

Series of Photoelectric Sensors

Overview

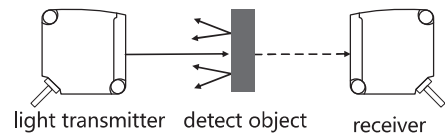
Photoelectric sensor is a sensor which uses photoelectric element as detection element. It first converts the measured change into the change of optical signal, and then further converts the optical signal into electrical signal with the help of photoelectric element. Photoelectric sensor is generally composed of light source, optical path and photoelectric element.

Functional Classification of Photoelectric Sensors

According to different detection methods, photoelectric sensors can be divided into three types: contrast type, the diffuse type and the specular type.

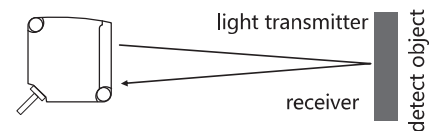
① Through Beam Photoelectric Sensor

The photophore and the receiver are installed on the same optical axis. When there is an object between them, the object will be detected and output according to the change of light transmission. This kind of sensor is called the photoelectric sensor.



② Diffuse Reflection Photoelectric Sensor

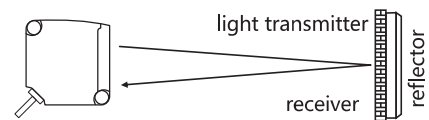
The light transmitter and receiver are photoelectric sensor. The light transmitter sends out light to the detecting object, after the detected object is reflected to the receiver, the light intensity of the reflected light is recognized and detected and the output of the object is detected.



③ Mirror Reflection Photoelectric Sensor

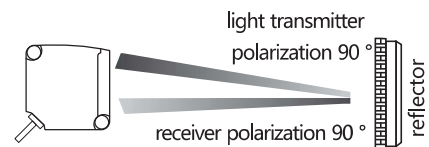
Mirror Reflection Photoelectric Sensor

The light transmitter and the receiver are photoelectric sensor. The light emitted by the light transmitter is reflected through the reflector to the receiver. When there is an object in the middle between the photoelectric sensor and the reflector, the object is judged by the change in the amount of light reflected back to judge the object and output. This photoelectric sensor is a mirror photoelectric sensor.



Polarized Reflection Photoelectric Sensor

Polarized mirror reflection photoelectric sensor and specular reflection action are in the same way. The light emitter and the receiver are installed with a polarizing filter, the filter angle is 90°, the receiver only receives the light emitting after filter angle of 90°. It uses this feature to detect the things with metal reflection.



④ **Consumed Current of Photoelectric Sensor** : The current required for the working state of the photoelectric sensor.

⑤ **Response Time of Photoelectric Sensor** : The time from the receiver of photoelectric sensor receiving the light to output to ON immediately.

⑥ **Action Mode of Photoelectric Sensor** : Dark ON and Light ON

▶ Dark ON (Shading Action)

