Model Number

ML6-8-H-20-RT/59/115b/136

Background suppression sensor
with 300 mm fixed cable and 4-pin, M12 x 1
connector

Features

- Precise background suppression
- Very small black-white difference
- Small, sharp light spot
- Highly visible LEDs for Power-On, switching status, short-circuit, and undervoltage
- Metal-reinforced fastening holes
- Tamper-proof version with no adjustments
- Push-pull output

Product information

The ML6 series is characterized by a robust, powerful and standard design in a miniature housing. The housing offers IP67/IP69K degree of protection, a food-grade lens, highly visible LEDs and robust all-metal bushings for mounting. Adjustable and tamper-proof sensors with a double push-pull output are available. The sensors have a high ambient light limit. Reflections from the background are suppressed. The unusually small, sharp light spot and the quick response time offer maximum switching precision on object edges. Clearly visible red light sources facilitates alignment. A high-performance fixed focus background suppressor is a useful feature. The sensors are suitable for precise object detection and open up a wide range of application fields.

Dimensions
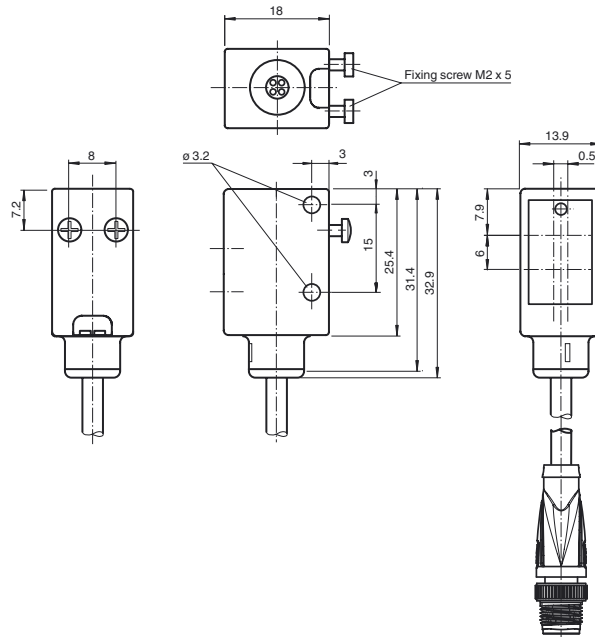
Electrical connection

Option:

○ = Light on
● = Dark on
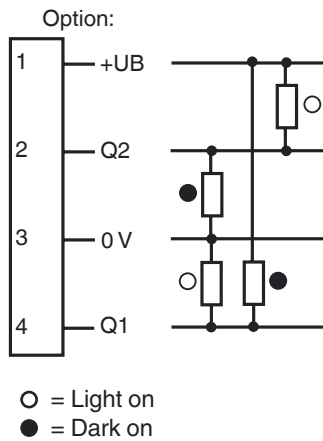
Pinout
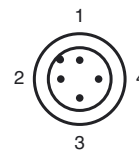
Indicators/operating means
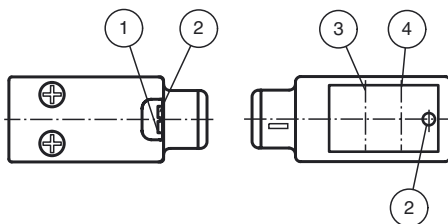
1	operating display	green
2	indication of the switching state	yellow
3	receiver axis	
4	emitter axis	

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Technical data

General specifications

Detection range	7 ... 20 mm
Detection range max.	5 ... 25 mm
Background suppression	starts from 25 mm
Light source	LED
Light type	modulated visible red light , 660 nm
Black/White difference (6 %/90 %)	approx. 1 mm
Diameter of the light spot	approx. 1.5 mm at 20 mm
Angle of divergence	approx. 5 °
Ambient light limit	
Continuous light	40000 Lux
Modulated light	5000 Lux

Functional safety related parameters

MTTF$_d$	1940 a
Mission Time (T$_M$)	20 a
Diagnostic Coverage (DC)	0 %

Indicators/operating means

Operation indicator	LED green, statically lit Power on , Undervoltage indicator: Green LED, pulsing (approx. 0.8 Hz) , short-circuit : LED green flashing (approx. 4 Hz)
Function indicator	LED yellow: lights when object is detected

