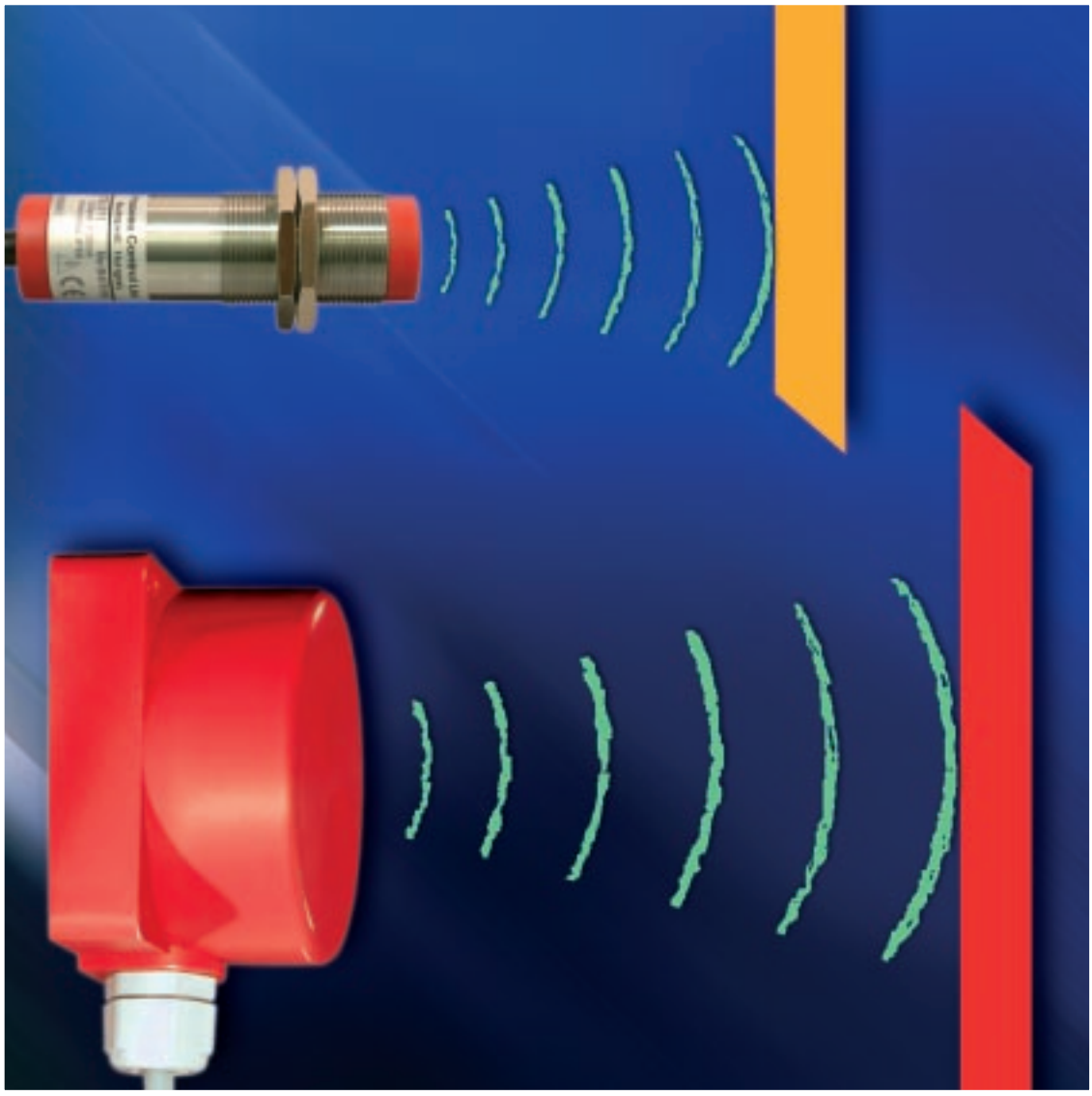
MICROSONAR

ULTRASONIC PROXIMITY TRANSMITTER

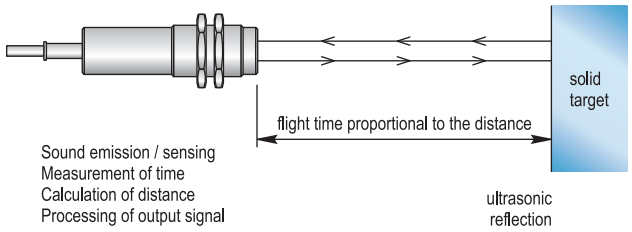


OUR PROFESSION IS YOUR LEVEL

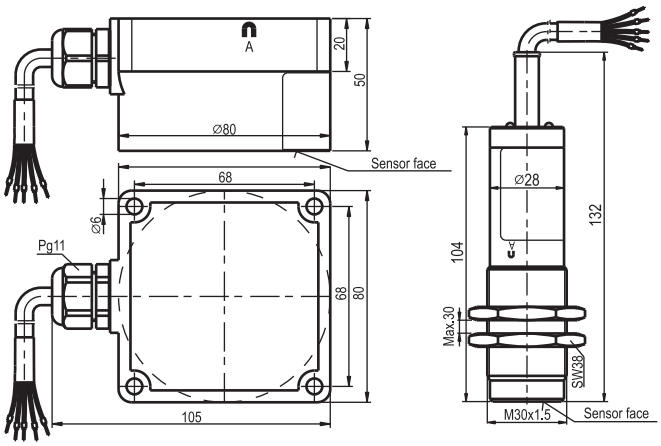
GENERAL

MICROSONAR sensors use non-contact ultrasonic principles to detect and measure the position of an object. They act as proximity switches, or transmit the measurement of the distance from sensor face to the target.
For transmitter models the output signal is either 4–20 mA or 0–10V, which can be assigned to any part of the nominal range. Switching points of the proximity switch option can be set to any point within the range.

ULTRASONIC PRINCIPLE



DIMENSIONS



6 m version

1 m version

INSTALLATION

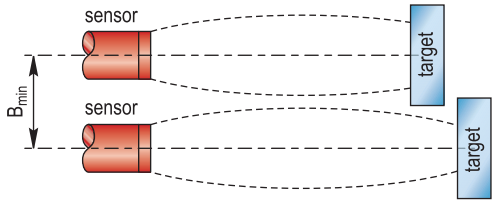
1 m range units: Use the two nuts provided to secure the body of the sensor in a 31mm Ø hole.

