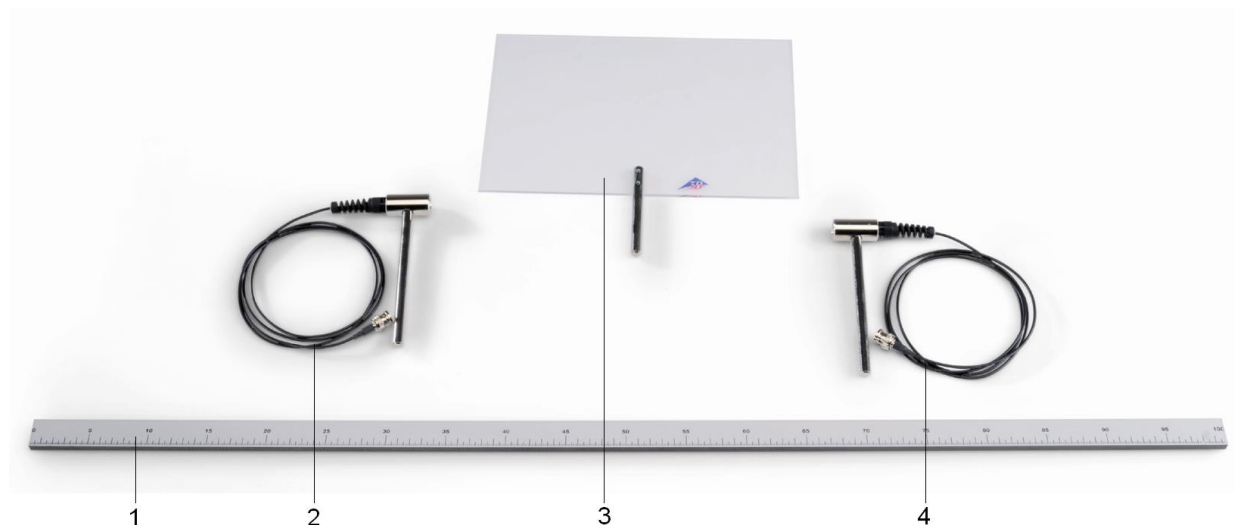


40 kHz Ultrasonic Transducer Equipment Set 1009888

Instruction manual

10/15 ALF



- 1 Ruler
- 2 Ultrasonic transmitter (S)
- 3 Ultrasonic receiver (R)
- 4 Projection screen

1. Note

- Do not use the ultrasonic transducer in liquids.

2. Description

The 40 kHz ultrasonic transducer equipment set is designed for experiments on geometric acoustics and wave mechanics.

The equipment set consists of an ultrasonic transmitter (S) and an ultrasonic receiver (R), both mounted on stems, a projection screen, also on a stem, and a ruler.

3. Technical data

Input voltage:	10 V AC max.
Resonant frequency:	40 kHz approx.
Band width:	6 kHz approx.
Angle of aperture:	72°
Capacitance:	1900 pF
Connector:	Co-axial cable with BNC plug
Stand rod:	150 mm x 10 mm diam.
Dimensions:	40 mm x 20 mm diam.

4. Additionally required equipment

1 Function generator FG 100 @230 V	1009957
or	
1 Function generator FG 100 @115 V	1009956
1 Analogue oscilloscope 2x30 MHz	1002727
3 Stand bases, 0.5 kg	1001046
1 HF cable	1002746
1 T-Piece, BNC	1002752
1 Adapter, BNC Jack/4-mm-Plugs	1002751

5. Operation

5.1 Calibration of resonant frequency

- Set up the ultrasonic transmitter and receiver close together and facing one another.

- Connect the transmitter to the output of the function generator and set the frequency to 40 kHz.
- Connect the receiver to an oscilloscope.
- Observe the received signal and make fine adjustments to the frequency to maximise the signal amplitude.

