AbN
automation

Leuze

# LSL 318

## Laser throughbeam photoelectric sensors

2024/06/18 50108665-02

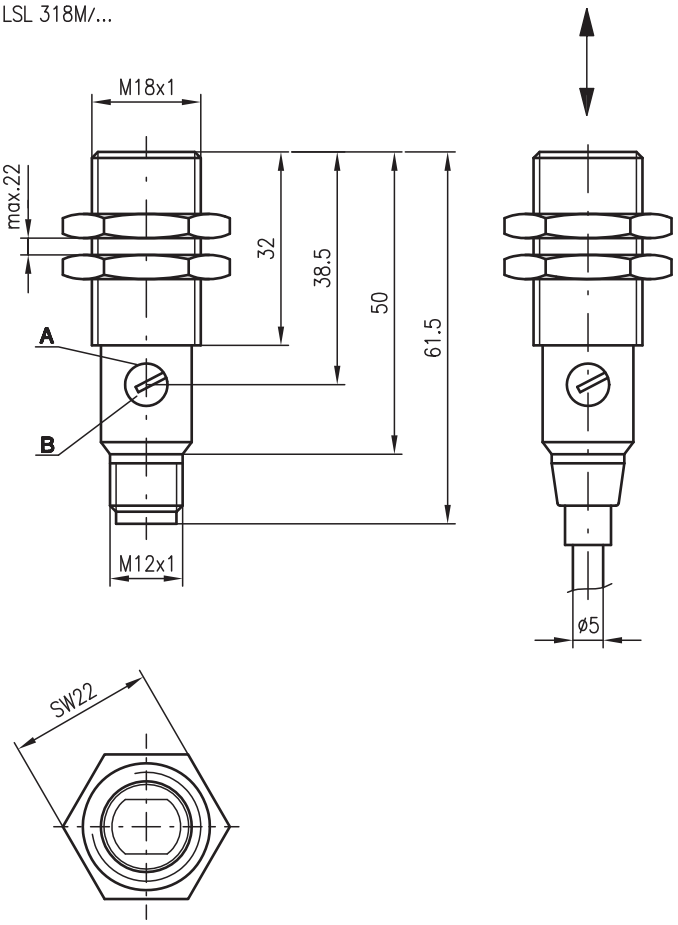
CDRH

0 … 18m
0 … 120m

IP 67

- Throughbeam photoelectric sensors with long operating range in red laser light and straight optics
- Sturdy cylindrical stainless steel housing M18x1, degree of protection IP 67 for industrial application
- Fixed beam geometry, convergent
- High switching frequency
- Activation input for testing and interlinking of the sensor
- Complementary switching outputs for light/ dark switching or as a control function
- Very short construction for use in limited spaces

## Dimensioned drawing



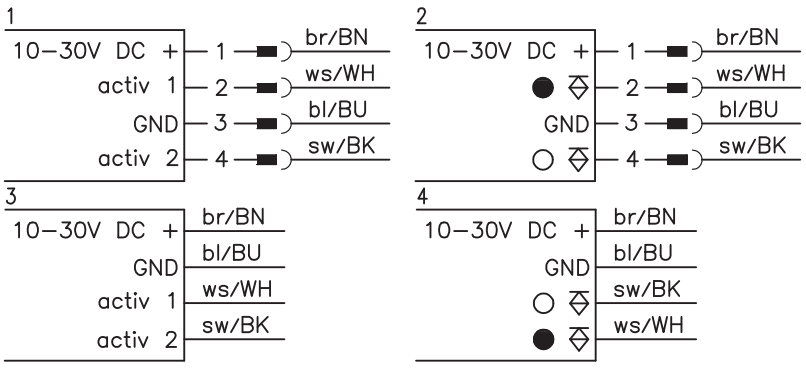

**A** Indicator diode
**B** Sensitivity adjustment

## Accessories:

**(available separately)**

- Mounting systems (BT 318, BT 318-ARH)
- M12 connectors (KD …)
- Ready-made cables (K-D …)
- Reflection-independent distance information

## Electrical connection




We reserve the right to make changes

# Technical data

## Optical data

| | |
|---|---|
| Typ. operating range limit [1] | 0 … 18m, 0 … 120m |
| Operating range [2] | 0 … 15m, 0 … 100m |
| Light spot diameter | See diagrams |
| Light source | Laser |
| Laser class | 1 in acc. with IEC 60825-1:2014 / EN 60825-1:2014+A11:2021 |
| Wavelength | 650nm (visible red light) |
| Impulse duration | 2µs |
| Max. power | 0.3mW |

## Time behavior

| | |
|---|---|
| Switching frequency | 5000Hz |
| Response time | 0.1ms |
| Readiness delay | ≤ 30ms |

## Electrical data

| | |
|---|---|
| Operating voltage $U_B$ [3] | 10 … 30VDC |
| Residual ripple | ≤ 10% of $U_B$ |
| Open-circuit current | ≤ 30mA |
| Switching output | 2 transistor outputs, antivalent |
| Function | Light/dark switching |
| Signal voltage high/low | ≥ ($U_B$-1.6V)/≤ 1.6V |
| Output current | Max. 100mA |
| Sensitivity | Adjustable (transmitter) |

