



Model Number

ML10-8-H-3,2-IR/115e

Background suppression sensor
with fixed cable and flat connector

Features

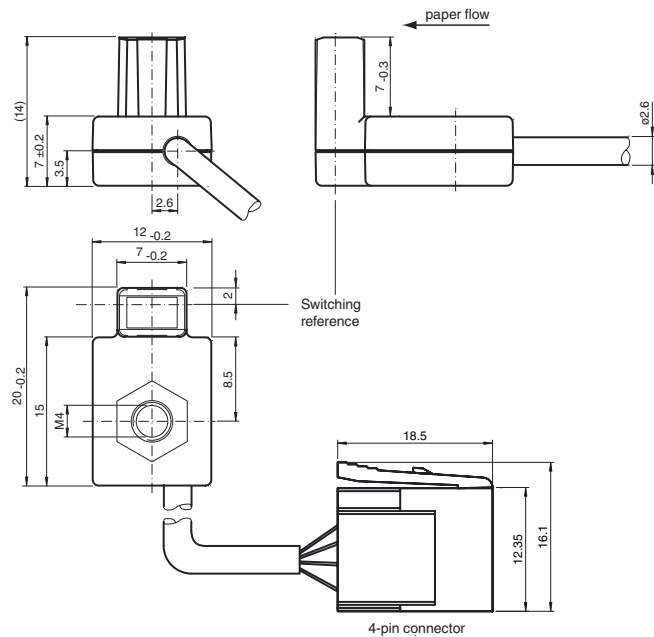
- Ultra-small design in fiber optic format
- High-precision background suppression for safe recording, regardless of object color
- Precision through optimum switching accuracy
- Suitable for high-precision positioning tasks
- Safe function in case of dirt
- Full metal thread mounting
- Operation with Signal converter SU180

Product information

The ML10 sensor is a miniature fiber-like sensor with real background suppression (BGS).

The sensor features high switching accuracy, color independence, dust resistance which ideally suits the sensor to precisely detect edges of sheet material for positioning purposes. Detectable sheet material ranges from all colors of sheet material such as paper, plastic, metal, wafer and PCB boards.

Dimensions



Electrical connection

BN	1
WH	2
BU	3
BK	4

Pinout



Technical data**General specifications**

Detection range	0.9 ... 2.2 mm
Detection range max.	0 ... 4 mm
Background suppression	starts from 4 mm
Light source	IREd
Light type	modulated infrared light , 870 nm
Black/White difference (6 %/90 %)	< 10 %
Switching accuracy, Black 6 % / White 90 %	< 0.5 mm
Switching repeat accuracy, White 90 %	< 0.1 mm
Diameter of the light spot	2 mm at sensor range 2.2 mm
Angle of divergence	approx. 24 °

Functional safety related parameters

MTTF _d	1180 a
Mission Time (T _M)	20 a
Diagnostic Coverage (DC)	0 %

Electrical specifications

Operating voltage	U _B	see accessory: signal transformer
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Output

Signal output	see accessory: signal transformer
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Ambient conditions

Ambient temperature	-20 ... 60 °C (-4 ... 140 °F)
Storage temperature	-20 ... 75 °C (-4 ... 167 °F)

Mechanical specifications

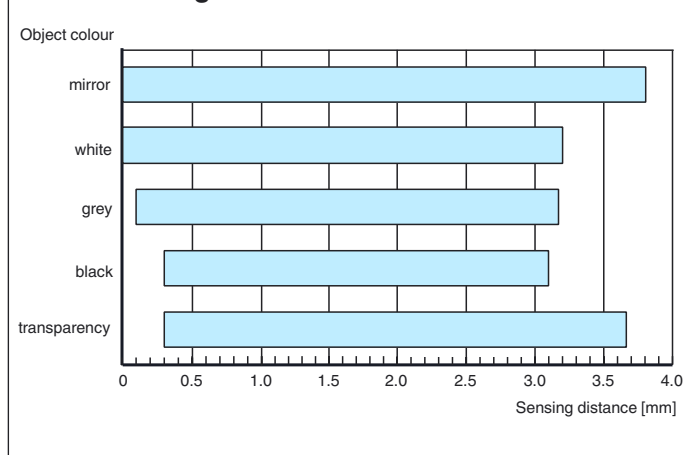
Degree of protection	IP65
Connection	2 m cable with Male connector , 4-pin
Material	
Housing	PC/ABS
Optical face	glass
Threaded bushings	brass
Cable	PVC
Cable	
Sheath diameter	2.6 mm
Color	black
Mass	30 g

Compliance with standards and directives

Directive conformity	
EMC Directive 2004/108/EC	EN 60947-5-2:2007
Standard conformity	
Product standard	EN 60947-5-2:2007 IEC 60947-5-2:2007
Shock and impact resistance	IEC / EN 60068. half-sine, 40 g in each X, Y and Z directions
Vibration resistance	IEC / EN 60068-2-6. Sinus. 10 -2000 Hz, 10 g in each X, Y and Z directions

