HANYOUNG nux PAN20-TN PAN Series Area Sensor Instruction Manual

Contents

HANYOUNG nux

HANYOUNG nux PAN20-TN PAN Series Area Sensor

Product Information: Area Sensor PAN Series

The Area Sensor PAN Series is a product manufactured by Hanyoung Nux. It is used to detect the presence or absence of an object in a specific area. The sensor operates through a through-beam sensing method using an IR (860nm) light source. It is available in two models, PAN20 and PAN40, with varying optical axis pitches and number of optical axis. The sensor has NPN or PNP control output options.

Specifications:

Type	Model	Sensing Distance	Sensing Object	Optical Axis Pitch	Light Source	Power Voltage	Current Consumption	Control Output
Through beam	PAN 20-TN	7m	20mm	8-48 (depending on model)	IR (860 nm)	Max. 170V	Max. 100mA	NPN or PNP open collector
Through beam	PAN 40-TN	7m	40mm	4-24 (depending on model)	IR (860 nm)	Max. 170V	Max. 100mA	NPN or PNP open collector

The sensor has a response time of maximum 15ms and is insulated with a minimum resistance of 20M ohms (500VDC mega standard). It is also equipped with noise immunity, dielectric strength, vibration resistance, and shock resistance features for added protection.

Product Usage Instructions:

Before using the Area Sensor PAN Series, it is important to read the safety information carefully and use the product correctly. The alerts declared in the manual are classified into Danger, Warning, and Caution according to their importance. Please follow these alerts to prevent any product malfunction.

1. Connect the sensor to a power source using the power supply (SMPS) and noise-eliminating condenser.
2. Select the appropriate model and control output option for your application.

3. Install the sensor in the desired location with a clear line of sight to the area to be detected.
4. Set the operation mode using the M/S MODE switch for the transmitter and D/L MODE switch for the receiver.
5. Check the operation LED and protection circuit for proper functioning.
6. Ensure that ambient illumination is within the specified range of maximum 10,000 lux for sunlight and 3,000 lux for incandescent lamp.
7. During operation, maintain an ambient temperature of -10 ~ +55 ℃ and humidity of 35 ~ 85% R.H. without condensation or icing.

PAN 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.

HANYOUNGNUXCO.,LTD

28, Gillaroo 71beon-gil, Michuholgu, Incheon, Korea
TEL : +82-32-876-4697 **http://www.hynux.com**

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.

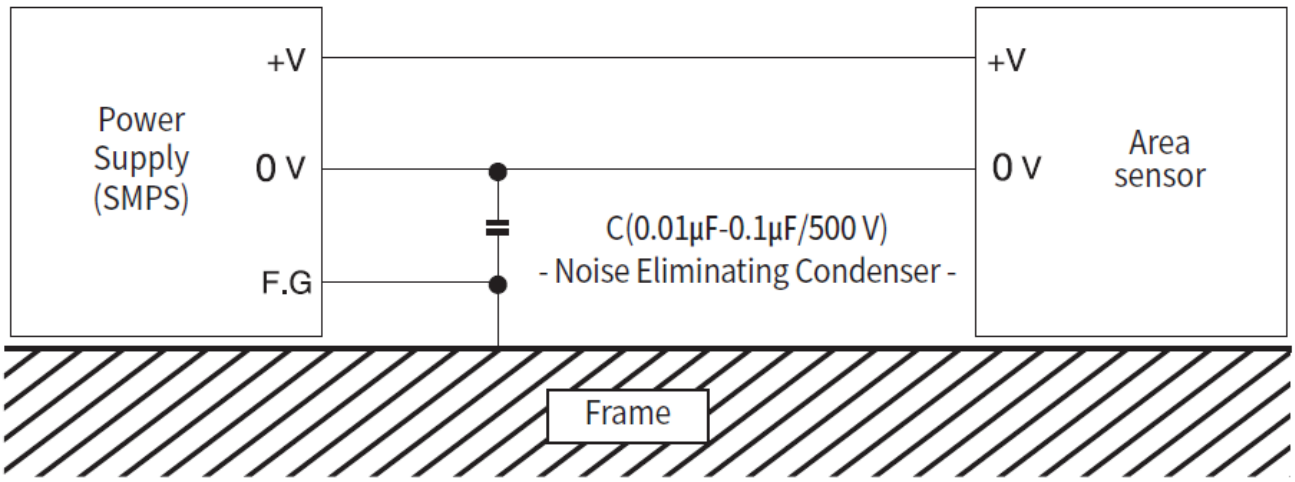
WARNING

- The contents of this manual are subject to change without prior notice.
- To prevent defection or malfunction of this product, supply proper power voltage in accordance with the rating.
- Do not use the product at where subject to flammable or explosive gas.
- Remove this product while the power is off. Otherwise, it may cause malfunction or electric shock.
- Due to the danger of electric shock, use this product installed onto a panel while an electric current is applied.
- To avoid electric shock, use this product installed on the panel.
- This product is not for press safety sensors.

