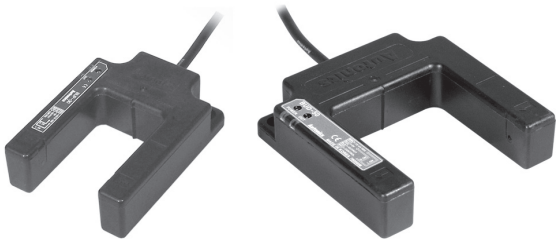


Autonics

PHOTOELECTRIC SENSOR
BUP 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 machinery (Ex: nuclear power control, medical equipment, 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.
- Do not disassemble and modify this unit. Please contact us if it is required.**
It may cause electric shock or a fire.

Caution

- This unit shall not be used outdoors.**
It might shorten the life cycle of the product or cause electric shock. Use this product inside only. Do not use the product outdoors or location subject to temperatures or humidity outside. (Ex: rain, dirty, frost, sunlight, condensation, etc.)
- Do not use this unit in place where there is flammable or explosive gas.**
It may cause a fire or explosion.
- Please observe the rated voltage and do not supply AC power.**
It may cause damage to this unit.
- Please check the polarity of power and wrong wiring.**
It may cause damage to this unit.
- Do not use this unit in place where there is vibration or impact.**
It may cause damage to this unit.
- In cleaning the unit, do not use water or an oil-based detergent.**
It may cause electric shock or a fire.

Ordering information

BUP	50	S	P	
				Control output
		No mark		NPN open collector output
		P		PNP open collector output
				Sensitivity adjustment
		No mark		Fixed sensitivity type
		S		Adjustable sensitivity VR built-in type
				Sensing distance
		30		30mm
		50		50mm
Item		BUP		Photoelectric sensor

Operation mode

Operation mode	Light ON	Dark ON
Receiver operation	Received light Interrupted light	
Operation indicator	ON OFF	
Transistor output	ON OFF	

If the control output terminal is short-circuited or flow beyond the rated current, the control signal will not be output normally due to operating protection circuit.

