



Model Number

MLV41-54-G/25/95/136

Retroreflective sensor with 4-pin, M8 x 1 connector

Features

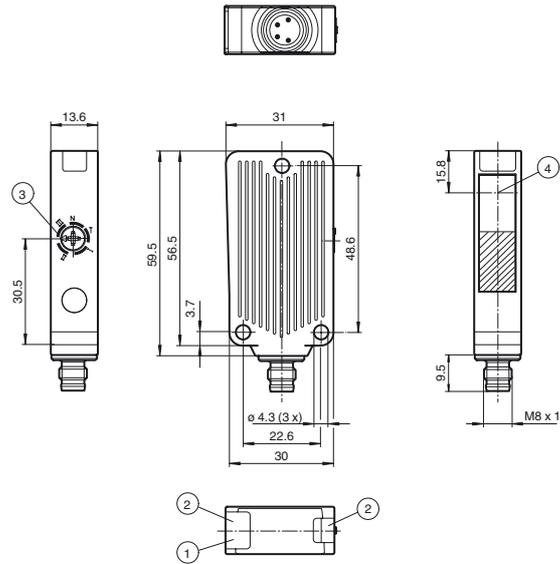
- Rugged series in corrosion-resistant metal housing
- Reliable recognition of reflective objects and clear glass
- Two machines in one: clear object detection or reflection operating mode with long range
- TEACH-IN switch for setting the contrast detection levels
- Automatic adjustment in case of soiling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

Product information

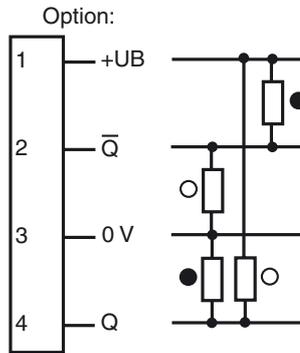
The unique and extremely popular design of the MLV41 series enables it be mounted correctly in confined areas and offers all the functions that are normally only found on larger phototelectric sensors. The MLV41 series comes with a range of functions. For example, highly visible status LEDs on the front 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.

Release date: 2019-11-27 13:55 Date of issue: 2019-11-27 183434_eng.xml

Dimensions

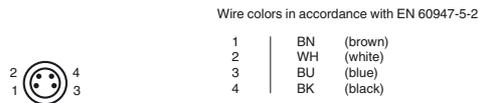


Electrical connection

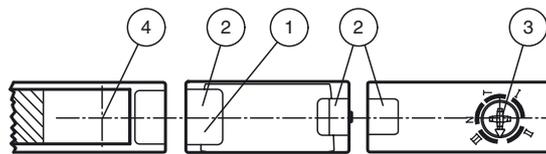


○ = Light on
● = Dark on

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 ° |
| 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 | 10 % - clean, water filled PET bottles 18 % - clear glass bottles 40 % - colored glass or opaque materials adjustable due to Teach-In switch |

Electrical specifications

| | | |
|------------------------|----------------|----------------|
| Operating voltage | U _B | 10 ... 30 V DC |
| Ripple | | max. 10 % |
| No-load supply current | I ₀ | max. 35 mA |

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 |

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 | 31 mm |
| Housing height | 56.5 mm |
| Housing depth | 13.6 mm |
| Degree of protection | IP67 |
| Connection | M8 x 1 connector, 4-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 ≤ 36 V |

Accessories**OMH-41**

Mounting bracket

OMH-09

Mounting bracket for Sensors series MLV41 for M12 rod mounting

ORR50G

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

V31-WM-2M-PUR

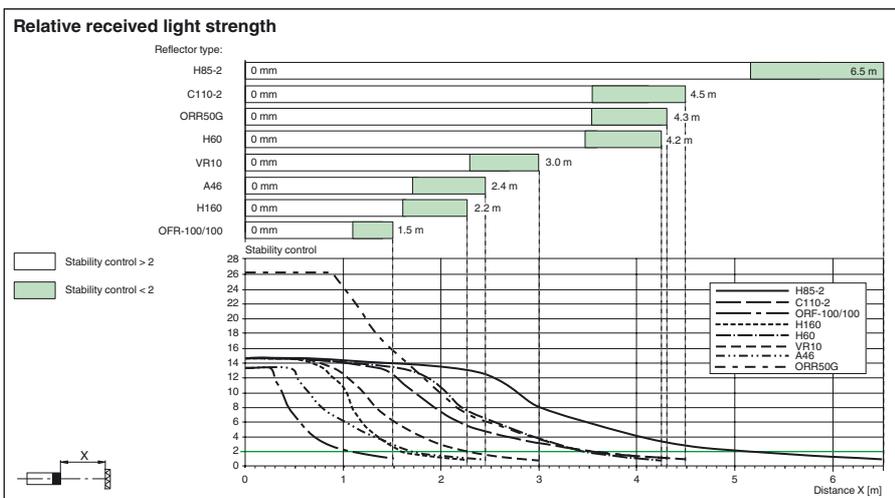
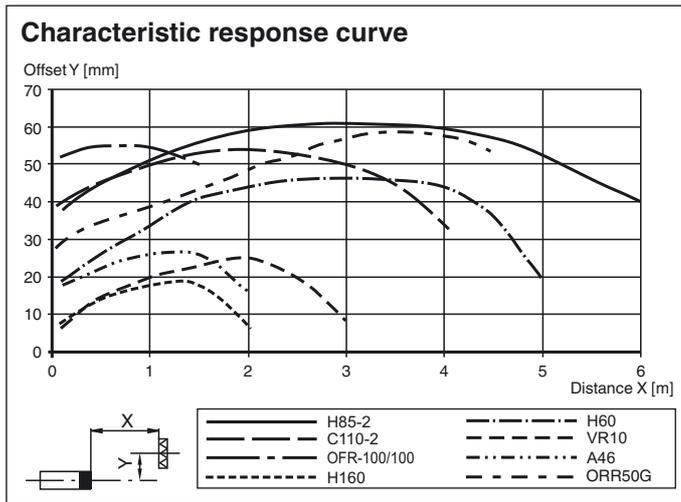
Female cordset single-ended, M8, 4-pin, PUR cable

V31-GM-2M-PUR

Female cordset single-ended, M8, 4-pin, PUR cable

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

Curves/Diagrams



Additional information

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 |



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| | T | flashes | flashes | 8/s | <p><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).</p> <p>Status is terminated by turning switch to position N.</p> |
|-----|-----|---------|---------|-----|---|
| 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) |