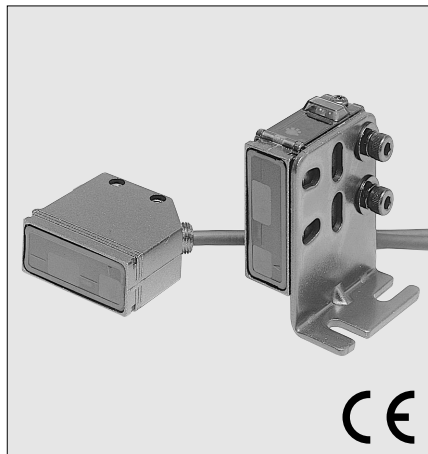


NAIS

**DIE-CAST HOUSING
TRIGONOMETRIC
AREA REFLECTIVE
PHOTOELECTRIC SENSORS**

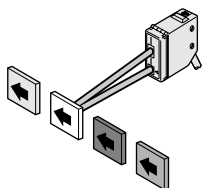
UZD22 UZD225

HIGH IMMUNITY TO TARGET COLOR CHANGES WITH DIE-CAST BODY



Not Affected by Color

The effect of the color and size of the sensing object on the sensing range is minimal.

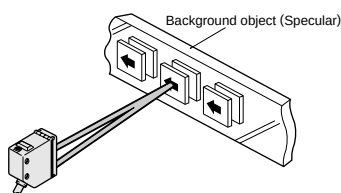


Water Proof IP67 (IEC standard)

The sensor can be temporarily submerged.

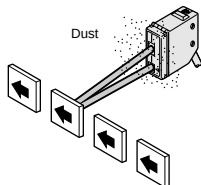
Not Affected Background Object

The sensor does not detect background objects. It employs a triangulation system.



Strong against Dust

Sensing performance is hardly affected by dust as the sensing does not rely on the receiving light intensity.



Robust

An enclosure is robust as it is a zinc alloy die casting.

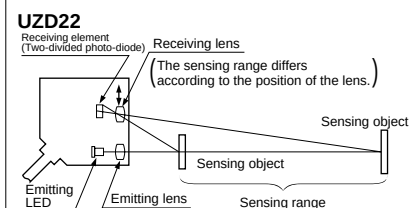
High Speed Response : 1ms

High speed targets are reliably detected.

★ Principle of Triangulation

Triangulation Reflective Sensors

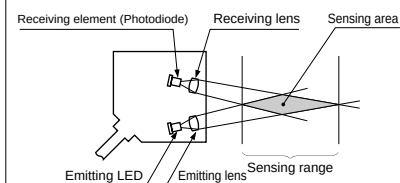
The sensing range of a triangulation photosensor is decided by light-receiving angle and not by light-receiving intensity.



Other Less Effective Methods

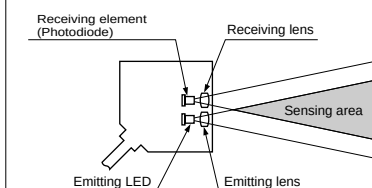
Fixed-Focus Reflective Sensing

The sensor only detects the object in the overlapping area of the emitting and receiving light. Sensing performance is somewhat affected by reflective level.



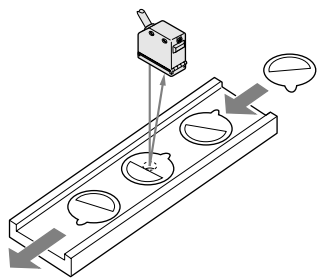
Diffuse Reflective Sensing

The sensing range is varied by the reflective level and the size of the target.

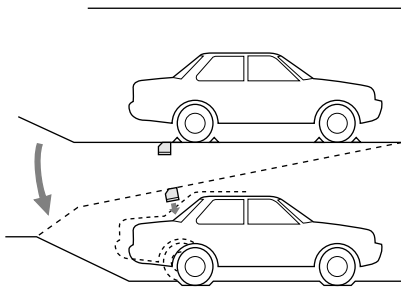


APPLICATIONS

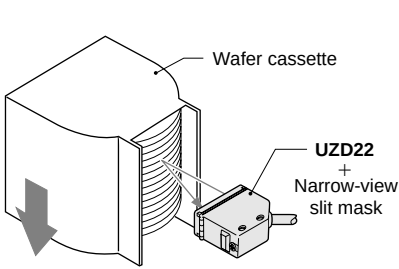
Presence sensing of instant noodle covers



