

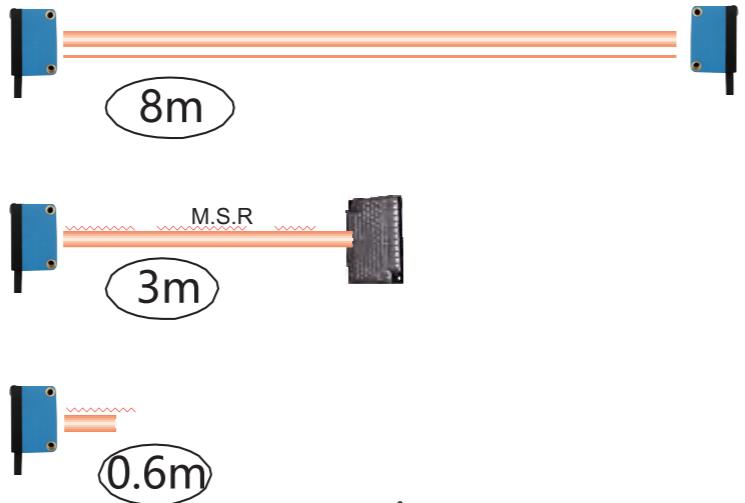
EZ NORMAL SQUARE PHOTOELECTRIC SENSOR



Square photoelectric sensor

Amplifier built-in type with industry top class detection distance

Through-beam type (red light source type, detection distance 8m) product is equipped with a filters to prevent mutual interference. Various reflective products (2 units) are equipped with a function to prevent mutual interference. A long-range through-beam type with a detection distance of 30 meters (response time 2ms) is also available.

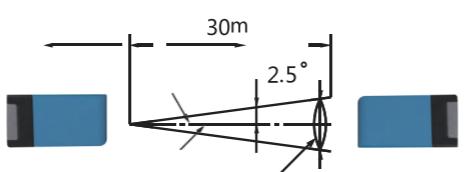


Guaranteed low-temperature performance, even in refrigerated warehouses

Extended ambient temperature range of -40 to +55 degrees Celsius

Improved consistency between optical axis and mechanical shafts

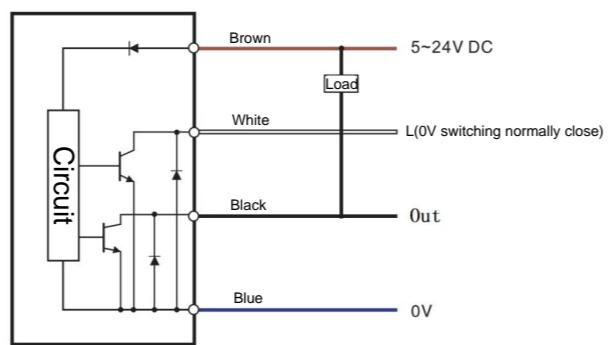
The deviation between the optical axis and mechanical axis is controlled within ± 2.5 degrees, and only needs to be mounted in conjunction with the mechanical shafts to achieve high-precision alignment with the optical axis. Longer detection distances are realized (through-beam type, regression reflection type).



It protects sensors even if wiring is wrong

Equipped with output reverse connection protection function. (Diodes for reverse connection protection added to output lines)

Wiring diagram



Square photoelectric sensor

Category

Detection method	Shape	Detection distance	Light source	Model	
				NPN output	PNP output
Through-beam type (light projector + light receiver)		8m	Red light (640nm)	EZ-T61	EZ-T61P
			Infrared light (950nm)	EZ-T51	EZ-T51P
Regression reflection type (specular type)		3m	Red light (640nm)	EZ-R61	EZ-R61P
			EZ-R61S	EZ-R61PS	
Diffuse reflection type		10CM	Red light (640nm)	EZ-D61	EZ-D61P
			Infrared light (950nm)	EZ-D51	EZ-D51P
Diffuse reflection type		30CM	Red light (640nm)	EZ-D62	EZ-D62P
			Infrared light (950nm)	EZ-D52	EZ-D52P

Rated specification and performance

Detection method Through-beam type				Regression reflection type	Diffuse reflection type			
Model	NPN output	Wire lead	EZ-T61	EZ-R61 EZ-R61S	EZ-D61 EZ-D62			
Detecting objects		Opaque objects 12mm in diameter		Opaque objects 5mm in diameter	100X100 white drawing paper			
Light source (wavelength)				640nm red light				
Power supply voltage				DC12-24V pulsation (p-p) 10% or below (DC10-30)				
Current consumption			25mA	45mA				
Control output			Load power supply current 100mA or below (residual voltage 1V or below)					
Circuit protection			Surge protection, short circuit protection, reverse polarity protection					
Response time			Action/reply under 1.0ms each					
Indicator light			Action indicator light (red)					
Ambient temperature	In action: -25 ~+55 (no icing, non-frosting) In storage: -40 ~+70 (no icing, non-frosting)							
Ambient illumination effect	Daylight: 10000LX or below Incandescent light: 3000Lx or below							
Service ambient humidity	In action - 45% to 85% (no icing) RH In storage: 35% to 85% (no icing) RH							
Voltage effect	When the rated power supply voltage fluctuates within $\pm 15\%$, the detection distance changes within $\pm 1\%$							
Insulation resistance	20M or above (DC500 megohmmeter) between the charging part and housing							
Dielectric strength	AC1000V or above at 50/60Hz for 1min between the charging part and housing							
Vibration (durable)	10-50Hz,1.5mm double amplitude, reaches 1h in each direction of X, Y, Z							
Impact (durable)	500m/s ² double amplitude, 3 times in each direction of X, Y, Z							
Protection structure	IP65							
Connection method	Wire lead type (standard 2m)							
Housing material	PC							

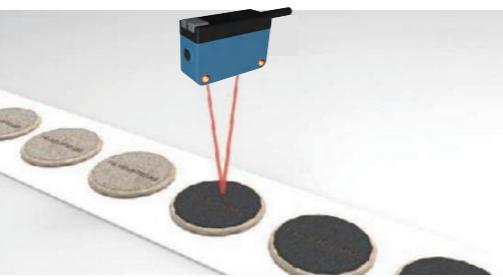
EZ-BG BACKGROUND SUPPRESSION PHOTOELECTRIC SENSOR



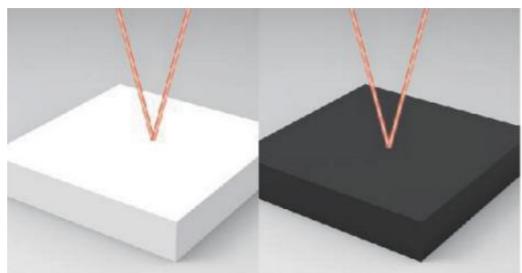
Background suppression photoelectric sensor

Perfect application of BGS function

Black and white workpieces can be detected at almost equal distances. There is no need to adjust the detection distance even when changing production on a line where different-colored workpieces are circulating.

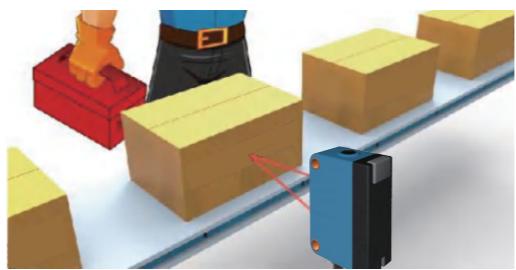


Hardly affected by changes in the color of the object to be detected, both black and white can be detected at almost the same distance.



When no background

When the workpiece is separated from the background object



Interference resistant

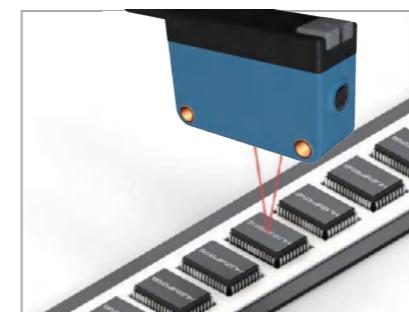
According to the unique external anti-light interference avoidance algorithm, it can effectively avoid the same-frequency light interference, and can also be resistant to variable frequency fluorescent lights.

High precision

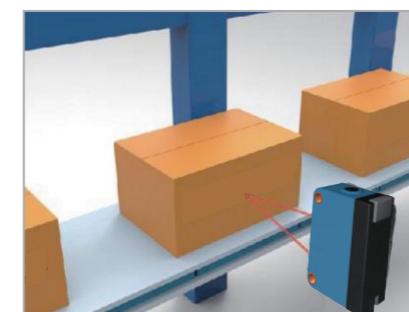
Small laser spot, high repeat accuracy

Background suppression photoelectric sensor

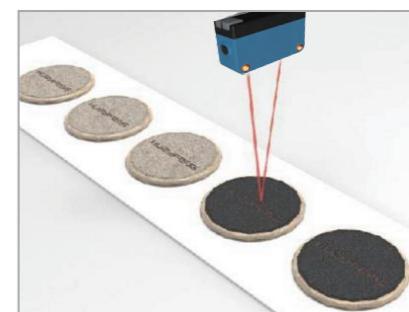
Application Examples



Detection of IC production



Detection of workpieces on production line without background



Detection of different color cookie production line

Category

Detection method	Light source	Shape (mm)	Detection range	NPN type	PNP type
Distance detection type	Laser		120mm	EZ-L61-BG	EZ-L61P-BG
			300mm	EZ-L62-BG	EZ-L62P-BG
	Red light LED		100mm	EZ-D61-BG	EZ-D61P-BG
			300mm	EZ-D62-BG	EZ-D62P-BG
			500mm	EZ-D66-BG	EZ-D66P-BG

Technical parameters

Model Item	Category NPN output	Outgoing wire type				
		EZ-L61-BG Laser light spot 2mm	EZ-L62-BG Laser light spot 2mm	EZ-D61-BG Min. light spot 1mm	EZ-D62-BG Light spot 8-12mm	EZ-D66-BG Collimated light spot 8mm
Detection distance		10-120mm	30-300mm	5-100mm	10-600mm (Within 300mm of BG function)	10-1500mm (Within 500mm of BG function)
Output mode		NPN/PNP open integrated electrode, 100mA/30V DC				
Switching mode		L.on(light-input action)/D.on(light-darkening action) can be switched				
Indicator light		Operating indicator: green, output indicator: orange				
Response time		<2ms				
Sensitivity adjustment		Multi-turn potentiometers				
Light source		Laser, red light LED (660nm)				
Operating voltage		10-30V DC±10%				
Current consumption		30mA				
Ambient light		Daylight: 10000LX or below Incandescent light: 3000LX or below				
Ambient temperature		-25 ~ +55				
Environmental humidity		-35% 85% no icing				
Protection level		IP65				
Material		ABS (Housing); PC (Lens)				

