

Fiber wide sensor

PAS series

INSTRUCTION MANUAL

Thank you for purchasing HANYOUNG NUX Co.,Ltd. product. Please check whether the product you purchased is the exactly same as you ordered. Before using this product, please read instruction manual carefully.


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Safety Information

Please read safety information carefully before use and then use this product properly. Safety information described in this manual contains important contents related with safety. So please follow the instructions accordingly. Safety information is composed of DANGER, WARNING and CAUTION.



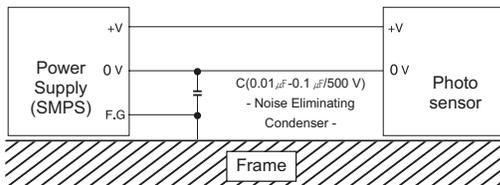
WARNING

- To prevent electric shock or malfunction of product, do not supply the power until the wiring is completed.
- Since this product is not designed with explosion-protective structure, do not use it any place with flammable or explosive gas.
- Reassemble this product while the power is OFF. Otherwise, it may be a cause of malfunction or electric shock.
- Due to the danger of electric shock, use this product installed onto a panel while an electric current is applied.



CAUTION

- The contents of this manual may be changed without prior notification.
- If you use the product with methods other than specified by the manufacturer, there may be bodily injuries or property damages.
- Do not decompose, modify, revise or repair this product. This may be a cause of malfunction, electric shock or fire.
- Make sure that there is no damage or abnormality of the product during delivery.
- Do not use this product at any place with a large inductive difficulty or occurring static electricity or magnetic noise.
- Do not use this product at any place with possible thermal accumulation due to direct sunlight or heat radiation.
- When the product gets wet, the inspection is essential because there is a danger of electric leakage or fire.
- Do not connect anything to the unused terminals.
- After checking the polarity of terminal, connect wires at the correct position.
- For the continuous and safe use of this product, the periodical maintenance is recommended.
- Make its wiring be shorter as possible and wire extension shall be within 100 m.
- Avoid continuously switching the power source On and Off.
- Use a dry cloth to wipe off the substance when cleaning the lens or cases. Never use thinner or organic solvents.
- Do not use this product at any place with much dust, vibration or impact.
- Before inserting power source, make sure that the circuit wiring is properly connected.
- In the case of wiring loaded inductors such as DC Relay and others to output, use diode, varistor and others to prevent surge.
- To avoid malfunction caused by noise, do not put high voltage or power line with sensor wire in a same conduit
- Prevent strong disturbance light such as sunlight and others which directly enter into the directional angle of the sensor by putting a glare shield.
- When using the Switching Power Supply as the power source, earth the Frame Ground (F.G) terminal and be sure to connect the noise-eliminating condenser between 0 V and F.G.



※ If you do not follow the contents described in the safety information then it is possible to be a cause of the product's malfunction so please follow them.

Features

- 13 mm slim body type
- Include interference protection function
- Auto sensing correction function
- Fast response time: Max. 7 ms

Model contents

MODEL	Model number	Description
PAS -	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Photo Area Small
	T	Through Beam
Number of optical axis	4	4 Axis
	8	8 Axis
	12	12 Axis
	16	16 Axis
	20	20 Axis
Output type	N	NPN output type
	P	PNP output type

