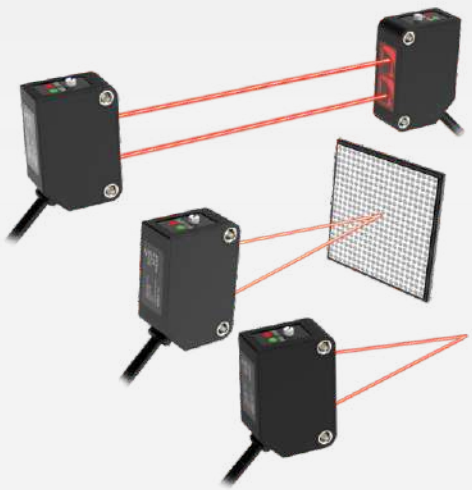
Square type photoelectric sensor

ZL-D/T/R series



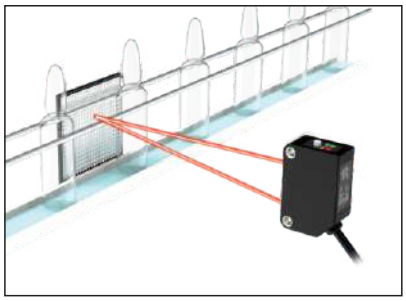
Product features

- High stability, unique interference light avoidance algorithm;
- Visible red LED light source, easy to install and debug;
- Built in photoelectric sensor chip;
- Fast speed;
- Strong anti-interference;
- High stability

Application



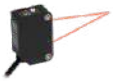
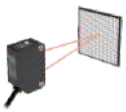
Detection circuit element



Retro reflective photoelectric sensor To test the transparent glass bottle

Product parameters

ZL-D50N

Appearance						
Type		Diffuse		Through beam	Retro	
Model	NPN	ZL-D10N	ZL-D50N	ZL-T10N	ZL-R20N	ZL-R30N
	PNP	ZL-D10P	ZL-D50P	ZL-T10P	ZL-R20P	ZL-R30P
Sensing range		100mm	500mm	10m	2m	2m
Object		200X200mm white paper		φ 10mm Opaque objects	45X45mm transparent objects	≥ 5mm Opaque object
Light source		Red LED				
Power		12~24V DC ± 10%				
Wiring		4 cores cable				
Sensitivity modulation		One turn of the knob is adjustable （ 230 ° ）				
Output control		NPN collector open circuit is 24V, max. 50 mA; PNP collector open circuit is 24V, max. 50 mA				
Working mode		L-ON/D-ON (optional for wiring)				
Reaction time		Max. 3ms				
Current consumption		Max. 20mA				
IP Level		IP67				
Protection circuit		Reverse electrode protection, short circuit protection				
Ambient illuminance		Incandescent lamp: Max. 5, 000lux ， Sunligth Max. 20, 000lux				
Ambient temperature / humidity		-20 ℃ to +55 ℃， no freezing / 35 to 85% relative humidity				
Dimension		21mm （ L ） X11. 4mm （ W ） X32mm （ H ）				

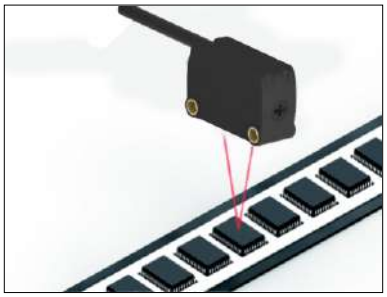
BGS Photoelectric sensor ZL-B05/ZL-B10 series



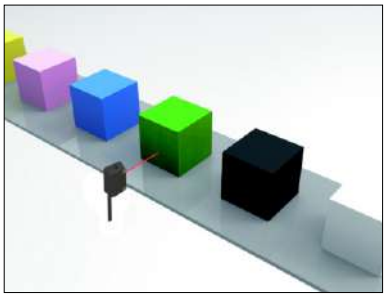
Product features

- The perfect application of BGS function, even in the production line with the circulation of different color workpieces, there is no need to adjust the detection distance;
- High precision, small differential distance, can detect small segment difference;
- Anti interference, according to the unique external interference light avoidance algorithm can also resist the frequency conversion fluorescent lamp;