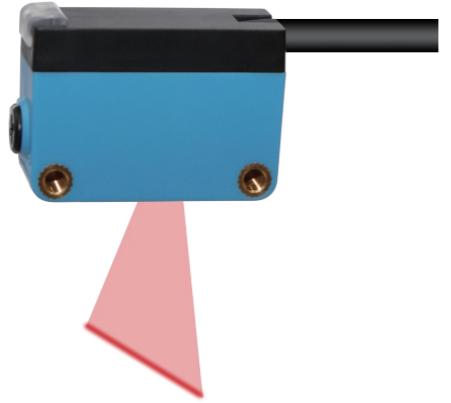
EZ DIFFUSE STRIP PHOTOELECTRIC SENSOR



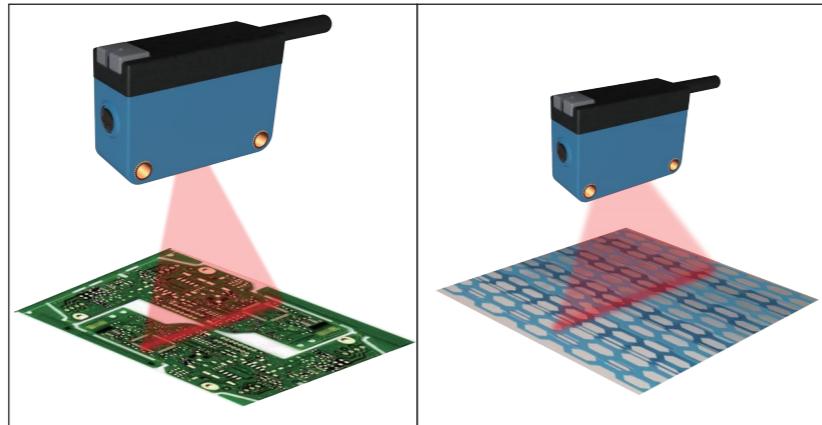
Diffuse strip photoelectric sensor

Characteristics

Stabilized detection light spot of 5x30mm with strip light design
Comes with BG function, especially suitable for detection of products with hollow or concave-convex surfaces
Intuitive high brightness red light high speed response
Default outgoing line of 2 meters, supports customization



Application scenario



Detection of hollow circuit boards

Detecting irregular hardware

Diffuse strip photoelectric sensor

Product parameters

Limited reflection type (diffused light type)

Diffuse strip photoelectric sensor			
Category	NPN signal output	EZ-D461	EZ-D561
	PNP signal output	EZ-D461P	EZ-D561P
Detection distance	5Mm~200mm, light spot 4mm	5Mm ~ 100mm, light spot 1mm	
Light source	640nm red light	640nm laser	
Min. detected object	2mm copper wire (setting distance 100mm), can filter up to 5mm gap or perforation		
Repeated accuracy	1mm or below		
Power supply voltage	12-24V DC±10%		
Pulsation	P-P 10% or below		
Current consumption	13mA or below		
Output	· Default NPN signal, Max. inflow current: 50mA		
	· Impressed voltage: 30V DC or below (between output and OV)		
	· Residual voltage: 2V or below (inflow current 50mA)		
Short circuit protection	Equipped		
Response time	0.5ms or below		
Working status indicator light	Power-on green LED, sensing orange LED (light on when output is ON)		
Environmental performance	Protection structure	IP67(IEC)	
	Service ambient temperature	-25~+55 (Note: no condensation or icing), in storage: -30~+70	
	Service ambient humidity	35~85%RH, in storage: 35-85%RH	
	Service ambient luminance	Incandescent light: lighted surface luminance 3000R or below	
Light projection component	640nm red LED		
Material	Housing: PC		
Cable	Rubber cable outer diameter 2.8mm, length 2m, customized extensions available		
Weight	Body weight: about 50g		

- Slotted sensor
- Optical fiber sensor
- Displacement sensor
- Safety sensor
- Photoelectric sensor
- Proximity sensor
- Specialized sensor

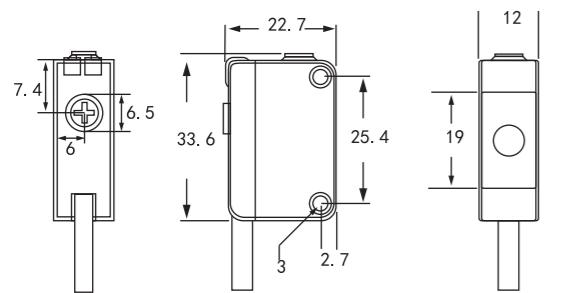
Diffuse strip photoelectric sensor

Diffuse strip photoelectric sensor

Dimension diagram (unit: mm)

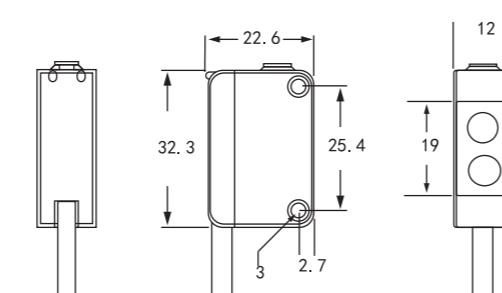
EZ-R61/T61

Wiring sequence	Specification
Brown	+24V
White	0V switching normally open
Blue	0V
Black	Normally close output (ON when light-input)

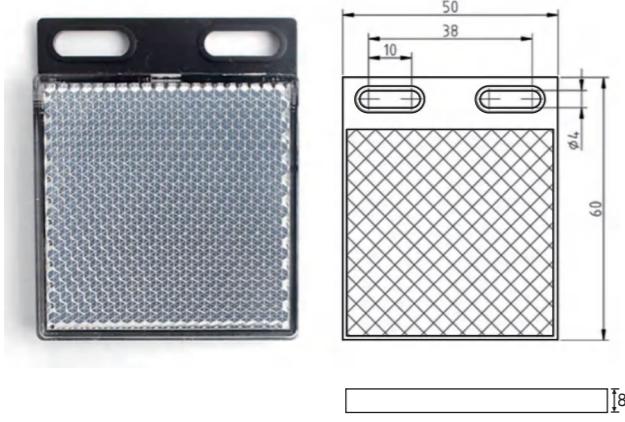


EZ-D62/D62-BG

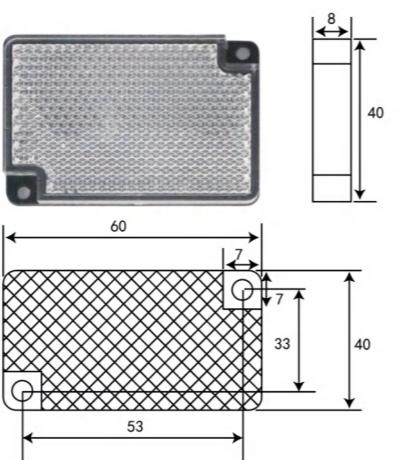
Wiring sequence	Specification
Brown	+24V
White	0V switching normally close
Blue	0V
Black	Normally open output (ON when light-input)



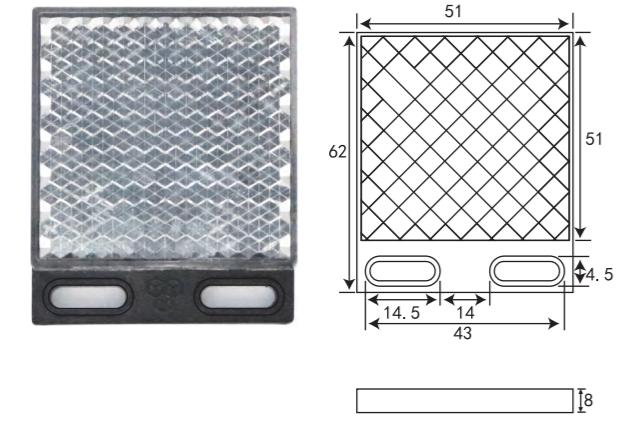
EZ-TD08



EZ-TD09



EZ-TD08B (large honeycomb)



EZ LIMITED REFLECTION TYPE PHOTOELECTRIC SENSOR



Thin photoelectric sensor

Characteristics

Limited reflection type that is not easily affected by colors and materials
Mirrors, black and transparent objects are also detected

Color stability

- Stable detection of a wide range of objects such as mirrors, black and transparent objects
- Independently of the background, effectively detects the desired objects

Distance stability

- Wide detection range and therefore strong resistance to object positional shifts
- Designed to be less susceptible to external interference

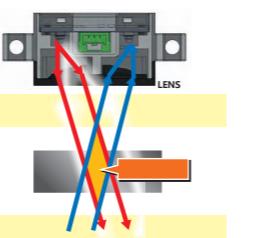
Wiring

- UX1008 4-core cable

Principle

Principle of limited reflection type sensor

Accepts reflected light from the detection object to detect the presence of the object. With an optical system that limits the projected beam and the light-receiving area, only objects that are a certain distance away from the sensor (within the range where the projected beam and the light-receiving area coincide) can be detected.



Application scenario

Detect printing paper



Printing equipment

Detect dispensing bag



Pharmaceutical dispensing machine

Detection container



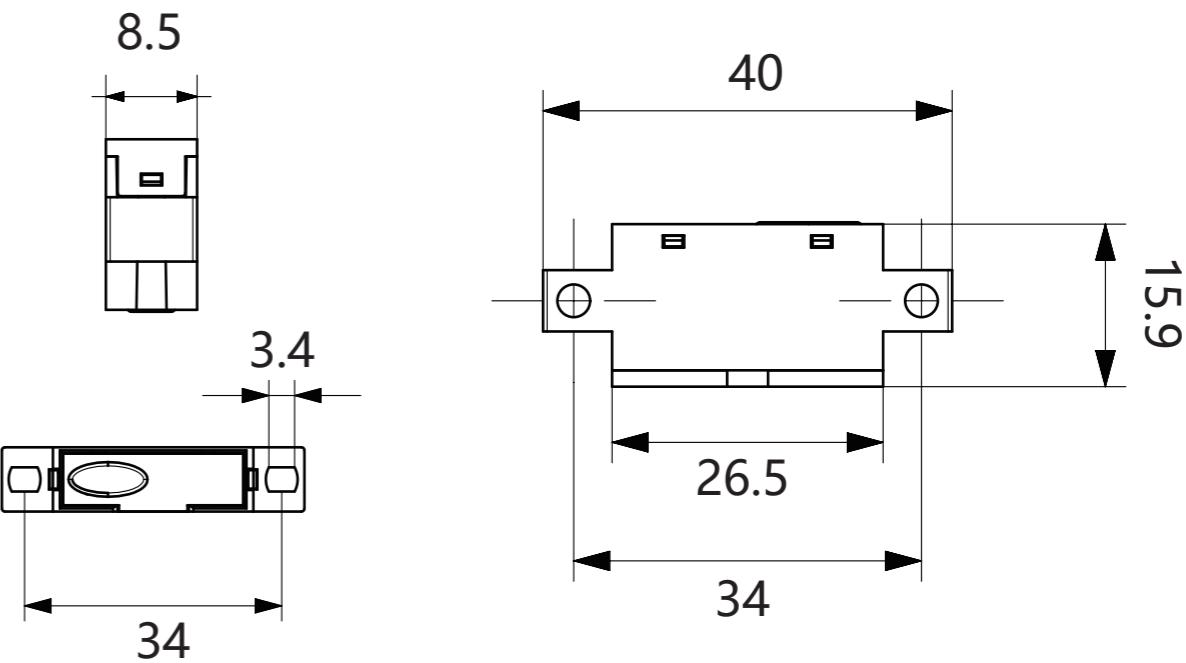
Analytical equipment

Thin photoelectric sensor

Product parameters

Item	Detection method		Limited reflection type	
	Model	Plug-in		Outgoing wire type
		EZ-B5W	EZ-B5WP	
Signal		NPN	PNP	NPN PNP
Detection distance	White paper	2~50 mm		
	Black paper	5~45 mm		
Min. detected object (reference value)		0.5mm		
Hysteresis		20% or below		
Light source (luminous wavelength)		Infrared light emitting diode (850nm)		
Power supply voltage		DC 24V±10% pulsation (p-p)10% or below		
Current consumption		15mA or below (when DC26.4V)		
Control output		Load power supply voltage DC26.4V or below, load current 50mA or below (residual voltage 0.8V or below (at 50mA load current), residual voltage 0.32V or below (at 10mA load current) open collector output (NPN output)		
Response time		Action: reset: under 1ms each		
Service ambient luminance		Lighted surface luminance incandescent light: 3,000lx or below, sunlight: 10,000lx or below		
Ambient temperature range		Operating: -10~+60 , in storage: -25~+80 (no icing, condensation)		
Vibration (durable)		10~55Hz double amplitude 1.5mm 2h in each direction of X, Y, Z		
Impact (durable)		500m/s ² 3 times in each direction of X, Y, Z		
Protection structure		IP50 (IEC60529 standard class 2) (except terminal section)		
Connection method		Connector type		Wire lead type
Weight (body only)		Approx. 1.6g		
Material	Housing	Polycarbonate (PC)		
	Lens section	Acrylic resin (PMMA)		
	Cover board	Polycarbonate (PC)		

