

## Technical data sheet

### Dynamic reference diffuse sensor

Part no.: 50153568

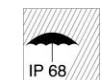
DRT35C.3/4T-200-M12



For illustration purposes only

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## Technical data

### Basic data

|                     |                               |
|---------------------|-------------------------------|
| Series              | 35C                           |
| Operating principle | Reference teach on background |

### Special version

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

### Optical data

|                          |                                                     |
|--------------------------|-----------------------------------------------------|
| Operating range          | 0.05 ... 0.15 m, Max. distance to reference surface |
| Adjustment range         | 50 ... 150 mm                                       |
| Light source             | LED, Red                                            |
| Wavelength               | 640 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

|                   |                                     |
|-------------------|-------------------------------------|
| Type              | Teach input                         |
| 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

|                         |                                                |
|-------------------------|------------------------------------------------|
| Type                    | Digital switching output                       |
| 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, PNP     |
| Switching principle | Light switching     |

### Time behavior

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

### Connection

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

### Connection 1

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

### Mechanical data

|                                 |                                                                          |
|---------------------------------|--------------------------------------------------------------------------|
| Dimension (W x H x L)           | 18.8 mm x 55.3 mm x 32.4 mm                                              |
| Housing material                | Stainless steel                                                          |
| Material of operational control | Plastic (POM Hostaform C9021, copoly-ester Tritan TX1001), non-diffusive |
| Housing roughness               | $Ra \leq 0,8$ , Typical value for the stainless steel housing            |
| Stainless steel housing         | AISI 316L, DIN X2CrNiMo17132, W. No1.4404                                |
| Lens cover material             | Plastic (PMMA+) with scratch-resistant Indium protective coating         |
| Net weight                      | 120 g                                                                    |
| Housing color                   | Silver                                                                   |
| Type of fastening               | Through-hole mounting<br>Via optional mounting device                    |
| Compatibility of materials      | CleanProof+<br>ECOLAB<br>Johnson Diversey                                |

### 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 | -40 ... 60 °C, (70 °C $\leq 15min$ ) |
| Ambient temperature, storage   | -40 ... 70 °C                        |

### Certifications

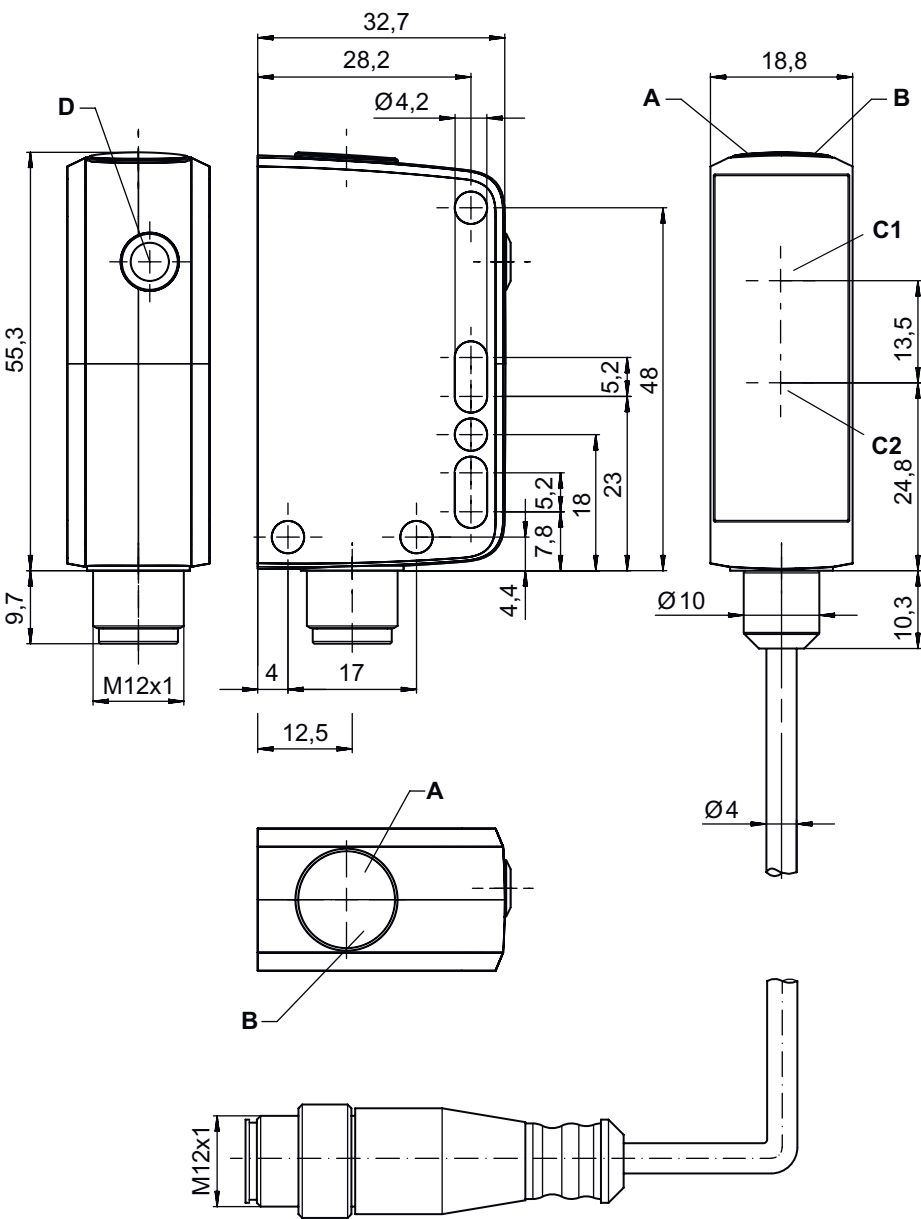
|                      |                          |
|----------------------|--------------------------|
| Degree of protection | IP 67<br>IP 68<br>IP 69K |
| Protection class     | III                      |
| Approvals            | c UL US                  |
| Standards applied    | IEC 60947-5-2            |

