100mm)<br>0~15mm (Transparent glass 50×50mm, t=3.0mm)                     |
| Hysteresis                  | Max. 20% at sensing distance   |
| Light source/<br>Wavelength | Infrared LED / 850nm   |
| Control output              | NPN Open collector type ⇒ Load voltage: Max. 26.4VDC,<br>Load current: Max. 100mA, Residual voltage: Max. 1V |
| Operation mode              | Light ON mode fixed  |
| Protection circuit          | Reverse polarity protection, Short-circuit protection,<br>Interference prevention function                   |
| Response time               | Max. 1ms   |
| Insulation resistance       | Min. 20MΩ (500VDC)   |
| Dielectric strength         | 1000VAC 50/60Hz for 1 minute   |
| Vibration                   | 1.5mm amplitude at frequency of 10 to 55Hz<br>in each of X, Y, Z directions for 2 hours                      |
| Shock                       | 500m/s <sup>2</sup> (50G) in X, Y, Z directions for 3 times  |
| Ambient illumination        | Sunlight : Max. 11,000lx, Incandescent lamp : Max. 3,000lx<br>(Illumination of receiver)                     |
| Ambient temperature         | Operation : -25~55°C, Storage : -40~70°C (non-dew status)  |
| Ambient humidity            | Operation & Storage : 35~85%RH (non-dew status)  |
| Protection                  | IP65 (IEC standard)  |
| Connection                  | Outgoing cable type  |
| Indicator                   | Operation indicator: Red, Stable indicator: Green  |
| Material                    | Case: PC+ABS, Cover: PMMA, LED Cap: PC   |
| Cable                       | φ 3.5mm, 3P, Length: 2m  |
| Accessory                   | Mounting bracket, Bolt   |
| Unit weight                 | Approx. 45g  |

**Dimensions**



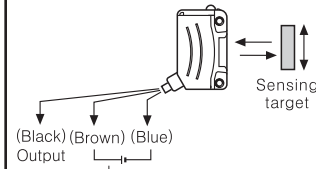
**Operation mode and timing diagram**



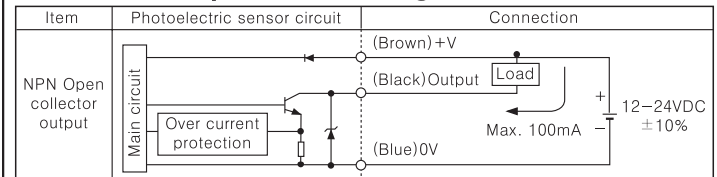
**Operation mode**

|                               |                                     |
|-------------------------------|-------------------------------------|
| Operation mode                | Light ON mode                       |
| Receiver                      | Received light<br>Interrupted light |
| Operation indicator (Red LED) | ON<br>OFF                           |
| TR Output                     | ON<br>OFF                           |

**Connection**



**Control output circuit diagram**

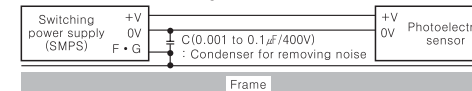


**Mounting & Adjustment**

- **For mounting**  
Please use screw M3 for mounting of sensor, set the tightening torque under 0.5N.m.
- **Optical axis adjustment**  
After mounting the sensing target, fix it in the center of position where the indicator is operated adjusting the sensor to up/down, left/right. It should maintain the rating distance between sensor and the target.  
※ The sensing distance indicated on specification chart is against 100×100mm of non-glossy white paper. Be sure that it can be changed by size, surface and gloss of target.  
※ The reliability of environment (temperature, supply, dust etc) is increased when mounting it in a stable area.

**Caution for using**

1. The sensor will be in a detectable status within 500ms after supplying the power. If the power line of the load and the sensor is different, you must supply power to the sensor first.
2. Shade a strong source of light as like sunlight, spotlight not to be let in the inclination angle range of photoelectric sensor directly.
3. The photoelectric sensor may cause malfunction under the fluorescent lamp light, be sure to use the cover or the shutter to shade the light.
4. If photoelectric sensor is installed at flat part, it might cause malfunction by reflection light from flat part. Be sure to put space between photoelectric sensor and ground.
5. When wiring the photoelectric sensor with high voltage line, power line in the same conduit, it may cause malfunction or mechanical problem, please do wire separately.
6. Avoid to install the unit in place with corrosive gas, oil or dust, strong flux, noise, sunlight, strong alkali, acid.
7. In case of connecting relay as inductive load to output, please remove surges by using diode or varistor.
8. The photoelectric sensor cable shall be used as short as possible, because it may cause malfunction by noise through the cable.
9. When it is stained by dirt at lens, please clean the lens with dry cloth, do not use an organic materials such as alkali, acid, chromic acid.
10. When using switching power supply as the source of supplying power, F.G terminal shall be grounded and a condenser for removing noise shall be installed between 0V and F.G terminal.



※ It may cause malfunction if above instructions are not followed.

**Major products**

- Photoelectric sensors
- Fiber optic sensors
- Door sensors
- Area sensors
- Proximity sensors
- Pressure sensors
- Rotary encoders
- Connector/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, CO<sub>2</sub>, Nd:YAG)
- Laser welding/soldering system
- Temperature controllers
- Temperature/Humidity transducers
- SSR/Power controllers
- Counters
- Timers
- Panel meters
- Tachometer/Pulse(Rate)meters
- Display units
- Sensor controllers

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