Electrical specifications

Operating voltage	U$_B$	10 ... 30 V DC
Ripple		10 %
No-load supply current	I$_0$	< 25 mA

Output

Switching type		light/dark on, programmable
Signal output		2 push-pull (4 in 1) outputs, complementary, short-circuit proof, reverse polarity protected
Switching voltage		max. 30 V DC
Switching current		max. 100 mA
Voltage drop	U$_d$	≤ 2.5 V DC
Switching frequency	f	1000 Hz
Response time		0.5 ms

Ambient conditions

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

Mechanical specifications

Degree of protection	IP67 / IP69K
Connection	300 mm fixed cable with M12 x 1, 4-pin connector
Material	
Housing	ABS
Optical face	PMMA
Cable	PUR
Mass	approx. 50 g

Compliance with standards and directives

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 -150 Hz, 5 g in each X, Y and Z directions

Approvals and certificates

UL approval	cULus Listed
CCC approval	CCC approval / marking not required for products rated ≤36 V

Accessories

OMH-4.1
Mounting Clamp

OMH-ML6
Mounting bracket

OMH-ML6-U
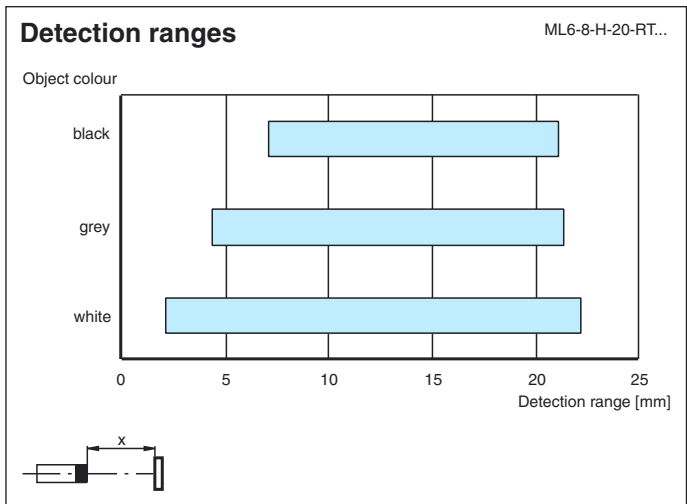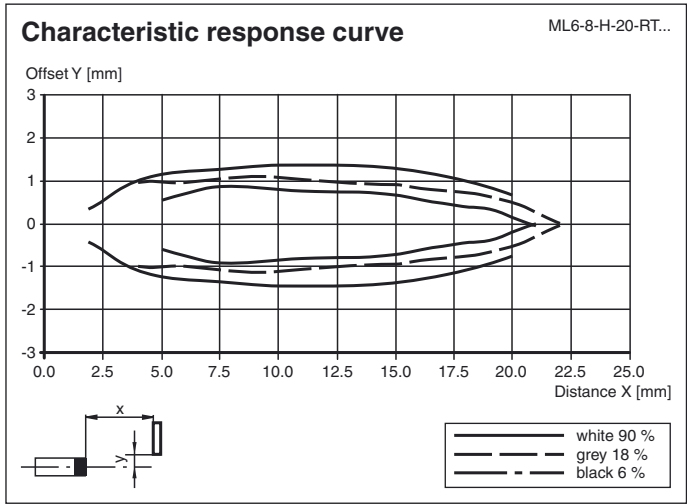Mounting bracket

OMH-ML6-Z
Mounting bracket

V1-G-2M-PVC
Female cordset, M12, 4-pin, PVC cable

V1-W-2M-PVC
Female cordset, M12, 4-pin, PVC cable

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

Refer to "General Notes Relating to Pepperl+Fuchs Product Information".

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Pepperl+Fuchs Group	USA: +1 330 486 0001	Germany: +49 621 776 4411	Singapore: +65 6779 9091
www.pepperl-fuchs.com	fa-info@us.pepperl-fuchs.com	fa-info@de.pepperl-fuchs.com	fa-info@sg.pepperl-fuchs.com

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Curves/Diagrams

Characteristic response curve

ML6-8-H-20-RT...

Offset Y [mm]

Distance X [mm]

	white 90 %
	grey 18 %
	black 6 %

Detection ranges

ML6-8-H-20-RT...

Object colour

black

grey

white

Detection range [mm]

Refer to "General Notes Relating to Pepperl+Fuchs Product Information".

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