

Photoelectric Sensors

## E3FA-DP12 2M

Photoelectric Sensor, Diffuse-reflective, Sensing distance: 300 mm, PNP output, Pre-wired, 2 m



Image

<b>Sensing method</b>	Diffuse-reflective
<b>Sensing distance</b>	White paper 300 x 300 mm: 300 mm
<b>Light source</b>	Red LED (624 nm)
<b>Connection method</b>	Pre-wired models

### Ratings/Performance

As of November 10, 2025

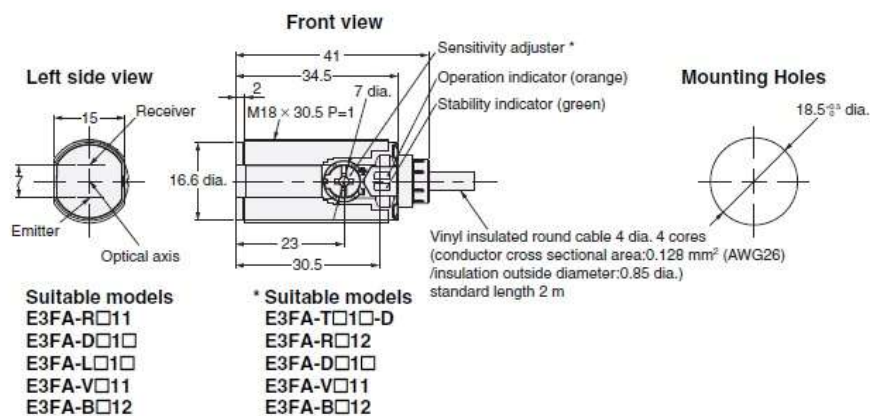
<b>Shape</b>	Cylinder type
<b>Sensing method</b>	Diffuse-reflective
<b>Sensing distance</b>	White paper 300 x 300 mm: 300 mm
<b>Spot size</b>	40 x 50 mm (sensing distance: 300 mm)
<b>Differential distance</b>	20% max.
<b>Light source</b>	Red LED (624 nm)
<b>Power supply voltage</b>	10 to 30 VDC±10% ripple (p-p) 10% included
<b>Current consumption</b>	25 mA max.
<b>Control output</b>	PNP open collector 30 VDC max. 100 mA max. Residual voltage: 3 V max.
<b>Operation mode</b>	Light-ON/Dark-ON selectable
<b>Protective circuit</b>	Output short-circuit protection, Output reverse polarity protection, Power supply reverse polarity protection
<b>Response time</b>	Operate or reset: 0.5 ms max.
<b>Sensitivity setting</b>	Single-turn adjustment
<b>Ambient illuminance</b>	Incandescent lamp: 3,000 lx max. Sunlight: 10,000 lx max.
<b>Ambient temperature range (Operating)</b>	-25 to 55 °C (with no freezing or condensation)
<b>Ambient temperature range (Storage)</b>	-40 to 70 °C (with no freezing or condensation)

<b>Ambient humidity range (Operating)</b>	35 to 85 % (with no condensation)
<b>Ambient humidity range (Storage)</b>	35 to 95 % (with no condensation)
<b>Insulation resistance</b>	20 MΩ min. (500 VDC megger)
<b>Dielectric strength</b>	1000 VAC 50/60 Hz 1 min
<b>Vibration resistance</b>	Destruction: 10 to 55 Hz, 1.5 mm double amplitude each in X, Y, and Z directions for 2 h
<b>Shock resistance</b>	Destruction: 500 m/s <sup>2</sup> 3 times each in X, Y and Z directions
<b>Degree of protection</b>	IEC: IP67 DIN40050-9: IP69K
<b>Connection method</b>	Pre-wired models (Cable length 2 m)
<b>Indicator</b>	Operation indicator (orange), Stability indicator (green)
<b>Weight</b>	Package: Approx. 60 g Main Unit: Approx. 50 g
<b>Accessories</b>	Instruction sheet, M18 nuts
<b>Material</b>	Case: ABS Lens: Methacrylate resin (PMMA) Display: Methacrylate resin (PMMA) Adjustment: POM Nut: POM

As of November 10, 2025

Dimensions

As of November 10, 2025

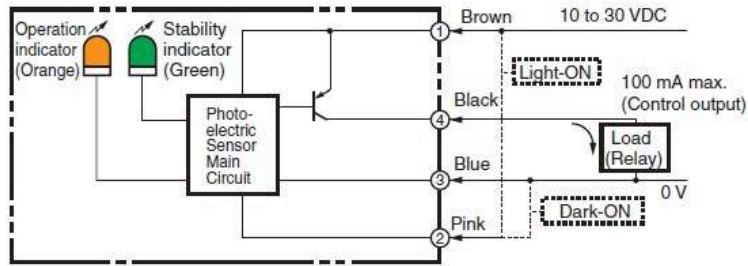


As of November 10, 2025

Output circuit diagram

As of November 10, 2025

Through-beam Receivers, Retro-reflective Models, Diffuse-reflective Models, Limited reflective Models. Transparent detected with P-opaquing function.