Technical data

|                       |          |
|-----------------------|----------|
| 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 |
| ECLASS 14.0           | 27270903 |
| ECLASS 15.0           | 27270903 |
| ETIM 5.0              | EC001821 |
| ETIM 6.0              | EC001821 |
| ETIM 7.0              | EC001821 |
| ETIM 8.0              | EC001821 |
| ETIM 9.0              | EC001821 |
| ETIM 10.0             | EC001821 |

Dimensioned drawings

All dimensions in millimeters



- A Green LED
- B Yellow LED
- C1 Optical axis (receiver)
- C2 Optical axis (transmitter)
- D Range adjustment

Electrical connection

Connection 1

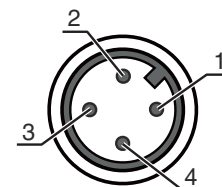
|                    |                      |
|--------------------|----------------------|
| Function           | Signal IN            |
|                    | Signal OUT           |
|                    | Voltage supply       |
| Type of connection | Cable with connector |
| Cable length       | 200 mm               |
| Sheathing material | PVC                  |
| Cable color        | Black                |

## Electrical connection

### Connection 1

|                    |                 |
|--------------------|-----------------|
| Wire cross section | 0.2 mm²         |
| Thread size        | M12             |
| Type               | Male            |
| Material           | Stainless steel |
| No. of pins        | 4 -pin          |
| Encoding           | A-coded         |

| Pin | Pin assignment |
|-----|----------------|
| 1   | V+             |
| 2   | Teach-in       |
| 3   | GND            |
| 4   | 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: **AAA35C d EE.GGH/IJ-K**

|               |                                                                                                                                                                                                                                                                                                                                                                                                             |
|---------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>AAA35C</b> | <b>Operating principle</b><br>LS35C: Throughbeam photoelectric sensor transmitter<br>LE35C: Throughbeam photoelectric sensor receiver<br>PRK35C: Retro-reflective photoelectric sensor with polarization filter<br>HT35C: Diffuse reflection sensor with background suppression<br>DRT35C: 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>PP: Power PinPoint® LED<br>L1: laser class 1                                                                                                                                                                                                                                                                                                                             |
| <b>GG</b>     | <b>Equipment</b><br>A: Autocollimation principle (single lens)<br>D: Detection of stretch-wrapped objects<br>X: extended model<br>XL: Extra long light spot<br>TT: autocollimation principle (single lens) for highly transparent bottles with tracking<br>R: greater operating range<br>XXR: super power transmitter                                                                                       |
| <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>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>4: PNP transistor output, light switching<br>6: push-pull switching output, PNP light switching, NPN dark switching<br>1: IO-Link / light switching (NPN) / dark switching (PNP) |

## Part number code

|   |                                                                                                                                                                                                                                                                                                                   |
|---|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| J | <b>Switching output / function OUT 2/IN: pin 2 or white conductor</b><br>T: teach-in via cable<br>G: Push-pull switching output, PNP dark switching, NPN light switching<br>X: pin not used<br>P: PNP transistor output, dark switching<br>6: push-pull switching output, PNP light switching, NPN dark switching |
|---|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

|   |                                                                                                                                                                                          |
|---|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| K | <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>M12: M12 connector, 4-pin (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

- Ambient temperature, operation: +70 °C permissible only briefly (≤ 15min)
- IP 69K only in combination with connector
- Light source: Average life expectancy 100,000h at an ambient temperature of 25 °C

## Accessories

### Connection technology - Connection cables

|                                                                                     | Part no. | Designation            | Article          | Description                                                                                                                                                                       |
|-------------------------------------------------------------------------------------|----------|------------------------|------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | 50130657 | KD U-M12-4A-P1-050     | 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: PUR |
|                                                                                     | 50148349 | KD U-M12-4A-T0-020 F+B | 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: 2.000 mm<br>Sheathing material: TPE |

## Accessories

|                                                                                   | Part no. | Designation            | Article          | Description                                                                                                                                                                       |
|-----------------------------------------------------------------------------------|----------|------------------------|------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | 50148350 | KD U-M12-4A-T0-050 F+B | 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: TPE |

## 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                                                                                                                                                                                                                                                            |
|-------------------------------------------------------------------------------------|----------|----------------|-----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | 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           |
|   | 50120425 | BTU 300M.5-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: Stainless steel |

### Note



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