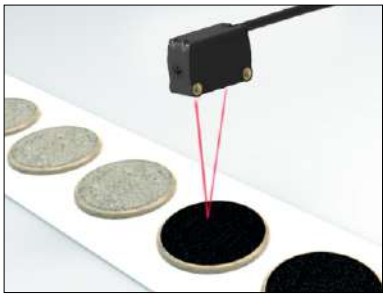
Application



Detected the metal parts of IC



Not affected by target color and background color



Detect fast moving objects

Product parameters

ZL-B05

Appearance			
Type		NPN	PNP
Model		ZL-B05N	ZL-B05P
Light source		Red LED（660mm）	
Sensing range		2-40mm	
Spot diameter		about 3mm（When 40mm distance）	
Repeatability accuracy		Along detection axis：max. 1mm / Perpendicular to the detection axis：max. 0. 3mm	
Power		12~24VDC±10%，Ripple（P-P）：max.10%	
Indicator		Red（output indicator），Green（stable indicator）	
Output mode		LIGHT-ON/DARK-ON	
Reaction time		max. 1ms	
Current consumption		15mA	
Output control	NPN output	NPN collector open circuit 24V; maximum output current: 50 mA; residual voltage 1V or less	
	PNP output	PNP collector open circuit 24V; maximum output current: 50 mA; residual voltage 1V or less	
protection circuit		Reverse electrode protection (power supply), over-current protection (output)	
Ambient tolerance	illuminance	Incandescent lamp: illumination degree of light receiving surface is below 3000lx	
	Temperature	-20℃ to +55℃，no freezing	
	Humidity	35 to 85%RH， no condensation	
	Vibration	10 to 55Hz，Composite amplitude 1. 5mm，X、Y、Z axis direction each 2 hours	
	Shock	500m/s^2 X、Y、Z each axis direction 3 times	
Case material		PBT	
Dimension		31.4mm(H)*11.4mm(W)*21mm(D)	

ZL-B05/ZL-B10 series

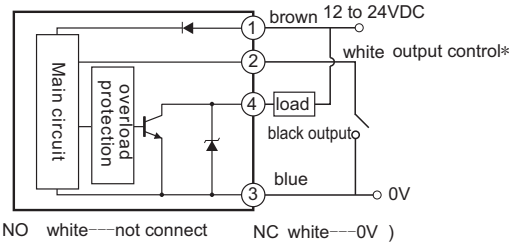
ZL-B10

Appearance			
Model	NPN	ZL-B10N	ZL-B20N
	PNP	ZL-B10P	ZL-B20P
Setting range		20-80mm	10 ~ 250mm
Sensing range		2-80mm	35 ~ 140mm
Hysteresis		2% Max(White dull paper)	
Repeatability accuracy		Along detection of shaft:lower than 1mm, Perpendicular to the detection axis:lower than 0.2mm	
Power		12-24V DC±10% Ripple P-P lower than 10%	
Current consumption		Max. 25mA	
Output		NPN open-controller transistor Maximum sink current:100mA Applied Voltage:30V DC or less(between control output to 0V) Residual voltage:2V or less(At 100mA sink current) 1V or less(At 16mA sink current)	PNP open-controller transistor Maximum sink current:100mA Applied Voltage:30V DC or less(between control output to +V) Residual voltage:2V or less(At 100mA sink current) 1V or less(At 16mA sink current)
Control output		Light ON/Dark ON Equip with two outputs	
Protection		Short Circuit Protection	
Reaction time		max. 1ms	
Working indicator		Red LED (output light on)	
Power indicator		Green LED	
Range Setting Regulator		5-turn knob adjuster	
Detection Mode		BGS	
Automatic Anti-interference Function		YES	
Protection		IP67	
Ambient Temperature		-25 to + 55 (no freezing), storage: 35 to +85%RH	
Ambient humidity		35 to +85%RH, storage: 35 to +85%RH	
Ambient illuminance		Incandescent lamp: illumination degree of light receiving surface is below 3000lx	
Withstand voltage		AC1000V 1 min between all power connection terminals and enclosure	
Insulation resistance		All power connection terminals and enclosure, more than 20MΩ, based on dc250v megger	
Vibration Resistance		10 ~ 500HZ amplitude 3mm(MAX.50G) X,Y and Z each 2 hours	
Shock Resistance		Acceleration 500 m/s² (about 50G) X, Y, Z each 2 hours	
Cast Light Element		Red LED(emit peak wavelength:650nm,adjustable	
Photoelectric Diameter		About φ2mm (The distance at 50mm)	About φ15mm (The distance at 300mm)
Cage Material		Shell:PC	
Cable		φ3.8 wire, 4 cores,length 2m	