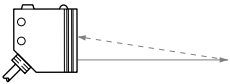
Safety confirmation in parking garages



Wafer counting in cassettes



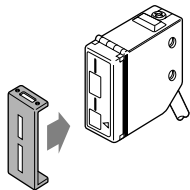
ORDER GUIDE

	Appearance	Sensing range	Model No.	Output
NPN output type		 50 to 200mm 1.969 to 7.874 inch	UZD22	NPN open-collector transistor
PNP output type			UZD225	PNP open-collector transistor

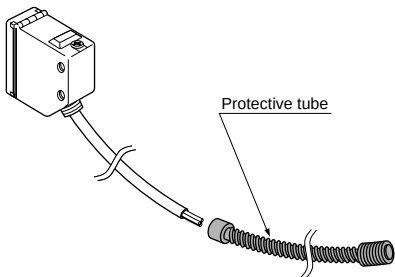
OPTION

Component	Model No.	Description		
Narrow-view slit mask	UZD821	Slit size	2.5×24mm .098×.945inch	Narrows the field of view.
	UZD822		3.0×24mm .118×.945inch	
	UZD823		3.5×24mm .138×.945inch	
Protective tube	UZD824	Length	500mm 19.685inch	Protects the cable from external force, with no-rust stainless steel.
	UZD825		1000mm 39.37inch	

Narrow-view slit mask



Protective tube



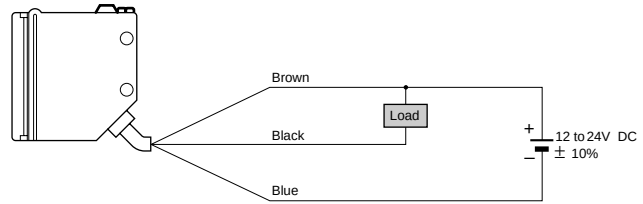
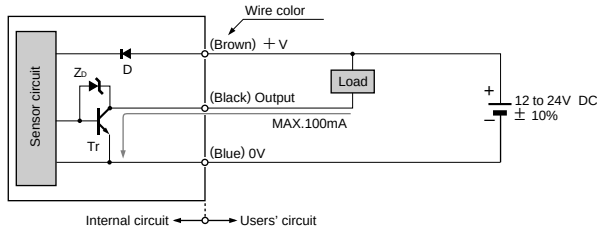
SPECIFICATIONS

Data	Type	Optical triangulation	
	Model No.	NPN output	PNP output
		UZD22	UZD225
Sensing range		50 to 200mm 1.969 to 7.874inch with a non-glossy white paper (50×50mm 1.969×1.969inch)	
Hysteresis		10% or less of the set range	
Repeatability		Axis direction : 1mm .039inch or less, Vertical direction for a light axis : 0.5mm .02inch	
Supply voltage		12 to 24V DC ± 10% Ripple P-P : 10% or less	
Consumption		40mA or less	
Output		NPN open-collector transistor Sink current : Max. 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)	PNP open-collector transistor Source current : Max. 100mA Residual voltage : 1V or less (at 100mA source current) 0.4V or less (at 16mA source current)
	Output operation	Switch selectable of Light-ON/Dark-ON	
	Short-circuit protection	Provided	_____
Response time		1ms or less	
Operation indicator		Red LED (turns on when the output is in the ON state)	
Stable operation indicator		Green LED (turns on when the stable light-receiving or stable light-interrupted conditions)	
Sensing range adjuster		Equipped with two-turn mechanical adjuster	
Environmental resistance	Protection	IP67 (IEC)	
	Ambient temperature	− 25 to + 60°C − 13 to + 140°F (with no dew nor ice condensation), Storage : − 30 to + 70°C − 22 to + 158°F	
	Ambient humidity	35 to 85%RH, Storage : 35 to 85%RH	
	Ambient light	Sun light : 11,000 lx at the light-receiving face, Incandescent : 3,500 lx at the light-receiving face	
	Noise	Power line : 240Vp with 10ms cycle and 0.5μs pulse duration, Radiation: 300Vp with 10ms cycle and 0.5μs pulse duration (by a noise simulator)	
	Withstand voltage	1,000V AC applied between the live parts and enclosure for 1 min.	
	Insulation	Min. 20MΩ applied between the live parts and enclosure at 250V DC	
	Vibration	1.5mm .059inch amplitude at the frequency of 10 to 500Hz {Max.10G} in each of X, Y and Z directions for 2 hours each in the power OFF state	
	Shock	500m/s ² {approx.50G} impulse in each of X, Y and Z directions, 3 times in the power OFF state	
Emitting element		Infrared LED (modulated)	
Material		Enclosure : Zinc alloy die casting, Indicator cover : Polyether sulphone, Lens : Polycarbonate	
Cable		0.15mm ² × 3 cores with 3m 9.84ft of oil, heat and cold resistant cabtyre cable	
Cable extension		Extensible up to 100m 328.08ft by using 0.3mm ² or more cable	
Weight		Approx. 85g 3.00oz	
Accessories		UZD831 (mounting bracket) : 1 set. (2 pieces of M4×16mm .630inch hexagon socket bolts are supplied), Screwdriver for sensing range adjustment : 1 pc.	

