



Model Number

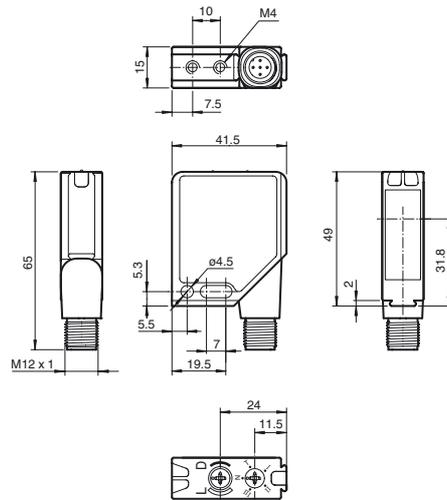
MLV12-54-G/76b/124/128

Retroreflective sensor
with metal connector M12; 5-pin, 90°
convertible

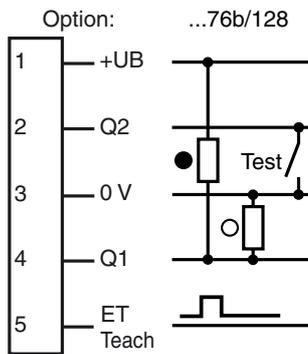
Features

- Series of sensors in a widely used standard housing
- Reliable recognition of reflective objects and clear glass
- TEACH-IN switch for setting the contrast detection levels
- Automatic adjustment in case of soiling in contrast detection mode
- High level of stability thanks to the metal housing frame
- Resistant against noise: reliable operation under all conditions

Dimensions

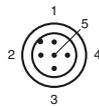


Electrical connection



○ = Light on
● = Dark on

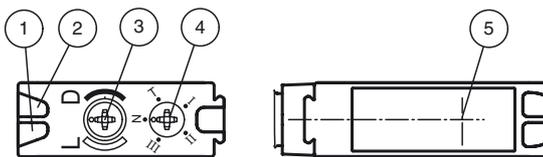
Pinout



Wire colors in accordance with EN 60947-5-2

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

Indicators/operating means



1	Operating display	green
2	Switch state	yellow
3	Bright/dark switch	
4	Teach-In switch	
5	Optical axis	

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

Technical data**General specifications**

Effective detection range	0 ... 4.2 m
Reflector distance	0 ... 4.2 m
Threshold detection range	5.6 m
Reference target	H85-2 reflector
Light source	LED
Light type	modulated visible red light , 660 nm
Polarization filter	yes
Diameter of the light spot	approx. 110 mm at detection range 4.2 m
Angle of divergence	1.5 °
Ambient light limit	
Continuous light	40000 Lux
Modulated light	5000 Lux

Functional safety related parameters

MTTF _d	1000 a
Mission Time (T _M)	20 a
Diagnostic Coverage (DC)	90 %

Indicators/operating means

Operation indicator	LED green, flashes in case of short-circuit
Function indicator	2 LEDs yellow for switching state, stability control, TEACH-IN and contrast detection mode
Control elements	rotary switch for light/dark, 5-step switch for contrast recognition adjustment
Contrast detection levels	10 % - clean, water filled PET bottles 18 % - clear glass bottles 40 % - colored glass or opaque materials adjustable by Teach-In key or external wire

Electrical specifications

Operating voltage	U _B	10 ... 30 V DC
Ripple		max. 10 %
No-load supply current	I ₀	max. 55 mA

Input

Test input	emitter deactivation at 0 V (I _{max} < 4mA at UB+ = 30 VDC)
Function input	Ext. Teach-In input (ET)

Output

Switching type	light/dark on switchable	
Signal output	1 push-pull (4 in 1) output, short-circuit protected, reverse polarity protected	
Switching voltage	max. 30 V DC	
Switching current	max. 0.2 A	
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
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Ambient conditions

Ambient temperature	-40 ... 60 °C (-40 ... 140 °F)
Storage temperature	-40 ... 75 °C (-40 ... 167 °F)

Mechanical specifications

Housing width	41.5 mm
Housing height	49 mm
Housing depth	15 mm
Degree of protection	IP67
Connection	Metal connector, M12, 5-pin, 90° rotatable
Material	
Housing	Frame: nickel plated, die cast zinc, Laterals: glass-fiber reinforced plastic PC
Optical face	Plastic pane
Mass	60 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

Protection class	II, rated voltage ≤ 300 V AC with pollution degree 1-2 according to IEC 60664-1
UL approval	cULus
CCC approval	CCC approval / marking not required for products rated ≤36 V

