Photo Sensor

PEN series

INSTRUCTION MANUAL

Thank you for purchasing Hanyoung Nux products.
Please read the instruction manual
carefully before using this product, and use the product correctly.
Also, please keep this instruction manual where you can see it any time.

MK1501KE190905

HANYOUNG NUX

HANYOUNGNUXCO.,LTD
28, Gilpa-ro 71beon-gil,
Michuhol-gu, Incheon, Korea
TEL : +82-32-876-4697
http://www.hynux.com

Safety information

Please read the safety information carefully then use the product correctly.
The alerts declared in the manual are classified into **Danger**, **Warning** and **Caution** according to their importance

⚠ **DANGER**	Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury
⚠ **WARNING**	Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury
⚠ **CAUTION**	Indicates a potentially hazardous situation which, if not avoided, may result in minor injury or property damage

⚠ DANGER

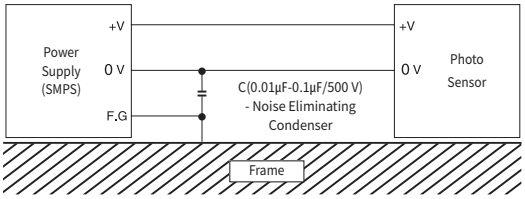
• The input/output terminals are subject to electric shock risk.
Never let the input/output terminals come in contact with your body or conductive substances.

⚠ Warning

•Users must attach the safety device twice when using the product with the machines which may cause casualties, mass damage to the assets or etc since it is not designed as the safety device.
•Please supply in the proper power supply voltage accordance to the rating in order to prevent the product from breaking down or damage.
•Please detach the device after turning off the power. Not doing so may cause an electric shock, malfunction or breaking the device
•Do not disassemble, manufacture, upgrade or fix the product. There are possibilities of malfunction or electric shock or fire to occur.

⚠ Caution

•Please do not use auto-trans in order to maintain the safety of power supply voltage of the product.
Please use the insulation trans.
•When extending the cable, please use thick wire (at least thickness 0.3 ㎟) and at this moment, please watch out for the voltage-drop
•Please separately wire the high-tension wire/power line from the sensor.
•Turning the power ON/OFF continuously will shorten the life expectancy of the product or may cause the malfunction so please be cautious
•When cleaning the lens and the case, please use a dry cloth and gently wipe the surface. You must not use solvents such as thinner or alcohol.
•When setting the sensitivity, do not actuate the sensitivity volume with the strong force on it. Doing so may break the volume.
•When using the power supply device (SMPS), users must earth the frame ground (F.G) terminal.
Not doing so may cause malfunction due to the switching noise of the power so please be cautious



※Users must follow the safety information stated above to avoid product failure.

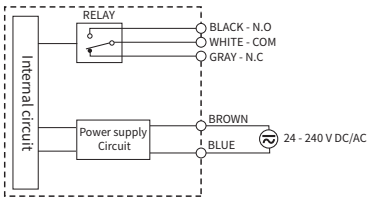
Specification

Model		Power built-in type		
		PEN-T10A	PEN-M5A	PEN-R700A
Detection method		Through - beam	Retro - reflective	Diffuse - reflective
Detection range		10 m	0.1 ~ 5 m	700 ㎜
Sensing object		Opaque object above Ø20 ㎜	Opaque object above Ø60 ㎜	White non-glossy paper 200 × 200 ㎜
Power supply voltage		24 - 240 VDC/AC (Dual usage) ±10 % 50/60 Hz		
Power consumption (current)	transmitter	1 W max	2 W max	
	receiver	2 W max		
Operation mode		Light ON / Dark ON ※ selected by the mode volume		
Sensitivity adjustment		-	Built-in the sensitivity adjustment volume	
Control output		Relay contact output (1c) 30 VDC 5 A / 250 VAC 5 A (resistive load) Electrical life expectancy : min 100,000 times		
Response time		20 ms max		
Hysteresis		-		Within the 20 % of the detection range
Light source		Infrared ray LED (850 ㎚)		
Indicator		Output indication : Red LED (In case of the transmitter, red indicates the power state), Stability: Green LED		
Ambient illumination		Sunlight : 11,000 Lux max, Incandescent lamp : 3,000 Lux max		
Ambient temperature		During operation : -20 ~ 60 C, During storage : -25 ~ 70 C (Without condensation))		
Ambient humidity		35 ~ 85 % R.H. (Without condensation))		
Degree of protection		IP 64 (IEC)		
Insulation resistance		20 MΩ min (500 VDC mega between the recharging part and case)		
Dielectric strength		1,500 VAC (50/60 Hz 1 minute)		
Vibration resistance		10 – 55 Hz 1.5 ㎜ double amplitude for 2 hours each in X, Y and Z directions (but when power is OFF)		
Shock resistance		500 ㎨ (Approx. 50 G), 3 times each in X, Y and Z directions		
Connection method		Cable extended type (# of cables : 5P, diameter : Ø 6 ㎜, length : 2 ㎜) ※ but transmitter is 2P		
Material		Case : heat resistant ABS, Lens: PC		
weight(g)		150		

