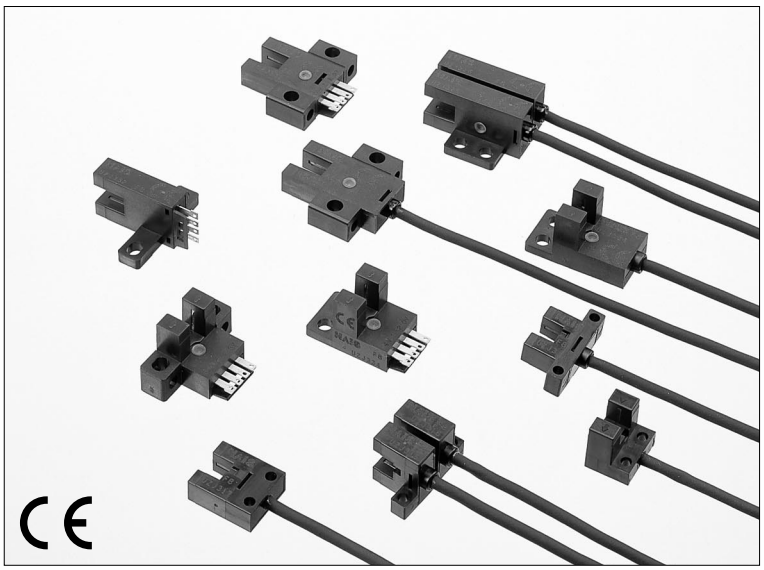
NAiS

U-SHAPED TYPE
MICRO-PHOTOSENSORS

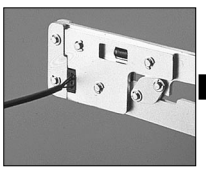
UZJ3 Series

INDUSTRY'S SMALLEST SIZE ENABLES SPACE SAVING AND QUICK INSTALLATION!

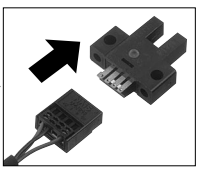


Quick Fitting Hook-up Connector

Easy to maintain connector type models are available. Its exclusive connector is the industry's first hook-up connector.
Since only crimping with exclusive pliers is to be done, cumbersome soldering or insulation is absolutely not required.



Crimp the connector on the cable.



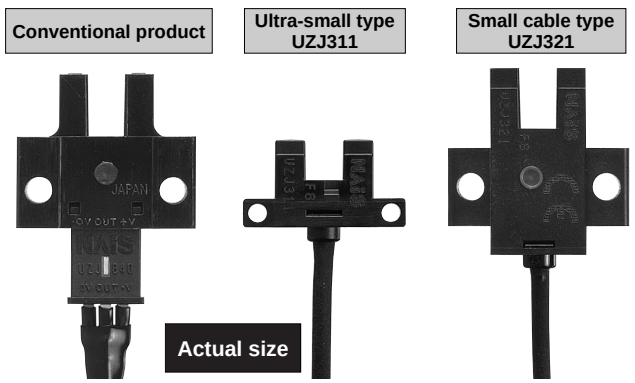
Quick connection to the sensor.

Wide Model Variation

A wide variation of 17 shapes and 29 types is available. You may select from this wide range to suit the mounting conditions.

Industry's Smallest

Ultra-small type **UZJ31**□ achieves industry's smallest size. It contributes to the miniaturization of your equipment.

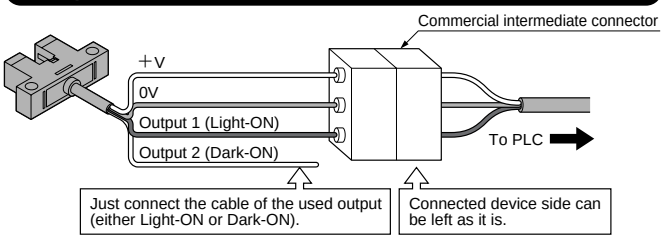


Even the small cable type has become very compact.

Equipped with Two Independent Outputs

All models are equipped with two independent outputs1Light-ON and Dark-ON. Hence, one model suffices even if the output is to be used differently depending upon the location of use. Also, since two independent outputs have been provided, cumbersome handling of the output conversion control input or fear of logic inversion due to a cable break is eliminated. The sensor can be connected to the existing wiring as it is.

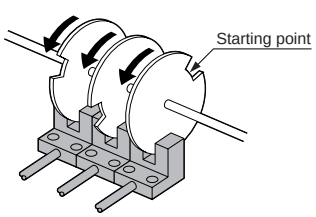
Example of connection with a commercial intermediate connector



APPLICATIONS

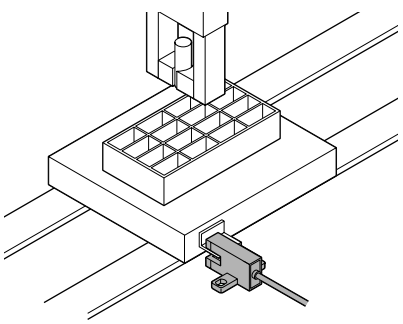
Sensing the starting point on a rotating body

The starting point can be sensed by making a slit in the rotating body.