Dimension diagram (unit: mm)



- Slotted sensor
- Optical fiber sensor
- Displacement sensor
- Safety sensor
- Photoelectric sensor
- Proximity sensor
- Specialized sensor

EZ TIME OF FLIGHT SENSOR



Time of flight sensor

Demonstration

Single point mode:

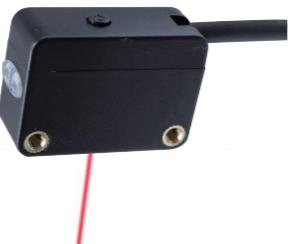
The sensor is aligned with the object to be detected and the object is placed at the farthest detection distance, press the SET key for 1 second and then release it, the green light blinks slowly for twice at this time so that distance is set successfully.

Attention: 3 slow flashes of the green light indicates a setting failure.

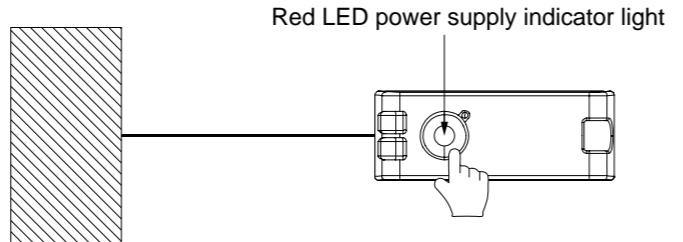
Area mode:

Align the sensor with the object to be detected and place the object at the closest detection distance

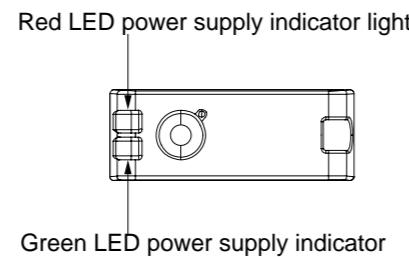
Press the SET key and wait for the green light to flash rapidly and then release the key, then place the detection object at the farthest detection distance and press the SET key and wait for the green light to flash rapidly and then release it, the green light will flash slowly for twice at this time, then the area mode is set successfully. Attention: 3 slow flashes of the green light indicates a setting failure.



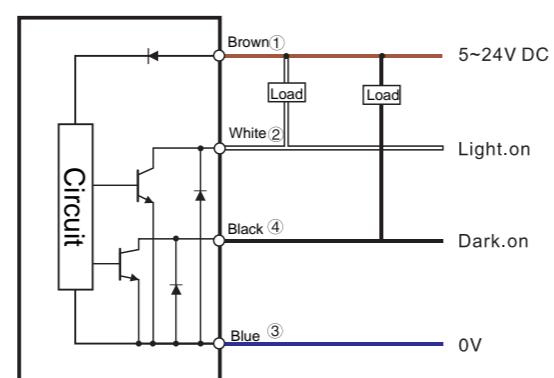
(1) Place the object to be detected at the position you want to locate and press the demonstrator.



(2) Press the demonstration key for more than 3 seconds until the red and green lights flash alternately, release the key and the demonstration is completed.



Output circuit diagram

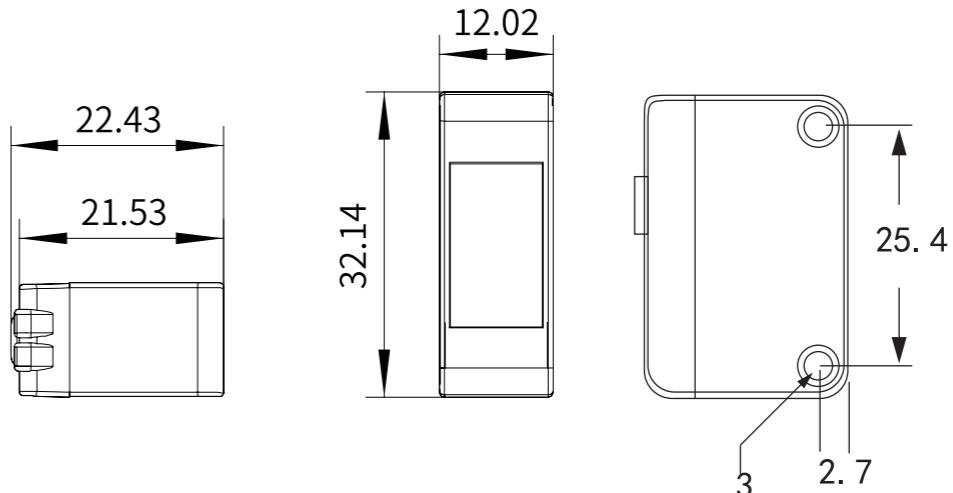


Time of flight sensor

Product parameters

Detection method		Reflexive type				
Model	NPN output	EZ-TOF2N	EZ-TOF4N	EZ-TOF2RS		
	PNP output	EZ-TOF2P	EZ-TOF4P	Standard RS485 communication		
Standardized detecting object		100x100mm white drawing paper				
Action mode		One-key setting TOF principle				
Detection distance		50~1500 mm	50 ~ 4000mm			
Light source		Infrared LED (940nm) IEC CLASS1				
Power supply voltage		DC 12 ~ 24V \pm 10% with fluctuation (P-P)10%				
Electricity consumption		Power consumption 480mW or below (power supply voltage DC 24V, current consumption 20mA or below)				
Control output		Load power supply voltage DC26.4V or less, load current 80mA or less Open collector output (NPN/PNP output varies by model)				
Output residual voltage		Residual voltage below 1V (load current less than 10mA) Residual voltage below 2V (load current less than 10~80mA)				
Protection circuit		Power reverse connection protection/load short circuit protection/output reverse connection protection				
Answer time		Action· reset: under 100ms each				
Surrounding humidity		In action: -20~+50 , in In storage: -40~+70 (no icing or frosting)				
Ambient humidity		In action: 35 ~ 85% RH, in In storage: 35 ~ 95% RH (no icing or frosting)				
Ambient luminance		Sunlight: 10.000lx or below				
Protection structure		IEC60529 specification IP65				

Dimension diagram



- Slotted sensor
- Optical fiber sensor
- Displacement sensor
- Safety sensor
- Photoelectric sensor
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- Specialized sensor

EZ LASER PHOTOELECTRIC SENSOR



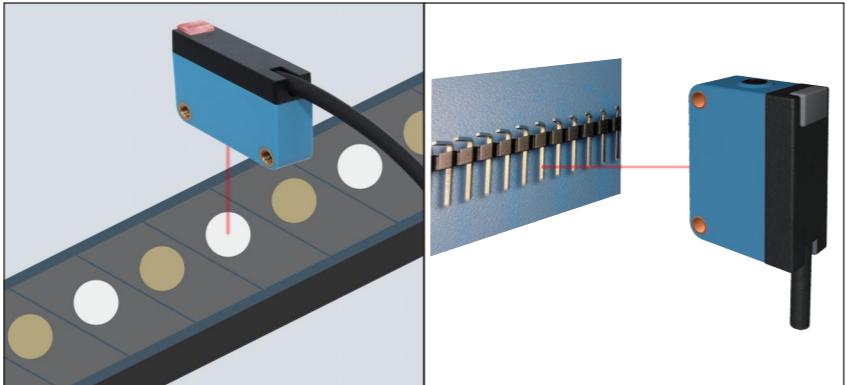
Laser photoelectric sensor

Characteristics

Advantage: fast response, high precision, suitable for detecting fine objects.
Light spot: 1~2mm light point
Light source: visible red laser light source (660nm)



Application scenario



Detection of fine objects in high-speed assembly lines

Electronics product counting

Laser photoelectric sensor

Category

Detection method	Shape	Detection distance	Light source	Model	
				NPN output	PNP output
Through-beam type		Wire lead type (2m)	30m	EZ-LT61	EZ-LT61P
Specular reflection type		Wire lead type (2m)	5m	EZ-LR61	EZ-LR61P
Diffuse reflection type		Wire lead type (2m)	300mm	EZ-LD61	EZ-LD61P

Product parameters

Model	Output	Through-beam type	Specular reflection type	Diffuse reflection type
	NPN	EZ-LT61	EZ-LR61	EZ-LD61
	PNP	EZ-LT61P	EZ-LR61P	EZ-LD61P
Detecting objects		10x10mm white drawing paper	10x10mm white drawing paper	Opaque objects 2mm in diameter
Light source (wavelength)				660nm red laser
Power supply voltage				DC12-24V pulsation (p-p) 10% or below (DC10-30)
Current consumption		55mA		45mA
Control output				Load power supply current 150mA or below (residual voltage 1V or below)
Circuit protection				Surge protection, short circuit protection, reverse polarity protection
Response time				Action/reply under 1.0ms each
Indicator light				Action indicator light (red)
Ambient temperature				-25 ~+55
Ambient illumination effect				Incandescent: 3000Lx or below
Service ambient humidity				In action - 45% to 85% (no icing) RH In storage: 35% to 85% (no icing) RH
Voltage effect				When the rated power supply voltage fluctuates within ±15%, the detection distance changes within ±1%
Insulation resistance				20M or above (DC500 megohmmeter) between the charging part and housing
Dielectric strength				AC1000V or above at 50/60Hz for 1min between the charging part and housing
Vibration (durable)				10~50Hz, 1.5mm double amplitude, reaches 1h in each direction of X, Y, Z
Impact (durable)				500m/s² double amplitude, 3 times in each direction of X, Y, Z
Protection structure				IP65
Connection method				Wire lead type (standard 2m)
Housing material				ABS

- Slotted sensor
- Optical fiber sensor
- Displacement sensor
- Safety sensor
- Photoelectric sensor
- Proximity sensor
- Specialized sensor

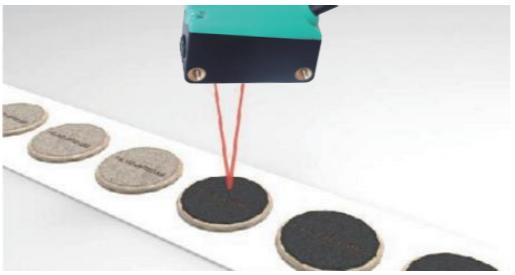
EZ HIGH-END BACKGROUND SUPPRESSION PHOTOELECTRIC SENSOR



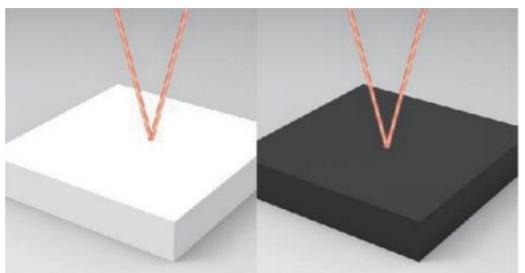
High-end background suppression sensor

Perfect application of BGS function

Black and white workpieces can be detected at almost equal distances. There is no need to adjust the detection distance even when changing production on a line where different-colored workpieces are circulating.

