

## Technical data sheet

### Throughbeam photoelectric sensor receiver

Part no.: 50145231

LE5B/2



For illustration purposes only

#### Contents

- Technical data
- Dimensioned drawings
- Electrical connection
- Diagrams
- Operation and display
- Suitable transmitters
- Part number code
- Notes
- Accessories



## Technical data

### Basic data

|                     |                       |
|---------------------|-----------------------|
| Series              | 5B                    |
| Operating principle | Throughbeam principle |
| Device type         | Receiver              |

### Optical data

|                       |                            |
|-----------------------|----------------------------|
| Operating range       | 0 ... 10 m                 |
| Operating range       | Guaranteed operating range |
| Operating range limit | 0 ... 15 m                 |
| Operating range limit | Typical operating range    |

### Electrical data

|                    |                              |
|--------------------|------------------------------|
| Protective circuit | Polarity reversal protection |
|                    | Short circuit protected      |

### Performance data

|                      |                                        |
|----------------------|----------------------------------------|
| Supply voltage $U_B$ | 10 ... 30 V, DC, Incl. residual ripple |
| Residual ripple      | 0 ... 15 %, From $U_B$                 |
| Open-circuit current | 0 ... 20 mA                            |

### Outputs

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

### Switching outputs

|                         |                          |
|-------------------------|--------------------------|
| Voltage type            | DC                       |
| Switching current, max. | 50 mA                    |
| Switching voltage       | high: $\geq(U_B - 2.5V)$ |
|                         | low: $\leq 2.5 V$        |

### Switching output 1

|                     |                                                                     |
|---------------------|---------------------------------------------------------------------|
| Switching element   | Transistor, NPN                                                     |
| Switching principle | Light switching<br>(dark switching by reversing polarity of $U_B$ ) |

### Time behavior

|                     |         |
|---------------------|---------|
| Switching frequency | 900 Hz  |
| Response time       | 0.56 ms |
| Readiness delay     | 300 ms  |

### 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   | 0.14 mm <sup>2</sup> |

### Mechanical data

|                            |                              |
|----------------------------|------------------------------|
| Dimension (W x H x L)      | 11 mm x 32.4 mm x 20 mm      |
| Housing material           | Plastic                      |
| Plastic housing            | PC-ABS                       |
| Lens cover material        | Plastic                      |
| Net weight                 | 44 g                         |
| Housing color              | Black                        |
|                            | Red                          |
| Type of fastening          | Two M3 threaded sleeves      |
|                            | Via optional mounting device |
| Compatibility of materials | ECOLAB                       |

### Operation and display

|                 |            |
|-----------------|------------|
| Type of display | LED        |
| Number of LEDs  | 2 Piece(s) |

### Environmental data

|                                |               |
|--------------------------------|---------------|
| Ambient temperature, operation | -40 ... 60 °C |
| Ambient temperature, storage   | -40 ... 70 °C |

### Certifications

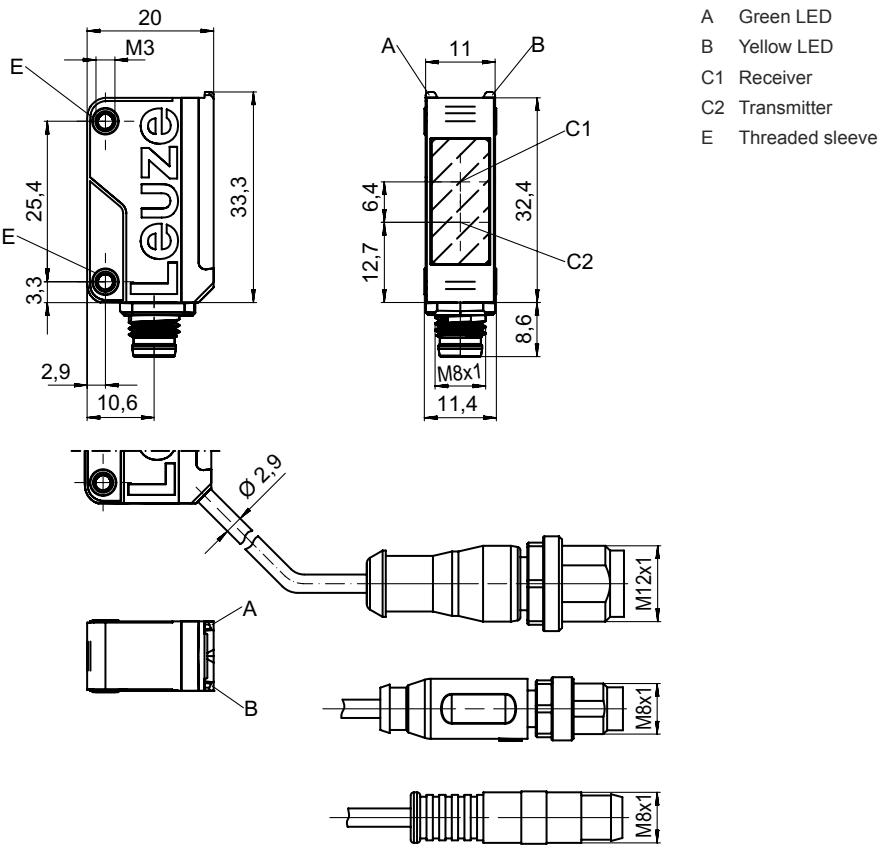
|                      |               |
|----------------------|---------------|
| Degree of protection | IP 67         |
| Protection class     | III           |
| Approvals            | c UL US       |
| Standards applied    | IEC 60947-5-2 |