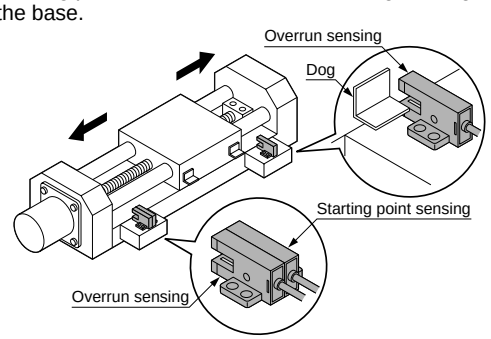
Determining the pallet position

Pallet is stopped by sensing the dog.

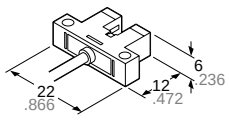
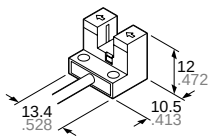
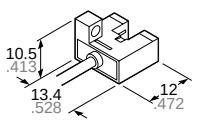
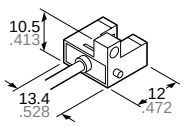
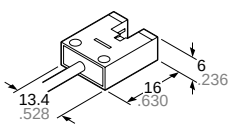
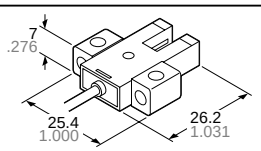
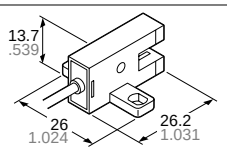
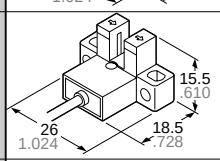
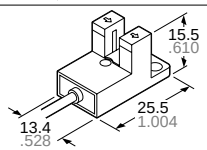
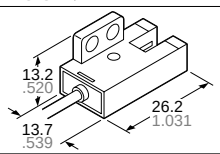
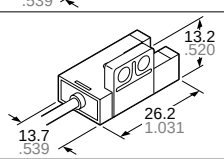


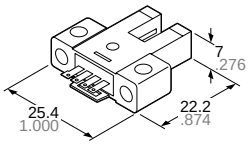
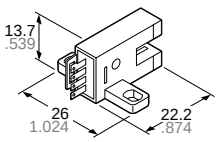
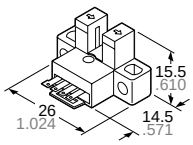
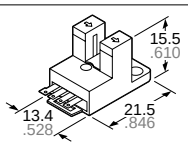
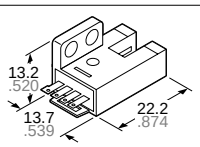
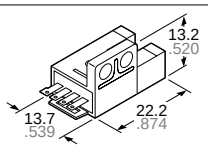
Sensing the starting point and overrun of a moving body

Starting point and overrun is sensed using the dog on the base.



ORDER GUIDE

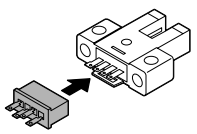
Type		Appearance (mm inch)	Sensing range	Model No.	Output	Output operation
Ultra-small type	K type		5mm (Fixed)	**UZJ311**	NPN open-collector transistor	Incorporated with 2 outputs: Light-ON/Dark-ON
	L type			**UZJ313**		
	F type			**UZJ315**		
	R type			**UZJ316**		
	U type			**UZJ317**		
Small type with cable	K type		5mm (Fixed)	**UZJ321**	NPN open-collector transistor	Incorporated with 2 outputs: Light-ON/Dark-ON
				UZJ3215	PNP open-collector transistor	
	T type			**UZJ322**	NPN open-collector transistor	
				UZJ3225	PNP open-collector transistor	
	L type			**UZJ323**	NPN open-collector transistor	
				UZJ3235	PNP open-collector transistor	
	Y type			**UZJ324**	NPN open-collector transistor	
				UZJ3245	PNP open-collector transistor	
	F type			**UZJ325**	NPN open-collector transistor	
				UZJ3255	PNP open-collector transistor	
	R type			**UZJ326**	NPN open-collector transistor	
				UZJ3265	PNP open-collector transistor	