Approvals and certificates

UL approval	cULus Recognized, Class 2 Power Source
CCC approval	CCC approval / marking not required for products rated ≤36 V

Detection ranges**Accessories****SU180-MD/40ab/115/170**

External control interface unit for the individual connection of ML 10 series miniature sensors

SU180-MD/40b/110/115

External control interface unit for the individual connection of ML 10 series miniature sensors

SU180-SD/40ab/115/170

External control interface unit for the individual connection of ML 10 series miniature sensors

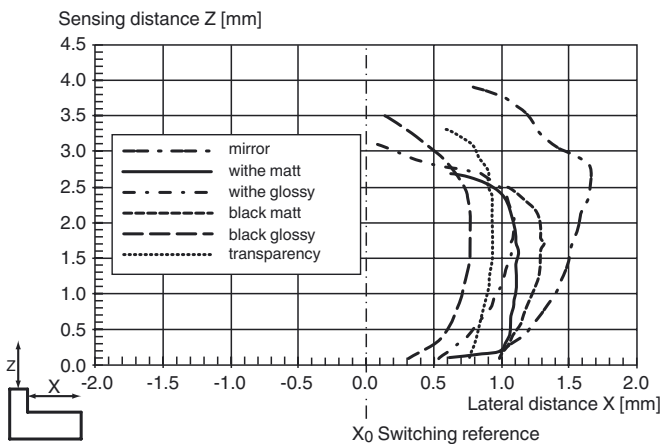
SU180-SD/40b/110/115

External control interface unit for the individual connection of ML 10 series miniature sensors

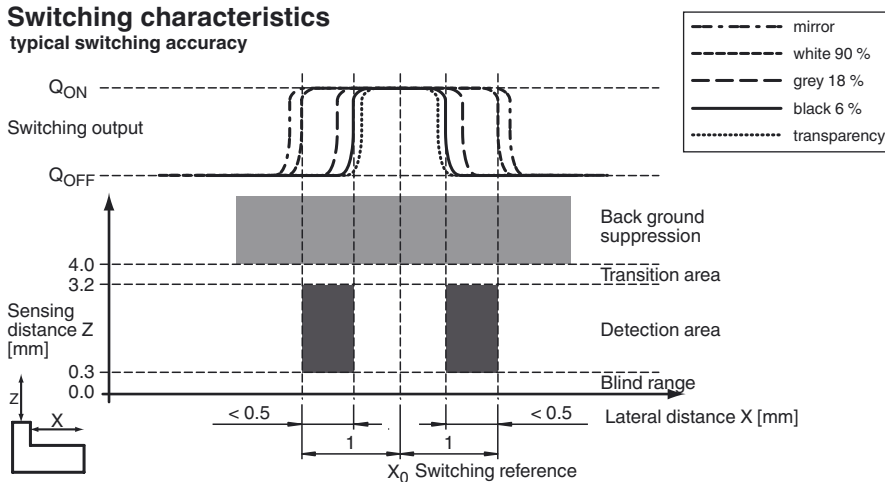
Other suitable accessories can be found at www.pepperl-fuchs.com

Curves/Diagrams

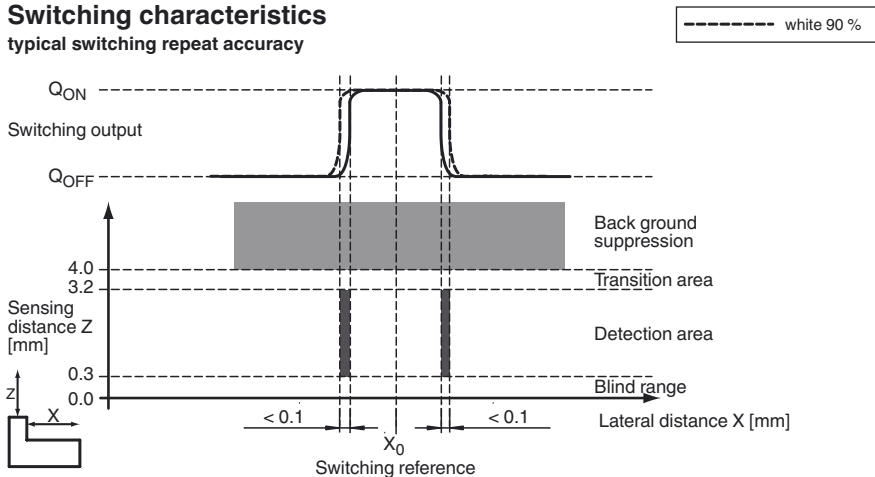
Characteristic response curve



Switching characteristics
typical switching accuracy



Switching characteristics
typical switching repeat accuracy



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Dimensions of the control unit

Control unit SU180...

