

Technical data sheet

Diffuse sensor with background

Part no.: 50138443

HT23/4

Contents

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



Figure can vary



Technical data

Basic data

| | |
|---------------------|--|
| Series | 23 |
| Operating principle | Diffuse reflection principle with background suppression |

Optical data

| | |
|-----------------------------|--------------------------------------|
| Black-white error | < 15% up to 200 mm |
| Operating range | Guaranteed operating range |
| Operating range, white 90% | 0.005 ... 0.4 m |
| Operating range, gray 18% | 0.01 ... 0.3 m |
| Operating range, black 6% | 0.015 ... 0.2 m |
| Operating range limit | Typical operating range |
| Operating range limit | 0.005 ... 0.4 m |
| Adjustment range | 15 ... 400 mm |
| Beam path | Focused |
| Light source | LED, Red |
| LED light wavelength | 645 nm |
| Transmitted-signal shape | Pulsed |
| LED group | Exempt group (in acc. with EN 62471) |
| Type of light spot geometry | Round |
| Focus | Fixed |
| Focal distance | 200 mm |

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 ... 15 mA |

Outputs

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

Switching outputs

| | |
|-------------------------|--|
| Voltage type | DC |
| Switching current, max. | 100 mA |
| Switching voltage | high: $\geq(U_B - 2V)$ Low: $\leq 2V$ |

Switching output 1

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

Timing

| | |
|---------------------|----------|
| Switching frequency | 1,000 Hz |
| Response time | 0.5 ms |
| Readiness delay | 300 ms |

Connection 1

| | |
|----------------------|------------------------------|
| Function | Signal OUT Voltage supply |
| Type of connection | Cable |
| Cable length | 2,000 mm |
| Sheathing material | PUR |
| Cable color | Black |
| Number of conductors | 3 -wire |
| Wire cross section | 0.14 mm ² |

Mechanical data

| | |
|-----------------------|------------------------------|
| Dimension (W x H x L) | 11.4 mm x 34.2 mm x 18.3 mm |
| Housing material | Plastic |
| Plastic housing | PC-ABS |
| Lens cover material | Plastic / PMMA |
| Net weight | 50 g |
| Housing color | Black Red |
| Type of fastening | Via optional mounting device |

Operation and display

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

Environmental data

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

Certifications

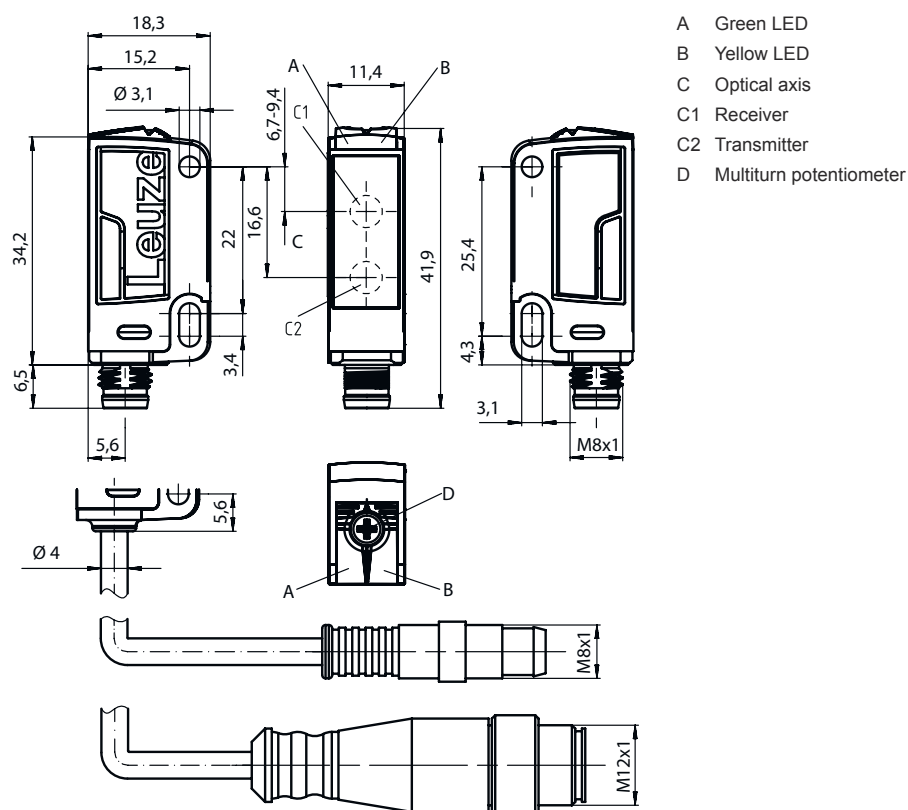
| | |
|----------------------|---------------|
| Degree of protection | IP 67 |
| Protection class | III |
| Certifications | c UL US |
| Standards applied | IEC 60947-5-2 |

