

OUTLINE

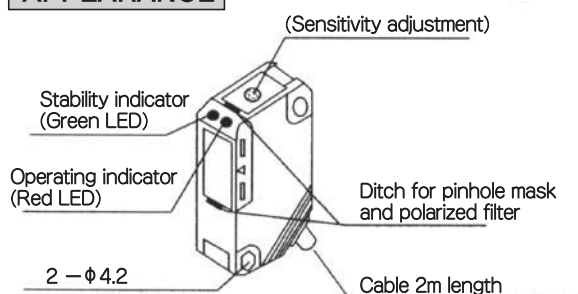
- This sensor features a lightweight, compact design ; including a built-in power supply and relay.
- Operates directly from either AC/DC 24V to 240V POWER SUPPLY.

SPECIFICATIONS

Model	Cable	NE-T10R	NE-T10RD	NE-T30	NE-T30D	NE-M5R	NE-M5RD	NE-R10	NE-R10D
	Connector	NE-T10R-J	NE-T10RD-J	NE-T30-J	NE-T30D-J	NE-M5R-J	NE-M5RD-J	NE-R10-J	NE-R10D-J
Detection method		Through beam				Polarized retroreflective		Diffuse reflective	
Detection distance		10m		30m		0.03-5m (with K-7 reflector)		1 m	
Detection object		Opaque object of ϕ 20 min.				Mirror-like, opaque (※1)		Opaque, translucent	
Power supply		AC/DC 24-240V $\pm$ 10% 50/60Hz							
Power consumption		Transmitter: 1.5W or less Receiver: 2W or less		Transmitter: 1.8W or less Receiver: 2W or less		2W or less			
Output mode	Attached cable	Relay output 1c/1A 250VAC/30VDC resistive load							
	Connector pigtail	Relay output 1a/1A 250VAC/30VDC resistive load (※1)							
Operation mode		Light ON	Dark ON	Light ON	Dark ON	Light ON	Dark ON	Light ON	Dark ON
Response time		5ms or less							
Hysteresis									10% or less
Operating angle		3° (at receiver)		5° (at receiver)		30° (at reflector)			
Light source (wavelength)		Red LED (700nm)		Infrared LED (880nm)		Red LED (700nm)		Infrared LED (880nm)	
Indicator		Transmitter: _____ Receiver: Operation indicator (Red LED) Stability indicator (Green LED)		Transmitter: Power indicator (Red LED) Receiver: Operation indicator (Red LED) Stability indicator (Green LED)		Operation indicator (Red LED) Stability indicator (Green LED)			
Volume (VR)						Sensitivity adjustment provided			
Material		Lens: acrylic / Case: heat resistant ABS							
Connection	Attached cable	Attached cable (Outer dimension: dia.6mm) Transmitter: 0.3mm ² ×2 cores, 2m, gray Receiver: 0.3mm ² ×5 cores, 2m, black				Attached cable (Outer dimension: dia.6mm) 0.3mm ² ×5 cores, 2m, black			
	Connector pigtail	Connector pigtail cable							
Weight	Attached cable	Transmitter: Approx.150g / Receiver: Approx.150g				Approx.150g			
	Connector pigtail	Transmitter: Approx.130g / Receiver: Approx.130g				Approx.130g			
Notes		(※1) The cable length for connector pigtail type (-J type) is 300mm. Optional cable with connector is available. Sensors of this series are not provided with mounting brackets. Brackets for vertical or back-to-back mounting are optionally available.							
Accessory		Instruction Manual				K-7 reflector		Instruction Manual	

- For the Polarized Retro-reflection type, the detection distance shows the installation range of the reflector. The range and the object resolution differs according to the reflector to be used.
- Perform detection test by using actual object to be detected. The detection distance of diffuse-reflective type sensor differs largely depending on the light permeability of the object.
- (※1) Glossy or mirror-like objects or laminated aluminum plates may disturb a polarization and may cause faulty operation.
- (※2) Sensors with high-speed, long-life photo-MOS relay (1a) are available on request.
 - Model : -MR (EX. NE-T10RD-MR)
 - Output mode : Photomos relay output 1a
 - Output rating : 50mA 220VAC Max.
70mA 220VDC Max.
 - Response time : 1ms Max.
- (※3) NE-T10RDV (Dark ON) and NE-T10RV (Light ON), through beam type, equipped with sensitivity adjustment volume are available.