TYPICAL WIRING DIAGRAMS

UZD22

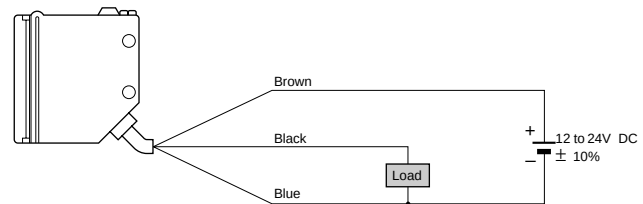
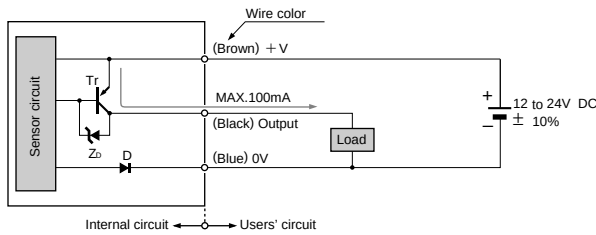
NPN output type



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

UZD225

PNP output type



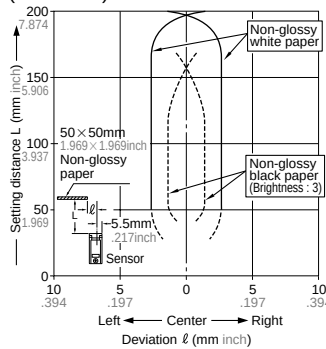
Symbol...D : Reverse polarity protection diode
ZD : Surge absorption zener diode
Tr : PNP output transistor

SENSING FIELDS

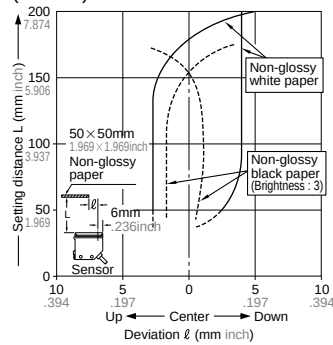
These are typical sensing fields, which may vary slightly from unit to unit.

Sensing field

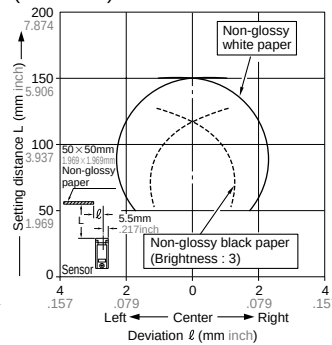
Range set at 200mm 7.874inch
(horizontal)



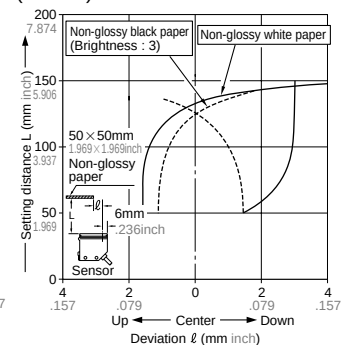
Range set at 200mm 7.874inch
(vertical)



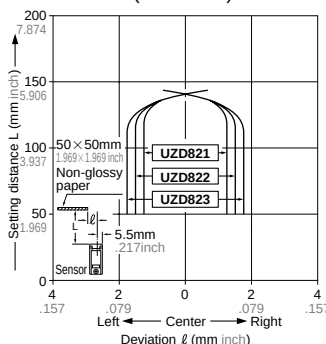
Range set at 150mm 5.906inch
(horizontal)



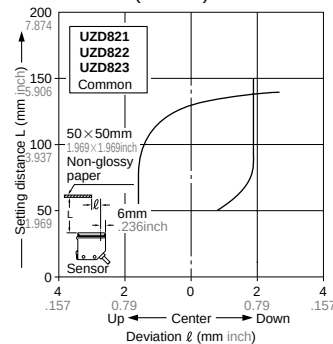
Range set at 150mm 5.906inch
(vertical)