- This product does not have control of the disaster prevention and accident prevention.
- Hanyoung Nux shall not be liable for a damage and for a failure.

CAUTION

- The contents of this manual are subject to change 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 noise or occurring static electricity or magnetic noise.
- Do not use this product at any place with possible thermal accumulation from direct sunlight or heat radiation.
- When the product gets wet, the inspection must be done to avoid electric leakage or fire.
- Make sure that the unused wire insulated.
- Make sure to wire with correct polarity of terminals.
- For the continuous and safe use of this product, the periodical maintenance is recommended.
- Make wiring as short as possible, wire is recommended with its demission 0.5 or more and maximum 25m.
- 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 where exposed to 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, visitor 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.

Feature

- Minimum beam pitch 20 , maximum beam pitch 40 .
- Providing various detection range (140 – 940).
- Mutual interference protection when installed in parallel (Max 2 sets).
- Dark On/ Light ON operation selectable according to applications.
- Easy to check and maintenance by operation display and Error indicator.

Suffix code

	Code				
PAN Model	□	-□	□	□	Area Sensor Content
Optical axis pitch	20				20
	40				40
Sensing method		T			Through Beam
Number of optical axis					Number of optical axis (Please refer to table below)
Control output				N	NPN open collector
				P	PNP open collector

PAN20	8, 12, 16, 20, 24, 28, 32, 36, 40, 44, 48
PAN40	4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24

Specification

Model		NPN	PAN20-T□N	Through	PAN40-T□N
	PNP		PAN20-T□P		PAN40-T□P
Sensing distance			7 m		
Sensing object					
Optical axis pitch			20	IR (86	40
Light source					
Power voltage			12 – 24 VDC ±10% Ripple(p-p)10% max		

Current co nsumption	Max. 170	Max. 100
Operation LED	LED), E1 display(Red LED), E2 display(Blue LED)	
Protection circuit	Power reverse connecMtiountuparlointetcetrifoenre, nOcuetpretvsahtoiornt-cfuirnccutiitoonver-current protection,	
Response Time	Max. 15	
Insulation resistance	Min. 20 (500 VDC mega standard)	
Noise im munity	Square wave noise by noise simulator (pulse width 1) ±240 V	
Dielectric strength	1,000 VAC (50/60 Hz 1min)	
Vibration r esistance	10 – 55 , double amplitude: 1.5 , X·Y·Z in each direction for 2 hours	
Shock resi stance	500 , X·Y·Z each direction 3 times	
Ambient ill umination	Sunlight : Max. 10,000 Lux, Incandescent lamp : Max. 3,000 Lux	

Ambient temperature		During operation : -10 ~ +55 ℃, During storage : -25 ~ +70 ℃ (Without condensation or icing)
Ambient humidity		35 ~ 85 % R.H. (Without condensation)
Degree of protection		IP65 (IEC standard)
Approval		
Connection method		(Code length : 200 , RNeulamybceornonfewctiroersty: p4Pe, Dimension : Ø5.5)
Material	Case	Aluminum
	front cover	Acryl
	lens	Acryl

Production formation

Series	Model	Detection	Seisntsainocneg	Nputimcablearxoefs	Detecting	Current(tComnasux)motion	Detectable object
	PAN20-T8			8 EA	140	70	