I / O circuit diagram

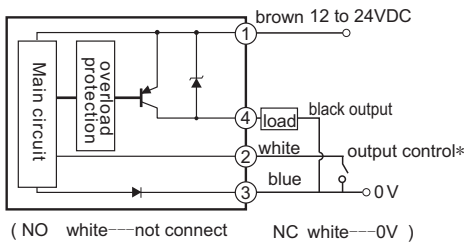
ZL-B05

NPN



* (NO white---not connect NC white---0V)

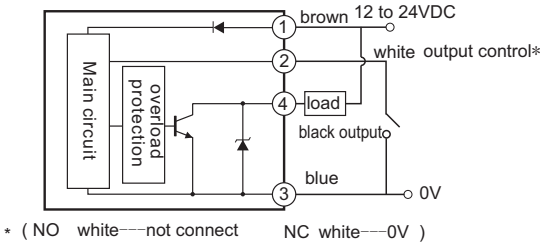
PNP



* (NO white---not connect NC white---0V)

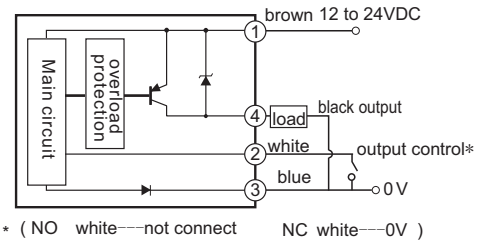
ZL-B10

NPN



* (NO white---not connect NC white---0V)

PNP



* (NO white---not connect NC white---0V)

User guide

ZL-B10N/ZL-B10P/ZL-B20N/ZL-B20P

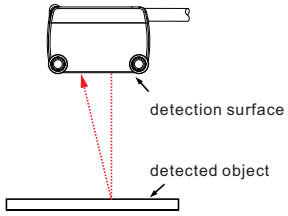
● Installation

About installation

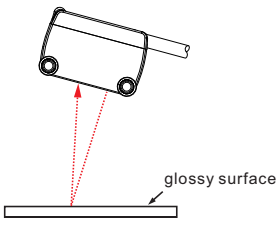
- When the sensors are installed in opposite directions, mutual interference may occur. Therefore, please avoid the opposite installation of optical axis of sensors.
- When setting, please avoid sunlight, fluorescent lamp, incandescent lamp and other strong light into the pointing angle of photoelectric sensor.

About installation direction

- During installation, the detection surface of photoelectric sensor should be equal to the detected object (can not inclined to the detected object)

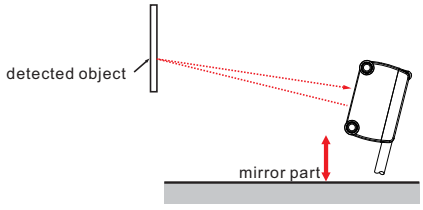


- However, in the detection of glossy objects (glossy surface), as shown in the figure below, the photoelectric switch is installed after tilting 5-10 degrees. In this case, make sure there is no effect on the background object.

