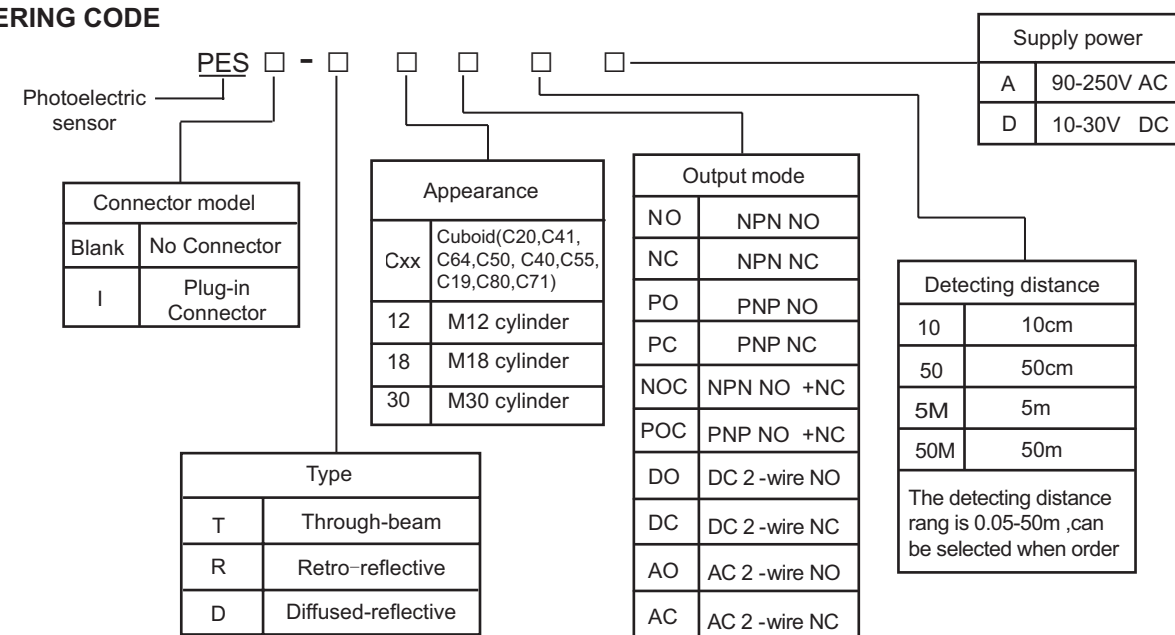


Dear clients, Thanks for choosing IBEST PHOTOELECTRIC SENSORS! Before installing and operating the sensors, please read this instruction manual carefully. For any questions, please contact our sales people immediately.

1.FEATURES

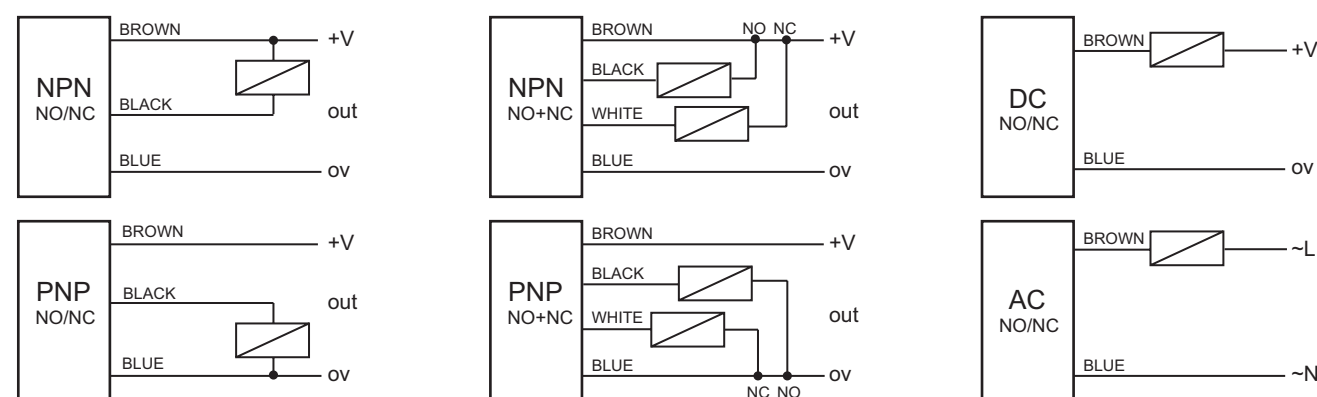
- Through-beam type, retro-reflective type and diffused-reflective type.
- Optional styles and dimensions : cylinder(brass nickle plated or plastic) style and cuboid style(plastic).
- DC 3 wire, DC 4 wire or AC 2 wire; wires or plug-in connector.
- Light resource:Infrared LED
- Strong anti-shock and anti-vibration.
- Non-contact object detect: avoid the photoelectric sensor to contact the object directly, protect the inducing component from damage and extend the operation life of the sensor.
- Detect any objects with different materials: detect objects by the light quantities reflected and received, detect objects such as glass, metal, plastic, wood, fluid....etc.
- Long detect distance, up to 50m; Fast response: max.5ms.
- Identify object colors: according to the colors' reflectivity and absorptivity, the sensors detect the light that the object reflected and identify the colors.
- High precision: precise electron circuit, can detect tiny objects with accurate position.
- IP ratings: IP67(65) ; Polarity reverse protection.