Classification

| | |
|-----------------------|----------|
| Customs tariff number | 85365019 |
| eCl@ss 5.1.4 | 27270904 |
| eCl@ss 8.0 | 27270904 |
| eCl@ss 9.0 | 27270904 |
| eCl@ss 10.0 | 27270904 |
| eCl@ss 11.0 | 27270904 |
| ETIM 5.0 | EC002719 |
| ETIM 6.0 | EC002719 |
| ETIM 7.0 | EC002719 |

Dimensioned drawings

All dimensions in millimeters



- A Green LED
- B Yellow LED
- C Optical axis
- C1 Receiver
- C2 Transmitter
- D Multiturn potentiometer

Electrical connection

Connection 1

| | |
|----------------------|----------------------|
| Function | Signal OUT |
| | Voltage supply |
| Type of connection | Cable |
| Cable length | 2,000 mm |
| Sheathing material | PUR |
| Cable color | Black |
| Number of conductors | 3 -wire |
| Wire cross section | 0.14 mm ² |

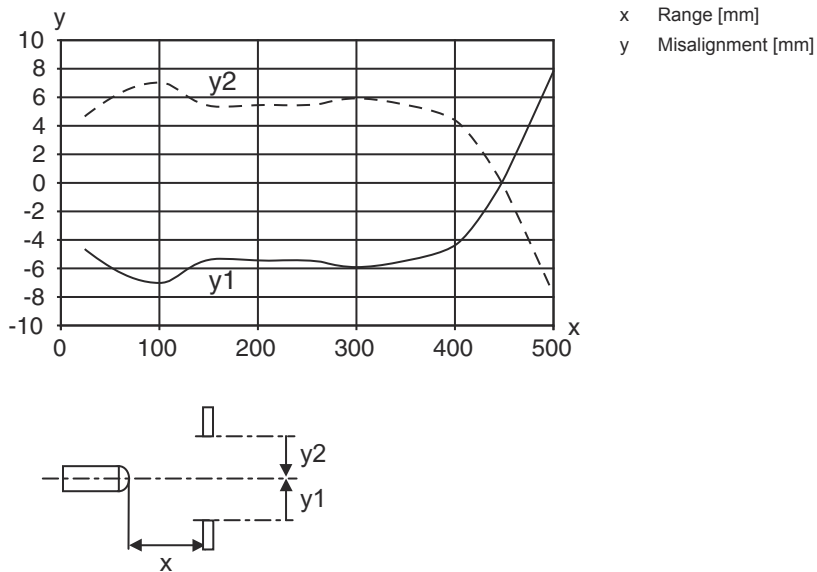
Conductor color

Conductor assignment

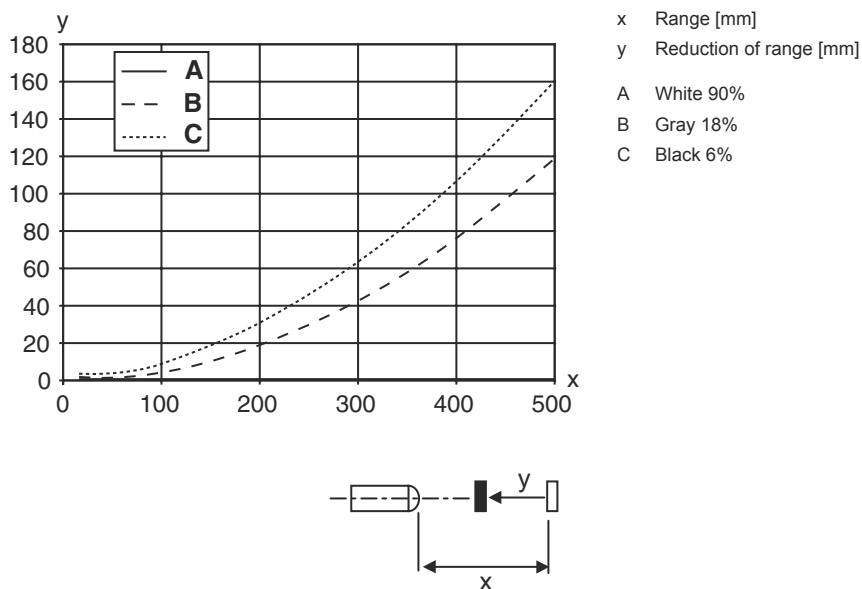
| | |
|-------|-------|
| Brown | V+ |
| Blue | GND |
| Black | OUT 1 |

Diagrams

Typ. response behavior (white 90 %)



Typ. black/white behavior



Operation and display


| LED | Display | Meaning |
|-----|--------------------------|-----------------------|
| 1 | Yellow, continuous light | Object detected |
| 2 | Green, continuous light | Operational readiness |

Part number code



Part designation: AAA23.GJ/ ff-HH

| | |
|--------------|--|
| AAA23 | Operating principle / construction HT23: diffuse reflection sensor with background suppression PRK23: retro-reflective photoelectric sensor with polarization filter LS23: throughbeam photoelectric sensor transmitter LE23: throughbeam photoelectric sensor receiver ET23: energetic diffuse reflection sensor FT23: diffuse reflection sensor with fading |
| G | Equipment T: autocollimation principle (single lens) for highly transparent bottles without tracking |
| J | Operating range adjustment 3: teach-in via button |
| ff | Switching output / function / OUT1OUT2 (OUT1 = pin 4, OUT2 = pin 2) 2: NPN transistor output, light switching N: NPN transistor output, dark switching 4: PNP transistor output, light switching P: PNP transistor output, dark switching X: pin not used |
