

## Technical data sheet

### Throughbeam photoelectric sensor

Part no.: 50140168

LE412BL2.1/4

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Figure can vary



## Technical data

### Basic data

|                     |                       |
|---------------------|-----------------------|
| Series              | 412B                  |
| Operating principle | Throughbeam principle |
| Device type         | Receiver              |

### Optical data

|                  |                            |
|------------------|----------------------------|
| Operating range  | Guaranteed operating range |
| Operating range  | 0 ... 50 m                 |
| Max. laser power | 0.001 W                    |
| Pulse duration   | 4.6 µs                     |

### Electrical data

|                    |                                                         |
|--------------------|---------------------------------------------------------|
| Protective circuit | Polarity reversal protection<br>Short circuit protected |
|--------------------|---------------------------------------------------------|

### Performance data

|                      |                                        |
|----------------------|----------------------------------------|
| Supply voltage $U_B$ | 10 ... 36 V, DC, Incl. residual ripple |
| Residual ripple      | 0 ... 20 %, From $U_B$                 |
| Open-circuit current | 0 ... 10 mA                            |

### Outputs

|                                     |            |
|-------------------------------------|------------|
| Number of digital switching outputs | 1 Piece(s) |
|-------------------------------------|------------|

### Switching outputs

|                         |        |
|-------------------------|--------|
| Voltage type            | DC     |
| Switching current, max. | 200 mA |

### Switching output 1

|                     |                 |
|---------------------|-----------------|
| Switching element   | Transistor, PNP |
| Switching principle | Light switching |

### Timing

|                     |          |
|---------------------|----------|
| Switching frequency | 5,000 Hz |
| Response time       | 0.1 ms   |
| Readiness delay     | 20 ms    |

### Connection

#### Connection 1

|                      |                              |
|----------------------|------------------------------|
| Function             | Signal OUT<br>Voltage supply |
| Type of connection   | Cable                        |
| Cable length         | 2,000 mm                     |
| Sheathing material   | PVC                          |
| Cable color          | Black                        |
| Number of conductors | 3 -wire                      |
| Wire cross section   | 0.34 mm <sup>2</sup>         |

### Mechanical data

|                     |                      |
|---------------------|----------------------|
| Thread size         | M12 x 1 mm           |
| Dimension (Ø x L)   | 12 mm x 51 mm        |
| Housing material    | Stainless steel, V2A |
| Lens cover material | Glass                |
| Net weight          | 100 g                |
| Housing color       | Silver               |

### Operation and display

|                                     |                        |
|-------------------------------------|------------------------|
| Type of display                     | LED                    |
| Number of LEDs                      | 2 Piece(s)             |
| Operational controls                | 270° potentiometer     |
| Function of the operational control | Sensitivity adjustment |

### Environmental data

|                                |               |
|--------------------------------|---------------|
| Ambient temperature, operation | -10 ... 50 °C |
|--------------------------------|---------------|

### Certifications

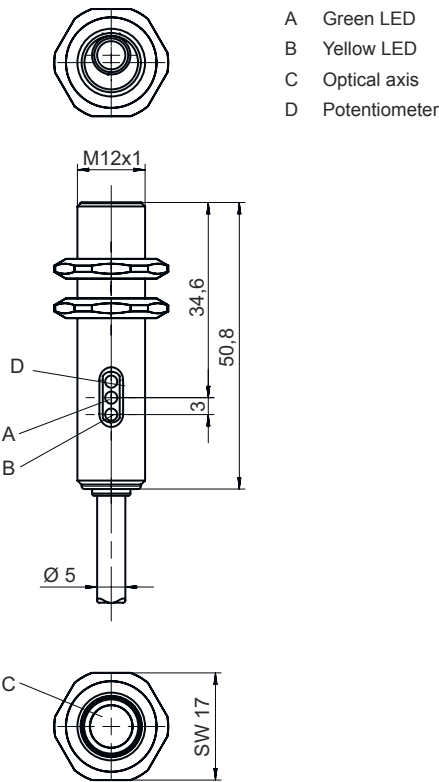
|                      |               |
|----------------------|---------------|
| Degree of protection | IP 67         |
| Protection class     | III           |
| Certifications       | c UL US       |
| Standards applied    | IEC 60947-5-2 |

### Classification

|                       |          |
|-----------------------|----------|
| Customs tariff number | 85365019 |
| eCl@ss 8.0            | 27270901 |
| eCl@ss 9.0            | 27270901 |
| ETIM 5.0              | EC002716 |
| ETIM 6.0              | EC002716 |

