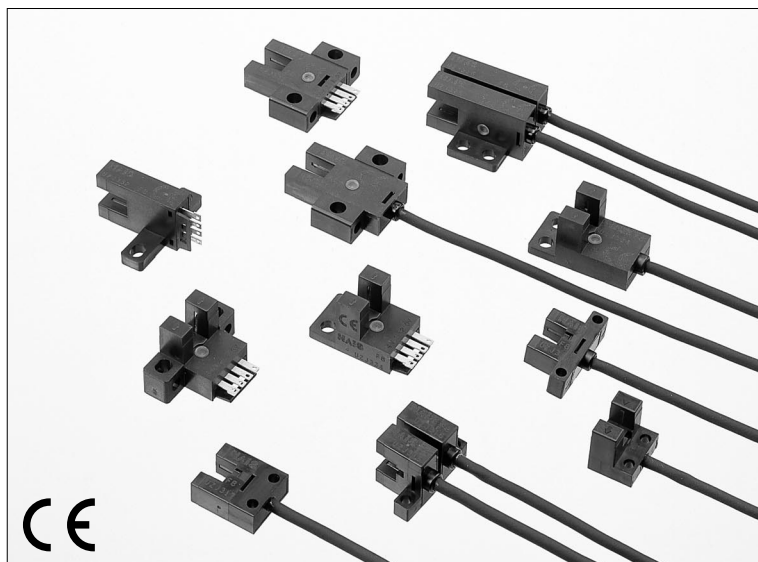


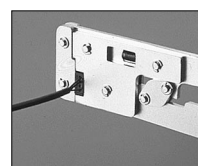
INDUSTRY'S SMALLEST SIZE ENABLES SPACE SAVING AND QUICK INSTALLATION!



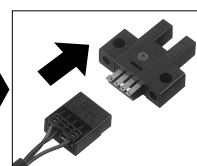
Quick Fitting Hook-up Connector

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.

Conventional product

Ultra-small type
UZJ311

Small cable type
UZJ321

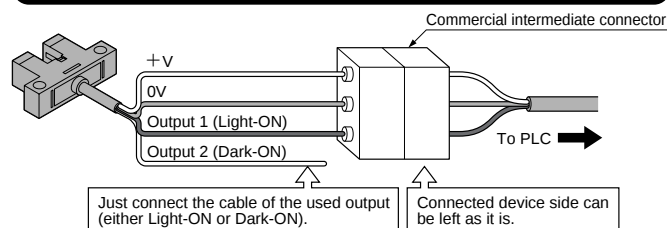


Even the small cable type has become very compact.

Equipped with Two Independent Outputs

All models are equipped with two independent outputs: Light-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.

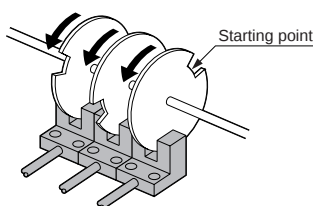
Example of connection with a commercial intermediate connector



APPLICATIONS

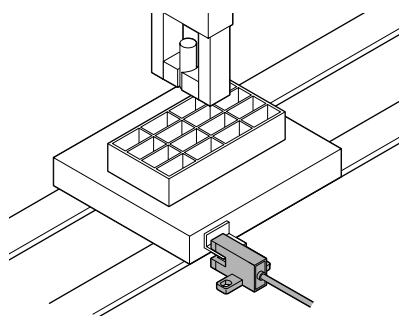
Sensing the starting point on a rotating body