Type		Appearance (mm inch)	Sensing range	Model No.	Output	Output operation
Small type with connector	K type		5mm (Fixed)	**UZJ331**	NPN open-collector transistor	Incorporated with 2 outputs: Light-ON/Dark-ON
				UZJ3315	PNP open-collector transistor	
	T type			**UZJ332**	NPN open-collector transistor	
				UZJ3325	PNP open-collector transistor	
	L type			**UZJ333**	NPN open-collector transistor	
				UZJ3335	PNP open-collector transistor	
	Y type			**UZJ334**	NPN open-collector transistor	
				UZJ3345	PNP open-collector transistor	
	F type			**UZJ335**	NPN open-collector transistor	
				UZJ3355	PNP open-collector transistor	
	R type			**UZJ336**	NPN open-collector transistor	
				UZJ3365	PNP open-collector transistor	

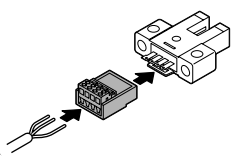
OPTION

Designation	Model No.	Description
Connector	**UZJ844**	Connector for soldering
Hook-up connector	**UZJ845**	This connector can be crimped on 0.08mm^2 to 0.2mm^2 cable simply in one grip. Wire diameter: ϕ0.7 to ϕ1.2mm
Hook-up pliers	**UZJ85**	These are exclusive pliers for crimping hook-up connector **UZJ845**.

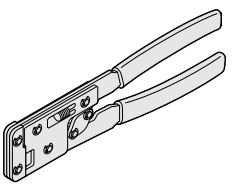
Connector



Hook-up connector



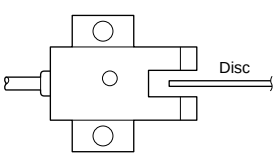
Hook-up pliers

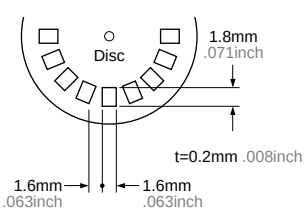


SPECIFICATIONS

Item \ Type		Ultra-small type	Small type	
			With cable	With connector
Model No.	NPN output type	**UZJ31□**	**UZJ32□**	**UZJ33□**
	PNP output type	———	**UZJ32□5**	**UZJ33□5**
Sensing range		5mm .197inch (Fixed)		
Min. sensing object		0.8×1.8mm .031×.071inch opaque object		
Hysteresis		0.05mm .002inch or less		
Repeatability		0.03mm .001inch or less		
Supply voltage		5 to 24V DC±10% Ripple P-P 10% or less		
Current consumption		15mA or less		
Output		<NPN type> NPN open-collector transistor • Maximum sink current: 50mA • Applied voltage: 30V DC or less • Residual voltage: 0.7V or less (at 50mA sink current) 0.4V or less (at 16mA sink current)	<PNP type> PNP open-collector transistor • Maximum source current: 50mA • Applied voltage: 30V DC or less • Residual voltage: 0.7V or less (at 50mA source current) 0.4V or less (at 16mA source current)	
	Output operation	Incorporated with 2 outputs: Light-ON/Dark-ON		
Response time		Under the Light condition: 20µs or less Under the Dark condition: 100µs or less (Response frequency: 1kHz or more)(Note 1)		
Operation indicator		Orange LED (lights up under the Light condition)		
Environmental resistance	Ambient temperature (Note 2)	−25 to +55°C −13 to +131°F (No dew condensation or icing allowed), Storage: −30 to +80°C −22 to +176°F		
	Ambient humidity	35 to 85%RH, Storage: 35 to 85%RH		
	Ambient illuminance (Extraneous light immunity)	Fluorescent light: 1,000ℓx at the light-receiving face		
	EMC	Emission: EN50081-2, Immunity: EN50082-2		
	Voltage withstandability	1,000V AC for one min. between all terminals connected together and enclosure		
	Insulation resistance	50MΩ or more with 250V DC megger between all terminals connected together and enclosure		
	Vibration-proof	Frequency 10 to 2,000Hz, amplitude 1.5mm .059inch in X, Y and Z directions for 2 hours each (unenergized)		
	Shock-proof	Acceleration 15,000m/s² (1,500G approx.) in X, Y, and Z directions 3 times each (unenergized)		
Emitting element		Infrared LED (non-modulated)		
Material		Enclosure: PBT, Slit cover: Polycarbonate, Terminal part [**UZJ33□(5)** only]: Solder plated		
Cable		0.09mm² 4 core cabtyre cable 1m 3.281ft. long		———
Cable extension		Maximum extension is 100m 328.08ft. overall with a 0.3mm² or more cable		
Weight		10g .35oz approx.	15g .53oz approx.	3g .11oz approx.

Notes: 1) The response frequency is the value when the disc, given in the figure below, is rotated.



