

RS 259-1536 = UZB1011A

RS 259-1542 = UZB1012A

RS 259-1558 = UZB1021A

RS 259-1564 = UZB1022A

RS 259-1570 = UZB1601A

RS 259-1586 = UZB1602A

RS 259-1592 = UZB2011A

RS 259-1609 = UZB2012A

RS 259-1615 = UZB2022A

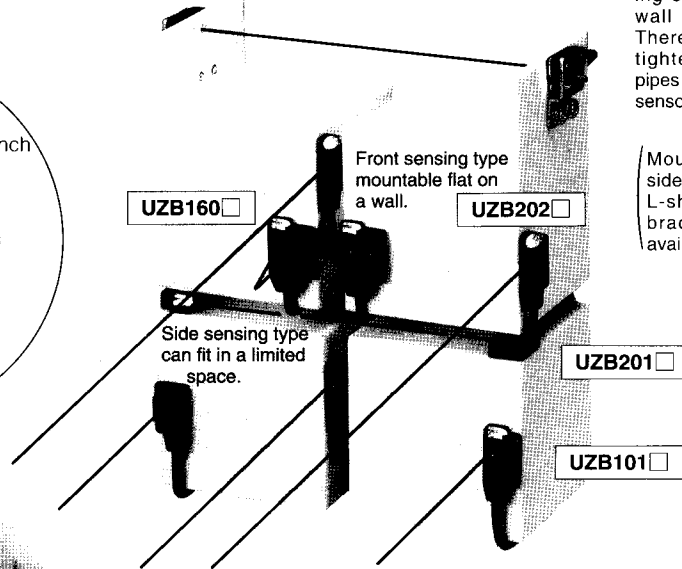
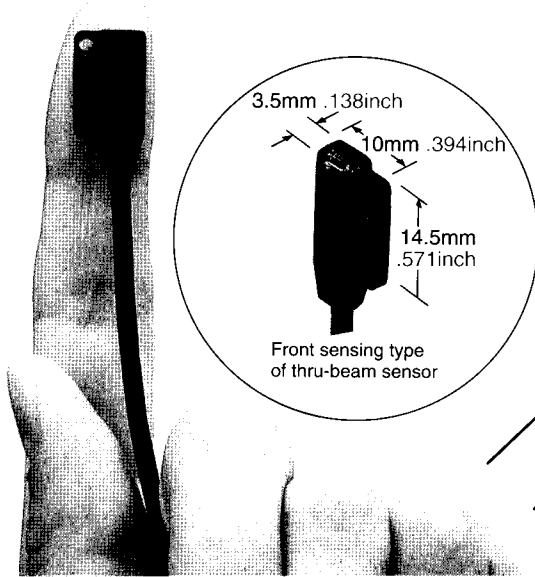
RS 259-1621 = UZB801

SMALLEST IN THE INDUSTRY

THICKNESS : 3.5mm .138inch

Mountable on a Limited Space in Fingertip Size & Easy Alignment by Visible Red LED Light Source

Actual size



Mounting bracket for front sensing type

It is convenient to mounting on the surface of a wall from a back side. Therefore, it can surely tighten because metal pipes are embedded in the sensor mounting holes.

(Mounting bracket for side sensing type and L-shaped mounting bracket are also available.)

High-Speed Response Time : 0.5ms

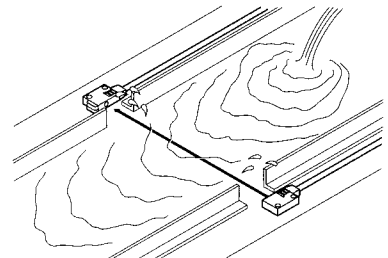
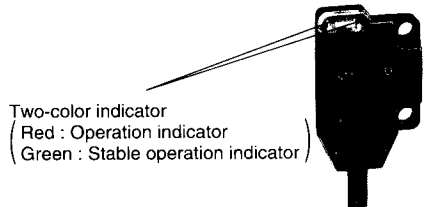
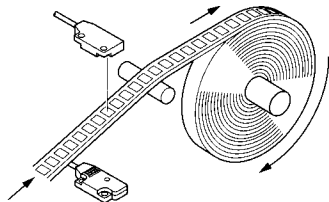
Visible Two-color Indicator

Waterproof : IP67

It is suitable for detecting small components or high-speed travelling objects.

Two-color indicator is equipped for this sensor.

It is no problem even if water splashes on the sensor.

