



Figure can vary

Part no.: 50129400

HT5.1/4

Diffuse sensor with background suppression



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Technical data

| Basic data | |
|---------------------|--|
| Series | 5 |
| Operating principle | Scanning 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 profile | Focused |
| Light source | LED, Red |
| LED light wavelength | 645 nm |
| LED protection class | Exempt group (in acc. with EN 62471) |
| Transmitted-signal shape | Pulsed |
| 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 | 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 | Low: $\leq 2V$ High: $\geq (U_B - 2V)$ |

| Switching output 1 | |
|---------------------------|---------------------------|
| Assignment | Connection 1, conductor 4 |
| Switching element | Transistor, PNP |
| Switching principle | Light switching |

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

| Connection | |
|-------------------|--|
|-------------------|--|

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Connection 1

| | |
|----------------------|------------------------------|
| Type of connection | Cable |
| Function | Signal OUT Voltage supply |
| Cable length | 2,000 mm |
| Sheathing material | PUR |
| Cable color | Black |
| Number of conductors | 4 -wire |
| Wire cross section | 0.2 mm ² |

Mechanical data

| | |
|-----------------------|---|
| Design | Cubic |
| Dimension (W x H x L) | 11.4 mm x 32.1 mm x 17.8 mm |
| Housing material | Plastic, PC-ABS |
| Lens cover material | Plastic / PMMA |
| Net weight | 50 g |
| Housing color | Black Red |
| Type of fastening | Via optional mounting device Two M3 threaded sleeves |

Operation and display

| | |
|-------------------------------------|---------------------------|
| Type of display | LED |
| Number of LEDs | 1 Piece(s) |
| Operational controls | Multiturn potentiometer |
| Function of the operational control | Scanning range adjustment |

Environmental data

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

Certifications

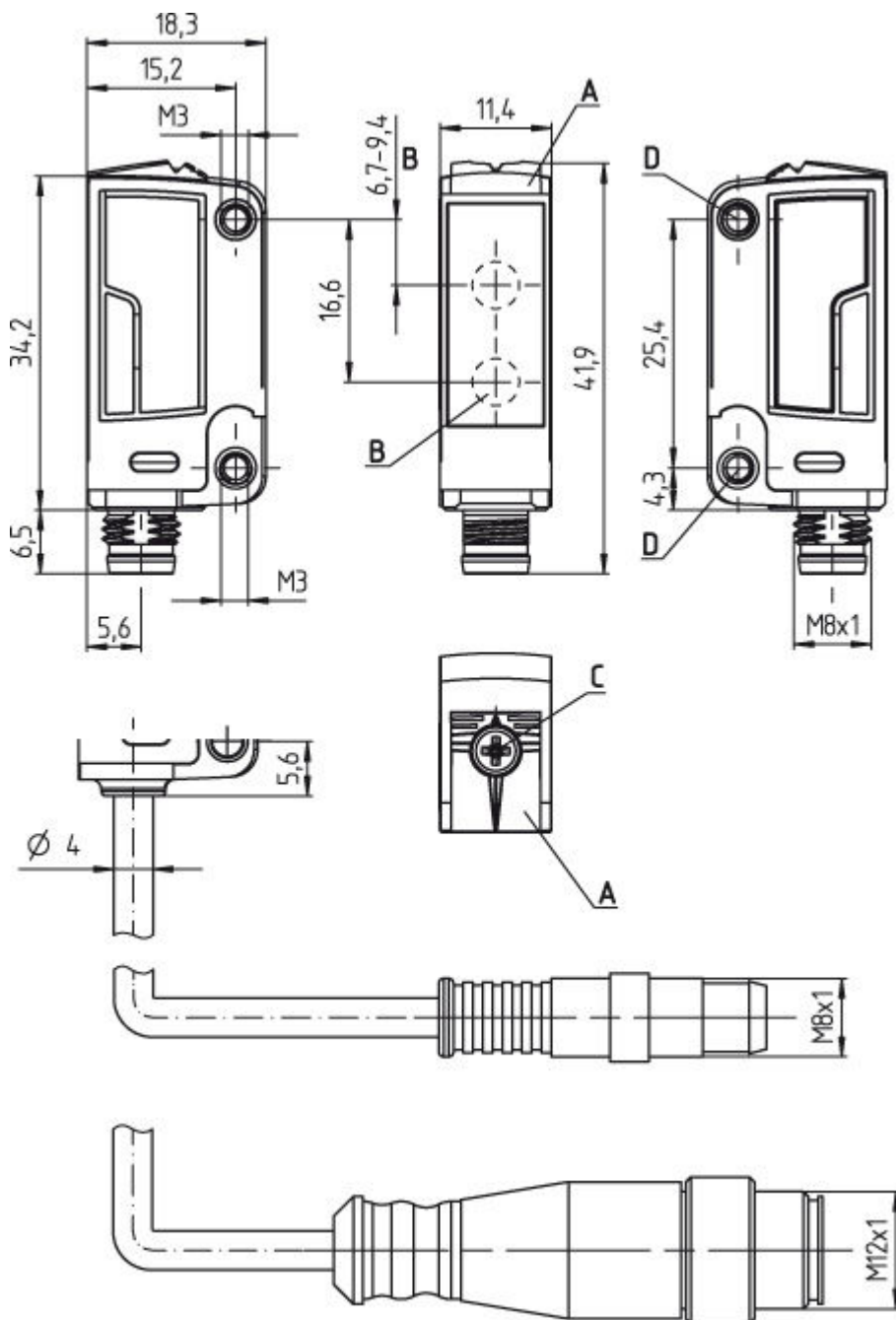
| | |
|----------------------|---------------|
| Degree of protection | IP 67 |
| Protection class | III |
| Certifications | c UL US |
| Standards applied | IEC 60947-5-2 |

