



**Part no.: 50122581**  
**ET5.3/2N-M8**  
**Energetic diffuse sensor**



Figure can vary



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## Technical data

| <b>Basic data</b>                   |   |
|-------------------------------------|---|
| Series                              | 5   |
| Operating principle                 | Diffuse reflection principle                            |
| <b>Optical data</b>                 |   |
| Operating range                     | Guaranteed operating range                              |
| Operating range, white 90%          | 0.001 ... 0.7 m   |
| Operating range, gray 50%           | 0.001 ... 0.59 m  |
| Operating range, gray 18%           | 0.003 ... 0.39 m  |
| Operating range, black 6%           | 0.005 ... 0.28 m  |
| Operating range limit               | Typical operating range                                 |
| Operating range limit, white 90%    | 0 ... 1 m   |
| Operating range limit, gray 50%     | 0.001 ... 0.85 m  |
| Operating range limit, gray 18%     | 0.003 ... 0.55 m  |
| Operating range limit, black 6%     | 0.002 ... 0.4 m   |
| Light source                        | LED , Red   |
| LED light wavelength                | 620 nm  |
| Transmitted-signal shape            | Pulsed  |
| LED group                           | Exempt group (in acc. with EN 62471)                    |
| <b>Electrical data</b>              |   |
| Protective circuit                  | Polarity reversal protection<br>Short circuit protected |
| <b>Performance data</b>             |   |
| Supply voltage $U_B$                | 10 ... 30 V , DC , Incl. residual ripple                |
| Residual ripple                     | 0 ... 15 % , From $U_B$                                 |
| Open-circuit current                | 0 ... 20 mA   |
| <b>Outputs</b>                      |   |
| Number of digital switching outputs | 2 Piece(s)  |
| <b>Switching outputs</b>            |   |
| Voltage type                        | DC  |
| Switching current, max.             | 100 mA  |
| Switching voltage                   | high: $\geq(U_B-2.5V)$<br>low: $\leq 2.5V$              |
| <b>Switching output 1</b>           |   |
| Assignment                          | Connection 1, pin 4                                     |
| Switching element                   | Transistor , NPN  |
| Switching principle                 | Light switching   |
| <b>Switching output 2</b>           |   |
| Assignment                          | Connection 1, pin 2                                     |
| Switching element                   | Transistor , NPN  |
| Switching principle                 | Dark switching  |
| <b>Timing</b>                       |   |
| Switching frequency                 | 500 Hz  |
| Response time                       | 1 ms  |
| Readiness delay                     | 300 ms  |

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### Connection

#### Connection 1

|                    |                              |
|--------------------|------------------------------|
| Type of connection | Connector                    |
| Function           | Signal OUT<br>Voltage supply |
| Thread size        | M8                           |
| Type               | Male                         |
| Material           | Plastic                      |
| No. of pins        | 4 -pin                       |

### Mechanical data

|                       |                           |
|-----------------------|---------------------------|
| Dimension (W x H x L) | 14 mm x 32.5 mm x 20.2 mm |
| Housing material      | Plastic , ABS             |
| Lens cover material   | Plastic                   |
| Net weight            | 20 g                      |
| Housing color         | Black<br>Red              |

### Operation and display

|                      |              |
|----------------------|--------------|
| Type of display      | LED          |
| Number of LEDs       | 2 Piece(s)   |
| Operational controls | Teach button |