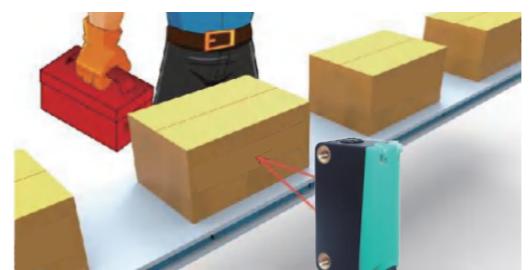


Hardly affected by changes in the color of the object to be detected, both black and white can be detected at almost the same distance.



When no background

When the workpiece is separated from the background object



It is also unaffected if the background color is changed or if someone passes by.

Interference resistant

Inverter fluorescent lights can also be countered according to a unique external interference light avoidance algorithm.

High precision

Small dynamic difference distance, can detect small segment difference.

Protection structure

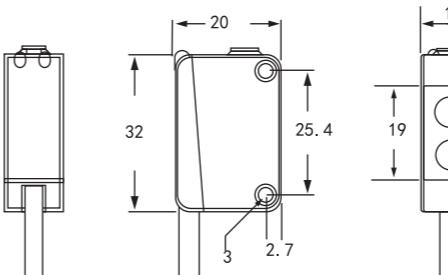
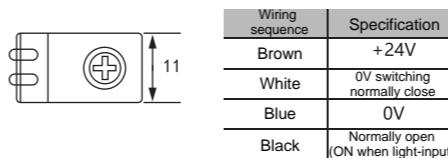
The IP65 protective structure, which prevents mutual interference, conforms to EN standard.

High-end background suppression sensor

Technical parameters

Item	Model	Category	Red light background suppression	Laser background suppression	Strip light background suppression
		NPN output	EZ-MR100	EZ-ML100	EZ-MS100
Light spot size		PNP output	EZ-MR100P	EZ-ML100P	EZ-MS100P
Detection distance			8-12mm	1-2mm	5*60mm
Output mode			10-300mm	10-200mm	10-200mm
Switching mode			NPN/PNP open integrated electrode, 100mA/30V DC	L.on(light-input action)/D.on(light-darkening action) can be switched	
Indicator light				Operating indicator: green, output indicator: orange	
Response time				<2ms	
Sensitivity adjustment				Multi-turn potentiometers	
Light source				Red light LED (660nm)	
Operating voltage				10~30V DC±10%	
Current consumption				30mA	
Ambient light				Daylight: 10000LX or below Incandescent light: 3000LX or below	
Ambient temperature				-25 ~+55	
Environmental humidity				-35%-85% no icing	
Protection level				IP65	
Material				ABS (Housing); PC (Lens)	

Dimension diagram (unit: mm)



- Slotted sensor
- Optical fiber sensor
- Displacement sensor
- Safety sensor
- Photoelectric sensor
- Proximity sensor
- Specialized sensor

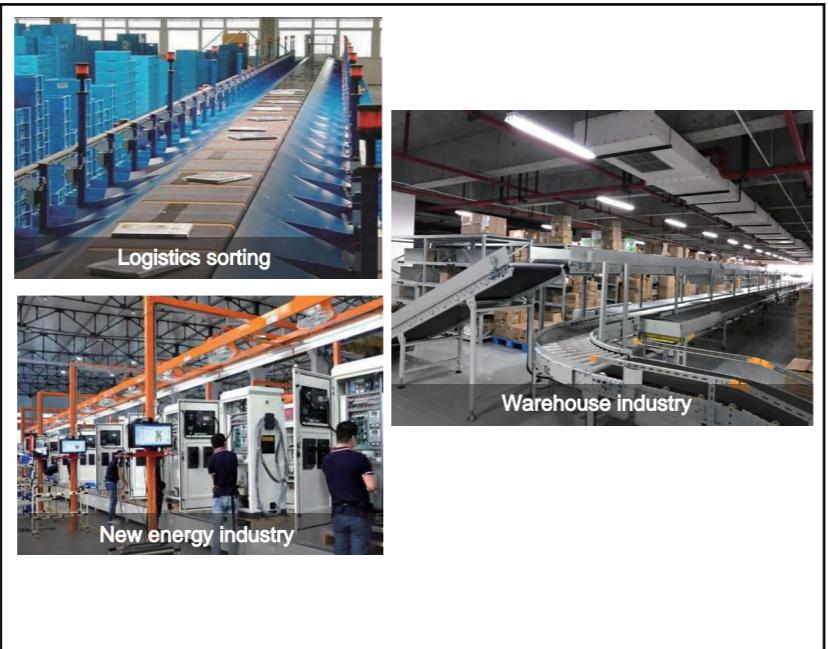
EZ ONE-KEY SETTING PHOTOELECTRIC SENSOR



One-key setting background elimination photoelectric sensor

Characteristics

Built-in optical lens, visible red light detection status intuitive detection distance of up to 1 meter, with background elimination effect, high-speed response, one-key setting. Simple operation for transparent object detection with fixed backgrounds and product identification with large color differences

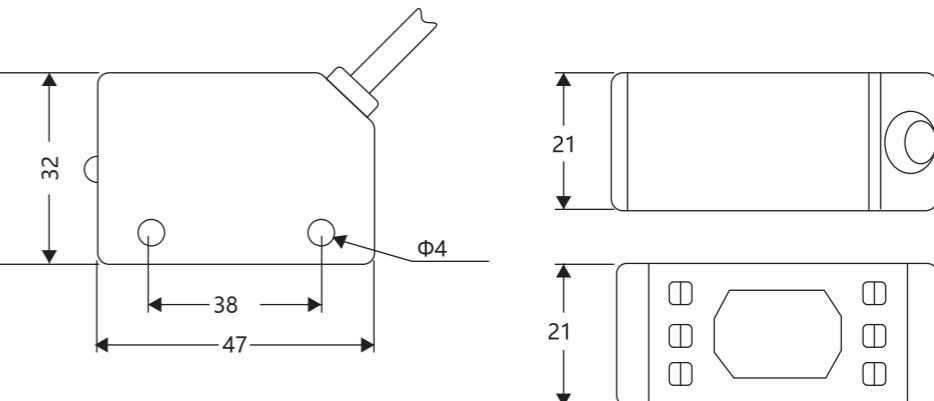


One-key setting background elimination photoelectric sensor

Product parameters

One-key setting background elimination						
Model	Product category	Wire lead	NPN	EZ-DG2OS		
			PNP	EZ-DG20SP		
Detection distance			50-1000mm			
Light source (wavelength)			640nm red light			
Power supply voltage			DC12-24V pulsation (p-p) 10% or below (DC10-30)			
Current consumption			45mA			
Control output			Load power supply current 100mA or below (normally open and normally close switchable)			
Circuit protection			Surge protection, short circuit protection, reverse polarity protection			
Response time			Action/reply under 1.0ms each			
Indicator light			Action indicator light (red)			
Ambient temperature			-25 ~+55			
Ambient illumination effect			Incandescent: 3000Lx or below			
Service ambient humidity			In action - 45% to 85% (no icing) RH In storage: 35% to 85% (no icing) RH			
Voltage effect			When the rated power supply voltage fluctuates within $\pm 15\%$, the detection distance changes within $\pm 1\%$			
Insulation resistance			20M or above (DC500 megohmmeter) between the charging part and housing			
Dielectric strength			AC1000V or above at 50/60Hz for 1min between the charging part and housing			
Vibration (durable)			10~50Hz, 1.5mm double amplitude, reaches 1h in each direction of X, Y, Z			
Impact (durable)			500m/s ² double amplitude, 3 times in each direction of X, Y, Z			
Protection structure			IP65			
Connection method			Wire lead type (standard 2m)			
Housing material			ABS			

Dimension diagram (unit: mm)



EZ LONG DISTANCE PHOTOELECTRIC SENSOR



Long distance photoelectric sensor

Characteristics

Built-in optical lens, visible red light detection status intuitive
Detection distance up to 2 meters with background suppression effect
High speed response, multi-turn adjustment, easy operation



Application scenario

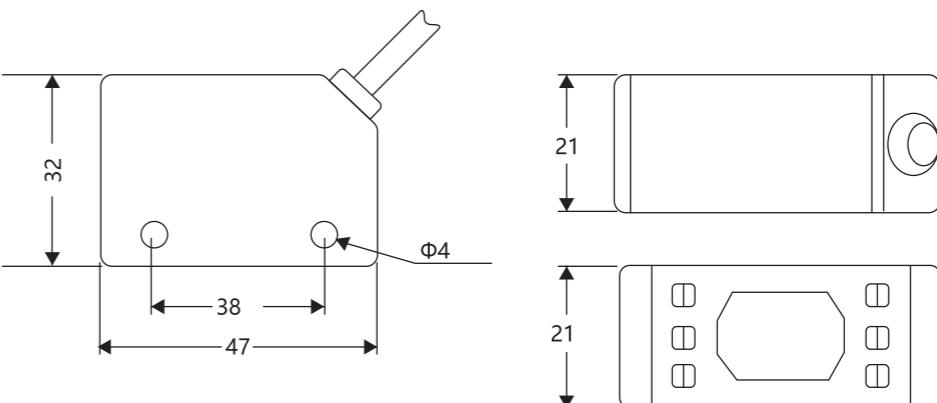


Long distance photoelectric sensor

Product parameters

Model	Product category	Long range red light background suppression			Long range laser background suppression
		Wire lead	Output	NPN	EZ-DG10
				PNP	EZ-LDG10
				EZ-DG10P	
				EZ-LDG10P	
				30-2000mm (background suppression distance 1000mm)	
				640nm red light	
				660nm red laser	
				DC12-24V pulsation (p-p) 10% or below (DC10-30)	
				45mA	
				55mA	
				Load power supply current 150mA or below (residual voltage 1V or below)	
				Surge protection, short circuit protection, reverse polarity protection	
				Action/reply under 1.0ms each	
				Action indicator light (red)	
				-25 ~+55	-10 ~+45
				Incandescent: 3000Lx or below	
				Service ambient humidity: In action - 45% to 85% (no icing) RH In storage: 35% to 85% (no icing) RH	
				When the rated power supply voltage fluctuates within $\pm 15\%$, the detection distance changes within $\pm 1\%$	
				20M or above (DC500 megohmmeter) between the charging part and housing	
				AC1000V or above at 50/60Hz for 1min between the charging part and housing	
				10~50Hz, 1.5mm double amplitude, reaches 1h in each direction of X, Y, Z	
				500m/s ² double amplitude, 3 times in each direction of X, Y, Z	
				IP65	
				Wire lead type (standard 2m)	
				ABS	

