



Figure can vary

Part no.: 50133597
HT3C.B/4P-200-M8
Diffuse sensor with background suppression



Contents

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

Technical data

| Basic data | |
|-------------------------------------|--|
| Series | 3C |
| Operating principle | Diffuse reflection principle with background suppression |
| Optical data | |
| Black-white error | < 10% up to 220 mm |
| Operating range | Guaranteed operating range |
| Operating range, white 90% | 0.005 ... 0.45 m |
| Operating range, gray 18% | 0.01 ... 0.34 m |
| Operating range, black 6% | 0.015 ... 0.22 m |
| Operating range limit | Typical operating range |
| Operating range limit | 0.005 ... 0.45 m |
| Adjustment range | 15 ... 450 mm |
| Beam path | Focused |
| Light source | LED , Red |
| LED light wavelength | 633 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 | 2 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 | |
| Assignment | Connection 1, pin 4 |
| Switching element | Transistor , PNP |
| Switching principle | Light switching |
| Switching output 2 | |
| Assignment | Connection 1, pin 2 |
| Switching element | Transistor , PNP |
| Switching principle | Dark switching |
| Timing | |
| Switching frequency | 1,000 Hz |
| Response time | 0.5 ms |

Part no.: 50133597 – HT3C.B/4P-200-M8 – Diffuse sensor with background

| | |
|-----------------|--------|
| Readiness delay | 300 ms |
| Response jitter | 166 µs |

Connection
Connection 1

| | |
|--------------------|------------------------------|
| Function | Signal OUT Voltage supply |
| Type of connection | Cable with connector |
| Cable length | 200 mm |
| Sheathing material | PUR |
| Cable color | Black |
| Wire cross section | 0.2 mm ² |
| Thread size | M8 |
| Type | Male |
| Material | Metal |
| No. of pins | 4 -pin |

Mechanical data

| | |
|----------------------------|---|
| Dimension (W x H x L) | 11.4 mm x 34.2 mm x 18.3 mm |
| Housing material | Plastic , PC-ABS |
| Lens cover material | Plastic / PMMA |
| Net weight | 20 g |
| Housing color | 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) |
| 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

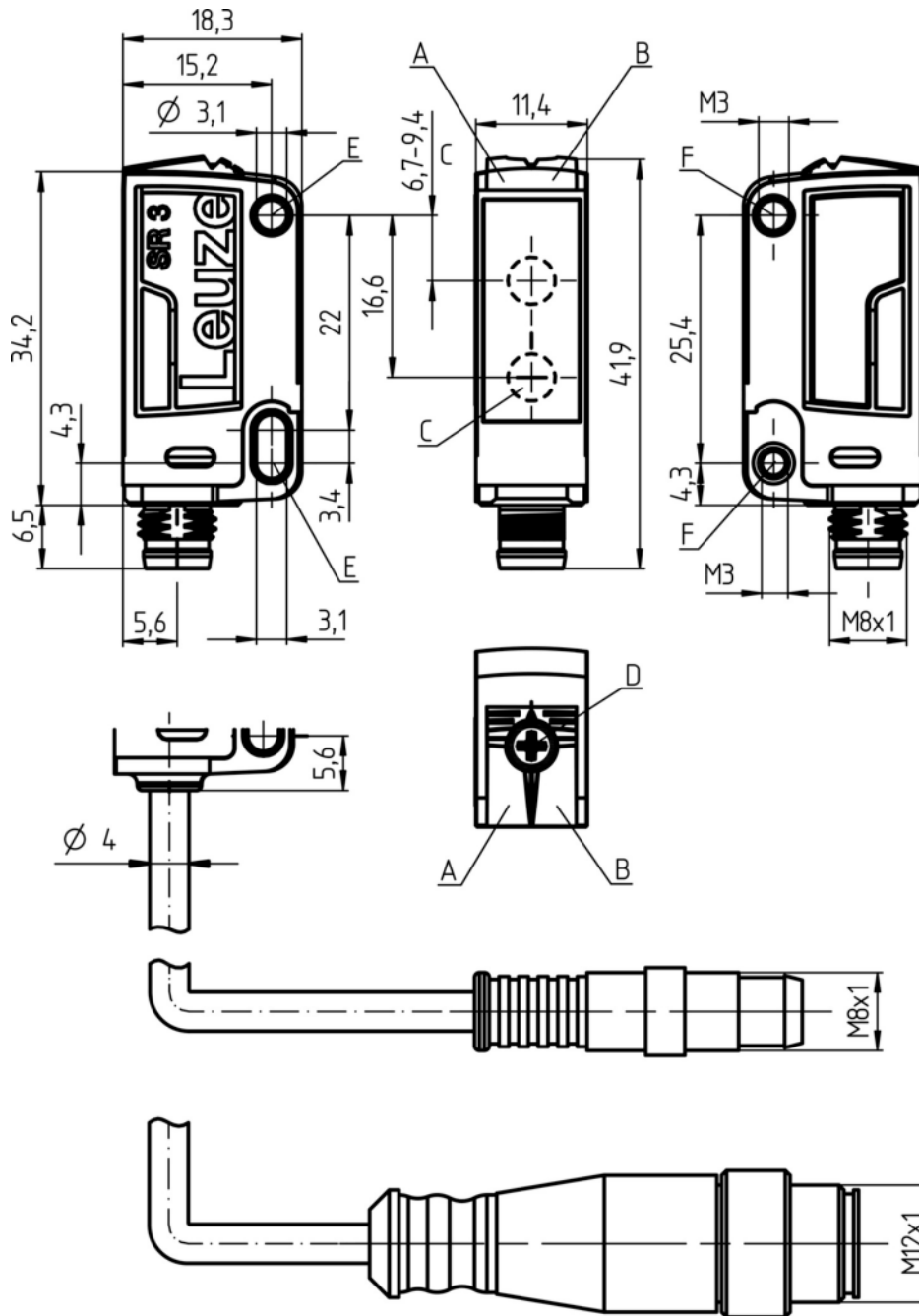
| | |
|----------------------|-----------------|
| Degree of protection | IP 67 IP 69K |
| Protection class | III |
| Certifications | c UL US |
| Standards applied | IEC 60947-5-2 |

