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Single-beam safety sensor in compact housing

The slender M18-sized E3FS is a type 2 safety single beam with an operating range of up to 10 m. Plastic and metal housing, cable and M12-connector offer flexibility in application together with a control unit such as F3SP-U3P or F3SP-U5P.

- Sensing distance up to 10 m
- LEDs for easy alignment and diagnosis
- Cable and M12 plug categories
- Plastic and metal housing
- Type 2 sensor complying with EN 61496-1

Ordering information

Safety single beam sensors (Type 2)

Case material	Operation distance	Order code	
Plastic	0 to 10 m	Cable type	E3FS-10B4
		Plug type	E3FS-10B4-P1
Nickel brass		Cable type	E3FS-10B4-M
		Plug type	E3FS-10B4-M1-M

Controller for safety single beam sensors

Sensors	Output contacts	Width	Order code
1 to 2 Safety single beam sensors	2 NO 2.5 A	22.5 mm	F3SP-U3P-TGR
1 to 4 Safety single beam sensors		45 mm	F3SP-U5P-TGR

Specifications

Sensors

Sensing method	Through-beam
Controller	F3SP-U3P-TGR, F3SP-U5P-TGR
Supply voltage (Vs)	24 VDC ± 10% (ripple p-p 10% max.)
Effective aperture angle (EAA)	±5° (at 3 m)
Current consumption	Emitter: 50 mA max. Receiver: 25 mA max.
Sensing distance	10 m
Standard sensing object	Opaque object: 11 mm min. in diameter
Response time	2.0 ms (E3FS only)
Control output	PNP transistor output, load current: 100 mA max.
Test input (emitter)	21.5 to 24 VDC: Emitter OFF (source current: 3 mA max.) Open or 0 to 2.5 V: Emitter ON (leakage current: 0.1 mA max.)
Ambient light intensity	Incandescent lamp: 3.000 lx max. (light intensity on the receiver surface) Sunlight: 10,000 lx max. (light intensity on the receiver surface)
Ambient temperature	Operating: -20°C +55°C, storage: -30°C +70°C (with no icing or condensation)
Degree of protection	IP67 (IEC 60529)
Light source	Infrared LED
Protection	Output short-circuit protection, reverse polarity protection

Controllers

Item	F3SP-U3P	F3SP-U5P
Number of sensors	1 to 2 safety single beam sensor	1 to 4 safety single beam sensor
Width	22.5 mm	45 mm
Muting input	2 Inputs	4 Inputs
Safety related function	Override function Muting lamp connection Interlock system (automatic and manual reset)	
Power supply voltage	24 VDC ±10%	
Power consumption	420 mA max.	
Output contacts	2 NO 2.5 A (protected by fuse), 115 VAC max.	2 NO 2.5 A (protected by fuse), 250 VAC max.
Indicators	6 LED for status and diagnostics	
Degree of protection	IP20 (IEC 60529)	
Terminal	16 screw terminals, detachable blocks with '4pin'	32 screw terminals, detachable blocks with '4pin'
Response time	≤ 30 ms	
Ambient temperature	Operation: -10°C +55°C	
Housing material	Plastic; DIN rail mounting	

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