Dimensions

Fixing screw M2 x 5

18

8

ø 3.2

3

13.9

0.5

7.2

15

3

25.4

31.4

7.9

6

7.9 ±0.3

M8 x 1

Model Number

ML6-8-H-40-RT/DS/25/95/136

Background suppression sensor
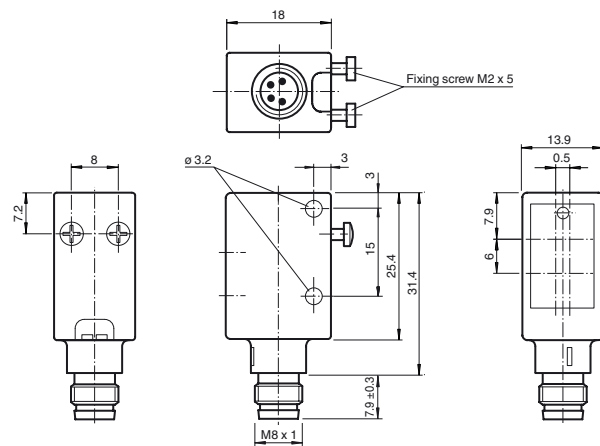with 4-pin, M8 x 1 connector

Features

- Dual sensor with two Light spots
- Precise background suppression
- Very small black-white difference
- Light spot signals are directly connected to both independent switching outputs
- Short circuit and low voltage indicator
- Metal-reinforced fastening holes
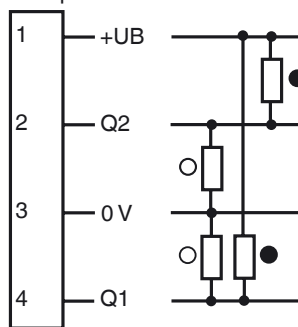- Tamper-proof version with no adjustments

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.
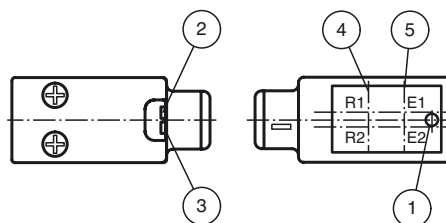
Electrical connection

Option:

1	+UB
2	Q2
3	0 V
4	Q1

○ = Light on
● = Dark on

Pinout

Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)

Indicators/operating means

1	operating display	green
2	indication of the switching state Q1	yellow
3	indication of the switching state Q2	yellow
4	receiver axis	
5	emitter axis	

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

Pepperl+Fuchs Group
www.pepperl-fuchs.com

USA: +1 330 486 0001
fa-info@us.pepperl-fuchs.com

Germany: +49 621 776 1111
fa-info@de.pepperl-fuchs.com

Singapore: +65 6779 9091
fa-info@sg.pepperl-fuchs.com

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Technical data

General specifications

Detection range	10 ... 40 mm
Detection range max.	10 ... 50 mm
Background suppression	starts from 50 mm
Light source	2 LEDs
Light type	660 nm visible red light
Black/White difference (6 %/90 %)	approx. 3 mm
Diameter of the light spot	2 light spots: size 3.5 mm distance 9 mm at 40 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	LEDs yellow: light up when object is detected

Electrical specifications

Operating voltage	U_B	10 ... 30 V DC
Ripple		10 %
No-load supply current	I_0	< 20 mA

Output

Switching type		light on +UB dark on: 0 V
Signal output		2 push-pull (4 in 1) outputs, short-circuit protected, 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	500 Hz
Response time		1 ms

Conformity

Product standard	EN 60947-5-2

Ambient conditions

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

Mechanical specifications

Housing width	13.9 mm
Housing height	31.4 mm
Housing depth	18 mm
Degree of protection	IP67 / IP69K
Connection	M8 x 1 connector, 4-pin
Material	
Housing	ABS
Optical face	PMMA
Mass	approx. 10 g