Dimension diagram (unit: mm)



Slotted sensor
Optical fiber sensor
Displacement sensor
Safety sensor
Photoelectric sensor
Proximity sensor
Specialized sensor

EZ THIN PHOTOELECTRIC SENSOR



Thin photoelectric sensor

Characteristics

Rugged body

Adopts PBT rugged body for durability and long service life

Ultra-small volume

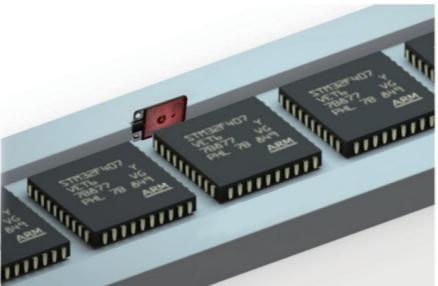
Small size, small detection blind area range, detectable closing to the detection window

Simple installation

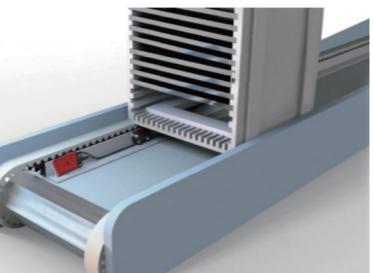
Easy mounting with standard M2 screws



Application scenario



Chip detection or counting



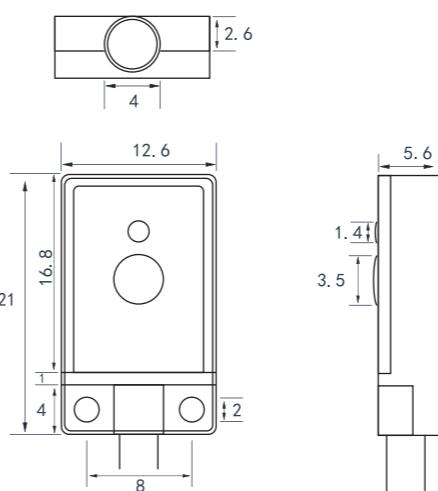
Original point in-place signal

Thin photoelectric sensor

Product parameters

Appearance diagram (The picture is for reference only, the specific in kind shall prevail)		
Outline		Flat F-type
Model	NPN	EZ-FT11
	PNP	EZ-FT11P
	Type	Through-beam type
Detection distance		0.6M
Light point diameter		3~8mm (the farther the larger)
Light source		Point light source red LED (650nm)
Response time		Max. 1ms
Indicator light		Output: red; stabilized operation; green; transmissive emitter power supply: green
Power supply voltage		10~30VDC with ripple current(P-P)10%
Current consumption		15mA
Control output		NPN output type: NPN open collector 30VDC or below, 50mA or below; Residual voltage: below 10mA, below 1.5V for 10~30mA, below 2.0V for 30~50mA

Dimension diagram (unit: mm)



EZ ULTRA-THIN PHOTOELECTRIC SENSOR



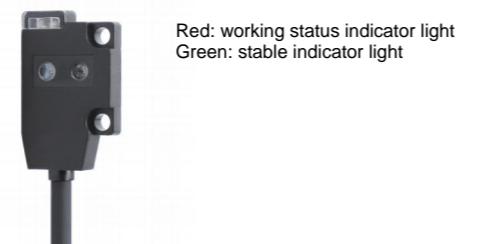
Ultra-thin photoelectric sensor

Ultra-thin and ultra-small specifications

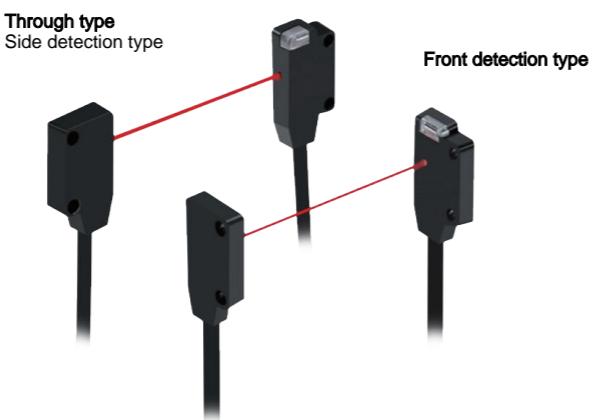
Ultra-thin and ultra-small size can be installed anywhere with just a little space

Flexible installation

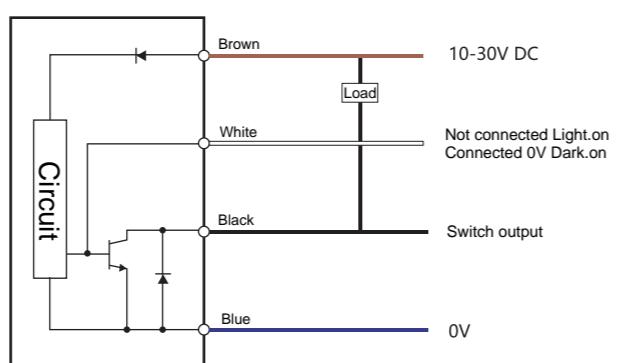
Diffuse reflection type sensors are front detection type and can be used as if they were glued to the wall.
Through-beam is equipped with two types of front detection and side detection, which can be installed flexibly



Clearly visible two-color indicator light



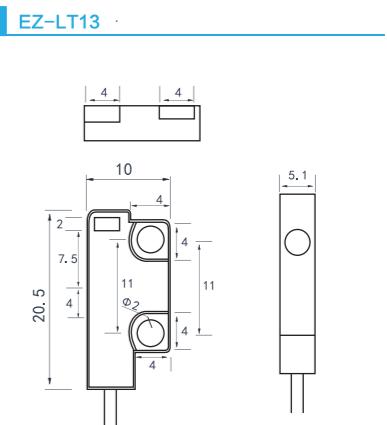
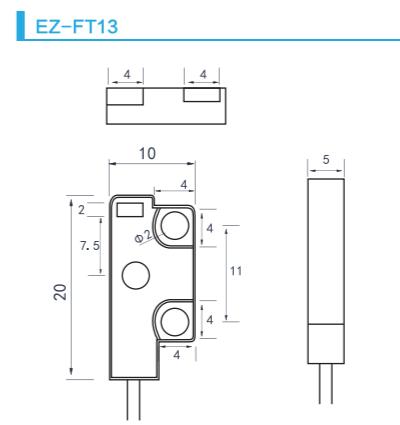
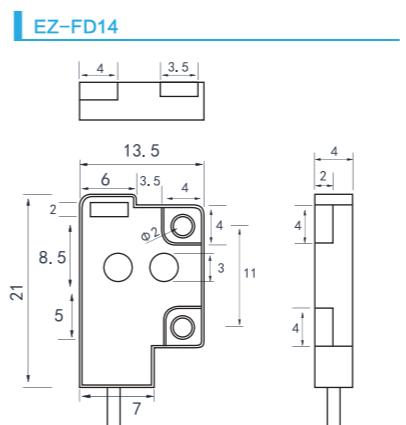
Compatible signal switching



Product parameters

Product schematic						
Type		Diffuse reflection type	Front through-beam		Side through-beam	
NPN output		EZ-FD14	EZ-FT13	EZ-FT19	EZ-LT13	EZ-LT19
PNP output		EZ-FD14P	EZ-FT13P	EZ-FT19P	EZ-LT13P	EZ-LT19P
Detection distance		25mm (BGS function)	500mm	1000mm	500mm	1000mm
Light source (wavelength)		650nm red LED				
Detecting objects		Opaque objects over 4mm in diameter				
harshness		20% or above of the detection distance				
Control output		Black is the signal output line, normally open and normally close can be switched by the white line.				
Answer frequency		1ms or below				
Power supply voltage		DC12-24 pulsation (p-p) 10% or below (DC10-30)				
Current consumption		25mA				
Control output	Switching capacity	3W				
	Residual voltage	1V or below (load current 100mA)				
Circuit protection		Surge protection, short circuit protection, reverse polarity protection				
Indicator light		Action indicator light (red)				
Ambient temperature		In action -25 ~+70 (no icing, non-frosting) In storage: -40 ~+85 (no icing, non-frosting)				
Ambient illumination effect		Daylight: 10000LX or below Incandescent light: 3000LX or below				
Service ambient humidity		In action - 45% to 85% (no icing) RH In storage: 35% to 85% (no icing) RH				
Voltage effect		When the rated power supply voltage fluctuates within $\pm 15\%$, the detection distance changes within $\pm 1\%$				
Insulation impedance		50M or above between the charging part and housing				
Dielectric strength		AC1000V or above at 50/60Hz for 1min between the charging part and housing				
Vibration (durable)		10-55Hz,1.5mm double amplitude, reaches 2h in each direction of X, Y, Z				
Impact (durable)		500m/s ² double amplitude, 10 times in each direction of X, Y, Z				
Protection structure		IP65				
Connection method		Wire lead type (standard 2m)				
Housing material		PC				

Dimension diagram (unit: mm)



EZ SMALL PHOTOELECTRIC SENSOR



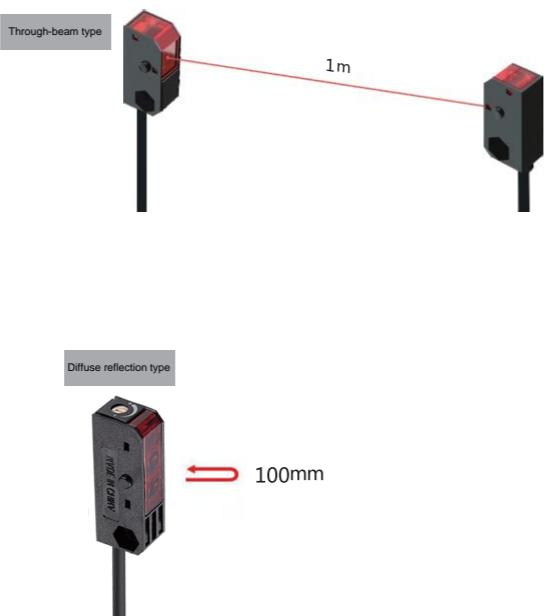
Small photoelectric sensor

Ultra-small type specification

The sensor is only the size of a fingertip, ultra-small and ultra-thin, suitable for installation in a variety of narrow spaces.

Long distance detection

Despite its small size, the EZ series is capable of detecting long distances and can therefore also be useful in wide conveyor devices.



