

## Technical data sheet

### Dynamic reference diffuse sensor

Part no.: 50150302

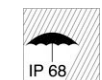
DRT35C.3R/LG-200-M12

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- Dimensioned drawings
- Electrical connection
- Operation and display
- Part number code
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For illustration purposes only



## Technical data

### Basic data

|                     |                                                                                      |
|---------------------|--------------------------------------------------------------------------------------|
| Series              | 35C                                                                                  |
| Operating principle | Reference teach on reference surface (plastic roller chain or plastic link conveyor) |

### Optical data

|                                  |                                                    |
|----------------------------------|----------------------------------------------------|
| Operating range                  | 0.08 ... 0.4 m, Max. distance to reference surface |
| Operating range limit, white 90% | 0.05 ... 0.45 m                                    |
| Minimum object height            | 80 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                            |

### 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: $\geq(U_B - 2.5V)$<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) |

### Switching output 2

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

### Time behavior

|                     |        |
|---------------------|--------|
| Switching frequency | 300 Hz |
| Response time       | 1.6 ms |
| Readiness delay     | 300 ms |

### Interface

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

### IO-Link

|                  |                      |
|------------------|----------------------|
| COM mode         | COM3                 |
| Profile          | Smart sensor profile |
| Min. cycle time  | COM3 = 0.4 ms        |
| Frame type       | 2.5                  |
| Specification    | V1.1                 |
| Device ID        | 2135                 |
| SIO-mode support | Yes                  |
| Process data IN  | 8 bit                |
| Process data OUT | 8 bit                |

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

## Technical data

### Certifications

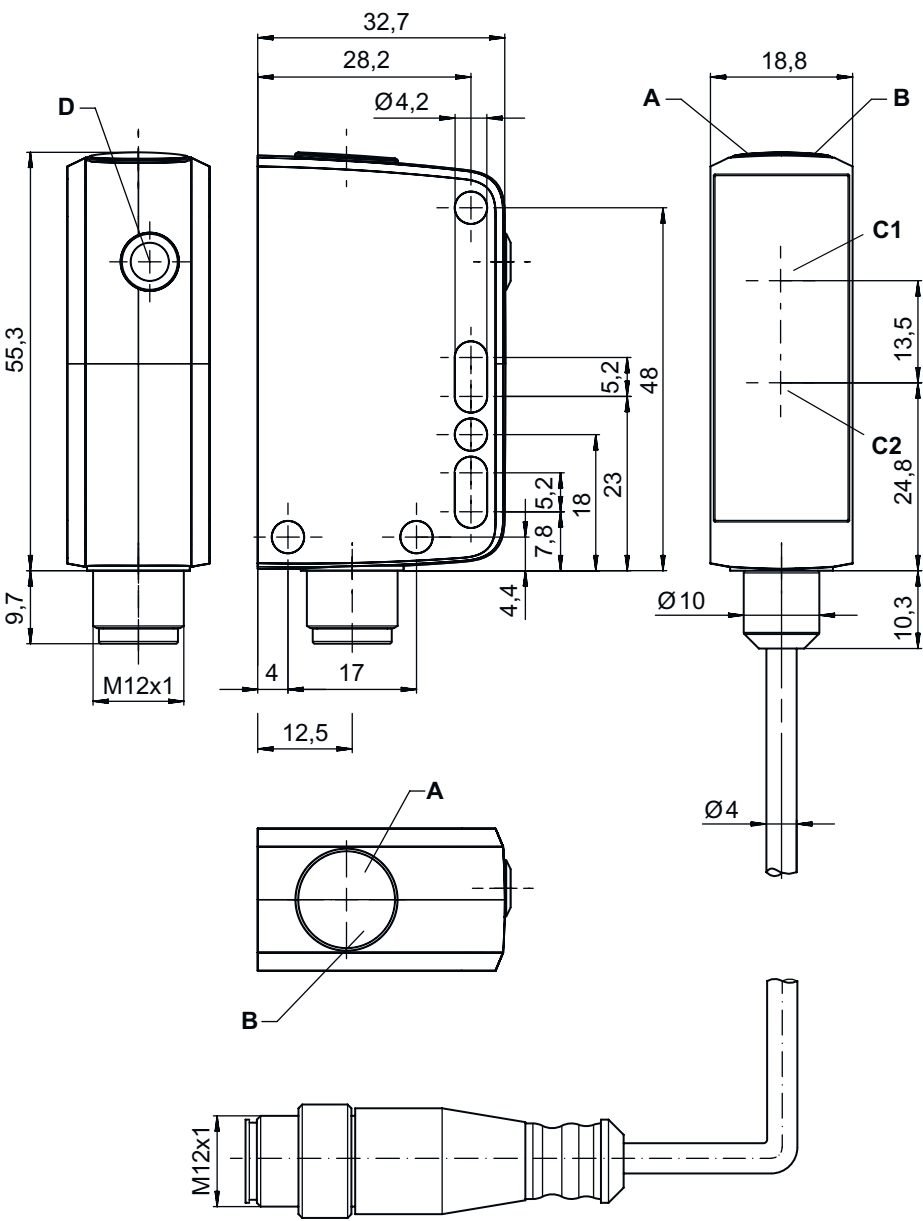
|                      |               |
|----------------------|---------------|
| Degree of protection | IP 67         |
|                      | IP 68         |
|                      | IP 69K        |
| Protection class     | III           |
| Approvals            | c UL US       |
| Standards applied    | 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 |
| 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

