

Photo sensor

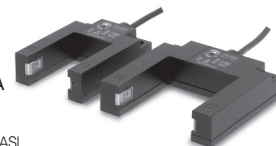
# PU series

## INSTRUCTION MANUAL

Thank you for purchasing HANYOUNG product.  
Please check whether the product is the exactly same as you ordered.  
Before using the product, please read this instruction manual carefully.  
Please keep this manual where you can view at any time

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## Safety information

Before using the product, please read the safety information thoroughly and use it properly. Alerts declared in the manual are classified to Danger, Warning and Caution by their criticality

	<b>DANGER</b>	DANGER indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury
	<b>WARNING</b>	WARNING indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury
	<b>CAUTION</b>	CAUTION indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury

### Danger

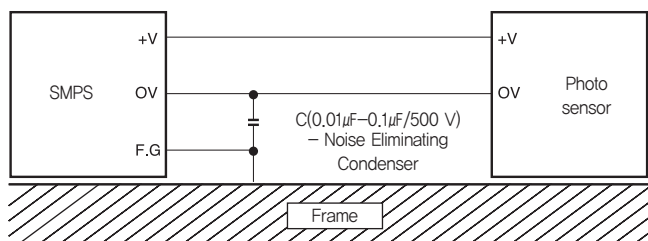
- Since this product is not designed for explosion-protective structure, do not use it at any place with flammable or explosive gas.
- Never disassemble, modify, or repair the product. There is a possibility of malfunction or a risk of fire.

### Warning

- If the user use the product with methods other than specified by the manufacturer, there may be bodily injuries or property damages.
- If there is a possibility of an accident caused by errors or malfunctions of this product, install external protection circuit to prevent the accident.
- To prevent damage or failure of this product, please supply the rated power voltage.
- Remove this product while the power is off. Otherwise, it may cause malfunction.

### Caution

- The contents of this manual may be changed without prior notification.
- Please do not turn ON and OFF the power continuously. It may shorten life span of the product and cause malfunction.
- Check the connection of the item before the power source on.
- Please use an insulating transformer in order to maintain a stable power supply voltage of the product.
- If the cable needs to be extended, please use a cable that has a thickness more than 0.3 mm<sup>2</sup> and be cautious of the sudden voltage drop down.
- Do not make high-tension wiring together with sensor product in the same pipe or duct to avoid malfunction caused by noise.
- When cleaning the lens of photo sensor, use dry cloth only. Do not use thinner or organic solvents.
- When setting the sensitivity, adjusting the volume with too much force may break the sensitivity volume so please be cautious.
- In case of using SMPS, please be sure to earth frame ground terminal (FG). Then install the noise preventing condenser between 0 V and FG.



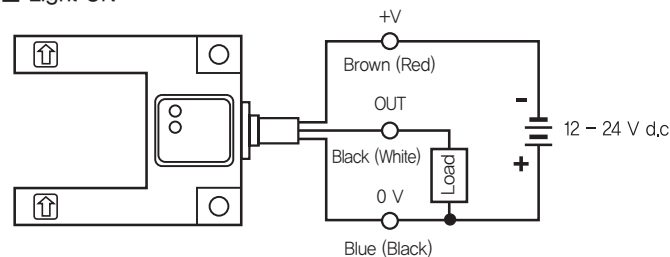
## Specification

Model	PU-30	PU-30S	PU-50	PU-50S
Sensing method	Through-beam			
Sensing distance	30 mm		50 mm	
Sensing object	∅2 mm min (Opaque body)	∅0.6 mm min (Opaque body)	∅1.5 mm min (Opaque body)	∅0.4 mm min (Opaque body)
Power supply voltage	12 - 24 V d.c, ±10 %			
Current consumption	30 mA max			
Control output	NPN Voltage output, Load current : 200 mA (30 V d.c) max, Remaining voltage : 2 V max			
Output action	L,ON/D,ON selected by the power reverse connection			
Response time	1 ms max			
Light source (wave length)	Infrared LED			
Operation Lamp	Operation Indicator : Red LED, Power Indicator : Green LED			
Sensitivity adjustment	Fixed	By the volume	Fixed	By the volume
Protective circuit	Output short protective circuit			
Ambient illumination	Sunlight : 11,000 Lux max, Incandescent lamp : 3,000 Lux max			
Ambient temperature	-10 ~ 55 °C (Surrounding storage temperature : -25 ~ 70 °C)			
Ambient humidity	35 ~ 85 % RH (With no condensation)			
Protective structure	IP 65 (IEC)			
Insulation resistance	min 100 MΩ (500 V d.c, Between the code and case, Between the contact and power)			
Dielectric strength	500 V a.c, for 1 min			
Vibration resistance	10 - 55 Hz double amplitude 1.5 mm, for 2 hours each in X, Y and Z directions			
Shock resistance	500 %, X, Y, Z 3 times each in X, Y and Z directions			
Connection method	Code extended type 1.5 m			
Material	Case: ZN, lens: PC			
Weight	Approx. 250 g (Included the weight of box)			

