

Operating manual ultrasonic sensors

UD18S***030/ UD18S***120

1 Analogue output or 1 digital output

Delivery

- 1x ultrasonic sensor
- Operation manual
- 2 metallic nuts SW24 (metallic version)
- 2 plastic nuts SW22 + 2 washer SW22 (plastic version)

Intended use

elobau ultrasonic sensors are used for non-contact detection of liquid media and objects.

Safety instructions

- Read the instructions before use
- Connection, installation and adjustment by qualified personnel only
- Protect the device against humidity and contamination during commissioning
- Not a safety component according to EU Machinery Directive

Notes for effective use

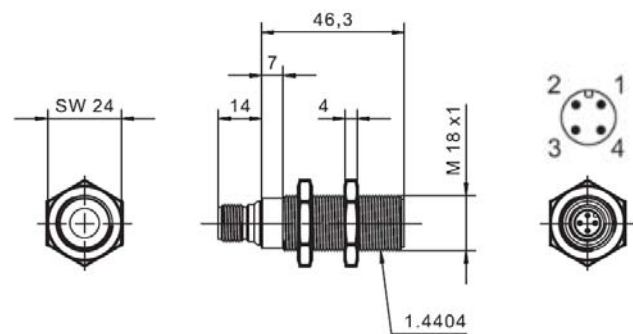
- Remove the black protective cap before use.
- Reliable measurement is not guaranteed within the blind zone.
- The ultrasonic sensors have internal temperature compensation. The optimum operating point is reached after approx. 20 minutes of operation. Rapid temperature changes require renewed internal temperature compensation.
- Ensure that the specified electrical data is complied with and not exceeded.
- Ensure that the sensor surface is not exposed to hot water (> 50 ° C), water vapour, acids or solvents.
- Sound-absorbing or diffusely reflecting materials can also reduce the specified measuring ranges.
- No flush mounting of sensor surface with object surface.
- The sensor retains the last set parameters after the operating voltage has been removed.

Operation / Maintenance:

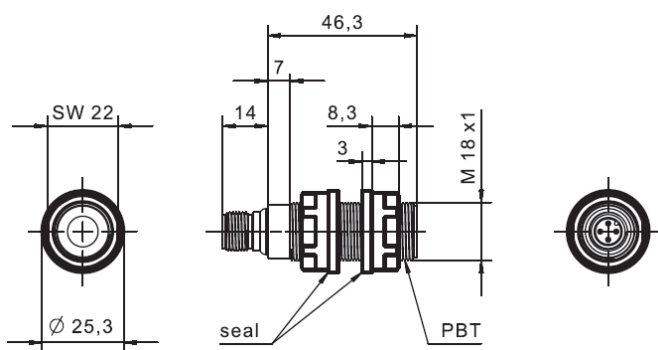
elobau ultrasonic sensors are maintenance-free. Nevertheless, it is advisable to clean the sensor surface with a damp cloth at regular intervals and to check the screw connections. Slight contamination of the sensor surface has no effect on the function. Heavy contamination or sticking of product may affect the function and must be removed.