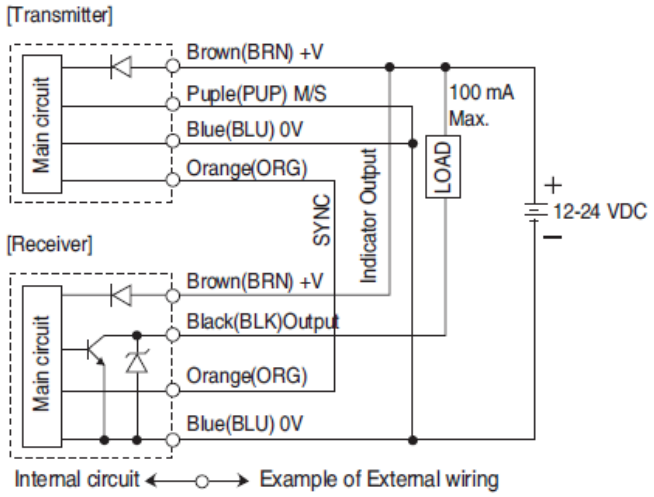
PAN20	PAN20-T12			12 EA	220	80	Oopajeqcute Øab 32ov e
	PAN20-T16			16 EA	300	90	
	PAN20-T20			20 EA	380	100	
	PAN20-T24			24 EA	460	110	
	PAN20-T28			28 EA	540	120	
	PAN20-T32			32 EA	620	130	
	PAN20-T36			36 EA	700	140	
	PAN20-T40			40 EA	780	150	
	PAN20-T44			44 EA	860	160	
	PAN20-T48			48 EA	940	170	
	PAN40-T4	ThBreo aumgh	7 m	4 EA	120	50	

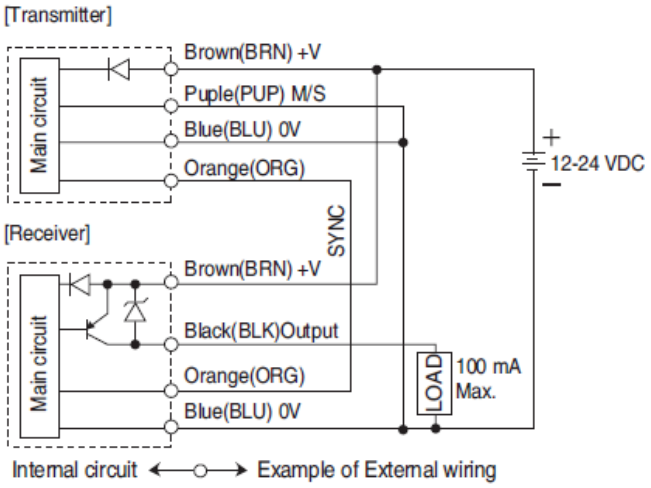
PAN40	PAN40-T6			6 EA	200	55	Oopajeqcute Øab 52ov e
	PAN40-T8			8 EA	280	60	
	PAN40-T10			10 EA	360	65	
	PAN40-T12			12 EA	440	70	
	PAN40-T14			14 EA	520	75	
	PAN40-T16			16 EA	600	80	
	PAN40-T18			18 EA	680	85	
	PAN40-T20			20 EA	760	90	
	PAN40-T22			22 EA	840	95	
	PAN40-T24			24 EA	920	100	

Output Circuit

- **NPN Open Collector Output (N TYPE)**

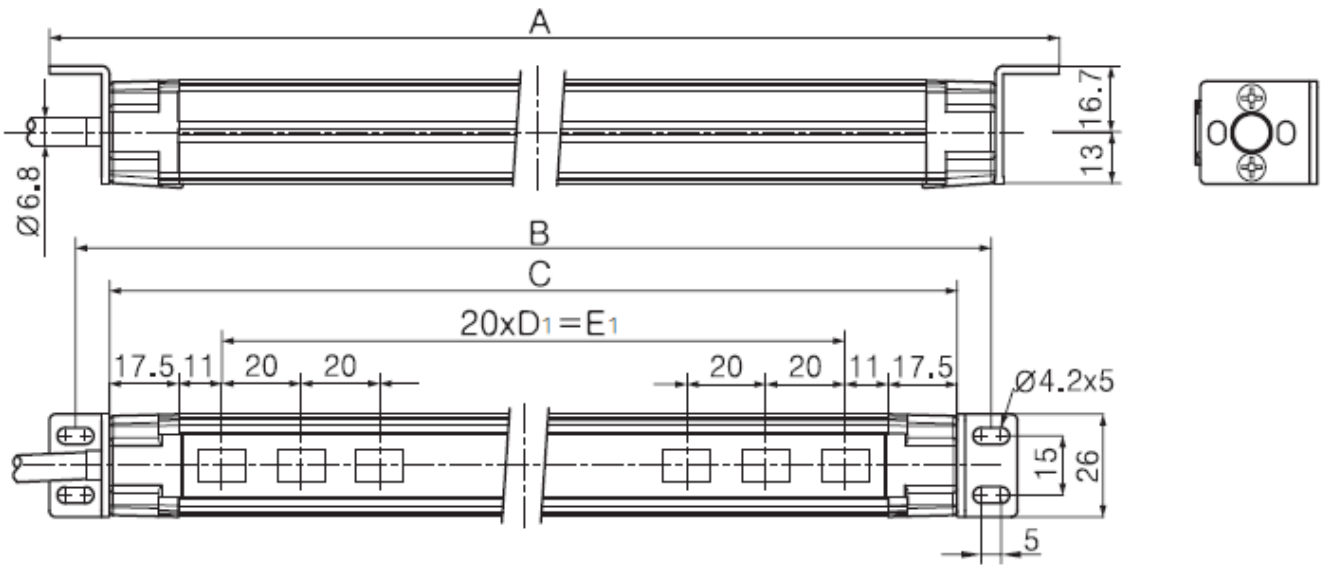
- **PNP Open Collector Output (P TYPE)**



