

## Technical data sheet

### Dynamic reference diffuse sensor

Part no.: 50141901

DRT25C.3/LT-M12



Figure can vary

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## Technical data

### Basic data

|                     |                               |
|---------------------|-------------------------------|
| Series              | 25C                           |
| Operating principle | Reference teach on background |

### Special version

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

### Optical data

|                          |                                      |
|--------------------------|--------------------------------------|
| Operating range          | Max. distance to reference surface   |
| Operating range          | 0.05 ... 0.2 m                       |
| Adjustment range         | 50 ... 200 mm                        |
| Light source             | LED, Red                             |
| LED light wavelength     | 645 nm                               |
| Transmitted-signal shape | Pulsed                               |
| LED group                | Exempt group (in acc. with EN 62471) |

### Electrical data

|                    |                              |
|--------------------|------------------------------|
| Protective circuit | Polarity reversal protection |
|                    | 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: $\geq 10V$ |
|                   | Low: $\leq 2V$   |
| Input resistance  | 22,000 $\Omega$  |

### Teach input 1

|                        |                          |
|------------------------|--------------------------|
| Assignment             | Connection 1, pin 2      |
| Function               | Keyboard lockout         |
|                        | 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: $\geq (U_B - 2.5V)$ |
|                         | low: $\leq 2.5V$          |

### Switching output 1

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

### Timing

|                     |                                 |
|---------------------|---------------------------------|
| Switching frequency | 750 Hz, (Teach level 1: 500 Hz) |
| Response time       | 0.66 ms                         |
| Readiness delay     | 300 ms                          |

### Interface

|                          |               |
|--------------------------|---------------|
| Type                     | IO-Link       |
| IO-Link                  |               |
| COM mode                 | COM3          |
| Frame type               | 2.5           |
| Specification            | V1.1          |
| Device ID                | 2142          |
| SIO-mode support         | Yes           |
| Process data IN          | 8 bit         |
| Process data OUT         | 8 bit         |
| Dual-core operating mode | No            |
| Min. cycle time          | COM3 = 0.4 ms |

### Connection

#### Connection 1

|                    |                |
|--------------------|----------------|
| Function           | Signal IN      |
|                    | Signal OUT     |
|                    | Voltage supply |
| Type of connection | Connector      |
| 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, ABS                         |
| Lens cover material        | Plastic                              |
| Net weight                 | 22 g                                 |
| Housing color              | Red                                  |
| Type of fastening          | Through-hole mounting with M4 thread |
|                            | 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 $\pm 15^\circ\text{C}$ |
| Ambient temperature, storage   | -40 ... 70 °C                                                  |

### Certifications

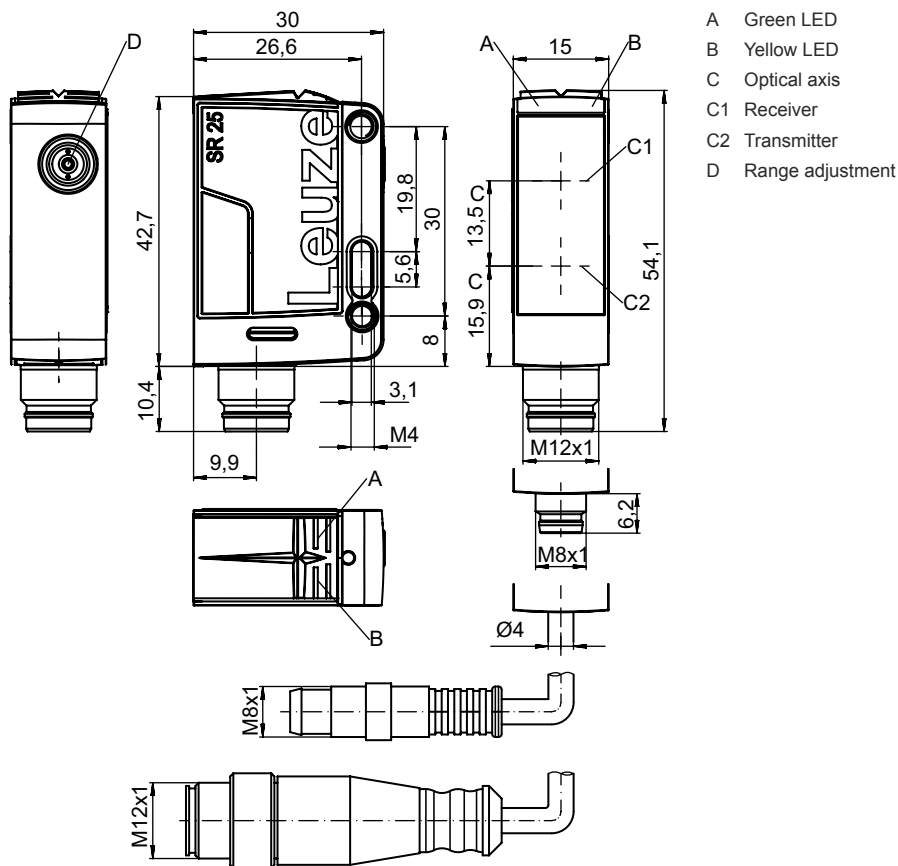
|                      |               |
|----------------------|---------------|
| Degree of protection | IP 67         |
|                      | IP 69K        |
| Protection class     | III           |
| Certifications       | c UL US       |
| Standards applied    | IEC 60947-5-2 |

## Technical data

|                       |          |
|-----------------------|----------|
| 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



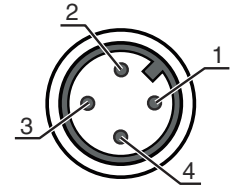
## Electrical connection

### Connection 1

|                    |                |
|--------------------|----------------|
| Function           | Signal IN      |
|                    | Signal OUT     |
|                    | Voltage supply |
| Type of connection | Connector      |
| Thread size        | M12            |
| Type               | Male           |
| Material           | PUR            |
| No. of pins        | 4 -pin         |
| Encoding           | A-coded        |

## Electrical connection

| 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>I: 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                                                                                                                                      |
| <b>H</b>      | <b>Operating range adjustment</b><br>1: 270° potentiometer<br>2: multiturn potentiometer<br>3: teach-in via button                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <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                                                                                  |

## Part number code

|          |                                                                                                                                                                                                                                                                                                   |
|----------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <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.

### 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)

## 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>Connection 2: Open end<br>Shielded: No<br>Cable length: 5,000 mm<br>Sheathing material: PVC |

## Accessories

|                                                                                  | Part no. | Designation        | Article          | Description                                                                                                                                                  |
|----------------------------------------------------------------------------------|----------|--------------------|------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | 50130690 | KD U-M12-4W-V1-050 | Connection cable | Connection 1: Connector, M12, Angled, Female, A-coded, 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                                                                                                                                                                                                                   |
|-----------------------------------------------------------------------------------|----------|-------------|------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | 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                                                                                                                               |

### Note



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