

FEATURES

- Easy installation, high-speed pulse generator, high-speed rotation control, and more.
- A wealth of models ideal for limit control, counting control, and other applications.
- Sensing distance of 5~100cm for Diffuse reflective models, 1M~3M for Retro reflective models and 10M~20M for Through beam models.
- Housing by PBT with strong structure and acid resisting or Copper with Nickel-plating available.



APPLICATIONS

RPM and Linear line speed detection Counting Control Limit Control

ORDERING INFORMATION

PE1 - Material - Sensing Method - Sensing Distance - Output Mode - Mode Configuration - Connection Method

CODE	MATERIAL	CODE	Sensing Method	CODE	SENSING DIST.	CODE	OUTPUT MODE	CODE	CONNECTION METHOD
P	PBT	DR	Diffuse reflective (10/40/100cm)	010	10cm	OC	Open Collect	20	2 M(Pre-wired)
C	Copper	RR	Retro reflective (100/300cm)	040	40cm	N	NPN	XX	X M(Pre-wired)
		TB	Through beam (10/20M)	100	100cm(1M)	P	PNP		
				300	300cm(3M)	VP	Voltage Pulse		
				10M	10M				
				20M	20M				

Please select NPN or PNP, if Open collect to be specified.

TECHNICAL SPECIFICATION

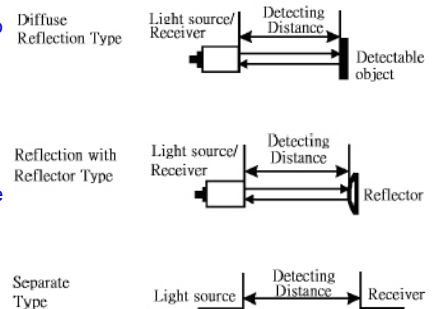
	Diffuse reflective	Retro reflective	Through beam
Light source		Infrared LED	
Sensing distance	10cm/40cm/100cm	1M/3M	10M/20M
Differential travel	10% max. of setting distance		
Standard sensing object	Non-glossy white paper: 10*10cm	Opaque: 56mm diameter min.	
Sensitivity adjust.	One-turn potentiometer(VR)		
Directional angle	-	10 ~ 20°	10 ~ 20°
Connection	DC 3 wire		
Indication	Operation indicator: red LED		
Control output mode	Open collect: NPN / PNP; Normal open		
Operation mode	Light ON or Dark ON selectable by switch		
Power supply	DC10~30V, ripple (p-p): 10% max.		
Current consumption	<30mA		
Load current	DC 30V, 100mA max.		
Protection circuits	Reverse polarity, short-circuit & Surge suppressor protection		
Response time	Operating or reset: 1ms max.		
Ambient temp.	Operating: -25°C~70°C; Storage: -30°C~80°C(Non-condensing)		
Ambient humidity	Operating: 35 to 95 % RH; Storage: 35 to 95 % RH		
Temp. influence	±10% max. of sensing distance at 23C in the temp. range of -25 to 70C		
Ambient illumination	Incandescent lamp: 5,000 lx max. Sunlight: 10,000 lx max.		
Voltage influence	1% max. of sensing distance at rated voltage in rated voltage 15% range		
Insulation resistance	20 MΩ min. (at 500 VDC) between current-carrying parts and case		
Dielectric strength	1,000 VAC for 1 min between current-carrying parts and case		
Vibration	10 to 55 Hz, 1.5-mm double amplitude for 2 hours each in X, Y, and Z		
Shock resistance	500 m/s2(about 50g) 3 times each in X, Y, and Z directions		
Protection	IEC 60529 IP67 [JEM IP67g (water-resistant, oil-resistant)]		
Connection method	Pre-wire	3C / 3.8 Ø * 2M PVC oil-resistant;	
	Plug con.	Available	
	M18 con.	M18 connector available	
Materials	Case	PBT; Yellow color	Copper with Nickel-plating
	Sensing surface	Acrylic resin	
	Screw	ABS	Copper with Nickel-plating
	Bracket	Iron with Nickel-plating(sold separately)	
Weight		Diffuse reflective	Retro reflective
	Pre-wire	Cu:123g PBT:86g	Cu:139g PBT:102g
	Plug con.	Cu:127g PBT:89g	Cu:143g PBT:106g
	M18 con.	Cu:66g PBT:31g	Cu:82g PBT:44g
		Through beam	
		Cu:243g PBT:165g	
		Cu:250g PBT:172g	
		Cu:129g PBT:49g	