As of November 10, 2025

Timing chart

As of November 10, 2025

Operation mode	Timing charts	
Light-ON	Light incident	
	Light interrupted	
	Operation indicator (orange) ON	
	OFF	
	Output transistor ON	
	OFF	
Load (e.g., relay)	Operate	
	Reset	
	(Between blue and black leads)	
Dark-ON	Light incident	
	Light interrupted	
	Operation indicator (orange) ON	
	OFF	
	Output transistor ON	
	OFF	
Load (e.g., relay)	Operate	
	Reset	
(Between blue and black leads)		

As of November 10, 2025

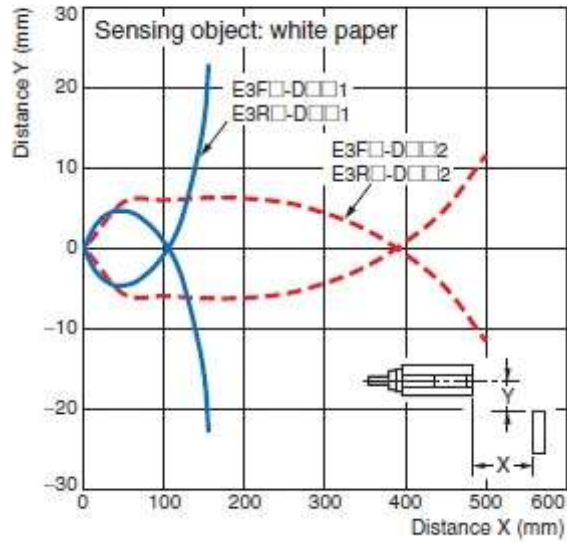
Operating range

As of November 10, 2025

### Diffuse-reflective Models

E3F□-D□1, E3F□-D□2

E3R□-D□1, E3R□-D□2



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#### Setting distance

As of November 10, 2025

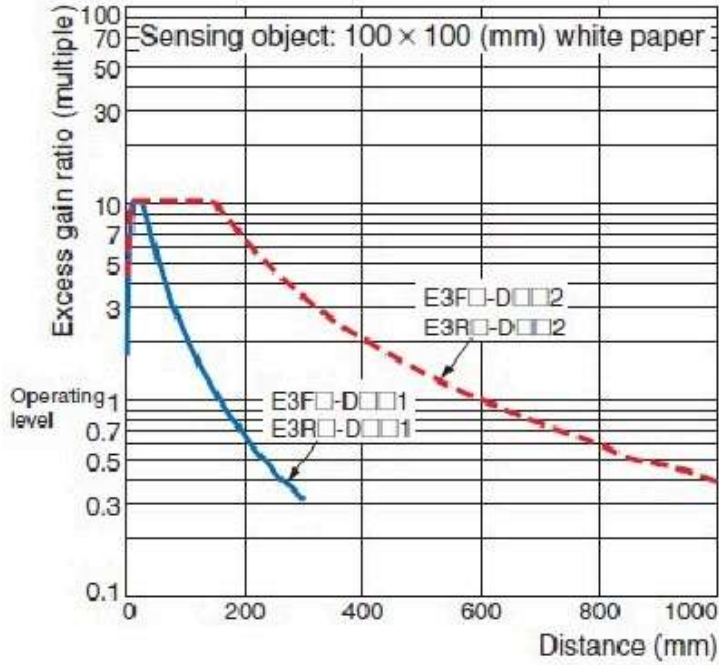
Excess gain ratio vs. setting distance

## Excess Gain vs. Distance

### Diffuse-reflective Models

E3F□-D□1, E3F□-D□2

E3R□-D□1, E3R□-D□2

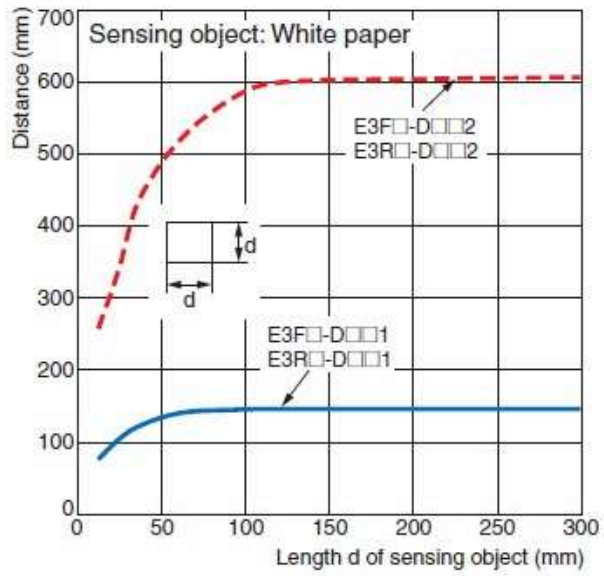


Sensing object size vs. setting distance

### Sensing Object Size vs. Distance

#### Diffuse-reflective Models

E3F□-D□1, E3F□-D□2  
E3R□-D□1, E3R□-D□2



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