



### Model Number

**MLV41-6-IO/98/103**

Retroreflective sensor  
with 3-pin, M8 x 1 connector

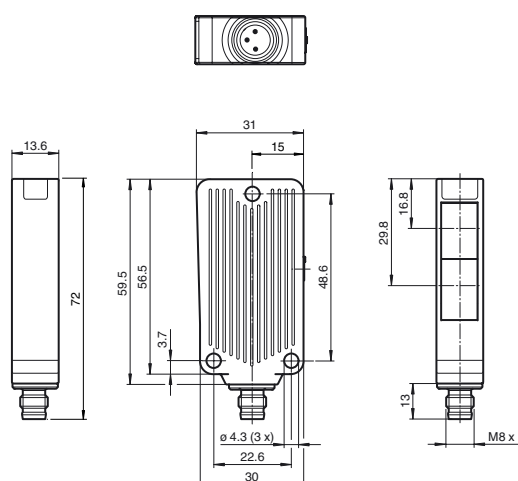
### Features

- Rugged series in corrosion-resistant metal housing
- IO-link interface for service and process data
- Extremely high switching frequency
- Clear and functional display concept for the operating modes
- Resistant against noise: reliable operation under all conditions
- Aluminum housing with high quality Delta-Seal coated

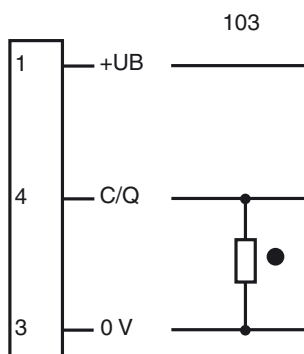
### Product information

The unique and extremely popular design of the MLV41 series enables it to be mounted correctly in confined areas and offers all the functions that are normally only found on larger phototelectric sensors. The MLV41 series comes with a range of functions. For example, highly visible status LEDs on the front and back, resistance to ambient light, crosstalk protection and universally applicable output stages that permit every possible switching logic and polarity to be realized. The enhanced resistance to ambient light ensures reliable operation even where modern energy-saving lamps with electronic ballasts are in use. The same applies where multiple devices are present, i.e. the use of a number of sensors in the same vicinity causes no problems.

### Dimensions



### Electrical connection



○ = Light on  
● = Dark on

### Pinout



Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
3	BU	(blue)
4	BK	(black)

### Indicators/operating means



1	Operating display green	3	Optical axis transmitter
2	Function display yellow	4	Optical axis receiver

**Technical data****General specifications**

Effective detection range	0 ... 9.5 m
Reflector distance	Foil reflector 0.05 ... 3 m Retro-reflector 0.01 ... 9.5 m
Threshold detection range	12 m
Reference target	OFR-22800/76 , H85-2 reflector
Light source	LED
Light type	modulated visible red light , 625 nm
Polarization filter	no
Angle deviation	max. $\pm 1.5^\circ$
Diameter of the light spot	approx. 300 mm at detection range 8.5 m
Angle of divergence	$1.5^\circ$
Optical face	frontal
Ambient light limit	20000 Lux

**Functional safety related parameters**

MTTF <sub>d</sub>	940 a
Mission Time (T <sub>M</sub> )	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) , IO link communication: green LED goes out briefly (1 Hz)
Function indicator	LED yellow, lights up when light beam is free, flashes when falling short of the stability control
Control elements	none

**Electrical specifications**

Operating voltage	U <sub>B</sub>	10 ... 30 V DC
Ripple		max. 10 %
No-load supply current	I <sub>0</sub>	max. 30 mA

**Interface**

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

**Output**

Signal output	1 PNP output, short-circuit protected, reverse polarity protected, open collector	
Switching voltage	max. 30 V DC	
Switching current	max. 100 mA	
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
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**Ambient conditions**

Ambient temperature	-20 ... 60 °C (-4 ... 140 °F) 60 ... 70 °C (140 ... 158 °F) ; max. 20,000 hours = 2.5 years (continuous operation)
Storage temperature	-40 ... 75 °C (-40 ... 167 °F)

**Mechanical specifications**

Housing width	31 mm
Housing height	56.5 mm
Housing depth	13.6 mm
Degree of protection	IP67
Connection	M8 x 1 connector, 3-pin
Material	
Housing	Aluminum , Delta-Seal coated
Optical face	glass pane
Connector	metal
Mass	50 g

**Approvals and certificates**

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 $\leq 36$ V

**Accessories****OMH-09**

Mounting bracket for Sensors series  
MLV41 for M12 rod mounting

**OMH-40**

Mounting bracket

**IO-Link-Master02-USB**

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

**IO-Link-Master-USB DTM**

Communication DTM for use of IO-Link-Master

**IODD Interpreter DTM**

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

**PACTware 4.1**

FDT Framework

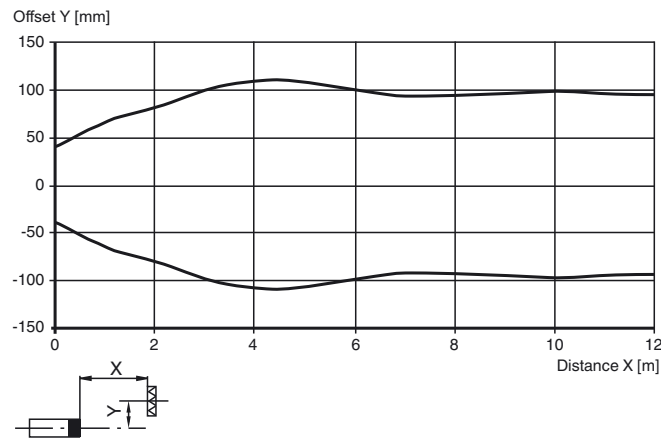
**MLV41-6 IODD**

IODD for communication with MLV41-6-IO-Link sensors

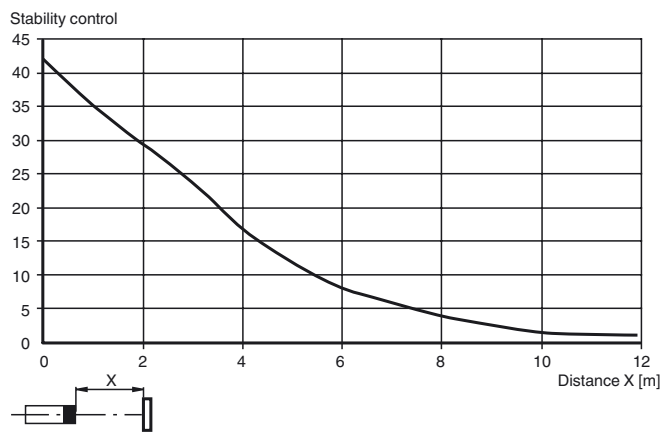
Other suitable accessories can be found at  
[www.pepperl-fuchs.com](http://www.pepperl-fuchs.com)

## Curves/Diagrams

## Characteristic response curve



## Relative received light strength



## IO link function

The IO link operating mode is indicated by the green LED indicator with a short interruption ( $f = 1 \text{ Hz}$ ). 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**