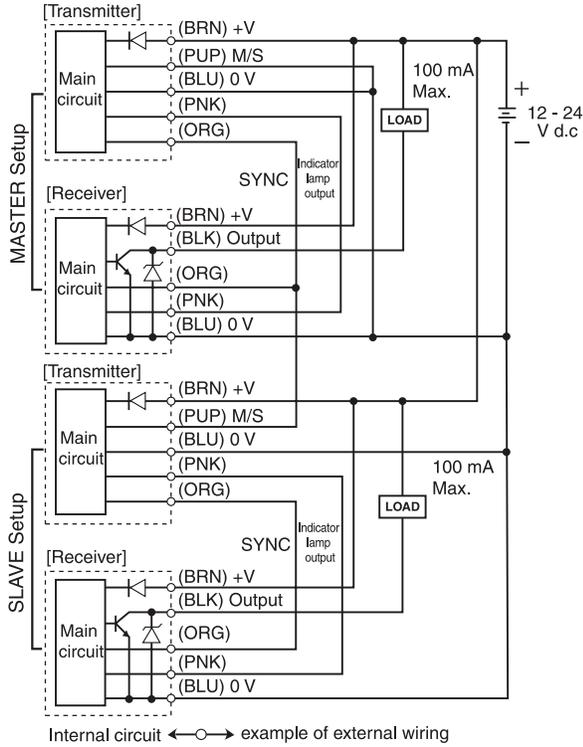
Specifications

Type		Transmitting beam type				
Model name	NPN	PAS-T4N	PAS-T8N	PAS-T12N	PAS-T16N	PAS-T20N
	PNP	PAS-T4P	PAS-T8P	PAS-T12P	PAS-T16P	PAS-T20P
Number of optical axis		4	8	12	16	20
Detection area		60 mm	140 mm	220 mm	330 mm	380 mm
Detection range		5 m				
Standard detect able object		Opaque object above 30 mm				
Optical axis pitch		20 mm				
Power voltage		12 - 24 V d.c less than 10 %				
Current Consumption		less than 80 mA	less than 90 mA	less than 100 mA	less than 110 mA	less than 120 mA
Output operation		NPN open collector output / PNP open collector output Load voltage: Max 30V d.c, Resistive load: Max. 100 mA Induced load: 50 mA Residual voltage: Max. 1				
Operation Mode		Output ON when all axis received light (Off when one or more axis received light)				
Response time		7 ms				
Far field beam distribution		Within ± 5 degree (detection range from above 2 m)				
Light source of emitter		Infrared LED (wavelength 850 nm)				
Operation indicator lamp		Trns: display M/G-red LED, display power-green LED, operation display-red LED				
		Rcvr: display E1-red LED, display E2-blue LED				
		Stable light receiving indicator-green LED, operation display-red				
Ambient light		LED Sun light: below 10,000 lx				
Ambient temperature		During operation: -10 ~ 55 °C, During maintaining: -25 ~ 70 °C (freezing not allowed)				
Ambient humidity		During operation : 35 ~ 85 % R.H, during maintaining: 35 ~ 85 % R.H (dew drops not allowed)				
Protection structure		IP 40				
Vibration		10 - 55 Hz (1 min period), double amplitude 1.5 mm X, Y, Z for 2 hours in each direction				
Dielectric voltage		1000 V a.c for 1 minute				
Insulating resistance		500V d.c mega so more than 20 M Ω				
Shock		500 % (approximately 50G) X, Y, Z each direction 10 times				
Connection method		Connector code type : 0.2 mm x 5 p cables, \varnothing 4.3 mm				
		Color cable (Transmitter : Gray, Receiver : Dark brown each 3 m)				
Material components		Body: ARS, Cover, lens: acryl				
Weight		Each Max160g	Each Max 180 g	Each Max 200 g	Each Max 220 g	Each Max 240 g
Protection		Auto sensing correction, Interference protection and output cutoff protecting function				

- Please be cautious: Detection range may vary depending on the size of detecting object, surface condition, and presence of gloss.
- PAS-TL8 (Transmitter) and PAS-TR8N (receiver) are 1 set of PAS-T8N
- Weight given above did not include weight of packing box.

■ Master/Slave Connection

- Interference protection function



Internal circuit ← example of external wiring

- Caution1) Connect M/S line (purple) of transmitter within one of 2 sensors to 0 V (blue). In this case, sensor only operates in Master Mode (M mode)
- Caution2) Connect M/S line (purple) of transmitter within one of 2 sensors to opposite side of baseline (Orange). In this case, sensor only operates in Slave Mode(S mode).
- Caution3) Connect to GND (0 V) commonly when using power of transmitter and receiver separately

Warning

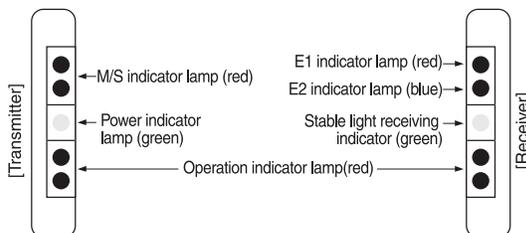
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Operation arrangement of indicator lamp

