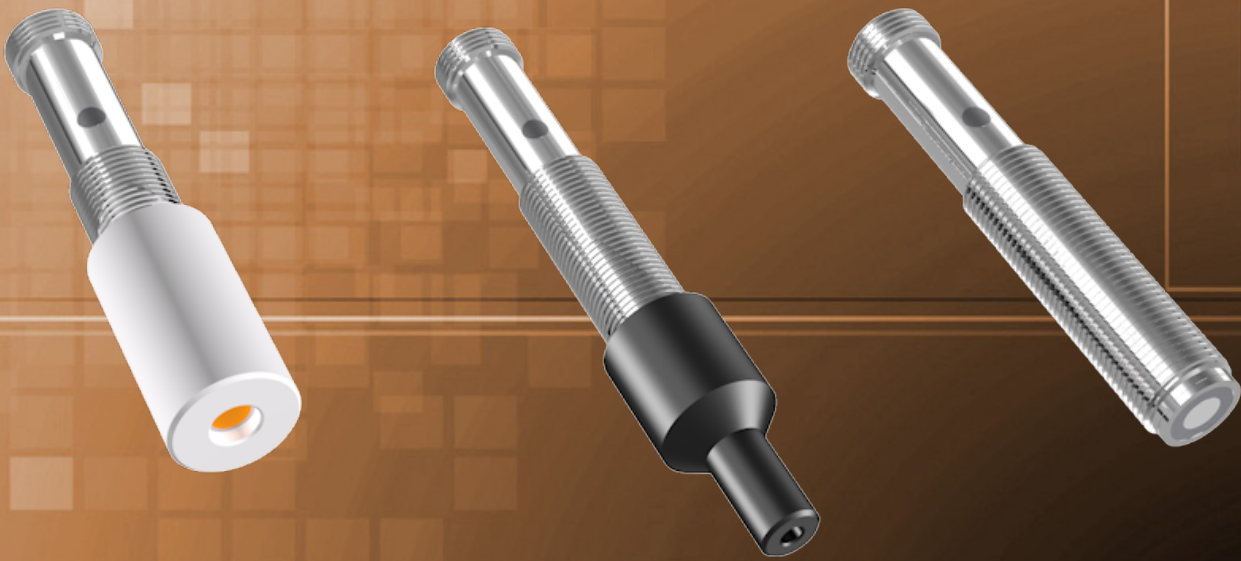


# ULTRASONIC SENSORS



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## Series UFA2

### Key-Features:

- *Measurement is independent of the targets material, surface, colour or transparency*
- *Teachable measurement range of 20...200mm*
- *Linearity <0.4 % 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: no blind range, radial measurement*

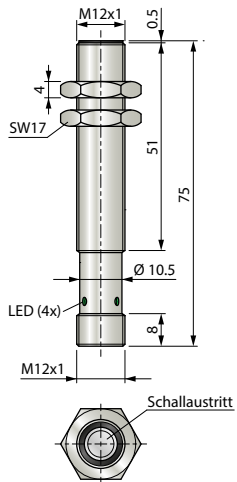
## TECHNICAL DATA

Output type		Analog output	Switching output
Version		Standard	Standard
Measurement range	[mm]	20...200 <sup>1)</sup>	20...200 <sup>1)</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	-
Switching output		-	Push pull, NPN, PNP, NO/NC (switchable)
Switching current max.	[mA]	-	150
Switching hysteresis	[mm]	-	2
Switching frequency	[Hz]	-	20
Power supply	[VDC]		18...30
No-load current at 24 VDC	[mA]		<40
Voltage drop	[V]		<2
Inverse-polarity protection			Yes
Short circuit protection			Yes
Isolation voltage	[V]		500
Connection		Connector M12, 4 poles	
Protection class		IP67	
Operating temperature	[°C]	-25...+70	
Temperature drift		0.2 %/K (uncompensated)	
Mounting distance	[mm]	>60 (sensor to sensor)	
Housing		nickel-plated brass, epoxy resin, PUR	

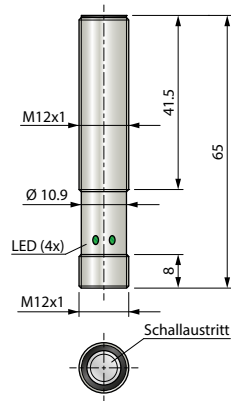
<sup>1)</sup> on a standardized measurement plate 100 x 100 mm