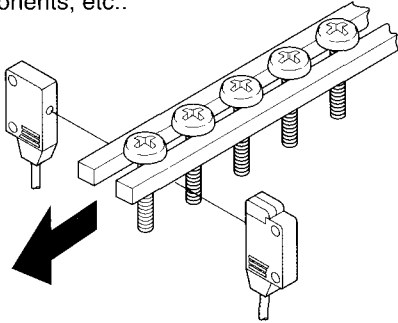


Various Applications

Min. sensing object : ϕ 1mm ϕ .039inch

Slit built-in type of thru-beam sensor
UZH101□, UZH201□

Min. sensing object is ϕ 1mm ϕ .039inch because ϕ 1mm ϕ .039inch -sized slit is built-in. It is suitable for detecting small components, etc..

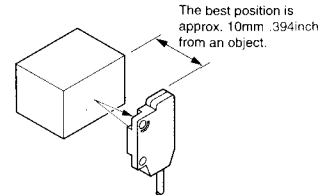
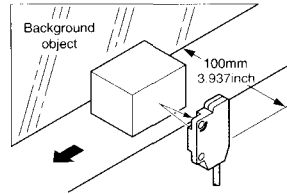


Not Detect Background Object

Fixed-focus reflective sensor
UZH160□

Not affected background object
The sensor does not detect even a specular background object if making a distance of 100mm 3.937inch or more from a sensing surface.

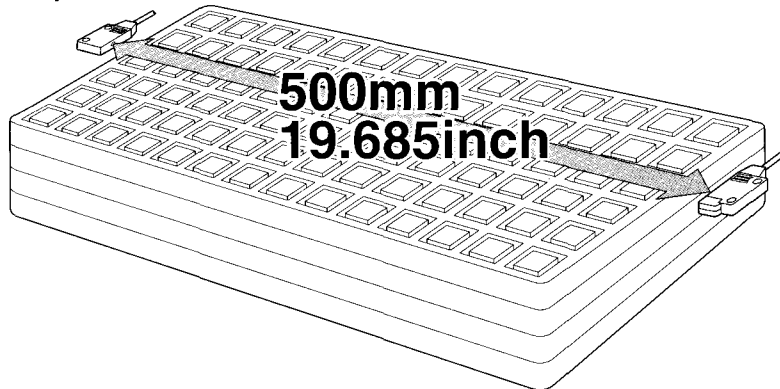
Stably detect dark objects
For the fixed-focus reflective sensor, dark objects can be detected stably.



Long Sensing Range : 500mm 19.685inch in the Smallest Size in the Industry

Long sensing range type of thru-beam sensor
UZH102□, UZH202□

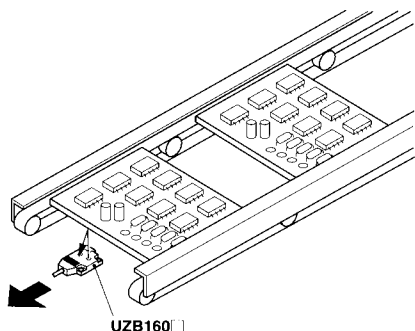
Sensing range is 500mm 19.685inch in this size.
It can easily detect wide IC trays.



APPLICATIONS

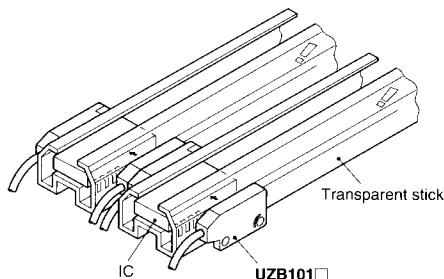
Positioning of circuit boards

UZH160 which is a fixed-focus reflective sensor can reliably detect even if the material of the circuit board is changed.



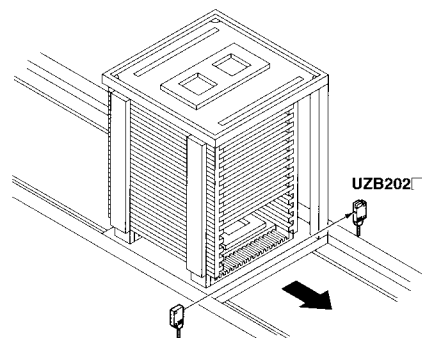
ICs sensing

It is mountable to a narrow space as thickness is 3.5mm .138inch



Sensing of circuit board racks

UZH102 and **UZH202** are realized for 500mm 19.685inch long sensing range in this size, and can easily detect wide circuit board racks.



