

LEMI-51 Interference, Diffraction and Speed Measurement of Sound Wave



- High performance ultrasonic sensor
- Simple structure, stable and reliable
- Multiple experiments

The measurements of many physical parameters such as ultrasonic distance, positioning, liquid flow, elastic modulus of materials, and gas temperature transient changes, involve sound speed. This apparatus is specially designed to observe standing waves and resonance phenomenon of interference, measure the speed and wavelength of sound in air, observe double-slit interference and diffraction of sound, and observe the interference of original wave and reflected wave. Through the experiments, students can have a better understanding of the fundamentals of acoustic wave and related experimental methods.

This apparatus is designed with the following characteristics:

- 1. An ultrasonic sensor with strong anti-interference capability to ensure high performance operation.
- 2. Ultrasonic receiver in connection to a rotating device to measure rotational angles.
- 3. A reflective plate to conduct interference experiment between reflected wave and original wave.

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Experimental Contents

- 1. Generate and receive ultrasound.
- 2. Measure sound speed in air using phase and resonance interference methods.
- 3. Study interference of reflected & original sound wave, i.e. sound wave "LLoyd mirror" experiment.
- 4. Observe and measure double-slit interference and single-slit diffraction of sound wave.

Parts and Specifications

Sine wave signal generator:	Frequency range: 38 ~ 42 kHz; resolution: 1 Hz
Ultrasonic transducer	Piezo-ceramic chip; oscillation frequency: 40.1 ± 0.4 kHz
Vernier caliper	Range: 0 ~ 200 mm; accuracy: 0.02 mm
Ultrasonic receiver	Rotational range: -90° ~ 90°; unilateral scale: 0° ~ 20°; division: 1°
Measurement accuracy	<2% for phase method



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Note: above product information is subject to change without notice.

Interference by Lloyd mirror