



**Model Number**

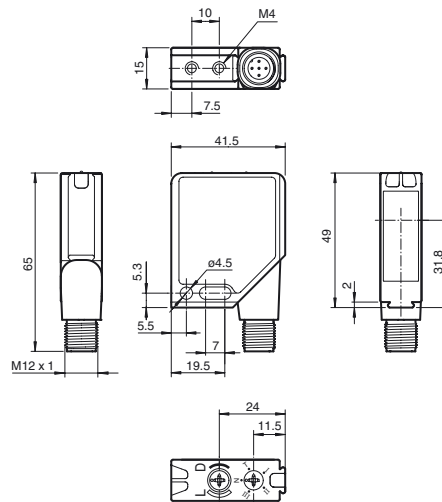
**MLV12-54-G/32/82g/124**

Retroreflective sensor with 5-pin M12 connector, 90° adjustable position

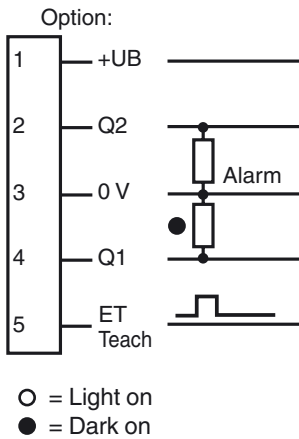
**Features**

- 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

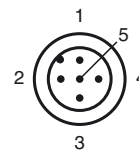
**Dimensions**



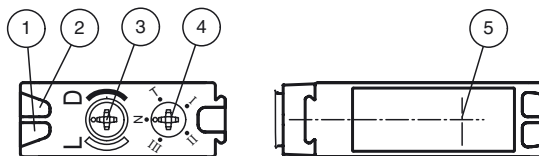
**Electrical connection**



**Pinout**



**Indicators/operating means**



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

Release date: 2013-04-18 13:25 Date of issue: 2013-05-13 115798\_eng.xml

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
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)	0 %

**Indicators/operating means**

Operating display	LED green, flashes in case of short-circuit
Function display	2 LEDs yellow for switching state, stability control, TEACH-IN and contrast detection mode
Controls	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**

Function input	Ext. Teach-In input (ET)
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**Output**

Pre-fault indication output	1 PNP function reserve output (alarm), short-circuit protected, protected from reverse polarity, open collector	
Switching type	light/dark on switchable	
Signal output	1 PNP output, short-circuit protected, reverse polarity protected, open collector	
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

**Ambient conditions**

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

**Mechanical specifications**

Protection degree	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	
Product standard	EN 60947-5-2:2007 IEC 60947-5-2:2007
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**

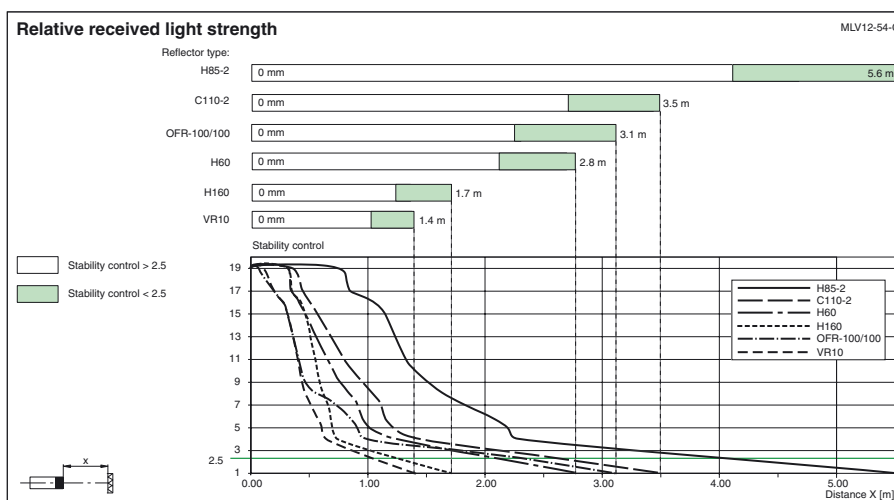
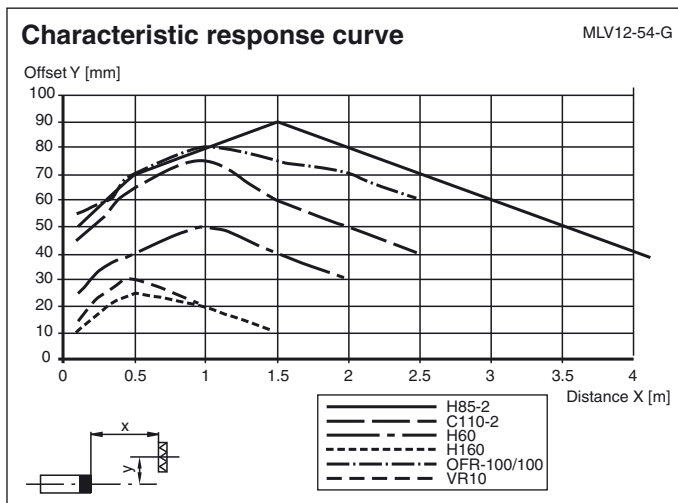
Mounting aid for round steel ø 12 mm or sheet 1.5 mm ... 3 mm

**ORR50G**

Reflector, rectangular 50.9 mm x 60.9 mm, mounting holes, fixing strap and polarization filter

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.