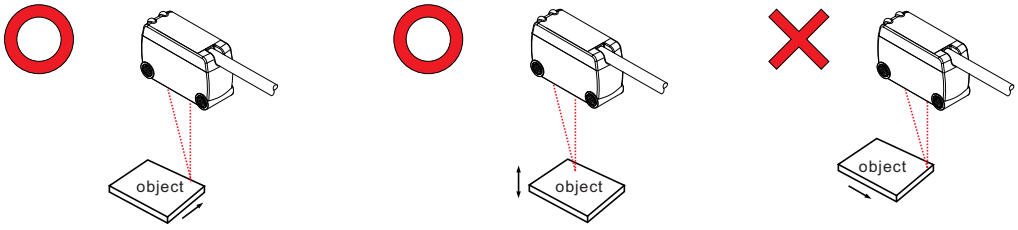


ZL-B05/ZL-B10 series

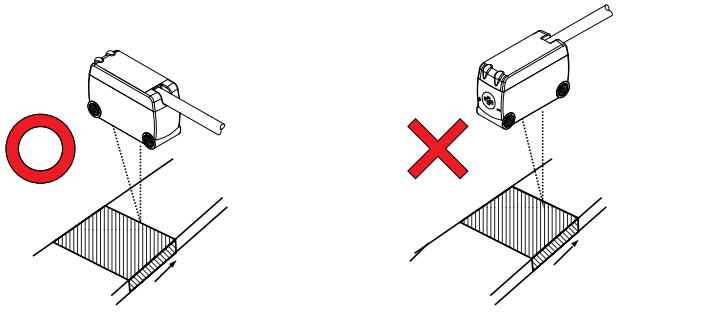
• When there is a mirror under the sensor, the light emitted from the detected object is reflected to the mirror body, and reversely returns to the photoelectric switch. Sometimes, the action is unstable. Therefore, the photoelectric switch should be installed as shown in the figure below, so that the photoelectric switch can be installed after tilting or keeping a certain distance from the bottom.



- As for the installation direction of the photoelectric switch, pay attention to the moving direction of the measured object, as shown in the figure below

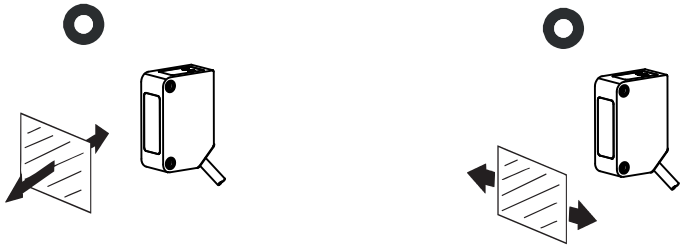


- In addition, when the color and material of the object have extreme changes, install it as shown in the figure below



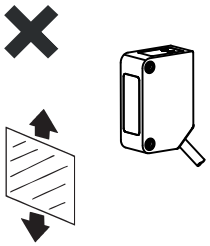
ZL-B05

O Correct installation

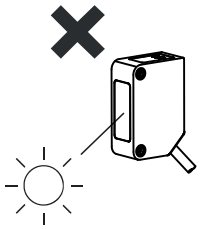


x Wrong installation

- Use in direct sunlight
- Use in the place with high humidity or easy condensation
- Use in the place containing corrosive gas
- In the vibration or shock can directly affect the use of sensors



Do not use sensors to detect objects in this direction, which may cause unstable operation.

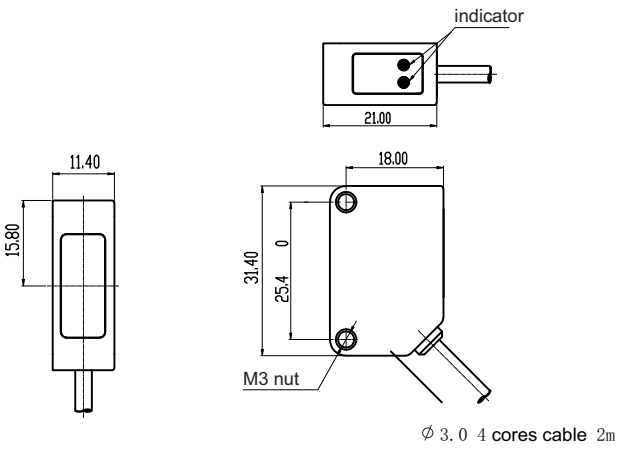


When installing, do not let sunlight or light directly illuminate the sensor sensing surface.

Dimensions

ZL-B05N





φ3.0 4 cores cable 2m

ZL-B10N/ZL-B10P/ZL-B20N/ZL-B20P



