HANYOUNG NUX PEA Series Built in Amplifier Instruction Manual

Built-in power(A) / Built-in amplifier(N,P) photo sensor
PEA 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.

Contents

Safety information

Please read the safety information carefully before use, and 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

- This product is not for outdoor use (it may shorten the product lifetime and cause electric shock)
- Do not use this product in places with flammable or explosive gases (it does not have an explosion-proof structure, so there are fire or explosion risks)
- Do not use the product in places where vibrations or shocks exceed the reference values (it has a double insulation structure, but the components may be damaged)

⚠ CAUTION

- Applicable Pollution degree 3 of intended environment.
- Never use it on AC power.
- Be careful of wiring. It may cause explosion, fire, or machine breakdown.
- Do not use the product in a state where the product body or cable is crashed.
- Do not disassemble, repair or modify the product.
- When the lens of the photo sensor is contaminated by foreign substances, use a dry piece of cloth and wipe off the substance lightly. Never use thinner or organic solvents.
- Separate high voltage cable and power line from the sensor wire.
  Be cautious since using the same pipe during wiring could cause malfunction.
- If the cable needs to be extended, use over 0.3 and be cautious because of a possible sudden voltage drop.
- When using the sensor under lights with high frequency, such as fluorescent lamps or mercury lamps, block it with a light shading plate and avoid the lens from facing the light directly.
- If multiple through-beam type photoelectric sensors are installed close together, malfunction may happen due to the mutual interference.
- Using inductive load (relay, coil) for the output can cause an instantaneous increase in load by more than two times and damage the TR of the output. Therefore, please set half of the maximum load.
- There is an over-current protecting circuit within the output side that breaks the output when the current is higher than the rated load current. Therefore, please set within 70% of the maximum load.
- Do not use the product in places with heavy dust or debris that can contaminate the lenses and consequently

cause malfunctions.

- The contents of this manual may be changed without prior notification
- Any use of the product other than those specified by the manufacturer may result in personal injury or property damage.
- When using the Switching Power Supply as power source, ground the Frame Ground (F.G.) terminal and be sure to connect the noise-cancelling condenser between OV and F.G. terminals
- The power supply should be insulated and limited voltage/current or Class 2, SELV power.

Specification

Sensing mode		Through – beam	Retroreflective(MS.R.)	Diffuse- reflective
Model	Relay output (AC/ DC power)	PEA-T30A	PEA-M5A	PEA-R2A
	NPN Open collector output (DC power)	PEA-T30N	PEA-M5N	PEA-R2N
	PNP Open collecto r output (DC power)	PEA-T3OP	PEA-M5P	PEA-R2P
Sensing distance		30m	0.1 – 5 m	2m
Hysteresis distance		–		20%aless cf detectio n distance
Detecting object		012 mm more (O paque)	060mm more (Opaque)	White paper (100 x 1 00 mm)
Light source (wavelength)		Infrared light emitt ing diode (855 nm)	Red light emitting diode (660 nm)	Infrared light emitting diode (855 nm)
Power v oltage	Relay output (AC/ DC power)	24 – 240V a.c. ±10 %or 24.240 V d.c. ±10% (Ripple max. 10%)		
	Open collector out put (DC power)	12 – 24V d.c. Class 2 ± 10% (Ripple max. 10%)		
Power c onsumpt ion	Relay output (AC/ DC power)	•Transmitter Max. 1VA, •Receiver Max. 2 VA	Max. 3VA	
	Open collector out put (DC power)	•Transmitter Max. 15 mA	•Receiver Max. 20 mA Max. 35 mA	
Control output	Relay output (ACA:)C power)	• Relay contact output (Contact configuration lalb) • Electrical life: Min. 100,000 cycles • Contact Capacity: 30 V d.c. 5A/ • Mechanical life : Min. 50million cycles 250 V a.c. 5 A with resistive bad (Opening/closing frequency 180 times/min))		
	Open collector out put (DC power)	•NPN or PNP open collector output •Load current – Max. 100 mA (26.4 V d.c. standard) • Residual voltage – Max. 1 .5 V		