Dimensioned drawings

All dimensions in millimeters



Electrical connection

Connection 1

|                      |                |
|----------------------|----------------|
| Function             | Signal OUT     |
|                      | Voltage supply |
| Type of connection   | Cable          |
| Cable length         | 2,000 mm       |
| Sheathing material   | PVC            |
| Cable color          | Black          |
| Number of conductors | 3 -wire        |
| Wire cross section   | 0.34 mm²       |

Conductor color

Conductor assignment

|       |       |
|-------|-------|
| Brown | V+    |
| Black | OUT 1 |
| Blue  | GND   |

Operation and display

| LED | Display                  | Meaning                                 |
|-----|--------------------------|-----------------------------------------|
| 1   | Green, continuous light  | Function reserve                        |
| 2   | Yellow, continuous light | Switching output/switching state active |

## Suitable transmitters

|                                                                                  | Part no. | Designation | Article                                      | Description                                                                                                                                                     |
|----------------------------------------------------------------------------------|----------|-------------|----------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | 50140165 | LS412BL2/D  | Throughbeam photoelectric sensor transmitter | Special design: Deactivation input<br>Light source: Laser, Red<br>Supply voltage: DC<br>Deactivation inputs: 1 Piece(s)<br>Connection: Cable, 2,000 mm, 3 -wire |

## Part number code

Part designation: AAA412BGG.H/ii-K

|                |                                                                                                                                                                                                                                                                                                                                         |
|----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>AAA412B</b> | <b>Operating principle / construction</b><br>LS412B: throughbeam photoelectric sensor transmitter<br>LE412B: throughbeam photoelectric sensor receiver<br>ET412B: energetic diffuse reflection sensor<br>PRK412B: retro-reflective photoelectric sensor with polarization filter                                                        |
| <b>GG</b>      | <b>Light source</b><br>n/a: LED<br>L2: laser class 2                                                                                                                                                                                                                                                                                    |
| <b>H</b>       | <b>Operating range adjustment</b><br>1: 270° potentiometer                                                                                                                                                                                                                                                                              |
| <b>ii</b>      | <b>Switching output / function / OUT1OUT2 (OUT1 = pin 4, OUT2 = pin 2)</b><br>2: NPN transistor output, light switching<br>N: NPN transistor output, dark switching<br>4: PNP transistor output, light switching<br>P: PNP transistor output, dark switching<br>D: deactivation input (deactivation with low signal)<br>X: pin not used |
| <b>K</b>       | <b>Electrical connection</b><br>n/a: cable, standard length 2000 mm, 3-wire<br>M12: M12 connector, 4-pin (plug)                                                                                                                                                                                                                         |

### Note



A list with all available device types can be found on the Leuze website at [www.leuze.com](http://www.leuze.com).

## Notes



### Observe 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 its intended use.

## Notes



### WARNING! LASER RADIATION – CLASS 2 LASER PRODUCT



#### Do not stare into beam!

The device satisfies the requirements of IEC 60825-1:2007 (EN 60825-1:2007) safety regulations for a product of laser class 2 as well as the U.S. 21 CFR 1040.10 regulations with deviations corresponding to "Laser Notice No. 50" from June 24, 2007.

- ⚠ Never look directly into the laser beam or in the direction of reflected laser beams! If you look into the beam path over a longer time period, there is a risk of injury to the retina.
- ⚠ Do not point the laser beam of the device at persons!
- ⚠ Interrupt the laser beam using a non-transparent, non-reflective object if the laser beam is accidentally directed towards a person.
- ⚠ When mounting and aligning the device, avoid reflections of the laser beam off reflective surfaces!
- ⚠ CAUTION! Use of controls or adjustments or performance of procedures other than specified herein may result in hazardous light exposure.
- ⚠ Observe the applicable statutory and local laser protection regulations.
- ⚠ The device must not be tampered with and must not be changed in any way.  
There are no user-serviceable parts inside the device.  
Repairs must only be performed by Leuze electronic GmbH + Co. KG.

## Accessories

### Mounting technology - Mounting brackets

|                                                                                    | Part no. | Designation | Article          | Description                                                                                                                                                                                                                  |
|------------------------------------------------------------------------------------|----------|-------------|------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | 50113549 | BT D12M.5   | Mounting bracket | Diameter, inner: 12 mm<br>Design of mounting device: Angle, L-shape<br>Fastening, at system: Through-hole mounting<br>Mounting bracket, at device: Screw type<br>Type of mounting device: Rigid<br>Material: Stainless steel |

#### Note



- ⚠ A list with all available accessories can be found on the Leuze website in the Download tab of the article detailed page.