DESCRIPTION OF TECHNICAL

Sensing distance

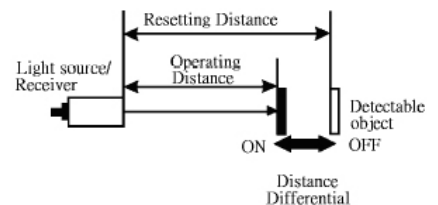
The term of sensing distance generally refers to the distance range within which the photoelectric sensor can detect the detectable objects.

- ▶ In Diffuse reflective type, it denotes the maximum distance within which the sensor can stable operate with the standard sensing object.
- ▶ In Retro reflective and Through beam type, it denotes the maximum distance within which the sensor can be set stable.



Differential travel

The term of differential travel refers to the difference between operating and resetting distance.



Response time

Response time refers to the frequency of outputs from the sensor per second in response to the movement of each target when brought closer to the sensor.

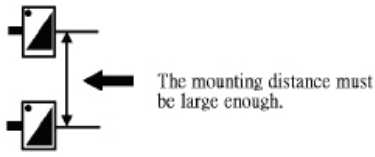
Current consumption

Current consumption refers to the maximum current consumed when the sensor is no output.

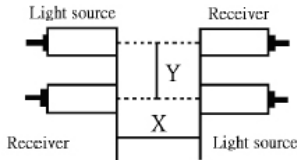
■ INSTALLATION PRECAUTIONS

● Mutual Interference

In the case of mounting two or more Diffuse reflective sensor side by side, incorrect operation may occur due to mutual interference of mounting in close proximity. To move the mounting distance may be reduce the mutual interference.

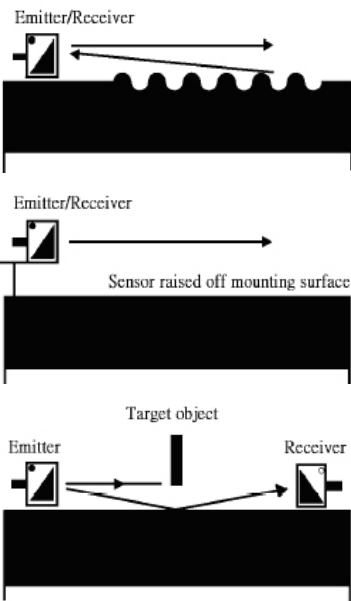


In the case of mounting two or more Through beam sensor side by side, alternate the sender and receive to reduce the mutual interference.



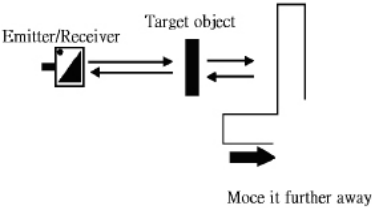
● Influence of the mounting surface

In the case of mounting sensor, it is maybe detecting unstable due to reflection from a rough surface. To raise or lower the sensor or alter the operating angle to ensure stable operation



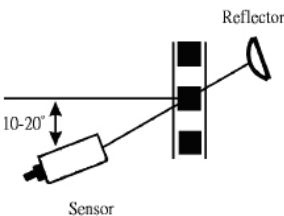
● Influence of the background

The background behind target objects may influence the stability of operation that is depending on its luminance and reflectivity. Generally, a black background is a way to reduce the unstable operation.



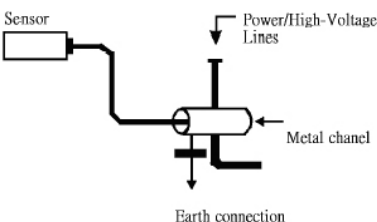
● Sensing object with high reflection

If the target to be detected is glossy and thus the surface reflection is great, install the sensor tilted 10° to 20°, as shown in the figure to avoid false reflections from the target.