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



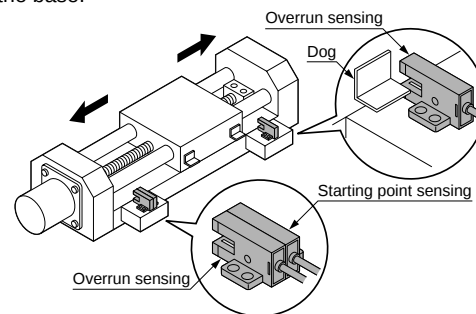
Determining the pallet position

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

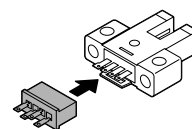
Type	Appearance (mm inch)	Sensing range	Model No.	Output	Output operation
Ultra-small type	K type 	5mm (Fixed)	UZJ311	NPN open-collector transistor	Incorporated with 2 outputs: Light-ON/Dark-ON
	L type 		UZJ313		
	F type 		UZJ315		
	R type 		UZJ316		
	U type 		UZJ317		
Small type with cable	K type 	5mm (Fixed)	UZJ321	NPN open-collector transistor	Incorporated with 2 outputs: Light-ON/Dark-ON
	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
	T type		UZJ3315	PNP open-collector transistor	
	L type		UZJ332	NPN open-collector transistor	
			UZJ3325	PNP open-collector transistor	
	Y type		UZJ333	NPN open-collector transistor	
			UZJ3335	PNP open-collector transistor	
	F type		UZJ334	NPN open-collector transistor	
			UZJ3345	PNP open-collector transistor	
	R type		UZJ335	NPN open-collector transistor	
			UZJ3355	PNP open-collector transistor	
			UZJ336	NPN open-collector transistor	
			UZJ3365	PNP open-collector transistor	

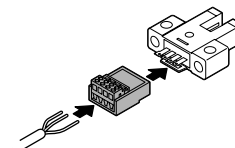
OPTION

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: $\phi 0.7$ to $\phi 1.2$ mm
Hook-up pliers	UZJ85	These are exclusive pliers for crimping hook-up connector UZJ845 .

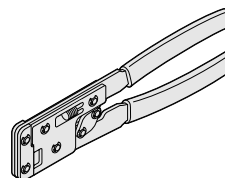
Connector



Hook-up connector



Hook-up pliers



SPECIFICATIONS

Type		Ultra-small type	Small type		
			With cable	With connector	
Item	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: 1,000 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 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/s ² (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		0.09mm ² 4 core cabtyre cable 1m 3.281ft. long		□	
Cable extension		Maximum extension is 100m 328.08ft. overall with a 0.3mm ² 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.



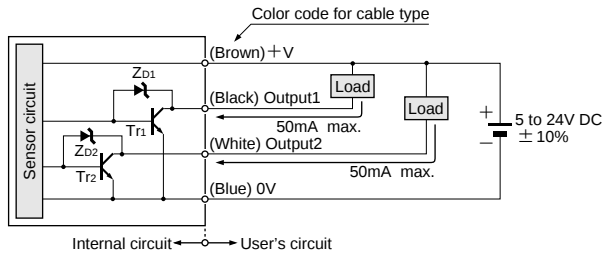
2) In case ultra-small type **UZJ31**□ is used at an ambient temperature of 50°C, or more, make sure to mount it on a metal body.

I/O CIRCUIT AND WIRING DIAGRAMS

UZJ31□, UZJ32□
UZJ33□

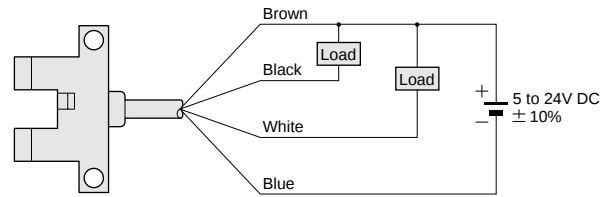
NPN output type

I/O circuit diagram



Symbol . . . ZD1, ZD2: Surge absorption zener diode
Tr1, Tr2 : NPN output transistor

Wiring diagram



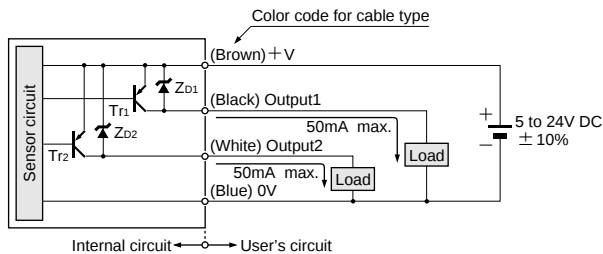
Output operation

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

UZJ32□5
UZJ33□5

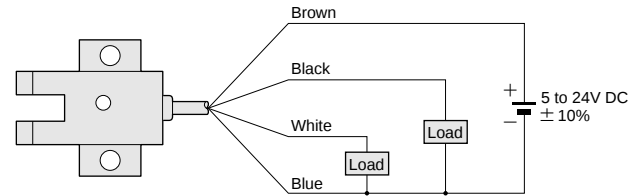
PNP output type

I/O circuit diagram



Symbol . . . ZD1, ZD2: Surge absorption zener diode
Tr1, Tr2 : 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

