

## Technical data sheet

### Ultrasonic sensor

Part no.: 50149537

HTU218-800/LT-M12

#### Contents

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



For illustration purposes only



Technical data

Basic data

|                     |                                                           |
|---------------------|-----------------------------------------------------------|
| Series              | 200                                                       |
| Operating principle | Diffuse reflection principle with back-ground suppression |
| Contains            | 2x M18 mounting nut                                       |

Special version

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

Characteristic parameters

|      |           |
|------|-----------|
| MTTF | 677 years |
|------|-----------|

Ultrasonic specifications

|                      |                            |
|----------------------|----------------------------|
| Operating range      | 0.08 ... 0.8 m             |
| Operating range      | Guaranteed operating range |
| Ultrasonic frequency | 200 kHz                    |
| Shape of sound lobe  | standard                   |
| Direction of beam    | Front                      |
| Opening angle        | 16 °                       |
| Adjustment range     | 80 ... 800 mm              |

Measurement data

|                               |           |
|-------------------------------|-----------|
| Resolution                    | 1.0 mm    |
| Repeatability                 | 0.15 %    |
| Reference value repeatability | End value |
| Temperature drift             | 0.2 %/K   |

Electrical data

|                    |                                                         |
|--------------------|---------------------------------------------------------|
| Protective circuit | Polarity reversal protection<br>Short circuit protected |
|--------------------|---------------------------------------------------------|

Performance data

|                               |                                 |
|-------------------------------|---------------------------------|
| Supply voltage U <sub>B</sub> | 18 ... 30 V, DC                 |
| Residual ripple               | 0 ... 10 %, From U <sub>B</sub> |
| Open-circuit current          | 0 ... 40 mA                     |
| Switching hysteresis          | 2 mm                            |

Inputs

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

Teach inputs

|                   |                         |
|-------------------|-------------------------|
| Voltage type      | DC                      |
| Switching voltage | high: ≥9V<br>low: ≤ 2 V |

Teach input 1

|                        |      |
|------------------------|------|
| Active switching state | High |
|------------------------|------|

Outputs

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

Switching outputs

|                         |            |
|-------------------------|------------|
| Voltage type            | DC         |
| Switching current, max. | 150 mA     |
| Switching voltage       | low: ≤ 2 V |

Switching output 1

|                     |                                                      |
|---------------------|------------------------------------------------------|
| Switching element   | Transistor, Push-pull                                |
| Switching principle | IO-Link / light switching (PNP)/dark switching (NPN) |

Time behavior

|                     |        |
|---------------------|--------|
| Switching frequency | 5 Hz   |
| Response time       | 100 ms |
| Readiness delay     | 300 ms |

Interface

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

IO-Link

|                  |               |
|------------------|---------------|
| COM mode         | COM2          |
| Min. cycle time  | COM2 = 2.3 ms |
| Frame type       | 2.2           |
| Specification    | V1.1          |
| Device ID        | 3068          |
| SIO-mode support | Yes           |

Connection

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

Connection 1

|                    |                                             |
|--------------------|---------------------------------------------|
| Function           | Signal OUT<br>Teach input<br>Voltage supply |
| Type of connection | Connector                                   |
| Thread size        | M12                                         |
| Type               | Male                                        |
| Material           | Metal                                       |
| No. of pins        | 4 -pin                                      |
| Encoding           | A-coded                                     |

Mechanical data

|                                |                                                        |
|--------------------------------|--------------------------------------------------------|
| Design                         | Cylindrical                                            |
| Thread size                    | M18 x 1 mm                                             |
| Dimension (Ø x L)              | 18 mm x 55 mm                                          |
| Housing material               | Metal                                                  |
| Metal housing                  | Nickel-plated brass                                    |
| Ultrasonic transducer material | Piezoceramics (contains lead zirconium titanate (PZT)) |
| Net weight                     | 30 g                                                   |
| Housing color                  | Silver                                                 |

Operation and display

|                 |            |
|-----------------|------------|
| Type of display | LED        |
| Number of LEDs  | 1 Piece(s) |

Environmental data

|                                |               |
|--------------------------------|---------------|
| Ambient temperature, operation | -25 ... 70 °C |
| Ambient temperature, storage   | -25 ... 70 °C |

