NAiS

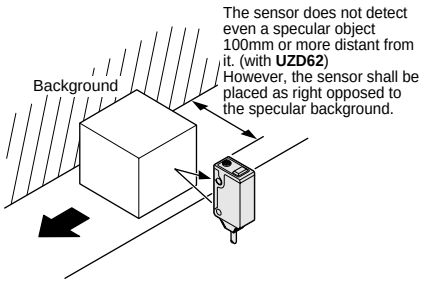
FIXED-FOCUS REFLECTIVE TYPE PHOTOELECTRIC SENSORS

UZD6 Series

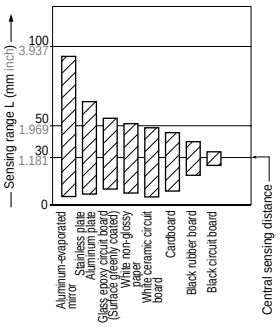
PRECISE OBJECT DETECTION IN LIMITED AREA

Stable Sensing by Fixed-focus

The **UZD6** is less affected by color or uneveness on the surface of a sensing object, or a background away from it at a certain distance.

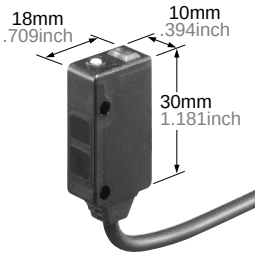


[UZD62 : Correlation between material and sensing range]



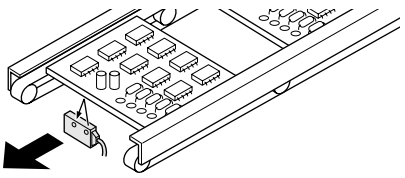
Compact Size (W10×H30×D18mm) (W.394×H1.181×D.709inch)

No matter to install in a limited space.

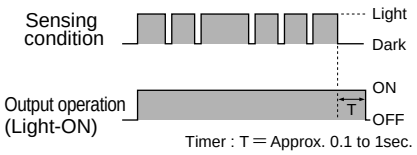


Variable OFF-delay Timer (UZD621 only)

The spot-beam type **UZD621** is incorporated with the OFF-delay timer.
The variable OFF-delay timer is useful for detecting a circuit board regardless of small holes, cutouts or electric parts on it.



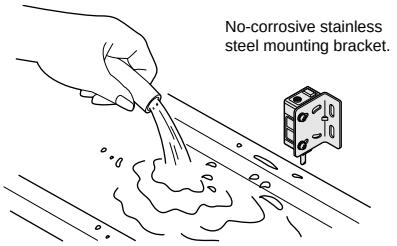
Time chart



Timer : T = Approx. 0.1 to 1sec.

Waterproof

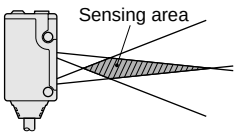
No problem even if water splashes on the sensor.



Note : Do not expose it to water splash during operation. If it may so, it detects water drop on it.

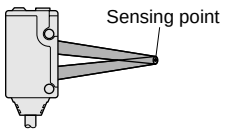
Various Applications

Fixed-focus type



In the limited sensing area, the sensor can detect uneven or perforated objects.

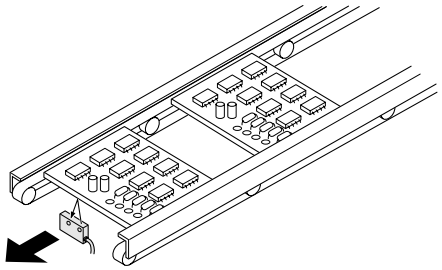
Fixed-focus spot-beam type



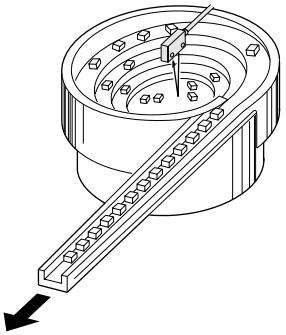
Visible red spot beam allows easy targetting.
It is suitable for positioning because of the repeatability of 0.05mm .002inch.

