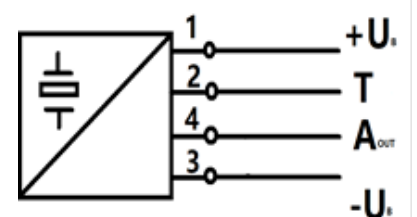
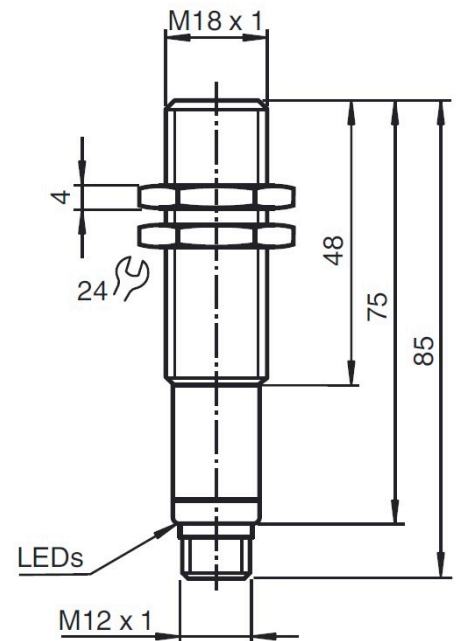


Ultrasonic Sensor

UM1000-18GM-AI-V1



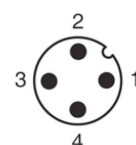
1 BN=BROWN

2 WH=WHITE

3 BU=BLUE

4 BK=BLACK

V1 Connector



Technical data

General Specifications

Sensing distance	80...1000mm
Adjustment range	80...1000mm
Unusable area	0...80mm
Standard target plate	100mm×100mm
Transducer frequency	About 200 kHz
Response delay	About 85ms

Indicators/Operating means

LED Blue	solid: object in evaluation range flashing: program function
LED Red	flashing: fault or program function object not detected

Electrical specifications

Operating voltage U_B	10...30VDC, ripple 10%ss
No-load supply current	$\leq 20\text{mA}$

Output

Output type	1 analogue output 4...20mA
Resolution	0.11mm at max.sensing range
Deviation of the characteristic curve	$\pm 1\%$ of full-scale value
Repeat accuracy	$\pm 0.1\%$ of full-scale value
Load impedance	$> 1\text{k Ohm}$
Temperature influence	$\pm 1.5\%$ of full-scale value

Ambient conditions

Ambient temperature	-25...70°C
Storage temperature	-40...85°C

Mechanical specifications

Protection grade	IP67
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Connection	Connector M12x1,4-PIN
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Material

Housing	brass,nickel-plated
Transducer	epoxy resin/hollow glass sphere mixture; Polyurethane foam

Weight	60g
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Characteristic response curve

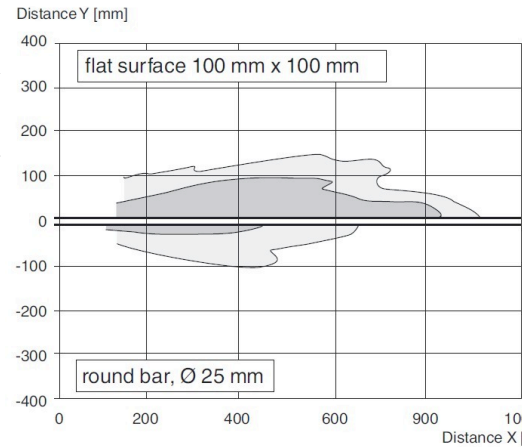
Adjusting the evaluation limits

The ultrasonic sensor features an analogue output with two teachable evaluation limits. These are set by applying the supply voltage $-U_B$ or $+U_B$ to the TEACH-IN input. The supply voltage must be applied to the TEACH-IN input for at least 1 s. LEDs indicate whether the sensor has recognised the target during the TEACH-IN procedure. The lower evaluation limit A1 is taught with $-U_B$, A2 with $+U_B$.

Two different output functions can be set:

- 1. Analogue value increases with rising distance to object (rising ramp)
- 2. Analogue value falls with rising distance to object (falling ramp)

Evaluation limits may only be specified within the first 5 minutes after Power on. To modify the evaluation limits later, the user may specify the desired values only after a new Power On.

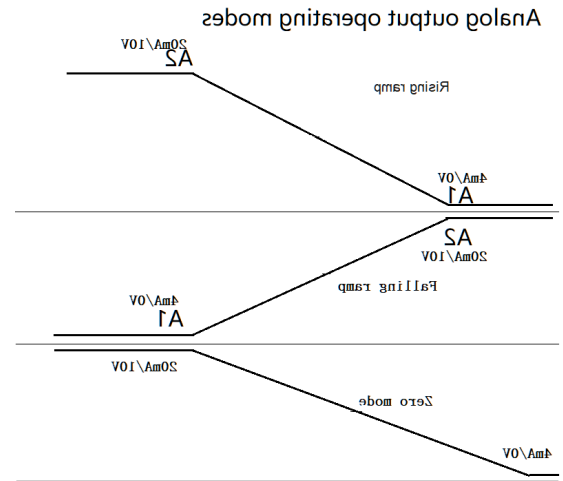


TEACH-IN rising ramp (A2 > A1)

- Position object at lower evaluation limit
- TEACH-IN lower limit A1 with $-U_B$
- Position object at upper evaluation limit
- TEACH-IN upper limit A2 with $+U_B$

TEACH-IN falling ramp (A1 > A2):

- Position object at lower evaluation limit
- TEACH-IN lower limit A2 with $+U_B$
- Position object at upper evaluation limit
- TEACH-IN upper limit A1 with $-U_B$



Default setting

A1: unusable area

A2: nominal sensing range

Mode of operation: rising ramp

LED Displays

Displays in dependence on operating mode	Red LED	Blue LED
TEACH-IN evaluation limit		
Object detected	off	flashes
No object detected	off	off
Object uncertain (TEACH-IN invalid)	on	off
Normal mode (evaluation range)	off	on
Fault	on	previous state