Range set at 150mm 5.906 inch
with slit mask (horizontal)



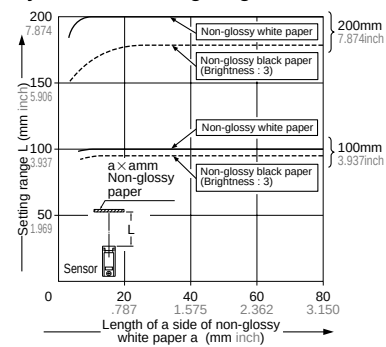
Range set at 150mm 5.906inch
with slit mask (vertical)



SENSING FIELDS

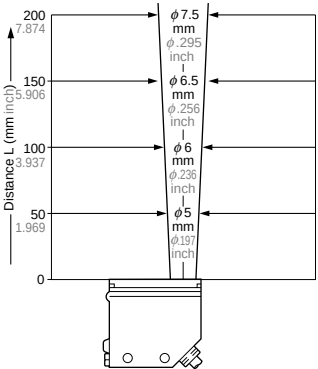
These are typical sensing fields, which may vary slightly from unit to unit.

Object size - Sensing range correlation

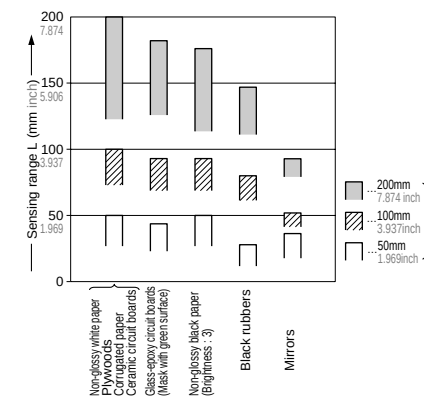


These curves show the values obtained when the sensor is adjusted to the indicated sensing range with non-glossy white paper (50×50mm 1.969 × 1.969inch).

Light-emitting characteristics



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



These graphs show the maximum values obtained when the sensor is adjusted to the indicated sensing range with non-glossy white paper.

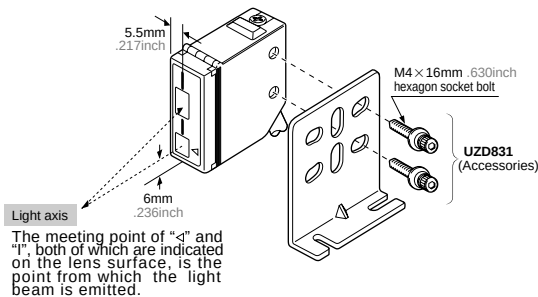
PRECAUTIONS FOR PROPER USE



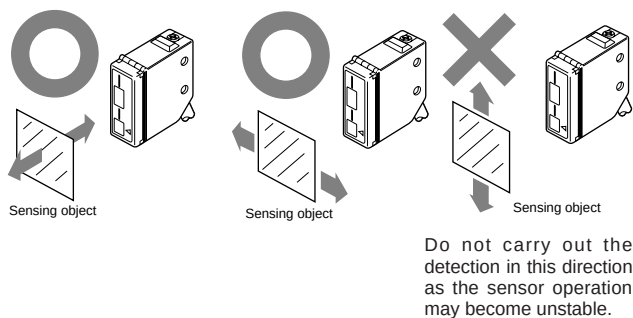
These products are **not** safety sensors and are **not** designed or intended to be used to protect life and prevent bodily injury or property damage.

Mounting

Tightening torque must not exceed 1.17N·m{12kgf·cm}.



Be careful of the direction of the target in front of the sensor.



A change in angle of a specular or glossy target, may cause the sensor to fail to "see" it. To avoid unstable operation, tilt the sensor toward the perpendicular to see a specular target. When there is a specular or glossy object in the background, the sensor may not work properly due to a slight angular change to the background. In this case, tilt the sensor away from perpendicular to the background and confirm the operation with the actual target. Short sensing distances (less than 50mm 1.969inch from the sensor) may cause unstable operation of the sensor, usage in this range is not recommended.

Wiring

Short-circuit protection is not provided for the output of **U2D225**. Do not connect it directly to the power supply or capacitive load.

Power supply should be turned off before wiring.