APPEARANCE

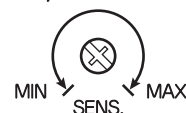


USABLE AMBIENT CONDITIONS

Ambient light
Withstands 10,000 lx (Max.)
Operating temp
-25 to +55°C (non-freezing)
Humidity
35 to 85%RH (non-condensing)
Case protection
IP66
Vibration
10 to 55Hz, 1.5mm Amplitude,
2h., 3 Directions
Shock
500m/s²
3 times, 3 directions
Dielectric withstanding
AC1,500V 1 min.
Insulation resistance
DC500V, 200M Ω (Min.)

DESCRIPTION OF THE SENSITIVITY ADJUSTMENT (SENS.)

- The Polarized Retro-reflection type and Diffuse Reflection type are equipped with a sensitivity adjustment (SENS.), which should be used when the detection object is translucent or there is reflecting background behind the detection object. (Refer to the section [How to Adjust]).
- Turning it towards MIN (counterclockwise) makes sensitivity lower.
- Use a mini screw driver. Do not rotate further than the end stop. Adjustable Zone



DESCRIPTION OF THE INDICATOR

- The receiver model NE-TL30 has a power indicator (red LED).
- The receiver model NE-TL10R does not have an indicator but you can check if it is emitting by its red emitting light.
- The receiver has an operation indicator (red LED) and a stability indicator (green LED) which indicate the operation level as shown in the below figure.
- After optical axis adjustment and sensitivity adjustment, repeat letting the beam through or interrupting the beam and check whether it is within the stable area as shown below.
- When it is set in the stable area, the reliability will be higher against environmental change after setting.

	STB. (Green)	Light-ON OP.L (Red)	Dark-ON OP.L (Red)	
Stable Light-ON area	light	light		 Operation level $\times 1.2$
				 Operation level
Stable Dark-ON area	light		light	 Operation level $\times 0.8$

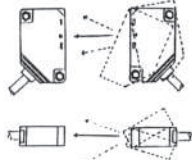
The red LED is an operation indicator.
For Light On Type, it will light when the beam goes through.
For Dark On Type, it will light when the beam is interrupted.

HOW TO INSTALL & HOW TO ADJUST

- Mounting bracket is optional item. Refer to dimensions when install.
- Tightening torque is within 0.8N·m (8.2kgf·cm) when mounting by screw.
- Refer to Description of the indicator regarding the indicator and operating mode.

◆ Through beam type

For the throughbeam sensors, align the transmitter and receiver so that the Operation indicator (red LED) turns on. Then move the receiver up/down and left/right and set it at the center between the positions where the operation indicator turns on in each direction. Confirm the Stability indicator (green LED) lights on as well.



◎ Pinhole Mask (option)

The detection area becomes narrower and smaller objects can be detected by using the pinhole mask. Detecting distance with pinhole mask attached on both the transmitter and receiver is shown in the below table.

Model : NE-T30D

MODEL	NE-P3	NE-P5	NE-P5x1
Pinhole mask	φ3	φ5	5×1mm
Detection distance	3m	7m	2m

Model : NE-T10RD

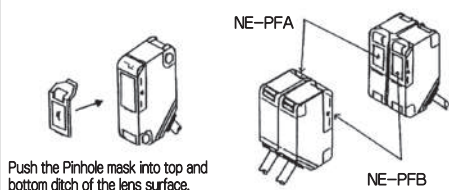
MODEL	NE-P3	NE-P5	NE-P5x1
Pinhole mask	φ3	φ5	5×1mm
Detection distance	1m	3m	0.7m



◎ Anti-Interference Filter (option)

Use of the Anti-interference filter allows adjacent mounting of two through beam type sensors (NE-T10RD, NE-T10R). Longitudinal and horizontal type of filter are available. Use the longitudinal filter for a pair of sensors and the horizontal for another. The detecting range will be reduced to 5m. Install the sensors in a same beam direction.

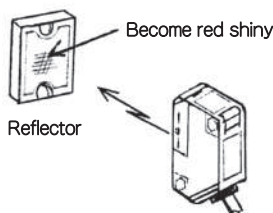
MODEL : NE-PFA (Longitudinal)
NE-PFB (Horizontal)



Push the Pinhole mask into top and bottom ditch of the lens surface.

◆ Polarized retro reflective Type

- ① Set the sensor and reflector facing each other. Move the sensor up/down and right/left and set it at the center between the positions where the Operation indicator is off in each direction. To check the reflector becomes red shiny from the behind of the sensor may ease the alignment. Confirm the Stability indicator lights on as well.
- ② Set the sensitivity adjuster (SENS.) to MAX.
- ③ When detecting translucent object, adjust (reduce) the sensitivity by the SENS volume.



