

E3F1

- M18 size Photoelectric sensor with best value at competitive price
- Bright visible red LED enabling easy alignment
- Compact and robust housing for easy integration into machines
- Reliable operation in all industrial environments



Ordering Information

Sensors [Refer to Dimensions on page 5.]

 Red light

Sensor type	Sensing distance	Connection method	Model	
			NPN output	PNP output
Through-beam 	 15 m	pre-wired	E3F1-TN11 2M ^{*1}	E3F1-TP11 2M ^{*1}
		M12 connector	E3F1-TN21 ^{*1}	E3F1-TP21 ^{*1}
Retro-reflective ^{*2} 	 0.1 to 3 m with E39-R1S	pre-wired	E3F1-RN11 2M	E3F1-RP11 2M
		M12 connector	E3F1-RN21	E3F1-RP21
Diffuse-reflective 	 100 mm	pre-wired	E3F1-DN11 2M	E3F1-DP11 2M
		M12 connector	E3F1-DN21	E3F1-DP21
	 300 mm	pre-wired	E3F1-DN12 2M	E3F1-DP12 2M
		M12 connector	E3F1-DN22	E3F1-DP22

^{*1} Includes the emitter and receiver.

^{*2} The Reflector is sold separately.

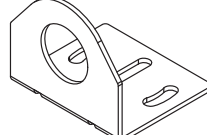
Reflectors [Refer to Dimensions on page 6.]

Reflectors required for Retro-reflective Sensors: A Reflector is not provided with the Sensor. Be sure to order a Reflector separately.

Sensor	Sensing distance	Appearance	Model	Quantity	Remarks
E3F1-R□	0.1 to 3 m		E39-R1S	1	for E3F1-R□

Mounting brackets [Refer to Dimensions on page 6.]

A Mounting Bracket is not enclosed with the Sensor. Order a Mounting Bracket separately if required.

Sensor	Appearance	Model (Material)	Quantity	Remarks
all types		E39-L183 (SUS304)	1	Mounting bracket
		E39-L182 (POM)	1	Flush mounting bracket

Sensor I/O connectors

Models for Connectors: A Connector is not provided with the Sensor. Be sure to order a Connector separately.

Sensor	Size	Cable	Appearance	Cable type	Model
M12 connector types	M12	Standard	Straight 	2 m	XS2F-M12PVC4S2M-EU
				5 m	XS2F-M12PVC4S5M-EU
			Angle 	2 m	XS2F-M12PVC4A2M-EU
				5 m	XS2F-M12PVC4A5M-EU

Specifications

Model	Sensing method		Through-beam	Retro-reflective	Diffuse-reflective	
	NPN output	Pre-wired	E3F1-TN11 2M	E3F1-RN11 2M	E3F1-DN11 2M	E3F1-DN12 2M
		M12 Connector	E3F1-TN21	E3F1-RN21	E3F1-DN21	E3F1-DN22
Item	PNP output	Pre-wired	E3F1-TP11 2M	E3F1-RP11 2M	E3F1-DP11 2M	E3F1-DP12 2M
		M12 Connector	E3F1-TP21	E3F1-RP21	E3F1-DP21	E3F1-DP22
Sensing distance			15 m	0.1 to 3 m (with E39-R1S)	100 mm (white paper: 300 × 300 mm)	300 mm (white paper: 300 × 300 mm)
Spot diameter (typical)			—	—	40 × 45 mm Sensing distance of 100 mm	40 × 50 mm Sensing distance of 300 mm
Directional angle			2° min.	2° min.	—	—
Light source (wavelength)			Red LED (624 nm)			
Power supply voltage			10 to 30 VDC (include voltage ripple of 10%(p-p) max.)			
Current consumption			40 mA max. (Emitter 25 mA max. Receiver 15 mA max.)	25 mA max.		
Control output			NPN/PNP (open collector) Load current: 100 mA max. (Residual voltage: 3 V max.), Load power supply voltage: 30 VDC max.			
Operation mode			Light-ON/Dark-ON selectable by wiring			
Indicator			Operation indicator (orange) Stability indicator (green) Power indicator (green): only Emitter of Through-beam			
Protection circuits			Reversed power supply polarity protection, Output short-circuit protection and Reversed output polarity protection			
Response time			0.5 ms			
Sensitivity adjustment			One-turn adjuster			
Ambient temperature range			Operating: -25 to 55°C/ Storage: -30 to 70°C (with no icing or condensation)			
Ambient humidity range			Operating: 35 to 85%RH/ Storage: 35 to 95%RH (with no condensation)			
Degree of protection			IEC: IP66			
Weight (packed state/only sensor)	Pre-wired cable (2M)		Approx. 110 g/ Approx. 50 g, respectively	Approx. 60 g/ Approx. 50 g		
	Connector		Approx. 30 g/ Approx. 10 g, respectively	Approx. 20 g/ Approx. 10 g		
Material	Case		ABS			
	Lens and Display		PMMA			
	Adjuster		POM			
	Nut		ABS			
Accessories			Instruction sheet M18 nuts (4 pcs)	Instruction sheet M18 nuts (2 pcs)		