6 m range units: Use four mounting bolts in the holes (Ø 6) provided to secure to a solid panel or wall.

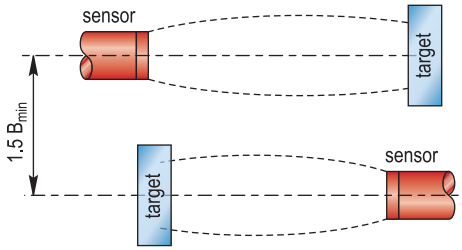
It is important that the unit is securely fixed to a vibration free structure, for smooth operation.
Reliable operation can be affected by another target object within or near the ultrasonic beam, or even by an adjacent MICROSONAR unit (see next section for recommendations)

ARRANGEMENT OF MULTIPLE UNITS

Minimum distances between units

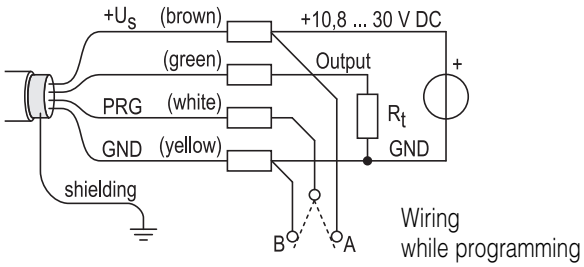


TYPE	B_{min} (m)
U _ _–21_	0,25
U _ _–26_	0,75

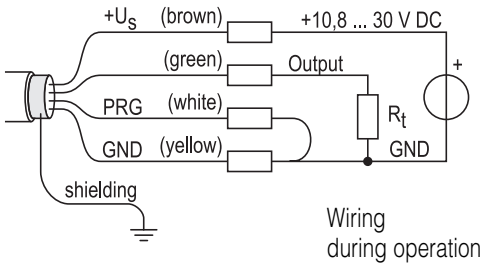


Two MICROSONAR units working in close proximity may interfere with one another if their beams overlap: for units with parallel axes, observe the minimum separations quoted above.