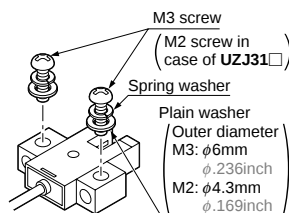


These products are **not** safety sensors and are **not** designed or intended to be used to protect life and prevent bodily injury or property damage.

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: $\phi 6\text{mm}$ $\phi.236\text{inch}$, M2: $\phi 4.3\text{mm}$ $\phi.169\text{inch}$)

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

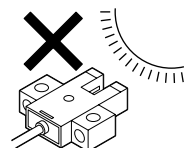


Wiring

- 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.

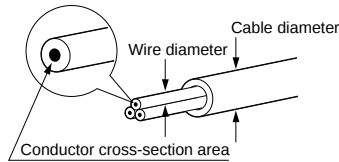


PRECAUTIONS FOR PROPER USE

UZJ33□
UZJ33□5

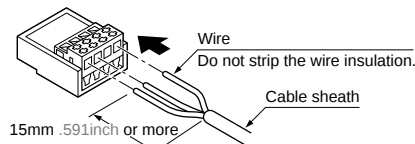
Crimping of hook-up connector UZJ845

- The cable to be connected should have the following specifications:
Conductor cross-section area: 0.08 to 0.2mm²
(AWG28 to AWG24)
Wire diameter: $\phi 0.7$ to $\phi 1.2$ mm $\phi .028$ to $\phi .047$ inch
Wire insulation material: vinyl chloride or soft polyethylene

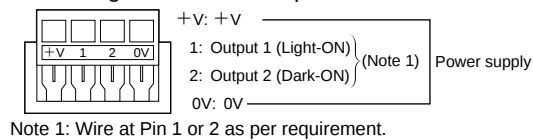


Crimping method

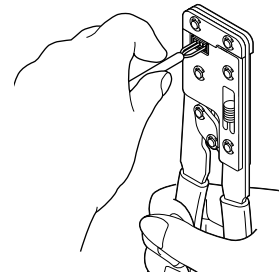
- Strip the cable sheath 15mm .591inch, or more, and insert the wires into the connector insertion holes till the wire tips reach the end.



Pin arrangement of hook-up connector



- Crimp with the exclusive pliers **UZJ85**.

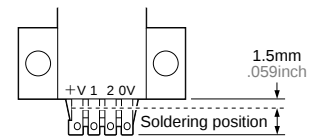


Caution: Make sure to use the exclusive crimping pliers **UZJ85**.
Commercially available pliers cannot be used.

Soldering

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

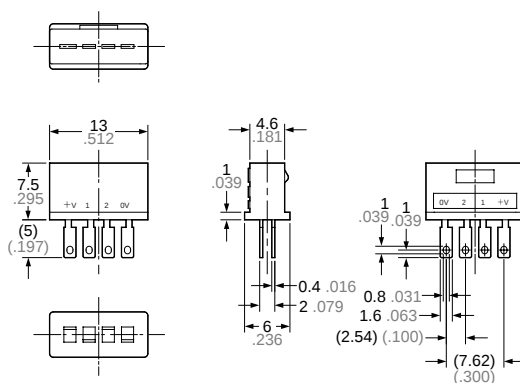
Item	Model No.	UZJ33□(5)
Soldering temperature		260°C 500°F or less
Soldering time		3 sec. or less
Soldering position		Refer to the right figure



DIMENSIONS (Unit: mm inch)