Operation mode		Light ON / Dark ON button switch type		
Indicator light		Control output indicator light : Orange LED, Stability indicator light: Green LED (However, the Green LED of the through-type emitter is a power indicator)		
Auto-teaching		See How to set sensitivity and operation mode → Section a).		
AGC		After 20 seconds of unstable light entering on button locked gate to stable light entering state		
Sensitivity adjustment		B1 increase the sensitivity and B2 decreases the sensitivity		
Protection circuit	Common	–	I Mutual interference prevention function	
	Open collector output (DC power)	Power reverse connection protection, Output short-circuit over-current protection, Output reverse connection protection, Output short-circuit alarm		
Response time	Relay output (AODC power)	Max. 20 us		
	Open collector output (DC power)	Max. 1 ms		
Insulation Resistance		More than 20 MO (500V d.c. mega)		
Dielectric strength		1,000 V ac. (50/60 Hz for 1 minute)		
Vibration resistance		10-55Hz, sweep'. 1.5mm, X•Y•2 2 in each direction for 2 hours		
Shock resistance		500 m/s2, X•I each direction 3 times		
Ambient illumination		Sunlight: max. 11,000 lx / Incandescent: max 3,000 k		
Ambient temperature range		Operating temperature : -20 —455 °C , During storage: -40 — .10°C (Without condensation or icing)		
Ambient humidity		35 — 85 %RH (Without condensation or icing)		
Protection		IP67 (IEC standard)		
Weight (Packing)	Relay output (ACIOC power)	265g (440g)	150g (280g)	145g (260g)
	Open collector output (DC power)	255g (4300	140g (270g)	140g (255g)
Texture	Case	PC		
	Display	PC		
	Lens	PMMA		
Accessory	Common	Instructions manual, bracket, bolt (M3 X 12 mm)		
	Accessory	–	I Mirror (HY-M5)	–
Connection method		Cable type		
Wiring specificati	Relay output (ACIDC power)	0 6 mm, Through-beam type transmitter: 2-core, Through-beam type receiver, Mirror-reflection type, Diffuse-reflective type: 5-core, 2 m		

on	Open collector out put (DC power)	0 6 mm, Through-beam type transmitter: 2-core, Through-beam type receiver, Mirror-reflection type, Diffuse-reflective type: 5-core, 2 m
Specifications of the small-sized cable		AWG20 (0.18 mm, 21 wire), Insulation outer diameter: 1.5 mm

- Mutual interference prevention function
- Resistant to noise by adopting digital signal processing
- M.S.R. that receives only the light reflected from the mirror
- IP67 (IEC standard) protection structure with excellent water resistance
- Realization of long-distance detection by adopting high-performance lens

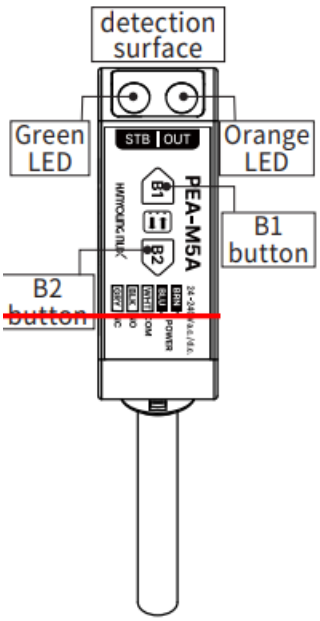
Suffix code

Model	**Code**			**Content**	
PEA-	☐	☐	☐	PEA series	
Sensing mode	M			Through-beam	
	R			Diffuse-reflective	
		30		30 Through-beam)	
Sensing distance		5		5 m (Retroreflective)	
		2		2 m (Diffuse-reflective)	
			A	Relay contact output / AC/DC power	
Control output			N	NPN Open collector output	DC power
			P	PNP Open collector output	DC power