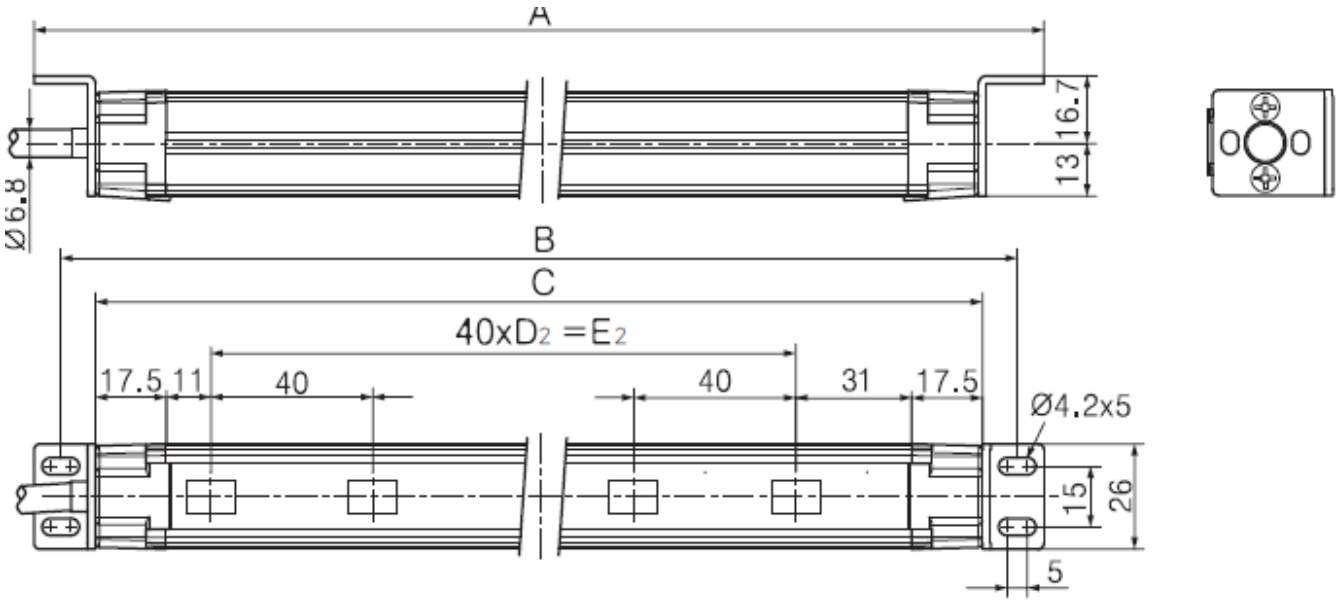


Dimension

PAN20 series

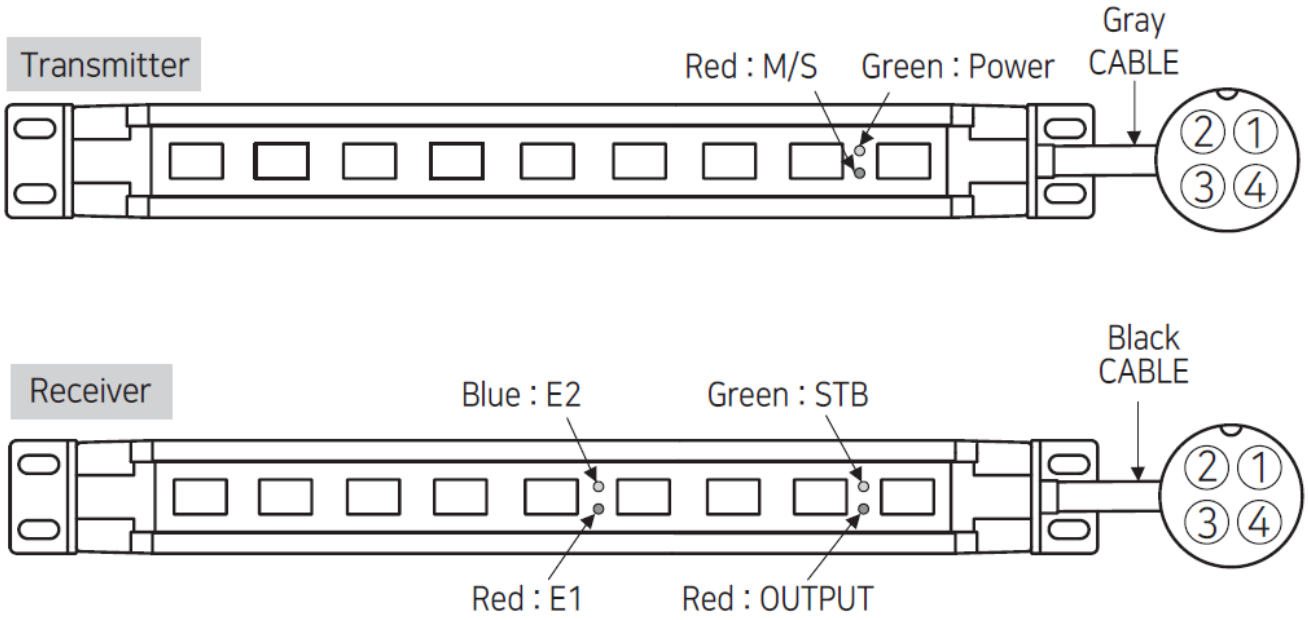


PAN40 series



Type		A	B	C	D1	D2	E1	E2
PAN20-T8	PAN40-T4	227	214.2	197	7	3	140	120
PAN20-T12	PAN40-T6	307	294.2	277	11	5	220	200
PAN20-T16	PAN40-T8	387	374.2	357	15	7	300	280
PAN20-T20	PAN40-T10	467	454.2	437	19	9	380	360
PAN20-T24	PAN40-T12	547	534.2	517	23	11	460	440
PAN20-T28	PAN40-T14	627	614.2	597	27	13	540	520
PAN20-T32	PAN40-T16	707	694.2	677	31	15	620	600
PAN20-T36	PAN40-T18	787	774.2	757	35	17	700	680
PAN20-T40	PAN40-T20	867	854.2	837	39	19	780	760