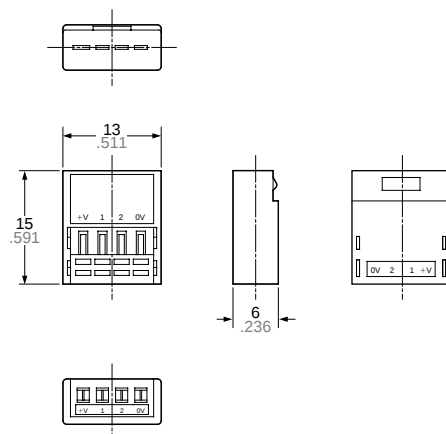
UZJ844

Connector (Optional)



UZJ845

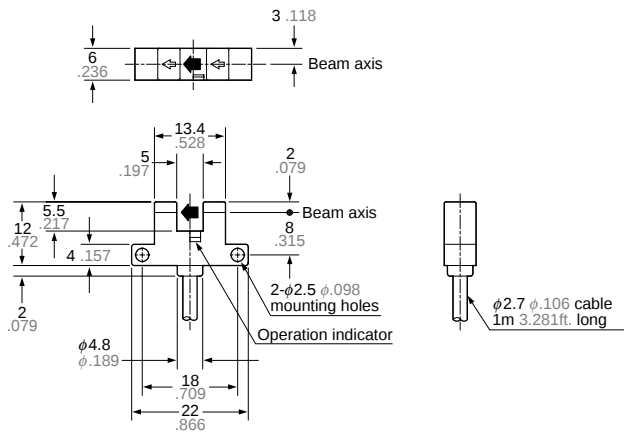
Hook-up connector (Optional)



DIMENSIONS (Unit: mm inch)