### Environmental data

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

### Certifications

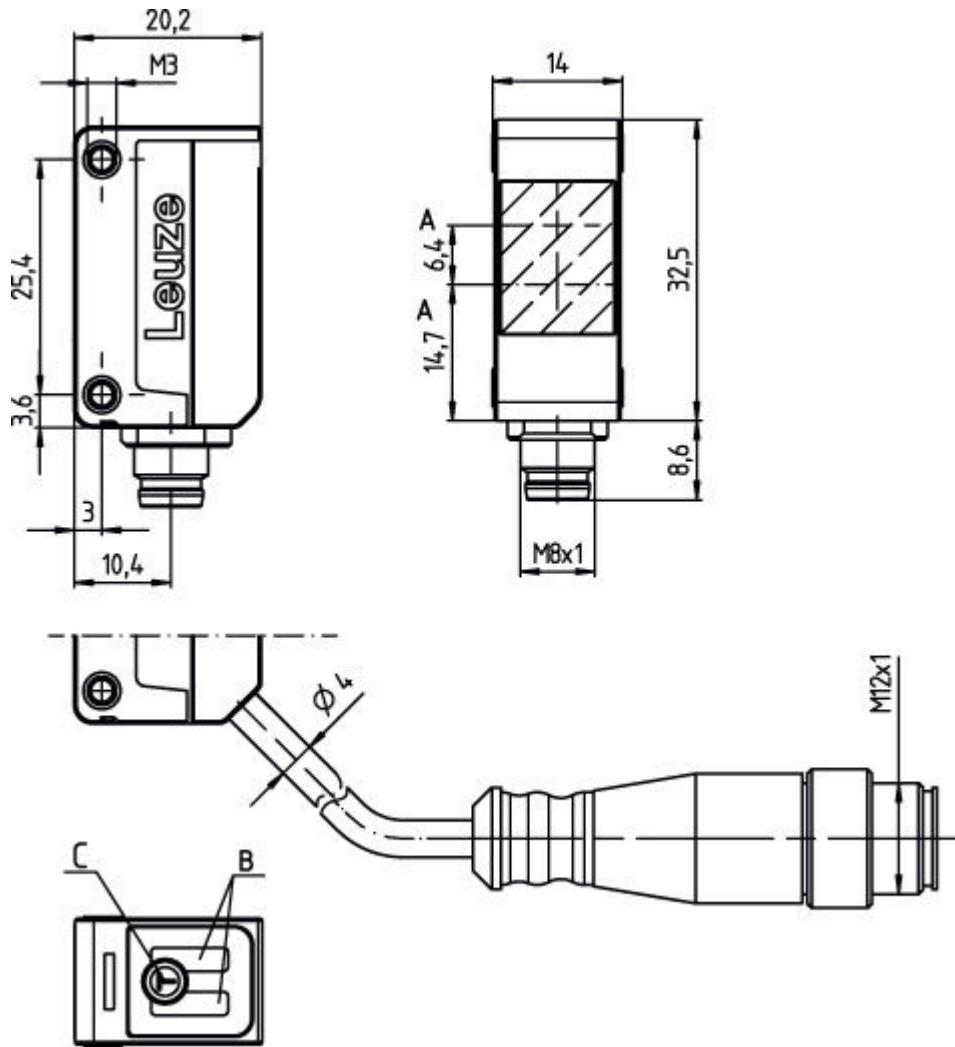
|                      |               |
|----------------------|---------------|
| Degree of protection | IP 67         |
| Protection class     | III           |
| Certifications       | c UL US       |
| Standards applied    | IEC 60947-5-2 |

### Classification

|                       |          |
|-----------------------|----------|
| Customs tariff number | 85365019 |
| eCl@ss 8.0            | 27270903 |
| eCl@ss 9.0            | 27270903 |
| ETIM 5.0              | EC001821 |
| ETIM 6.0              | EC001821 |

## Dimensioned drawings

All dimensions in millimeters

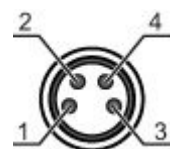


A Optical axis  
 B Indicator diode  
 C Teach button

## Electrical connection

| Connection 1       |                              |
|--------------------|------------------------------|
| Type of connection | Connector                    |
| Function           | Signal OUT<br>Voltage supply |
| Thread size        | M8                           |
| Type               | Male                         |
| Material           | Plastic                      |
| No. of pins        | 4 -pin                       |
| Encoding           |                              |