2.ORDERING CODE

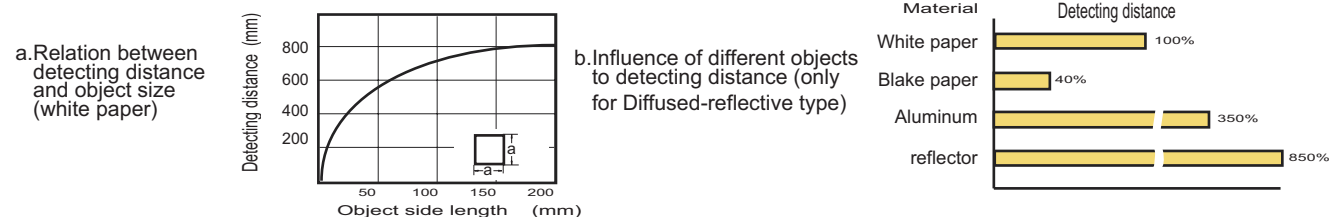


*AC 20~250 can be special ordered, for other special request of photoelectric sensors (i.e.appearance,function), please indicate when order.

3.CONNECTION



4.technical instructions



c.Type instructions

TYPE	SPECIALITY
Through-beam	Detect when an object shutoff the light between the sender and the receiver - Detect long distance - Stable detecting status - Strong light beam - Detect different objects(transparent or non-transparent, different appearance/color/materials..etc.)
Retro-reflective	Detect when an object shutoff the light between the sender and the reflector - The reflector can be installed in the very limited space - The connection is easy - Can adjust the (light)axis easily - Detecting longer distance than diffused-reflective sensor - Detect different objects(transparent or non-transparent, different appearance/color/materials..etc.)
Diffused-reflective	The diffused-reflective sensor detect the object when the object reflect the light beam sent from the diffused-reflective sensor. - Save space (a sensor module needs to be installed only) - No need to adjust (light)axis - Can detect the reflect-light transparent object - Can detect different colors

d.Terms

TERMS	DEFINITION
Different distance	The different distance of reflective photoelectric sensor is the difference between detecting distance and resetting distance.
Detect angle	The angle ranges for the photoelectric sensor detect objects.
Response time	The min. time that the sensor detect light beam exist and output "ON" signal or the min. time that the sensor detect no light beam and output "OFF" signal.
Ambient light	The max. ambient light for the sensor receiving face to work appropriately

f.Other notice

- When the high voltage cable, power cable and photoelectric sensor cable are placed in one tube, they might affect one another and cause misworking, therefore they must use different wire tube so as to avoid mistworking.
- Power supply must be within the specified range.
- Pay attention installation in the following conditions may cause misworking:
 - Dust and corrosive gas environment
 - Water, oil and medicament spurt environment
 - Strong sunlight irradiate environment, high ambient temperature conditions
 - Vibrate and shock environment
- Do not hammer the sensor when installing, otherwise can damage water-proof parts.

