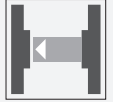# Thru-beam sensor (pair)
M100/MV100-RT/35/76b/102/115-5

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

Thru-beam sensor, 20 m detection range, red light, light/dark on, DC version, NPN output, sensitivity adjuster, emitter switch-off, fixed cable

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Function

The optical sensors of this series are suitable for both standard and demanding applications.
The series features a miniature housing design, two M3 metal-threaded mounting holes and a highly visible LED status indicator.
Each device is equipped with a sensitivity adjuster and a light-on/dark-on changeover switch for increased flexibility.
A wide variety of versions are available in both infrared light and red light with PowerBeam for easy alignment.
Special versions with BlueBeam are suitable for challenging applications like those in the solar and battery industries.

Dimensions
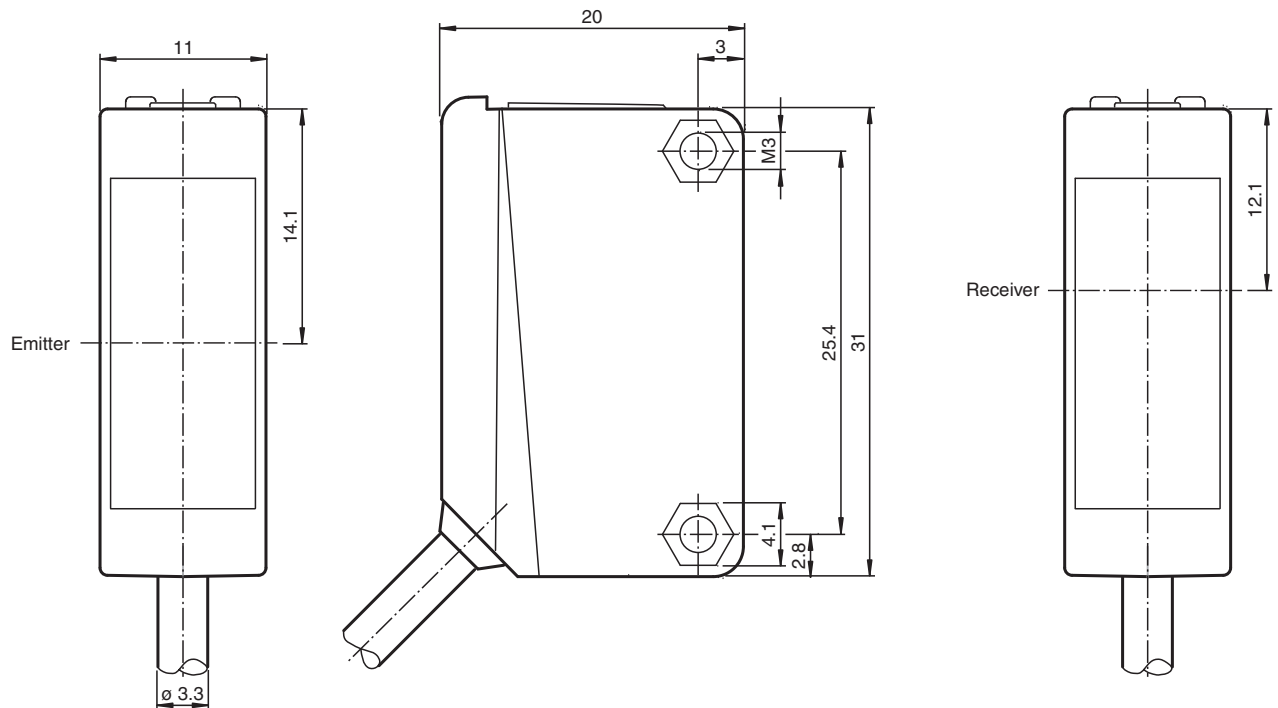
Emitter — 11 — 14.1 — ø 3.3

20 — 3 — M3 — 25.4 — 31 — 4.1 — 2.8

Receiver — 12.1

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

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Technical Data

System components

Emitter	M100-RT/35/76b/115-5M
Receiver	MV100-RT/35/102/115-5M

General specifications

Effective detection range	0 ... 20 m
Threshold detection range	30 m
Light source	LED
Light type	modulated visible red light
Diameter of the light spot	approx. 2 m at a distance of 30 m
Opening angle	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 operating reserve ; OFF when light beam is interrupted
Control elements	sensitivity adjustment
Control elements	Light-on/dark-on changeover switch

