

L 318 BI

Throughbeam photoelectric sensors

en 02-2015/09 50130264

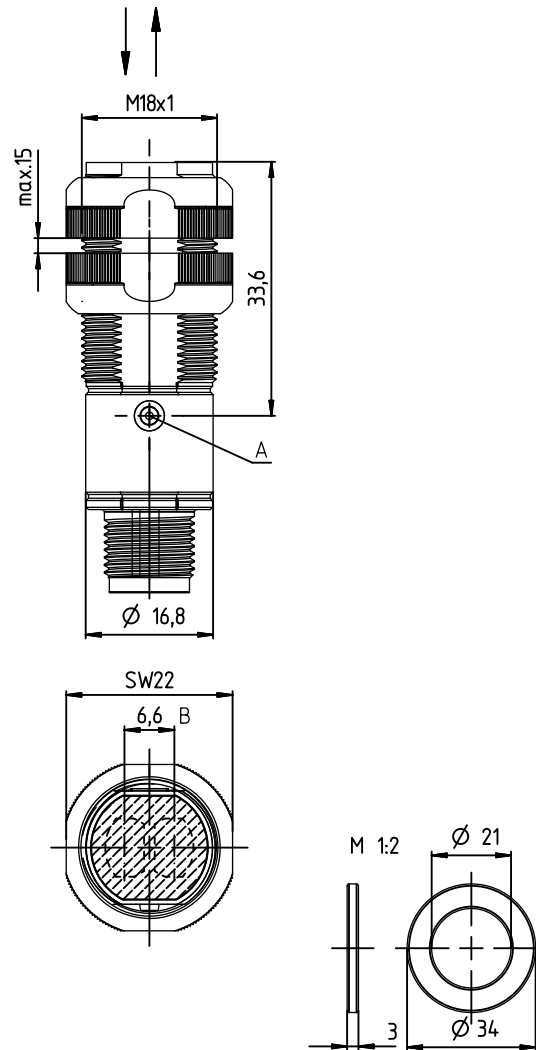


0 ... 23m



- Simple fine adjustment via *omni-mount*
- Embedded mounting option
- Robust plastic housing acc. to IP 67 for industrial application
- Deactivation output for testing and inter-linking of the sensor
- Complementary outputs for light/dark switching

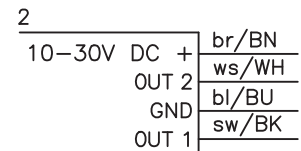
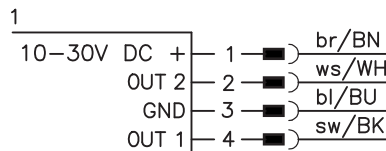
Dimensioned drawing



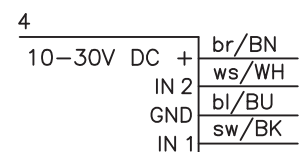
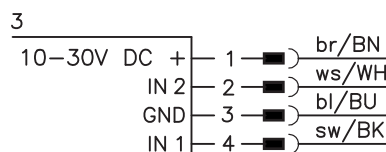
- A Indicator diode
- B Optical axis

Electrical connection

Receiver



Transmitter



Accessories:

(available separately)

- Mounting systems (BT 318, BT 318-ARH)
- M12 connectors (KD ...)
- Ready-made cables (K-D ...)

We reserve the right to make changes • DS\_L318BI\_en\_50130264.fm



## Specifications

### Optical data

|  |                        |
|--|------------------------|
| Typ. operating range limit <sup>1)</sup> | 0 ... 23m              |
| Operating range <sup>2)</sup>            | 0 ... 16m              |
| Light source                             | LED (modulated light)  |
| Wavelength                               | 850nm (infrared light) |

### Timing

|                       |         |
|-----------------------|---------|
| Switching frequency   | 500Hz   |
| Response time         | 1 ms    |
| Delay before start-up | ≤ 300ms |

