



CE

Model Number

MLV41-54-G-IO/25/92/136

Retroreflective sensor
with 4-pin, M12 x 1 connector

Features

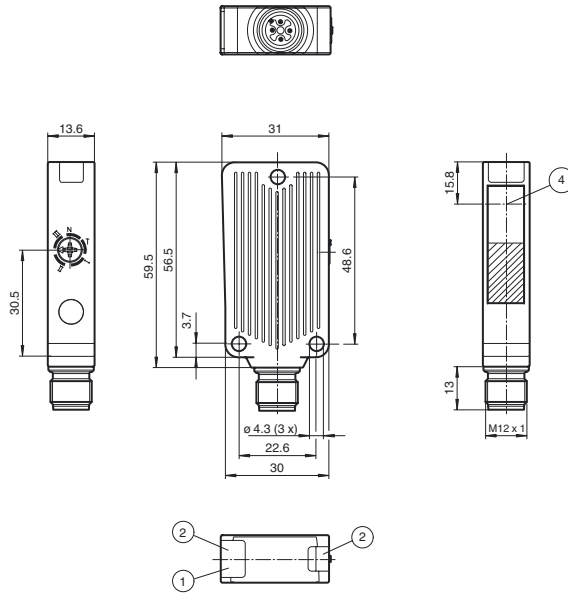
- Rugged series in corrosion-resistant metal housing
- Reliable recognition of reflective objects and clear glass
- Two machines in one: clear object detection or reflection operating mode with long range
- IO-link interface for service and process data
- TEACH-IN switch for setting the contrast detection levels
- Resistant against noise: reliable operation under all conditions

Product information

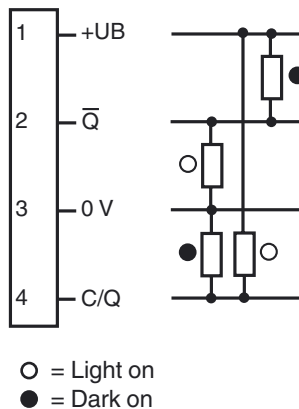
With the MLV41-54-G reflex sensor with IO-Link interface for the first time a universal communication is available for diagnosis and parameterization through to the sensor level. This provides particular advantages in the service area (fault elimination, maintenance and device replacement), during commissioning (cloning, identification, configuration and localization) and during operation (job changeover, continuous parameter monitoring and online diagnosis).

Release date: 2015-02-26 13:45 Date of issue: 2015-02-26 208793_eng.xml

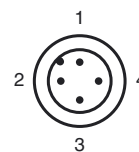
Dimensions



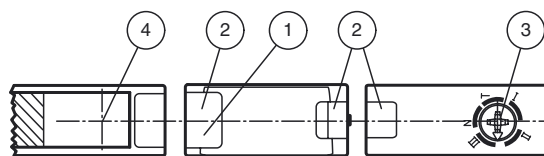
Electrical connection



Pinout



Indicators/operating means



1	Operating display	green
2	Functional display	yellow
3	Teach-In switch	
4	Optical center emitter and receiver	

Technical data**General specifications**

Effective detection range	0 ... 4 m in TEACH mode 0 ... 5.2 m at switch position "N"
Reflector distance	0 ... 4 m in TEACH mode 0 ... 5.2 m at switch position "N"
Threshold detection range	6.5 m
Reference target	H85-2 reflector
Light source	LED
Light type	modulated visible red light , 660 nm
Polarization filter	yes
Angle deviation	max. $\pm 1^\circ$
Diameter of the light spot	approx. 100 mm at detection range 4 m
Angle of divergence	1.5 $^\circ$
Optical face	frontal
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

Operation indicator	LED green, statically lit Power on , Undervoltage indicator: Green LED, pulsing (approx. 0.8 Hz) , short-circuit : LED green flashing (approx. 4 Hz)
Function indicator	2 LEDs yellow for switching state, stability control, TEACH-IN and contrast detection mode
Control elements	5-step switch for setting the contrast detection levels.

Contrast detection levels	switch position I: 10 % - clean, water filled PET bottles switch position II: 18 % - clear glass bottles switch position III: 40 % - coloured glass or opaque materials adjustable due to Teach-In switch
---------------------------	---

Parameterization indicator	IO link communication: green LED goes out briefly (1 Hz)
----------------------------	--

Electrical specifications

Operating voltage	U _B	10 ... 30 V DC when operating in IO-Link mode: 18 ... 30 V
Ripple		max. 10 %
No-load supply current	I ₀	max. 35 mA

Interface

Interface type	IO-Link
Protocol	IO-Link V1.0
Mode	COM 2 (38.4 kBaud)

Output

Signal output	2 push-pull (4 in 1) outputs, complementary, short-circuit proof, 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 $^\circ$ C (-40 ... 140 $^\circ$ F)
Storage temperature	-40 ... 75 $^\circ$ C (-40 ... 167 $^\circ$ F)

Mechanical specifications

Degree of protection	IP67
Connection	4-pin, M12 x 1 connector
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