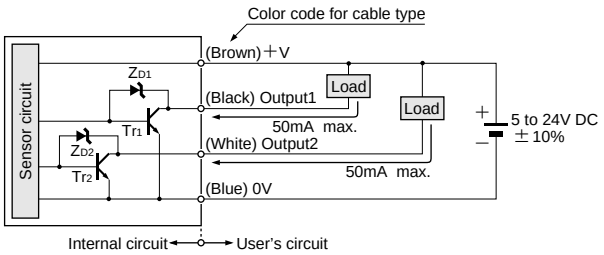


2) In case ultra-small type **UZJ31□** is used at an ambient temperature of 50°C, or more, make sure to mount it on a metal body.

I/O CIRCUIT AND WIRING DIAGRAMS

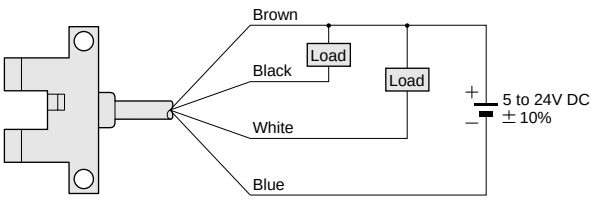
UZJ31□, UZJ32□ UZJ33□ NPN output type

I/O circuit diagram



Symbol . . . Z_{D1}, Z_{D2}: Surge absorption zener diode
Tr_1, Tr_2 : NPN output transistor

Wiring diagram

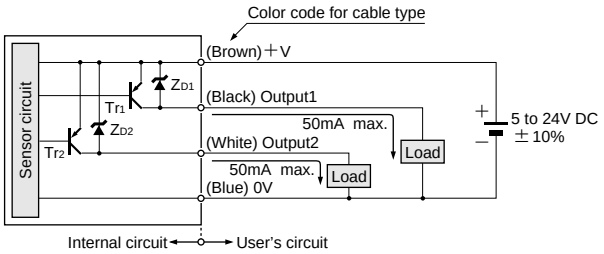


Output operation

	Color code	Output operation
Output 1	Black	Light-ON
Output 2	White	Dark-ON

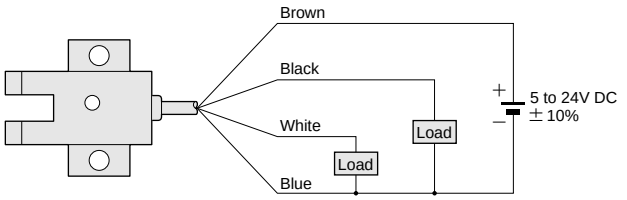
UZJ32□5 UZJ33□5 PNP output type

I/O circuit diagram



Symbol . . . Z_{D1}, Z_{D2}: Surge absorption zener diode
Tr_1, Tr_2 : PNP output transistor

Wiring diagram



Output operation

	Color code	Output operation
Output 1	Black	Light-ON
Output 2	White	Dark-ON

PRECAUTIONS FOR PROPER USE

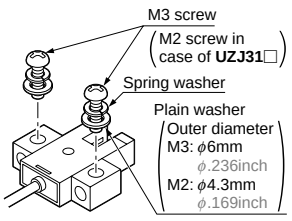
All models

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

- If the sensor is fixed with screws, use M3 screws (M2 screws in case of **UZJ31**□) and the tightening torque should not exceed the values given below. Further, use small, round type plain washers. (M3: ϕ6mm ϕ.236inch, M2: ϕ4.3mm ϕ.169inch)

Model No.	Tightening torque
UZJ31□	0.15Nzm {1.5kgfzcm}
UZJ32□**(5)**	0.5Nzm {5.1kgfzcm}
UZJ33□**(5)**	

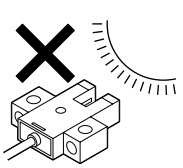


Wiring

- Please carry out the wiring carefully since protection circuits against reverse power supply connection and output short-circuit are not incorporated.
- Make sure to carry out wiring in the power supply off condition.
- When using a commercial switching regulator, ground the F.G. terminal.
- When some device generating noise, such as, a switching regulator or an inverter motor, is placed near the sensor, ground the F.G. terminal.
- Do not run the sensor cable along any high-voltage or power cable or put them in the same raceway. It may cause malfunction due to induction.

Others

- Since the sensor is intended for use inside machines, no special countermeasures have been taken against extraneous light. Take care that extraneous light is not directly incident on the beam receiving section.



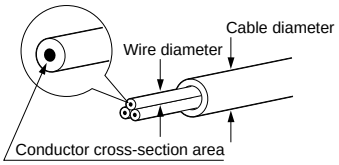
- Do not use the sensor in the transient time duration of 50ms after power-up.
- Avoid dust, dirt, and steam. Do not place it in an area where it may come in direct contact with water or oil.