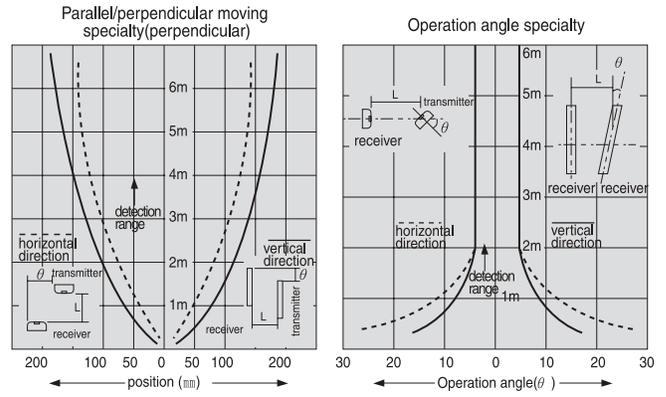
■ Indicator lamp operations

	Name	Color	Name
Transmitter	M/S	Red	When operating Master, LED output OFF / When operating Slave, LED output ON
	power indicator lamp	Green	Power indicator lamp
	operation indicator lamp	Red	Light ON when incoming light shade (more than 1 optical axis light shade)
Receiver	Error1 (E 1)	Red	Cluck (Synchronization signal)/Light turn off when reset signal light is disconnected or cut off
	Error2 (E 2)	Blue	Light turn off due to ambient light such as other sensor, mercury lamp, fluorescent lamp and etc
	Stable light receiving indicator	Green	Light turn ON when receiving lens received light more than safety control level
	Operation indicator lamp	Red	Light ON when incoming light shade (more than 1 optical axis light shade)

■ Position of indicator lamp

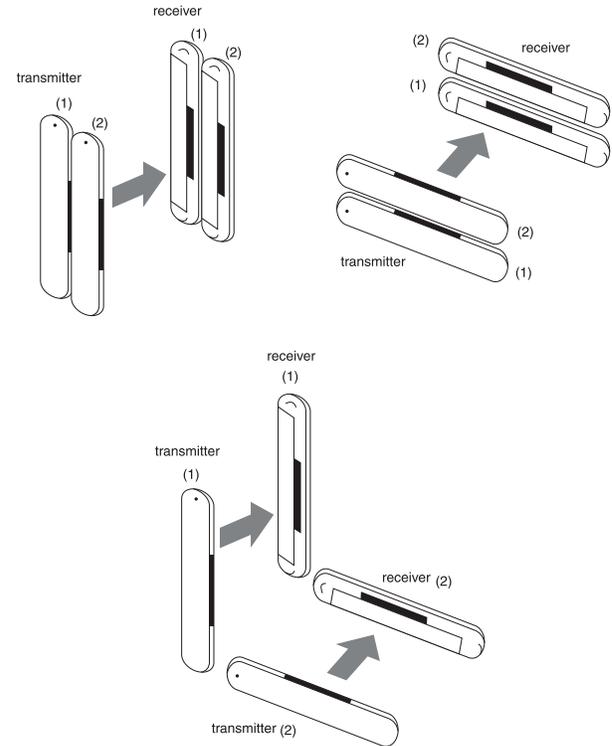


Special Graph



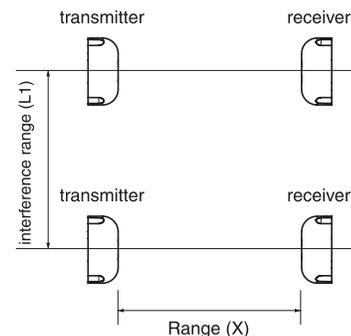
In case of using Interference protection function

- Installing 2 pair of sensors face to face does not affect each other

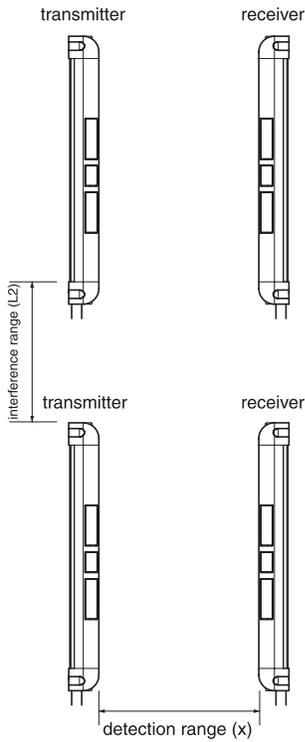


In case of not using Interference protection function

- Installing left and right(arranging left and right)