e.Operation instruction

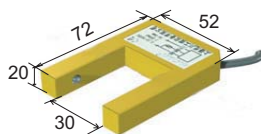
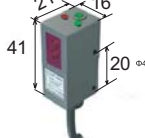
External interference	Solutions
The receiver may detect the light beam reflected from installing surface	Use a block to shut out the light reflected from under the object.
Rough installing surface may reflect light to cause unstable detecting	Re-adjust the installing height Heighten the installing position of inducing component
The background object may reflect light to cause unstable detecting.	use blackgroup objects with low reflectivity like black wall to prevent the sensor from detecting the light from background objects. increase the distance try to increase the distance between the target object and the background object.

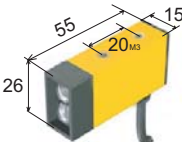
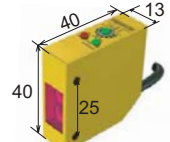
To prevent interference for through-beam photoelectric sensor, the sender and receiver need to be in crossed position as below:

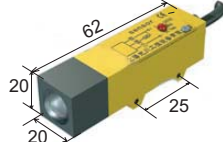
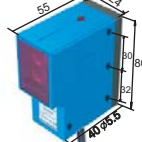
when install the sender and receiver, please avoid the light beam from one sender received by other sensors/receiver.

5.ORDERING CODE AND TECHNICAL SPECIFICATIONS:

Dimension												
Ordering code	Type			PES-T12 ☐	PES-R12 ☐	PES-D12 ☐	PES-T18 ☐	PES-R18 ☐	PES-D18 ☐	PES-T30 ☐	PES-R30 ☐	PES-D30 ☐
	DC	NPN	NO	-NO3MD		-NO10D	-NO10MD	-NO3MD	-NO10(30)D	-NO20MD	-NO4MD	-NO1MD
			NC	-NC3MD		-NC10D	-NC10MD	-NC3MD	-NC10(30)D	-NC20MD	-NC4MD	-NC1MD
			NO+NC				-NOC10MD	-NOC3MD	-NOC10(30)D	-NOC20MD	-NOC4MD	-NOC1MD
		PNP	PO	-PO3MD		-PO10D	-PO10MD	-PO3MD	-PO10(30)D	-PO20MD	-PO4MD	-PO1MD
			PC	-PC3MD		-PC10D	-PC10MD	-PC3MD	-PC10(30)D	-PC20MD	-PC4MD	-PC1MD
			PO+PC				-POC10MD	-POC3MD	-POC10(30)D	-POC20MD	-POC4MD	-POC1MD
	2 Wire	DO				-DO10MD	-DO3MD	-DO10(30)D	-DO20MD	-DO4MD	-DO1MD	
		DC				-DC10MD	-DC3MD	-DC10(30)D	-DC20MD	-DC4MD	-DC1MD	
	AC	2 Wire	AO				-AO10MA	-AO3MA	-AO10(30)A	-AO20MA	-AO4MA	-AO1MA
		AC					-AC10MA	-AC3MA	-AC10(30)A	-AC20MA	-AC4MA	-AC1MA
Detecting distance range				3m		10cm	10m	3m	10cm/30cm	20m	4m	1m
Rated power supply				DC:10~30V			DC:10~30V / AC:90~250V			DC:10~30V / AC:90~250V		
Current output				200mA			200mA/(DC 2Wire :100mA/AC 2Wire :400mA)			200mA/(DC 2Wire :100mA/AC 2Wire :400mA)		
Response time				<5ms	<3ms		<5ms	<3ms		<5ms	<3ms	
Working angle				3°~20°	1°~5°		3°~20°	1°~5°		3°~20°	1°~5°	
Voltage for transistor				<1.5V			<1.5V			<1.5V		
Current consumption				<20mA			<20mA			<20mA		
Different distance				<15%			<15%			<15%		
Against polarity reverse				yes			yes			yes		
Ambient light(LUX)				Incandescent lamp:≤3000 / Sunlight:≤10000			Incandescent lamp:≤3000 / Sunlight:≤10000			Incandescent lamp:≤3000 / Sunlight:≤10000		
IP ratings				IP67			IP67			IP67		
Material				Brass chrome plated or plastic			Brass chrome plated or plastic			Brass chrome plated or plastic		

