Convergent beam sensor
ML100-8-HGU-100-IR/95/102/162

- Miniature design
- Diffuse mode sensor with long, narrow light spot
- Easy to use
- Full metal thread mounting

Convergent mode sensor, 100 mm adjustable detection range, infrared light, light/dark on, NPN output, M8 plug

CE   c(UL)us LISTED   UKCA

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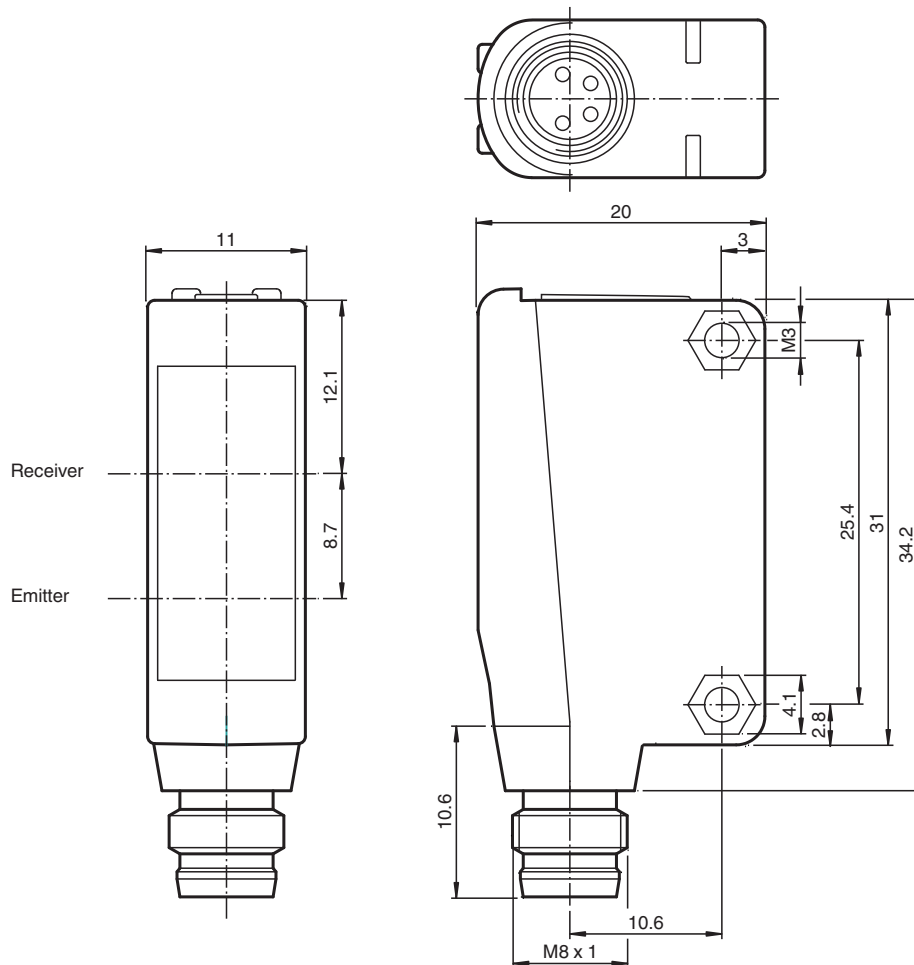
Refer to "General Notes Relating to Pepperl+Fuchs Product Information".

