

- Do not use this product as a safety equipment to protect human body.
- This product is not intrinsically safe for hazardous environment.

### SPECIFICATIONS

Models	UM2-Z3SV	UM2-Z3DSV	UM2-Z3SVP	UM2-Z3DSVP
Detection method	Convergent reflective			
Range	5 to 30mm (50×50mm White paper)			
Operation mode	Light ON	Dark ON	Light ON	Dark ON
Power supply	12 to 24VDC ±10%, Ripple 10% (or less)			
Current consumption	27mA (or less)		32mA (or less)	
Output mode	NPN Open collector Rating : Sink current 80mA (30VDC) Max.		PNP Open collector Rating : Source current 80mA (30VDC) Max.	
Response time	0.5 ms (or less)			
Hysteresis	10% (or less)			
Light source	Red LED (640nm)			
Indicators	Operation LED (Orange), Stability LED (Green)			
Sensitivity adjustment	Sensitivity adjustment unit (in-line)			
Materials	Case : ABS resin, Lens : Acrylic, Adjustment unit : PBT			
Cable	Attached cable 2m (Outer dia. 2.8mm) 0.15mm <sup>2</sup> × 3 core (Black)			
Weight	40g (or less)			

### OPERATING CAUTIONS

- Avoid to turn on and off the power consecutively.
- The sensor starts operation after a warm-up period of 0.5 sec. Power on the sensor prior to loads.
- Turn off power while wiring works.
- Use a power supply within the rated voltage and current in the specification.
- Be sure to route the sensor wires separate from any power transmission or high voltage line, or use shielded cables. Use a same conduit or duct with high voltage or power lines will cause malfunction or damage by induction.
- A transient overcurrent may flow in when a capacitor or a coil is connected to the load.
- When using a DC power unit with an insulated transformer or a switching regulator, be sure to ground the frame ground (FG) terminal.
- High frequency fluorescent lamps or inverters may emit light or noise of similar modulated frequency that photo sensors generate. Do not install the sensor in the vicinity of high frequency equipment.
- Clean the lens by a soft and dry cloth periodically. A stain or dirt stuck on the lens deteriorates the performance. Do not use organic solvent including alcohol and thinner.
- When extending the wire, use 0.3mm<sup>2</sup> cable or more in size and limit the length up to 50m. Check a voltage drop.
- A reinforced stainless steel sleeve is inserted in the mounting hole. Prevent it from falling off.
- Limit the current of the power supply to 1A in accordance with the size of the sensor cable.

### INSTALLATION

- Mounting brackets are not attached.
- Use attached screws (M2.6×12), washers and nuts to fix the sensor. Tightening torque should be 0.3N·m or less. An excessive torque may damage the sensor.
- Do not apply a torque beyond 0.1 N·m to the Sensitivity Adjustment Volume.

### ADJUSTMENT

#### For Light ON mode

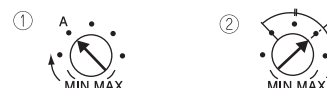
※ When any light reflecting object is in the background.

- ① Place a detection object at a given position and turn up the Sensitivity adjustment volume from MIN until the Operation indicator (orange LED) turns on (Point A).
- ② Remove the object and turn down the Sensitivity adjustment volume from MAX until the Operation indicator turns off (Point B). (MAX is regarded as Point B if the Operation indicator doesn't turn off at MAX.)
- ③ Set the volume at the middle point between Points A and B.



※ When no light reflecting object is in the background.

- ① Place a detection object at a given position and turn up the Sensitivity adjustment volume from MIN until the Operation indicator (orange LED) turns on (Point A).
- ② Set the volume at the middle point between Point A and MAX. Make sure both the Operation indicator and Stability indicator green LED turns on when the detection object is placed at the given position.