ORDER GUIDE

		Appearance	Sensing range	Model No.	Output operation	Min. sensing object
Thru-beam	Front sensing		150mm 5.906inch	UZH1011	Light-ON	Opaque object of ϕ 1mm ϕ .039inch
			UZH1012	Dark-ON		
	Side sensing		500mm 19.685 inch	UZH1021	Light-ON	Opaque object of ϕ 2mm ϕ .079inch
			UZH1022	Dark-ON		
Fixed-focus reflective (diffused light type)	Front sensing		2 to 25 mm (*1) .079 to .984inch (Center : 10mm .394inch)	UZH1601	Light-ON	Copper wire of ϕ 0.1mm ϕ .004inch (Setting distance : 10mm .394inch)
			UZH1602	Dark-ON		

(*1) : The sensor does not detect even a specular background object if making a distance of 100mm 3.937inch or more from a sensing surface.

OPTION

UZH801 : Mounting bracket for front sensing type (2 sets are required for thru-beam sensor.)

UZH802 : Mounting bracket for side sensing type (2 sets are required.)

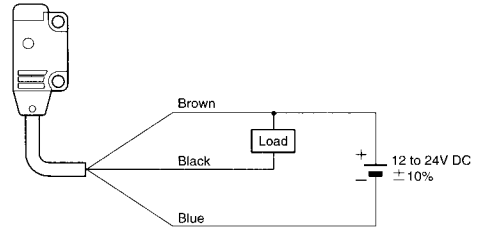
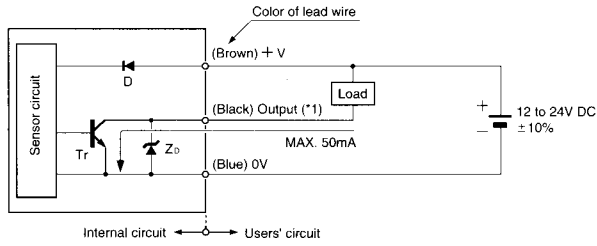
UZH803 : L-shaped mounting bracket (2 sets are required for thru-beam sensor.)

SPECIFICATIONS

Type		Thru-beam								Fixed-focus reflective (diffused light type)	
		Front sensing				Side sensing				Front sensing	
Data	Model No.	UZH1011	UZH1012	UZH1021	UZH1022	UZH2011	UZH2012	UZH2021	UZH2022	UZH1601	UZH1602
Sensing range		150mm 5.901inch		500mm 19.685inch		150mm 5.901inch		500mm 19.685inch		2 to 25mm 0.79 to 984inch (Center: 10mm 394inch) (*1)	
Min. sensing object		Opaque object of ϕ 1mm ϕ .039inch (Setting distance of the emitter & receiver : 150mm 5.901inch)		Opaque object of ϕ 2mm ϕ .078inch (Setting distance of the emitter & receiver : 500mm 19.685inch)		Opaque object of ϕ 2mm ϕ .039inch (Setting distance of the emitter & receiver : 150mm 5.901inch)		Opaque object of ϕ 1mm ϕ .078inch (Setting distance of the emitter & receiver : 500mm 19.685inch)		Copper wire of ϕ 0.1mm ϕ .004inch (Setting distance : 10mm .394inch)	
Hysteresis										Max. 15% of an operation range	
Repeatability (vertical direction for a sensing axis)		Max. 0.05mm .002inch								Max. 0.1mm .004inch	
Supply voltage		12 to 24V DC \pm 10% Ripple P-P : Max. 10%									
Consumption		Emitter : Max. 10mA, Receiver : Max. 15mA								Max. 20mA	
Output		NPN open-collector transistor Sink current : Max. 50mA Applied voltage : Max. 30V DC Residual voltage : Max. 1V (at 50mA sink current) Max. 0.4V (at 16mA sink current)									
Output operation		Light-ON	Dark-ON	Light-ON	Dark-ON	Light-ON	Dark-ON	Light-ON	Dark-ON	Light-ON	Dark-ON
Short-circuit protection		Equipped									
Response time		Max. 0.5ms									
Operation indicator		Red LED (lights when the output is in the ON state)									
Stable operation indicator		Green LED (lights under the stable light-receiving or stable light-interrupted conditions)									
Environmental resistance	Protection	IP67 (IEC)									
	Ambient temperature	- 25 to + 55°C - 13 to + 131 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 : 10,000lx at the light-receiving face, Incandescent : 3,000lx at the light-receiving face									
	Noise	Power line : 240Vp with 0.5 μ s pulse duration, Radiation : 300Vp with 0.5 μ s pulse duration (by a noise simulator)									
	Withstand voltage	1,000V AC applied between the live parts and enclosure for 1 min.									
	Insulation	Min. 20M Ω applied between the live parts and enclosure at 250V DC									
	Vibration	3mm .118inch amplitude at the frequency of 10 to 500Hz 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 for 3 times each in the power OFF state										
Emitting element		Red LED (modulated)									
Material		Enclosure : Polyethylene terephthalate, Lens : Polyacrylate									
Cable		0.1mm ² .004inch ² \times 3 cores with 2m 6.56ft of cable (2 cores for the emitter only)									
Cable extension		Extensible up to 50m 164.04ft by using a min. 0.3mm ² .012inch ² cable (Thru-beam sensor : each an emitter and a receiver)									
Weight		Emitter and receiver : each approx 20g .071oz								Approx. 20g .071oz	
Accessories		Mounting screw : 2 sets								Mounting screw : 1 set	

