

## Technical data sheet

### Ultrasonic sensor

Part no.: 50149535

HTU212-400/2T-M12

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For illustration purposes only



# Technical data

## Basic data

Series	200
Operating principle	Diffuse reflection principle with background suppression
Contains	2x M12 mounting nut

## Special version

Special version	Teach input
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## Characteristic parameters

MTTF	575 years
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## Ultrasonic specifications

Operating range	0.04 ... 0.4 m
Operating range	Guaranteed operating range
Ultrasonic frequency	300 kHz
Shape of sound lobe	standard
Direction of beam	Front
Opening angle	20 °
Adjustment range	40 ... 400 mm

## Measurement data

Resolution	1.0 mm
Repeatability	0.4 %
Reference value repeatability	End value
Temperature drift, relative	0.2 %/K

## Electrical data

Protective circuit	Polarity reversal protection Short circuit protected
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### Performance data

Supply voltage $U_B$	18 ... 30 V, DC
Residual ripple	0 ... 10 %, From $U_B$
Open-circuit current	0 ... 40 mA
Switching hysteresis [mm]	2 mm

### Inputs

Number of teach inputs	1 Piece(s)
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### Teach inputs

Voltage type	DC
Switching voltage	high: $\geq 9V$ low: $\leq 2 V$

### Teach input 1

Active switching state	High
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### Outputs

Number of digital switching outputs	1 Piece(s)
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### Switching outputs

Voltage type	DC
Switching current, max.	150 mA

### Switching output 1

Switching element	Transistor, NPN
Switching principle	Light switching

## Time behavior

Switching frequency	10 Hz
Response time	50 ms
Readiness delay	300 ms

## Connection

Number of connections	1 Piece(s)
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### 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

## Mechanical data

Design	Cylindrical
Thread size	M12 x 1 mm
Dimension ( $\varnothing$ x L)	12 mm x 65 mm
Housing material	Metal
Metal housing	Nickel-plated brass
Ultrasonic transducer material	Piezoceramics (contains lead zirconium titanate (PZT))
Net weight	17 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

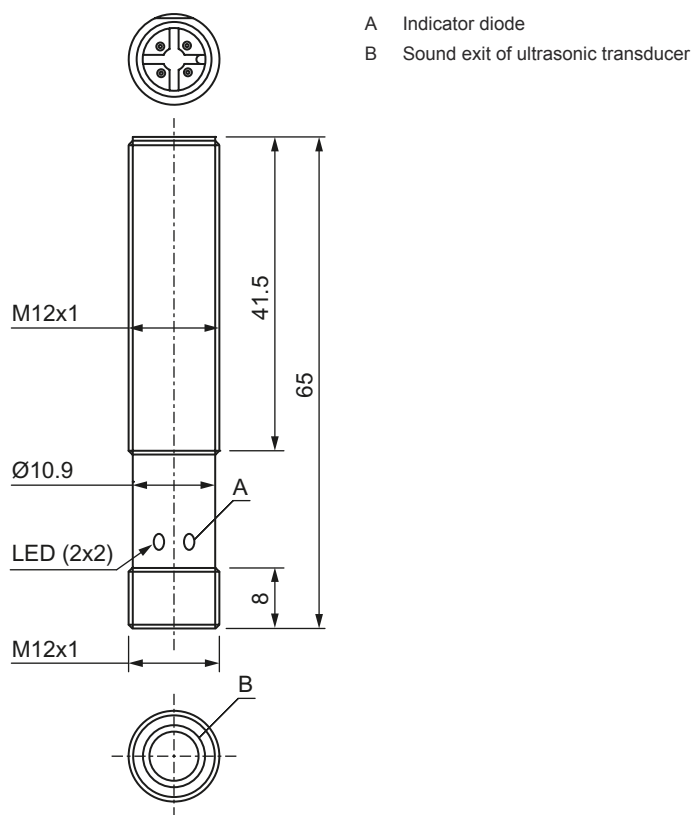
Degree of protection	IP 67
Protection class	III
Certifications	c UL US
Standards applied	IEC 60947-5-2

## Classification

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
ETIM 5.0	EC001849
ETIM 6.0	EC001849
ETIM 7.0	EC001849
ETIM 8.0	EC001849

