Dimensions

Fixing screw M2 x 5

18

8

ø 3.2

3

3

13.9

0.5

7.2

15

7.9

25.4

31.4

6

7.9 ±0.3

M8 x 1

Model Number

ML4.2-8-H-20-IR/40b/95/110

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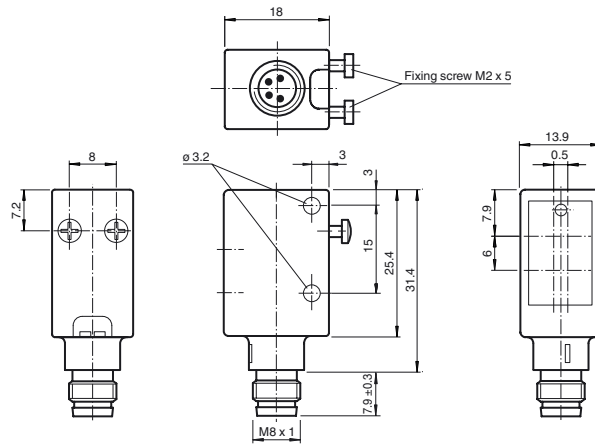with 4-pin, M8 x 1 connector

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
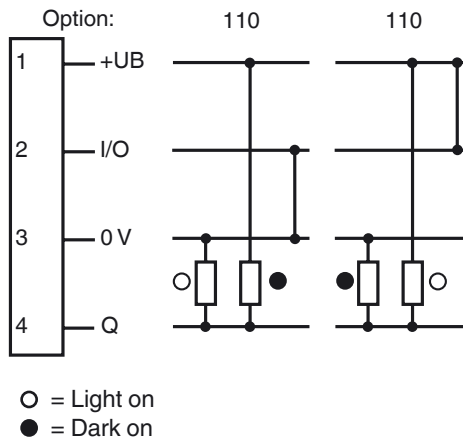- Push-pull output

Product information

The ML4.2 series is characterized by a robust, powerful and standard design in a miniature housing. The housing offers IP67/IP69K degree of protection, a scratch- and chemical-resistant lens, highly visible LEDs and robust all-metal bushings for mounting. Adjustable and tamper-proof sensors are available with a universal push-pull output and an electrical light ON/dark ON switch. 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.. Both red and infrared light sources are available. 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.
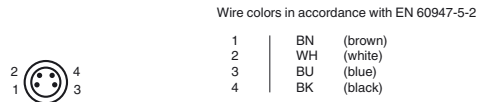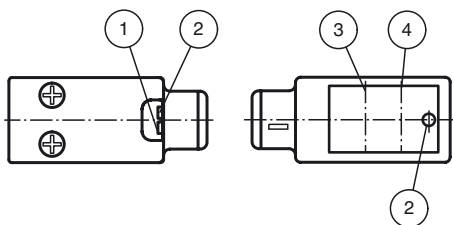
Electrical connection

Option: 110   110

1	+UB
2	I/O
3	0 V
4	Q

○ = Light on
● = Dark on

Pinout

Wire colors in accordance with EN 60947-5-2

2 — 4
1 — 3

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	yellow
3	receiver axis	
4	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

PEPPERL+FUCHS   **1**

Technical data

General specifications

Detection range	7 ... 20 mm
Detection range max.	5 ... 25 mm
Background suppression	starts from 25 mm
Light source	IRED
Light type	modulated infrared light , 880 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 electrically switchable
Signal output		Push-pull output, 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	1000 Hz
Response time		0.5 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	glass pane
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

CE conformity	yes
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

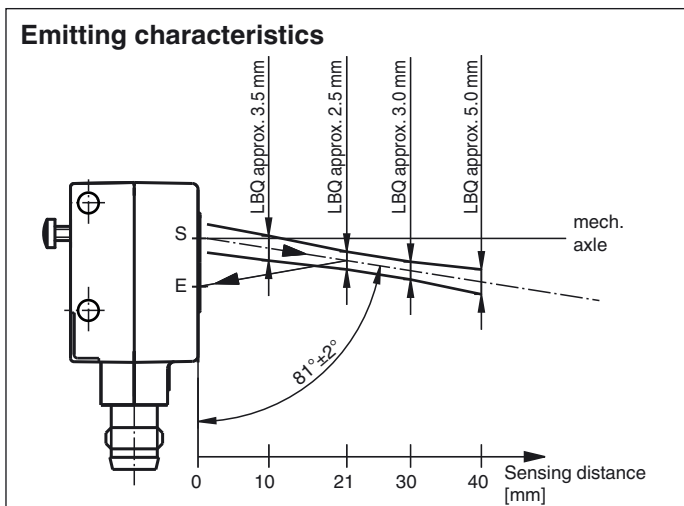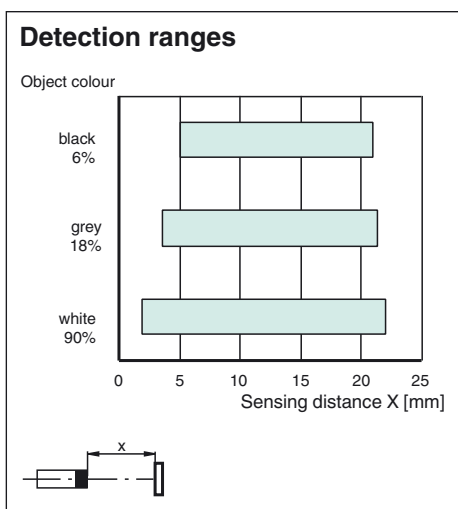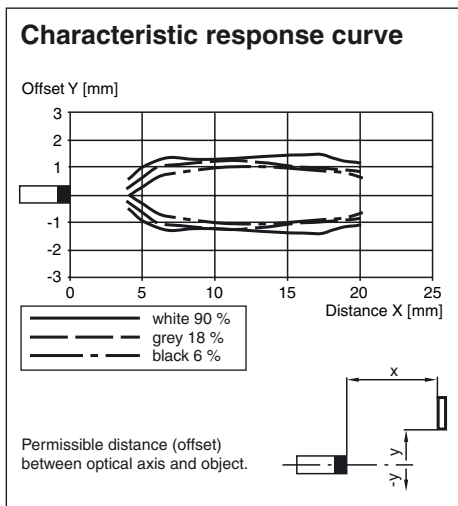**OMH-ML6-Z**
Mounting bracket

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

V31-WM-2M-PVC
Female cordset single-ended, M8, 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".

2 | 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 | **PEPPERL+FUCHS**

Curves/Diagrams

Characteristic response curve

Offset Y [mm]

white 90 %
grey 18 %
black 6 %

Permissible distance (offset) between optical axis and object.

Detection ranges

Object colour

black 6%

grey 18%

white 90%

Sensing distance X [mm]

Emitting characteristics

LBQ approx. 3.5 mm
LBQ approx. 2.5 mm
LBQ approx. 3.0 mm
LBQ approx. 5.0 mm

S

E

mech. axle

81° ±2°

0   10   21   30   40   Sensing distance [mm]

PEPPERL+FUCHS 3