Category

Detection method	Shape	Type	Detection distance	Model	
				NPN output	PNP output
Through-beam		Infrared light (940nm)	1m	EZ-T21	EZ-T21P
Diffuse reflective		Infrared light (940nm)	100mm	EZ-D21	EZ-D21P

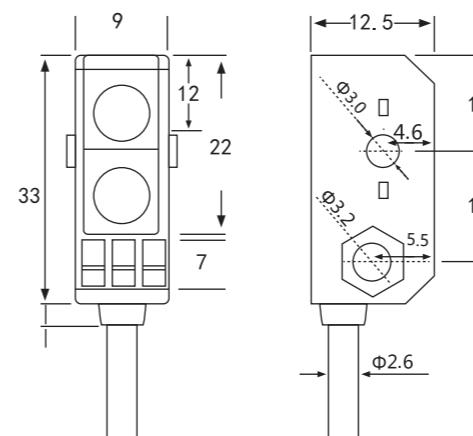
Small photoelectric sensor

Product parameters

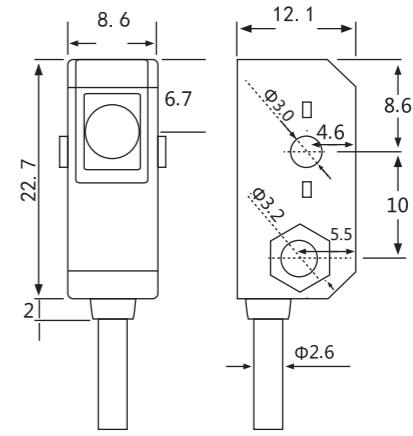
Model	NPN output	Detection method	Through-beam type	Diffuse reflection type
		Wire lead	EZ-T21	EZ-D21
Detection distance			1m	100mm
Detecting objects			Opaque objects over 4mm in diameter	
harshness			20% or above of the detection distance	
Control output			Simultaneous matching of two independent outputs NPN/PNP transistor collector outputs	
Answer frequency			1ms or below	
Power supply voltage			DC12-24 pulsation (p-p) 10% or below (DC10-30)	
Current consumption			25mA	
Control output	Switching capacity			3W
	Residual voltage			1V or below (load current 100mA)
Circuit protection			Surge protection, short circuit protection, reverse polarity protection nm	
Light source			infrared modulated light	
Indicator light			Action indicator light (red)	
Ambient temperature			In action -25 ~+70 (no icing, non-frosting) In storage: -40 ~+85 (no icing, non-frosting)	
Ambient illumination effect			Daylight: 10000LX or below Incandescent light: 3000LX or below	
Service ambient humidity			In action - 45% to 85% (no icing) RH In storage: 35% to 85% (no icing) RH	
Voltage effect			When the rated power supply voltage fluctuates within $\pm 15\%$, the detection distance changes within $\pm 1\%$	
Insulation impedance			50M or above between the charging part and housing	
Dielectric strength			AC1000V or above at 50/60Hz for 1min between the charging part and housing	
Vibration (durable)			10-55Hz, 1.5mm double amplitude, reaches 2h in each direction of X, Y, Z	
Impact (durable)			500m/s ² double amplitude, 10 times in each direction of X, Y, Z	
Protection structure			IP65	
Connection method			Wire lead type (standard 2m)	
Housing material			PC	

Dimension diagram (unit: mm)

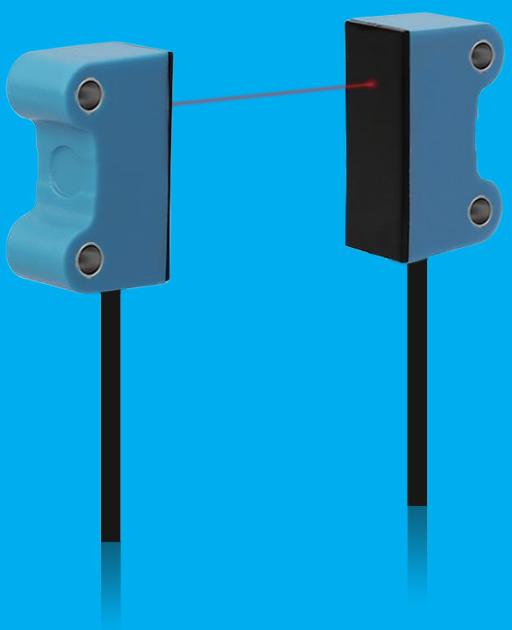
EZ-D21



EZ-T21



EZ MICRO PHOTOELECTRIC SENSOR



Micro photoelectric sensor

Characteristics

Ultra-small body

International common 15mm hole spacing

Complete category

Through-beam reflective, full range of detection methods

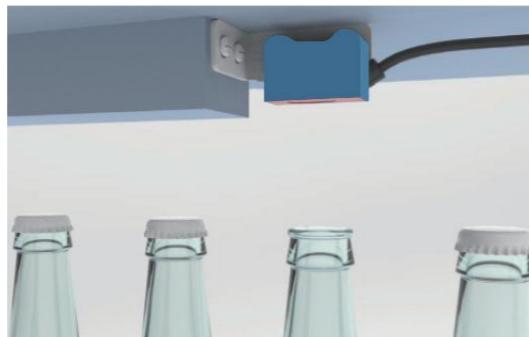
Optical lens

Built-in optical lens for detecting 0.5mm fine objects



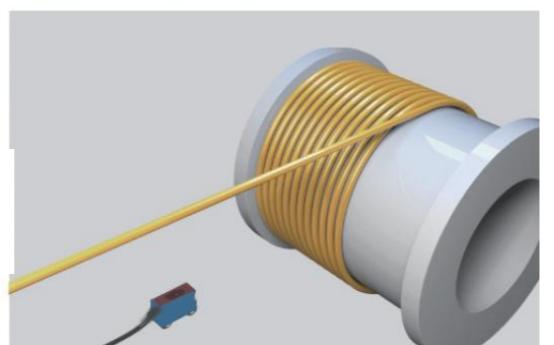
Application scenario

Scenario application



Bottle cap detection

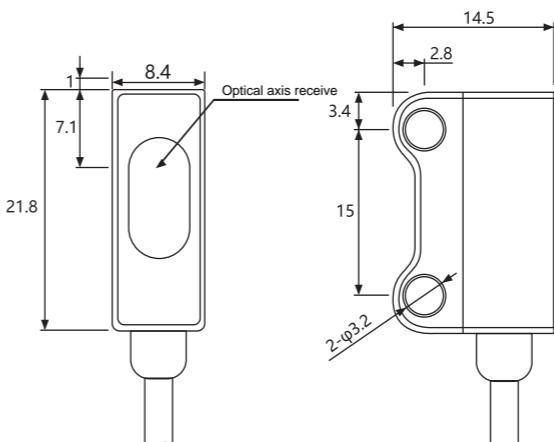
Copper wire detection



Product parameters

Model	Through-beam type	Diffuse reflection type
NPN.NO lead wire type	EZ-T31	EZ-D31
PNP.NO lead wire type	EZ-T31P	EZ-D31P
Detection distance	1500mm	100mm
Detecting objects	Opaque objects over 4mm in diameter	
Harshness	20% or above of the detection distance	
Control output	Normally open and normally close switchable	
Answer frequency	1ms or below	
Power supply voltage	DC12-24 pulsation (p-p) 10% or below (DC10-30)	
Current consumption	25mA	
Control output	Switching capacity	3W
	Residual voltage	1V or below (load current 100mA)
Circuit protection	Surge protection, short circuit protection, reverse polarity protection nm	
Light source	960nm Infrared light	
Indicator light	Action indicator light (red)	
Ambient temperature	In action -25 ~+70 (no icing, non-frosting) In storage: -40 ~+85 (no icing, non-frosting)	
Ambient illumination effect	Daylight: 10000LX or below Incandescent light: 3000LX or below	
Service ambient humidity	In action - 45% to 85% (no icing) RH In storage: 35% to 85% (no icing) RH	
Voltage effect	When the rated power supply voltage fluctuates within $\pm 15\%$, the detection distance changes within $\pm 1\%$	
Insulation impedance	50M or above between the charging part and housing	
Dielectric strength	AC1000V or above at 50/60Hz for 1min between the charging part and housing	
Vibration (durable)	10-55Hz, 1.5mm double amplitude, reaches 2h in each direction of X, Y, Z	
Impact (durable)	500m/s ² double amplitude, 10 times in each direction of X, Y, Z	
Protection structure	IP65	
Connection method	Wire lead type (standard 2m)	
Housing material	PC	

Dimension diagram (unit: mm)



- Slotted sensor
- Optical fiber sensor
- Displacement sensor
- Safety sensor
- Photoelectric sensor
- Proximity sensor
- Specialized sensor

EZ MICRO PHOTOELECTRIC SENSOR



Micro photoelectric sensor

Characteristics

Ultra-small body

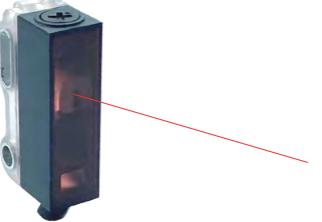
Metal mounting holes, hole spacing 13~18mm flexible installation

Complete category

Diffuse reflection of red light with BGS function, full range of detection methods

