

PHOTOELECTRIC SENSOR BUD-50-HD 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 machineries(Nuclear power control, medical equipment, vehicle, train, airplane, combustion apparatus, entertainment or safety device etc), it requires installing fail-safe device, or contact us for information on type required.

It may result in serious damage, fire or human injury.

2. Do not disassemble and modify this unit, when it requires. If needs, please contact us.

It may give an electric shock and cause a fire.

Caution

1. This equipment 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 where there is flammable or explosive gas.

It may cause a fire or explosion.

3. Please observe voltage rating and do not supply AC power.

It may result in damage to this unit.

4. Please check the polarity of power and wrong wiring.

It may result in damage to this unit.

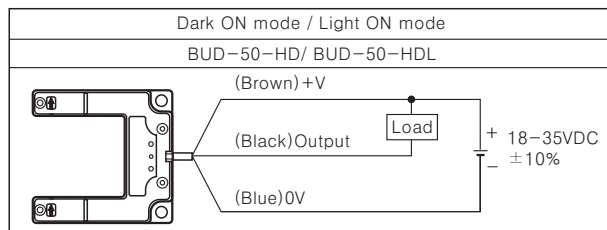
5. Do not use this unit in place where there is vibration or impact.

It may result in damage to this unit.

6. In cleaning the unit, do not use water or an oil-based detergent

It might cause an electric shock or fire that will result in damage to this product.

Connection



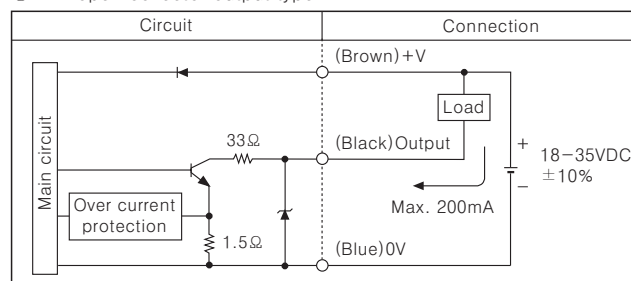
*The specifications on this manual are changeable without notice anytime.

Specifications

Model	BUD-50-HD	BUD-50-HDL
Detecting distance	50mm	
Detecting target	Min. ϕ 40mm Transparent	
Response time	Max. 1ms	
Power supply	18-35VDC \pm 10% (Ripple P-P: Max. 10%)	
Current consumption	Max. 30mA	
Light source	Infrared LED(modulated)	
Operation mode	Dark ON Mode Fixed	Light ON Mode Fixed
Control output	NPN open collector output \Rightarrow Load voltage: Max. 30VDC, Load current: Max. 200mA, Residual voltage: Max. 8V	
Protection circuit	Reverse polarity protection, Short-circuit protection	
Cable	ϕ 4mm, 3P, Length: 2m	
Indication	Operation indicator: Red LED, Power indicator: Green LED	
Connection	Outgoing cable	
Insulation resistance	Min. 20M Ω (500VDC)	
Noise strength	\pm 240V the square wave noise (pulse width: 1 μ s) by the noise simulator	
Dielectric strength	500VAC 50/60Hz for 1 minute	
Vibration	1.5mm amplitude at frequency of 10 to 55Hz in each of X, Y, Z directions for 2 hours	
Shock	500m/s ² (50G) in X, Y, Z directions for 3 times	
Ambient illumination	Sunlight: Max. 11,000lx, Incandescent lamp: Max. 3,000lx	
Ambient temperature	-25 to +65 $^{\circ}$ C (non-freezing condition), Storage: -40 to +85 $^{\circ}$ C	
Ambient humidity	35 to 85%RH, Storage: 35 to 85%RH	
Protection	IP65(IEC specification)	
Accessories	Case: ALDC12, Cover: PC	
Weight	Approx. 130g	
Approval	CE	

Control output circuit diagram

○NPN open collector output type



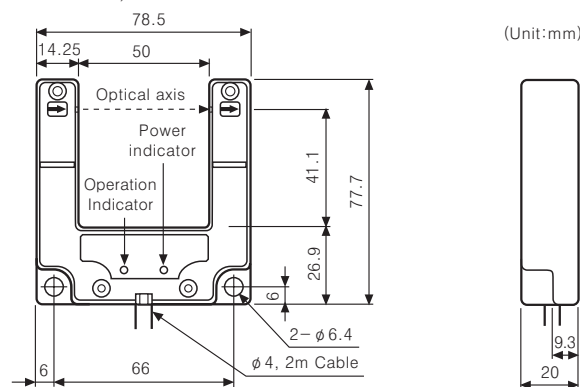
Operating chart

Operation mode	Light ON mode	Dark ON mode
Receiver operation	Received light Interrupted light	
Operation indicator(LED)	ON OFF	
Output TR	ON OFF	

Note) If the control output terminal is short-circuited or flow beyond rating current, the control signal will not be output normally due protection circuit.

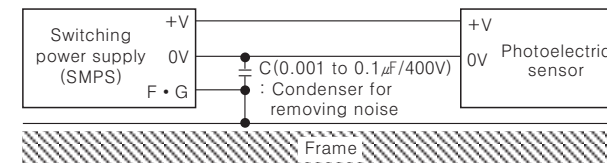
Dimensions

●BUD-50-HD, BUD-50-HDL



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, 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 as following place.
Corrosive gas, oil or dust, strong flux, noise, sunlight, strong alkali, acid.
- 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 don't 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 good earth ground and condenser for removing noise shall be installed between 0V and F.G terminal.



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

Main products

- COUNTER
- TIMER
- TEMPERATURE CONTROLLER
- PANEL METER
- TACHO/LINE SPEED/ PULSE METER
- DISPLAY UNIT
- PROXIMITY SENSOR
- PHOTOELECTRIC SENSOR
- FIBER OPTIC SENSOR
- PRESSURE SENSOR
- ROTARY ENCODER
- SENSOR CONTROLLER
- POWER CONTROLLER
- STEPPING MOTOR & DRIVER & CONTROLLER
- LASER MARKING SYSTEM

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