How to set sensitivity and operation mode

NO	Function		Information
1	Button lock 84unlock		Press the B1 button for more than 3 seconds to change (lock or unlock).
3	Auto- te aching	Through-beam	If the B2 button is pressed for more than 3 seconds in the presence of a detection object, the sensitivity is automatically set.
		Retroreflective (M.S.R.)	
		Diffuse- reflectiv e	1) In the presence of a detection object (stable light incident) 2) Release the B2 button after pressing it for more than 3 seconds. 3) Check the Green + Orange LED cross blinking (try again if either side is not blinking) 4) Press the B2 button once after removing the detected object (0.5 se conds)
4	Increase sensitivity		Press the B1 button for less than 3 seconds to increase the fine sensiti vity (1 STEP)
5	Decrease sensitivity		If the B2 button is pressed for less than 3 seconds, the fine sensitivity d ecreases (1STEP)
6	Operation mode change		Press the B1 +B2 buttons simultaneously for 5 seconds or longer to change the operation mode (Light ON4->Dark ON)
7	Factory reset		After pressing the B1 +B2 buttons together for more than 5 seconds, release only B1 After 5 seconds, release the B2 button to reset. (Dark ON, sensitivity maximum, button unlock changes, and diffuse r eflection type becomes Light ON.)_
8	AGC		Unstable light If it lasts more than 20 seconds, it is adjusted to stable light in cident state.