● Electric noise

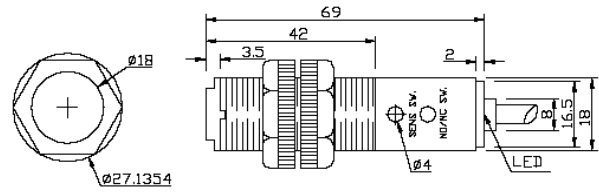
In the case of interference induced by the power lines, separate the wiring of the sensor from the power and high-voltage lines or place the sensor wires in an earth metal pipe. Otherwise the sensor may malfunction due to electric noise.



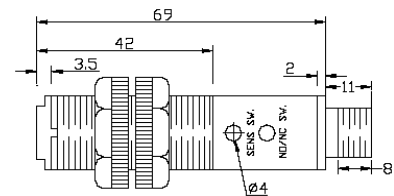
■ DIMENSIONS

PE1-P(PBT)

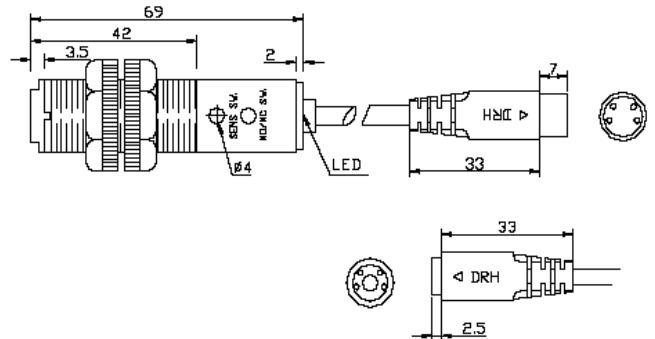
Pre-wire



M12 Connector

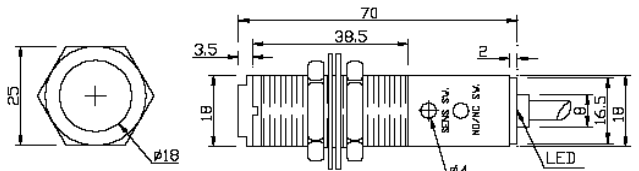


Plug in Connector

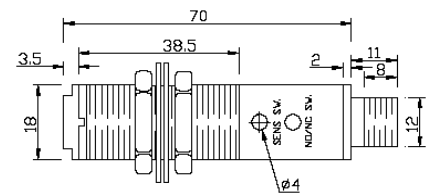


PE1-C(Copper)

