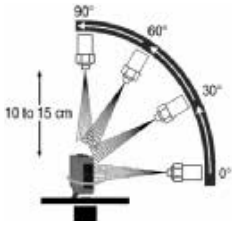
Ratings and Specifications

Item			Through-beam	Retro-reflective with MSR function
Model	Sensing method			
	NPN output	Pre-wired	E3FC-TN11 2M	E3FC-RN11 2M
		M12 Connector	E3FC-TN21	E3FC-RN21
	PNP output	Pre-wired	E3FC-TP11 2M	E3FC-RP11 2M
		M12 Connector	E3FC-TP21	E3FC-RP21
Sensing distance			20 m	0.1 to 4 m (with E39-R1S)
Spot diameter (reference value)			—	
Standard sensing object			Opaque: 7 mm dia.min.	Opaque: 75 mm dia.min.
Differential travel			—	
Directional angle			2° min.	
Light source (wavelength)			Red LED (624 nm)	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 *1.	
Indicator			Operation indicator (orange) Stability indicator (green) Power indicator (green): only Emitter of Through-beam	
Protection circuits			Power supply reverse polarity protection, Output short-circuit protection, and Output reverse polarity protection	
Response time			0.5 ms	
Sensitivity adjustment			Fixed	
Ambient illumination (Receiver side)			Incandescent lamp: 3,000 lx max./ Sunlight: 10,000 lx max.	
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%/ Storage: 35 to 95% (with no condensation)	
Insulation resistance			20 MΩ min. at 500 VDC	
Dielectric strength			1,000 VAC at 50/60 Hz for 1 min. between current-carrying parts and case	
Vibration resistance			Destruction: 10 to 55 Hz, 1.5 mm double amplitude for 2 hours each in X, Y and Z directions	
Shock resistance			Destruction: 500 m/s^2 3 times each in X, Y and Z directions	
Degree of protection			IEC: IP67, IP68 *2., DIN 40050-9: IP69K *3.	
Weight	Pre-wired cable (2M)		152 g	76 g
	Connector		44 g	22 g
Material	Case		SUS 316L (1.4404)	
	Lens and Display		PMMA	
	Adjuster		–	
	Nut		SUS 316L (1.4404)	
Accessories			Instruction sheet M18 nuts (4 pcs)	Instruction sheet M18 nuts (2 pcs)

*1. L-On fixed output available for Diffuse reflective and BGS models. Please add "A" in order code (e.g. E3FC-DP11A 2M)
*2. IP68 Degree of Protection Specifications
IP68 is defined by heat shock resistance with 20 test cycles of 30 min. changing between 3° and 60° surface tensioned water.
*3. IP69K Degree of Protection Specifications
IP69K is a protection specification stipulated by DIN 40050 Part 9 of the German standards.
The test item is sprayed with 80°C water from a nozzle of a specified shape at a water pressure of 80 to 100 bar. The amount of water is 14 to 16 liters per minute.
The distance between the test item and the nozzle is 10 to 15 cm. The water is discharged at angles of 0°, 30°, 60°, and 90° from the horizontal plane for 30 seconds at each angle while the test item is rotated horizontally.



Item						
Model	Sensing method		Diffuse-reflective			
	NPN output	Pre-wired	E3FC-DN12 2M	E3FC-DN13 2M	E3FC-DN15 2M	E3FC-DN16 2M
		M12 Connector	E3FC-DN22	E3FC-DN23	E3FC-DN25	E3FC-DN26
	PNP output	Pre-wired	E3FC-DP12 2M	E3FC-DP13 2M	E3FC-DP15 2M	E3FC-DP16 2M
		M12 Connector	E3FC-DP22	E3FC-DP23	E3FC-DP25	E3FC-DP26
Sensing distance			300 mm (white paper: 300 × 300 mm)	1 m (white paper: 300 × 300 mm)	300 mm (white paper: 300 × 300 mm)	1 m (white paper: 300 × 300 mm)
Spot diameter (reference value)			40 × 50 mm Sensing distance of 300 mm	120 × 150 mm Sensing distance of 1 m	40 × 50 mm Sensing distance of 300 mm	120 × 150 mm Sensing distance of 1 m
Standard sensing object			—			
Differential travel			20% max.			
Directional angle			—			
Light source (wavelength)			Red LED (624 nm)		Infrared LED (850 nm)	
Power supply voltage			10 to 30 VDC (include voltage ripple of 10%(p-p) max.)			
Current consumption			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 *3.			
Indicator			Operation indicator (orange) Stability indicator (green)			
Protection circuits			Power supply reverse polarity protection, Output short-circuit protection, and Output reverse polarity protection			
Response time			0.5 ms			
Sensitivity adjustment			One-turn adjuster			
Ambient illumination			Incandescent lamp: 3,000 lx max./ Sunlight: 10,000 lx max.			
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%/ Storage: 35 to 95% (with no condensation)			
Insulation resistance			20 MΩ min. at 500 VDC			
Dielectric strength			1,000 VAC at 50/60 Hz for 1 min. between current-carrying parts and case			
Vibration resistance			Destruction: 10 to 55 Hz, 1.5 mm double amplitude for 2 hours each in X, Y and Z directions			
Shock resistance			Destruction: 500 m/s^2 3 times each in X, Y and Z directions			
Degree of protection			IEC: IP67, IP68 *2., DIN 40050-9: IP69K *3.			
Weight	Pre-wired cable (2M)		76 g			
	Connector		22 g			
Material	Case		SUS 316L (1.4404)			
	Lens and Display		PMMA			
	Adjuster		POM			
	Nut		SUS 316L (1.4404)			
Accessories			Instruction sheet M18 nuts (2 pcs)			

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