DADISICK®

TECHNICAL DATA SHEET

PHOTOELECTRIC SWITCH SENSOR
ULTRA-THIN MICRO
GP13 series

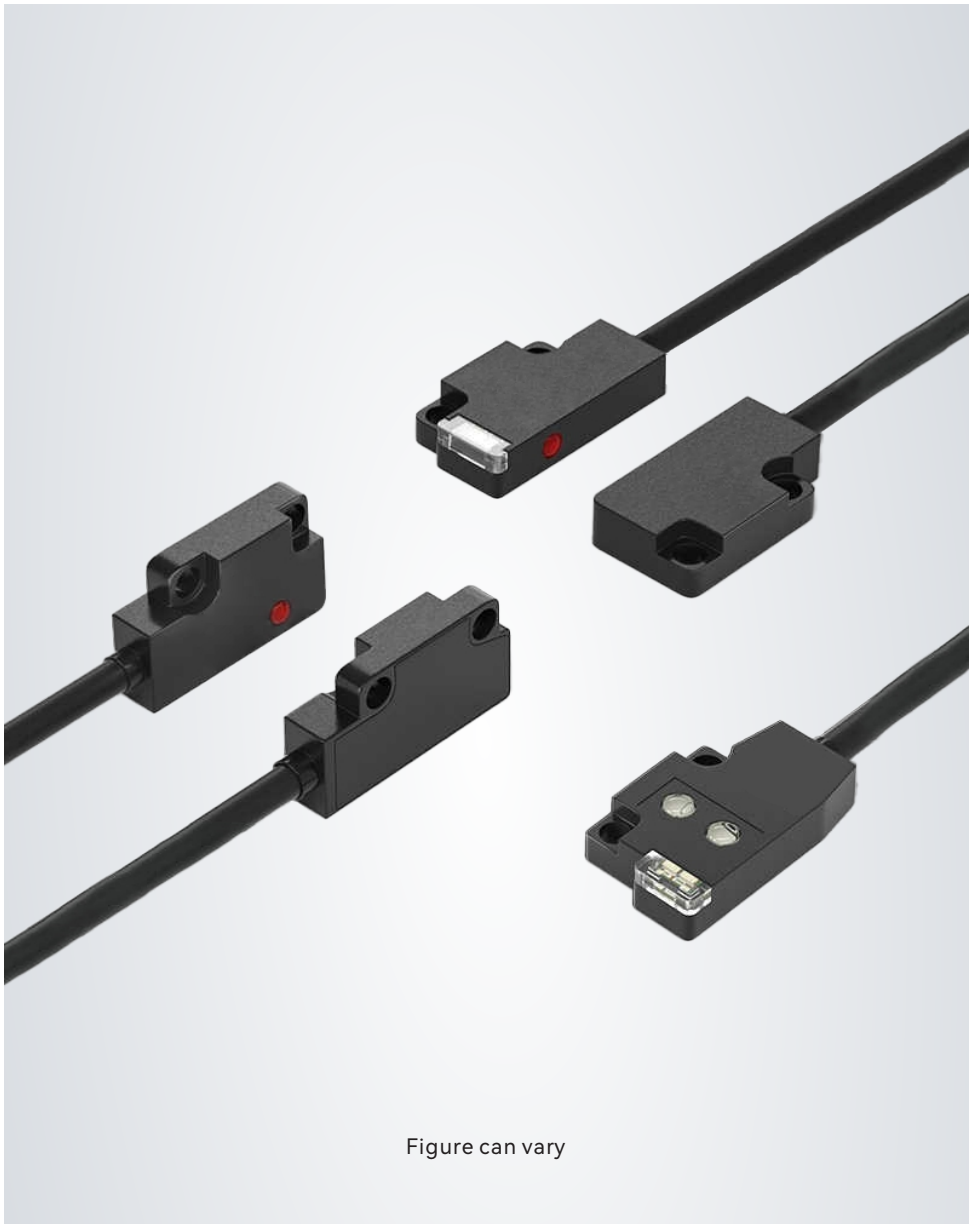

Figure can vary

Contents

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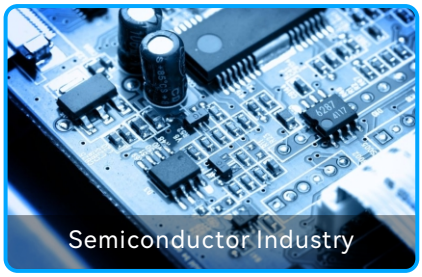
Product Introduction

Ultra-thin micro photoelectric sensors are suitable for detecting high-speed moving objects, with a response time of <1ms, high frequency, fast response, fast and accurate. They are not easily affected by background color, can stably detect workpieces, and are also suitable for detecting small parts or objects or counting.