Dimension												
Ordering code	Type			PES-TC20□	PES-RC20□	PES-DC20□	PES-TC41□	PES-RC41□	PES-DC41□	PES-TC64□	PES-RC64□	PES-DC64□
	DC	NPN	NO	-NO3D			-NO2MD		-NO10D	-NO4MD		
			NC	-NC3D			-NC2MD		-NC10D	-NC4MD		
			NO+NC	-NOC3D						-NOC4MD		
		PNP	PO	-PO3D			-PO2MD		-PO10D	-PO4MD		
			PC	-PC3D			-PC2MD		-PC10D	-PC4MD		
			PO+PC	-POC3D						-POC4MD		
	2 Wire	DO	-DO3D						-DO4MD			
		DC	-DC3D						-DC4MD			
	AC	2 Wire	AO									
		AC										
Detecting distance range				3cm			2m		10cm	4m		
Rated power supply				DC:10~30V			DC:10~30V			DC:10~30V		
Current output				200mA/ DC 2Wire :100mA			200mA			200mA/ DC 2Wire :100mA		
Response time				<5ms			<5ms	<3ms		<5ms		
Working angle				3°~20°	1°~5°		3°~20°	1°~5°		3°~20°	1°~5°	
Voltage for transistor				<1.5V			<1.5V			<1.5V		
Current consumption				<20mA			<20mA			<20mA		
Different distance				<15%			<15%			<15%		
Against polarity reverse				yes			yes			yes		
Ambient light(LUX)				Incandescent lamp:≤3000 / Sunlight:≤10000			Incandescent lamp:≤3000 / Sunlight:≤10000			Incandescent lamp:≤3000 / Sunlight:≤10000		
IP ratings				IP64			IP64			IP64		
Material				ABS			ABS			ABS		

Dimension												
Ordering code	Type			PES-TC26□	PES-RC26□	PES-DC26□	PES-TC40□	PES-RC40□	PES-DC40□	PES-TC50□	PES-RC50□	PES-DC50□
	DC	NPN	NO	-NO5MD	-NO2MD	-NO50D	-NO5MD	-NO2MD	-NO50D	-NO5MD	-NO2MD	-NO30D
			NC	-NC5MD	-NC2MD	-NC50D	-NC5MD	-NC2MD	-NC50D	-NC5MD	-NC2MD	-NC30D
			NO+NC	-NOC5MD	-NOC2MD	-NOC50D	-NOC5MD	-NOC2MD	-NOC50D	-NOC5MD	-NOC2MD	-NOC30D
		PNP	PO	-PO5MD	-PO2MD	-PO50D	-PO5MD	-PO2MD	-PO50D	-PO5MD	-PO2MD	-PO30D
			PC	-PC5MD	-PC2MD	-PC50D	-PC5MD	-PC2MD	-PC50D	-PC5MD	-PC2MD	-PC30D
			PO+PC	-POC5MD	-POC2MD	-POC50D	-POC5MD	-POC2MD	-POC50D	-POC5MD	-POC2MD	-POC30D
	2 Wire	DO	-DO5MD	-DO2MD	-DO50D	-DO5MD	-DO2MD	-DO50D	-DO5MD	-DO2MD	-DO30D	
		DC	-DC5MD	-DC2MD	-DC50D	-DC5MD	-DC2MD	-DC50D	-DC5MD	-DC2MD	-DC30D	
	AC	2 Wire	AO							-AO5MA	-AO2MA	-AO30A
AC									-AC5MA	-AC2MA	-AC30A	
Detecting distance range				5m	2m	50cm	5m	2m	50cm	5m	2m	30cm
Rated power supply				DC:10~30V / AC:90~250V			DC:10~30V / AC:90~250V			DC:10~30V / AC:90~250V		
Current output				200mA/(DC 2Wire :100mA)			200mA/(DC 2Wire :100mA)			200mA/(DC 2Wire :100mA/AC 2Wire :400mA)		
Response time				<5ms		<3ms	<5ms		<3ms	<5ms		<3ms
Working angle				3°~20°		1°~5°	3°~20°		1°~5°	3°~20°		1°~5°
Voltage for transistor				<1.5V			<1.5V			<1.5V		
Current consumption				<20mA			<20mA			<20mA		
Different distance				<15%			<15%			<15%		
Against polarity reverse				yes			yes			yes		
Ambient light(LUX)				Incandescent lamp:≤3000 / Sunlight:≤10000			Incandescent lamp:≤3000 / Sunlight:≤10000			Incandescent lamp:≤3000 / Sunlight:≤10000		
IP ratings				IP64			IP64			IP64		
Material				ABS			ABS			ABS		