## Indicators

| | |
|---|---|
| Red LED | Light path free |
| Red LED, flashing | Light path free, no function reserve |

## Mechanical data

| | |
|---|---|
| Housing | Stainless steel |
| Optics cover | Polyamide 12 |
| Weight | 90g (cable), 20g (M12) |
| Connection type | M12 connector, 4-pin<br>Cable 2m, 4x0.25mm² |

## Environmental data

| | |
|---|---|
| Ambient temp. (operation/storage) | -25°C … +60°C/-40°C … +70°C |
| Protective circuit [4] | 1, 2, 3, 4 |
| VDE protection class [5] | II, all-insulated |
| Degree of protection | IP 67 |
| Standards applied | IEC 60947-5-2, UL 508 |
| Certifications | UL 508, C22.2 No.14-13 [3] [6] |

## Additional functions

| | |
|---|---|
| **Activation input** active 1 | |
| Transmitter active/not active | ≥ 8V or not connected/≤ 1.5V |
| **Activation input** active 2 | |
| Transmitter active/not active | ≤ 1.5V or not connected/≥ 8V |

1) Typ. operating range limit: max. attainable range without function reserve
2) Operating range: recommended range with function reserve
3) For UL applications: for use in "class 2" circuits according to NEC only
4) 1=transient protection, 2=polarity reversal protection, 3=short circuit protection for all outputs, 4=interference blanking
5) Rating voltage 250VAC
6) These proximity switches shall be used with UL Listed Cable assemblies rated 30V, 0.5A min, in the field installation, or equivalent (categories: CYJV/CYJV7 or PVVA/PVVA7)

# Order guide

| Selection table<br>Equipment | Order code | **LSL 318M/P-S12**<br>Part no. 500 83172 (Tr)<br>Part no. 500 83176 (Re) | **LSL 318M/P-B5-S12**<br>Part no. 500 83172 (Tr)<br>Part no. 500 83180 (Re) | **LSL 318M/P**<br>Part no. 500 83171 (Se)<br>Part no. 500 83175 (Re) | **LSL 318M/P-B5**<br>Part no. 500 83171 (Se)<br>Part no. 500 83179 (Re) |
|---|---|---|---|---|---|
| Housing | Stainless steel | ● | ● | ● | ● |
| Connection | M12 connector | ● | ● | | |
| | Cable | | | ● | ● |
| Switching output | PNP | ● | ● | ● | ● |
| | NPN | | | | |
| Operating range | 15m | | ● | | ● |
| | 100m | ● | | ● | |
| Connection diagram | Transmitter | 1 | 1 | 3 | 3 |
| | Receiver | 2 | 2 | 4 | 4 |

# Tables

LSL 318…

| | | |
|---|---|---|
| 0 | 100 | 120 |

LSL 318…-B5...

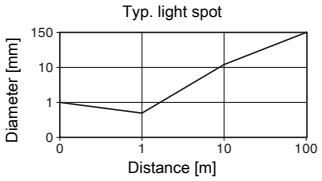
| | | |
|---|---|---|
| 0 | 15 | 18 |

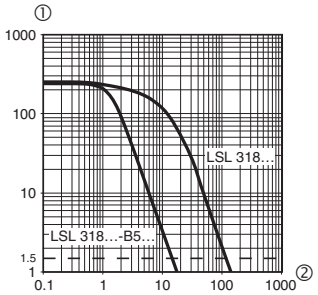
Operating range [m]
Typ. operating range limit [m]

Versions LSL 318…**-B5**… : with Ø 1.0mm integrated optical pin diaphragm for the detection of small parts or for precise positioning tasks.

# Diagrams

LSSL 318…




**Typical behavior – operating range / relative intensity of received light**

① Rel. intensity of received light
② Operating range in [m]

# Notes

| NOTES | |
|---|---|
| | **Observe intended use!**<br>This product is not a safety sensor and is not intended as personnel protection.<br>The product may only be put into operation by competent persons.<br>Only use the product in accordance with its intended use. |

## Laser safety notices

| | ⚠ ATTENTION, LASER RADIATION – CLASS 1 LASER PRODUCT |
|---|---|
|  | The device satisfies the requirements of IEC 60825-1:2014 / EN 60825-1:2014+A11:2021 safety regulations for a product of **laser class 1** and complies with 21 CFR 1040.10 except for conformance with IEC 60825-1 Ed. 3., as described in "Laser Notice No. 56", dated May 8, 2019.<br>↳ Observe the applicable statutory and local laser protection regulations.<br>↳ The device must not be tampered with and must not be changed in any way.<br>There are no user-serviceable parts inside the device.<br>**CAUTION!** Opening the device may result in hazardous radiation exposure!<br>Repairs must only be performed by Leuze electronic GmbH + Co. KG. |