### AMBIENT CONDITIONS

#### Ambient light

3,000 lx (or less)

#### Ambient temp.

-25 to +55°C

#### Ambient humidity

35 to 85%RH

#### Protective structure

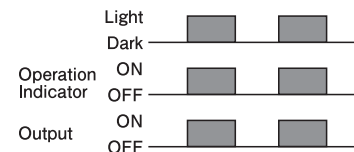
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#### Vibration

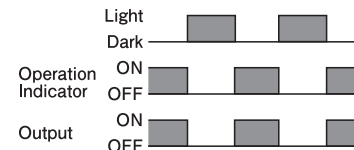
10~55Hz, 1.5mm Double amplitude  
2 Hr., 3 Directions

### OPERATION

#### ● Light ON



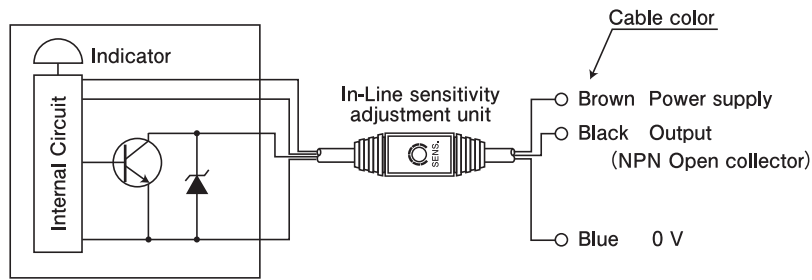
#### ● Dark ON



## OUTPUT CIRCUIT AND WIRING

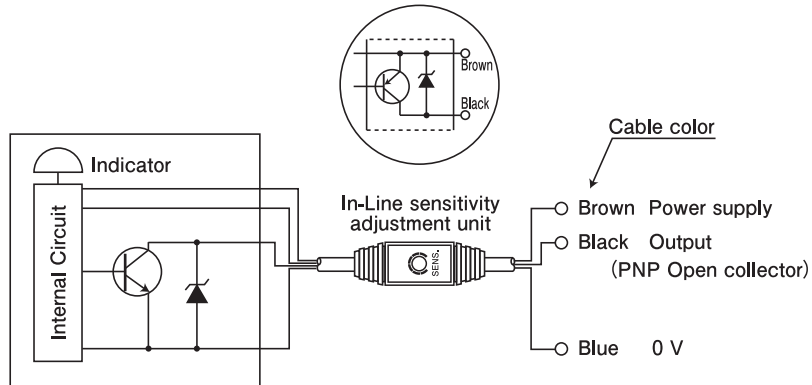
### ● N P N Output

UM2-Z3SV  
UM2-Z3DSV



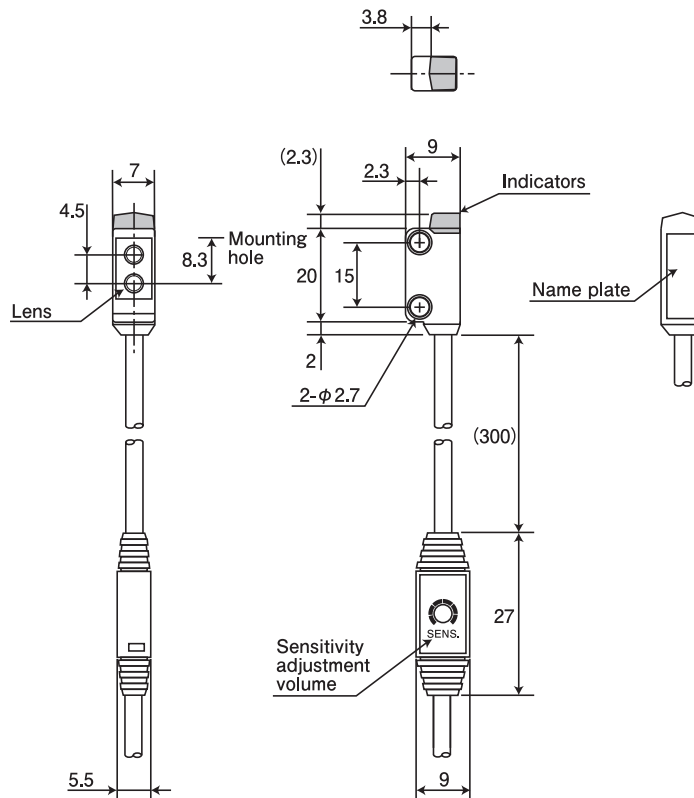
### ● P N P Output

UM2-Z3SVP  
UM2-Z3DSVP



(The PNP output transistor is built in the in-line unit.)

## DIMENSIONS (mm)



- The guarantee period of this product is one year after the delivery.
- If any defect is found during the guarantee period, Takenaka will repair or replace the defective product.
- This product is an industrial sensor which issues an output upon detecting an object. It does not have any function to prevent accidents, death or injuries.
- Takenaka will not held responsible for any damage or loss incurred due to accidents, faulty installation, abuse, misuse, improper maintenance or acts of God including lightning surge.