Compliance with standards and directives

Standard conformity	
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
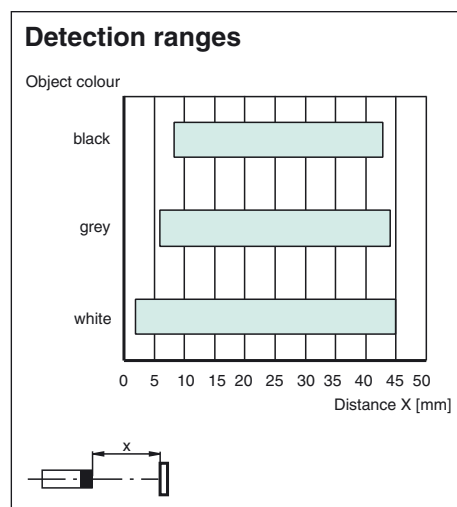
OMH-ML6-Z
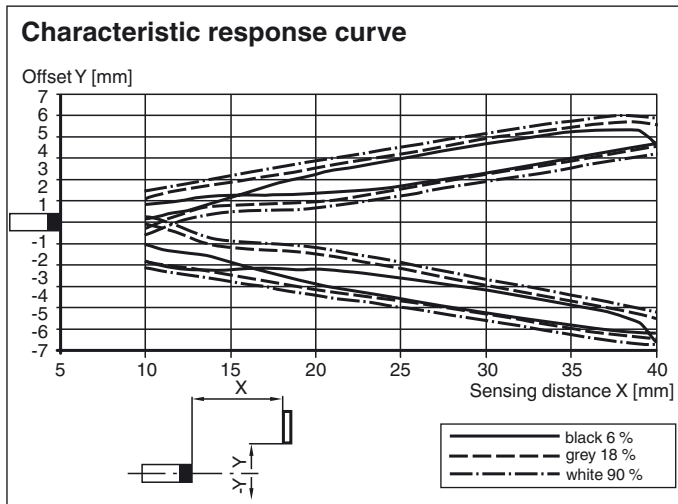Mounting bracket

V31-GM-2M-PUR
Female cordset single-ended, M8, 4-pin, PUR cable
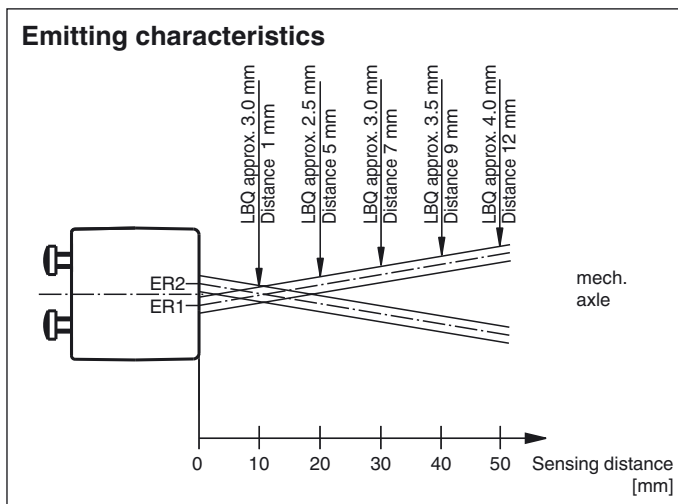
V31-WM-2M-PUR
Female cordset single-ended, M8, 4-pin, PUR cable

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

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

PEPPERL+FUCHS

Curves/Diagrams

Characteristic response curve

Offset Y [mm]

(Chart: Offset Y [mm] on vertical axis from -7 to 7, Sensing distance X [mm] on horizontal axis from 5 to 40)

Legend:
- black 6 %
- grey 18 %
- white 90 %

Detection ranges

Object colour

(Chart: black, grey, white rows; Distance X [mm] axis from 0 to 50)

Curves/Diagrams

Emitting characteristics

LBQ approx. 3.0 mm / Distance 1 mm
LBQ approx. 2.5 mm / Distance 5 mm
LBQ approx. 3.0 mm / Distance 7 mm
LBQ approx. 3.5 mm / Distance 9 mm
LBQ approx. 4.0 mm / Distance 12 mm

ER2
ER1

mech. axle

Sensing distance [mm]

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

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Emitting characteristics

The diagram shows emitting characteristics with labels:
LBQ approx. 5.0 mm, LBQ approx. 4.0 mm, LBQ approx. 3.0 mm, LBQ approx. 2.5 mm, LBQ approx. 3.5 mm, LBQ approx. 4.5 mm

mech. axle

S, E

84° ±2°

Tw (mm) axis: 0, 10, 20, 30, 40, 50, 60

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