### Electrical data

|                                       |   |
|---------------------------------------|---|
| Operating voltage $U_B$ <sup>3)</sup> | 10 ... 30VDC  |
| Residual ripple                       | ≤ 15% of $U_B$  |
| Open-circuit current                  | ≤ 15mA  |
| Switching output                      | .../4P...<br>2 PNP transistor outputs<br>pin 2: PNP dark switching, pin 4: PNP light switching<br>2 NPN transistor outputs<br>pin 2: NPN dark switching, pin 4: NPN light switching<br>2 deactivation inputs<br>pin 2: transmitter active when not connected or with HIGH signal<br>pin 4: transmitter active when not connected or with LOW signal |
| Switching input.../9D...              | .../2N...<br>2 deactivation inputs<br>pin 2: transmitter active when not connected or with HIGH signal<br>pin 4: transmitter active when not connected or with LOW signal   |
| Signal voltage high/low               | $\geq (U_B - 2V) / \leq 2V$   |
| Output current                        | max. 100mA <sup>4)</sup>  |

### Indicators

|                      |   |
|----------------------|---|
| Green LED            | ready                                   |
| Yellow LED           | light path free                         |
| Yellow LED, flashing | light path free, no performance reserve |

### Mechanical data

|                 |   |
|-----------------|---|
| Housing         | plastic   |
| Optics cover    | plastic   |
| Weight          | 70g (cable), 20g (M12)                                  |
| Connection type | M12 connector, 4-pin<br>cable 2m, 4x0.20mm <sup>2</sup> |

### Environmental data

|                                   |   |
|-----------------------------------|---|
| Ambient temp. (operation/storage) | -40°C ... +50°C / -40°C ... +70°C       |
| Protective circuit <sup>5)</sup>  | 2, 3                                    |
| VDE safety class                  | III                                     |
| Protection class                  | IP 67                                   |
| Light source                      | exempt group (in acc. with EN 62471)    |
| Standards applied                 | IEC 60947-5-2                           |
| Certifications                    | UL 508, C22.2 No.14-13 <sup>3) 6)</sup> |

- 1) Typ. operating range limit: max. attainable range without performance reserve
- 2) Operating range: recommended range with performance reserve
- 3) For UL applications: for use in class 2 circuits according to NEC only
- 4) Sum of the output currents for both outputs, 50mA when ambient temperatures > 40°C
- 5) 2=polarity reversal protection, 3=short circuit protection for all outputs
- 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)

## Tables

### Axial optics:

|   |      |      |
|---|------|------|
| 0 | 16.0 | 23.0 |
|---|------|------|

|                          |                                |
|--------------------------|--------------------------------|
| <input type="checkbox"/> | Operating range [m]            |
| <input type="checkbox"/> | Typ. operating range limit [m] |

## Remarks

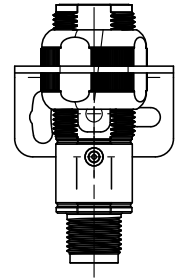
### Operate in accordance with intended use!

- ☞ This product is not a safety sensor and is not intended as personnel protection.
- ☞ The product may only be put into operation by competent persons.
- ☞ Only use the product in accordance with the intended use.

**Mounting options**

**Standard mounting**

Alignment of the supplied mounting nuts with flat side towards the mounting sheet.  
Mounting bracket BT D18M.5 is recommended for standard mounting.

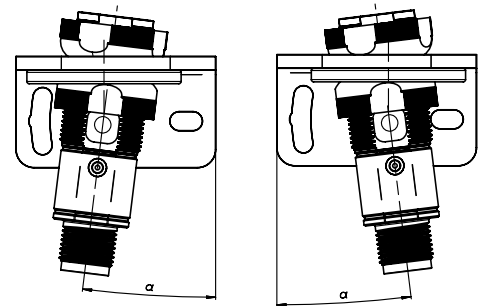


**omni-mount**

*omni-mount* makes fine adjustment of the sensors possible in a very simple and economical manner. For this type of mounting, the mounting nuts are used with the round side towards the mounting device. The mounting sheet must have a bore hole of approx. 21 mm in diameter. The special molding of the mounting nuts together with the spacer disc included in the delivery contents allows form-locking fastening of the sensors at different adjustment angles. The maximum possible tilt angle depends on the thickness of the mounting sheet. Mounting bracket BT D21M is recommended for *omni-mount*.