# Dimensioned drawings

All dimensions in millimeters



- A Indicator diode
- B Sound exit of ultrasonic transducer

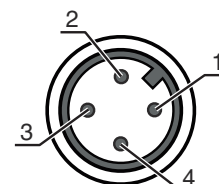
## Electrical connection

### Connection 1

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

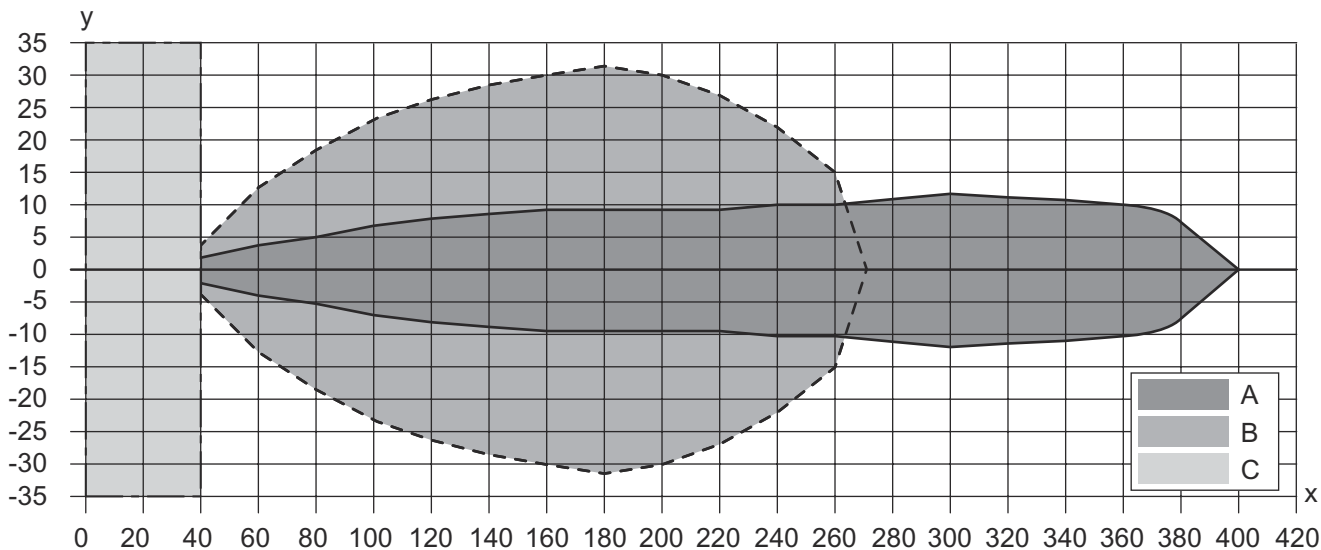
### Pin Pin assignment

Pin	Pin assignment
1	V+
2	IN 1
3	GND
4	OUT 1



# Diagrams

## Typ. response behavior



- x Object distance [mm]
- y Sound cone width [mm]
- A Plate 200 x 200 mm
- B Rod Ø 10 mm
- C Minimum distance in mm

## Operation and display

LED	Display	Meaning
1	Green, continuous light	Operational readiness
	Yellow, continuous light	Switching output/switching state

## Part number code


Part designation: **AAA2BB-xxxx/CD-EE**

<b>AAA</b>	<p><b>Operating principle</b>                      HTU: Ultrasonic sensor, scanning principle, with background suppression                      DMU: Ultrasonic sensor, distance measurement</p>
<b>2BB</b>	<p><b>Design</b>                      208: Cylindrical with M8 thread                      212: Cylindrical with M12 thread                      218: Cylindrical with M18 thread                      230: Cylindrical with M30 thread</p>
<b>xxxx</b>	<p><b>Operating range</b>                      Operating range in millimeters</p>
<b>C</b>	<p><b>Switching output / function OUT 1/IN: Pin 4</b>                      2: NPN transistor output, light switching                      N: NPN transistor output, dark switching                      4: PNP transistor output, light switching                      P: PNP transistor output, dark switching                      L: IO-Link</p>

## Part number code


<b>D</b>	<b>Switching output / function OUT 2/IN: pin 2</b> T: teach-in via cable A: Analog current output V: Analog voltage output
<b>EE</b>	<b>Electrical connection</b> M8: M8 connector, 4-pin (plug) 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.

## 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 Connector, LED: No Connection 2: Open end Shielded: No Cable length: 5.000 mm Sheathing material: PVC
	50130690	KD U-M12-4W-V1-050	Connection cable	Connection 1: Connector, M12, Angled, Female, A-coded, 4 -pin Connector, LED: No Connection 2: Open end Shielded: No Cable length: 5.000 mm Sheathing material: PVC


### Mounting technology - Mounting brackets

	Part no.	Designation	Article	Description
	50113549	BT D12M.5	Mounting bracket	Diameter, inner: 12 mm Design of mounting device: Angle, L-shape Fastening, at system: Through-hole mounting Mounting bracket, at device: Screw type Type of mounting device: Rigid Material: Stainless steel

## Accessories

### Mounting technology - Rod mounts

	Part no.	Designation	Article	Description
	50111499	MC 012K	Clamp	Diameter, inner: 12 mm Design of mounting device: Mounting clamp Fastening, at system: Through-hole mounting Mounting bracket, at device: Clampable Type of mounting device: Rigid Material: Plastic

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