Optical lens

Built-in optical lens for detecting 0.5mm fine objects



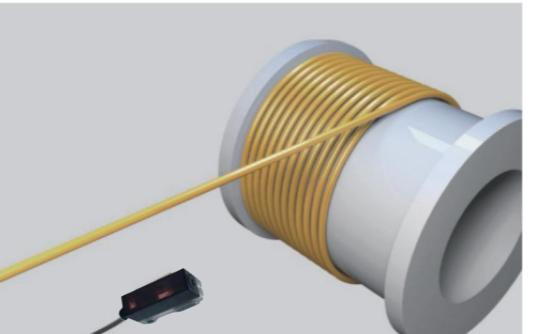
Application scenario

Scenario application



Bottle cap detection

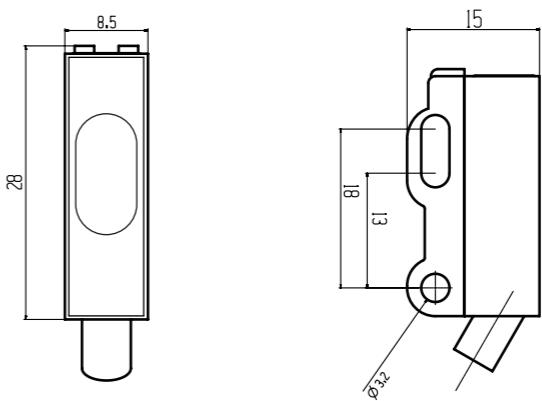
Copper wire detection



Product parameters

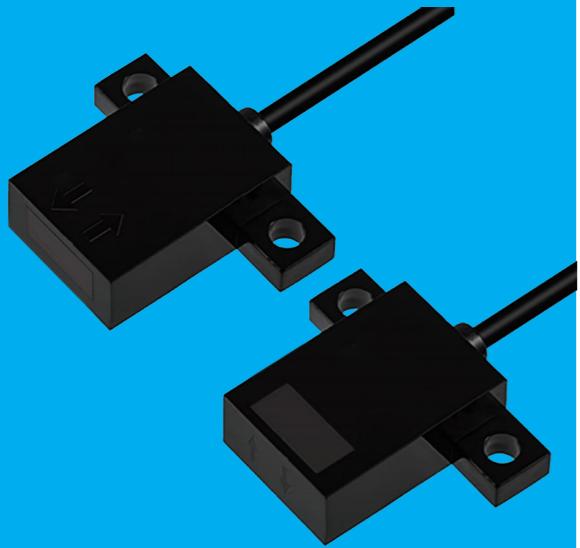
Model	Through-beam type	Diffuse reflection type	Laser reflection type
NPN	EZ-T41	EZ-D41	EZ-LD41
PNP	EZ-T41P	EZ-D41P	EZ-LD41P
Detection distance	5000mm	100mm	
Light spot size	6mm	2-5mm	2mm Non-diffusion
Detecting objects		Opaque objects over 1mm in diameter	
harshness		20% or above of the detection distance	
Control output		Normally open and normally close individual models	
Answer frequency		1ms or below	
Power supply voltage		DC12-24 pulsation (p-p) 10% or below (DC10-30)	
Current consumption		25mA	
Control output	Switching capacity	3W	
	Residual voltage	1V or below (load current 100mA)	
Circuit protection		Surge protection, short circuit protection, reverse polarity protection nm	
Light source		640nm red light	660nm red laser
Indicator light		Motion indicator	
Ambient temperature		In action -25 ~+70 (no icing, non-frosting) In storage: -40 ~+85 (no icing, non-frosting)	
Ambient illumination effect		Daylight: 10000LX or below Incandescent light: 3000LX or below	
Service ambient humidity		In action - 45% to 85% (no icing) RH In storage: 35% to 85% (no icing) RH	
Voltage effect		When the rated power supply voltage fluctuates within $\pm 15\%$, the detection distance changes within $\pm 1\%$	
Insulation impedance		50M or above between the charging part and housing	
Dielectric strength		AC1000V or above at 50/60Hz for 1min between the charging part and housing	
Vibration (durable)		10-55Hz, 1.5mm double amplitude, reaches 2h in each direction of X, Y, Z	
Impact (durable)		500m/s ² double amplitude, 10 times in each direction of X, Y, Z	
Protection structure		IP65	
Connection method		Wire lead type (standard 2m)	
Housing material		PC	

Dimension diagram (unit: mm)



- Slotted sensor
- Optical fiber sensor
- Displacement sensor
- Safety sensor
- Photoelectric sensor
- Proximity sensor
- Specialized sensor

EZ FLAT PHOTOELECTRIC SENSOR



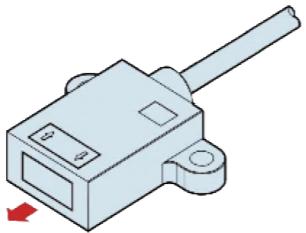
Flat photoelectric sensor

Ultra-small and space-saving

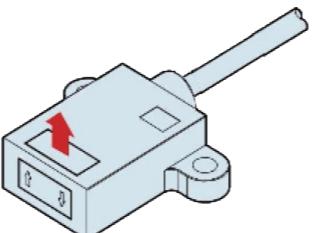
Ultra-small size, suitable for installation in various narrow spaces.

Equipped with two detection methods

There are 2 types of detection methods available, from which you can select the model that meets your installation conditions.



Front detection

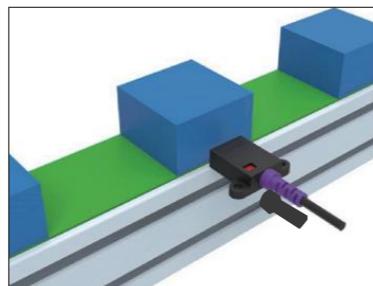


Top detection

Application scenario



Detecting capacitance in trays



Positioning and pass detection of workpieces



Confirmation of cardboard positioning and passing detection

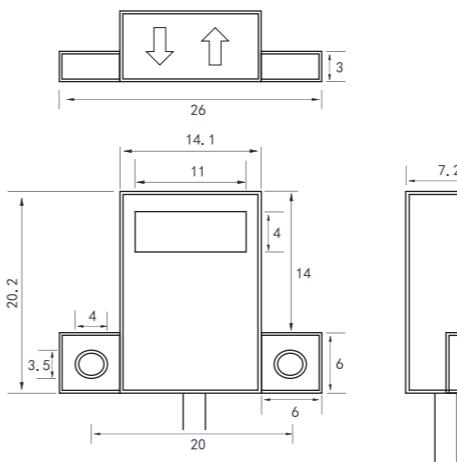
Flat photoelectric sensor

Product parameters

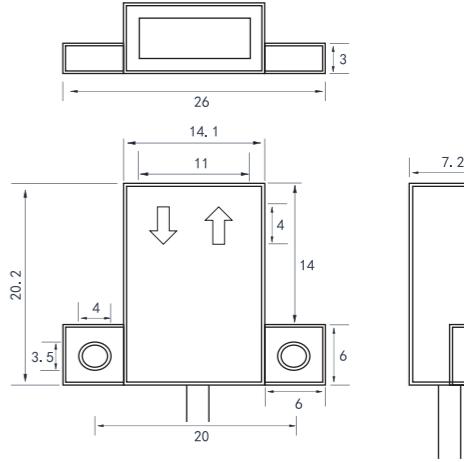
Product schematic		EZ-WD05	EZ-QD05
Model	NPN output	Up detection	Front detection
Detection distance			Black larger than 5mm White larger than 10mm
Detection method			Diffuse reflection type
Detection light source			940nm Infrared light
Detecting objects			Opaque objects over 4mm in diameter
Harshness			20% or above of the detection distance
Control output			Light-input ON
Answer frequency			1ms or below
Power supply voltage			DC12-24 pulsation (p-p) 10% or below (DC10-30)
Current consumption			25mA
Circuit protection			Surge protection, short circuit protection, reverse polarity protection
Indicator light			Action indicator light (red)
Ambient temperature			In action -25 ~+70 (no icing, non-frosting) In storage: -40 ~+85 (no icing, non-frosting)
Ambient illumination effect			Daylight: 10000LX or below Incandescent light: 3000LX or below
Protection structure			IP65
Link method			Wire lead type (standard 2m)
Housing material			PC

Dimension diagram (unit: mm)

EZ-WD05



EZ-QD05



EZ FLAT PHOTOELECTRIC SENSOR



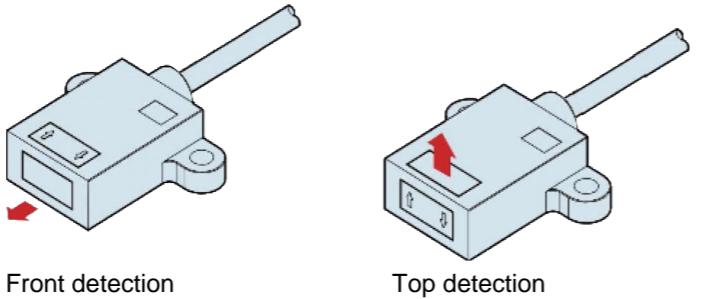
Flat photoelectric sensor

Ultra-small and space-saving

Ultra-small size, suitable for installation in various narrow spaces.

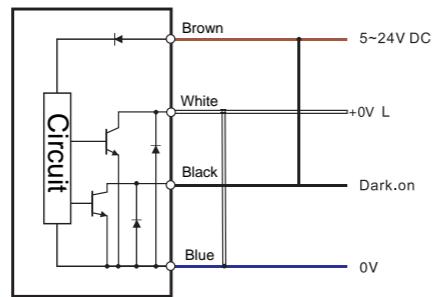
Equipped with two detection methods

There are 2 types of detection methods available, from which you can select the model that meets your installation conditions.



Wiring method

DC line 4-wire NPN output



Connection cable

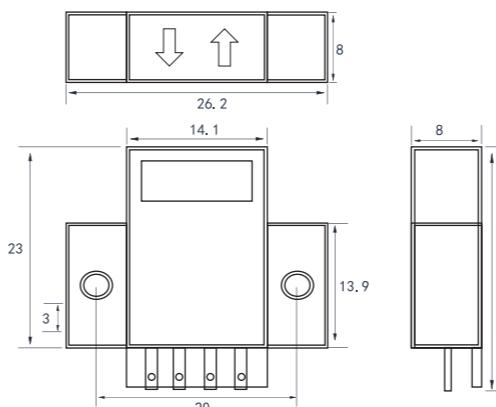


Product parameters

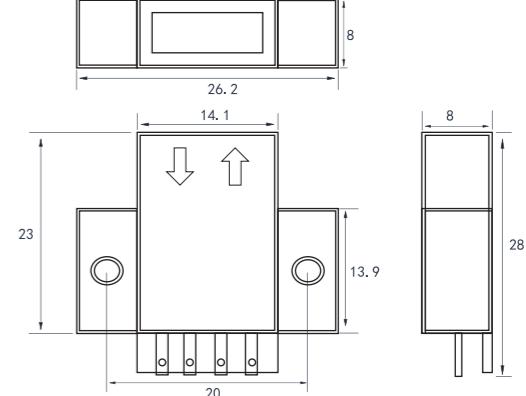
Product schematic		EZ-WD15	EZ-QD15
Model	NPN Output	Up detection	Front detection
Detection distance			Black larger than 5mm White larger than 10mm
Detection method			Diffuse reflection type
Detection light source			940nm Infrared light
Detecting objects			Opaque objects over 4mm in diameter
Harshness			20% or above of the detection distance
Control output			Light-input ON
Answer frequency			1ms or below
Power supply voltage			DC12-24 pulsation (p-p) 10% or below (DC10-30)
Current consumption			25mA
Circuit protection			Surge protection, short circuit protection, reverse polarity protection
Indicator light			Action indicator light (red)
Ambient temperature			In action -25 ~+70 (no icing, non-frosting) In storage: -40 ~+85 (no icing, non-frosting)
Ambient illumination effect			Daylight: 10000LX or below Incandescent light: 3000LX or below
Protection structure			IP65
Link method			Wire lead type (standard 2m)
Housing material			PC

Dimension diagram (unit: mm)

EZ-WD15



EZ-QD15



E3F CYLINDRICAL PHOTOELECTRIC SENSOR



Cylindrical photoelectric sensor

Cost effective

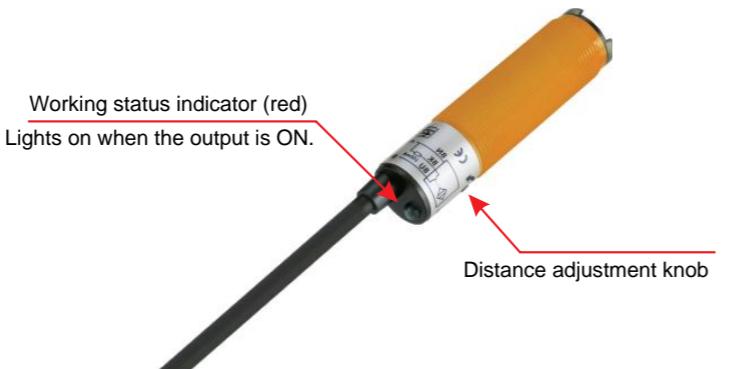
Complete variety of specifications, cost-effective

Rugged body

Default plastic housing, optional metal housing-J

Adjustable detection distance and clearly visible working status indicator light.

Adjustable detection distance, easy installation, space saving, suitable for small installation space.