PAN20-T44	PAN40-T22	947	934.2	917	43	21	860	840
PAN20-T48	PAN40-T24	1027	1014.2	997	47	23	940	920

Indicator & Wiring classification



Operation LED classification

LED indicator	**Transmitter**
Red Green	L.OFF when operation the MASTER / L.ON when operating the SLAVE Power indicator

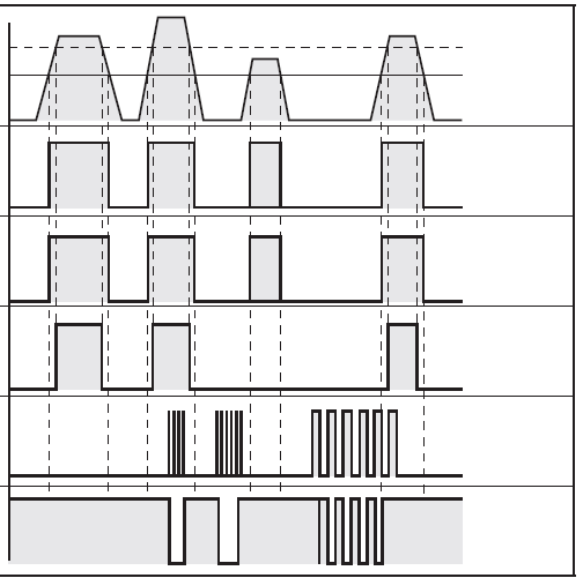
LED indicator	**Receiver**
Red	Operation LED
Green	L.ON stability indicator
Red	L.OFF with the disconnection or break of cluck (sync signal)/reset signal wire
Blue	L.OFF with the appearance of disturbance light such as mercury lamp, luminescent light and etc.

