

**University  
Sound**<sup>TM</sup>

a **MARK IV** company

## SPECIFICATIONS

**Frequency Response:**  
100-10,000 Hz

**Power Handling Capacity:**  
30 watts continuous pink noise

**Impedance:**  
8 ohms

**Dispersion:**  
Omni-directional underwater

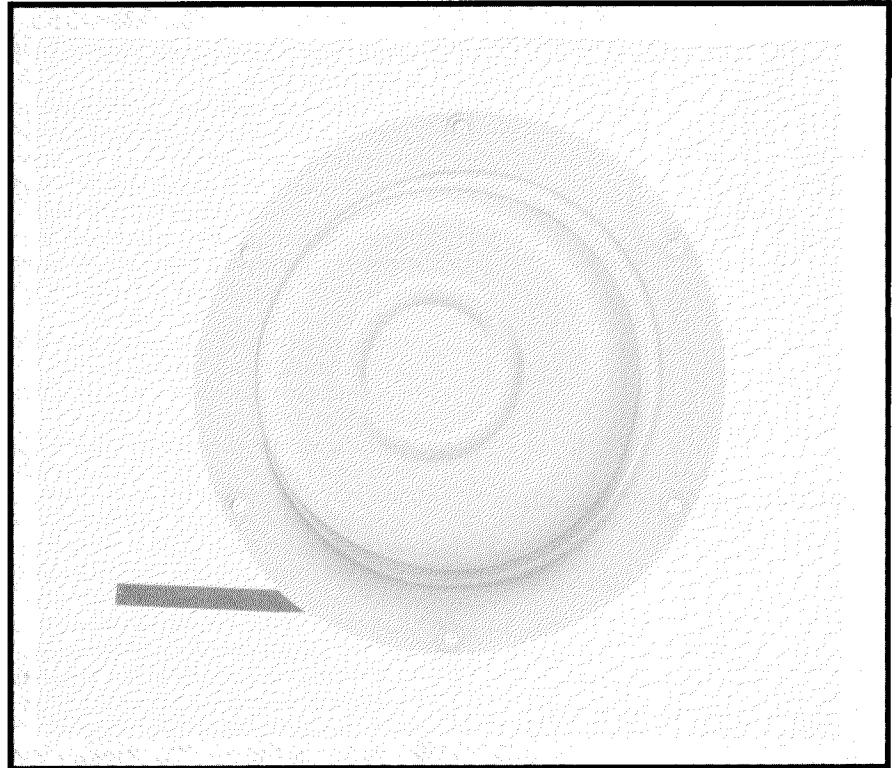
**Operating Depth:**  
Up to 3.0 m (10.0 ft)  
below surface of water

**Recommended Installation Depth:**  
1.2 m (4.0 ft)

**Finish:**  
Pool blue

**Dimensions,**  
**Over-All Diameter:**  
18.26 cm (7.19 in.)  
**Depth:**  
6.63 cm (2.61 in.)

**Shipping Weight:**  
1.8 kg (4.0 lb)



**UW-30** <sup>UL</sup>

**Diatran<sup>®</sup> Underwater  
Loudspeaker**

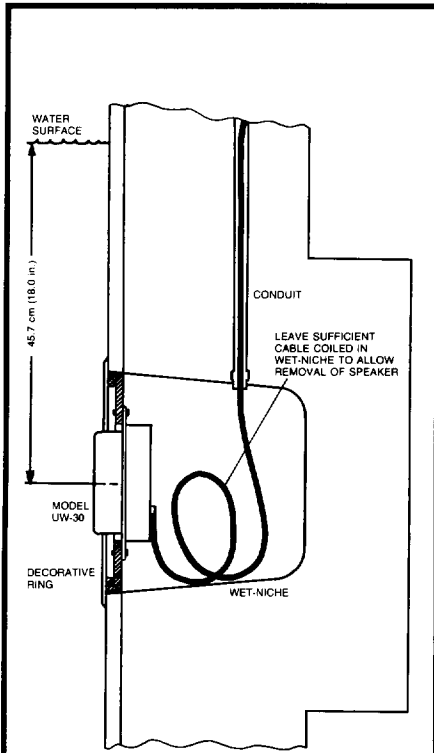
## DESCRIPTION

The University Sound UW-30<sup>UL</sup> is an Underwriters Laboratories' listed underwater loudspeaker. It has been tested and approved in accordance with <sup>UL</sup>'s general utility signalling appliance category. The UW-30<sup>UL</sup> represents a departure in the design of underwater sound sources. Its unique design (patent #3670299) utilizes the case's structural enclosure as the sound transducer. This development makes possible a speaker that has no metal parts exposed to the outside, thus, eliminating rust, corrosion or other causes of short life expectancy. The transducer principle and its strong construction allow the UW-30<sup>UL</sup> to operate at much greater depths than any prior type of underwater loudspeaker design. The 12.7-ounce ceramic magnet and state-of-the-art voice coil construction assure full fidelity response with lowest possible distortion throughout its power range.

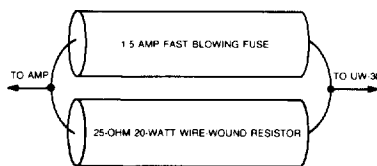
The University model UW-30<sup>UL</sup> is an underwater speaker designed for permanent installation and completely submerged operation. All internal components are encapsulated with a "hot-melt" (Polyamide Copolymer) process. The outer case is of high impact, flame-retardant, A.B.S. (Acrylonitrile butadiene styrene) plastic. Ideal for installation in both fresh and salt water pools, the UW-30<sup>UL</sup> can even be installed in ocean environments without adverse effect. Problems, such as, corrosion and electrolysis damage inherent in all or partial metal underwater speakers are completely eliminated by the plastic construction of the UW-30<sup>UL</sup>.

