

## Technical data sheet

### Dynamic reference diffuse sensor

Part no.: 50145970

DRT25C.3R/LT-200-M12



#### Contents

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



## Technical data

### Basic data

|                     |  |
|---------------------|--|
| Series              | 25C  |
| Operating principle | Reference teach on reference surface (plastic roller chain or plastic link conveyor) |
| Application         | Detection of bottle and can containers   |

### Special version

|                 |             |
|-----------------|-------------|
| Special version | Teach input |
|-----------------|-------------|

### Optical data

|                                  |                                      |
|----------------------------------|--------------------------------------|
| Operating range                  | Max. distance to reference surface   |
|                                  | Recommended operating range:         |
| Operating range                  | 0.08 ... 0.4 m                       |
| Operating range limit, white 90% | 0.05 ... 0.45 m                      |
| Minimum object height            | 80 mm                                |
| Light source                     | LED, Red                             |
| Wavelength                       | 645 nm                               |
| Transmitted-signal shape         | Pulsed                               |
| LED group                        | Exempt group (in acc. with EN 62471) |

### 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 ... 40 mA                            |

#### Inputs

|                        |            |
|------------------------|------------|
| Number of teach inputs | 1 Piece(s) |
|------------------------|------------|

#### Teach inputs

|                   |                                     |
|-------------------|-------------------------------------|
| Voltage type      | DC                                  |
| Switching voltage | high: $\geq 10V$<br>low: $\leq 2 V$ |
| Input resistance  | 22,000 $\Omega$                     |

#### Teach input 1

|                        |  |
|------------------------|--|
| Assignment             | Connection 1, pin 2                          |
| Function               | Keyboard lockout<br>Setting the teach levels |
| Active switching state | High   |

#### Outputs

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

#### Switching outputs

|                         |  |
|-------------------------|--|
| Voltage type            | DC   |
| Switching current, max. | 100 mA   |
| Switching voltage       | high: $\geq (U_B - 2.5V)$<br>low: $\leq 2.5 V$ |

#### Switching output 1

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

### Time behavior

|                     |         |
|---------------------|---------|
| Switching frequency | 300 Hz  |
| Response time       | 1.66 ms |
| Readiness delay     | 300 ms  |

### Interface

|      |         |
|------|---------|
| Type | IO-Link |
|------|---------|

#### IO-Link

|                          |               |
|--------------------------|---------------|
| COM mode                 | COM3          |
| Min. cycle time          | COM3 = 0.4 ms |
| Frame type               | 2.5           |
| Specification            | V1.1          |
| Device ID                | 2139          |
| SIO-mode support         | Yes           |
| Process data IN          | 8 bit         |
| Process data OUT         | 8 bit         |
| Dual-core operating mode | Yes           |

### Connection

#### Connection 1

|                      |   |
|----------------------|---|
| Function             | Signal IN<br>Signal OUT<br>Voltage supply |
| Type of connection   | Cable with connector                      |
| Cable length         | 200 mm                                    |
| Sheathing material   | PUR                                       |
| Cable color          | Black                                     |
| Number of conductors | 4 -wire                                   |
| Wire cross section   | 0.2 mm <sup>2</sup>                       |
| Thread size          | M12                                       |
| Type                 | Male                                      |
| Material             | PUR                                       |
| No. of pins          | 4 -pin                                    |
| Encoding             | A-coded                                   |

### Mechanical data

|                            |  |
|----------------------------|--|
| Dimension (W x H x L)      | 15 mm x 42.7 mm x 30 mm  |
| Housing material           | Plastic  |
| Plastic housing            | ABS  |
| Lens cover material        | Plastic  |
| Net weight                 | 33 g   |
| Housing color              | Red  |
| Type of fastening          | Through-hole mounting with M4 thread<br>Via optional mounting device |
| 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 | Teach-in on reference surface |

### Environmental data

|                                |  |
|--------------------------------|--|
| Ambient temperature, operation | -10 ... 50 °C, Temperature compensation $\pm 15^\circ C$ |
| Ambient temperature, storage   | -40 ... 70 °C  |