WIRING

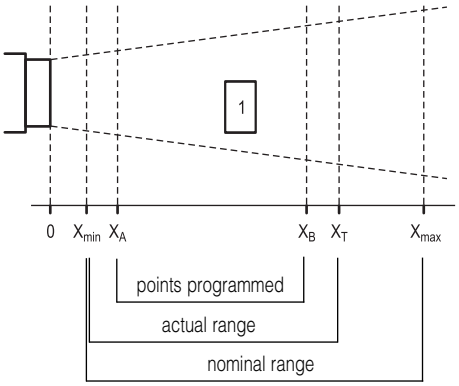


Wiring
while programming



Wiring
during operation

OPERATION/PROGRAMMING OPTIONS

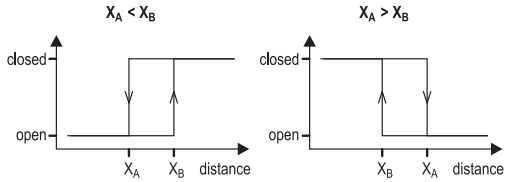


The Smart signal processing techniques used with MICROSONAR, with a few selected programmable features to suit the application, enable the unit to satisfy most measurement and process control applications. The programming is not complex, and is achieved using the magnetic screwdriver supplied, or by use of the programming connection wire in the sensor cable.

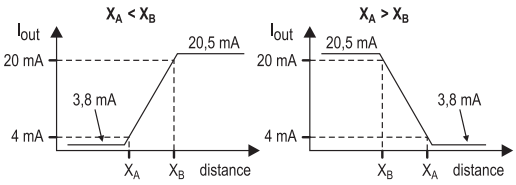
The programming functions set the parameters defined in the diagram below. Distance parameters X_A and X_B define the output transfer characteristic of the unit, and can be set to any position within the nominal range. The minimum distance between X_A and X_B is not recommended to be smaller than 20mm.

Speed of response: The sensor speed of response is a compromise between being able to reject any occasional false echo returns or echo failures, and tracking the changing distance of the target. To reject false echoes, MICROSONAR averages a programmable number of valid distance measurements. This averaging number, "a", is selected by considering the display stability, velocity of the target and site noise conditions, including the possibility of lost echoes. There is also a further ability to reject "k" number of successive invalid echoes, useful where the target gives a poor quality reflected signal.

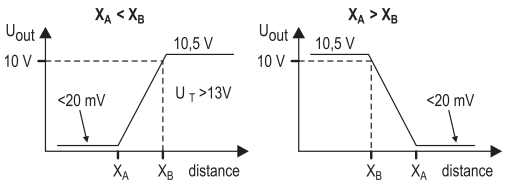
PNP output (UR_–2_3 type) Proximity switches compare the measured distance with the programmed points X_A and X_B and switch in accordance with the figure on the right. Reverse operation can be achieved by programming X_B smaller than X_A.



Current output (UT_–2_1 type) These measurement transmitters provide a 4-20mA output signal proportional to the position within the range X_A to X_B, according to the figure at the right. Note the over- and under-range output indications. Decreasing current output for increasing target distance is achieved by setting X_B smaller than X_A.

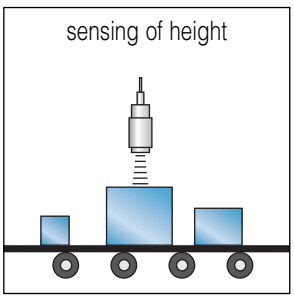


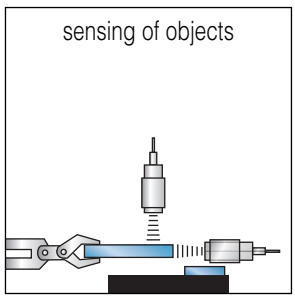
Voltage output (UT_–2_2 type) These measurement transmitters provide a 0-10Volt DC output signal proportional to the position within the range X_A to X_B, according to the figure at the right. Note the over-range output indication. Decreasing current output for increasing target distance is achieved by setting X_B smaller than X_A.