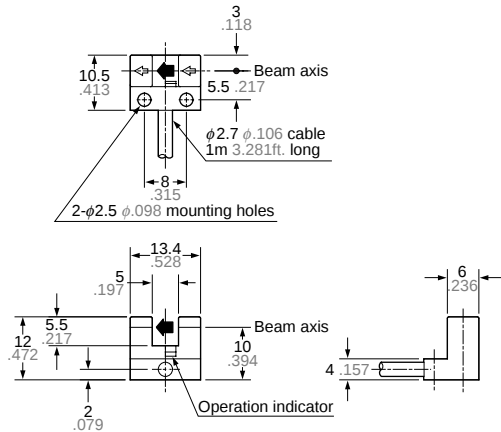
UZJ311

Sensor



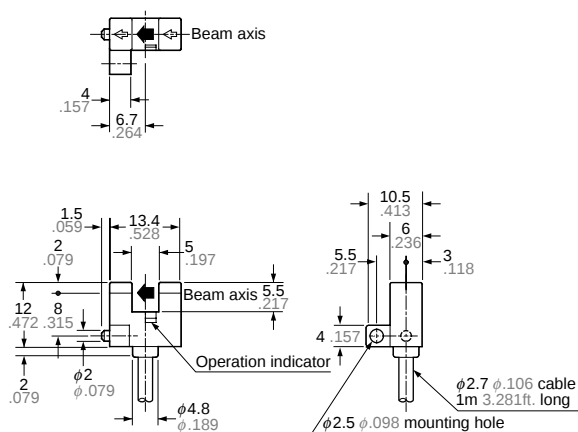
UZJ313

Sensor



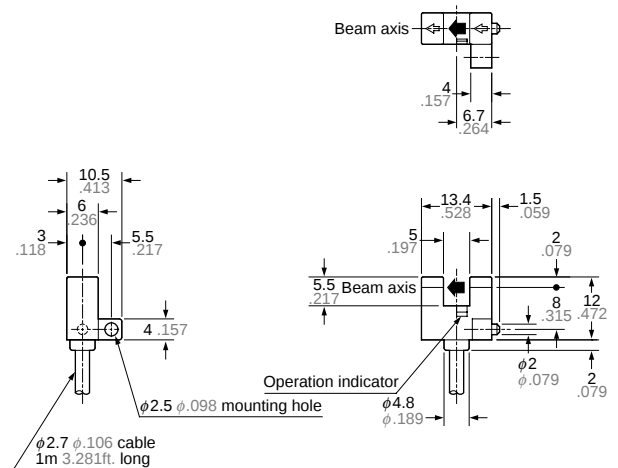
UZJ315

Sensor



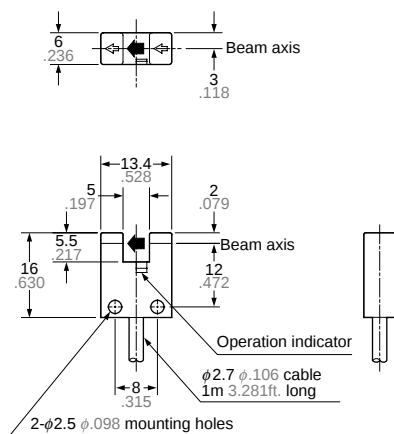
UZJ316

Sensor



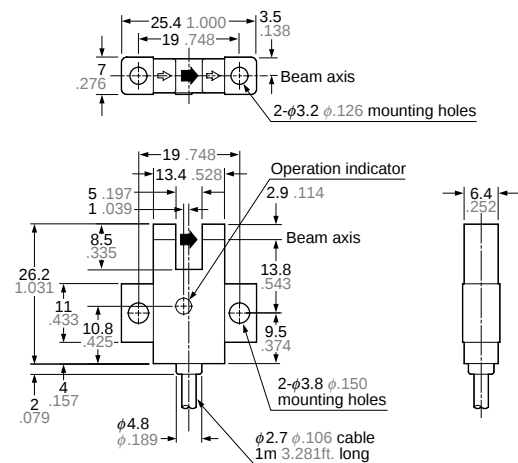
UZJ317

Sensor



UZJ321 UZJ3215

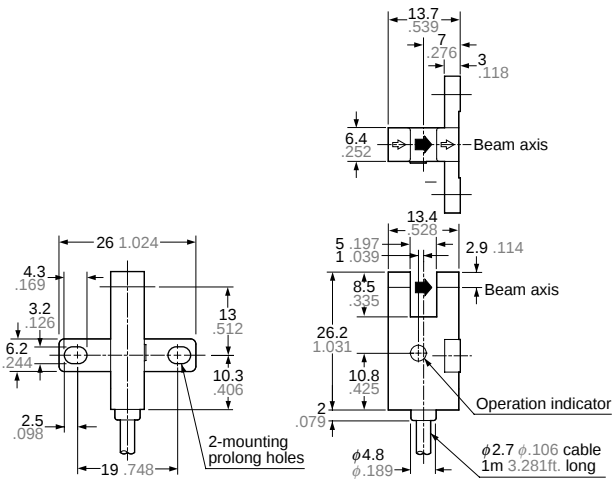
Sensor



DIMENSIONS (Unit: mm inch)