APPLICATIONS

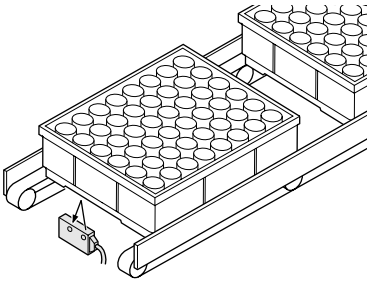
Positioning circuit boards



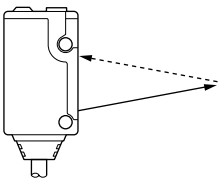
Sensing parts in feeder



Positioning trays



ORDER GUIDE

Type	Appearance	Sensing range (*1)	Model No.	Sensitivity adjuster	Timer function	Emitting element
Fixed-focus type / Long sensing range		5 to 38mm .197 to 1.496inch (Center : 20mm .787inch)	**UZD60**	———		Infrared LED
		10 to 70mm .394 to 2.756inch (Center : 40mm 1.575inch)	**UZD61**	Equipment	———	
Fixed-focus spot-beam type / With timer		20 to 35mm .787 to 1.378inch (Center : 30mm 1.181inch)	**UZD62**			Red LED
			UZD621	———	Equipment	

NOTE : No mounting bracket is supplied with sensor. Please select optional mounting brackets from our options. (two types)

(*1) : The sensor does not detect even a specular background if it is separated over the distance specified below.

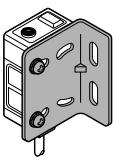
UZD60...150mm 5.906inch or more (Typical : The sensor shall be placed as right opposed to a specular background surface.)
UZD61...300mm 11.811inch or more (Typical : The sensor shall be placed as right opposed to a specular background surface.)
UZD62, UZD621...100mm 3.937inch or more (Typical : The sensor shall be placed as right opposed to a specular background surface.)

OPTION

Designation	Model No.	Description
Sensor mounting bracket	**UZD861**	Back angled mounting bracket
	UZD862	Back biangled mounting bracket

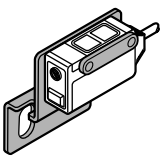
Sensor mounting bracket

• UZD861



Two M3×16mm .630inch screws with washers are attached.

• UZD862



Two M3×16mm .630inch screws with washers are attached.