Certifications

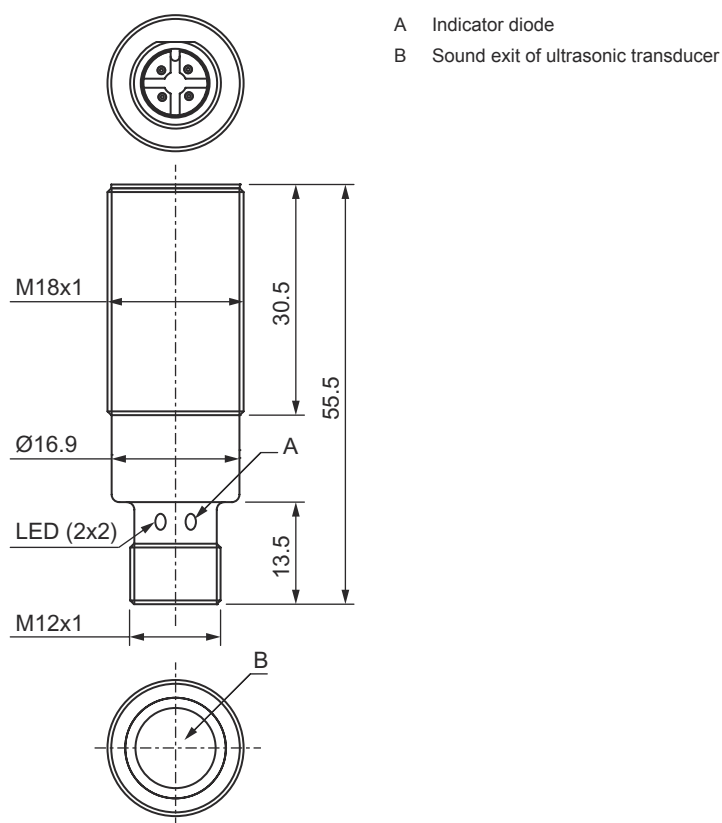
|                      |               |
|----------------------|---------------|
| Degree of protection | IP 67         |
| Protection class     | III           |
| Certifications       | c UL US       |
| Standards applied    | IEC 60947-5-2 |

## Technical data

|                       |          |
|-----------------------|----------|
| Customs tariff number | 85365019 |
| ECLASS 5.1.4          | 27272803 |
| ECLASS 8.0            | 27272803 |
| ECLASS 9.0            | 27272803 |
| ECLASS 10.0           | 27272803 |
| ECLASS 11.0           | 27272803 |
| ECLASS 12.0           | 27272803 |
| ECLASS 13.0           | 27272803 |
| ECLASS 14.0           | 27272803 |
| ETIM 5.0              | EC001849 |
| ETIM 6.0              | EC001849 |
| ETIM 7.0              | EC001849 |
| ETIM 8.0              | EC001849 |
| ETIM 9.0              | EC001849 |

## Dimensioned drawings

All dimensions in millimeters



Electrical connection

Connection 1

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

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



Diagrams

Typ. response behavior



- x Object distance [mm]
- y Sound cone width [mm]
- A Plate 200 x 200 mm
- B Rod Ø 25 mm
- C Minimum distance in mm

Operation and display

| LED | Display                  | Meaning                          |
|-----|--------------------------|----------------------------------|
| 1   | Green, continuous light  | Operational readiness            |
|     | Green, flashing          | IO-Link communication            |
|     | Yellow, continuous light | Switching output/switching state |

Part number code

Part designation: AAA2BB-xxxx/CD-EE

|      |                                                                                                                                                                                                                                                    |
|------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| AAA  | <b>Operating principle</b><br>HTU: Ultrasonic sensor, scanning principle, with background suppression<br>DMU: Ultrasonic sensor, distance measurement                                                                                              |
| 2BB  | <b>Design</b><br>208: Cylindrical with M8 thread<br>212: Cylindrical with M12 thread<br>218: Cylindrical with M18 thread<br>230: Cylindrical with M30 thread                                                                                       |
| xxxx | <b>Operating range</b><br>Operating range in millimeters                                                                                                                                                                                           |
| C    | <b>Switching output / function OUT 1/IN: Pin 4</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>L: IO-Link |
| D    | <b>Switching output / function OUT 2/IN: pin 2</b><br>T: teach-in via cable<br>A: Analog current output<br>V: Analog voltage output                                                                                                                |
| EE   | <b>Electrical connection</b><br>M8: M8 connector, 4-pin (plug)<br>M12: M12 connector, 4-pin (plug)                                                                                                                                                 |

| Note                                                                              |                                                                                                                                      |
|-----------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------|
|  | <p>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>.</p> |

Notes

|  Observe intended use! |                                                                                                                                                                                                                                  |
|-----------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                         | <p>This product is not a safety sensor and is not intended as personnel protection.</p> <p>The product may only be put into operation by competent persons.</p> <p>Only use the product in accordance with its intended use.</p> |

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 |

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                                                                                                                                                                                                                  |
|------------------------------------------------------------------------------------|----------|-------------|------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | 50113548 | BT D18M.5   | Mounting bracket | Diameter, inner: 18 mm<br>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: Stainless steel |

Mounting technology - Rod mounts

|                                                                                    | Part no. | Designation | Article | Description                                                                                                                                                                                                         |
|------------------------------------------------------------------------------------|----------|-------------|---------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | 50111501 | MC 018K     | Clamp   | Diameter, inner: 18 mm<br>Design of mounting device: Mounting clamp<br>Fastening, at system: Through-hole mounting<br>Mounting bracket, at device: Clampable<br>Type of mounting device: Rigid<br>Material: Plastic |

General

|                                                                                     | Part no. | Designation | Article              | Description                                                                                                          |
|-------------------------------------------------------------------------------------|----------|-------------|----------------------|----------------------------------------------------------------------------------------------------------------------|
|  | 50149785 | UA US90-M18 | Deflector attachment | Type of article: Deflector attachment for ultrasonic sensors<br>Thread size: M18<br>Diameter: 18 mm<br>Length: 30 mm |

Note



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