Dimension												
Ordering code	Type			PES-TC19□	PES-RC19□	PES-DC19□	PES-TC80□	PES-RC80□	PES-DC80□	PES-TC71□	PES-TC71□	
	DC	NPN	NO	-NO6MD	-NO1MD	-NO30D	-NO8MD	-NO3MD	-NO80D	-NO20MD	-NO50MD	
			NC	-NC6MD	-NC1MD	-NC30D	-NC8MD	-NC3MD	-NC80D	-NC20MD	-NC50MD	
			NO+NC	-NOC6MD	-NOC1MD	-NOC30D	-NOC8MD	-NOC3MD	-NOC80D	-NOC20MD	-NOC50MD	
		PNP	PO	-PO6MD	-PO1MD	-PO30D	-PO8MD	-PO3MD	-PO80D	-PO20MD	-PO50MD	
			PC	-PC6MD	-PC1MD	-PC30D	-PC8MD	-PC3MD	-PC80D	-PC20MD	-PC50MD	
			PO+PC	-POC6MD	-POC1MD	-POC30D	-POC8MD	-POC3MD	-POC80D	-POC20MD	-POC50MD	
	2 Wire	DO	-DO6MD	-DO1MD	-DO30D	-DO8MD	-DO3MD	-DO80D	-DO20MD	-DO50MD		
		DC	-DC6MD	-DC1MD	-DC30D	-DC8MD	-DC3MD	-DC80D	-DC20MD	-DC50MD		
	AC	2 Wire	AO	-AO6MA	-AO1MA	-AO30A	-AO8MA	-AO3MA	-AO80A	-AO20MA	-AO50MA	
		AC	-AC6MA	-AC1MA	-AC30A	-AC8MA	-AC3MA	-AC80A	-AC20MA	-AC50MA		
Detecting distance range				6m	1m	30CM	8m	3m	80CM	20m	50m	
Rated power supply				DC:10~30V / AC:90~250V			DC:10~30V / AC:90~250V			DC:10~30V / AC:90~250V		
Current output				200mA/(DC 2Wire :100mA/AC 2Wire :400mA)			200mA/(DC 2Wire :100mA/AC 2Wire :400mA)			200mA/(DC 2Wire :100mA/AC 2Wire :400mA)		
Response time				<5ms		<3ms	<5ms		<3ms	<5ms		
Working angle				3°~20°		1°~5°	3°~20°		1°~5°	3°~20°		
Voltage for transistor				<1.5V			<1.5V			<1.5V		
Current consumption				<20mA			<20mA			<20mA		
Different distance				<15%			<15%			<15%		
Against polarity reverse				yes			yes			yes		
Ambient light(LUX)				Incandescent lamp:≤3000 / Sunlight:≤10000			Incandescent lamp:≤3000 / Sunlight:≤10000			Incandescent lamp:≤3000 / Sunlight:≤10000		
IP ratings				IP64			IP64			IP64		
Material				ABS			ABS			ABS		