Dimensions

UD18SM* - Stainless steel version



UD18SP* - Plastic version



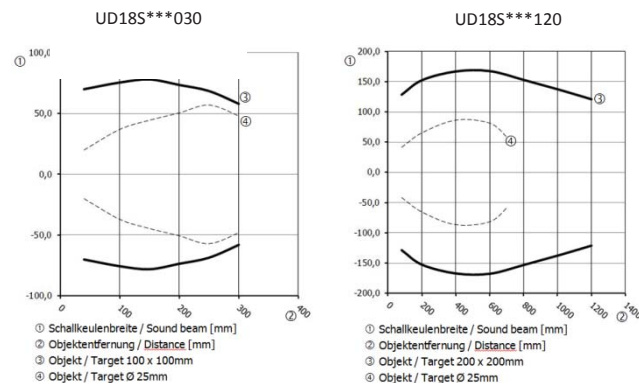
Technical data

	UD18S***030	UD18S***120
Technology	Ultrasonic	
Operating mode	Reflexionstaster	
Sensing range	40...300mm ¹	80...1200mm ²
Blind zone	0...40mm	0...80mm
Opening angle of sound cone	7°±2°	8°±2°
Operating voltage	10...30V	
Ripple	5%	
Current consumption	<35mA	
Operating frequency	300kHz	200kHz
Polarity reversal protection	yes	
Outputs	PNP/NPN 4...20mA 0...10V	
Output signal voltage	0...10V	
Output signal current	4...20mA	
Load resistance min (analogue output)	≥3000Ω	
Load resistance max (current output)	≤500Ω	
Switching output	PNP/NPN NO/NC selectable	
Continuous current	100mA	
Switching frequency	8Hz	3Hz
Linearity error	1%	
Repeating accuracy	1%	
Resolution	≤2mm	≤3mm
Temperature compensation	yes	
Thermal drift	±2%	
Overload protection	yes	
Short-circuit protection	yes	
Start-up time analogue output	500ms	
Start-up time digital output	400ms	
Response time analogue output	400ms	
Synchronization	no	
Multiplexing	no	
Controls	Programming wire	
Indicators	Switching status: 1 LED orange, Echo: 1 LED green	
Application specific	-	
Operating temperature	-20°C...+70°C	
Storage temperature	-30°C...+80°C	
EMC	EN 60947-5-2	
CE label	yes	
UL approval	cULus listed	
CCC approval	<36V yes	
MTTF	216	
Housing design	cylindrical	
Thread	M18	
Housing material	DIN 1.4404 / PBT	
Dimensions	M18x1, L=60,3mm	
Material sound transducer	Epoxy resin with glass balls	
Connector type	M12 4-pol.	
Protection class	IP 67 ³ (EN60529)	
Torque	50Nm (metallic version)/1Nm (plastic version)	
Weight	80g (metallic version)/65g (plastic version)	
Accessories supplied	2 metallic nuts SW24 (metallic version) / 2 plastic nuts SW22 + 2 washer SW22 (plastic version)	

¹Objekt / Target 100 x 100mm
²Objekt / Target 200 x 200mm

³IP67 only with well mounted cable connection

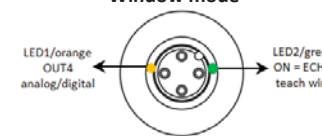
Sound cone



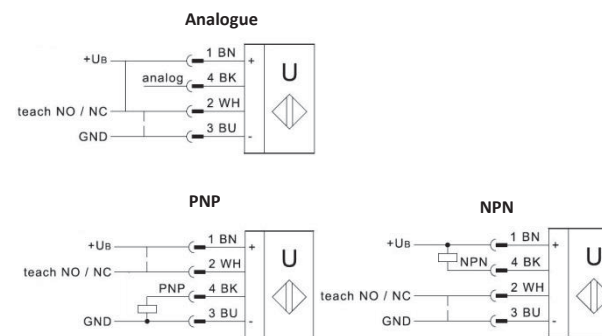
Adjustment of the ultrasonic sensors with programming wire

Operating mode	Output function		
H = LED on / L = LED off	Configuration of the switching points: 1. Position object at P1 (far point from the sensor) 2. Depending on the output carry out the following steps to configure the switching points. • PNP: Connect programming wire (PIN2, white) to the brown wire (PIN1) for approx. 1 second • NPN: Connect programming wire (PIN2, white) to the blue wire (PIN3) for approx. 1 second • Analogue output: Connect programming wire (PIN2, white) to the blue wire (PIN3) for approx. 1 second 3. Position object at P2 (close point from the sensor) 4. To configure P2, repeat the steps as described in point 2 5. Successful setting is confirmed by 5 blinks of LED1		Change of the logic NO/NC Depending on the output perform the following steps: • PNP: Connect programming wire (PIN2, white) to the brown wire (PIN1) for at least 8 seconds. • NPN: Connect programming wire (PIN2, white) to the blue wire (PIN3) for at least 8 seconds. • Analogue output: Connect programming wire (PIN2, white) to the blue wire (PIN3) for at least 8 seconds. Successful setting is confirmed when LED1 starts blinking.
	Digital output		
	NO	NC	NO / NC Single point mode
			 Smallest possible switching point P1=P2 Smallest possible switching point P1=P2
	Analogue output		
	NO - positive slope	NC - negative slope	NO / NC Single point mode
			 Smallest possible switching point P1=P2 Smallest possible switching point P1=P2

Window mode



Electrical connection



Factory settings

Resetting the switching points P1 / P2

Program line without object (LED 2, green, off) depending on the output form - see logic change. LED 1 flashes 5x to confirm successful reset. After the reset, the maximum and minimum values of the measuring range are set. Logic (NO / NC) and operating mode do not change.