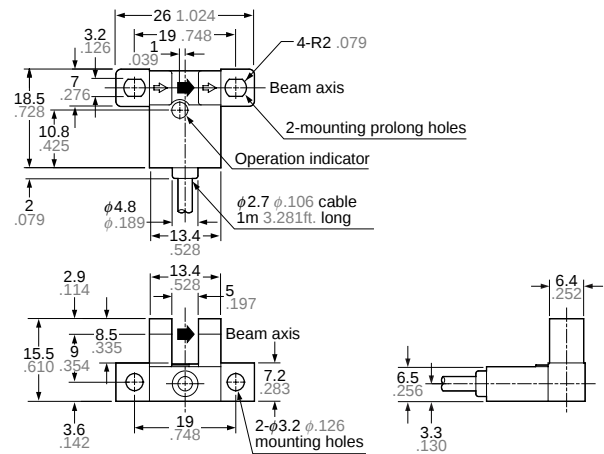
UZJ322
UZJ3225

Sensor



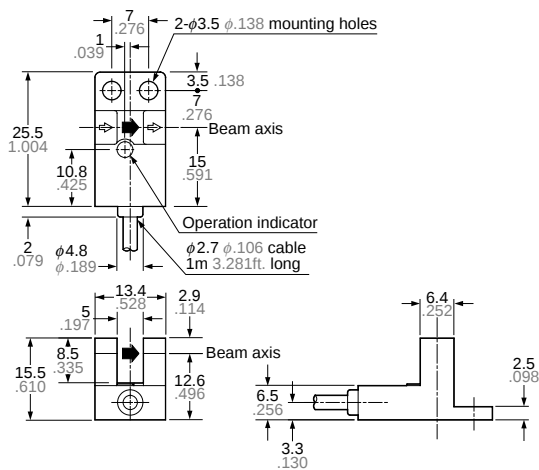
UZJ323
UZJ3235

Sensor



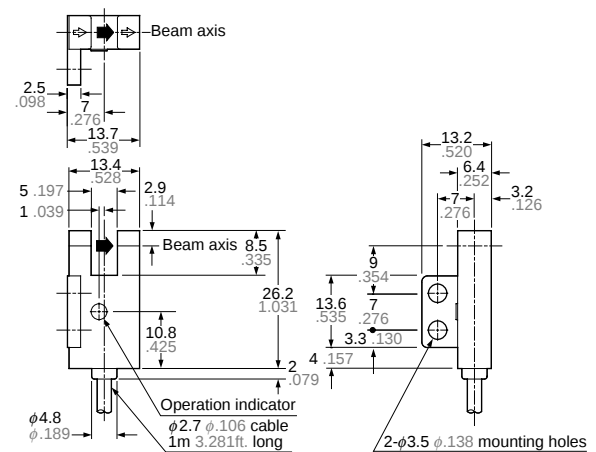
UZJ324
UZJ3245

Sensor



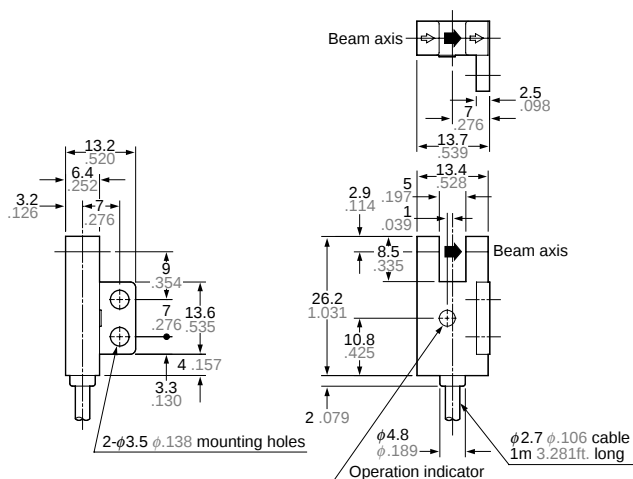
UZJ325
UZJ3255

Sensor



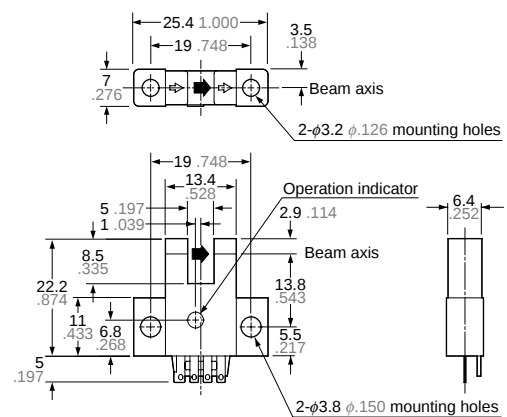
UZJ326
UZJ3265

Sensor



UZJ331
UZJ3315

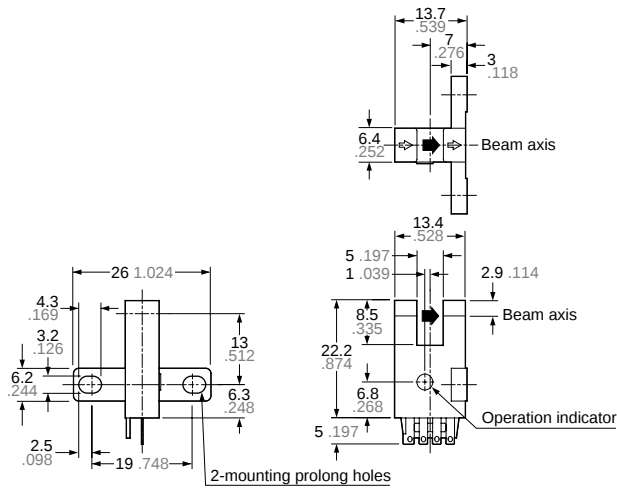
Sensor



DIMENSIONS (Unit: mm inch)