Wiring and connecting classification

PIN NO.	Wiring color	Transmitter
1 2	Brown Orange	Power (12 – 24 VDC) Sync wire
3	Blue	GND
4	Purple	M/S

PIN NO.	Wiring color	Receiver
1 2	Brown Orange	Power (12 – 24 VDC) Sync wire
3	Blue	GND
4	Black	Output

Operation chart

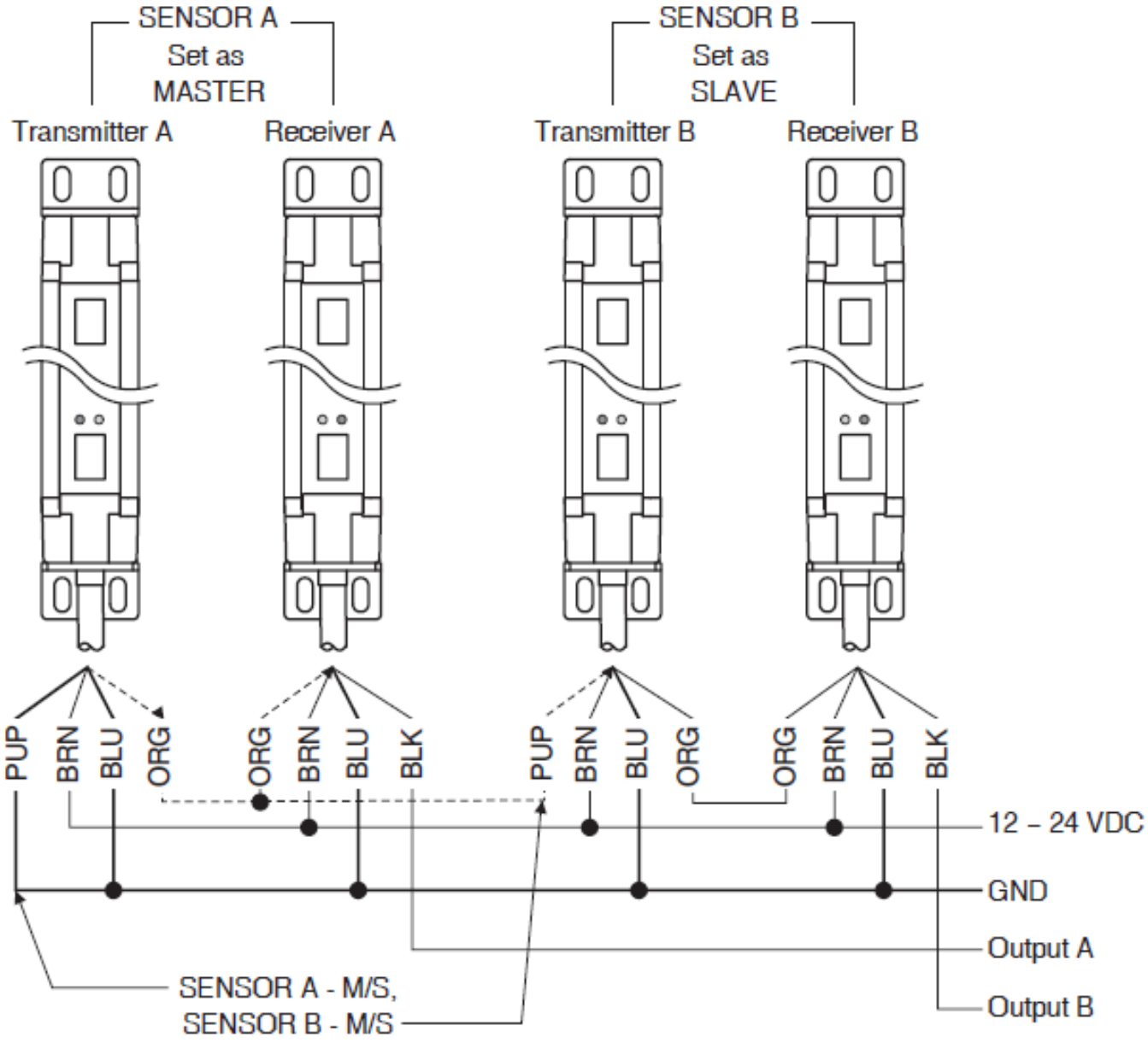
Operation / Mode	Detection status	Safety region operation region	
Light ON	Operation indicator (Red LED)	ON OFF	
	Control output	ON OFF	
	Stable indicator (Green LED)	ON OFF	
	Disturbance light	ON OFF	
	E2 indicator (Blue LED)	ON OFF	

- Green LED on the Transmitter is power indication.
- The E1 indicator on the receiver (red led) is turn off when the sync line is shorted.