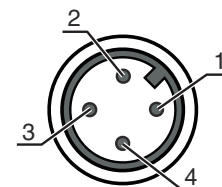
|                    |                      |
|--------------------|----------------------|
| Function           | Signal IN            |
|                    | Signal OUT           |
|                    | Voltage supply       |
| Type of connection | Cable with connector |
| Cable length       | 200 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   | OUT 2           |
| 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: **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 <a href="http://www.leuze.com">www.leuze.com</a> . |

Notes

|  Observe intended use! |                                                                                                                                                                                                                                                                             |
|---------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                        | <ul style="list-style-type: none"><li>This product is not a safety sensor and is not intended as personnel protection.</li><li>The product may only be put into operation by competent persons.</li><li>Only use the product in accordance with its intended use.</li></ul> |

Further information

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

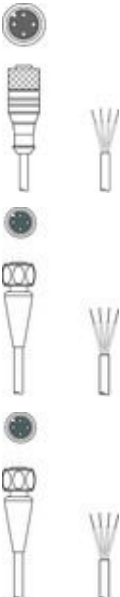
Accessories

Connection technology - Connection unit

|                                                                                    | Part no. | Designation           | Article        | Description                                                                                                                                                                                                                             |
|------------------------------------------------------------------------------------|----------|-----------------------|----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | 50144900 | MD 798i-11-82/L5-2222 | IO-Link master | Current consumption, max.: 11,000 mA<br>Interface: IO-Link, Automatic protocol detection, EtherNet IP, Modbus TCP, PROFINET<br>Connections: 12 Piece(s)<br>Sensor connections: 8 Piece(s)<br>Degree of protection: IP 67, IP 65, IP 69K |

## Accessories

### Connection technology - Connection cables

|                                                                                   | Part no. | Designation            | Article          | Description                                                                                                                                                                                                                                  |
|-----------------------------------------------------------------------------------|----------|------------------------|------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | 50130657 | KD U-M12-4A-P1-050     | Connection cable | Application: Oil and lubricant resistant<br>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 | Application: Hygienic and wet areas, Chemical resistant<br>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 |
|                                                                                   | 50148350 | KD U-M12-4A-T0-050 F+B | Connection cable | Application: Chemical resistant, Hygienic and wet areas<br>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 | Contains: 2x M4 x 25 screw, 2x M4 x 20 screw, 4x 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, Suited for M4 screws<br>Type of mounting device: Clampable, Adjustable, Turning, 360°<br>Material: Metal                               |
|  | 50120425 | BTU 300M.5-D12 | Mounting system | Contains: 2x M4 x 25 screw, 2x M4 mounting nut, 2x M4 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, Suited for M4 screws<br>Type of mounting device: Clampable, Adjustable, Turning, 360°<br>Material: Stainless steel |

Accessories

| Note                                                                             |                                                                                                                                  |
|----------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|
|  | <p>A list with all available accessories can be found on the Leuze website in the Download tab of the article detailed page.</p> |