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Technical Data

**General specifications**

Detection range	7 ... 100 mm
Adjustment range	30 ... 100 mm
Reference target	standard white, 100 mm x 100 mm
Light source	IRED
Light type	modulated infrared light
Polarization filter	no
Diameter of the light spot	approx. 7 mm x 50 mm at 100 mm
Opening angle	Emitter: 3.5 ° vertical ; 30 ° horizontal
Optical face	frontal
Ambient light limit	EN 60947-5-2:2007+A1:2012

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	LED yellow: lights when object is detected
Control elements	Sensing range adjuster
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$_0$	< 20 mA

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	500 Hz
Response time		1 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	Connector M8 x 1 , 4-pin
Material	
Housing	PC (Polycarbonate)
Optical face	PMMA
Mass	approx. 10 g
Tightening torque, fastening screws	0.6 Nm

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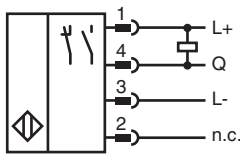
Connection

Connection Assignment

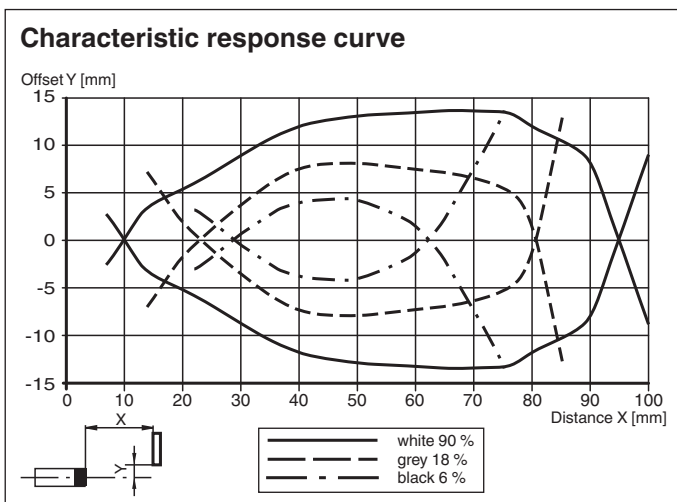Wire colors in accordance with EN 60947-5-2

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

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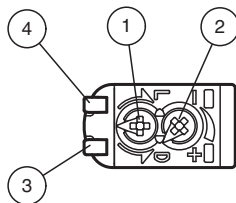
1	Light-Dark-switching	
2	Sensitivity adjuster	
3	Signal display	yellow
4	Operating display	green

Characteristic Curve

Characteristic response curve

Offset Y [mm]
Distance X [mm]

white 90 %
grey 18 %
black 6 %

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Characteristic Curve

Detection ranges

Object colour

Object colour	Distance X [mm]

black — grey — white detection range bars plotted against Distance X [mm] (scale 0 to 100)
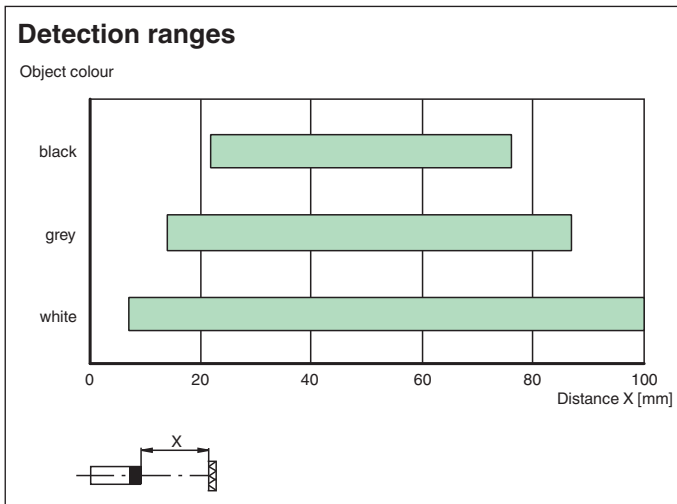
Accessories

	OMH-ML100-09	Mounting aid for round steel ø 12 mm or sheet 1.5 mm ... 3 mm
	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
	V31-GM-2M-PUR	Female cordset single-ended M8 straight A-coded, 4-pin, PUR cable grey
	V31-WM-2M-PUR	Female cordset single-ended M8 angled A-coded, 4-pin, PUR cable grey
	OMH-ML100-S1	Mounting bracket

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