5.2 Sample experiment

- Set up the ultrasonic transmitter and receiver alongside one another in front of the projection screen.
- Connect the transmitter to the output of the function generator and set the frequency to the resonant frequency (see 5.1).
- Connect the receiver to the oscilloscope.
- Move the projection screen and observe the phase differences between the signals.

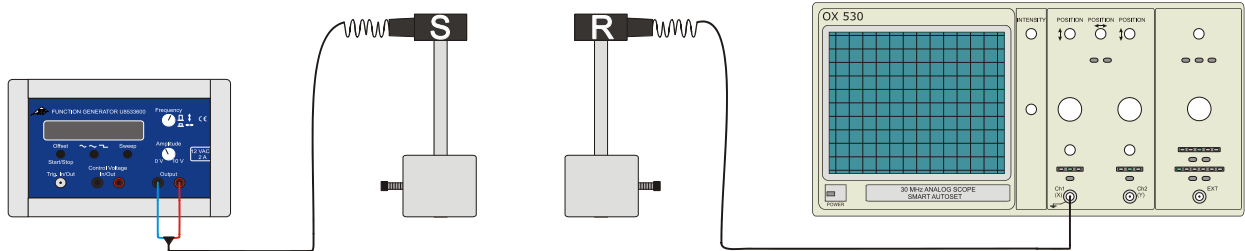


Fig. 1 Experiment set-up for calibrating resonant frequency

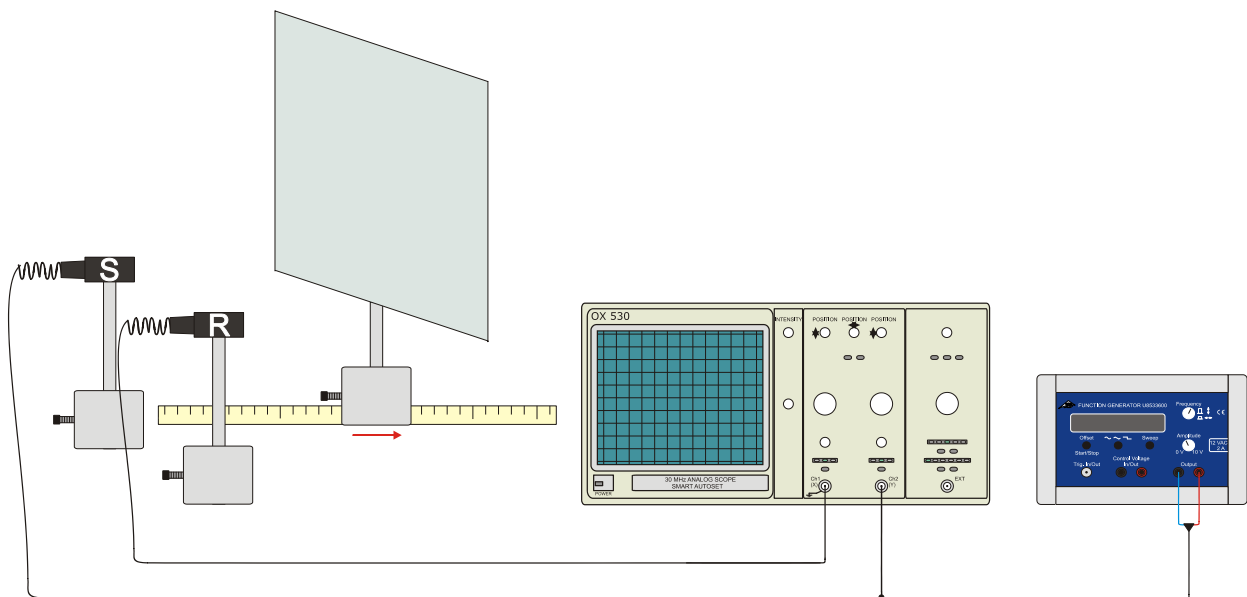


Fig. 2 Experiment set-up for the reflection of ultrasonic waves by a projection screen