Cautious 1) the sensing distance can be varied depending on the size, surface condition, glossy, non-glossy of the sensing object.

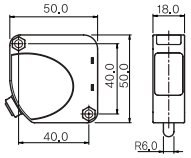
Connection diagram

■ Through-beam type is limited to the receiver

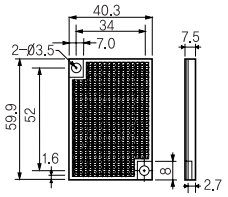


Dimension

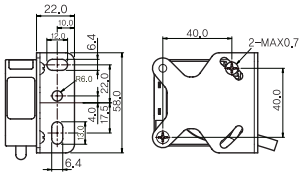
■ Outer dimension



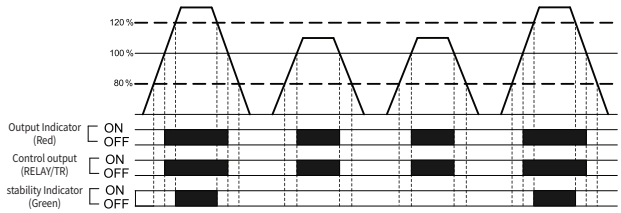
■ Reflector (HY-M5)



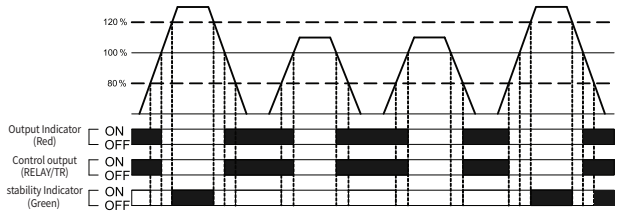
■ Bracket mounted



Output operation characteristic



LIGHT.ON operation



DARK. ON operation

Installation

■ Through-beam type

NO	Method	Picture	Output mode
1	Supply in the power after placing the transmitter and receiver face to face each other.	transmitter receiver	Dark ON fixed
2	Fix either the transmitter or receiver and check for the range where the operation indicator becomes turned ON or turned OFF by controlling in the direction of up, down, left and right. After finishing the confirmation, place it in the middle and fix it.	transmitter receiver	
3	Place the sensing object within the setting range and confirm the condition of proper operation.	transmitter	

■ Retro-reflective type

NO	Method	Picture	Output mode
1	Supply in the power after placing the sensor and mirror face to face each other in the straight line.	Sensor REFLECTOR	Dark ON
2	Fix either the sensor or mirror and check for the range where the operation indicator becomes turned OFF by controlling in the direction of up, down, left and right. After finishing the confirmation, place it in the middle and fix it.	transmitter REFLECTOR	
3	Place the sensing object within the setting range and confirm the condition of proper operation and once the confirmation is finished, fix the sensor.	transmitter REFLECTOR	

■ Diffuse-reflective type

NO	Method	Picture	Sensitivity Volume	Output mode
1	After removing the sensing object, turn sensitivity volume gradually to the max direction and once indicator lights up, that position will be referred as 'A'. (If indicator does not get turned ON (OFF) even in the position of maximum set on the max position.)	Sensor Sensing object	'A' Min. Max. Max Sensitivit Volume	Light ON
2	Place the sensing object in the desirable setting position and gradually turn the sensitivity volume from 'A' to the 'min' direction and once the indicator gets to turned ON (OFF) than that position will be referred as 'B'.	Sensor Sensing object	'B' 'A' Min. Max.	
3	Place the sensitivity volume in the middle of max and 'A' or 'B' and confirm the operation condition of sensing object that occurs within the setting range.	Sensing object Sensor	'B' 'A' Min. Max.	