Photoelectric Sensors

E3FA-DP12 2M

Diffuse-reflective, Sensing distance White paper 300 x 300 mm: 300 mm, Light-ON/Dark-ON selectable, PNP, Pre-wired models (2 m), Red LED (624 nm)

Image

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

Ratings/Performance

As of April 20, 2022

Shape	Cylinder type
Sensing method	Diffuse-reflective
Sensing distance	White paper 300 x 300 mm: 300 mm
Spot size	40 x 50 mm (sensing distance: 300 mm)
Differential distance	20% max.
Light source	Red LED (624 nm)
Power supply voltage	10 to 30 VDC±10% ripple (p-p) 10% included
Current consumption	25 mA max.
Control output	PNP open collector 30 VDC max. 100 mA max. Residual voltage: 3 V max.
Operation mode	Light-ON/Dark-ON selectable
Protective circuit	Output short-circuit protection, Output reverse polarity protection, Power supply reverse polarity protection
Response time	Operate or reset: 0.5 ms max.
Sensitivity setting	Single-turn adjustment
Ambient illuminance	Incandescent lamp: 3,000 lx max. Sunlight: 10,000 lx max.
Ambient temperature range (Operating)	-25 to 55 ℃ (with no freezing or condensation)
Ambient temperature range (Storage)	-40 to 70 ℃ (with no freezing or condensation)
Ambient humidity range	35 to 85% (with no condensation)

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

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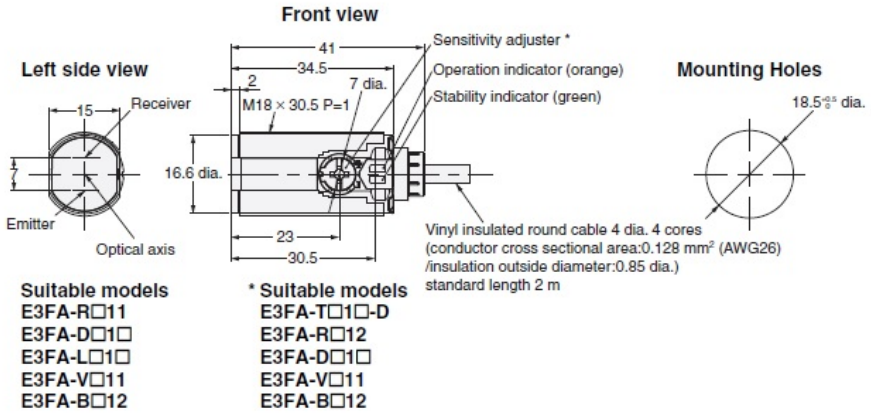
Dimensions

As of April 20, 2022



As of April 20, 2022

Output circuit diagram

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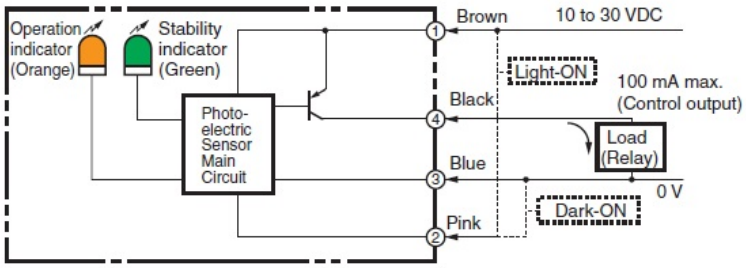
Through-beam Receivers, Retro-reflective Models,
Diffuse-reflective Models, Limited reflective Models.
Transparent detected with P-opaquing function.