Operation in button unlocked state

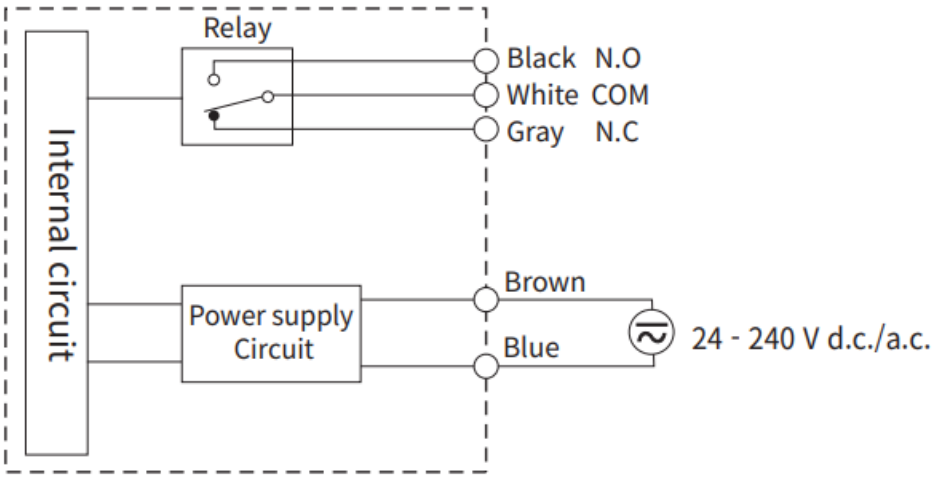


Indicator light state

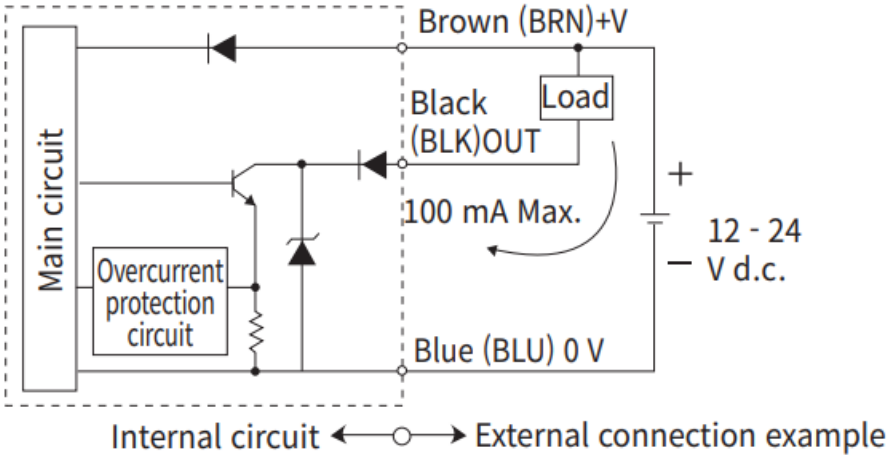
1	Button lock		Within 3 seconds (Green blinking) → After 3 seconds (Orange ON), release the B 1 button, Green + Orange blinking (2 seconds) ※ Setting value cannot be changed when button locking or unlocking is operated
2	Button unlock		Within 3 seconds (Green + Orange blinks) → After 3 seconds (Orange ON), relea se the B1 button, Green + Orange blinks (2 seconds)
3	Auto-t eachi ng	Through-bea m	Within 3 seconds (Green blinking) → After 3 seconds (Orange ON) → When the B2 button is released, Green + Orange blinks alternately (5 seconds)→ Green bl inks (2 seconds)
		Retroreflectiv e (M.S.R.)	
		Diffuse- refle ctive	If you press the B2 button once when there is Green + Orange blinking (0.5 seconds), Green blinks 6 times.
		※ If auto-teaching is attempted while the light from the emitter does not enter the receiver, the Or ange blinks (Error displayed fort seconds)	
4	Increase sensitivity		Within 3 seconds (Green blinking)
5	Decrease sensitivity		Within 3 seconds (Green blinking)
6	Operation mode chan ge		Within 5 sec (Green + Orange OFF) → After 5 sec (Green + Orange ON) → Rele ase B1 + B2 button to blinking Green (2 sec)
7	Factory reset		Within 5 sec (Green+Orange OFF) → After 5 sec (Green+Orange ON) → Releas e B1 button to blinking Green + Orange ON (5 sec) → After 5 seconds (Green O N) → B2 button is released, Green blinks (2 seconds)
Etc	Save previous executi on value		10 – ® Saved after a certain period of time after performing the operation (no arbi trary operation), blinking Green (1 time)After saving the operation value, even if t he power is turned off and on, the previous operation value is saved (automaticall y saved even in case of power failure)