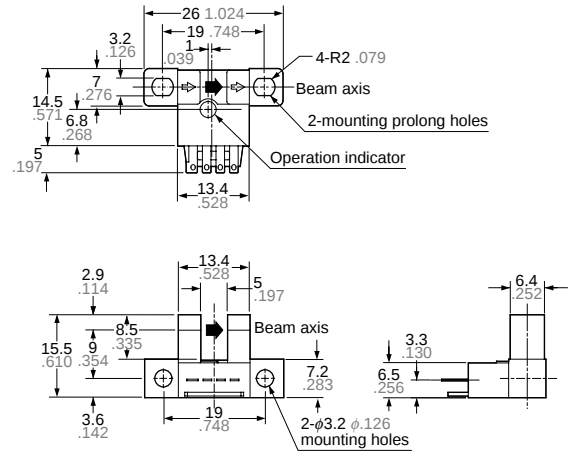
UZJ332
UZJ3325

Sensor



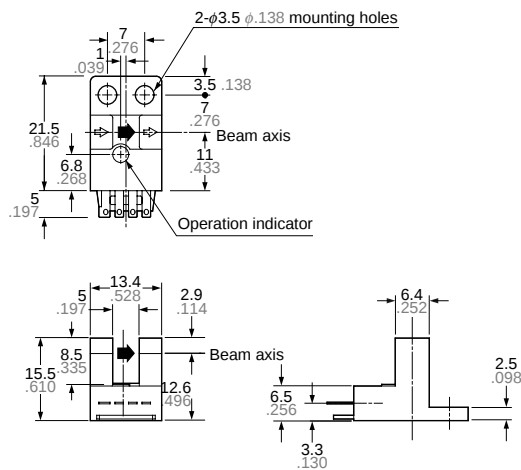
UZJ333
UZJ3335

Sensor



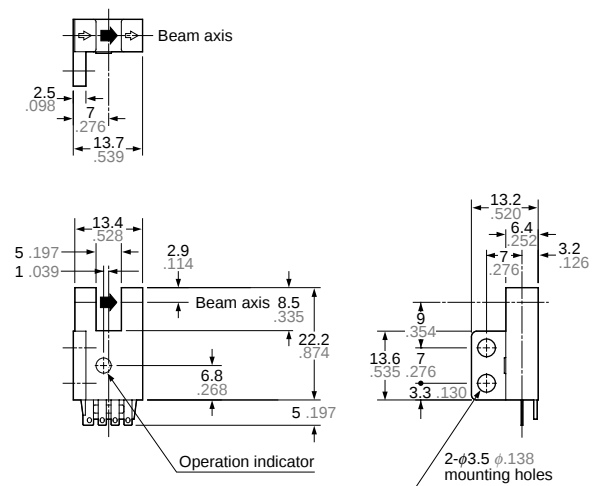
UZJ334
UZJ3345

Sensor



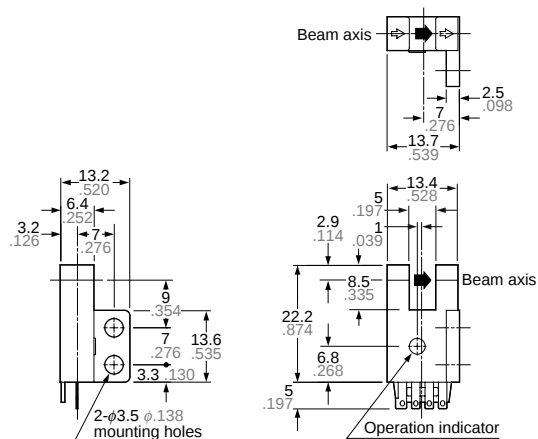
UZJ335
UZJ3355

Sensor



UZJ336
UZJ3365

Sensor



* Terminal part (UZJ33□, UZJ33□5)