PRECAUTIONS FOR PROPER USE

UZJ33□
UZJ33□5

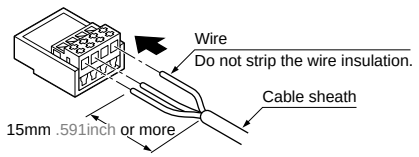
Crimping of hook-up connector UZJ845

• The cable to be connected should have the following specifications:
Conductor cross-section area: 0.08 to 0.2mm^2
(AWG28 to AWG24)
Wire diameter: ϕ0.7 to ϕ1.2mm ϕ.028 to ϕ.047inch
Wire insulation material: vinyl chloride or soft polyethylene

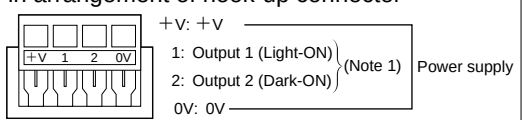


Crimping method

(1) Strip the cable sheath 15mm .591inch, or more ,and insert the wires into the connector insertion holes till the wire tips reach the end.

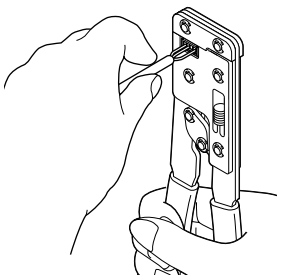


Pin arrangement of hook-up connector



Note 1: Wire at Pin 1 or 2 as per requirement.

(2) Crimp with the exclusive pliers **UZJ85**.

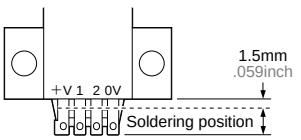


Caution: Make sure to use the exclusive crimping pliers **UZJ85**.
Commercially available pliers cannot be used.

Soldering

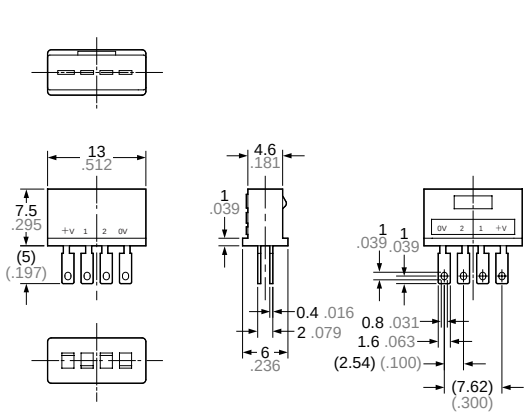
• If soldering is done directly on the terminals, strictly adhere to the conditions given below.

Item \ Model No.	UZJ33□(5)
Soldering temperature	260°C 500°F or less
Soldering time	3 sec. or less
Soldering position	Refer to the right figure

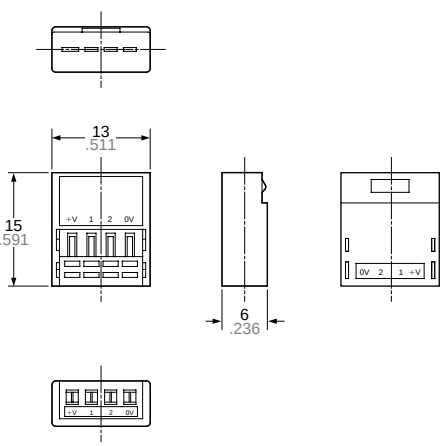


DIMENSIONS (Unit: mm inch)

UZJ844 Connector (Optional)

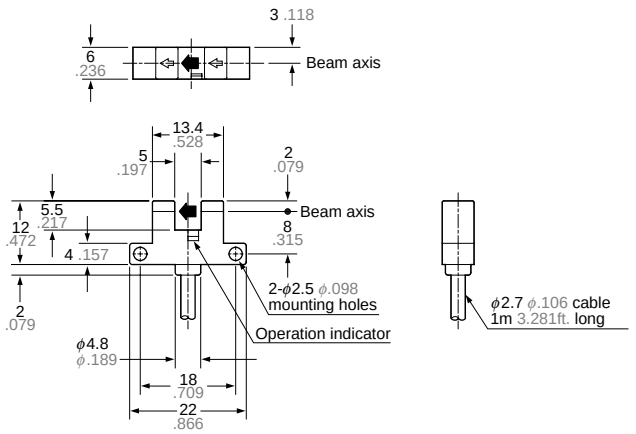


UZJ845 Hook-up connector (Optional)

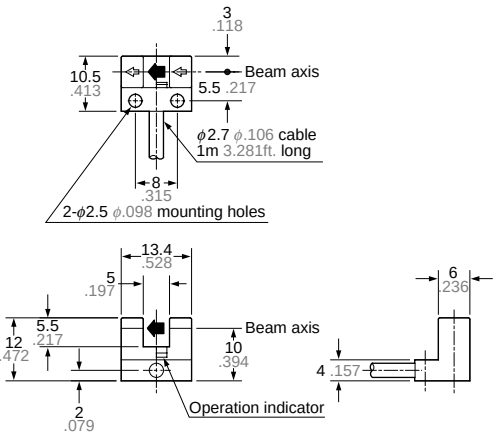


DIMENSIONS (Unit: mm inch)