(*1) : The sensing range of the fixed-focus reflective sensor is the figure using an object of non-glossy white paper (50 \times 50mm 1.969 \times 1.969inch).

TYPICAL WIRING DIAGRAMS



(*1) : The output is not equipped for the emitter of the thru-beam sensor.

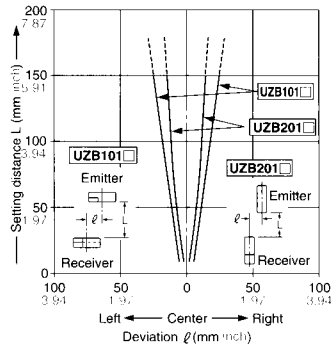
Symbol...D : Reverse polarity protection diode
 Zd : Surge absorption zener diode
 Tr : NPN output transistor

SENSING FIELDS

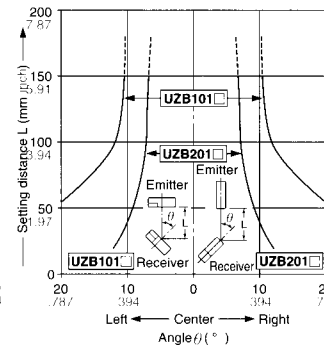
There are typical sensing fields, which may slightly change from model to model.

UZB1011 UZB2011
UZB1012 UZB2012

Parallel deviation

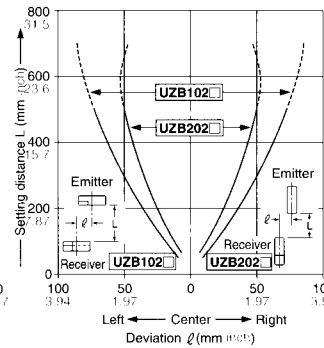


Angular deviation

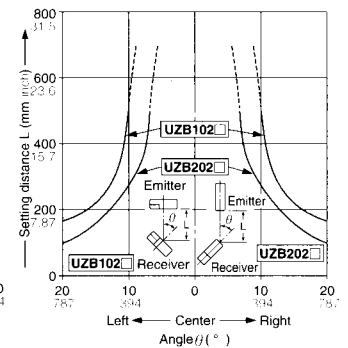


UZB1021 UZB2021
UZB1022 UZB2022

Parallel deviation



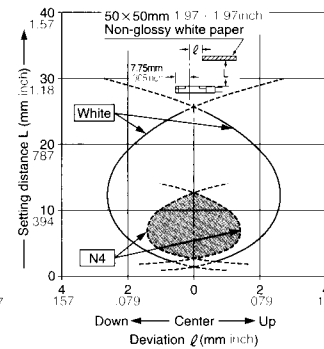
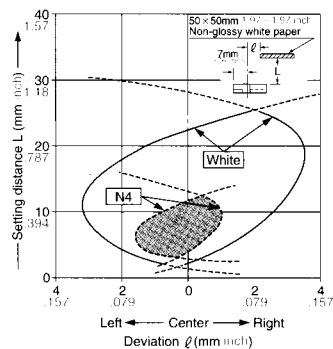
Angular deviation



