

# Lubell LL98

High-Power Broadband Piezoelectric Underwater transducer for Military and Scientific Applications



## Specifications

- **Frequency Range:**  
250Hz - 20kHz
- **Source Pressure Level (SPL):**  
180dB re 1 $\mu$ Pa @ 1m at 1kHz
- **Maximum Voltage:**  
40 Vrms
- **Duty Cycle:**  
100% (1.5A)
- **Impedance:**  
64 ohms nominal
- **Depth Rating:**  
1.83m - 12.19m
- **Dimensions**  
22.86cm diameter x 15.24 axial length
- **Transducer Weight:**  
5.44 kg in air / 0.9 kg in water
- **Finish**  
10-mil ASA61 gray epoxy over MIL-C-5541 Class 1-A substrate
- **Cable:**  
7.62 m PVC 18AWG x 3 (0,785mm<sup>2</sup>)
- **Maximum spliced cable length:**  
4.19 km of 12 AWG x 3 (3,191mm<sup>2</sup>) SO cable

## Description

The LL98 is a 64 ohm piezoelectric underwater speaker identical to the LL9816 except for higher impedance. Because of higher impedance, cable lengths up to 4 km using standard SO cable are possible with minimal losses.

The Lubell LL9642T Underwater Acoustic Transducer is designed for general purpose military and scientific applications. The LL9642T may also be used as an underwater loudspeaker when high power is required.

The LL9642T has a useful frequency range of 250Hz-20kHz, a minimum impedance of 36 ohms, and an SPL of 183dB/uPa/m @ 1 kHz and 193dB/uPa/m @ 10kHz with 100 Vrms applied. The LL9642T requires 33 ohms (round-trip) of 2-conductor stranded cable: 4.19 km of 3,191mm<sup>2</sup> (12AWG), 1.94 km of 2,013mm<sup>2</sup> (14AWG), 1.20 km of 1,276mm<sup>2</sup> (16AWG), 0.75 km of 0,785mm<sup>2</sup> (18AWG) or a combination of cable resistance plus series resistance (18-136-33AR) equal to 33 ohms.

The LL-9642T withstands extreme conditions by virtue of its rugged stainless steel, PVC, and EPDM construction. Unique cage design allows stud mounting to pier, or multiple speaker array producing sound levels in excess of 200dB.

Speaker, cable, and amp RoHS & CE marked for export to EU.

For EU military and homeland security applications requiring Navy diver recall and interrogation of suspicious divers at 500+ meter range

## Applications

- Underwater Acoustics Research
- Military Applications
- High Power Underwater Speaker
- Acoustic Field Calibration



MarSensing Lda is a distributor of Lubell Labs Underwater Transducers for Portugal, Spain, Gibraltar and Angola