

## FEATURES

- Ultrasonic sensors
- insensitivity to countless materials, surface types, and colors
- Wood, metal, or plastic; colored, reflective or transparent
- Narrow Beam and Short Dead Band 30mm
- Temperature Compensated
- Intrinsically Safe CE & IP67 compliant in properly designed integrated system
- Tamperproof & Rugged
- IP67 Enclosure Rating
- Accurate under demanding environmental conditions

## RS PRO Ultrasonic Proximity Sensor

RS Stock No.: 2181177



RS Professionally Approved Products bring to you professional quality parts across all product categories. Our product range has been tested by engineers and provides a comparable quality to the leading brands without paying a premium price.

## Ultrasonic Proximity Sensors

Ultrasonic sensors precisely detect objects made from various materials regardless of their shape, colour, or surface contour. They operate using high-frequency sound waves that are inaudible to the human ear.

- Liquid and Solid Level Measurement
- Position Detection
- Factory automation
- Tanks, Totes, Processing

<b>Series</b>	M18
<b>Detection Range</b>	30mm – 500mm
<b>Transducer Frequency</b>	300KHz
<b>Sensor Configuration</b>	Diffuse Reflection
<b>Output Type</b>	1 analogue output 4...20mA
<b>Response Time</b>	65 ms
<b>Beam Angle</b>	8°
<b>Directivity (Deg)</b>	
<b>Sensitivity (mVp-p)</b>	
<b>Terminal Type</b>	M12 - 4 Pin
<b>Communication Interface</b>	
<b>Indicator</b>	LED
<b>Wire Technique</b>	4-wire
<b>Electrical Connection</b>	Male connector M12 4 pins
<b>Cable Length</b>	2m
<b>Minimum Operating Temperature</b>	-25 °C
<b>Maximum Operating Temperature</b>	75 °C
<b>Shock Resistance</b>	
<b>Vibration Resistance</b>	

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<b>Operating Voltage Range</b>	10V dc to 30V dc
<b>Current Consumption</b>	≤15mA (No-load)
<b>Voltage Drop</b>	2V
<b>Maximum Load</b>	500 Ohm
<b>Switching Frequency</b>	
<b>Switching Current</b>	
<b>Reverse Polarity Protection</b>	Yes
<b>Short Circuit Protection</b>	Yes
<b>Overload Protection</b>	Yes

## Ultrasonic Proximity Sensors

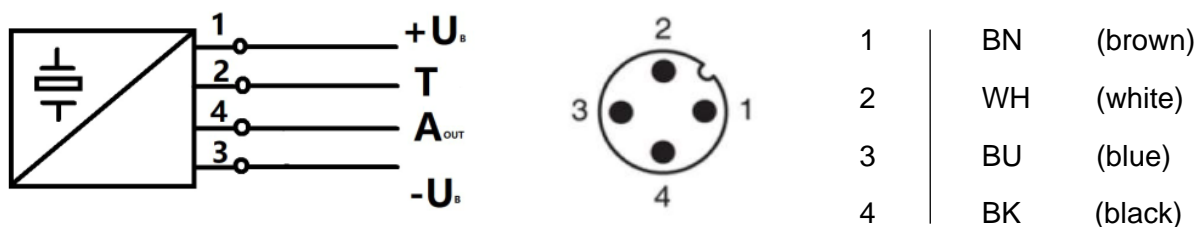
<b>Body Style</b>	Cylindrical
<b>Thread Size</b>	M18
<b>Housing Material</b>	Brass, nickel-plated
<b>Front Material</b>	Epoxy
<b>Dimensions</b>	∅18mm x 86mm
<b>Width / Diameter</b>	∅18mm
<b>Length</b>	86mm
<b>Depth</b>	
<b>Weight</b>	50g

<b>IP Rating</b>	IP67
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<b>EAN</b>	
<b>Custom Tariff Number</b>	

<b>eCI@ss</b>	
<b>UNSPSC</b>	

<b>Compliance/Certifications</b>	CE / RoHS EN 60947-5-2:2020
<b>Declarations</b>	MFR Declaration of Conformity



Wire Colors in accordance with EN 60947-5-2

### 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  $-U_B$

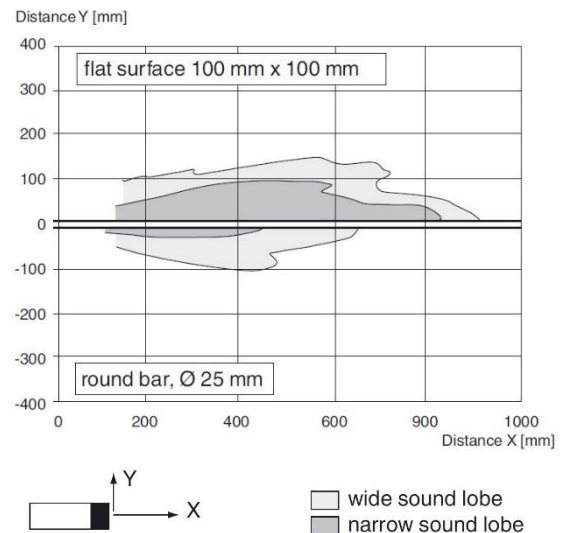
Default setting

A1: unusable area

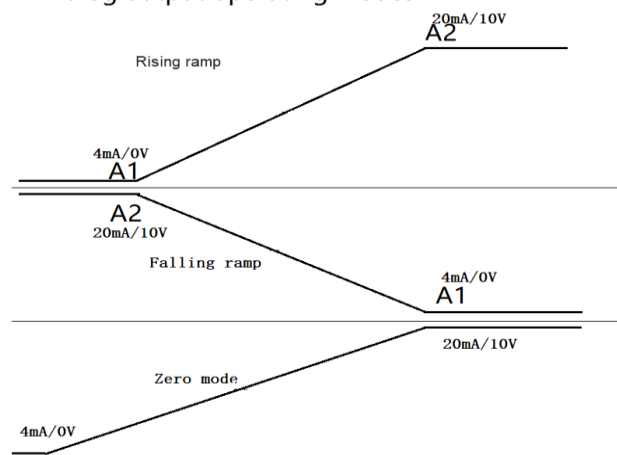
A2: nominal sensing range

Mode of operation: rising ramp

### Characteristic response curve



#### Analog output operating modes



## Ultrasonic Proximity Sensors

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