Accessories**MLV41-54-G IODD**

IODD for communication with MLV41-54-G-IO-Link sensors

IO-Link-Master02-USB

IO-Link master, supply via USB port or separate power supply, LED indicators, M12 plug for sensor connection

IODD Interpreter DTM

Software for the integration of IODDs in a frame application (e. g. PACTware)

OMH-09

Mounting bracket for Sensors series MLV41 for M12 rod mounting

OMH-41

Mounting bracket

ORR50G

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

V1-G-2M-PUR

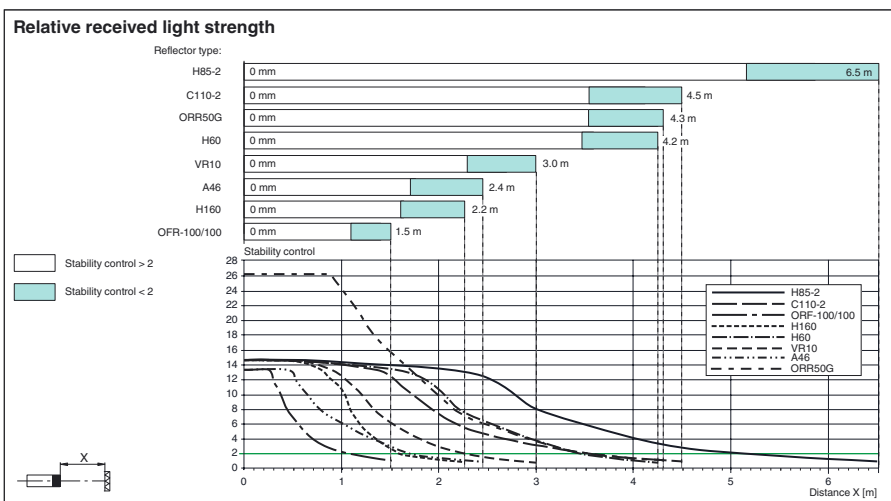
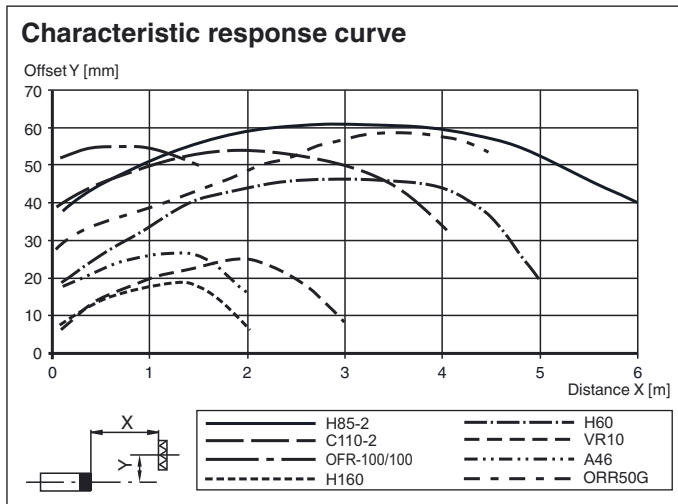
Female cordset, M12, 4-pin, PUR cable

V1-W-2M-PUR

Female cordset, M12, 4-pin, PUR cable

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

Curves/Diagrams



IO link function

The IO link operating mode is indicated by the green LED indicator with a short interruption (f = 1 Hz). IO link communication simultaneously provides process data (measurement data from the sensor) and access to requirement data. The requirement data contains the following information:

Identification:

- Manufacturer information
- Product ID
- User-specific ID

Device parameters:

- Teach-in parameters
- Operating parameters
- Configuration parameters
- Device commands

Diagnostic messages and warnings

Additional information

Release date: 2015-02-26 13:45 Date of issue: 2015-02-26 208793_eng.xml

Adjustment instructions for Teach-In operation:

Step	Switch position	LED green	LED yellow	Time/frequency	Explanations/comments
1	N	on	flashes	4/s	In switch position "N" directed towards reflector. Reflector detected without function reserve .
	N	on	on	-	In switch position "N" directed towards reflector. Reflector detected with function reserve (recommended).
2	T	off/on	on	200 ms	The selection of a new switch position is indicated by the green LED going out for a short time. This also applies to the selection of the other switch positions.
	T	flashes	flashes	2.5/s	<i>Slow</i> alternating flashing: Teach-In process has been performed correctly . Max. duration of the Teach-In process: 2 s
	T	flashes	flashes	8/s	<i>Quick</i> alternating flashing: Teach-In process has not been performed correctly . (e.g. receiver signal not sufficient, sensor not directed correctly towards reflector). Status is terminated by turning switch to position N.
3/1	I	on	on	-	Contrast detection 10 % is activated. (e.g. clean PET bottles filled with water)
3/2	II	on	on	-	Contrast detection 18 % is activated. (e.g. clear glass bottles)
3/3	III	on	on	-	Contrast detection 40 % is activated. (e.g. coloured glass or non-transparent materials)

