

Lubell Labs LL916H & LL916C Pistonic Piezoelectric Underwater Speakers



The portable Lubell Labs LL916C and LL916H are efficient full-range pistonic piezoelectric underwater loudspeakers developed and manufactured by Lubell Labs of Columbus, Ohio USA. Their unique design (Patent # 3391385) provides the highest output levels and widest frequency response of any commercial underwater speaker on the market, making product suitable for synchronized swimming, lap swimming, diver recall, and dozens of other applications in the pool, river, and ocean. And unlike some competitors who cut corners and run over a thousand volts thru their underwater speaker cables, Lubell Labs follows safe engineering practices by operating at voltages of 20 volts or less on the underwater speaker cable. **No other brand compares!**

The LL916C is our cage mounted underwater speaker, which allows placement on bottom of swimming pools or lakes, or mounting to piers in the lake or ocean. The cage also provides added protection to the sensitive internal electronics against breakage due to accidental drops. The LL916C is available with choice of 25' (7.62m), 50' (15.24m), 100' (30.48m), 150' (45.72m), or 200' (60.96m) cable lengths; Simply add cable length to part number (ie. LL916C-050'). The LL916C includes a transferable 5 year limited [warranty](#). The warranty does not cover failure of cable due to abuse, so please handle carefully and follow [instructions](#).

The LL916H is our harness mounted underwater speaker, which offers a lower profile and lower cost, but offers no protection against damage from accidental drops or blows. The LL916H is available with choice of 25' (7.62m), 50' (15.24m), 100' (30.48m), 150' (45.72m), or 200' (60.96m) cable length; Simply add cable length to part number (ie. LL916H-025'). The LL916H includes a transferable 2 year limited [warranty](#). The warranty does not cover failure of cable due to abuse, so please handle carefully and follow [instructions](#).

Because the Lubell LL916C and LL916H underwater speakers have special safety requirements and present a capacitive load, they are always sold and used with [Lubell Labs AC series transformer boxes](#). These custom transformer boxes incorporate a tuned RLC circuit with isolated winding transformer and 50 watt series resistor in order to provide broadband performance, impedance matching, current limiting, and electrical isolation for safety. Some of the more popular boxes are the AC202C for use with the Chiayo Stageman ([CAWSS](#)) system for synchronized swimming, and the AC205C or AC203E (same with air speaker jack and control) for use with the Peavey PV4B powered mixer ([BASIC](#)) system for lap swimming. Also available is the AC102C and AC211C (same with air speaker jack and control) for connection to amplifiers up to 200 watts @ 8 ohms. Always match the wattage rating of the Lubell transformer box with the speaker output wattage rating of the amplifier that it will be used with.

Important: Lubell underwater speakers are not for use with MiPro sound systems, which place external speaker (capacitive in this case) in series with internal resistive speaker -- an RC circuit that sounds terrible! See "accessories" below for compatible amps!

- **Transducer Type:** Piezoelectric Pistonic Underwater Acoustic Transducer
- **Housing Construction:** 150 mil PVC injection molded over die-cast AL pistons