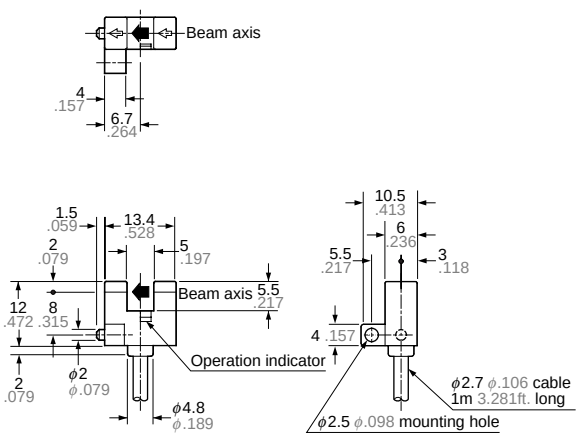
UZJ311 Sensor



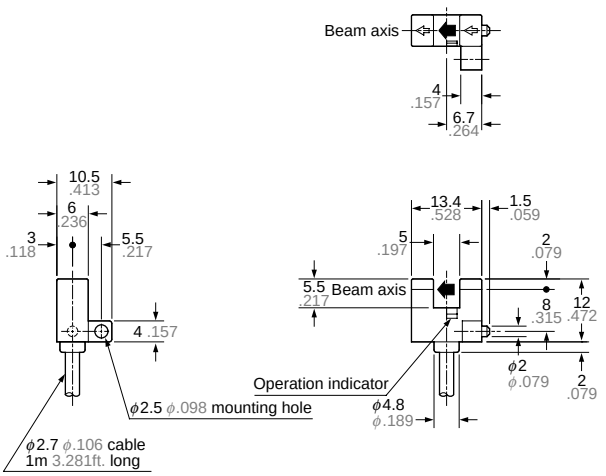
UZJ313 Sensor



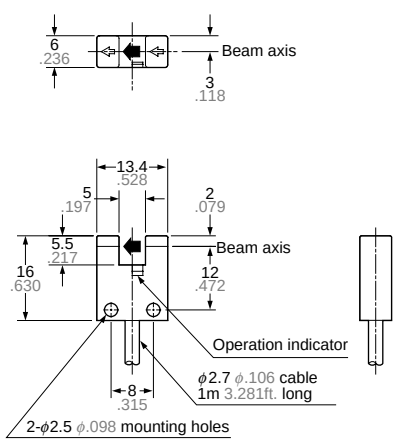
UZJ315 Sensor



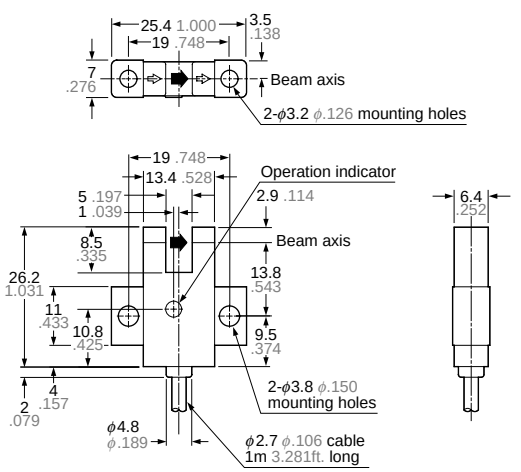
UZJ316 Sensor



UZJ317 Sensor

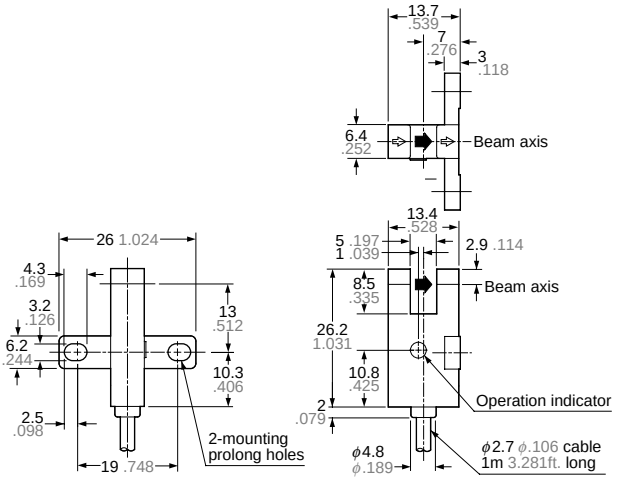


UZJ321 UZJ3215 Sensor

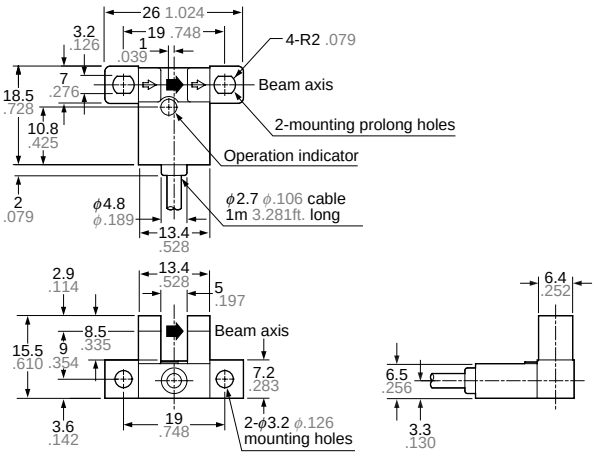


DIMENSIONS (Unit: mm inch)