## Technical data

### Certifications

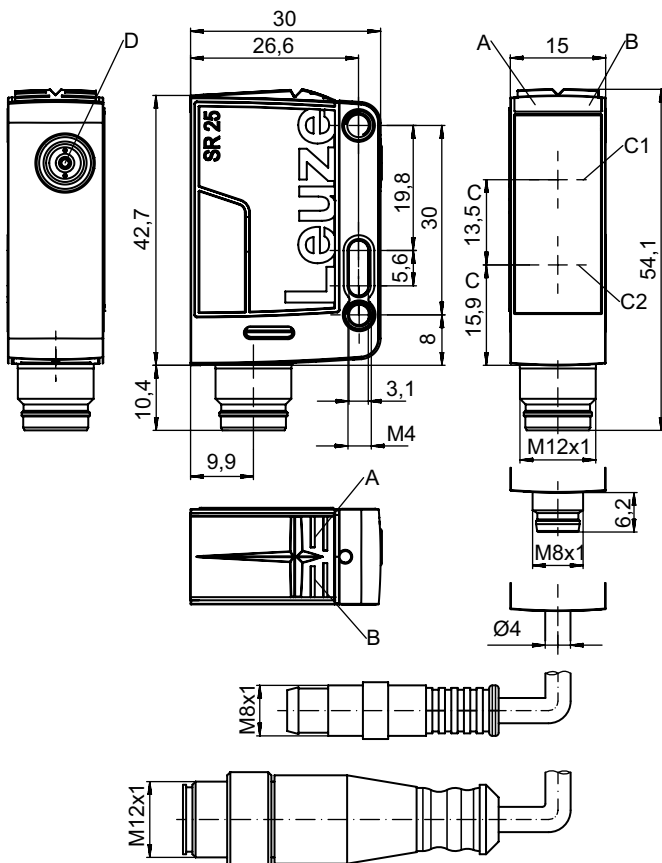
|                      |               |
|----------------------|---------------|
| Degree of protection | IP 67         |
|                      | IP 69K        |
| Protection class     | III           |
| Certifications       | c UL US       |
| Standards applied    | IEC 60947-5-2 |

### Classification

|                       |          |
|-----------------------|----------|
| Customs tariff number | 85365019 |
| ECLASS 5.1.4          | 27270903 |
| ECLASS 8.0            | 27270903 |
| ECLASS 9.0            | 27270903 |
| ECLASS 10.0           | 27270903 |
| ECLASS 11.0           | 27270903 |
| ECLASS 12.0           | 27270903 |
| ECLASS 13.0           | 27270903 |
| ETIM 5.0              | EC001821 |
| ETIM 6.0              | EC001821 |
| ETIM 7.0              | EC001821 |
| ETIM 8.0              | EC001821 |

## Dimensioned drawings

All dimensions in millimeters



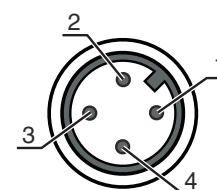
- A Green LED
- B Yellow LED
- C Optical axis
- C1 Receiver
- C2 Transmitter
- D Range adjustment

## Electrical connection

### Connection 1

|                      |   |
|----------------------|---|
| Function             | Signal IN<br>Signal OUT<br>Voltage supply |
| Type of connection   | Cable with connector                      |
| Cable length         | 200 mm                                    |
| Sheathing material   | PUR                                       |
| Cable color          | Black                                     |
| Number of conductors | 4 -wire                                   |
| Wire cross section   | 0.2 mm <sup>2</sup>                       |
| Thread size          | M12                                       |
| Type                 | Male                                      |
| Material             | PUR                                       |
| No. of pins          | 4 -pin                                    |
| Encoding             | A-coded                                   |

| Pin | Pin assignment  |
|-----|-----------------|
| 1   | V+              |
| 2   | Teach-in        |
| 3   | GND             |
| 4   | IO-Link / OUT 1 |



