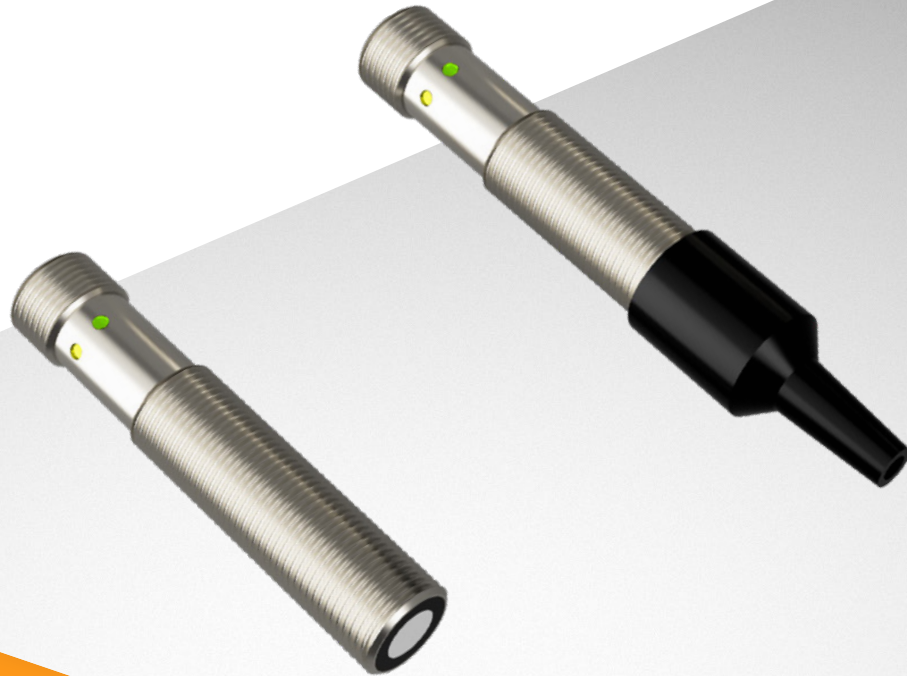


# ULTRASONIC SENSORS

Links to further documents for this series:  
[Installation guide](#)



## UFA2-200 SERIES

### Key-Features:

- Measurement is independent of the targets material, surface, colour or transparency
- Teachable measurement range of 20...200 mm
- Linearity <math><0.4\%</math> of full scale
- Analog or switching output
- Operating temperature -25...+70 °C
- Protection class IP67
- Focus beam: no blind range, very narrow sound beam
- Radial beam: reduced blind range, radial measurement

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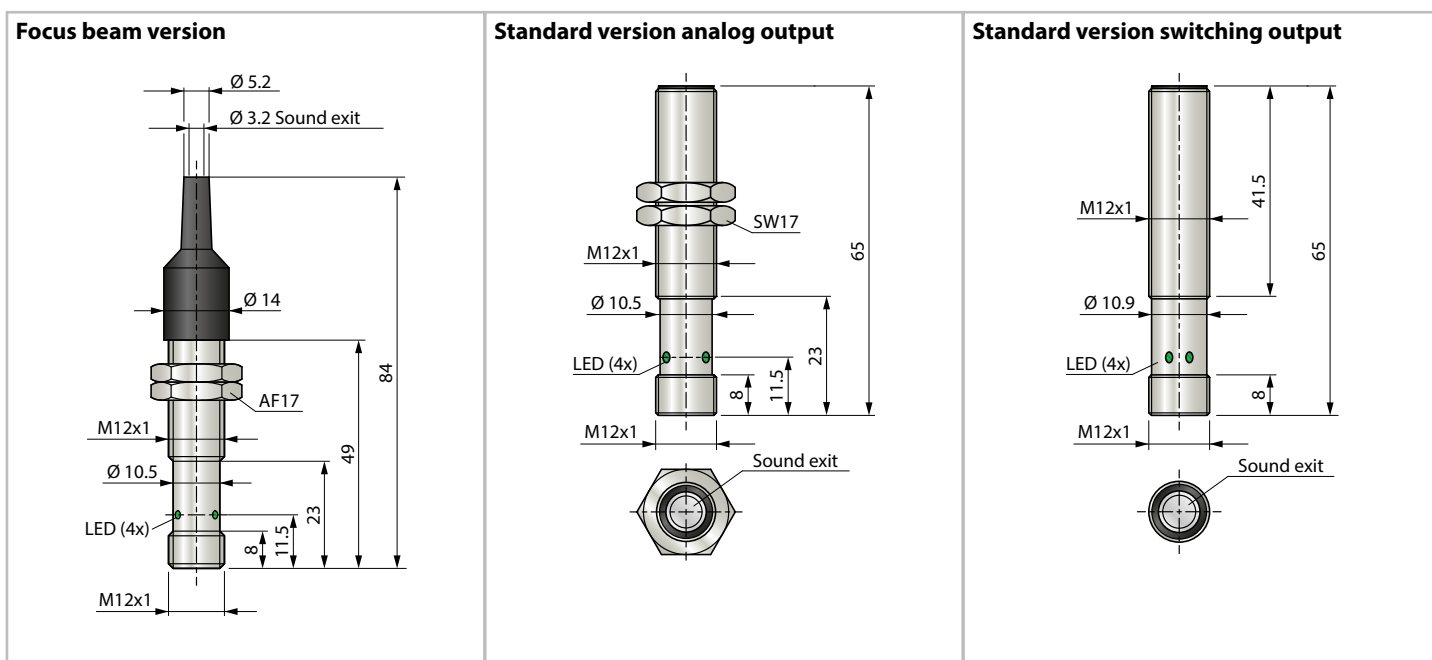
## TECHNICAL DATA