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

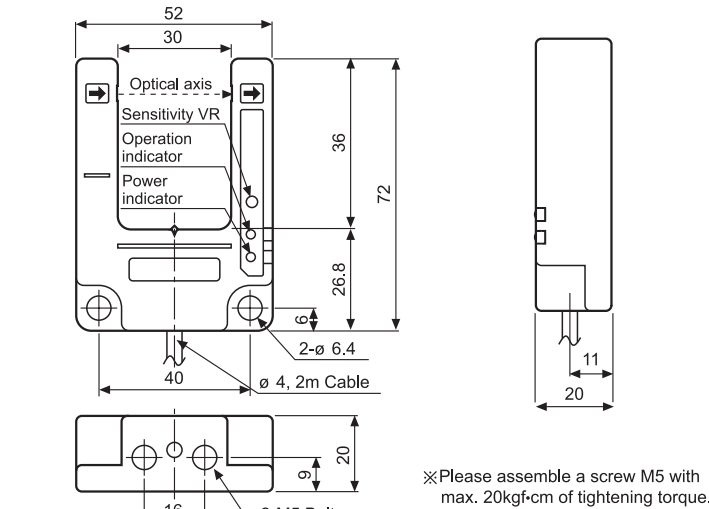
Specifications

Model	NPN open collector	BUP-30	BUP-30S	BUP-50	BUP-50S
	PNP open collector	BUP-30-P	BUP-30S-P	BUP-50-P	BUP-50S-P
Sensing type	Through-beam				
Sensing target		Min.ø 4mm Opaque material	Min.ø 1.5mm Opaque material	Min.ø 4mm Opaque material	Min.ø 1.5mm Opaque material
Operation mode	Selectable Light ON or Dark ON by control wire				
Sensing distance		30mm		50mm	
Response time	Max. 1ms				
Power supply	12-24VDC ± 10%(Ripple P-P:Max. 10%)				
Current consumption	Max. 30mA				
Light source	Infrared LED(940nm)				
Sensitivity adjustment		Fixed	Adjustable VR	Fixed	Adjustable VR
Control output	NPN or PNP open collector output • Load voltage: Max. 30VDC, • Load current: Max. 200mA, • Residual voltage-NPN: Max. 1V, PNP: Max. 2.5V				
Protection circuit	Reverse polarity protection, Short output circuit protection				
Indicator	Power indicator : Green LED, Operation indicator : Red LED				
Insulation resistance	Min. 20MΩ (at 500VDC megger)				
Noise resistance	± 240V the square wave noise(pulse width:1μs) by the noise simulator				
Dielectric strength	1000VAC 50/60Hz for 1minute				
Vibration	1.5mm amplitude at frequency of 10 to 55Hz(for 1 min.) in each of X, Y, Z directions for 2 hours				
Shock	500m/s ² (50G) in X, Y, Z directions for 3 times				
Environ-ment	Ambient illumination	Sunlight: Max. 11,000lx Incandescent lamp : Max. 3,000lx			
	Ambient temperature	-25 to 65°C[BUP-30S(-P) & BUP-50S(-P): -10 to 60°C], Storage : -25 to 70°C			
	Ambient humidity	35 to 85%RH, Storage: 35 to 85%RH			
Protection		IP66(IEC standard)	IP50(IEC standard)	IP66(IEC standard)	IP50(IEC standard)
Material	Case: ABS, Cap: PC				
Cable	ø 4, 4-wire, Length: 2m(AWG22, Core diameter: 0.08mm, Number of cores:60, Insulator diameter:1.25mm)				
Accessories		—	Adjustment driver	—	Adjustment driver
Approval	CE				
Unit weight		Approx. 90g		Approx. 140g	

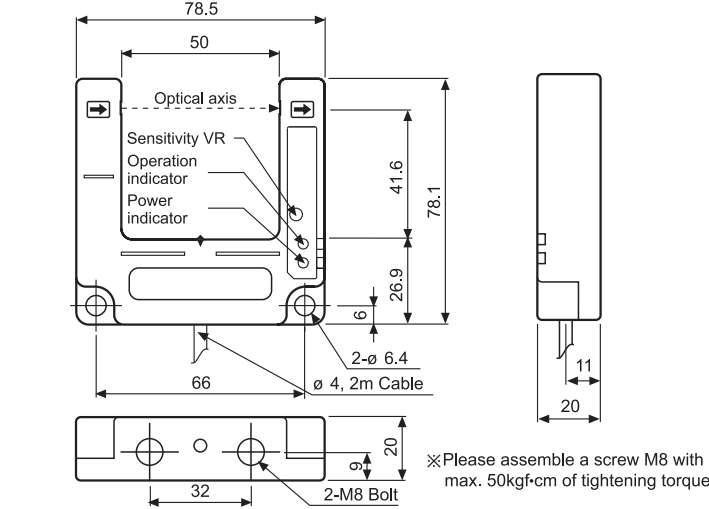
※The temperature or humidity mentioned in Environment indicates a non freezing or condensation environment.