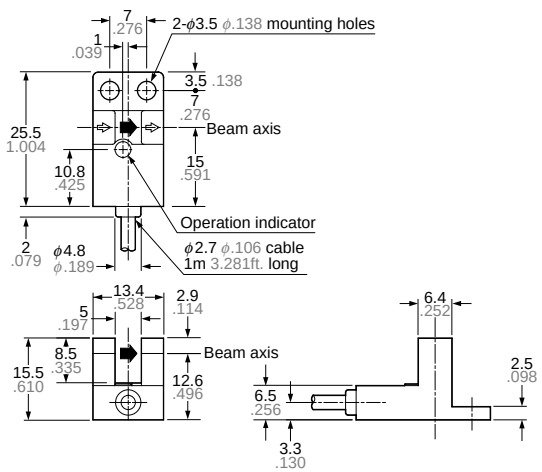
UZJ322 UZJ3225 Sensor



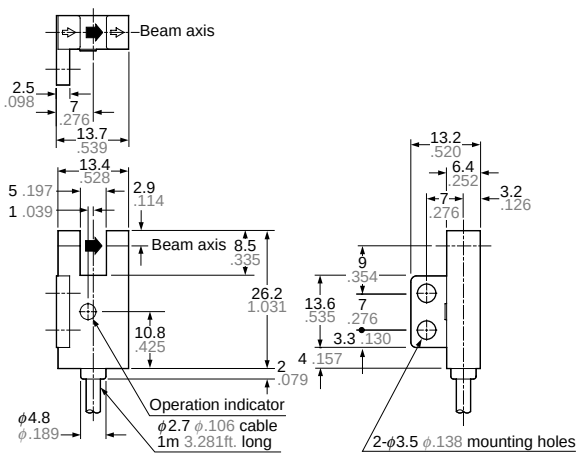
UZJ323 UZJ3235 Sensor



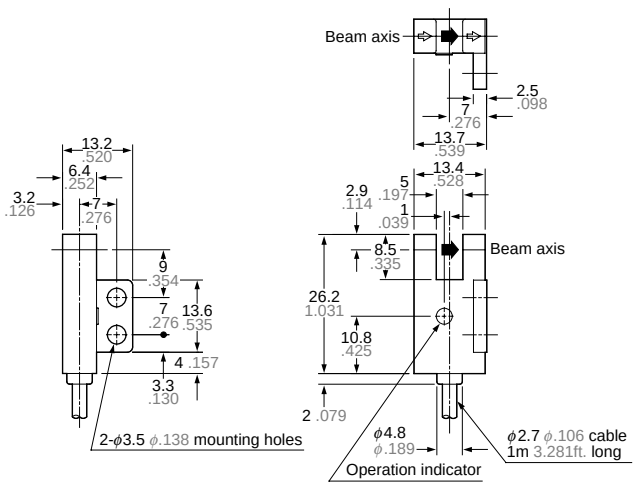
UZJ324 UZJ3245 Sensor



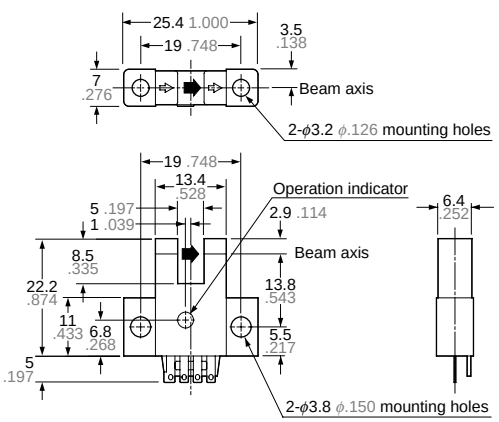
UZJ325 UZJ3255 Sensor



UZJ326 UZJ3265 Sensor

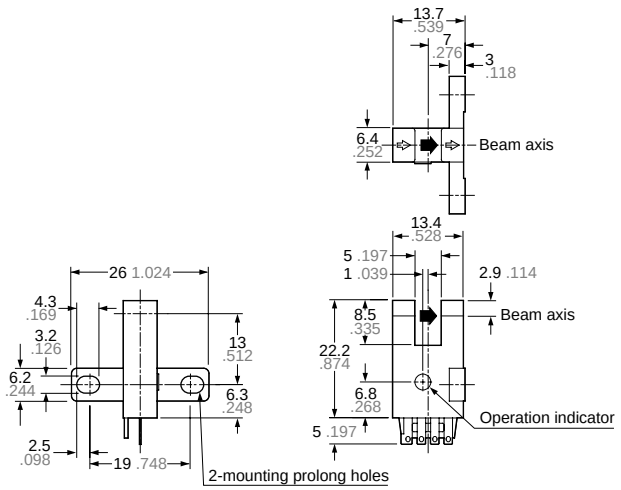


UZJ331 UZJ3315 Sensor

