NEF series

Embedded Amplifier Photo Sensors

- Highly resistant to inverter noise as well as disturbing light including inverter fluorescent lamps or other light emitters
  Reasonably priced

Photo sensor ideal for use in places subject to:

- Lighting including fluorescent and mercury lamps
- Light emission of other photo sensors
- Various types of intense light such as the installation on carriages and vehicles

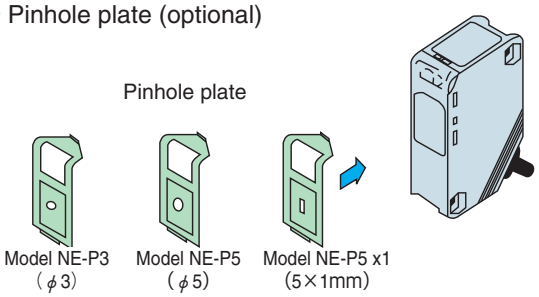
Type

Detection method	Detecting distance	Model	Operation mode	Output mode
Through-beam type	10m	**NEF-T10RD**	Dark-ON	NPN/PNP open collector (2 output)
Polarization reflector type	0.03-5m	**NEF-M5RD**		
Diffuse-reflective type	1m	**NEF-R50**	Light-ON	

Even more ensured stable detection

Stable detection of small objects

- Pinhole plate (optional)

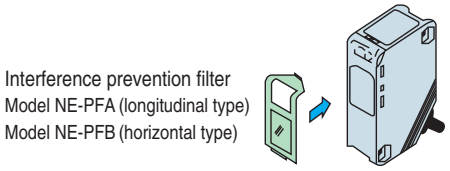


Detecting distance with plate attached (to both transmitter and receiver)

Model	NE-P3	NE-P5	NE-P5×1
Hole diameter	ϕ3	ϕ5	5×1
Detecting distance	1m	3m	0.7m

Adjacent mounting of through-beam type sensors

- Interference prevention filter (optional)



- Type

Product name	Model	Description
Pinhole plate	**NE-P3**	Hole diameter 3mm
	NE-P5	Hole diameter 5mm
	NE-P5×1	Hole diameter 5 x 1mm
Interference prevention filter	**NE-PFA**	Longitudinal polarization filter
	NE-PFB	Horizontal polarization filter

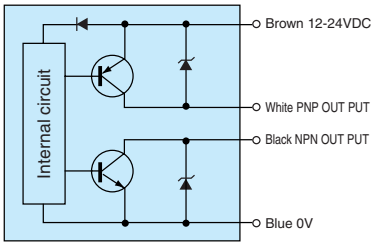
Rating/Performance/Specification

	Model	NEF-T10RD	NEF-M5RD	NEF-R50
Rating/performance	Detection method	Through-beam type	Polarization reflector type	Diffuse-reflective type
	Detecting distance	10 max.	0.03~5m max. *	1m max.
	Detection object	ϕ 20mm (Min.) Opaque	Mirror-like objects /opaque objects	Opaque objects/translucent objects
	Power supply	12-24V DC ±10% / Ripple 10%		
	Current consumption	Transmitter: 30mA max. Receiver: 25mA max.	40mA max.	
	Output mode	NPN/ PNP open collector (2 outputs)		
	Control output	NPN: sink current 100 mA (30 VDC) max. PNP: source current 100 mA (30 VDC) max.		
	Operation mode	Dark-ON		Light-ON
	Response time	5ms max		
	Hysteresis	————		10 % max.
	Operating angle	3° (at receiver)	30° (at reflector)	————
Specification	Light source (Light wavelength)	Red LED (700 nm)		Infrared LED (880 nm)
	Indicator	Transmitter: power indicator (red LED) Receiver: operation indicator (orange LED) Stability indicator (green LED)	Operation indicator (orange LED) Stability indicator (green LED)	
	Volume (VR)	SENS: sensitivity adjustment (on receiver for through-beam type)		
	Short circuit protection	Provided		
	Material: Case	Heat-resistant ABS		
	Material: Lens	Acrylic		
	Connection	Permanently attached cord (outer dimension: dia. 6) Transmitter of through-beam type: 0.3 sq. 2 core 2 m length (gray) Receiver of through-beam type: 0.2 sq. 4 core 2 m length (black)		
	Mass	Transmitter: About 130 g Receiver: About 150 g	About 150 g	
	Accessory	Screwdriver for adjustment, mounting bracket, operation manual	K-7 reflector	
	Note	*With K-7 reflector (accessory)		

Environmental Specification

Environment	Ambient light	10,000 max.
	Ambient temperature	-25 - +55°C (non-freezing)
	Ambient humidity	35-85%RH (non-condensing)
	Protective structure	IP 66
	Vibration	10-55 Hz / 1.5 mm amplitude / 2 hours each in 3 direction
	Shock	100 m/s2 / 3 times each in 3 directions
	Dielectric withstanding	1000 VAC for 1 minute
	Insulation resistance	500 VDC, 20 MΩ or higher

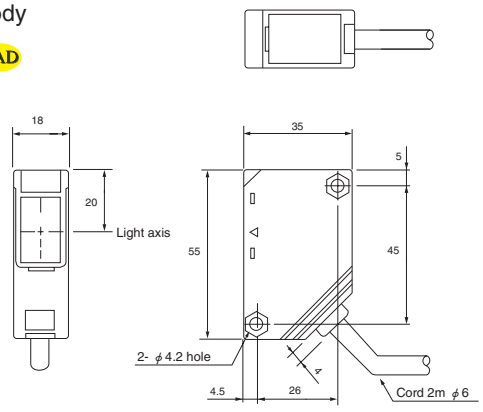
Input/Output Circuit and Connection



Dimensions (in mm)

Body

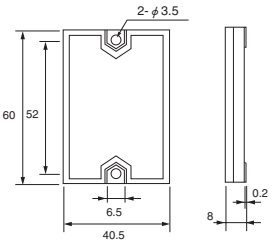
CAD



Reflector (Model / K-7)

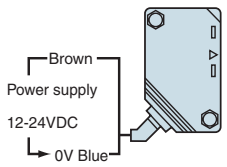
CAD

Applicable to polarization reflector type
Effective reflecting surface: 36 x 56 mm
Mounting: secured with M3 screws
(alternatively adhesive may be used)
Protective structure: IP 67

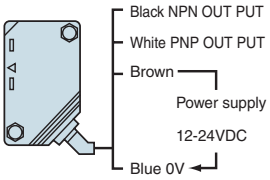


Connection

Through-beam type transmitter



Through-beam type receiver
Polarization reflector type
Diffuse-reflective type



With mounting bracket provided attached