Dimensions

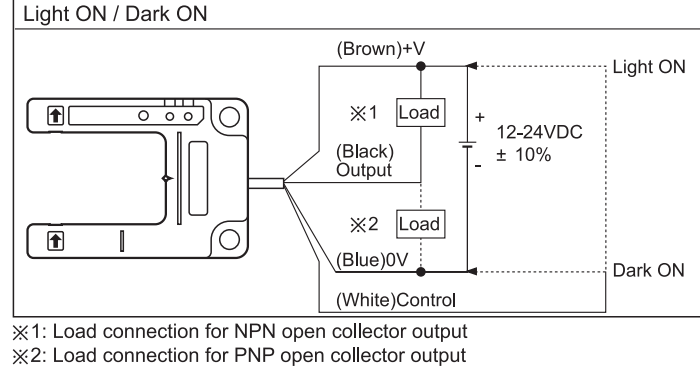
- BUP-30, BUP-30-P, BUP-30S, BUP-30S-P



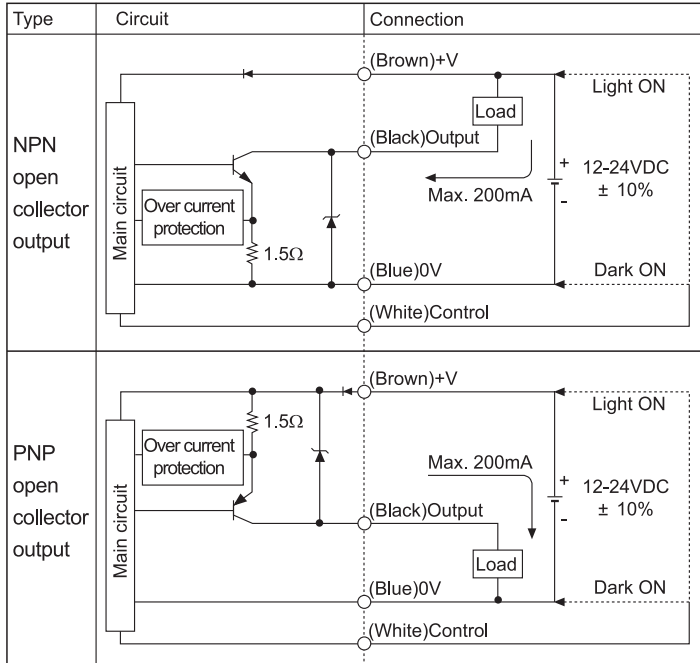
- BUP-50, BUP-50-P, BUP-50S, BUP-50S-P



Connection



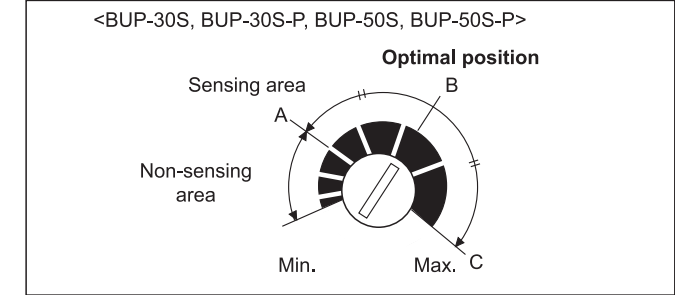
Control output circuit diagram



Mounting & Adjustment

Check the position where the photoelectric sensor will be used and the connection then supply the power and set sensitivity as below.

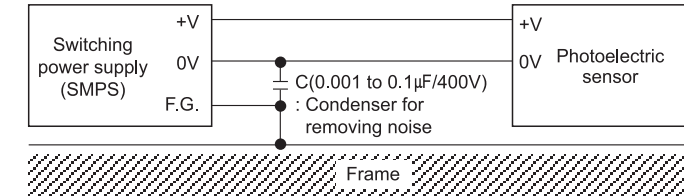
- Sensitivity adjustment



When place a target within sensing range of sensor, turn the VR from the minimum position and check the position 'A' where the operation indicator is turned on (Dark ON) or turned off (Light ON). Turn the VR to 'B' in the middle between 'A' and 'C' which is the maximum sensitivity position, this will be the optimal sensitivity position.(The operation indicator is able to be operated where the the lowest sensitivity position.)

Caution for using

- Intercept a strong source of light as like sunlight, spotlight within inclination angle range of photoelectric sensor.
- The photoelectric sensor may cause malfunction under the fluorescent lamp light, so be sure to use cut-off light with panel.
- When wire the photoelectric sensor with high voltage line or power line in the same conduit, it may cause malfunction or mechanical trouble. Therefore please wire separately or use different conduit.
- Avoid installing the unit where there is severe corrosive gas, or dust, etc.
- In case of connect DC relay as inductive load to output, please remove surges by using diode or varistor.
- The photoelectric sensor cable shall be used as short as possible, because it may cause malfunction by noise through the cable.
- When it is stained by dirt at lens, please clean the lens with dry cloth, but do not use an organic materials such as alkali, acid, chromic acid.
- When use 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.



- Installation environment
 - ① It shall be used indoor
 - ② Altitude Max. 2,000m
 - ③ Pollution Degree 2
 - ④ Installation Category III

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

Major products

- Photoelectric sensors
- Fiber optic sensors
- Door sensors
- Door side 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, CO₂, 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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