

## Technical data sheet

### Diffuse sensor with background suppression

Part no.: 50141699

HT3C.3/66-M8



For illustration purposes only

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## Technical data

### Basic data

|                     |                                                          |
|---------------------|----------------------------------------------------------|
| Series              | 3C                                                       |
| Operating principle | Diffuse reflection principle with background suppression |

### Special version

|                 |                                 |
|-----------------|---------------------------------|
| Special version | 2 independent switching outputs |
|-----------------|---------------------------------|

### Optical data

|                                      |                                              |
|--------------------------------------|----------------------------------------------|
| Black-white error                    | $< \pm 3$ mm                                 |
| Operating range                      | 0.01 ... 0.15 m (guaranteed operating range) |
| Adjustment range                     | 30 ... 150 mm                                |
| Beam path                            | Focused                                      |
| Light source                         | LED, Red                                     |
| Wavelength                           | 645 nm                                       |
| Transmitted-signal shape             | Pulsed                                       |
| LED group                            | Exempt group (in acc. with EN 62471)         |
| Light spot size [at sensor distance] | 10 mm x 10 mm [100 mm]                       |
| Type of light spot geometry          | square                                       |
| Focus                                | Fixed                                        |
| Focal distance                       | 150 mm                                       |

### Electrical data

|                    |                                                         |
|--------------------|---------------------------------------------------------|
| Protective circuit | Polarity reversal protection<br>Short circuit protected |
|--------------------|---------------------------------------------------------|

### Performance data

|                      |                                        |
|----------------------|----------------------------------------|
| Supply voltage $U_B$ | 12 ... 30 V, DC, Incl. residual ripple |
| Residual ripple      | 0 ... 15 %, From $U_B$                 |
| Open-circuit current | 0 ... 25 mA                            |

### Outputs

|                                     |            |
|-------------------------------------|------------|
| Number of digital switching outputs | 2 Piece(s) |
|-------------------------------------|------------|

### Switching outputs

|                         |                                            |
|-------------------------|--------------------------------------------|
| Type                    | Digital switching output                   |
| Voltage type            | DC                                         |
| Switching current, max. | 100 mA                                     |
| Switching voltage       | high: $\geq (U_B - 2V)$<br>low: $\leq 2$ V |

### Switching output 1

|                     |                                            |
|---------------------|--------------------------------------------|
| Assignment          | Connection 1, pin 4                        |
| Switching element   | Transistor, Push-pull                      |
| Switching principle | Light switching (PNP)/dark switching (NPN) |

### Switching output 2

|                     |                                            |
|---------------------|--------------------------------------------|
| Assignment          | Connection 1, pin 2                        |
| Switching element   | Transistor, Push-pull                      |
| Switching principle | Light switching (PNP)/dark switching (NPN) |

### Time behavior

|                     |             |
|---------------------|-------------|
| Switching frequency | 750 Hz      |
| Response time       | 0.66 ms     |
| Readiness delay     | 300 ms      |
| Response jitter     | 170 $\mu$ s |

### Connection

|                       |            |
|-----------------------|------------|
| Number of connections | 1 Piece(s) |
|-----------------------|------------|

### Connection 1

|                    |                              |
|--------------------|------------------------------|
| Function           | Signal OUT<br>Voltage supply |
| Type of connection | Connector                    |
| 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                                               |
| Plastic housing                                | PC-ABS                                                |
| Lens cover material                            | Plastic / PMMA                                        |
| Net weight                                     | 10 g                                                  |
| Housing color                                  | Red                                                   |
| Type of fastening                              | Through-hole mounting<br>Via optional mounting device |
| Recommended tightening torque for M3 fastening | 0.9 N·m                                               |
| Compatibility of materials                     | ECOLAB                                                |

### Operation and display

|                                     |                                          |
|-------------------------------------|------------------------------------------|
| Type of display                     | LED                                      |
| Number of LEDs                      | 2 Piece(s)                               |
| Operational controls                | Teach button                             |
| Function of the operational control | Light/dark switching<br>Range adjustment |