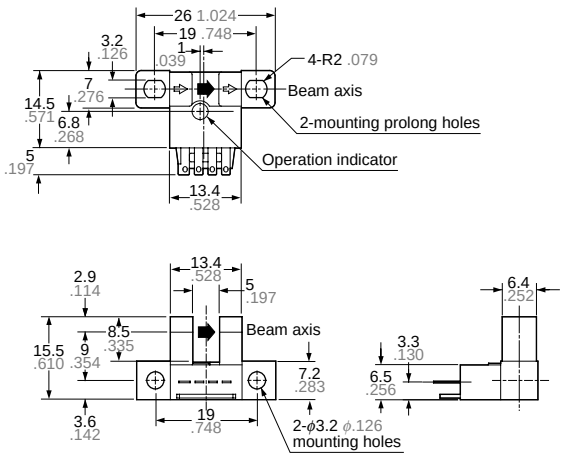


DIMENSIONS (Unit: mm inch)

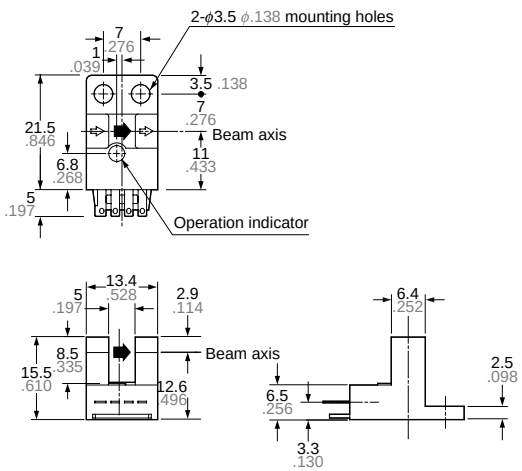
UZJ332 UZJ3325 Sensor



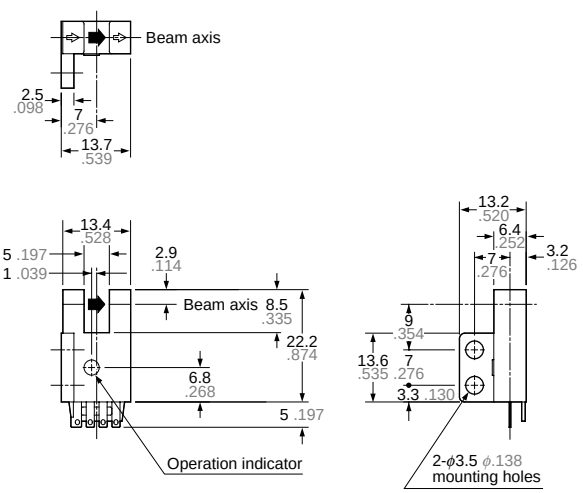
UZJ333 UZJ3335 Sensor



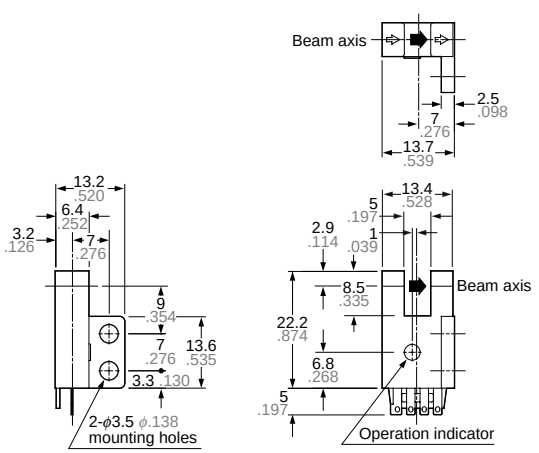
UZJ334 UZJ3345 Sensor



UZJ335 UZJ3355 Sensor



UZJ336 UZJ3365 Sensor



∗ Terminal part (**UZJ33□**, **UZJ33□5**)