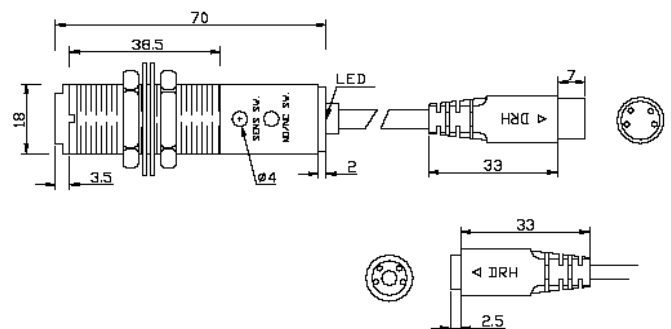
Pre-wire



M12 Connector

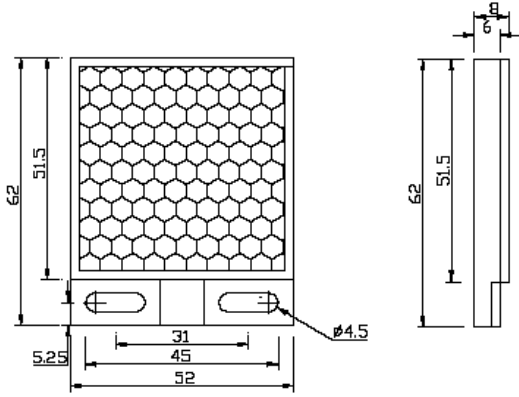


Plug in Connector

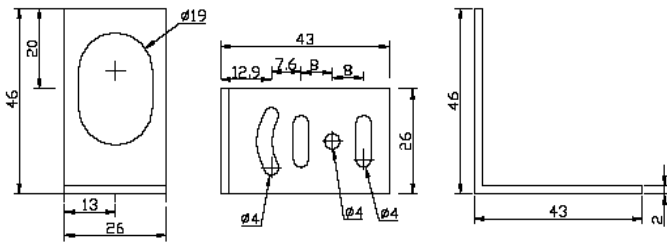


Accessories

Reflector



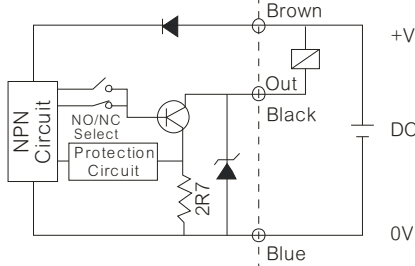
Bracket



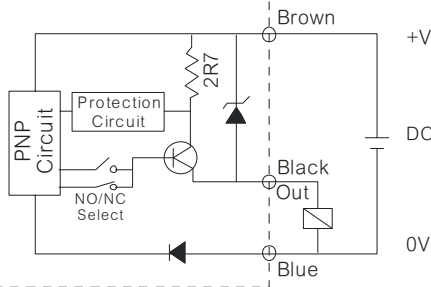
CONNECTION

DC 3 wire – Diffuse reflective / Retro reflective

NPN NO/NC

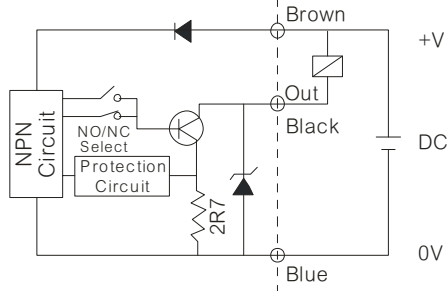


PNP NO/NC

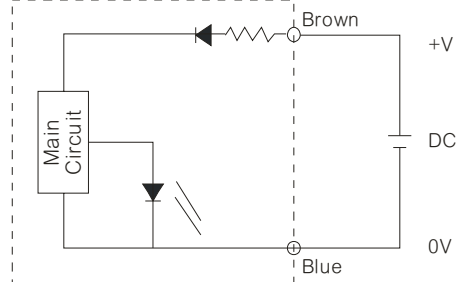


DC 3 wire – Through beam

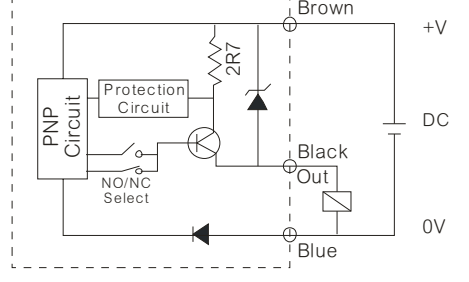
NPN NO/NC Receiver



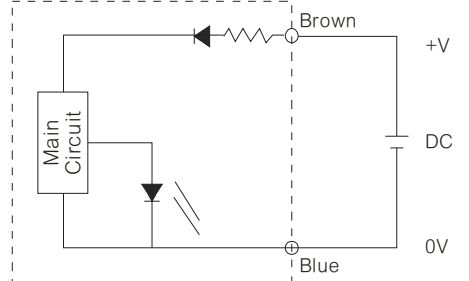
NPN NO/NC Emitter



PNP NO/NC Receiver

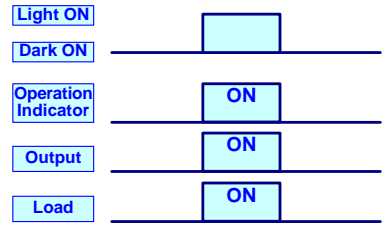


PNP NO/NC Emitter

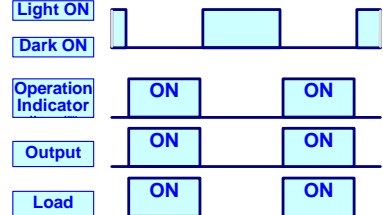


OPERATION MODE

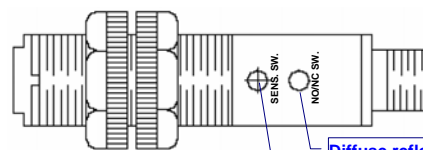
Light ON



Dark ON



SENSITIVITY ADJUSTMENT



Diffuse reflective/Through beam:
Clockwise to Light ON(N.O.)
Retro reflective:
Anti-Clockwise to Dark ON(N.C.)

Sensitive adjustment - Ø4
Clockwise to increase sensing distance