As of April 20, 2022

Timing chart

As of April 20, 2022

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)

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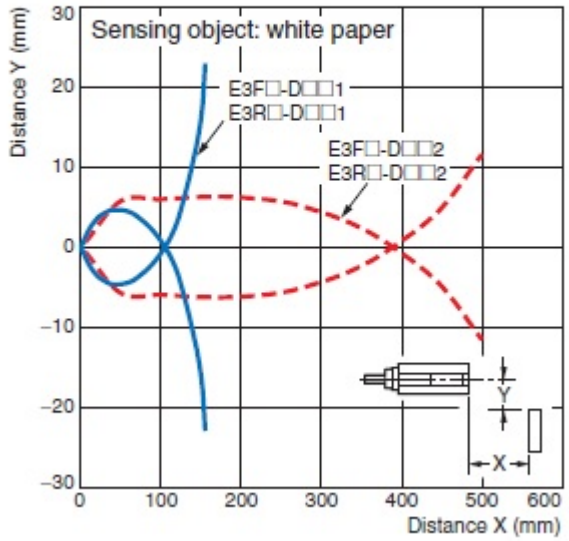
Operating range

As of April 20, 2022

Diffuse-reflective Models
E3F□-D□1, E3F□-D□2
E3R□-D□1, E3R□-D□2



As of April 20, 2022

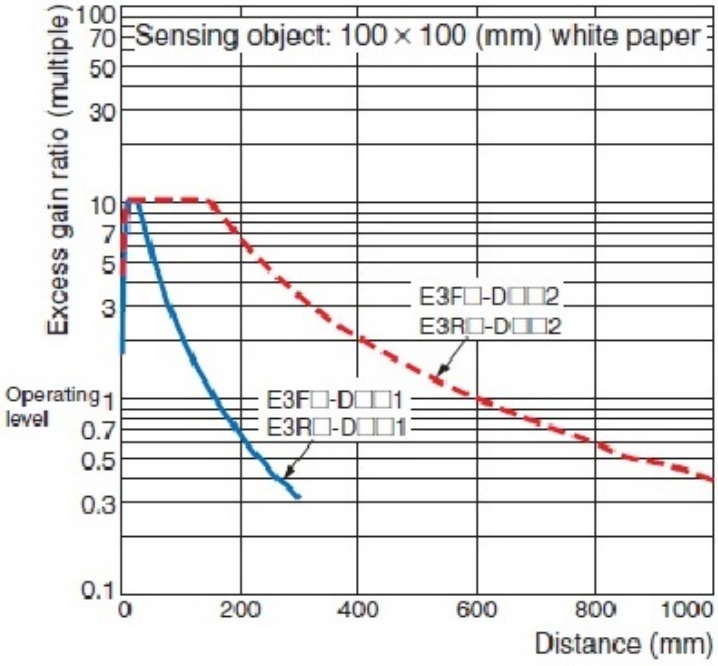
Setting distance

As of April 20, 2022

Excess gain ratio vs. setting distance

Excess Gain vs. Distance

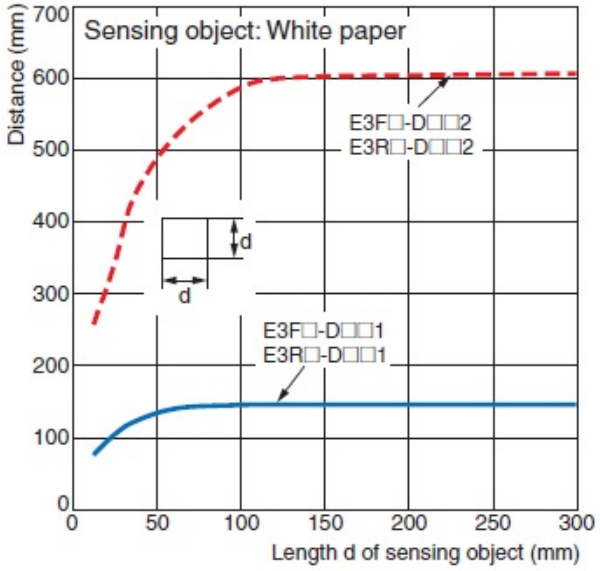
Diffuse-reflective Models
E3F□-D□1, E3F□-D□2
E3R□-D□1, E3R□-D□2



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



As of April 20, 2022