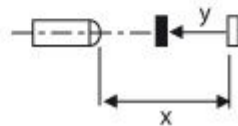
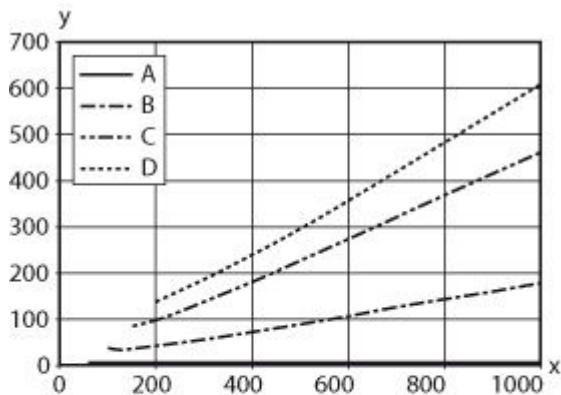
| Pin | Pin assignment |
|-----|----------------|
| 1   | V+             |
| 2   | OUT 2          |
| 3   | GND            |



| Pin | Pin assignment |
|-----|----------------|
| 4   | OUT 1          |

## Diagrams

Typ. black/white behavior



- x Range [mm]
- y Reduction of range [mm]
- A White 90%
- B Gray 50%
- C Gray 18%
- D Black 6%

## Operation and display

LEDs

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

## Part number code

Part designation: **AAA5d.EE/ ff-GG-hh-l**

|      |  |
|------|--|
| AAA5 | <p><b>Operating principle / construction:</b><br/>                     HT5: diffuse reflection sensor with background suppression<br/>                     LS5: throughbeam photoelectric sensor transmitter<br/>                     LE5: throughbeam photoelectric sensor receiver<br/>                     ET5: energetic diffuse reflection sensor<br/>                     FT5: diffuse reflection sensor with fading<br/>                     PRK5: retro-reflective photoelectric sensor with polarization filter</p> |
|------|--|

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|    |  |
|----|--|
| d  | <b>Light type:</b><br>n/a: red light<br>l: infrared light  |
| EE | <b>Equipment:</b><br>1: adjustable range<br>M: for semi-transparent objects<br>H: for the detection of transparent films<br>X: reinforced fading<br>3: teach-in via button<br>R: combination product for reflector DTKS 30x50  |
| ff | <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>X: pin not used<br>9: deactivation input (deactivation with high signal)<br>D: deactivation input (deactivation with low signal)                        |
| GG | <b>Design:</b><br>P1: narrow light beam  |
| hh | <b>Electrical connection:</b><br>n/a: cable, standard length 2000 mm, 4-wire<br>M8: M8 connector, 4-pin (plug)<br>M8.3: M8 connector, 3-pin (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>200-M12: cable, length 200 mm with M12 connector, 4-pin, axial (plug)<br>M8.1: Snap-in, M8 connector, 4-pin (plug) |
| l  | <b>Configuration:</b><br>P1: configuration for label detection   |

**Note**

A list with all available device types can be found on the Leuze electronic 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)

- Sum of the output currents for both outputs, 50 mA for ambient temperatures > 40 °C
- With the set scanning range, a tolerance of the operating range is possible depending on the reflection properties of the material surface.



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## Accessories



### Connection technology - Connection cables

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

### 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<br>Type of mounting device: Adjustable<br>Material: Stainless steel   |
|  | 50124651 | BT 205M-10SET | Mounting device set | Contains: 10x<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: 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 | Contains: 2x M3 x 16 screw, 2x M3 x 20 screw, 2x position washers<br>Design of mounting device: Mounting system<br>Fastening, at system: For 12 mm rod, Sheet-metal mounting<br>Mounting bracket, at device: Screw type<br>Type of mounting device: Clampable, Adjustable, Turning, 360°<br>Material: Metal |