Output type	Version	Analog output		Switching output	
		Focus beam	Standard	Focus beam	Standard
Measurement range	[mm]	0...150 <sup>1)</sup>	20...200 <sup>2)</sup>	0...150 <sup>1)</sup>	20...200 <sup>2)</sup>
Linearity max.	[%]	<0.4		-	
Repeatability	[mm]			<0.5	
Resolution	[mm]	1		-	
Sound frequency	[kHz]			400	
Readiness delay	[ms]			<300	
Analog output		0...10 V / 4...20 mA (switchable)		-	
Load resistance	[kΩ]	Voltage: >10 / Current: <0,4		-	
Measurement frequency	[Hz]	400		-	
Switching output		-		Push pull, NPN/PNP, NO/NC, switchable	
Switching current max.	[mA]	-		150	
Switching hysteresis	[mm]	-		2	
Switching frequency	[kHz]	-		20	
Supply	[VDC]			18...30	
No-load current at 24 VDC	[mA]			40	
Voltage drop	[V]			2	
Inverse-polarity protection		Yes (not pin 2)		Yes	
Short circuit protection				Yes	
Isolation voltage	[V]			500	
Shock / vibration resistance				30 g, 11 ms / 10...55 Hz, 1 mm	
Connection				Connector M12, 4 pins	
Protection class				IP67	
Operating temperature				-25...+70 °C	
Temperature drift	[%/K]			0.2 (compensated)	
Mounting distance min. (sensor to sensor)	[mm]			60	
Housing				Nickel-plated brass, epoxy resin, PUR	
Weight	[g]			30	

<sup>1)</sup> based on a standardized measurement plate >20x20 mm

<sup>2)</sup> based on a standardized measurement plate >100x100 mm

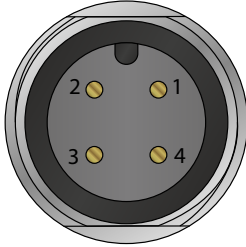
## TECHNICAL DRAWINGS



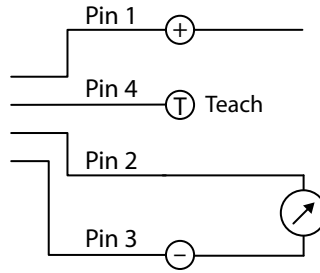
## ELECTRICAL CONNECTION

Pin	Analog output	Switching output
1	+V	+V
2	Analog output	Teach
3	GND	GND
4	Teach	Switching output