Classification

| | |
|------------|----------|
| eCl@ss 8.0 | 27270904 |
| eCl@ss 9.0 | 27270904 |
| ETIM 5.0 | EC002719 |

Dimensioned drawings

All dimensions in millimeters



- A Yellow LED
- B Optical axis
- C Scanning range adjustment
- D Threaded sleeve

Electrical connection

| Connection 1 | |
|--------------------|------------------------------|
| Type of connection | Cable |
| Function | Signal OUT Voltage supply |
| Cable length | 2,000 mm |
| Sheathing material | PUR |

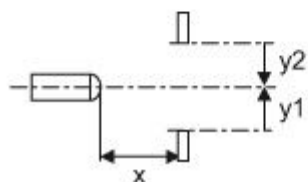
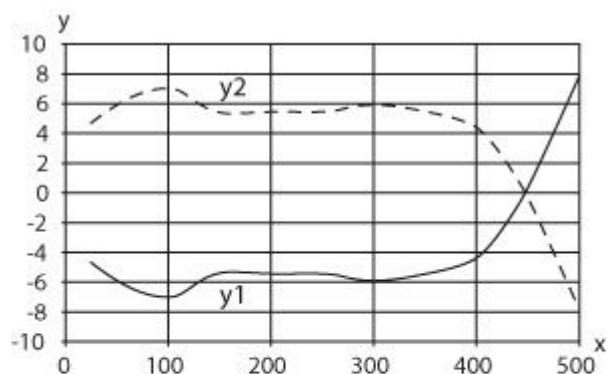
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| Connection 1 | |
|----------------------|---------------------|
| Cable color | Black |
| Number of conductors | 4 -wire |
| Wire cross section | 0.2 mm ² |

| Conductor color | Conductor assignment |
|-----------------|----------------------|
| Brown | V+ |
| Blue | GND |
| Black | OUT 1 |

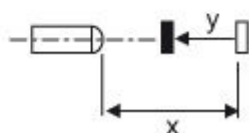
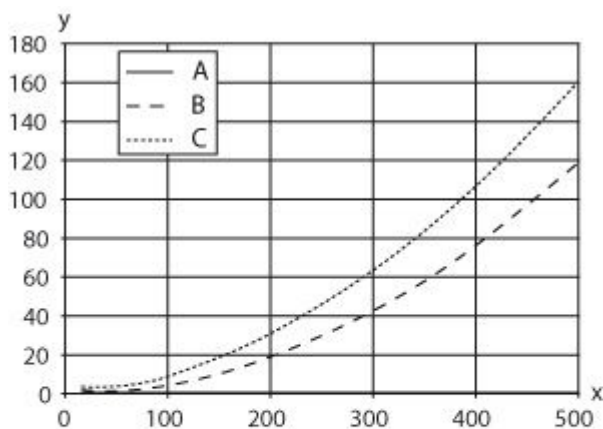
Diagrams

Typ. response behavior (white 90 %)



x Range [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 | Yellow, continuous light | Object detected |

Accessories





Mounting technology - Mounting brackets

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

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| | Part no. | Designation | Article | Description |
|---|----------|-------------|--------------------|--|
|  | 50060511 | BT 3 | Mounting device | Design of mounting device: Angle, L-shape Mounting bracket, at system: Through-hole mounting Mounting bracket, at device: Screw type Type of mounting device: Rigid Material: Metal |
|  | 50105585 | BT 3.1 | Mounting strap set | Contains: 10x Design of mounting device: Retaining clip Mounting bracket, at system: Through-hole mounting Mounting bracket, at device: Screw type Type of mounting device: Rigid Material: Metal |
|  | 50105546 | BT 3B | Mounting device | Design of mounting device: Angle, L-shape Mounting bracket, 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 |
|---|----------|----------------|-----------------|--|
|  | 50117256 | BTU 200M-D10 | Mounting system | Contains: 2x M3 x 18 screw, 2x position washers Design of mounting device: Mounting system Mounting bracket, at system: For 10 mm rod, Sheet-metal mounting Mounting bracket, at device: Screw type Type of mounting device: Clampable, Adjustable, Turning, 360° Material: Metal |
|  | 50117255 | BTU 200M-D12 | Mounting system | Contains: 2x M3 x 18 screw, 2x position washers Design of mounting device: Mounting system Mounting bracket, at system: For 12 mm rod, Sheet-metal mounting Mounting bracket, at device: Screw type Type of mounting device: Clampable, Adjustable, Turning, 360° Material: Metal |
|  | 50117254 | BTU 200M-D14 | Mounting system | Contains: 2x M3 x 18 screw, 2x position washers Design of mounting device: Mounting system Mounting bracket, at system: For 14 mm rod, Sheet-metal mounting Mounting bracket, at device: Screw type Type of mounting device: Clampable, Adjustable, Turning, 360° Material: Metal |
|  | 50120426 | BTU 200M.5-D12 | Mounting system | Contains: 2x M3 x 18 screw, 2x M3 mounting nut, 2x position washers Design of mounting device: Mounting system Mounting bracket, at system: For 12 mm rod Mounting bracket, at device: Screw type Type of mounting device: Turning, 360°, Clampable, Adjustable Material: Stainless steel |

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.

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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)

- 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
- 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