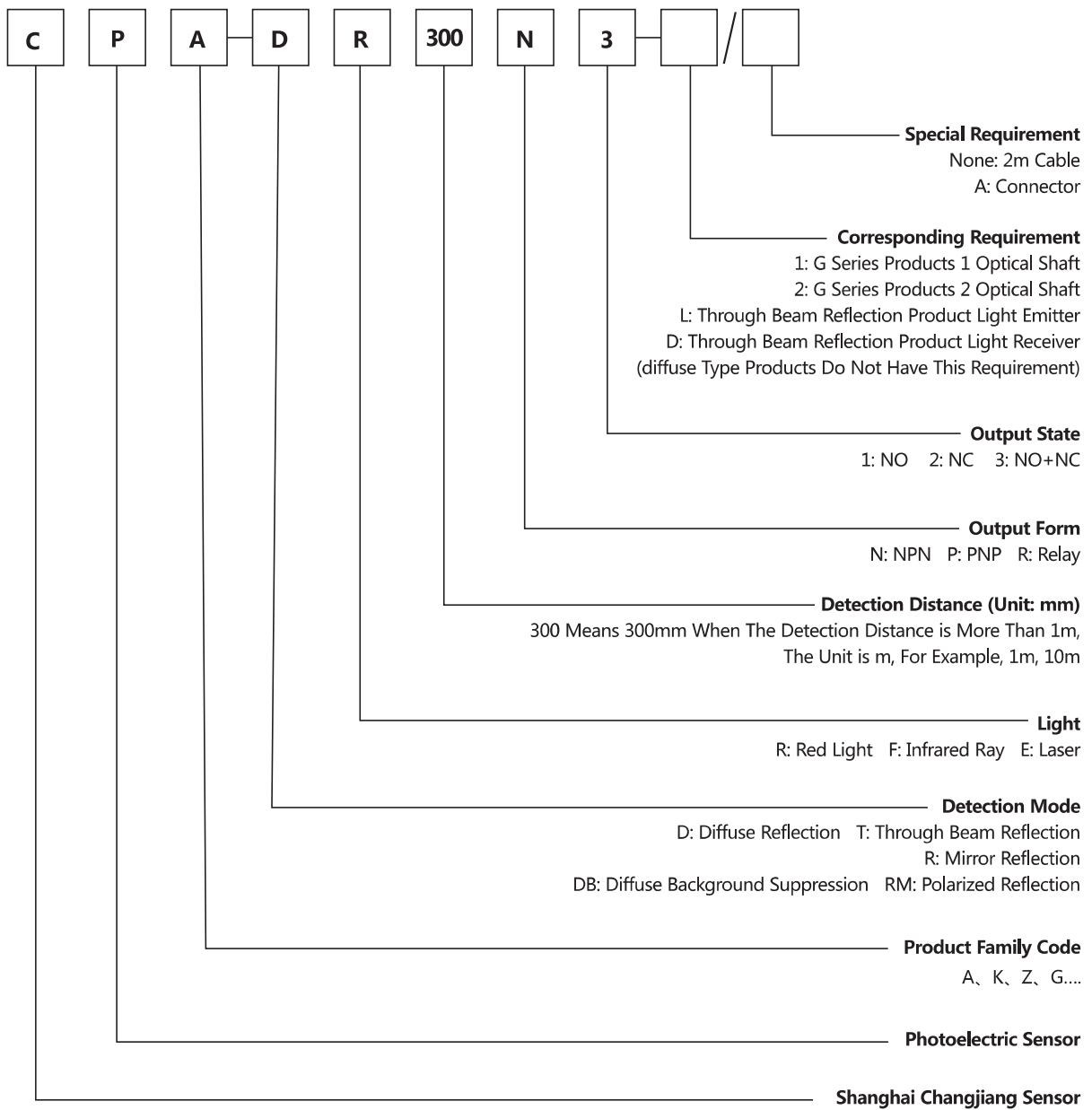
The light emitted from the light emitter, the output of the receiver when it doesn't receive light, (between the light transmitter and the receiver between the detection of objects) in the ON mode.

▶ Light ON (Light Action)

The light emitted from the light emitter, the output of the receiver when it receives light, (there is no object blocking between the light emitter and the receiver) is the ON mode.

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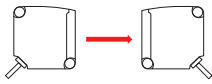


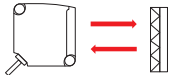

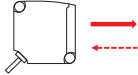
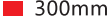


Model Naming



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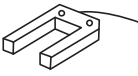

CPK Rectangular Photoelectric sensor

Red Light

Detection Mode	Simple Graph	Detection Distance	Output Form	Model
Through Beam Reflection		 40m	Relay	CPK-TR40MR3 2M Emitter:CPK-TR40MR3-L 2M Receiver:CPK-TR40MR3-D 2M
		 20m		CPK-TR20MR3 2M Emitter:CPK-TR20MR3-L 2M Receiver:CPK-TR20MR3-D 2M
Polarized Reflection		 6m		CPK-RMR6MR3 2M
Diffuse Reflection		 300mm		CPK-DR300R3 2M
		 1m		CPK-DR1MR3 2M
		 2.5m		CPK-DR2.5MR3 2M

CPG U-Shaped Photoelectric Sensor

Red Light

Detection Mode	Simple Graph	Detection Width	Connection Mode	Optical Axis Number	Model	
					NPN Output	PNP Output
Through Beam Reflection		 25mm	Formed cable (2m)	1 Optic Axis	CPG-TF25N3-1	CPG-TF25P3-1
			Connector relay (M8)		CPG-TF25N3-1/A	CPG-TF25P3-1/A
			Formed cable (2m)	2 Optic Axis	CPG-TF25N3-2	CPG-TF25P3-2
			Connector relay (M8)		CPG-TF25N3-2/A	CPG-TF25P3-2/A

CPK Rectangular Photoelectric sensor

- ▶ Long detection distance, through beam reflection up to 40m, diffuse reflection up to 2.5m;
- ▶ Adopt advanced technology visible red light;
- ▶ Action mode: Dark ON/Light ON switches freely;
- ▶ Strong anti-interference ability
- ▶ IP67 grade;