### Classification

|                       |          |
|-----------------------|----------|
| Customs tariff number | 85365019 |
| ECLASS 5.1.4          | 27270901 |
| ECLASS 8.0            | 27270901 |
| ECLASS 9.0            | 27270901 |
| ECLASS 10.0           | 27270901 |
| ECLASS 11.0           | 27270901 |
| ECLASS 12.0           | 27270901 |
| ECLASS 13.0           | 27270901 |
| ECLASS 14.0           | 27270901 |
| ECLASS 15.0           | 27270901 |
| ETIM 5.0              | EC002716 |
| ETIM 6.0              | EC002716 |
| ETIM 7.0              | EC002716 |
| ETIM 8.0              | EC002716 |
| ETIM 9.0              | 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   | 0.14 mm²       |

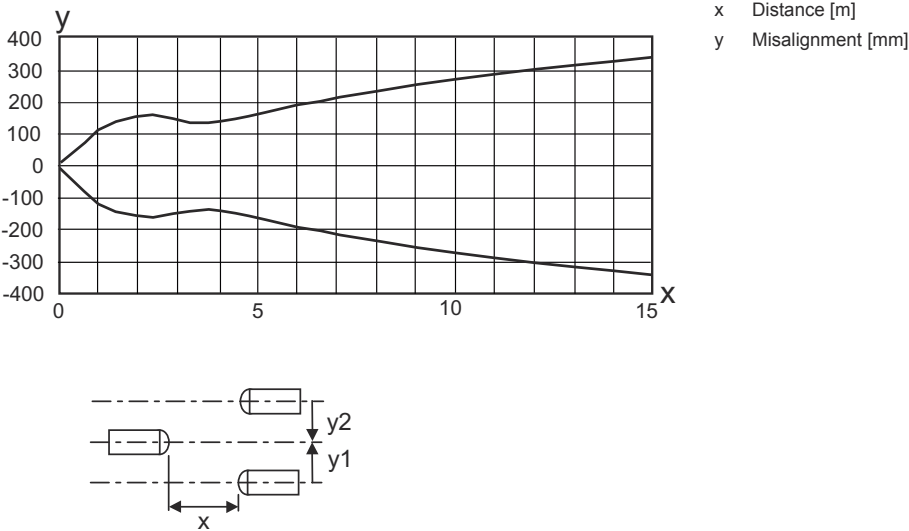
Conductor color

Conductor assignment

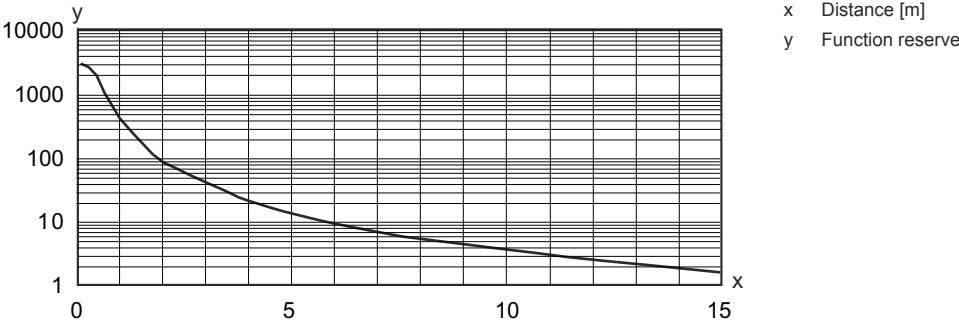
|       |       |
|-------|-------|
| Brown | V+    |
| Blue  | GND   |
| Black | OUT 1 |

Diagrams

Typ. response behavior



Typ. function reserve



Operation and display

| LED | Display                  | Meaning                              |
|-----|--------------------------|--------------------------------------|
| 1   | Yellow, continuous light | Light path free                      |
|     | Yellow, flashing         | Light path free, no function reserve |
| 2   | Green, continuous light  | Operational readiness                |

Suitable transmitters

|                                                                                    | Part no. | Designation | Article                                      | Description                                                                                                               |
|------------------------------------------------------------------------------------|----------|-------------|----------------------------------------------|---------------------------------------------------------------------------------------------------------------------------|
|  | 50145237 | LS5B        | Throughbeam photoelectric sensor transmitter | Operating range limit: 0 ... 15 m<br>Light source: LED, Red<br>Supply voltage: DC<br>Connection: Cable, 2,000 mm, 3 -wire |