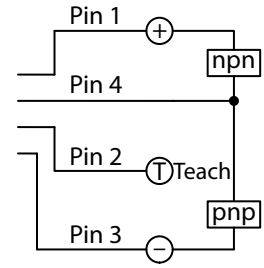
connector M12, male



circuit diagram analog output

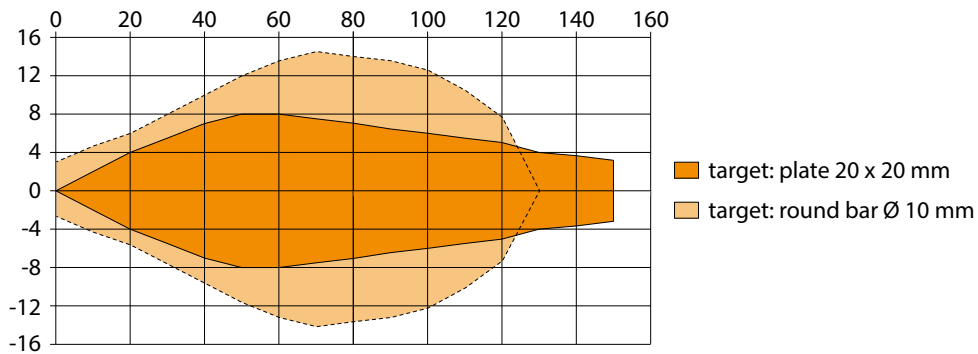


circuit diagram switching output

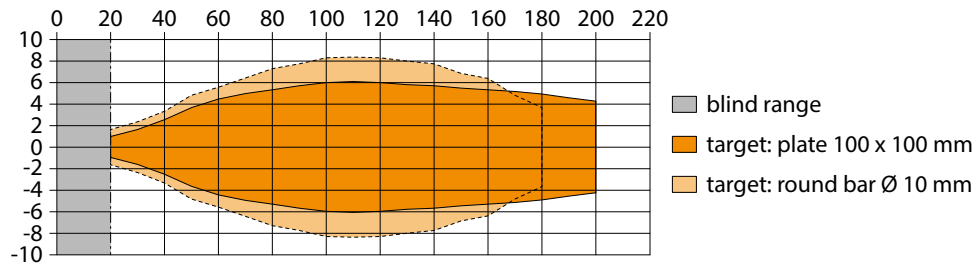


## DETECTION BEAMS

Focus beam version



Standard version



## FOCUS BEAM VERSION

The ultrasonic sensors of the UFA2-FB version are equipped with a focusing device made of glass fibre reinforced polypropylene, which makes the sound beam particularly narrow. They are therefore suitable for looking into narrow openings in the close range from 0 mm to 150 mm. A typical application is level measurement in small tubes and containers.

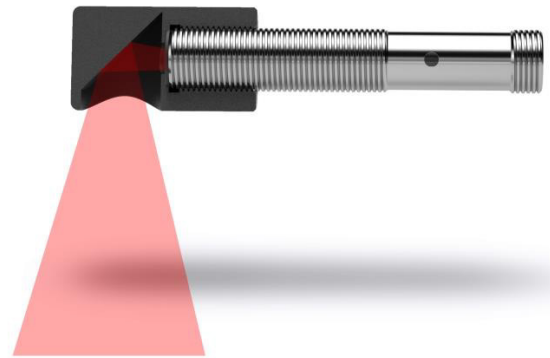
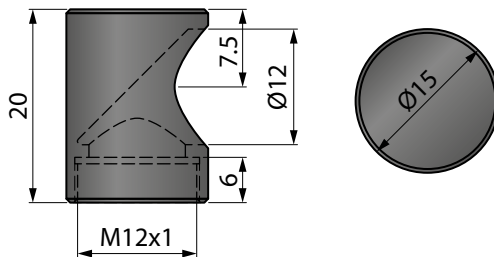
With a small distance between the sensor and the tube and depending on the measuring height, levels can be measured in tubes with a diameter of a few millimetres. In very narrow conditions, only an experiment can clarify whether a measurement is possible.



## ACCESSORY RADIAL BEAM CAP

By means of the radial beam attachment UFA2-RB-M12 an axial measuring sensor becomes a radial measuring sensor. The UFA2-RB-M12 can be used for the standard version of the UFA2 with switching output or analog output.

By using the UFA2-RB-M12, the blind range is reduced by approx. 14 mm and the measuring range is deflected by 90°.



## ORDER CODE

UFA2 - [ ] - [ ] - SA12

### Version and measurement range

Standard, range 20...200 mm  
Focus beam, range 0...150 mm

200  
FB-150

A  
PN

### Output type

Analog output 0...10 V / 4...20 mA  
Switching output

## ACCESSORIES

### Cable with mating connector M12 (female), 4 poles, shielded, IP67

K4P2M-S-M12	2 m, connector straight
K4P5M-S-M12	5 m, connector straight
K4P10M-S-M12	10 m, connector straight
K4P2M-SW-M12	2 m, connector angular
K4P5M-SW-M12	5 m, connector angular
K4P10M-SW-M12	10 m, connector angular

### Mating connector M12 (female) for self assembly, 4 poles, IP67

D4-G-M12-S	connector straight
D4-W-M12-S	connector angular

### Digital displays for sensors with analog output, 2 channel

WAY-AX-S	touch screen, supply: 18...30 VDC
WAY-AX-AC	touch screen, supply: 115...230 VAC

### Deflection cap radial beam

UFA2-RB-M12	Deflection of 90°, blind range shortened
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For more information and options please refer to the [WAY-AX data sheet](#).

Subject to change without prior notice.

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