### Environmental data

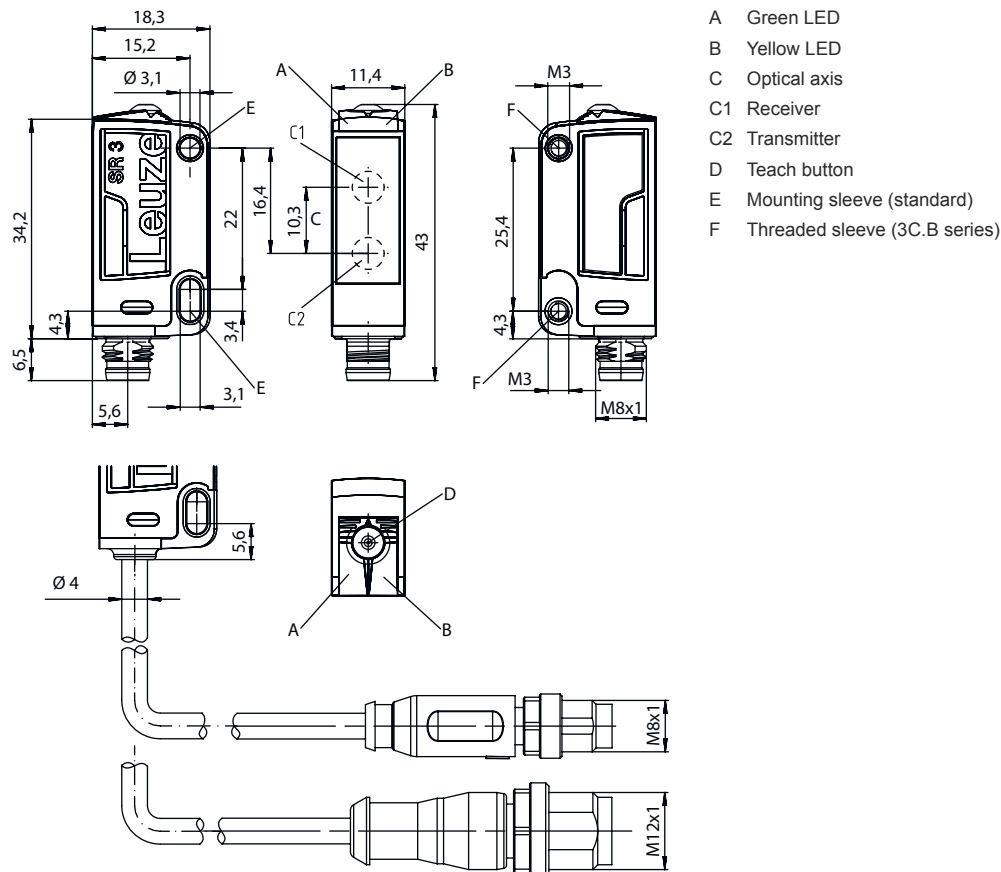
|                                |               |
|--------------------------------|---------------|
| Ambient temperature, operation | -40 ... 60 °C |
| Ambient temperature, storage   | -40 ... 70 °C |

### Certifications

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

|                              |          |
|------------------------------|----------|
| <b>Customs tariff number</b> | 85365019 |
| <b>ECLASS 5.1.4</b>          | 27270904 |
| <b>ECLASS 8.0</b>            | 27270904 |
| <b>ECLASS 9.0</b>            | 27270904 |
| <b>ECLASS 10.0</b>           | 27270904 |
| <b>ECLASS 11.0</b>           | 27270904 |
| <b>ECLASS 12.0</b>           | 27270903 |
| <b>ECLASS 13.0</b>           | 27270903 |
| <b>ECLASS 14.0</b>           | 27270903 |
| <b>ECLASS 15.0</b>           | 27270903 |
| <b>ETIM 5.0</b>              | EC002719 |
| <b>ETIM 6.0</b>              | EC002719 |
| <b>ETIM 7.0</b>              | EC002719 |
| <b>ETIM 8.0</b>              | EC002719 |
| <b>ETIM 9.0</b>              | EC002719 |
| <b>ETIM 10.0</b>             | EC002719 |