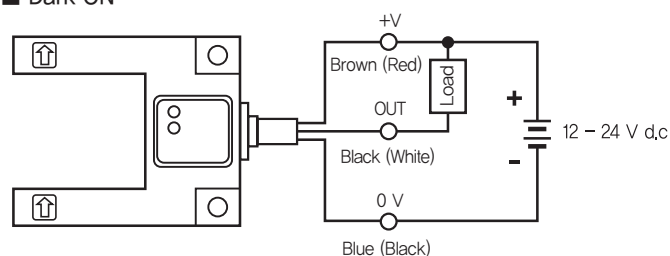
\* Please note that response time varies depending on the size of sensing object, surface condition, existence of gloss and etc.

## Connection diagram

### ■ Light ON

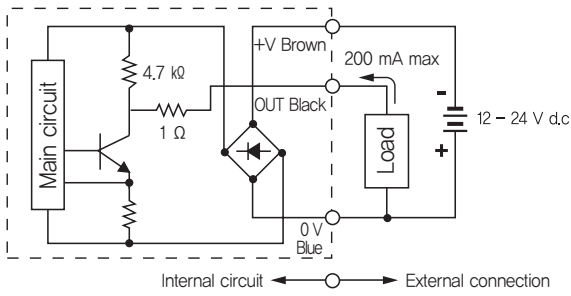


### ■ Dark ON

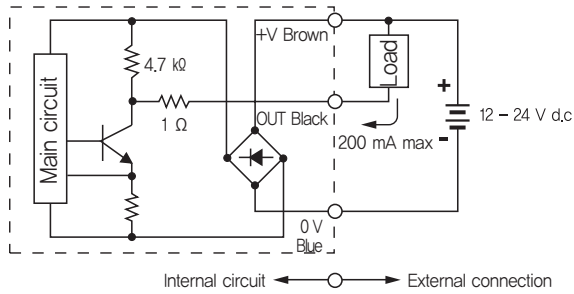


## Control output circuit diagram

### Light ON



### Dark ON



## Operation chart

Model	Detection status	L-ON	D-ON
Light ON	TR output and L.ON indicator (Red LED)	ON	OFF
	TR output and D.ON indicator (Red LED)	OFF	ON
Dark ON	TR output and L.ON indicator (Red LED)	OFF	ON
	TR output and D.ON indicator (Red LED)	ON	OFF

## Installation & How to adjust sensitivity

### Installation

Install the PU series sensor in the place where you want to use it and make sure that the wiring connection of the sensor is properly connected. After all these steps, turn the power on.

### How to adjust sensitivity

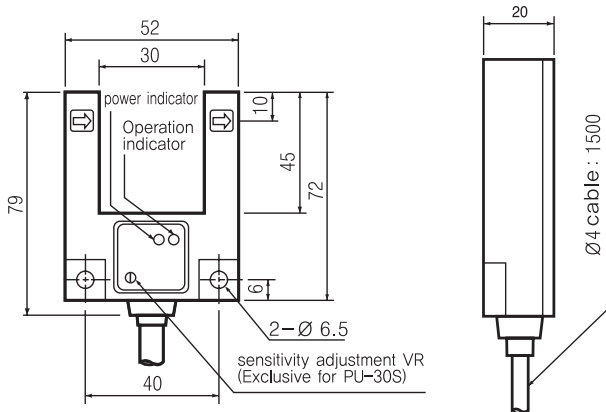
After placing the sensing object, slowly turn the adjusting sensitivity volume in clockwise from the minimum sensitivity position. As turning it in clockwise, the position which the operation indicator turns on (Dark ON mode) or it turns off (Light ON mode) is ①. (At the minimum sensitivity position, the operation indicator can be operated.) The optimal position can be set if the volume is at the position ② which is in the middle of the position ① and the position ③.

Because the case of PU series is made as metal, earthing the metal case will prevent the malfunctions which can be caused by the static electricity, noise and etc.

## Dimension

[Unit : mm]

### PU-30



### PU-50

