Model Number

M100/MV100-IR/95/120/154
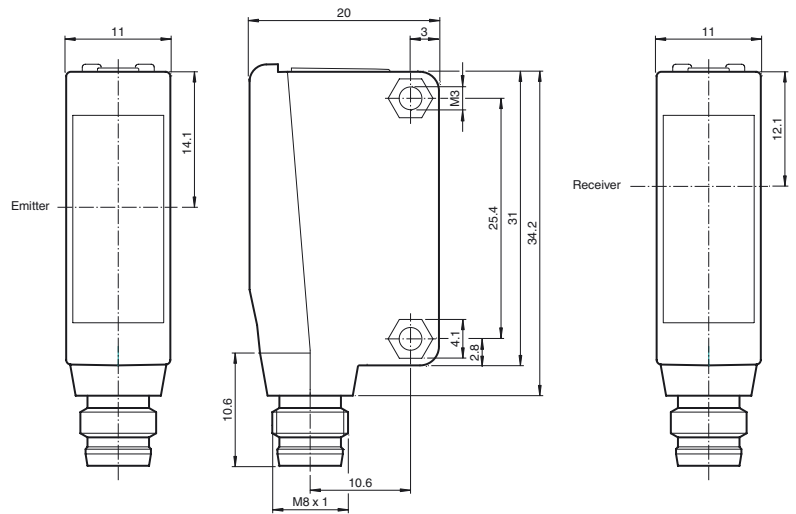
Thru-beam sensor
with 4-pin, M8 x 1 connector

Features

- Miniature design
- Easy to use
- Full metal thread mounting
- Highly visible LEDs for Power ON and switching state
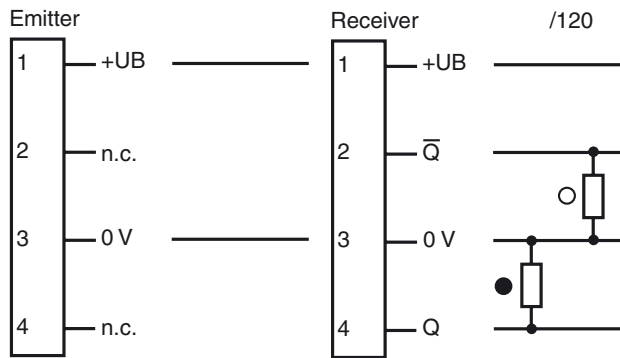- Not sensitive to ambient light

Product information

The ML100 series is characterized by its miniature housing with integral, all-metal threaded bushings. All versions are equipped with a visible red transmitter LED. This greatly simplifies installation and commissioning. The switching states are easily visible from all directions thanks to the highly visible LEDs.
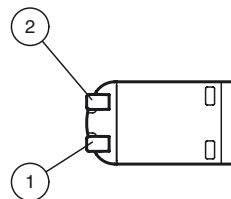
Dimensions

Electrical connection

Emitter		Receiver		/120
1	+UB	1	+UB	
2	n.c.	2	$\overline{Q}$	
3	0 V	3	0 V	
4	n.c.	4	Q	

○ = Light on
● = Dark on

Pinout

Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	n.c.	
3	BU	(blue)
4	n.c.	

Indicators/operating means

1	Signal display	yellow
2	Operating display	green

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

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Technical data

System components

Emitter	M100-IR/95
Receiver	MV100-IR/95/120/154

General specifications

Effective detection range	0 ... 15 m
Threshold detection range	20 m
Light source	LED
Light type	modulated infrared light
Diameter of the light spot	approx. 1.5 m at a distance of 20 m
Angle of divergence	approx. 2 °
Optical face	frontal
Ambient light limit	EN 60947-5-2

Functional safety related parameters

$MTTF_d$	860 a
Mission Time (T_M)	20 a
Diagnostic Coverage (DC)	0 %

Indicators/operating means

Operation indicator	LED green: power on
Function indicator	Receiver: LED yellow, lights up when light beam is free, flashes when falling short of the stability control ; OFF when light beam is interrupted

Electrical specifications

Operating voltage	U_B	10 ... 30 V DC
Ripple		max. 10 %
No-load supply current	I_0	Emitter: ≤ 15 mA Receiver: ≤ 8 mA

