

## Technical data sheet

# Distance diffuse sensor with background suppression

Part no.: 50148212

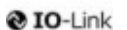
ODT55C.3/L6-M8



For illustration purposes only

### Contents

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



## Technical data

### Basic data

|                     |                                                     |
|---------------------|-----------------------------------------------------|
| Series              | 55C                                                 |
| Operating principle | Distance diffuse sensor with background suppression |

### Special version

|                 |                                 |
|-----------------|---------------------------------|
| Special version | 2 independent switching outputs |
|                 | Measurement value output        |
|                 | Wash-Down design                |

### Optical data

|                                      |                                              |
|--------------------------------------|----------------------------------------------|
| Black-white error                    | < ± 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                                       |

### Measurement data

|                                        |               |
|----------------------------------------|---------------|
| Measurement range                      | 30 ... 150 mm |
| Resolution                             | 1.0 mm        |
| Accuracy                               | -3 ... 3 mm   |
| Reproducibility (1 sigma)              | 1 ... 1.4 mm  |
| Measurement value output               | via IO-Link   |
| Optical distance measurement principle | Triangulation |

### 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 ... 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 | IO-Link / 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 |

### Interface

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

### IO-Link

|                  |                      |
|------------------|----------------------|
| COM mode         | COM3                 |
| Profile          | Smart sensor profile |
| Min. cycle time  | COM3 = 0.6 ms        |
| Frame type       | 2.V                  |
| Specification    | V1.1                 |
| Device ID        | 2210                 |
| SIO-mode support | Yes                  |

### Connection

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

### Connection 1

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

### Mechanical data

|                                 |                                                                         |
|---------------------------------|-------------------------------------------------------------------------|
| Dimension (W x H x L)           | 14 mm x 35.4 mm x 25 mm                                                 |
| Housing material                | Stainless steel                                                         |
| Material of operational control | Plastic (POM Hostaform C9021, copolyester 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                      | 42 g                                                                    |
| Housing color                   | Silver                                                                  |
| Type of fastening               | Through-hole mounting                                                   |
|                                 | Via optional mounting device                                            |
| Compatibility of materials      | CleanProof+                                                             |
|                                 | ECOLAB                                                                  |
|                                 | Johnson Diversey                                                        |

## Operation and display

## Environmental data

## Certifications

## Classification

All dimensions in millimeters

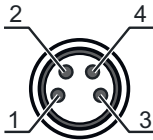


Electrical connection

Connection 1

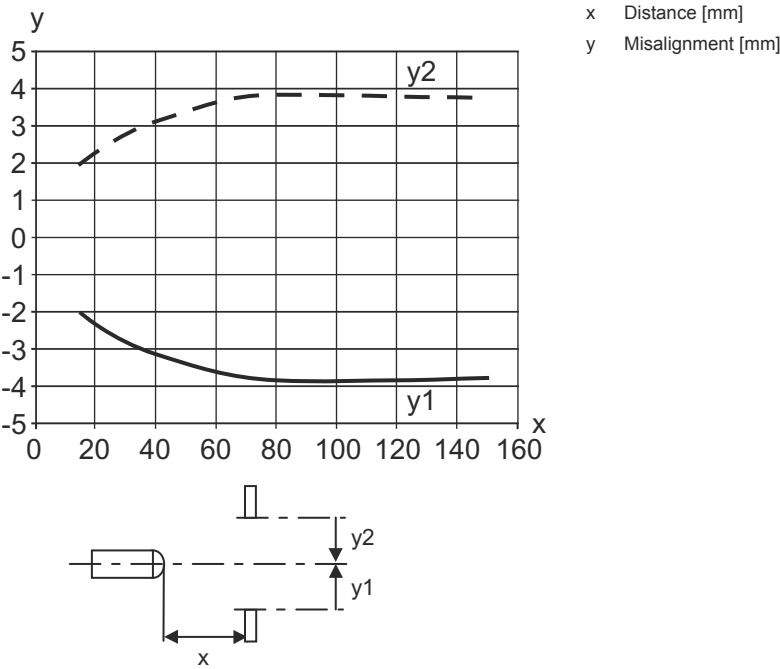
|                    |                 |
|--------------------|-----------------|
| Function           | Signal IN       |
|                    | Signal OUT      |
|                    | Voltage supply  |
|                    |                 |
| Type of connection | Connector       |
| Thread size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

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



Diagrams

Typ. response behavior (white 90 %)





## 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                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <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)<br>7: Input for sensitivity adjustment |
| <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>T: teach-in via cable<br>X: pin not used<br>8: activation input (activation with high signal)<br>9: deactivation input (deactivation with high signal)<br>7: Input for sensitivity adjustment                                                      |
| <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-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
- Ambient temperature, operation: +70 °C permissible only briefly (≤ 15min)
- Permissible operating temperature range during IO-Link operation: -10 °C to +60 °C
- IP 69K only in combination with connector

## Accessories

### Connection technology - Connection unit

|                                                                                  | Part no. | Designation           | Article        | Description                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|----------------------------------------------------------------------------------|----------|-----------------------|----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | 50144900 | MD 798i-11-82/L5-2222 | IO-Link master | Type: IO-Link master<br>Current consumption, max.: 11,000 mA<br>Switching outputs for each sensor connection: 1 Piece(s)<br>Switching output: Transistor, PNP<br>Interface: IO-Link, Automatic protocol detection, EtherNet IP, Modbus TCP, PROFINET<br>Connections: 12 Piece(s)<br>Sensor connections: 8 Piece(s)<br>Connections for voltage supply: 2 Piece(s)<br>Interface connections: 2 Piece(s)<br>Degree of protection: IP 67, IP 65, IP 69K |

### Connection technology - Connection cables

|                                                                                     | Part no. | Designation           | Article          | Description                                                                                                                                                                      |
|-------------------------------------------------------------------------------------|----------|-----------------------|------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | 50148347 | KD U-M8-4A-T0-050 F+B | Connection cable | Connection 1: Connector, M8, 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 |
|  | 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         |

## Accessories

### Mounting technology - Mounting brackets

|                                                                                   | Part no. | Designation | Article          | Description                                                                                                                                                                                                                   |
|-----------------------------------------------------------------------------------|----------|-------------|------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | 50118542 | BT 200M.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 M3 screws<br>Type of mounting device: Adjustable<br>Material: Stainless steel |
|  | 50040269 | BT 25       | 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 |
|  | 50120426 | BTU 200M.5-D12 | Mounting system | Design of mounting device: Mounting system<br>Fastening, at system: For 12 mm rod<br>Mounting bracket, at device: Screw type, Suited for M3 screws<br>Type of mounting device: Turning, 360°, Adjustable, Clampable<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.