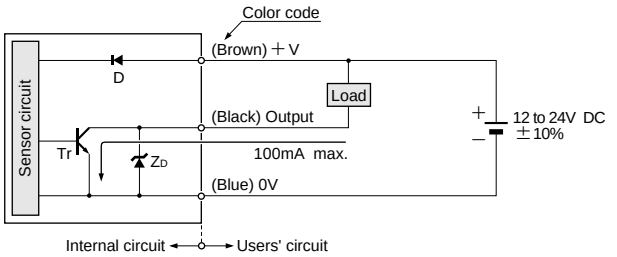
SPECIFICATIONS

Item \ Type		Fixed-focus type		Fixed-focus spot-beam type	
			Long sensing range		With timer
Item	Model No.	**UZD60**	**UZD61**	**UZD62**	**UZD621**
Sensing range		5 to 38mm .197 to 1.496inch (Center : 20mm .787inch) with the white non-glossy paper (50 × 50mm 1.969 × 1.969inch)	10 to 70mm .394 to 2.756inch (Center : 40mm 1.575inch) with the white non-glossy paper (50 × 50mm 1.969 × 1.969inch)	20 to 35mm .787 to 1.378inch (Center : 30mm 1.181inch) with the white non-glossy paper (50 × 50mm 1.969 × 1.969inch)	
Min. sensing object		Copper wire of ϕ0.2mm ϕ.008inch (Setting distance : 20mm .787inch)	Copper wire of ϕ0.2mm ϕ.008inch (Setting distance : 40mm 1.575inch)	Gold wire of ϕ0.03mm ϕ.001inch (Setting distance : 30mm 1.181inch)	
Hysteresis		15% or less of operation distance		10% or less of operation distance	
Repeatability (Perpendicular to axial direction)		0.1mm .004inch or less (Setting distance : 20mm .787inch)	0.2mm .008inch or less (Setting distance : 40mm 1.575inch)	0.05mm .002inch or less (Setting distance : 30mm 1.181inch)	
Supply voltage		12 to 24V DC ± 10% Ripple P-P 10% or less			
Current consumption		35mA or less			
Output		NPN open-collector transistor • Maximum sink current : 100mA • Applied voltage : 30V DC or less • Residual voltage : 1.5V or less (at 100mA sink current) 0.4V or less (at 16mA sink current)			
	Utilization category	DC-12 or DC-13			
	Output operation	Light-ON			
	Short-circuit protection	Incorporated			
Response time		0.5ms or less			
Operation indicator		Red LED (lights up when the output is activated)			
Stability indicator		Green LED (lights up under the stable Light condition or the stable Dark condition)			
Sensitivity adjuster		———	Variable adjuster		———
Timer function		———			Variable OFF-delay timer (approx. 0.1 to 1sec.) (*1)
Environmental resistance	Pollution degree	3 (Industrial environment)			
	Protection	IP67 (IEC)			
	Ambient temperature	–25 to +55°C –13 to +131°F (No dew condensation nor icing allowed), Storage : –30 to +70°C –22 to +158°F			
	Ambient humidity	35 to 85%RH, Storage : 35 to 85%RH			
	Ambient illuminance (Extraneous light immunity)	Sun light : 10,000 ℓx at the light-receiving face, Incandescent light : 3,000 ℓx at the light-receiving face			
	EMC	Emission : EN50081-2, Immunity : EN50082-2			
	Voltage withstandability	1,000V AC for one min. between all terminals connected and enclosure			
	Insulation resistivity	20MΩ or more at 250V DC Megger between all terminals connected and enclosure			
	Vibration-proof	10 to 500Hz frequency, 3mm amplitude {20G max.}, and X, Y, and Z directions each for two hours (unenergized)			
	Shock-proof	500m/s² acceleration {approx. 50G}, and X, Y, and Z directions each for three times (unenergized)			
Emitting element		Infrared LED (modulated)		Red LED (modulated)	
Material		Polyarilate			
Cable		Cabtyre cable 2m 6.562ft long with three 0.2mm² conductors			
Cable extension		Maximum extension is 100m 328.084ft overall with an equivalent cable with conductors 0.3mm² or more			
Weight		Approx. 45g 1.59oz			
Accessory		———	Adjusting screw-driver : 1pc.		

(*1) : The timer is always in effect.

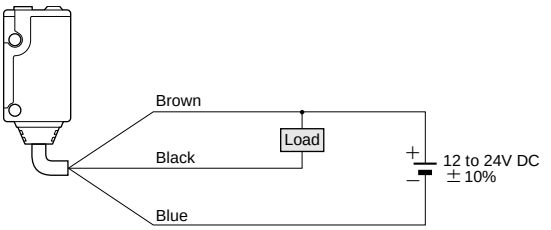
I/O CIRCUIT AND WIRING DIAGRAMS

I/O circuit diagram



Symbol . . . D : Reverse polarity protection diode
Z_D : Surge absorption zener diode
Tr : NPN output transistor

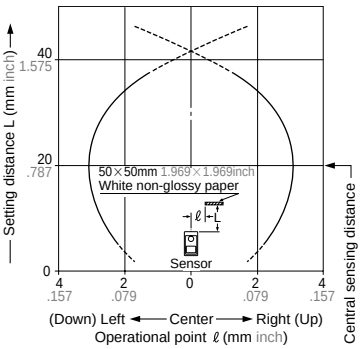
Wiring diagram



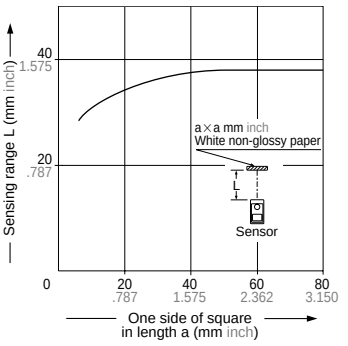
SENSING FIELDS (TYPICAL)