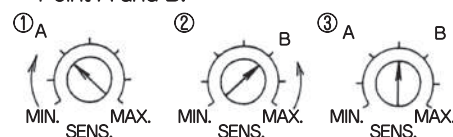
The detection distance depends on reflector type. Use only polarized retroreflective reflectors.

Reflector	K-7	K-71	S-510G
Detection distance	0.03~5m	0.03~2m	0.1~3m
Notes	Accessory	Option	Option

◆ Diffuse reflective Type

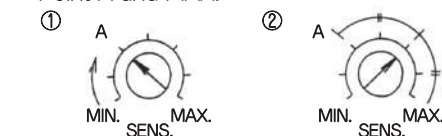
● In case of reflective background

- ① Place a target object at the detecting position and turn the adjustment volume clockwise gradually from MIN. Find a point (Point A) where the Operation indicator turns on.
- ② Remove the target. Set the volume to the MAX and turn it gradually counterclockwise. Find a point (Point B) where the Operation indicator turns off. If the Operation indicator doesn't turn off even at the MAX position, the MAX position is regarded as Point B.
- ③ Set the volume at the center between Point A and B.



● In case of no-reflective background

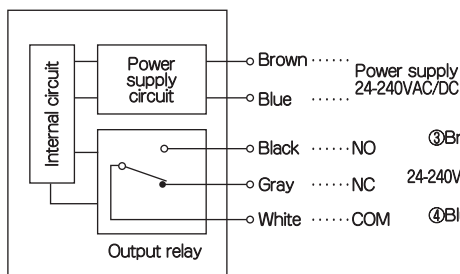
- ① Place a target object at the detecting position and turn the adjustment volume clockwise gradually from MIN. Find a point (Point A) where the Operation indicator turns on.
- ② Set the volume at the center between Point A and MAX.



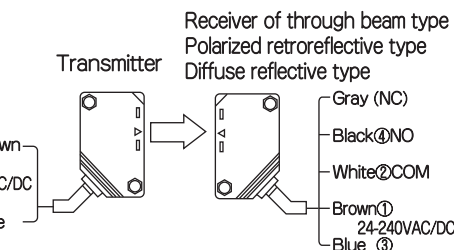
Make sure that the Operation indicator (red) and the Stability indicator (green) both turn on when the target object is placed at the detecting position.

INPUT/OUTPUT CIRCUIT AND CONNECTION

CONNECTION



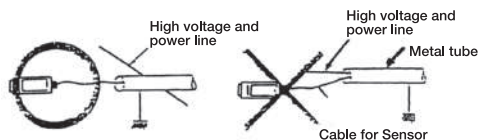
Transmitter of the through beam type has only power supply lines.



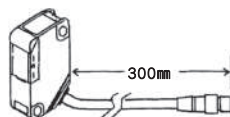
- Circled numbers show connector pin NOs. for -J type.
- The output of -J type is 1a.

OUTPUT CIRCUIT AND WIRING

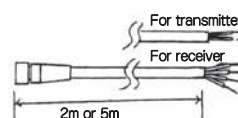
- The sensor starts operation after a warm-up period of 0.5 sec. Power on the sensor prior to loads.
- Make sure all connections are correct before turning the power on.
- Use a metal conduit to avoid malfunction or damage caused by induction when the wiring should be laid close to high-voltage cables or power lines.
- Limit the current of the DC power supply to 3A in accordance with the size of the sensor cable.



In-Line connector type (-J)



Option : Cable with connector is available



Sensor side



Cable side



Pin No.	Color	Note
1	—	—
2	—	—
3	Brown	Power Supply
4	Blue	Power Supply

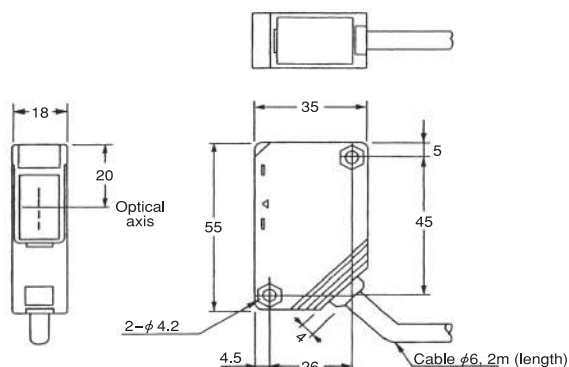
Pin No.	Color	Note
1	Brown	Power Supply
2	White	C (Relay Contact)
3	Blue	Power Supply
4	Black	NO (Relay Contact)