Classification

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

Dimensioned drawings

All dimensions in millimeters

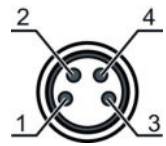


- A Green LED
- B Yellow LED
- C Optical axis
- D Multiturn potentiometer
- E Mounting sleeve (standard)
- F Threaded sleeve (3C.B series)

Electrical connection

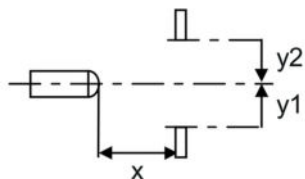
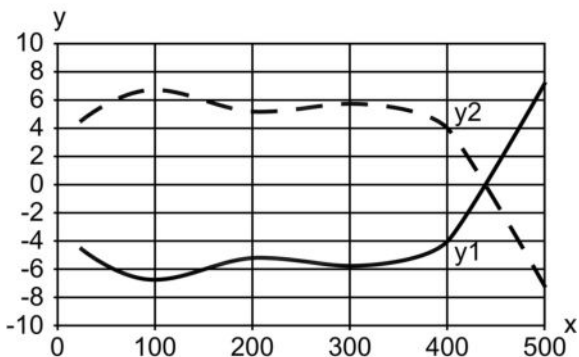
| Connection 1 | |
|--------------------|------------------------------|
| Function | Signal OUT Voltage supply |
| Type of connection | Cable with connector |
| Cable length | 200 mm |
| Sheathing material | PUR |
| Cable color | Black |
| Wire cross section | 0.2 mm ² |
| Thread size | M8 |
| Type | Male |
| Material | Metal |
| No. of pins | 4 -pin |
| Encoding | |

| Pin | Pin assignment |
|-----|----------------|
| 1 | V+ |
| 2 | OUT 2 |
| 3 | GND |
| 4 | OUT 1 |



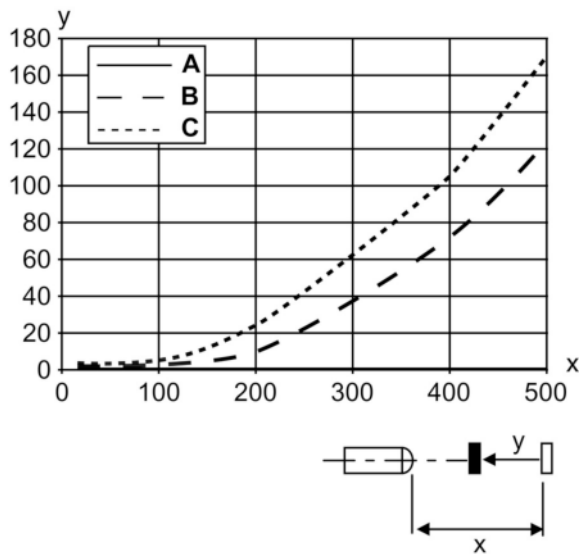
Diagrams

Typ. response behavior (white 90 %)



x Distance [mm]
y Misalignment [mm]