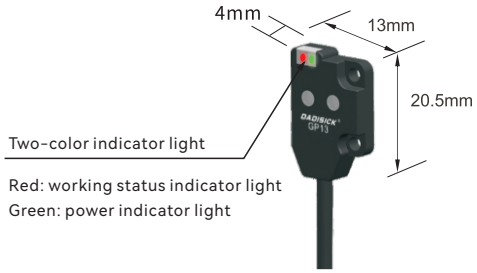
1. In automated production lines, it can be used to detect the position, speed and existence of objects, thereby controlling the movement of equipment such as robotic arms and conveyor belts to ensure smooth and efficient production processes.

2. In the metal processing industry, it can be used to detect tiny objects such as metal chips, debris, etc. to ensure the cleanliness and safety of the production process.

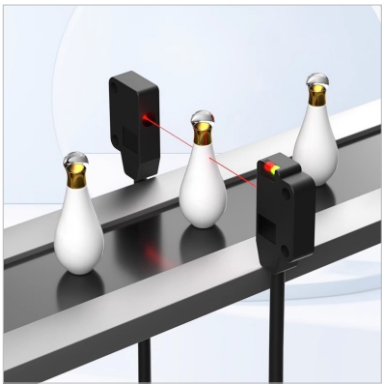
3. In the manufacturing and testing process of electronic equipment, it can be used to detect the position and integrity of components such as circuit boards and connectors to ensure the quality and performance of communication equipment.

Functional Description

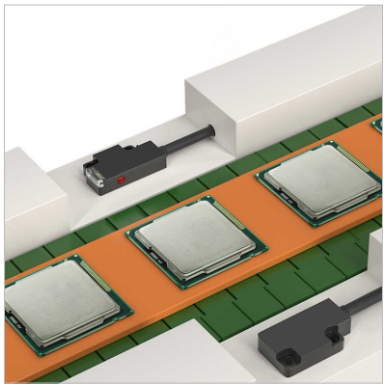
- ⊙ Ultra-thin and ultra-compact size, it can be installed anywhere with just a little space.
- ⊙ Equipped with a clear and visible dual-color indicator light.



Application Scenarios



Detecting high-speed moving objects



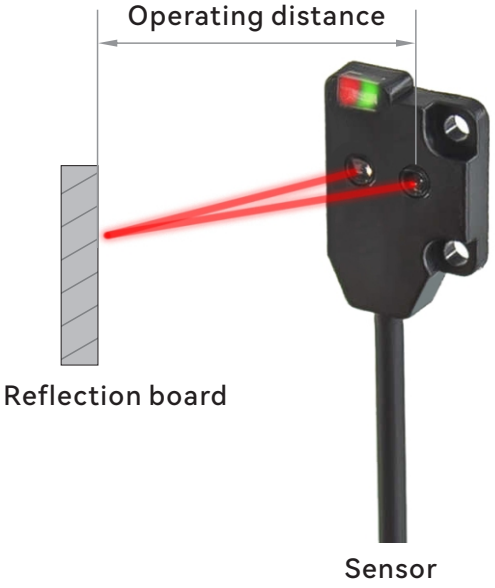
Electronic components detection

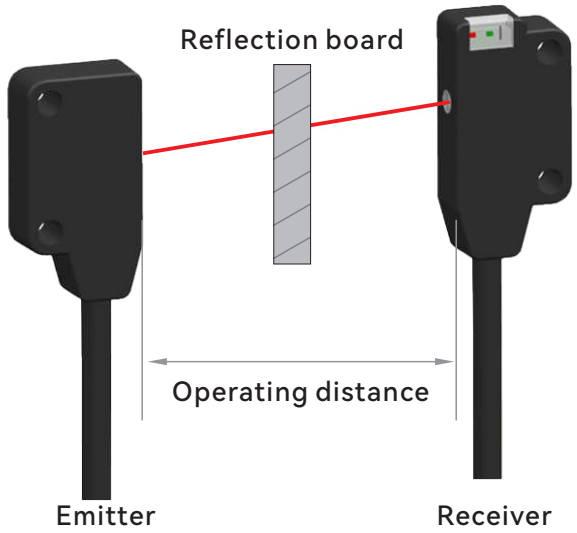
LED lamp pin detection

How it works

1. How Diffuse Reflection Works

The diffuse reflection type photoelectric switch is composed of a projector and a light receiver, which is a standard configuration. When the light beam from the transmitter is diffusely reflected by the target product; when there is enough combined light returning to the light receiver, the switch state changes; the effective range is determined by the reflective ability of the target, which is determined by the surface properties and color. The variable capacity with a sensitivity adjuster can play a compensating role; with a small assembly cost, when the optical sensor consists of a single component, coarse positioning can usually be achieved.