- The E2 indicator on the receiver (blue LED) is turn off when there is a disturbance light such as sunlight,
- fluorescent light, etc. (It may malfunction when the E2 indicator is turn off so please be careful)
- In the case of Dark On, the operation indicator and control output operate in the reverse direction of Light ON.

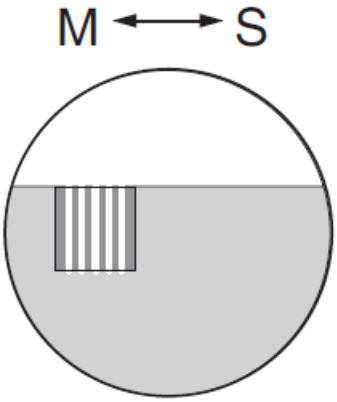
MASTER / SLAVE Connection diagram

When two sensors are used close together, set them as shown below. Connect sensor A and sensor B according to the connection method in <Image 1>.

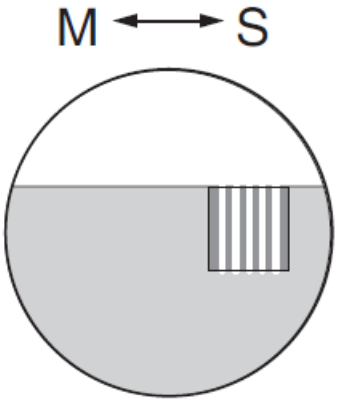


- Open the connector cover at the bottom of the Transmitter (use the flat drive) and make the operation mode conversion

  switch as shown in Image 2 below. Set the Transmitter of sensor A to M (Master) and the Transmitter of sensor B to S (Slave)
- Default = M (Master)



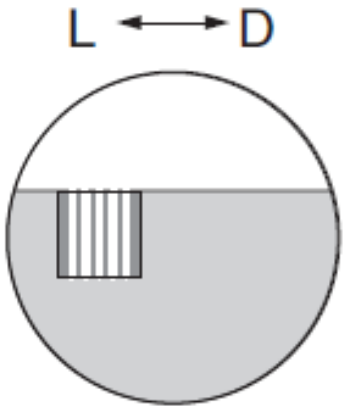
Transmitter A
Master mode



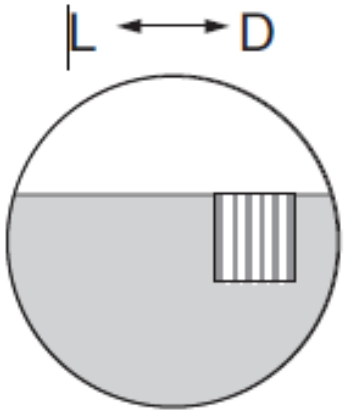
Transmitter B
Slave mode

- When using two sets of sensors together, wire them so that they do not become the master operation mode or the slave operation mode for both of them.
- Do not connect the sync lines of sensor A and sensor B to each other.
- Check the M / S indicator of the Transmitter after turning on the power.
  - Transmitter A (Master operation mode): M/S indicator is Turn off,
  - Transmitter B (Slave operation mode): M/S indicator is Turn on.

Operation Mode



L operation mode



D operation mode

- Open the connector cover at the bottom of the Transmitter (use the flat drive), and use the operation mode switch to select the mode that meets the operating conditions.
- Default mode: L (Light On) operation mode
- L : LIGHT ON / D : DARK ON

Mounting and optical axis adjustment

- After checking the connection status, turn on the power and check that the power indicator (green) of the

Transmitter is turn on.

- Move the Transmitter up, down, left, and right so that the light stability indicator (green) of the Receiver turns on.

Documents / Resources

	HANYOUNG nux PAN20-TN PAN Series Area Sensor [pdf] Instruction Manual PAN20-TN PAN Series Area Sensor, PAN20-TN, PAN Series Area Sensor, Area Sensor, Sensor

References

- H■■ :■■■■
- H HANYOUNG NUX