UZD60

Sensing field

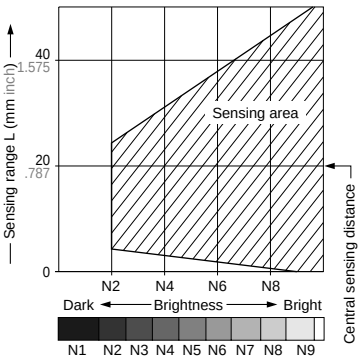


Correlation between object size and sensing range



As an object size becomes smaller than the standard (white non-glossy paper 50×50mm 1.969×1.969inch), the sensing range shortens.

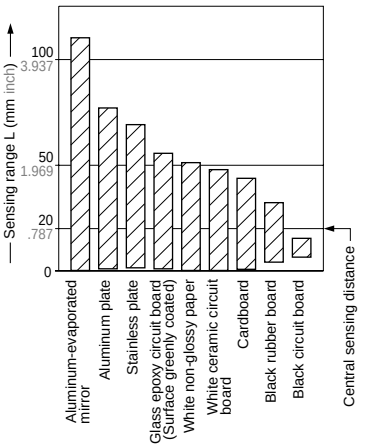
Brightness – Sensing range correlation



The shaded area shown in the figure at left indicates the sensing range. Be sure to set up the sensor with enough margin – the sensing range may vary from unit to unit.

(The brightness indicated in the left figure may vary slightly from the actual brightness.)

Material (50×50mm 1.969×1.969inch) – Sensing range correlation

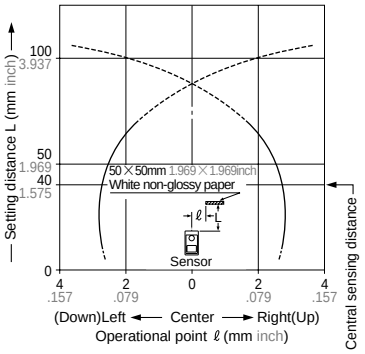


The bar graph on the left indicates the sensing range. Be sure to set up the sensor with enough margin – the sensing range may vary from unit to unit.

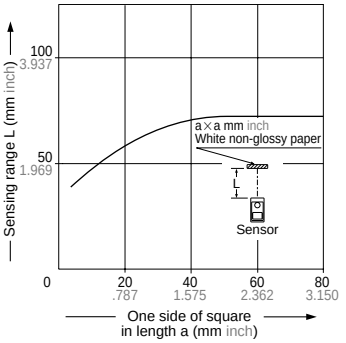
SENSING FIELDS (TYPICAL)

UZD61

Sensing field



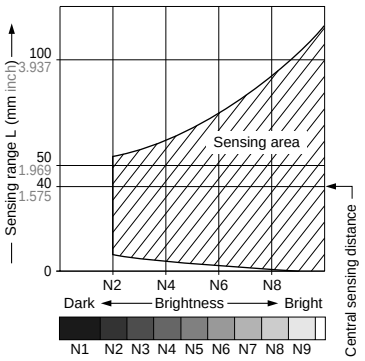
Correlation between object size and sensing range



As an object size becomes smaller than the standard (white non-glossy paper 50×50mm 1.969×1.969inch), the sensing range shortens.

(The left graph is plotted on condition with the sensitivity having been adjusted at 70mm 2.756inch of the sensing distance exactly detectable with the white non-glossy paper of 50×50mm 1.969×1.969inch.)