Selection rule

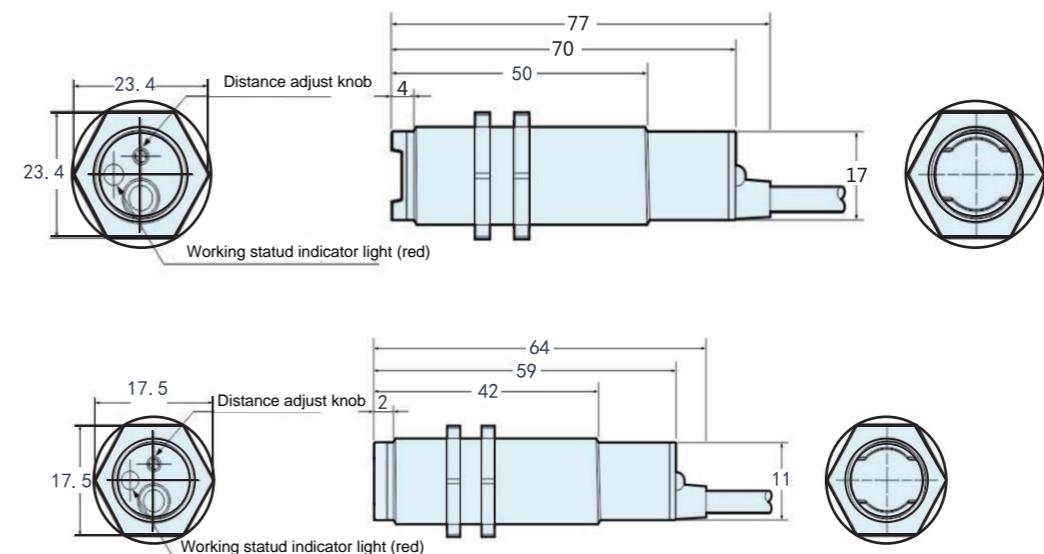
Detection method	Shape (mm)	Light source	Detection distance	NPN type	Dimension
Background suppression		Red light	100mm	E3F-DM18BG	M18
Diffuse reflective		Infrared light	100mm	E3F-DM12	M12
			400mm	E3F-DM18	M18
Through-beam		Laser	5m	E3F-TM12	M12
			10m	E3F-TM18	M18
Through-beam		Laser	20m	E3F-LTM12	M12
			40m	E3F-LTM18	M18

Product parameters

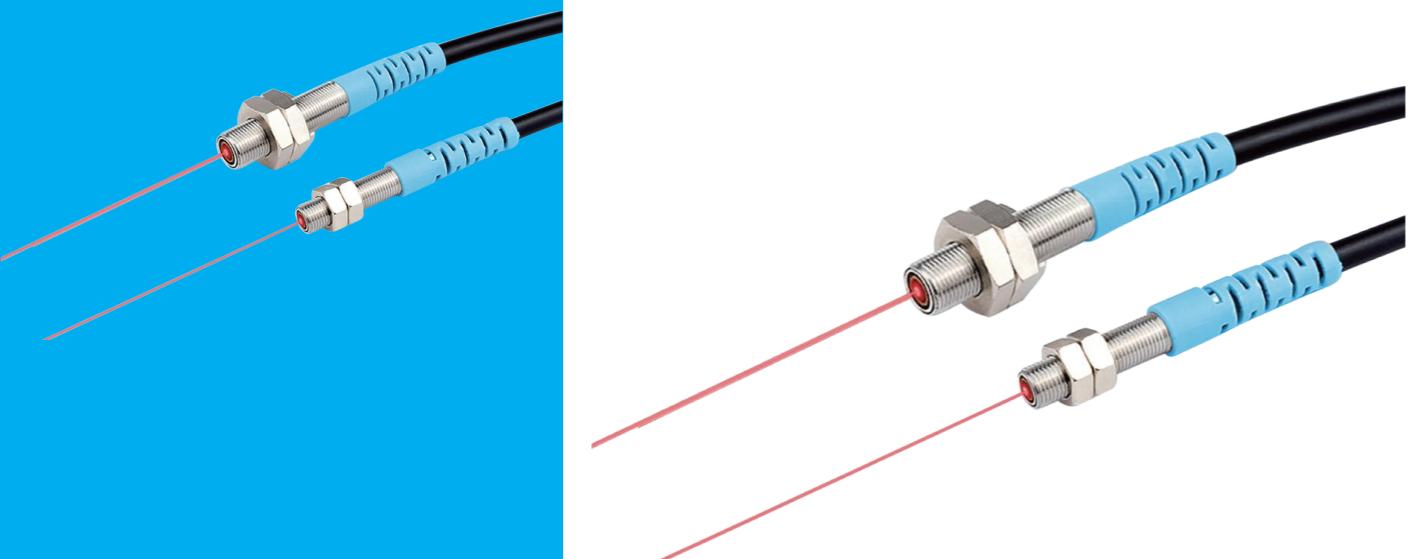
Model	NPN output	Detection method	Diffuse reflection type		Through-beam type			
		Wire lead	E3F-DM12	E3F-DM18	E3F-TM12	E3F-TM18	E3F-LTM12	E3F-LTM18
Detection distance			100mm	400mm	5m	10m	20m	40m
Detecting objects			100X100mm white drawing paper		Opaque objects over 12mm in diameter			
harshness			Less than 20% of detection distance					
Light source (wavelength)			GaAs infrared light emitting diodes (850nm)		660nm red laser			
Power supply voltage			DC12-24V pulsation (p-p) 10% or below (DC10-30)					
Current consumption			25mA		45mA			
Control output			Load power supply current 100mA or below (residual voltage 1V or below)					
Response time			Action/reply under 1.0ms each					
Circuit protection			Surge protection, short circuit protection, reverse polarity protection					
Indicator light			Action indicator light (red)					
Ambient temperature			In action: -25 ~+55 In storage: -30 ~+70 (no icing)					
Ambient illumination effect			Daylight: 10000Lx or below Incandescent light: 3000Lx or below					
Service ambient humidity			In action - 45% to 95% (no icing) RH In storage: 35% to 85% (no icing) RH					
Voltage effect			When the rated power supply voltage fluctuates within ±15%, the detection distance changes within ±1%					
Insulation resistance			50M or above (DC500 megohmmeter) between the charging part and housing					
Dielectric strength			AC1000V or above at 50/60Hz for 1min between the charging part and housing					
Vibration (durable)			10~55Hz, 1.5mm double amplitude, reaches 1h in each direction of X, Y, Z					
Impact (durable)			500m/s² double amplitude, 3 times in each direction of X, Y, Z					
Protection structure			IP67					
Connection method			Wire lead type (standard 2m)					
Housing material			Housing: Metal light projecting section/Light receiving section: PC					

- Slotted sensor
- Optical fiber sensor
- Displacement sensor
- Safety sensor
- Photoelectric sensor**
- Proximity sensor
- Specialized sensor

Dimension diagram (unit: mm)



E3F LASER OPTICAL FIBER PHOTOELECTRIC SENSOR



Laser optical fiber photoelectric sensor

Characteristics

Rugged body

Laser diffuse optoelectronic sensor in small volume

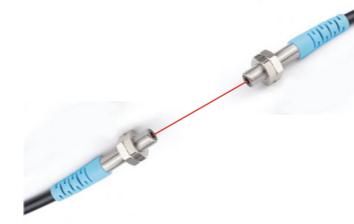
Visible laser

(660nm) Visible red light is intuitive, compact and stable

Multiple models



M5 diffuse



M5 through-beam



Right-angle M5 Diffuse Z



Right-angle M5 Through-beam Z

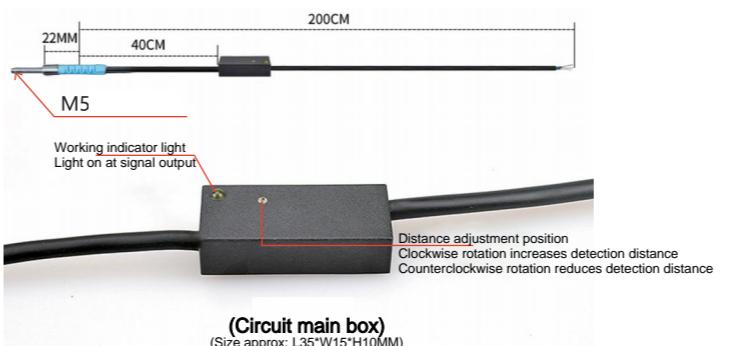
Laser optical fiber photoelectric sensor

Product parameters

Appearance				
NPN Model PNP Model	E3F-LDM5 E3F-LDM5P	E3F-LDM5Z E3F-LDM5ZP	E3F-LTM5 E3F-LTM5P	E3F-LTM5Z E3F-LTM5ZP
Detection distance	0-100mm			0-3000mm
Output method	NPN/PNP Normally Open/Normally close Standard 2.			
Light spot size	0MM or so			
Operating voltage	10-30VDC			
No load current	<10mA			
Max. load	150mA			
Leakage current	<0.01mA			
Voltage drop	<1.5V			
Switching frequency	100 Hz			
Response time	5ms			
Switch hysteresis	<15%(Sr)			
Repeated accuracy	<5-10%(Sr)			
Protection level	P65			
Working environment	0 - 50			
Temperature drift	<10%(Sr)			
Short circuit protection	YES			
Overload protection	100mA			
Standard wire length	2m			

Dimension diagram (unit: mm)

E3F Series



E3F PHOTOELECTRIC LIQUID LEVEL SENSOR



Photoelectric liquid level sensor

Characteristics



- Liquid level sensor with output action switching function and sensitivity switching function for easier use
- More intelligent sensors with one-key setting
- Suitable for transparent and semi-transparent tubes of 6~13mm and 1mm thickness
- Use of environmentally friendly wires (no powder strippers)

Shape	Detection method	Output form	Action mode	Wire length	Model
	Through-beam	NPN	ON when light-darkening ON when light-input	2m	E3F-SPX613
		PNP			E3F-SPX613P

Product parameters

Item model	E3F-SPX613	E3F-SPX613P
Applicable tube	Transparent tube with outer diameter 6~13mm (thickness 1mm) (FEP (Fluorocarbon Polymer) or material with equivalent transparency)	
Standardized detecting object	Fluid in tube (If the liquid is highly viscous or mixed with suspended matter, it may not be detected)	
Light source (Max. luminous wavelength)	GaAs infrared light emitting diodes (940nm)	
Motion indicator	Light on GaP when light-input (red LED: Max. wavelength 700nm)	
Power supply voltage	DC12~24V±10% Ripple(p-p)5% or below	
Current consumption	Average value 30mA or below, Max. value 80mA or below	
Control output	Load power supply voltage DC5~24V, load current below 100mA NPN open collector output type	
Service ambient luminance	Incandescent light, sunlight: below 3,000lx each	
Ambient temperature range	Operating: -10~+55 In storage: -25~+65 (no icing or frosting)	
Ambient humidity range	In operating: 5~85% RH storage: 5~95% RH (no condensation)	
Vibration (durable)	10~500Hz single amplitude 1.0mm or acceleration 150m/s ² 3 sweeps frequency in each direction of X, Y, Z (11min/sweep frequency)	
Impact (durable)	500m/s 3 times in each direction of X, Y, Z	
Protection structure	IEC specification IP50	
Connection method	Wire lead type (standard wire length 1m)	
Quality (after packaging)	Approx. 55g	
Material	Housing	ABS+PC
	Cover cap	

Photoelectric sensor

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