Connection diagram

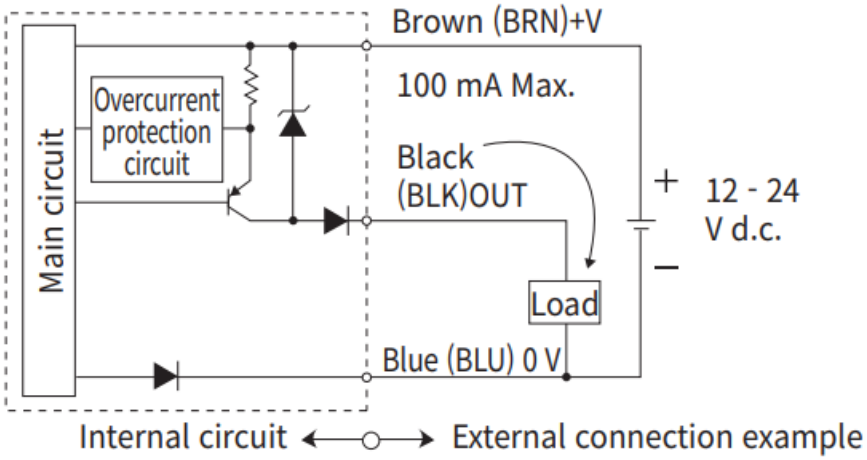
■ Relay contact output



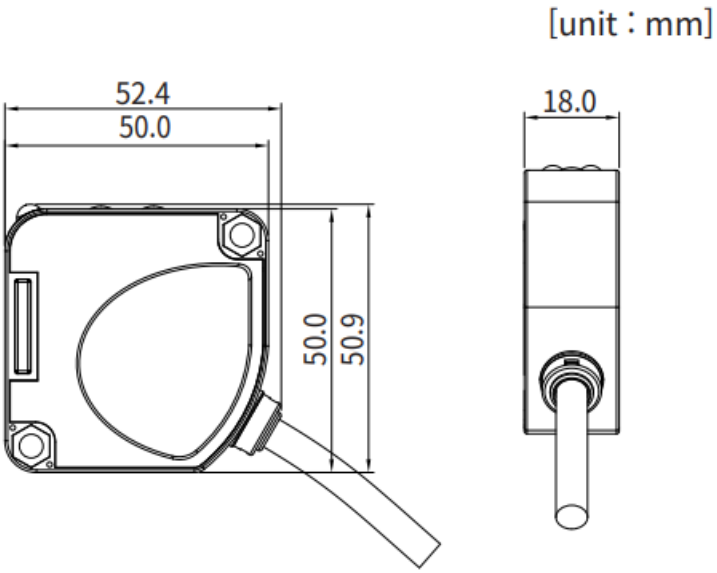
■ NPN TYPE



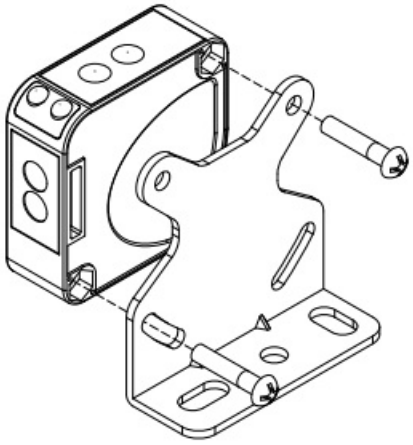
■ PNP TYPE



Dimension

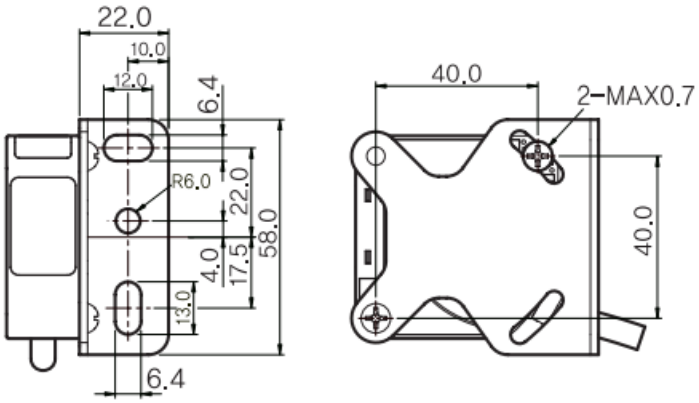


How to install

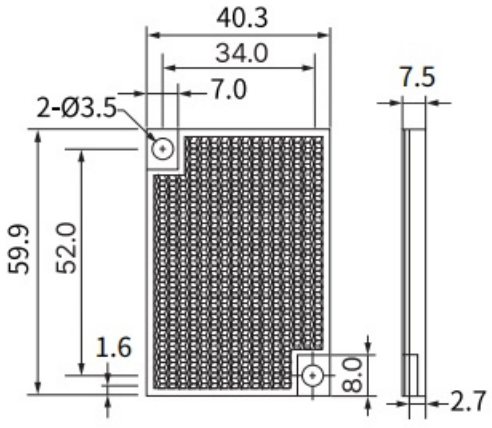


Accessories

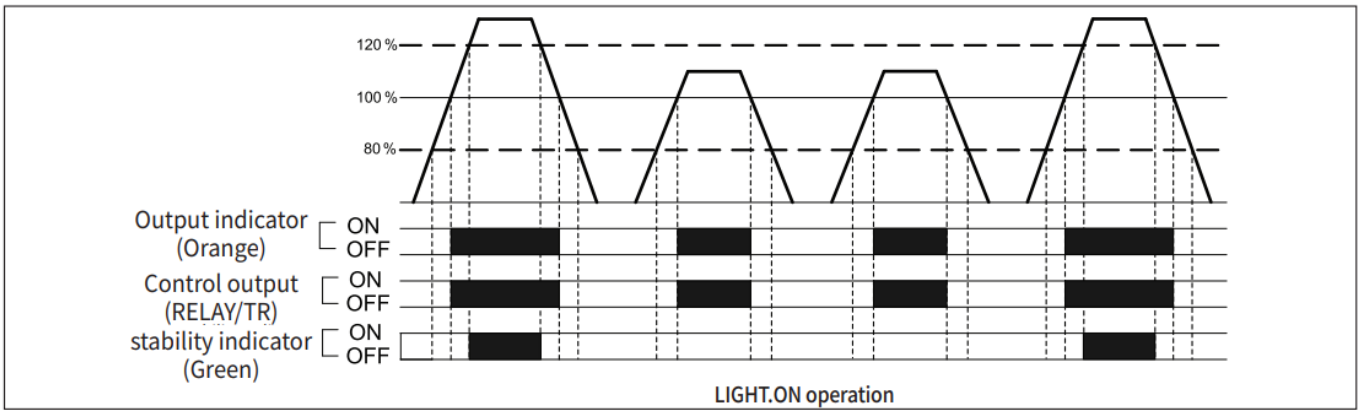
Bracket