The model UW-30<sup>UL</sup> may be flush mounted in a wet-niche, similar to that used for underwater lights (Paragon C-9120 or equivalent).

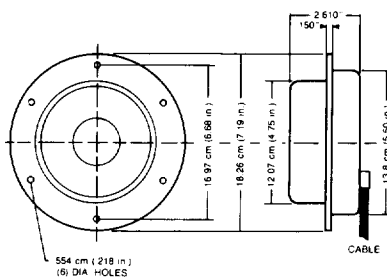
A single model UW-30<sup>UL</sup> will deliver uniform sound throughout moderate pools, up to 30 by 30 feet. For larger pools up to 30 by 60 feet, two speakers should be used. If a high level of turbulence is to be overcome, such as swimming and diving instruction classes, several speakers should be used. The noise level in the water will not only be more effectively overcome, but it will also allow each speaker to be operated as a lower power level thus avoiding excessive sound intensities in the immediate vicinity of the speakers.



**FIGURE 1**  
**TYPICAL UW-30 INSTALLATION**



**FIGURE 2 — FUSING CIRCUIT**



**FIGURE 3 — DIMENSIONS**

## DESCRIPTION AND APPLICATION (continued)

Underwater speaker are required equipment for many activities in commercial and luxury resort pools. As specified by the American Athletic Union underwater speakers are required for synchronized swimming events and instructions in Olympic pools. They are used for water ballets and similar water shows. When underwater speakers are installed in resort and private pools, the effect of music played underwater is truly an enchanting experience.

## ARCHITECTS' AND ENGINEERS' SPECIFICATIONS

The loudspeaker shall be an Underwriters Laboratories' listed underwater loudspeaker. Case shall be color impregnated, shatterproof, flame-retardant A.B.S. plastic. Speakers shall not be subject to damage or corrosion from concentrations of chlorine, acid conditions, electrolysis, salt water or ocean environments and such minerals that may be in solution or suspension in such waters. Frequency response shall be 100-10 kHz, and impedance shall be 8 ohms. Power handling capacity shall be 30 watts continuous pink noise, and dispersion shall be omnidirectional underwater. Operating depth shall be not more than 10 feet below the surface of the water. Recommended operating depth for optimum efficiency shall be not more than 1.2 m (4.0 ft). Speakers shall be equipped with a 15.2-m (50-ft), 3-conductor waterproof cable terminated within the internal encapsulation material. Case diameter shall be 18.26 cm (7.19 in.), and depth shall be 6.63 cm (2.61 in.). Six .554 cm (.218 in.) holes on a 16.97-cm (6.68-in.) circle shall be provided for mounting. Speaker may be mounted in a wet-niche. Finish shall be pool blue. Shipping weight shall be 1.8 kg (4.0 lb). University Sound model UW-30<sup>®</sup> is specified.

## INSTALLING THE SPEAKER

### Flush Mounting

For new pool construction and modification of older pools, installing the UW-30<sup>®</sup> flush with the sides of the pool makes a very neat and unobtrusive installation. The speaker is mounted in a wet-niche (Paragon C-9120 or equivalent) in the same manner as an underwater light. Figure 1 shows a typical installation. The speaker is mounted up to 1.2 m (4 ft) below the surface of the water and flush with the side of the pool. (For installation in water depths lower than recommended please contact factory.) A marine plywood or stainless steel mounting ring is recommended. The wet-niche itself may be square or cylindrical in shape as desired. Several pool equipment manufacturers have wet-niches available into which the UW-30<sup>®</sup> may be installed. See your local pool supplier or University Sound dealer for further information.

You may contact Paragon at:  
KDI Paragon, Inc.  
Box 256  
Pleasantville, NY 10570

## SPECIAL INSTALLATION RECOMMENDATIONS

### Fusing

For maximum protection against overload of the speaker, fusing the line from the amplifier is recommended. In the event of accidental overload, it is much easier to replace a fuse (which is above the water) than to replace or have the speaker repaired. University recommends installing a 25-ohm 20-watt resistor in parallel with a 1.5-ampere fast-blowing fuse in series with the speaker. See Figure 2.

### LAYOUT OF SPEAKERS IN POOL

When underwater speakers are installed, particularly in smaller pools where only one or two speakers are needed, they should be located in the deep end of the pool. The above recommendation will effectively equalize the intensity of sound throughout the pool. For installations in large pools, such as at country clubs, municipal facilities, etc., the speakers should be located around the periphery of the pool. A good rule to follow for large pools is one speaker for every 900 square feet of pool surface at the deep end and one speaker for every 1200 square feet of pool surface for the shallow end. Of course, for high noise conditions in the pool, the number of speakers should be doubled for best results.

**WARRANTY (Limited)** — University Sound Speakers and Speaker Systems (excluding active electronics) are guaranteed for five years from date of original purchase against malfunction due to defects in workmanship and materials. If such malfunction occurs, unit will be repaired or replaced (at our option) without charge for materials or labor if delivered prepaid to University Sound. Unit will be returned prepaid. Warranty does not extend to finish, appearance items, burned coils, or malfunction due to abuse or operation under other than specified conditions, including cone and/or coil damage resulting from improperly designed enclosures, nor does it extend to incidental or consequential damages. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above exclusion may not apply to you. Repair by other than University Sound will void this guarantee. This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

Service and repair information for this product: University Sound, Inc.,  
Phone 818/362-9516, FAX 818/367-5292.

Applications and technical information for University Sound products:  
University Sound, Inc., Technical Coordinator, Phone 818/362-9516, FAX 818/367-5292.

Specifications subject to change without notice.