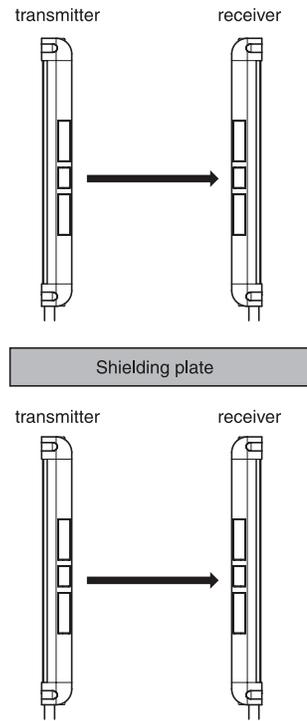


■ Installing top and bottom(arranging top and bottom)

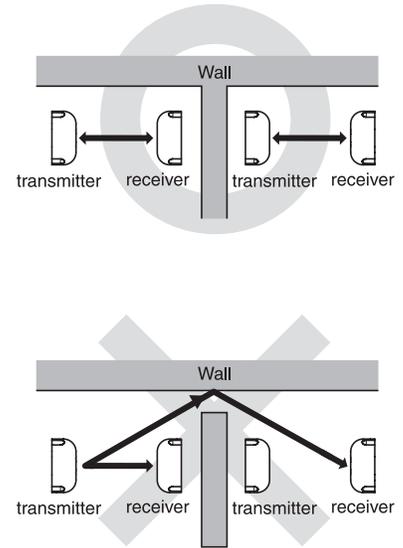


• Distance L1 and L2 which do not interfere with contiguity sensor, are used with spreading out approximately 1.5 times of parallel moving specialty.

■ In case of installing shielding plate



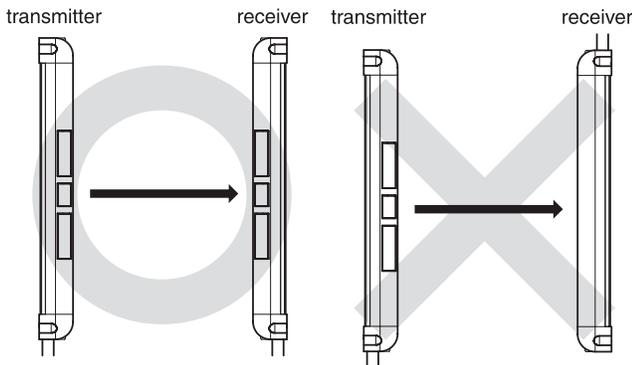
<Picture 1>



<Picture 2>

• Install shielding plate just like picture 1 which prevents light to come in from other transmitter. Also, due to reflection from contiguity surface wall or floor surface, there are possibilities of malfunction because of detour of shielding plate. So please be cautious when installing shielding plate. (Make sure reflected light is also blocked)
<Picture 2>

Things to consider when installing

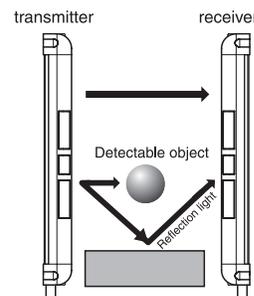


• Please install that none of strong light such as sun light, fluorescent lamp, incandescent lamp and etc go in to Far field beam distribution of the area sensor. When installing area sensor, please avoid strong impact or strong force on to the device because they can destroy some of parts inside. Make sure that direction of code draw out is same for transmitter and receiver. (Refer to above image)

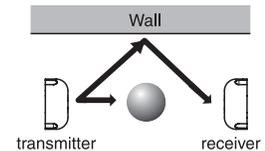
Considering reflection light within surface floor when installing

• Just like following pictures, in case of installing without maintaining proper distance, reflection from surface of floor can cause this device to operate not properly. Also reflection from side wall can cause malfunction too. When installing please check for proper operation before using it.

■ Side view



■ Top side view



Panel and Optical Axia Adjustment

- Make sure that direction of cable draw out is same for transmitter and receiver.
- Check the lighting of power light (green) of the transmitter after verifying the connection condition and power input
- Move the transmitter to the directions of left, right, up and down to turn on the Light ON Stable Light (green) of Receiver
- Auto sensing correction, resetting power will make auto correcting sensitivity to operate and sensor will be set as best sensitivity. Also, if pollutants or alien substances are stick on to lens, then it will automatically clean them and set as best sensitivity.