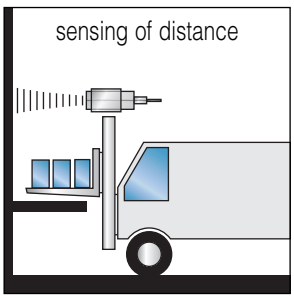


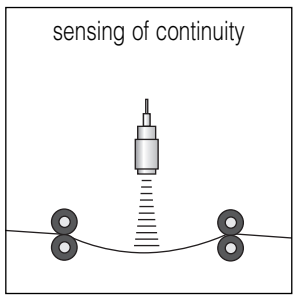
APPLICATIONS

MICROSONAR is primarily for industrial process automation. The MICROSONAR proximity switches and distance transmitters are suitable for detecting the presence or absence of objects, or for measuring the distance between sensor and target object with high accuracy. To enable a good quality reflection, the target should have a plain flat surface, and the MICROSONAR sensor surface should be parallel to the target surface, and pointing directly at the target. If the reflecting surface is not plain and flat, it will not necessarily prevent measurement, but may cause performance limitations.
MICROSONAR is applicable to the detection of engine parts; piece work; vehicles; fork-lifts; tippers; cranes. In the same way it can be used with packages and packing cases, cardboard, sheet materials, belts, buildings and raw materials, provided the targets have a surface with the proper reflection capabilities, and their speed of movement is not excessive.







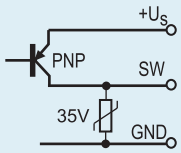
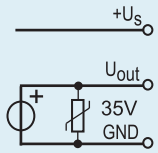
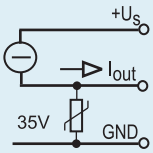


urp2s03a0601b

GENERAL DATA

TYPE		UR□-213	UT□-211	UT□-212	UR□-263	UT□-261	UT□-262
Nominal range	X_{min} (m)	0,2			0,4		
	X_{max} (m)	1,0			6,0		
Ultrasonic frequency		160 kHz			60 kHz		
Total beam angle		5°					
Measurement sequence time (T_p)		25 ms			80 ms		
Resolution		0,1 mm	0,25 mm	0,25 mm	0,1 mm	1,5 mm	1,5 mm
Output		PNP switch	4 ... 20 mA	0 ... 10 V	PNP switch	4 ... 20 mA	0 ... 10 V
Programming		With contacting a PRG cable, with magnet					
Ambient temperature		–20 ... +70 °C					
Power supply		10,8 ... 30 V					
Consumption U_s = 12 V		< 31 mA *	< 55 mA	< 41 mA	< 30 mA *	< 54 mA	< 40 mA
Consumption U_s = 24 V		< 39 mA *	< 63 mA	< 49 mA	< 37 mA *	< 61 mA	< 47 mA
Input protection		Reverse polarity, surge, ESD					
Integrated cable		Shielded cable with PVC coating L = 3 m					
Cable core		4 x 0,5 mm²					
Electric protection		Class III.					
Ingress protection		U□S – 2□□ IP 67, U□P – 2□□ IP 68			IP 68		
Enclosure		U□S – 2□□ stainless steel with PP covers, U□P – 2□□ PP housing			PP (moulded with resin)		
Mass		400 g			530 g		

* unloaded

TYPE	UR□-2_3	UT□-2_2	UT□-2_1
Output			
Rating	Max. 30 V DC	–	–
Rating	Max. 200 mA	–	–
Max ON voltage drop	< 2,5 V	–	–
Switching delay or Settling time T_b* =a** x T_p	25, 100, 200, 400 ms with U□□ – 21□ – 4		
	80, 320, 640, 1280 ms with U□□ – 26□ – 4		
Temperature coeff.	± 0,02% / °C		
Linearity	–	± 0,35 %	
Repeatability	1 mm	1,5 mm	1,5 mm
Output signal	–	0 ... 10 V (U_s > 13 V)	4 ... 20 mA
Load resistance	–	≥ 1 kohm	≤ 500 ohm (U_s > 14 V)
Output protection	Short circuit, EMC	Short circuit, EMC	EMC

* values under good reflection conditions ** value of "a" can be programmed (1, 4, 8, 16)

ORDER CODE

MICROSONAR U ■ ■ – 2 ■ ■

MODEL	CODE
Switch	R
Transmitter	T

ENCLOSURE	CODE
Plastic	P
Stainless Steel	S

RANGE	CODE
0,2 ... 1,0 m	1
0,4 ... 6,0 m	6

OUTPUT	CODE
4 ... 20 mA	1
0 ... 10 V	2
PNP switch	3

Note: not all code combinations are possible

Available models: URS-213 URP-263, UTS-212 UTP-262, UTS-211 UTP-261

Representante exclusivo:

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