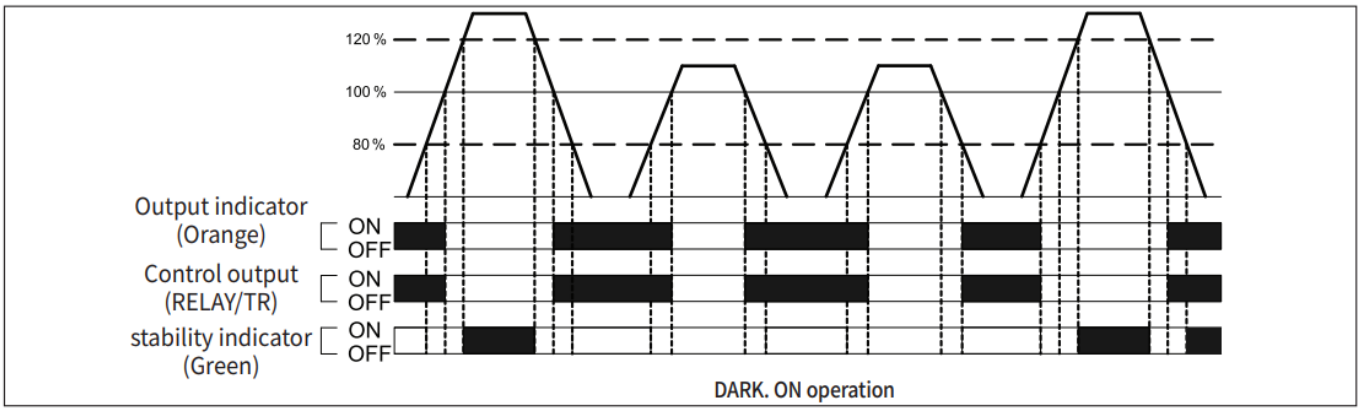


Reflector (HY-M5)



Output operation characteristic





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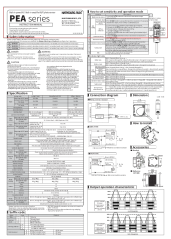
Documents / Resources

	HANYOUNG NUX PEA Series Built in Amplifier [pdf] Instruction Manual PEA-R2A, PEA Series Built in Amplifier, PEA Series, Built in Amplifier

References

- User Manual