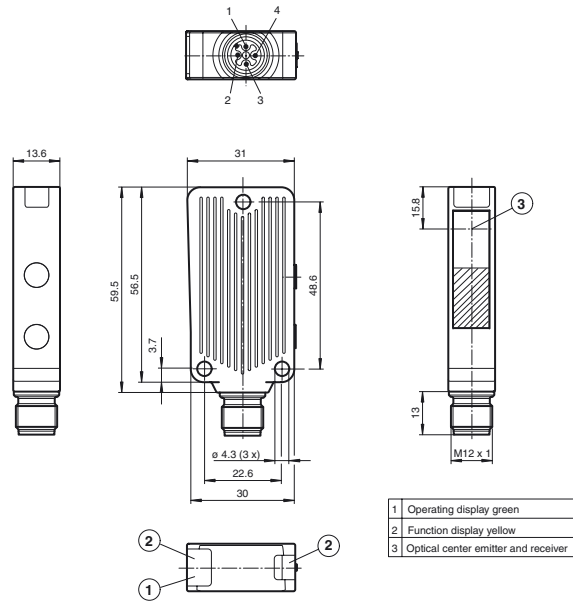CE c(UL)us □ VISO⊕

Model Number

MLV41-54-G-3957

Retroreflective sensor
with 5-pin, M12 x 1 connector

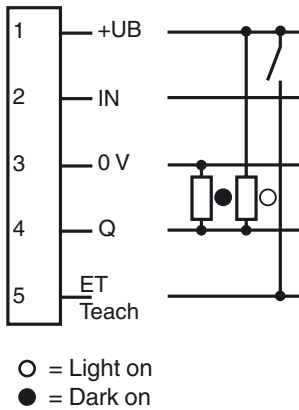## Features

- Rugged series in corrosion-resistant metal housing
- Reliable recognition of reflective objects and clear glass
- TEACH-IN procedure for automatic threshold value setting
- Automatic adjustment in case of soiling in contrast detection mode
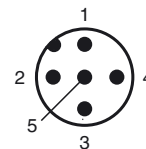- Resistant against noise: reliable operation under all conditions

Dimensions

1	Operating display green
2	Function display yellow
3	Optical center emitter and receiver

Electrical connection

1 — +UB
2 — IN
3 — 0 V
4 — Q
5 — ET Teach

○ = Light on
● = Dark on

Pinout

Subject to modifications without notice
Pepperl+Fuchs Group
www.pepperl-fuchs.com

USA: +1 330 486 0001
fa-info@us.pepperl-fuchs.com

Germany: +49 621 776-4411
fa-info@pepperl-fuchs.com

Singapore: +65 6779 9091
fa-info@sg.pepperl-fuchs.com

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Technical data

General specifications

Effective detection range	0 ... 1 m in TEACH mode 0 ... 1.3 m in normal mode
Reflector distance	0 ... 1 m in TEACH mode 0 ... 1.3 mm in normal mode
Threshold detection range	1.6 m
Reference target	Reflective tape, cut to size 14.6 x 70 mm
Light source	LED
Light type	modulated visible red light , 660 nm
Angle deviation	max. ± 1°
Diameter of the light spot	approx. 8 mm at detection range 40 mm
Angle of divergence	1.5 °
Ambient light limit	40000 Lux

Functional safety related parameters

$MTTF_d$	900 a
Mission Time (T_M)	20 a
Diagnostic Coverage (DC)	0 %

Indicators/operating means

Operating display	LED green, statically lit Power on , Undervoltage indicator: Green LED, pulsing (approx. 0.8 Hz) , short-circuit : LED green flashing (approx. 4 Hz)
Function display	2 LEDs yellow for switching state, stability control, TEACH-IN and contrast detection mode
Contrast detection levels	10 % - clean, water filled PET bottles 18 % - clear glass bottles 40 % - colored glass or opaque materials

Electrical specifications

Operating voltage	U_B	10 ... 30 V DC
Ripple		max. 10 %
No-load supply current	I_0	max. 35 mA

Input

Control input	- with open input: sensor operation - with positive flank is reset at the output - the output is set at high level if the light path is free - at low level if no sensor function, the output signal is saved until the next positive flank
Function input	Ext. Teach-In input (ET)

Output

Switching type		PNP dark on, NPN light on
Signal output		1 push-pull (4 in 1) output, short-circuit protected, reverse polarity protected
Switching voltage		max. 30 V DC
Switching current		max. 100 mA
Voltage drop	U_d	≤ 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	M12 x 1 connector, 5-pin
Material	
Housing	aluminum , Delta-Seal coated
Optical face	glass pane
Connector	metal
Mass	50 g

Compliance with standards and directives

Directive conformity	
EMC Directive 2004/108/EC	EN 60947-5-2:2007
Standard conformity	
Product standard	EN 60947-5-2:2007 IEC 60947-5-2:2007

Approvals and certificates

Protection class	II, rated voltage ≤ 50 V AC with pollution degree 1-2 according to IEC 60664-1 , functional insulation acc. to DIN EN 50178
UL approval	cULus Listed 57M3 (Only in association with UL Class 2 power supply; Type 1 enclosure)
CCC approval	CCC approval / marking not required for products rated ≤36 V

Additional information

Accessories

OMH-41
Mounting bracket

OMH-09
Mounting bracket for Sensors series MLV41 for M12 rod mounting

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

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Ext. Teach input:

By applying an external high-impulse of a certain width, a teach-in mechanism is triggered which enables the selection of the appropriate level of contrast recognition.

I:	50 ms	(30 ... 80 ms)
II:	150 ms	(120 ... 180 ms)
III:	250 ms	(220 ... 280 ms)
N:	350 ms	(320 ... 380 ms)

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Pepperl+Fuchs Group   USA: +1 330 486 0001   Germany: +49 621 776-4411   Singapore: +65 6779 9091
www.pepperl-fuchs.com   fa-info@us.pepperl-fuchs.com   fa-info@pepperl-fuchs.com   fa-info@sg.pepperl-fuchs.com

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