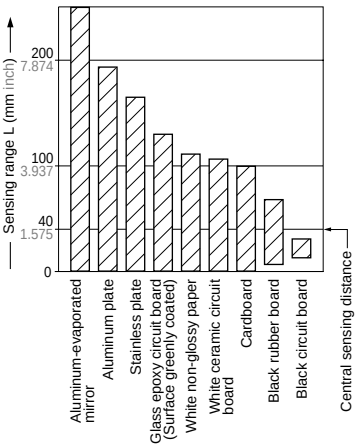
Brightness – Sensing range correlation



The shaded area shown in the figure at left indicates the sensing range. Be sure to set up the sensor with enough margin – the sensing range may vary from unit to unit.

(The brightness indicated in the left figure may vary slightly from the actual brightness.)

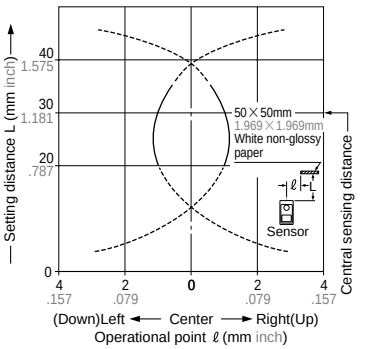
Material (50×50mm 1.969×1.969inch) – Sensing range correlation



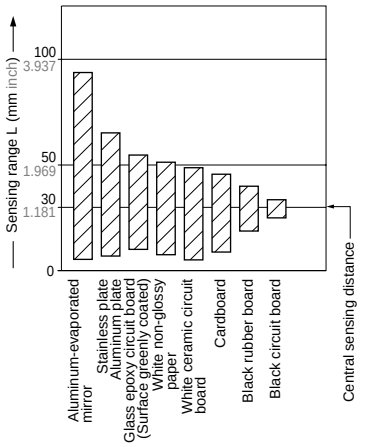
The bar graph on the left indicates the sensing range. Be sure to set up the sensor with enough margin – the sensing range may vary from unit to unit.

UZD62 UZD621

Sensing field

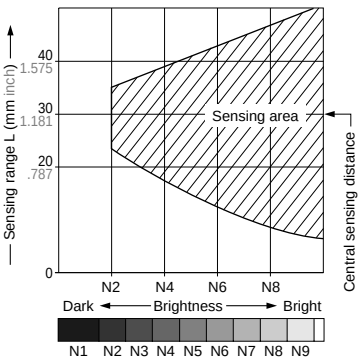


Material (50×50mm 1.969×1.969inch) – Sensing range correlation



The bar graph on the left indicates the sensing range. Be sure to set up the sensor with enough margin – the sensing range may vary from unit to unit.

Brightness – Sensing range correlation



The shaded area shown in the figure at left indicates the sensing range. Be sure to set up the sensor with enough margin – the sensing range may vary from unit to unit.

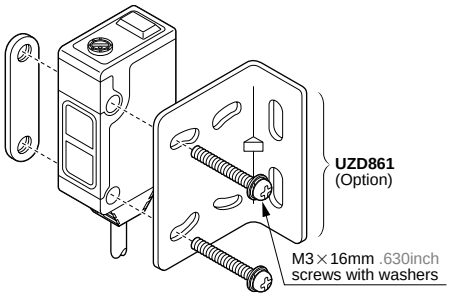
(The brightness indicated in the left figure may vary slightly from the actual brightness.)

PRECAUTIONS FOR PROPER USE

These products are **not** safety sensors and are **not** designed or intended to be used to protect life and prevent bodily injury or property damage.

Mounting

- With the optional mounting bracket, the tightening torque should be 0.5 N·m {5.1 kgf·cm} or less.



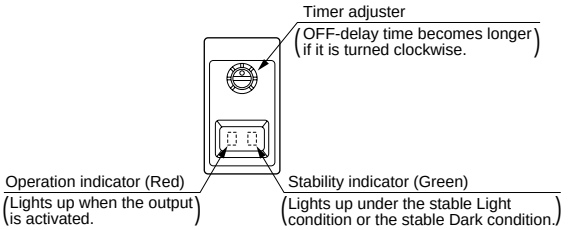
Others

- The transient time duration is 50ms after power-up.