Output

Switching type		The default setting is: /Q - pin2: light on Q - pin4: dark on
Signal output		2 PNP outputs, complementary, short-circuit protected, reverse polarity protected, open collector
Switching voltage		max. 30 V DC
Switching current		max. 100 mA , resistive load
Voltage drop	U_d	≤ 1.5 V DC
Switching frequency	f	250 Hz
Response time		2 ms

Ambient conditions

Ambient temperature	-40 ... 60 °C (-40 ... 140 °F)
Storage temperature	-40 ... 70 °C (-40 ... 158 °F)

Mechanical specifications

Housing width	11 mm
Housing height	31 mm
Housing depth	20 mm
Degree of protection	IP67
Connection	M8 x 1 connector, 4-pin
Material	
Housing	PC (Polycarbonate)
Optical face	PMMA
Mass	approx. 20 g (emitter and receiver)
Tightening torque, fastening screws	0.6 Nm

Compliance with standards and directives

Directive conformity	
EMC Directive 2004/108/EC	EN 60947-5-2:2007+A1:2012
Standard conformity	
Standards	UL 60947-5-2

Approvals and certificates

UL approval	cULus Listed, Class 2 Power Source or listed Power Supply with a limited voltage output with (maybe integrated) fuse (max. 3.3 A according UL248), Type 1 enclosure
CCC approval	CCC approval / marking not required for products rated ≤36 V
UN/ECE Regulation No. 10 (E1)	Type-approval number: 047350

Accessories

OMH-ML100-03
Mounting aid for round steel ø 12 mm or sheet 1.5 mm ... 3 mm

OMH-ML100-04
Mounting aid for ML100 series, Mounting bracket

OMH-ML100-05
Mounting aid for ML100 series, Mounting bracket

OMH-ML100-08
Mounting aid for ML100 series, Snap-in

OMH-F10-ML100
Mounting aid for ML100 series
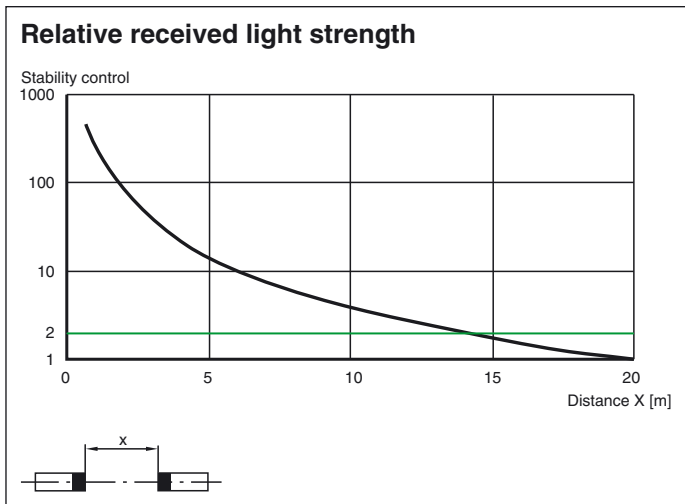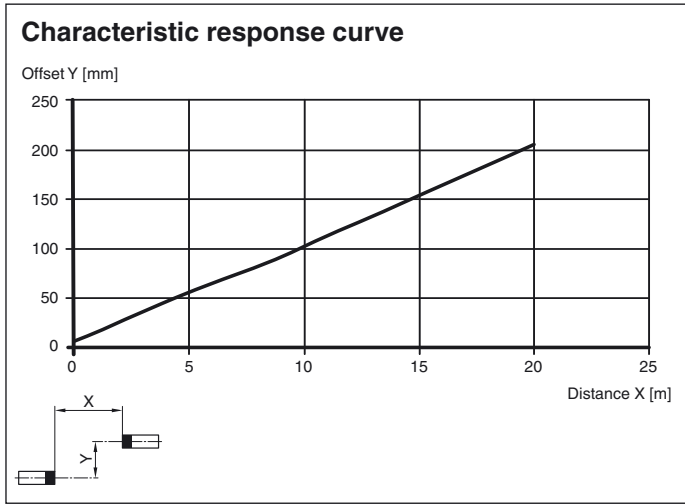
OMH-10
Mounting aid

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

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

Additional accessories can be found in the Internet.

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

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Curves/Diagrams

Characteristic response curve

Offset Y [mm]

Distance X [m]

Relative received light strength

Stability control

Distance X [m]

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

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