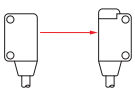




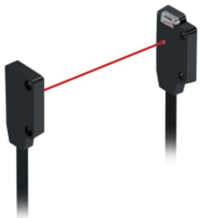
2. How Diffuse Reflection Works

The through-beam photoelectric switch consists of a light emitter and a light receiver. Structurally, the two are separated from each other. It can identify opaque reflective objects, has a large effective distance, and is not easily interfered with.

Product Category

Detection method		Shape(mm)	Detection distance	NPN Type	PNP Type
Diffuse reflection	Front detection		2-30mm	GP13-03N-ZAA	GP13-03P-ZAA
Through reflection	Front detection		300mm	GP13-D30N-ZBA	GP13-D30P-ZBA
			500mm	GP13-D50N-ZBA	GP13-D50P-ZBA
	Side detection		300mm	GP13-L30N-ZBA	GP13-L30P-ZBA
			500mm	GP13-L50N-ZBA	GP13-L50P-ZBA

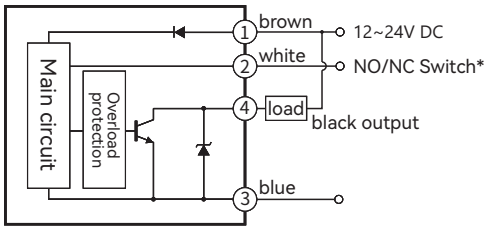
Product Parameters

Detection method		Diffuse reflection	Through reflection			
		Front detection	Front detection		Side detection	
Model	NPN Type	GP13-03N-ZAA	GP13-D30N-ZBA	GP13-D50N-ZBA	GP13-L30N-ZBA	GP13-L50N-ZBA
	PNP Type	GP13-03P-ZAA	GP13-D30P-ZBA	GP13-D50P-ZBA	GP13-L30P-ZBA	GP13-L50P-ZBA
Appearance						
Detection distance		2~30mm (White paper)	300mm	500mm	300mm	500mm
Detection object		Φ2mm opaque object				
Dysfunction		Less than 15% of the operating distance	-			
Response time		1ms or less (action/reset)				
Light-emitting element		Red LED				
Power supply voltage		12~24V DC ±10%				
Current consumption		25mA or less				
Indicator light		Output indicator: red, stability indicator: green				
Protection circuit		Reverse connection protection, short circuit protection				
Protection structure		IP64				
Ambient illumination		Incandescent lamp: 3000lx or less, sunlight: 10000lx or less				
Ambient temperature		-25~+55℃				
Ambient humidity		35~85%RH				
Vibration resistance		Frequency 10~500Hz, double amplitude 3mm (MAX: 20G), 2 hours each in X, Y and Z directions				
Impact resistance		Acceleration 500m/s² (about 50G), 3 times each in X, Y and Z directions				
Connection method		Wire lead type (2m)				
Casing		Casing: ABS				

Input/Output Circuit

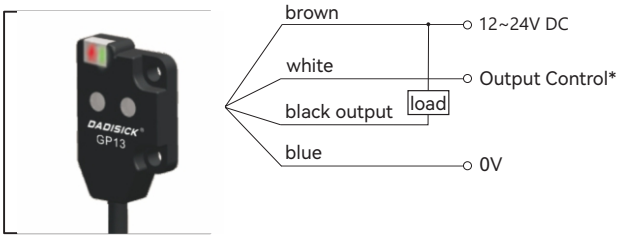
● Diffuse

NPN output

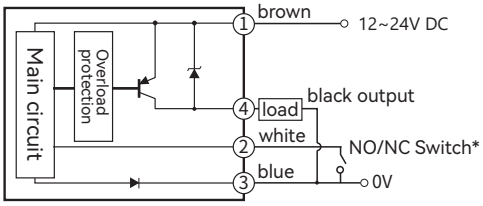


*NO white --- suspended, NC white --- 0V

Connection Diagram



PNP output



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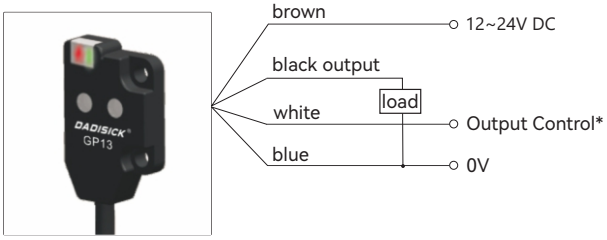
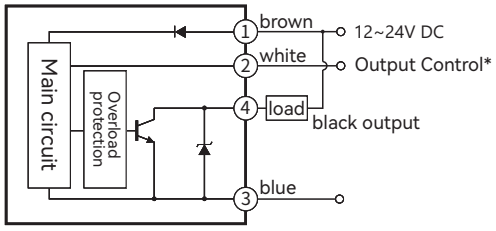
Connection Diagram