All dimensions in millimeters

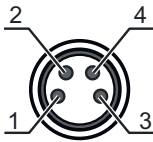


Electrical connection

Connection 1

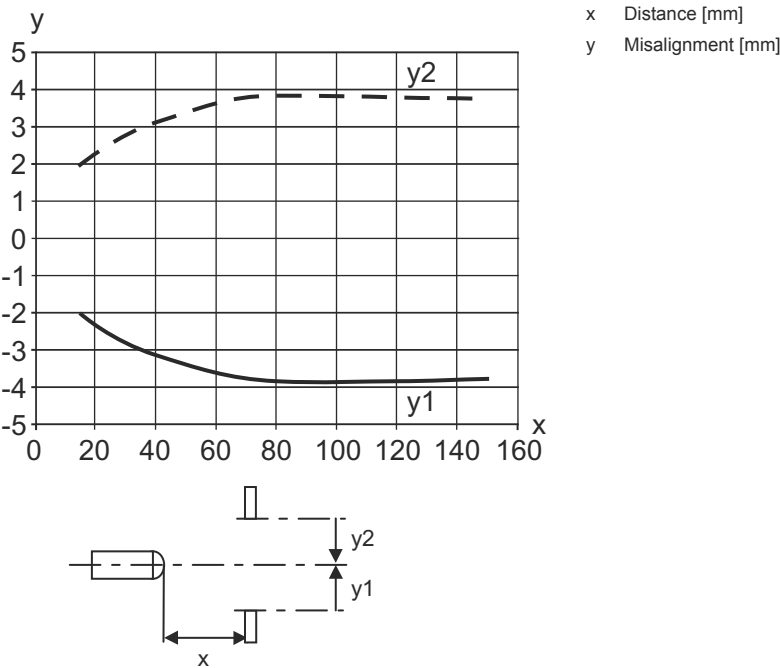
|                    |                |
|--------------------|----------------|
| Function           | Signal OUT     |
|                    | Voltage supply |
| Type of connection | Connector      |
| Thread size        | M8             |
| Type               | Male           |
| Material          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

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



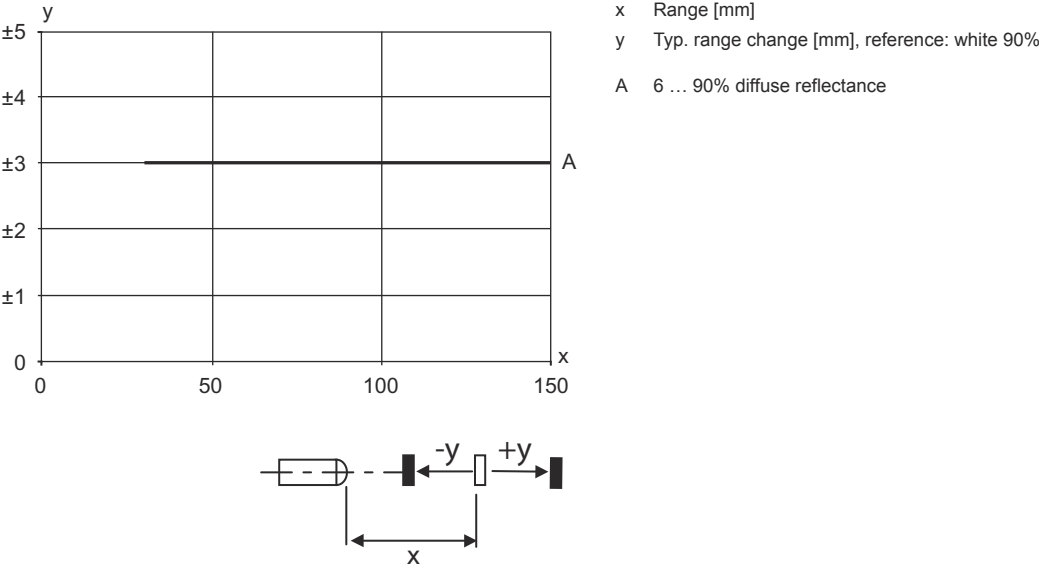
Diagrams

Typ. response behavior (white 90 %)