## Suitable transmitters

|                                                                                  | Part no. | Designation | Article                                      | Description                                                                                                                                                                                         |
|----------------------------------------------------------------------------------|----------|-------------|----------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | 50145238 | LS5B/9      | Throughbeam photoelectric sensor transmitter | Special version: Deactivation input<br>Operating range limit: 0 ... 15 m<br>Light source: LED, Red<br>Supply voltage: DC<br>Deactivation inputs: 1 Piece(s)<br>Connection: Cable, 2,000 mm, 3 -wire |
|  | 50149139 | LS5BI       | Throughbeam photoelectric sensor transmitter | Operating range limit: 0 ... 8 m<br>Light source: LED, Infrared<br>Supply voltage: DC<br>Connection: Cable, 2,000 mm, 3 -wire                                                                       |

## Part number code

Part designation: **AAA5B D-E.FF/GG.HH-JJ**

|              |                                                                                                                                                                                                                                                                                                                                                                                                                         |
|--------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>AAA5B</b> | <b>Operating principle / construction</b><br>LS5B: Throughbeam photoelectric sensor transmitter<br>LE5B: Throughbeam photoelectric sensor receiver<br>PRK5B: Retro-reflective photoelectric sensor with polarization filter<br>HT5B: Diffuse reflection sensor with background suppression<br>ET5B: Energetic diffuse reflection sensor                                                                                 |
| <b>D</b>     | <b>Light type</b><br>n/a: red light<br>I: infrared light                                                                                                                                                                                                                                                                                                                                                                |
| <b>E</b>     | <b>Preset range (optional)</b><br>n/a: operating range acc. to data sheet<br>xxxF: Preset range [mm]                                                                                                                                                                                                                                                                                                                    |
| <b>FF</b>    | <b>Equipment</b><br>1: 270° potentiometer<br>D: Detection of stretch-wrapped objects<br>M: Detection of semi-transparent media and transparent films<br>XL: Extra long light spot<br>n/a with retro-reflective photoelectric sensors (PRK): operating range not adjustable<br>n/a with ET / HT: range adjustable via 8-turn potentiometer                                                                               |
| <b>GG</b>    | <b>Switching output / Function</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>9: deactivation input (deactivation with high signal)<br>X: pin not used                                                                                                                        |
| <b>HH</b>    | <b>Electrical connection</b><br>n/a: cable, standard length 2000 mm, 3-wire<br>M8: M8 connector, 4-pin (plug)<br>200-M12: cable, length 200 mm with M12 connector, 4-pin, axial (plug)<br>200-M8: cable, length 200 mm with M8 connector, 4-pin, axial (plug)<br>200-M8.3: cable, length 200 mm with M8 connector, 3-pin, axial (plug)<br>M8.1: Snap-in, M8 connector, 4-pin (plug)<br>M8.3: M8 connector, 3-pin (plug) |
| <b>JJ</b>    | <b>Version</b><br>Y1: mounting holes without threaded sleeve                                                                                                                                                                                                                                                                                                                                                            |

### 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.

### For UL applications:



- ⚠ Only for use in "class 2" circuits
- ⚠ 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)

## Accessories

### Mounting technology - Mounting brackets

|                                                                                    | Part no. | Designation   | Article             | Description                                                                                                                                                                                                                   |
|------------------------------------------------------------------------------------|----------|---------------|---------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | 50118542 | BT 200M.5     | Mounting bracket    | Design of mounting device: Angle, L-shape<br>Fastening, at system: Through-hole mounting<br>Mounting bracket, at device: Screw type, Suited for M3 screws<br>Type of mounting device: Adjustable<br>Material: Stainless steel |
|  | 50124651 | BT 205M-10SET | Mounting device set | 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: Metal                                      |

### Mounting technology - Rod mounts

|                                                                                     | Part no. | Designation  | Article         | Description                                                                                                                                                                                                                                                  |
|-------------------------------------------------------------------------------------|----------|--------------|-----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | 50117829 | BTP 200M-D12 | Mounting system | Design of mounting device: Protection hood<br>Fastening, at system: For 12 mm rod<br>Mounting bracket, at device: Screw type<br>Type of mounting device: Clampable, Adjustable, Turning, 360°<br>Material: Metal                                             |
|  | 50117255 | BTU 200M-D12 | Mounting system | Design of mounting device: Mounting system<br>Fastening, at system: For 12 mm rod, Sheet-metal mounting<br>Mounting bracket, at device: Screw type, Suited for M3 screws<br>Type of mounting device: Clampable, Adjustable, Turning, 360°<br>Material: Metal |

Accessories

| Note                                                                             |                                                                                                                                  |
|----------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|
|  | <p>A list with all available accessories can be found on the Leuze website in the Download tab of the article detailed page.</p> |