Typ. black/white behavior



x Range [mm]
y Reduction of range [mm]
A White 90%
B Gray 18%
C Black 6%

Operation and display

LEDs

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

Part number code

Part designation: **AAA 3C d EE-f.GG H/i J-K**

| | |
|-------|---|
| AAA3C | Operating principle / construction: HT3C: diffuse reflection sensor with background suppression LS3C: throughbeam photoelectric sensor transmitter LE3C: throughbeam photoelectric sensor receiver PRK3C: retro-reflective photoelectric sensor with polarization filter |
| d | Light type: n/a: red light I: infrared light |
| EE | Light source: n/a: LED L1: laser class 1 L2: laser class 2 |
| f | Preset range (optional): n/a: operating range acc. to data sheet xxxF: preset range [mm] |

Part no.: 50133597 – HT3C.B/4P-200-M8 – Diffuse sensor with background

| | |
|----|---|
| GG | Equipment: n/a: standard A: autocollimation principle (single lens) for positioning tasks B: housing model with two M3 threaded sleeves, brass F: permanently set range L: long light spot S: small light spot T: autocollimation principle (single lens) for highly transparent bottles without tracking TT: autocollimation principle (single lens) for highly transparent bottles with tracking V: V-optics XL: extra long light spot X: extended model |
| H | Operating range adjustment: n/a with HT: range adjustable via 8-turn potentiometer n/a with retro-reflective photoelectric sensors (PRK): operating range not adjustable 1: 270° potentiometer 3: teach-in via button 6: auto-teach |
| i | Switching output/function OUT 1/IN: Pin 4 or black conductor: 2: NPN transistor output, light switching N: NPN transistor output, dark switching 4: PNP transistor output, light switching P: PNP transistor output, dark switching 6: push-pull switching output, PNP light switching, NPN dark switching G: push-pull switching output, PNP dark switching, NPN light switching L: IO-Link interface (SIO mode: PNP light switching, NPN dark switching) 8: activation input (activation with high signal) X: pin not used 1: IO-Link / light switching (NPN) / dark switching (PNP) |
| J | Switching output / function OUT 2/IN: pin 2 or white conductor: 2: NPN transistor output, light switching N: NPN transistor output, dark switching 4: PNP transistor output, light switching P: PNP transistor output, dark switching 6: push-pull switching output, PNP light switching, NPN dark switching G: push-pull switching output, PNP dark switching, NPN light switching W: warning output X: pin not used 8: activation input (activation with high signal) 9: deactivation input (deactivation with high signal) T: teach-in via cable |
| K | Electrical connection: n/a: cable, standard length 2000 mm, 4-wire 5000: cable, standard length 5000 mm, 4-wire M8: M8 connector, 4-pin (plug) M8.3: M8 connector, 3-pin (plug) 200-M8: cable, length 200 mm with M8 connector, 4-pin, axial (plug) 200-M8.3: cable, length 200 mm with M8 connector, 3-pin, axial (plug) 200-M12: cable, length 200 mm with M12 connector, 4-pin, axial (plug) |

Note

A list with all available device types can be found on the Leuze website at 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:



- For UL applications, use is only permitted in Class 2 circuits in accordance with the NEC (National Electric Code).
- 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)

Part no.: 50133597 – HT3C.B/4P-200-M8 – Diffuse sensor with background


- Light source: Average life expectancy 100,000 h at an ambient temperature of 25 °C
- Response time: For short decay times, an ohmic load of approx. 5 kOhm is recommended
- Sum of the output currents for both outputs, 50 mA for ambient temperatures > 40 °C

Accessories


Connection technology - Connection cables

| | Part no. | Designation | Article | Description |
|---|----------|-------------------|------------------|--|
|  | 50130850 | KD U-M8-4A-V1-050 | Connection cable | Connection 1: Connector, M8, Axial, Female, 4 -pin Connection 2: Open end Shielded: No Cable length: 5,000 mm Sheathing material: PVC |
|  | 50130871 | KD U-M8-4W-V1-050 | Connection cable | Connection 1: Connector, M8, Angled, Female, 4 -pin Connection 2: Open end Shielded: No Cable length: 5,000 mm Sheathing material: PVC |

Mounting technology - Mounting brackets

| | Part no. | Designation | Article | Description |
|---|----------|-------------|-----------------|--|
|  | 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 |
|---|----------|--------------|-----------------|--|
|  | 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 electronic website in the Download tab of the article detailed page.