| HH | Electrical connection n/a: cable, standard length 2000 mm, 3-wire M8: M8 connector, 4-pin (plug) 200-M12: cable, length 200 mm with M12 connector, 4-pin, axial (plug) M12: M12 connector, 4-pin (plug) 200-M8: cable, length 200 mm with M8 connector, 4-pin, axial (plug) |


Note

| | |
|---|--|
|  | <p>↪ A list with all available device types can be found on the Leuze website at www.leuze.com.</p> |
|---|--|

Notes

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

For UL applications:




| | |
|--|---|
|  | <p>↪ Only for use in "class 2" circuits</p> <p>↪ 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)</p> |
|--|---|

Further information



- Typ. operating range limit/adjustment range: max. achievable operating range/adjustment range for light objects (white 90%)
- Operating range: recommended operating range for objects with different diffuse reflection

Accessories

Mounting technology - Mounting brackets

| | Part no. | Designation | Article | Description |
|---|----------|---------------|---------------------|---|
|  | 50118542 | BT 200M.5 | Mounting bracket | Design of mounting device: Angle, L-shape Fastening, at system: Through-hole mounting Mounting bracket, at device: Screw type, Suited for M3 screws Type of mounting device: Adjustable Material: Stainless steel |
|  | 50124651 | BT 205M-10SET | Mounting device set | Design of mounting device: Angle, L-shape Fastening, at system: Through-hole mounting Mounting bracket, at device: Screw type Type of mounting device: Rigid Material: Metal |
|  | 50060511 | BT 3 | Mounting device | Design of mounting device: Angle, L-shape Fastening, at system: Through-hole mounting Mounting bracket, at device: Screw type Type of mounting device: Rigid Material: Metal |

Mounting technology - Rod mounts

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

Note



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