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

Input

Test input	emitter deactivation at 0 V

Output

Switching type		The switching type of the sensor is adjustable. The default setting is: light-on
Signal output		1 NPN output, 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

Conformity

Product standard	EN 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

Ambient conditions

Ambient temperature	-30 ... 60 °C (-22 ... 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	5 m fixed cable
Material	
Housing	PC (Polycarbonate)

Technical Data

Optical face	PMMA
Mass	approx. 110 g (emitter and receiver)
Tightening torque, fastening screws	0.6 Nm
Cable length	5 m

Connection
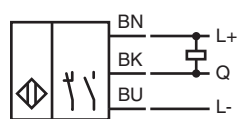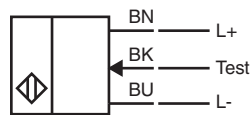
Assembly
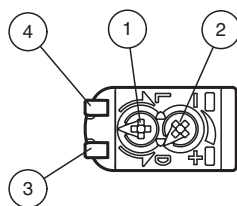
1	Light-Dark-switching	
2	Sensitivity adjuster	
3	Signal display	yellow
4	Operating display	green

Characteristic Curve
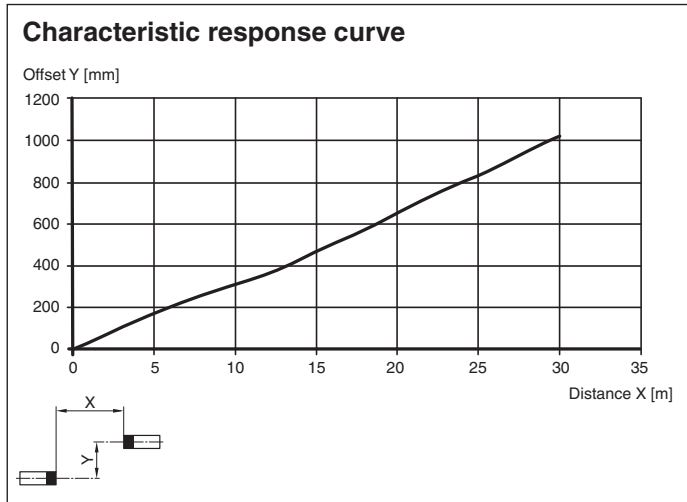
Characteristic response curve

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

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Characteristic Curve

Relative received light strength

Stability control
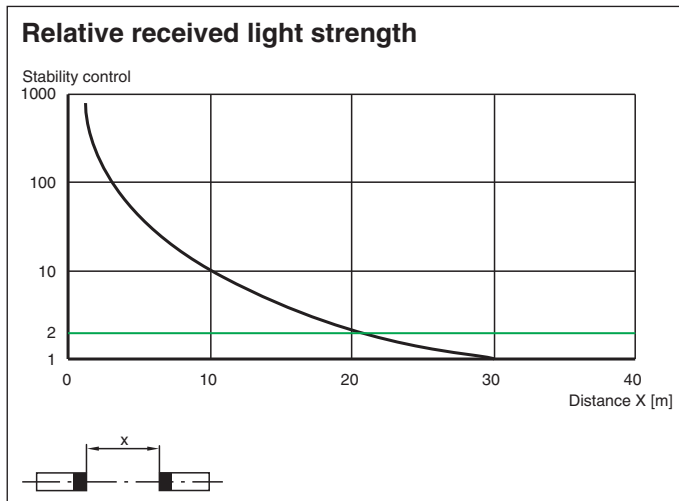
Accessories

	OMH-ML100-S2	Mounting aid for ML100 series, mounting bracket
	OMH-ML100-09	Mounting aid for round steel ø 12 mm or sheet 1.5 mm ... 3 mm
	OMH-ML100-01	Mounting aid for ML100 series, mounting bracket
	OMH-ML100-02	Mounting aid for ML100 series, mounting bracket
	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-F10-ML100	Mounting aid for ML100 series
	OMH-10	Mounting aid for ML100 series
	OMH-ML100-S1	Mounting bracket

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