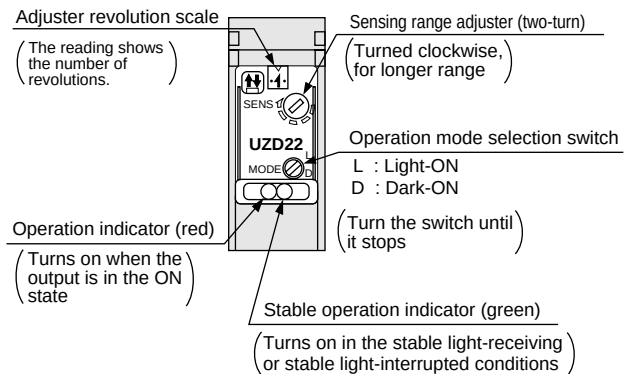
Verify that voltage fluctuations will not exceed the rated value. When using a switching regulator power supply (readily available in the market), always ground the frame ground (F.G.) terminal of the power supply.

When using equipment which generates noise (switching regulator or inverter motor, etc.) near the sensor, ground the frame ground (F.G.) terminal of the equipment.

Do not run sensor cables near high-voltage lines or power lines, nor put them together in the same raceway. Doing so may cause malfunctions due to inductive interference.

Adjustment of sensing distance

<Adjusting part>



<Setting procedure>

①	Turn the adjuster counterclockwise until it stops and set the min. sensing position (approx. 50mm 1.969inch). (Avoid over-running the stop.)	 Turn
②	Place the target in the sensing field and slowly turn the adjuster clockwise to find the point "A" where the sensor receives the light.	 A
③	Remove the object and turn the adjuster further clockwise to find the point "B" where the sensor turns on again. (When the point "B" is unobtainable by using the above method, the full clockwise point is regarded as the point "B".)	 B
④	Set the adjuster halfway between the point "A" and "B" for the optimum setting.	 Optimum point

Others

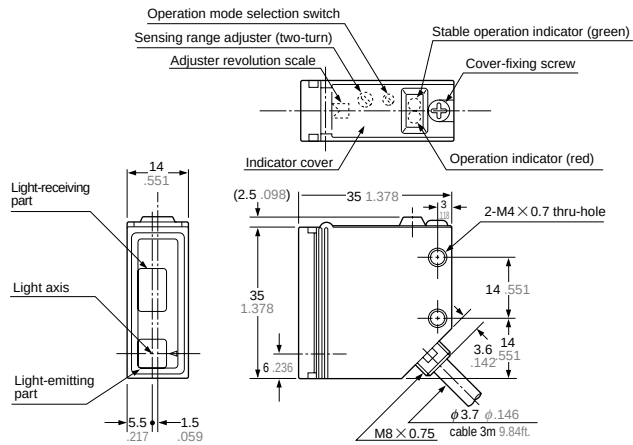
Do not use the sensor output signal for 50ms immediately after power is supplied to the sensor.

Do not use the sensor where it may be exposed to steam or dusts, or immersed in water.

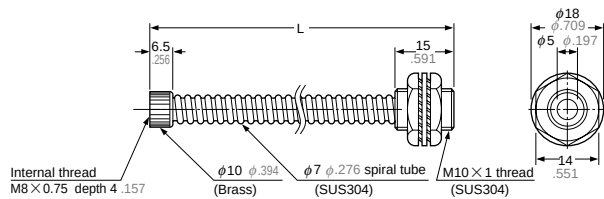
Avoid places where the sensor may be directly exposed to fluorescent lights with rapid-starters or high frequency lighting as this may affect the sensing performance.

UZD22
UZD225 Sensor

Sensor



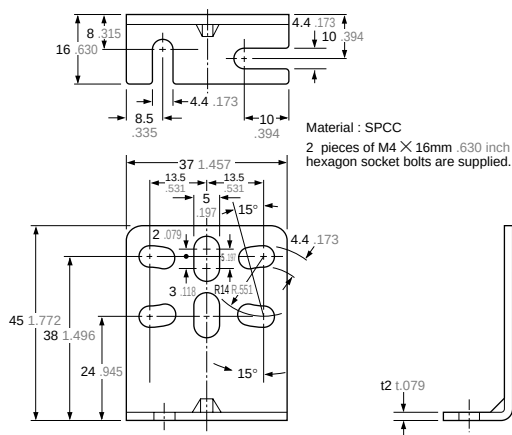
Protective tube (option)



Length : L

Model No.	L (mm inch)
UZD824	500 ⁺¹⁰ ₀ 19.685 ⁺³⁹⁴ ₀
UZD825	1,000 ⁺¹⁰ ₀ 39.370 ⁺³⁹⁴ ₀

Sensor mounting bracket (accessories for the sensor)



Mounting drawing