● Through-beam

NPN type



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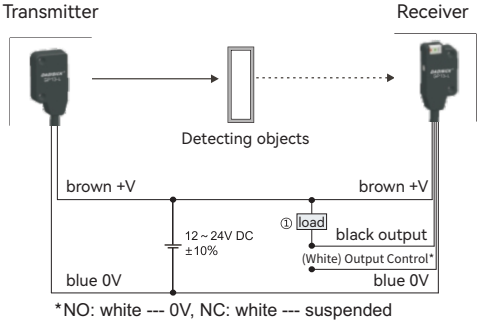

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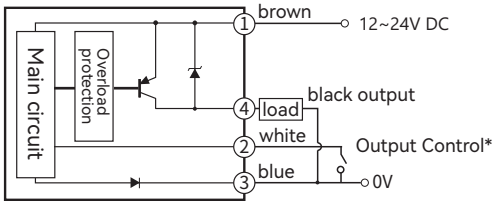
PNP type



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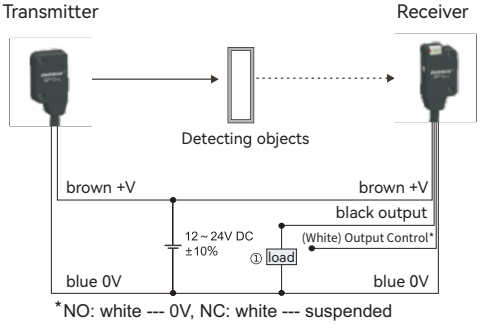
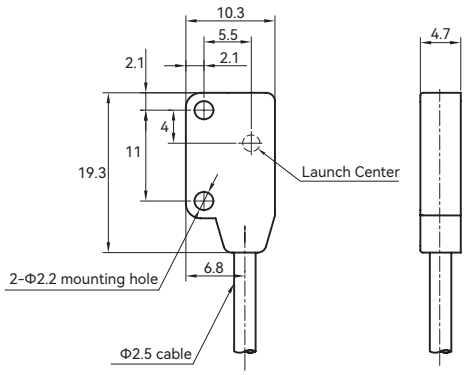


*NO: white --- 0V, NC: white --- suspended

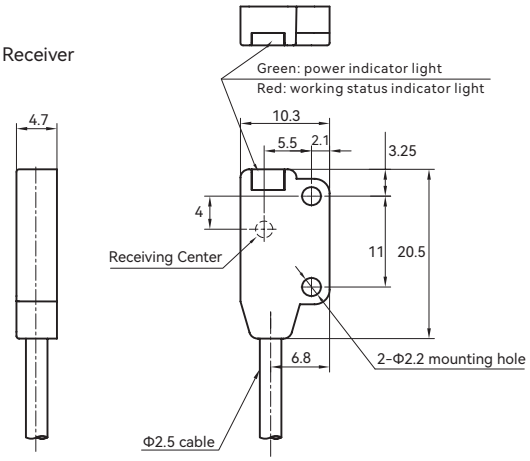
Dimensions

GP13-D

Transmitter

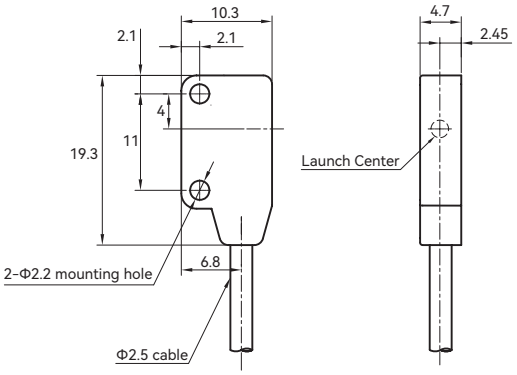


Receiver

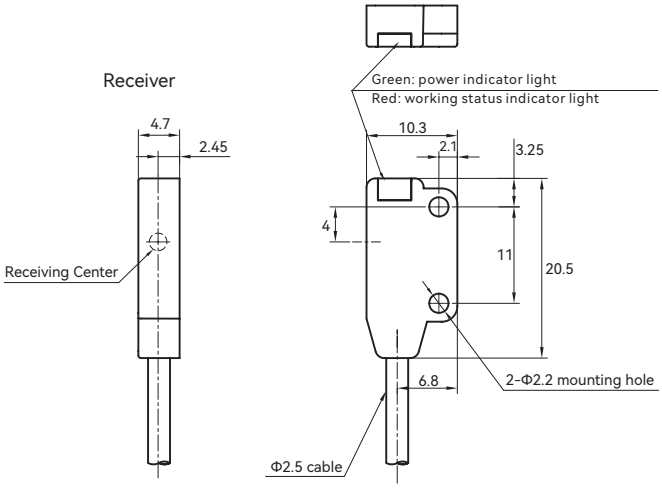


GP13-L

Transmitter



Receiver



GP13