



**Model Number**

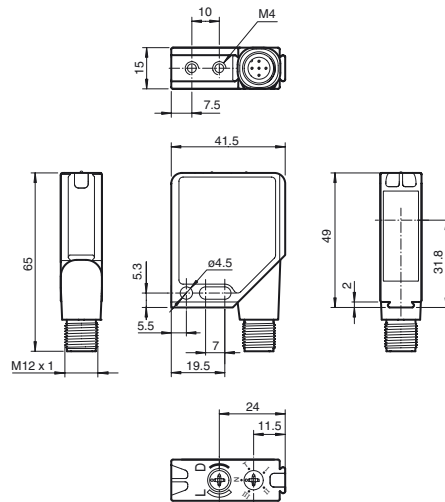
**MLV12-54-G/76b/124/128**

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

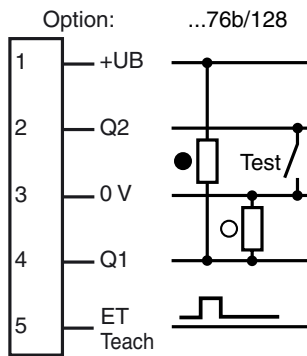
**Features**

- 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**

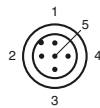


**Electrical connection**



○ = Light on  
● = Dark on

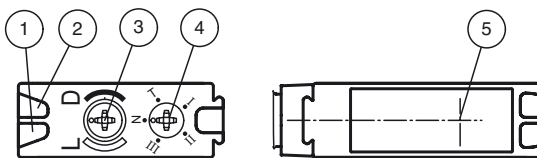
**Pinout**



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	

Release date: 2019-11-27 14:01 Date of issue: 2019-11-27 115794\_eng.xml

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

**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 <sub>d</sub>	1000 a
Mission Time (T <sub>M</sub> )	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 <sub>B</sub>	10 ... 30 V DC
Ripple		max. 10 %
No-load supply current	I <sub>0</sub>	max. 55 mA

**Input**

Test input	emitter deactivation at 0 V ( I <sub>max</sub> < 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 <sub>d</sub>	≤ 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	-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**

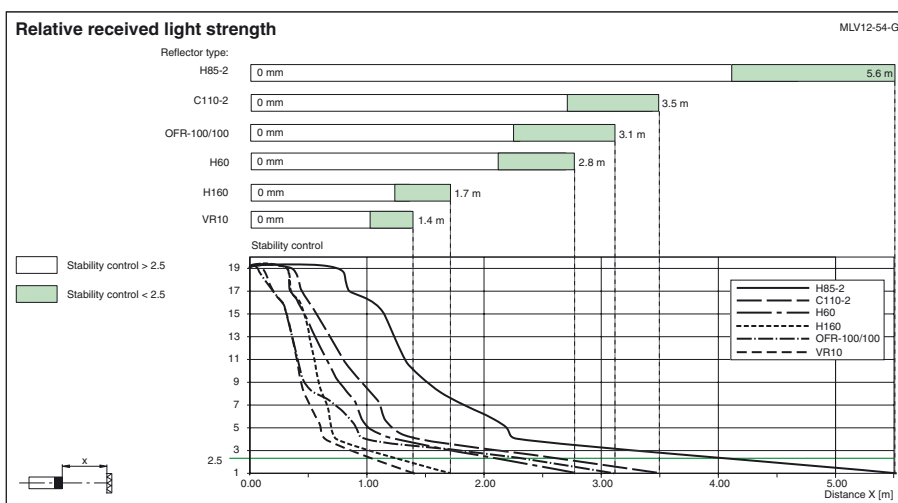
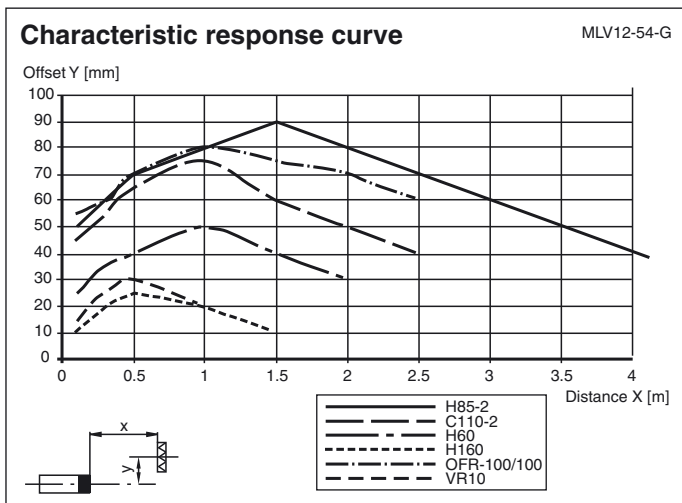
dove tail mounting clamp

**OMH-06**

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

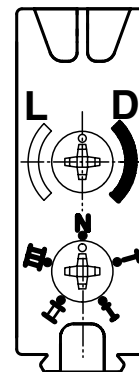
Other suitable accessories can be found at [www.pepperl-fuchs.com](http://www.pepperl-fuchs.com)

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.



Release date: 2019-11-27 14:01 Date of issue: 2019-11-27 115794\_eng.xml



# SCATTERGOOD & JOHNSON LTD

ELECTRICAL ENGINEERING & FLUID CONTROL DISTRIBUTORS

Est.1899

At Scattergood & Johnson Ltd, we pride ourselves on being a technical distributor to specialist industries.

Working with a range of quality product suppliers across a number of specialist markets, we are not your average 'box shifter' - we are your technical and supply chain partner.

We fully support every product we sell - for free! Our internal team and external sales engineers can answer any product or application question, no matter the complexity.

Backing up this technical ability is a range of 50,000+ products available from stock for nationwide next day delivery (same day if required!), or you can collect what you need from any of our trade counters around the UK.

Select your specialist interest below to learn more about how we can help.



Online, In Branch and On the Road - Scattergood & Johnson Ltd, there when you need us.

# [www.scatts.co.uk](http://www.scatts.co.uk)