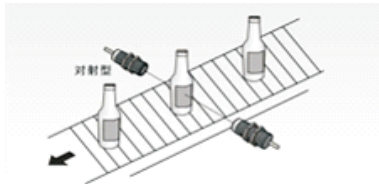
Specification

Sensor Type		Through Beam Reflection	Polarized Reflection	Diffuse Reflection		
Type	Relay Output	CPK-TR40MR3 CPK-TR20MR3	CPK-RMR6MR3	CPK-DR300R3	CPK-DR1MR3	CPK-DR2.5MR3
Detection Distance		40m 20m	0.1~6m	300mm	1m	2.5m
Standard Detection Object		Opaque objects above Φ 17mm	Opaque objects above Φ 75mm	White drawing paper:100×100mm	White drawing paper:300×300mm	
Return Difference		-			The detected distance is less than 20%	
Direction Angle		emitter, receiver: more than 3 °of each	more than 1.5°	-		
Light Source (Wavelength)		Red emitting diode (617nm)				
Supply Voltage		DC24~240V±10%	Pulsation (P-P) is less than 10%	AC24~240V±10% 50/60Hz		
Consumed Power/ Consumed Current		Less than 3W (transmitter less than 1.5W optometer less than 1.5W)	Less than 2W			
Control Output		Relay output: 1c contact AC250V less than 3A (cos φ = 1), DC5V above 10mA				
Action Mode		Dark ON / Light On switches freely				
Indicator		Action indicator (orange) Stable indicator (green) Power indicator (green) : through beam emitter only				
Protection Circuit		-				
Life (Relay Output)	Machinery	More than 50 million times (switching frequency is 18000 times / h)				
	Electrical	More than 100000 times (switching frequency is 18000 times / h)				
Response Time		Less than 20ms				
Sensitivity Adjustment		Single knob (receiver only)				
Ambient Illumination (Receiver Side)		Lighting collecting surface illumination incandescent lamp: less than 3000lx, sunlight: less than 11000lx				
Ambient Temperature Range		Working: -25~55 °C / Storing: -40~70 °C (no freeze, no dew)				
Ambient Humidity Range		Working: 35~85%RH / Storing: 35~95%RH (no dew)				
Insulation Resistance		Above 20m (DC500V megabit meter)				
Withstand Voltage		AC1,500V 50/60Hz 1min between the whole charging part and the shell				
Vibration (Durability)		10~55Hz up and down amplitudes is 1.5mm, 2 hours in X、 Y、 Z directions				
Impact (Durability)		300m/s ² 3 times in X、 Y、 Z directions				
IP Grade		IEC standard IP67				
Connection Mode		Lead out type (standard conductor 2m)				
Weight (Packing State)		About 215g	About 146g	About 132g		
Shell	Case	ABS				
	Lens / Display Window	PDM				
	Cable	2m PVC cable cable bend radius : R18				
Attachment	Manual of use, mounting bracket	Manual of use, mounting bracket, reflective plate		Manual of use, mounting bracket		

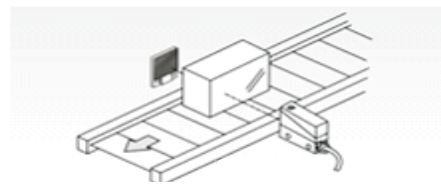
Industry Application Case

Our products are widely used in packaging machinery, transportation equipment, textile machinery, semiconductor, printing machinery, pharmaceutical machinery, logistics industry, medical devices, elevators and so on.

Check the label on the empty glass bottle



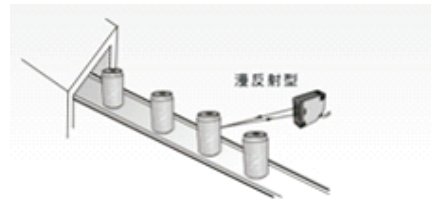
Object detection whether or not



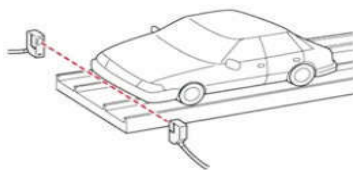
Check whether there is any cardboard



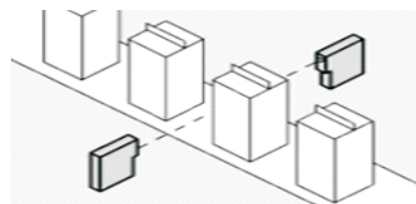
Check for bottles on the conveyor belt



Check if a car has passed



Test milk carton



Transmission line detection



Detect whether the object is straightened