Pin No.	Color	Note
1	—	—
2	—	—
3	Brown	Power Supply
4	Blue	Power Supply

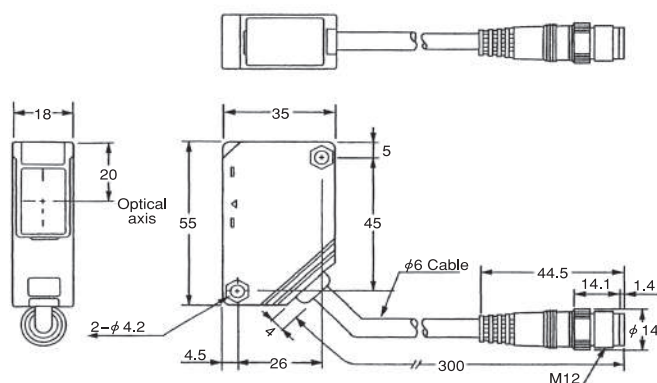
Pin No.	Color	Note
1	Brown	Power Supply
2	White	C (Relay Contact)
3	Blue	Power Supply
4	Black	NO (Relay Contact)

DIMENSIONS (unit : mm)

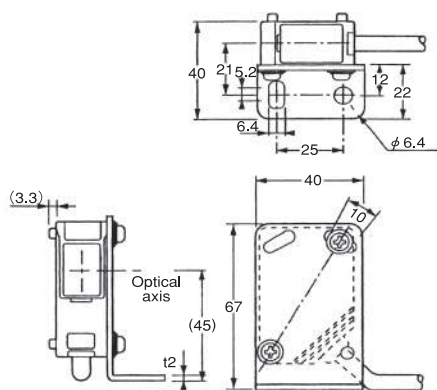
Basic Dimensions



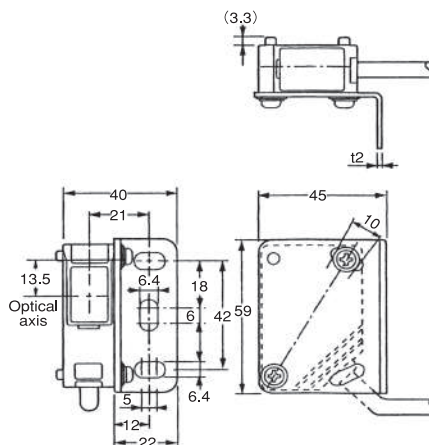
Sensor with CONNECTOR (-J type)



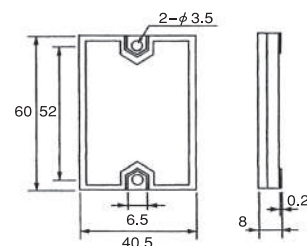
Sensor with Bracket NE-B1 • NE-B1C (option)



Sensor with Bracket NE-B2 • NE-B2C (option)



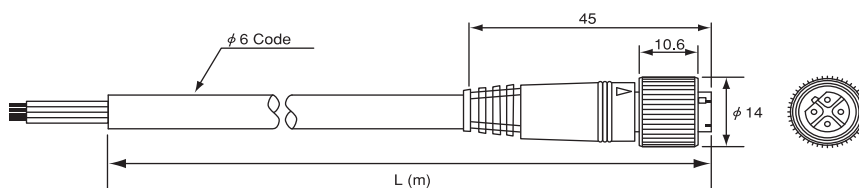
Reflector K-7



M12 Connector (option)

Model

- FAC-A2R2 L : 2m (0.3mm²×2 Gray)
- FAC-A2R5 L : 5m (0.3mm²×2 Gray)
- FAC-A4R2 L : 2m (0.3mm²×4 Black)
- FAC-A4R5 L : 5m (0.3mm²×4 Black)



PRECAUTIONS

- Use power supply within the rated voltage and current in the specification.
- Avoid to turn on and off the power consecutively.
- Do not use the sensor where water is splashing constantly or under the water. To use the sensor in an environment containing a corrosive gas or exposed to a splash of chemical or oil, or a place exposed to vibration or shock may cause false operation.
- Clean the lens by a soft and dry cloth periodically. A stain or dirt stuck on the lens deteriorates the performance. Do not use organic solvent including alcohol and thinner.
- The output relay is not replaceable.
- When using a DC power unit with an insulated transformer or a switching regulator, be sure to ground the frame ground (FG) terminal.

- This sensor is designed to detect a specific object. It is not provided with control functions for prevention of injuries or accidents in itself.
- Takex will not held responsible for any damage or loss incurred due to accidents, faulty installation, abuse, misuse, improper maintenance or acts of God including lightning surge.
- Specifications and dimensions may be subject to change without notice.