## Operation and display

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

## Part number code

Part designation: AAA25C d EE-f.GGH/IJ-K

|               |   |
|---------------|---|
| <b>AAA25C</b> | <b>Operating principle / construction</b><br>HT25C: Diffuse reflection sensor with background suppression<br>PRK25C: Retro-reflective photoelectric sensor with polarization filter<br>LS25C: Throughbeam photoelectric sensor transmitter<br>LE25C: Throughbeam photoelectric sensor receiver<br>DRT25C: Dynamic reference diffuse sensor  |
| <b>d</b>      | <b>Light type</b><br>n/a: red light<br>l: infrared light  |
| <b>EE</b>     | <b>Light source</b><br>n/a: LED<br>L1: laser class 1<br>L2: laser class 2   |
| <b>f</b>      | <b>Preset range (optional)</b><br>n/a: operating range acc. to data sheet<br>xxxF: Preset range [mm]  |
| <b>GG</b>     | <b>Equipment</b><br>A: Autocollimation principle (single lens)<br>S: small light spot<br>D: Detection of stretch-wrapped objects<br>X: extended model<br>HF: Suppression of HF illumination (LED)<br>XL: Extra long 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>F: Foreground suppression<br>R: greater operating range<br>SL: Slit diaphragm |

## Part number code

|          |   |
|----------|---|
| <b>H</b> | <b>Operating range adjustment</b><br>1: 270° potentiometer<br>2: multiturn potentiometer<br>3: teach-in via button<br>R: greater operating range  |
| <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>X: pin not used<br>8: activation input (activation with high signal)<br>L: IO-Link interface (SIO mode: PNP light switching, NPN 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 |
| <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>W: warning output<br>X: pin not used<br>6: push-pull switching output, PNP light switching, NPN dark switching<br>T: teach-in via cable<br>G: Push-pull switching output, PNP dark switching, NPN light switching<br>8: activation input (activation with high signal)                             |
| <b>K</b> | <b>Electrical connection</b><br>n/a: cable, standard length 2000 mm, 4-wire<br>200-M12: cable, length 200 mm with M12 connector, 4-pin, axial (plug)<br>M8: M8 connector, 4-pin (plug)<br>M12: M12 connector, 4-pin (plug)<br>200-M8: cable, length 200 mm with M8 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!



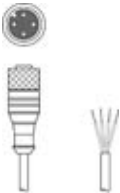

- ⌘ This product is not a safety sensor and is not intended as personnel protection.
- ⌘ The product may only be put into operation by competent persons.
- ⌘ Only use the product in accordance with its intended use.

## Further information


- Light source: Average life expectancy 100,000 h at an ambient temperature of 25 °C

## Accessories





### Connection technology - Connection cables

|   | Part no. | Designation        | Article          | Description  |
|---|----------|--------------------|------------------|--|
|  | 50130652 | KD U-M12-4A-V1-050 | Connection cable | Connection 1: Connector, M12, Axial, Female, A-coded, 4 -pin<br>Connector, LED: No<br>Connection 2: Open end<br>Shielded: No<br>Cable length: 5.000 mm<br>Sheathing material: PVC  |
|  | 50130690 | KD U-M12-4W-V1-050 | Connection cable | Connection 1: Connector, M12, Angled, Female, A-coded, 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   |
|--|----------|-------------|------------------|---|
|  | 50118543 | BT 300M.5   | Mounting bracket | Design of mounting device: Angle, L-shape<br>Fastening, at system: Through-hole mounting<br>Mounting bracket, at device: Screw type, Suited for M4 screws<br>Type of mounting device: Adjustable<br>Material: Stainless steel |

### 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   |
|  | 50117252 | BTU 300M-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 M4 screws<br>Type of mounting device: Clampable, Adjustable, Turning, 360°<br>Material: Metal |
|  | 50142207 | BTU 300M-D12-90 | Rod mounting    | 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 M4 screws<br>Type of mounting device: Clampable, Adjustable, Turning, 360°<br>Material: Metal |
|  | 50142208 | BTU D12M-L-200  | Rod             | Design of mounting device: Rod<br>Fastening, at system: Clampable<br>Mounting bracket, at device: Clampable<br>Material: Metal   |

## Accessories

### Note



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