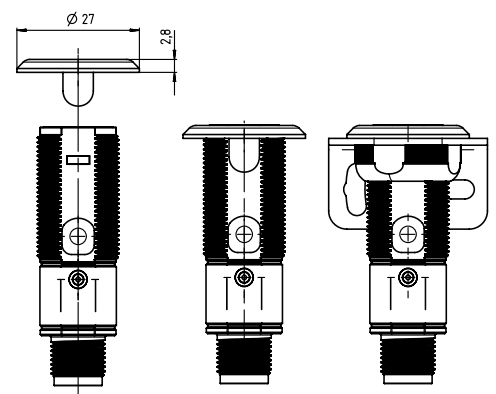
| Mounting sheet thickness | Max. adjustment angle |
|--------------------------|-----------------------|
| 2 mm                     | +/- 5°                |
| 4 mm <sup>*)</sup>       | +/- 8°                |

<sup>\*)</sup> Corresponds to the thickness of the BT D21M mounting bracket



**Embedded mounting**

Embedded mounting, e.g. into a materials handling belt, is possible via the BT 318P-LS mounting support. The supports can be used either for fastening the axial sensors or for sensors with 90° optics.



## Order guide

The sensors listed here are preferred types; current information at [www.leuze.com](http://www.leuze.com).

|  |                                       | Designation  | Part no.   |
|--|---------------------------------------|--|--|
| <b>Sensors with axial optics</b>         |                                       |  |  |
| <b>Transmitter</b>                       | <b>With M12 connector</b>             | 2 deactivation inputs (pin 4 = IN1, pin 2 = IN2)   | LS 318BI/9D-M12<br>50129507                              |
|  | <b>With cable, 2m</b>                 | Pin 4: PNP light switching, pin 2: PNP dark switching<br>Pin 4: NPN light switching, pin 2: NPN dark switching | LE 318B/4P-M12<br>50116847<br>LE 318B/2N-M12<br>50116845 |
| <b>Receiver</b>                          | <b>With M12 connector</b>             | Pin 4: PNP light switching, pin 2: PNP dark switching<br>Pin 4: NPN light switching, pin 2: NPN dark switching | LE 318B/4P<br>50116846<br>LE 318B/2N<br>50116844         |
|  | <b>With cable, 2m</b>                 |  |  |
| <b>Accessories for optimum fastening</b> |                                       |  |  |
| Support for embedded mounting            | Collective packaging with 10 supports | BT 318P-LS   | 50117258   |
| Mounting bracket for standard mounting   |                                       | BT D18M.5  | 50113548   |
| Mounting bracket for omni-mount          |                                       | BT D21M  | 50117257   |

## Part number code

|   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L | S | 3 | 1 | 8 | B | I | / | 9 | D | - | M | 1 | 2 |
| L | E | 3 | 1 | 8 | B | / | 4 | P | - | M | 1 | 2 |   |

|  |  |
|--|--|
| <b>Operating principle</b>   |  |
| LS   | Throughbeam photoelectric sensor, transmitter                      |
| LE   | Throughbeam photoelectric sensor, receiver                         |
| <b>Series</b>  |  |
| 318BI  | Series 318B with infrared light                                    |
| <b>Optics design</b>   |  |
| N/A  | Axial optics   |
| <b>Switching output/function /OUT1OUT2 (OUT1 = pin 4, OUT2 = pin 2) or switching input/function /IN1IN2 (IN1 = pin 4, IN2 = pin 2)</b> |  |
| 4  | PNP transistor output, light switching                             |
| P  | PNP transistor output, dark switching                              |
| 2  | NPN transistor output, light switching                             |
| N  | NPN transistor output, dark switching                              |
| 9  | Input for transmitter deactivation (deactivation with HIGH signal) |
| D  | Input for transmitter deactivation (deactivation with LOW signal)  |
| X  | Pin not used   |
| <b>Combinations of functions are possible via two-digit code!</b>  |  |
| <b>Electrical connection</b>   |  |
| N/A  | Cable, standard length 2000 mm                                     |
| -M12   | M12 connector  |