Diagrams

Typ. black/white behavior



Operation and display

| 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 | <b>Operating principle / construction</b><br>HT3C: Diffuse reflection sensor with background suppression<br>LS3C: Throughbeam photoelectric sensor transmitter<br>LE3C: Throughbeam photoelectric sensor receiver<br>PRK3C: Retro-reflective photoelectric sensor with polarization filter<br>ODT3C: Distance diffuse sensor with background suppression                                                                                                                                                                                      |
| d     | <b>Light type</b><br>n/a: red light<br>I: infrared light                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| EE    | <b>Light source</b><br>n/a: LED<br>L1: laser class 1<br>L2: laser class 2<br>PP: Power PinPoint® LED                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| f     | <b>Preset range (optional)</b><br>n/a: operating range acc. to data sheet<br>xxxF: Preset range [mm]<br>2M: operating range of 2 meters                                                                                                                                                                                                                                                                                                                                                                                                       |
| GG    | <b>Equipment</b><br>n/a: standard<br>A: Autocollimation principle (single lens) for positioning tasks<br>B: Housing model with two M3 threaded sleeves, brass<br>F: Permanently set range<br>L: Long light spot<br>S: small light spot<br>T: autocollimation principle (single lens) for highly transparent bottles without tracking<br>TT: autocollimation principle (single lens) for highly transparent bottles with tracking<br>V: V-optics<br>XL: Extra long light spot<br>X: extended model<br>HF: Suppression of HF illumination (LED) |

## Part number code

|          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|----------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>H</b> | <b>Operating range adjustment</b><br>n/a with HT: range adjustable via 8-turn potentiometer<br>n/a with retro-reflective photoelectric sensors (PRK): operating range not adjustable<br>1: 270° potentiometer<br>3: teach-in via button<br>6: auto-teach                                                                                                                                                                                                                                                                                                                                                                   |
| <b>i</b> | <b>Switching output/function OUT 1/IN: Pin 4 or black conductor</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>6: push-pull switching output, PNP light switching, NPN dark switching<br>G: Push-pull switching output, PNP dark switching, NPN light switching<br>L: IO-Link interface (SIO mode: PNP light switching, NPN dark switching)<br>8: activation input (activation with high signal)<br>X: pin not used<br>1: IO-Link / light switching (NPN) / dark switching (PNP) |
| <b>J</b> | <b>Switching output / function OUT 2/IN: pin 2 or white conductor</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>6: push-pull switching output, PNP light switching, NPN dark switching<br>G: Push-pull switching output, PNP dark switching, NPN light switching<br>W: warning output<br>X: pin not used<br>8: activation input (activation with high signal)<br>9: deactivation input (deactivation with high signal)<br>T: teach-in via cable                                 |
| <b>K</b> | <b>Electrical connection</b><br>n/a: cable, standard length 2000 mm, 4-wire<br>5000: cable, standard length 5000 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)                                                                                                                                                                                                 |

### 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:



- ↗ 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)

## Further information

- Light source: Average life expectancy 100,000 h at an ambient temperature of 25 °C
- 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<br>Connector, LED: No<br>Connection 2: Open end<br>Shielded: No<br>Cable length: 5.000 mm<br>Sheathing material: PVC  |
|                                                                                   | 50130871 | KD U-M8-4W-V1-050 | Connection cable | Connection 1: Connector, M8, Angled, Female, 4 -pin<br>Connector, LED: No<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                                                                                                                                                                              |
|-------------------------------------------------------------------------------------|----------|-------------|-----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | 50060511 | BT 3        | Mounting device | 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                                                                                                                                                                                                                                                  |
|-------------------------------------------------------------------------------------|----------|--------------|-----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | 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 |

#### Note



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