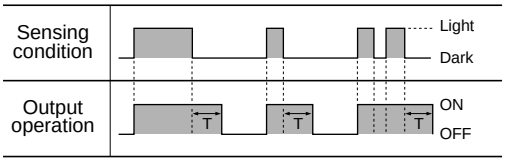
Timer function (Only for UZD621)

- The variable OFF-delay timer prolongs the output for a certain period (approx. 0.1 to 1sec.).
  It is useful for detecting tiny objects or for using with a PLC scaning delayingly.
  (The timer is always in effect.)

Adjusters



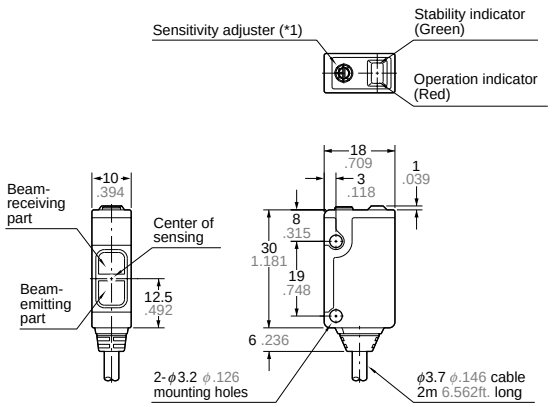
Time chart



Timer : T = Approx. 0.1 to 1sec.

DIMENSIONS (Unit: mm inch)

UZD60 UZD61 UZD62 UZD621 Sensor



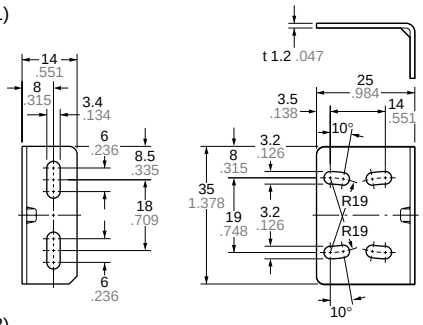
(*1) : The **UZD60** is not incorporated with it.
It is substituted with the timer adjuster on the **UZD621**.

DIMENSIONS (Unit: mm inch)

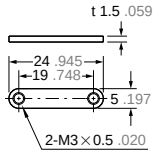
UZD861

Sensor mounting bracket (Option)

(1)

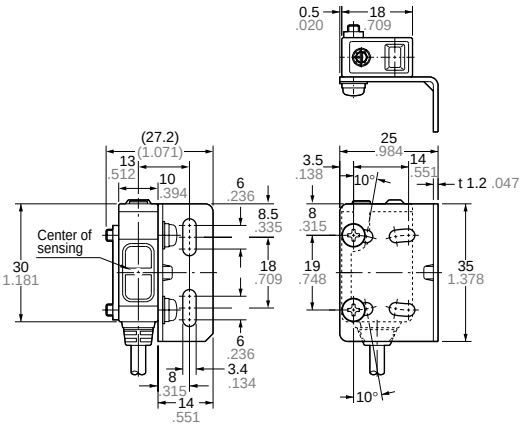


(2)



Material : SUS304
Two M3×16mm .630inch screws with washers are attached.

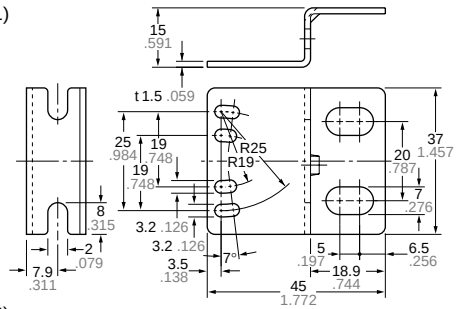
Assembled dimensions



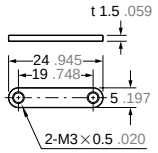
UZD862

Sensor mounting bracket (Option)

(1)



(2)



Material : SUS304
Two M3×16mm .630inch screws with washers are attached.

Assembled dimensions