Accessories**OMH-MLV12-HWG**

Mounting bracket for series MLV12 sensors

OMH-MLV12-HWK

Mounting bracket for series MLV12 sensors

OMH-K01

dove tail mounting clamp

OMH-K02

dove tail mounting clamp

OMH-K03

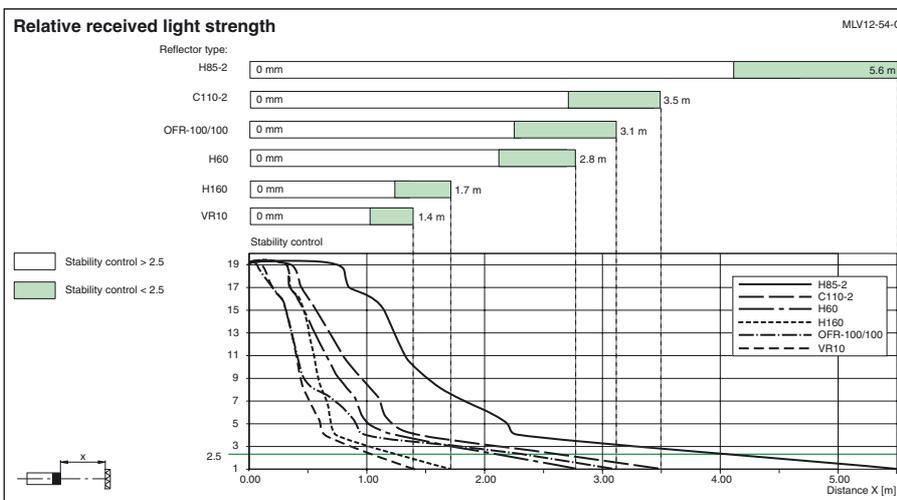
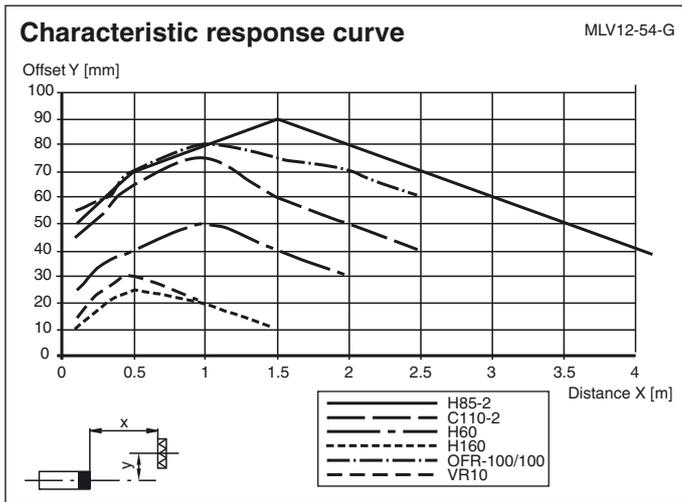
dove tail mounting clamp

OMH-06

Mounting aid for round steel ø 12 mm or sheet 1.5 mm ... 3 mm

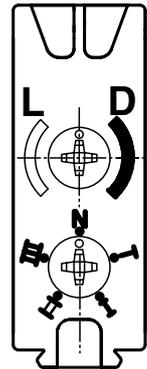
Other suitable accessories can be found at www.pepperl-fuchs.com

Curves/Diagrams



TEACH-IN

- Switch position "N" (normal operation):**
 Yellow LEDs light if the light beam is free, flash if the functional reserve is used, turn off if the light beam is interrupted.
- Switch position "T" (TEACH-IN operation):**
 Yellow LED flashes slowly after 1 second (about 1.5 Hz).
 The sensor is now ready to be set to a particular contrast detection value using the mechanical switch (position I, II, or III) or an external signal.
- Switch positions "I", "II", and "III" (contrast detection operation)**
 Contrast detection values: I for 10 %, II for 18 %, III for 40 %.
 1. Yellow LED lights continually: light path free
 2. Yellow LED off: object detected
 3. Yellow LED flashes quickly: unsure detection, too much contamination, functional reserve too low.
 A direct switching of the contrast detection levels is possible without having to put the switch back into position "T" first.
- External teach input (ET):**
 In switch position "T", you can apply a pulse over a control line to plug pin 5 to select the corresponding contrast detection.
 The desired contrast detection is set by applying a high pulse of a particular width:
 I: 50 ms (30 ms ... 100 ms)
 II: 150 ms (100 ms ... 200 ms)
 III: >200 ms
- Pre-fault output (optional):**
Switch position "N":
 Inactive if the functional reserve is used after approx. 5 sec. Immediately inactive if 4 light beam interruptions occur within the flashing time.
Contrast detection levels:
 The output goes inactive if the contamination no longer permits readjustment; the yellow LED flashes quickly. In the case of additional contamination, the detection of low contrast is no longer guaranteed.
- Warm-up period:**
 Any warm-up period can be shortened by repeating the learn (teach) process.



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