

# Lubell LL964

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



## Description

The LL964 is a heavy-duty 64 ohm piezoelectric underwater speaker identical to the LL916 except for higher impedance. Because of higher impedance, cable lengths up to 4 km using standard SO cable are possible with minimal losses.

The LL916 is an economical yet powerful piezoelectric underwater speaker developed, patented, and manufactured by Lubell Labs of Columbus Ohio. When used with optional PVI4B amplifier, the LL916 (and its heavy-duty caged LL9816 counterpart) is capable of filling a 25 yard olympic pool with sound for lap swimming, a 50 meter Olympic pool for synchronized swimming, or a 500 meter distance in the open ocean for experiments.

## Specifications

- **Type:**  
Piezoelectric drive-piston tonpizl
- **Frequency Range:**  
200Hz - 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 (Transducer / Cage):**  
22.86cm diameter x 15.24cm axial length  
27.3cm x 27.3cm x 19.6cm
- **Transducer Weight:**  
6.8 kg in air / 1.81 kg in water
- **Finish**  
30-mil blue PVC
- **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

## 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