# TECHNICAL DRAWING

**UFA2-200: analog output**



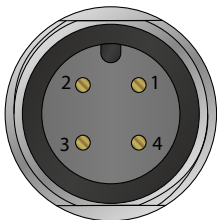
**UFA2-200: switching output**



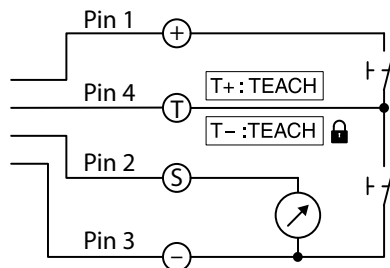
# ELECTRICAL CONNECTION

Pin	UFA2		Connection cable K4P cable colours
	Analog output	Switching output	
1	+V	+V	BN
2	Analog	Teach	WH
3	GND	GND	BU
4	Teach	Switching output	BK

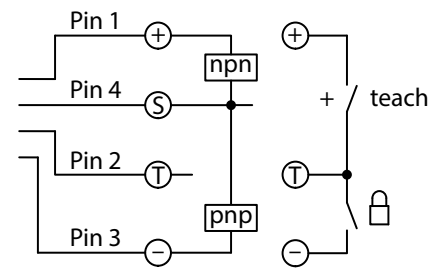
**connector M12, male**



**circuit diagram UFA2 analog output**

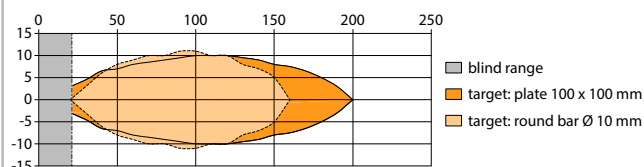


**circuit diagram UFA2 switching output**

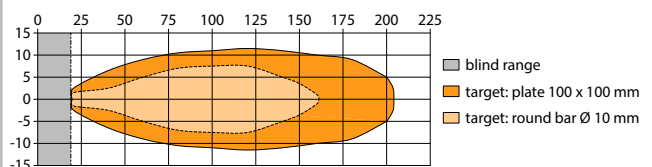


# DETECTION BEAMS

**UFA2-200-A: Standard version with analog output**

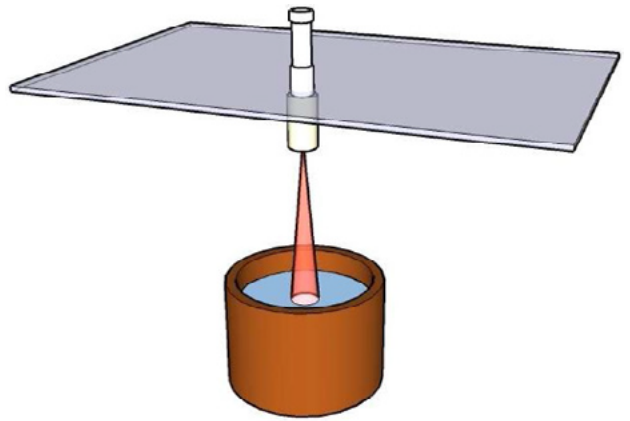


**UFA2-200-PN: Standard version with switching output**



## CHEMICAL RESISTANT VERSION

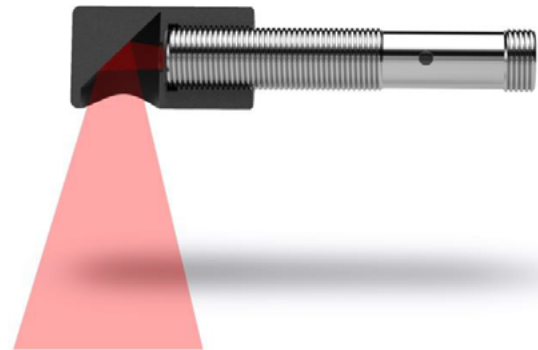
The diaphragm of the UFA-150-CP (Chemical Protection) series is coated with a thin PTFE foil. The cap made of chemically resistant PVDF is used for mechanical fixation of the foil and protection of the sensor front. Thus the front part of the ultrasonic sensor becomes resistant to most chemicals.



## ACCESSORY RADIAL BEAM CAP

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

By using it, the blind range of 20 mm is eliminated and the measuring range is deflected by 90°.



## SAFETY NOTICES

- These products are neither allowed to be used as safety- or emergency shut-off devices, nor in other applications, where a malfunction of this product may result in personal injury.
- Failure to follow this notice may result in serious or fatal injury.

## ORDER CODE UFA2

UFA2 – [ ] – [ ] – SA12

### Version and measurement range

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

200  
FB-150

A  
PN

### Output types

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-S-AC touch screen, supply: 115...230 VAC

### Deflection cap radial beam

UFA2-RB Deflection of 90°, measurement range 0...180 mm