- **Central Seal:** Silicone internal, EPDM external
- **For use in:** Pool water, freshwater, saltwater
- **Frequency Response:** 200Hz - 23kHz (500Hz-21,000Hz +/-10dB)
- **Maximum Output Level:** 180dB/uPa/m @ 1kHz
- **Maximum Cable Voltage/Current:** 20 Vrms / 3A (100% duty cycle)
- **Recommended Amplifier Power:** 78 watts @ 8 ohms (25 Vrms) max
- **Operating Depth Range:** 1 meter - 18 meters
- **Operating temperature:** 0°C - 41 °C (32°F - 105°F)
- **Standard Cable:** 7.62 meter (25') 0,785mm² (18/3) AWG PVC terminated with 3-pin [Conxall 3182-3PG-524 \(pin 3 hot\)](#). Other stock lengths available (see above and below).
- **Weight (in air):** **LL916H** - 5.4 kg (12.0 lbs); **LL916C** - 8.0 kg (17.6 lbs) with standard 25' (7.62m) cable
- **Dimensions:** **LL916H** - 233.68 mm (9.2") diameter x 147.32 mm (5.8") axial length; **LL916C** - 279.4 mm x 279.4 mm x 198.12 mm (11"x11"x7.8") HWD
- **Documents and Data:** [Instructions](#), [brochure](#), [SPL plot](#), [TVR on/off axis plot](#), [Polar plot](#), [Impedance plot](#), [Receive sensitivity plot](#), [CE Certification](#)
- **Warranty (certificate):** LL916H harness mounted underwater speaker: 2 year Limited; LL916C cage mounted underwater speaker: 5 year limited; AC series transformer boxes ("Gray Boxes"): 2 year limited
- **LL916H-025' MSRP: USD\$1453** (Includes [choice of AC102C, AC202C, or AC205C](#) inline transformer box); **USD\$1526** (Includes choice of [AC203E or AC211C](#) transformer box with air speaker jack & control - suggested accessory ZX1 PA speaker with H14-25 or 50 cord)
- **LL916H-050' MSRP: USD\$1484** (Includes [choice of AC102C, AC202C, or AC205C](#) inline transformer box); **USD\$1557** (Includes choice of [AC203E or AC211C](#) transformer box with air speaker jack & control - suggested accessory ZX1 PA speaker with H14-25 or 50 cord)
- **LL916H-100' MSRP: USD\$1546** (Includes [choice of AC102C, AC202C, or AC205C](#) inline transformer box); **USD\$1619** (Includes choice of [AC203E or AC211C](#) transformer box with air speaker jack & control - suggested accessory ZX1 PA speaker with H14-25 or 50 cord)
- **LL916H-150' MSRP: USD\$1607** (Includes [choice of AC102C, AC202C, or AC205C](#) inline transformer box); **USD\$1680** (Includes choice of [AC203E or AC211C](#) transformer box with air speaker jack & control - suggested accessory ZX1 PA speaker with H14-25 or 50 cord)
- **LL916H-200' MSRP: USD\$1668** (Includes [choice of AC102C, AC202C, or AC205C](#) inline transformer box); **USD\$1741** (Includes choice of [AC203E or AC211C](#) transformer box with air speaker jack & control - suggested accessory ZX1 PA speaker with H14-25 or 50 cord)
- **LL916C-025' MSRP: USD\$1669** (Includes [choice of AC102C, AC202C, or AC205C](#) inline transformer box); **USD\$1742** (Includes choice of [AC203E or AC211C](#) transformer box with air speaker jack & control - suggested accessory ZX1 PA speaker with H14-25 or 50 cord)
- **LL916C-050' MSRP: USD\$1700** (Includes [choice of AC102C, AC202C, or AC205C](#) inline transformer box); **USD\$1773** (Includes choice of [AC203E or AC211C](#) transformer box with air speaker jack & control - suggested accessory ZX1 PA speaker with H14-25 or 50 cord)
- **LL916C-100' MSRP: USD\$1761** (Includes [choice of AC102C, AC202C, or AC205C](#) inline transformer box); **USD\$1834** (Includes choice of [AC203E or AC211C](#) transformer box with air speaker jack & control - suggested accessory ZX1 PA speaker with H14-25 or 50 cord)
- **LL916C-150' MSRP: USD\$1822** (Includes [choice of AC102C, AC202C, or AC205C](#) inline transformer box); **USD\$1895** (Includes choice of [AC203E or AC211C](#) transformer box with air speaker jack & control - suggested accessory ZX1 PA speaker with H14-25 or 50 cord)
- **LL916C-200' MSRP: USD\$1883** (Includes [choice of AC102C, AC202C, or AC205C](#) inline transformer box); **USD\$1956** (Includes choice of [AC203E or AC211C](#) transformer box with air speaker jack & control - suggested accessory ZX1 PA speaker with H14-25 or 50 cord)
- **Accessories:** [PVI4B](#) 75W mixer (\$207 - North America only); [EV ZX1](#) deck speaker (call); [25'](#) ZX1 cord (\$35) or [50'](#) cord (\$49); [SS7761B](#) ZX1 stand (\$49); ST95MKII hand mic w/25' cord (\$49); [ATW-901/H](#) wireless headset mic (\$220); [ATW-902](#) wireless hand mic (\$170); [CAWSS amp](#) (\$1150).



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