UZB1601
UZB1602

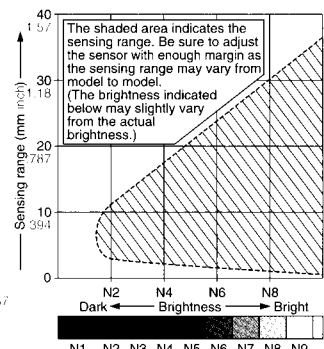
Sensing field

• Horizontal (left & right) direction • Vertical (up & down) direction

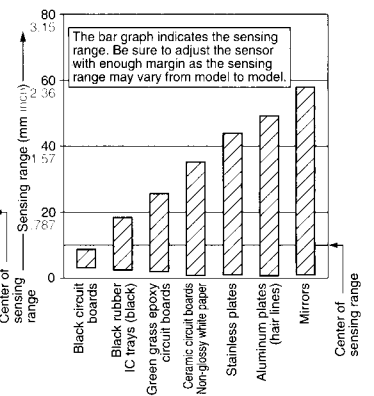


Brightness

– Sensing range correlation



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



PRECAUTIONS FOR PROPER USE

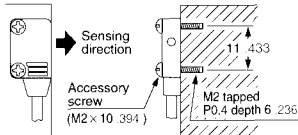


This products is not a safety sensor designed to intend to protect life and prevent bodily injury or property damage from dangerous parts of machinery, but a normal object detection sensor.

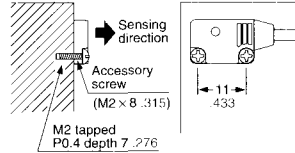
Mounting

When making a tap for mounting

Side sensing



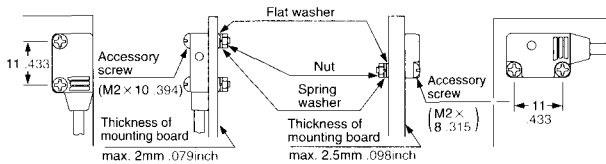
Front sensing



Tightening torque must not exceed 0.2N·m{2.04kgf·cm}.

When using an accessory screw and nut

Side sensing



Front sensing

Tightening torque must not exceed 0.2N·m{2.04kgf·cm}.

Others

Do not use the sensor output signal for 50ms immediately after the 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 it may affect the sensing performance.

Wiring

Power supply should be turned off before wiring.

Verify voltage fluctuation so that it should not exceed the rated value.

When using a switching regulator for the power supply readily available in the market, always ground the frame ground (F.G.) terminal.

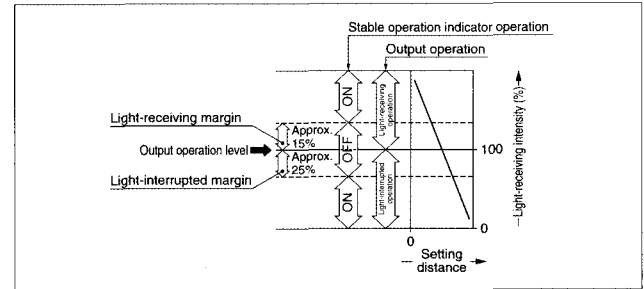
When using an equipment which generates the noises (switching regulator or inverter motor, etc.) near the sensor, ground the frame ground (F.G.) terminal of the equipment.

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.

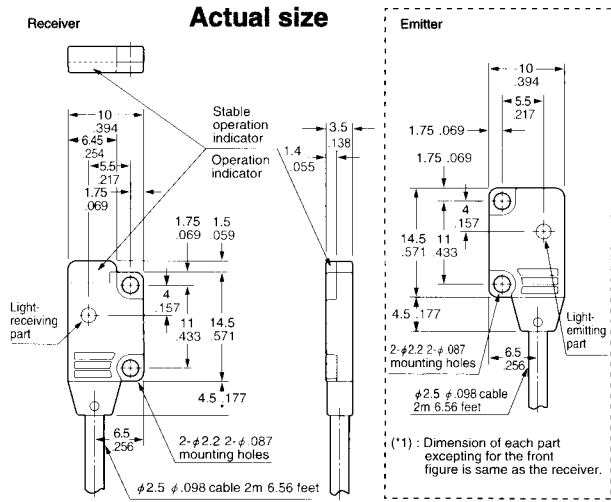
Stable operation indicator

The stable operation indicator (green) lights when the light-receiving intensity of the signal light is sufficient against the operation level. If the light-receiving level where the stable operation indicator lights, the sensor can detect stably without affecting the temperature and the voltage changes at the light-receiving and the light-interrupted operations.

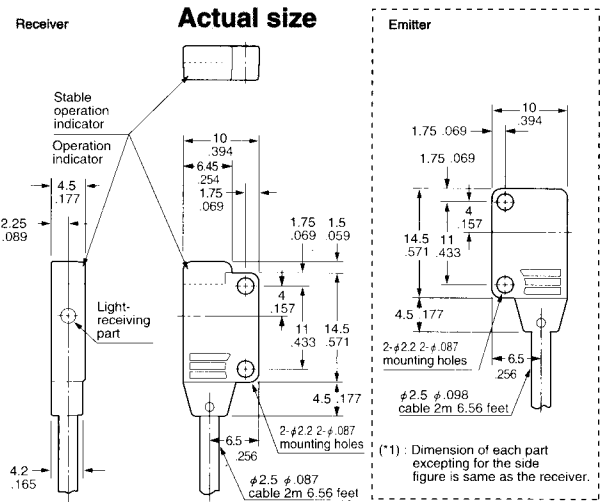


DIMENSIONS (Unit : mm inch)

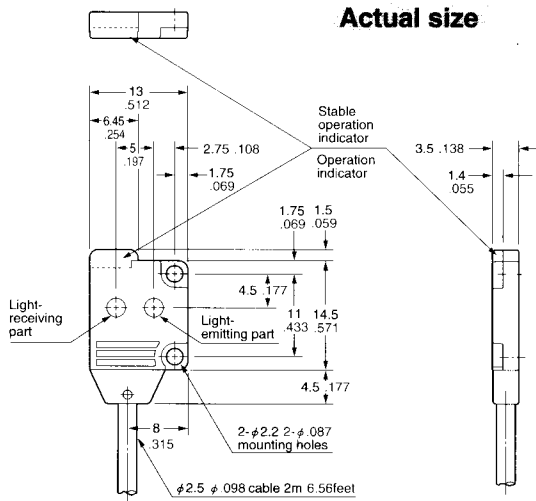
UZH1011 UZH1012
UZH1021 UZH1022 Sensor



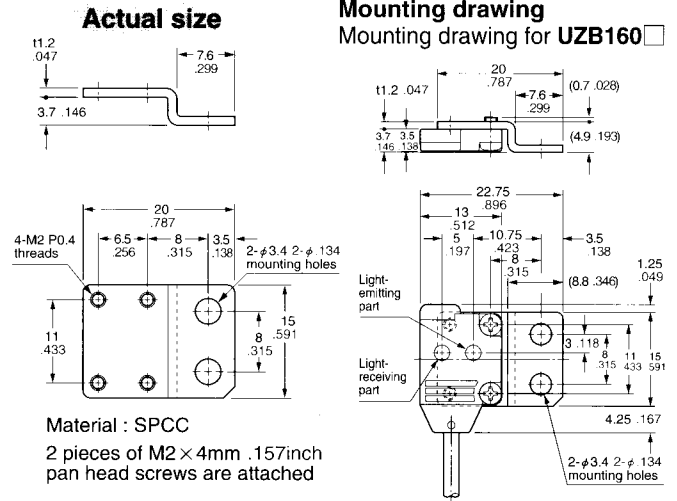
UZH2011 UZH2012
UZH2021 UZH2022 Sensor



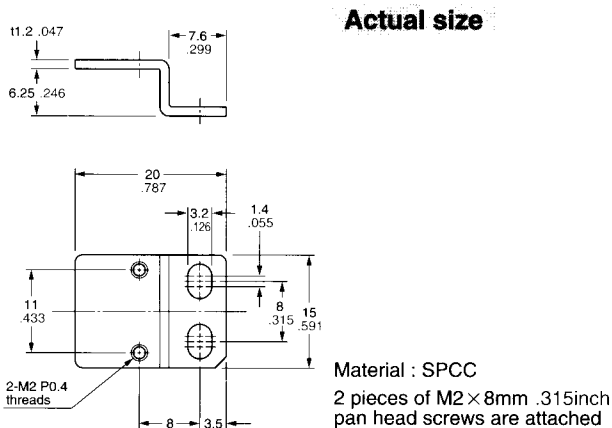
UZH1601
UZH1602 Sensor



UZH801 Sensor mounting bracket (option)



UZH802 Sensor mounting bracket (option)



UZH803 Sensor mounting bracket (option)

