University Sound™

a MARK IV company

SPECIFICATIONS

Element:
Dynamic

Frequency Response:
90-13,000 Hz (see Figure 1)

Polar Pattern:
Supercardioid (see Figure 2)

Impedance:
150 ohms/Hi-Z selectable

Impedance Change,
US660/US660A:
Rear connector insert (see Figure 4)
US664A:
On/off switch (see Figure 5)

Output Level,
150 Ohms:
−56 dB (0 dB = 1 mW/10 dynes/cm²)

High Impedance:
−55.5 dB (0 dB = 1 volt/10 dynes/cm²)

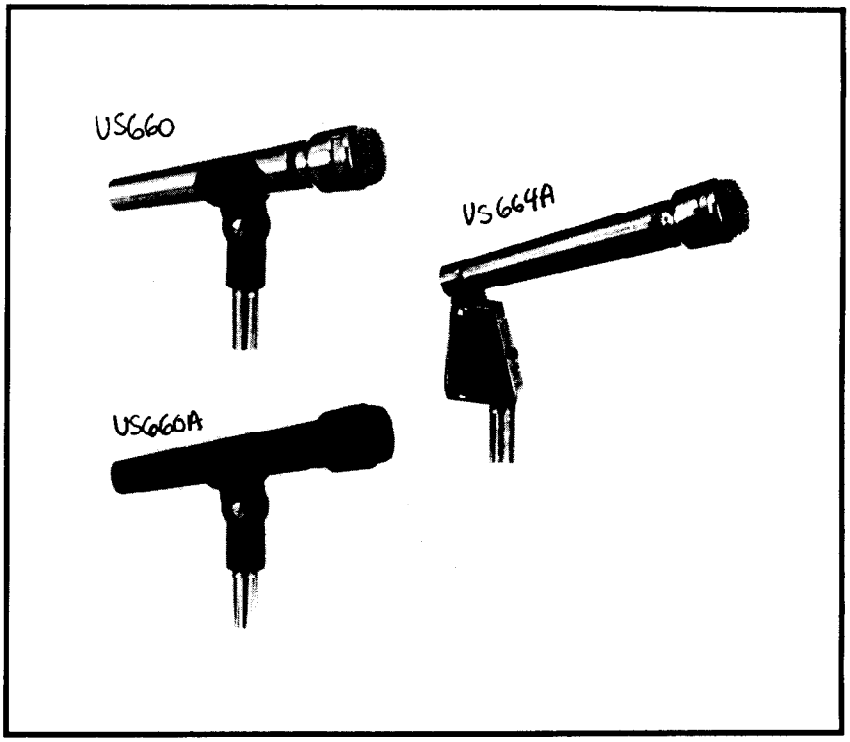
Diaphragm:
Acoustalloy®

Case Material:
Die cast zinc

Finish,
US660/US664A: Satin chrome
US660A: Blue/black

Net Weight,
US660/US660A: 298 g (10.5 oz)
US664A: 520 g (18.5 oz)

Dimensions,
Diameter,
US664A/US660/US660A:
38.1 mm (1.50 in.)
Length,
US660/US660A:
165.1 mm (6.50 in.)
US664A:
181.0 mm (7.13 in.)



US660/US660A Dynamic Supercardioid US664A Microphones

DESCRIPTION

The University Sound Models US660/US660A and US664A are rugged, supercardioid, dynamic microphones designed to provide reliable service in the many situations that directional microphones are required.

As a supercardioid the US660/US660A and US664A provide maximum rejection at 150° rather than the 180° of a cardioid. This assures greatest rejection in the horizontal plane when the microphone is tilted in its most natural position, 30° from the horizontal (as on a desk or floor stand).

The US660/US660A and US664A use the mechanical nesting concept of design providing a nearly solid mechanical structure that is highly resistant to damage from shock. The exclusive non-metallic Acoustalloy® diaphragm is virtually unaffected by extremes of atomspheric conditions. The case is made of pressure cast zinc with chrome plating. The US660A is identical to the US660 except the finish is non-reflecting blue/black.

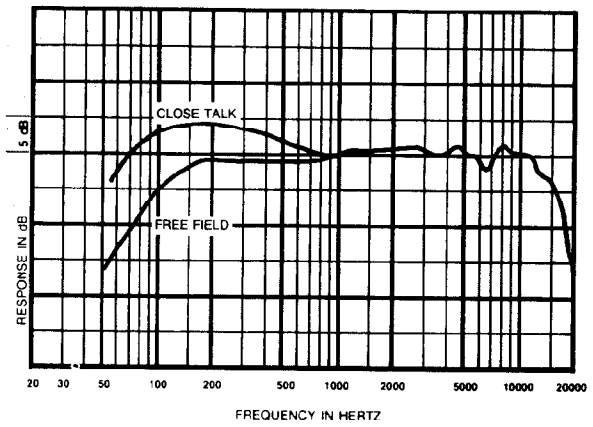


FIGURE 1
Typical Frequency Response

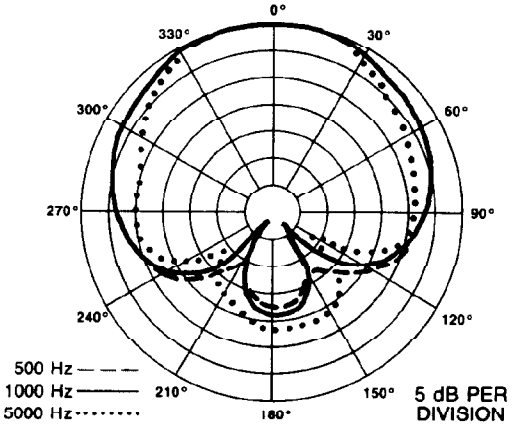


FIGURE 2
Polar Response

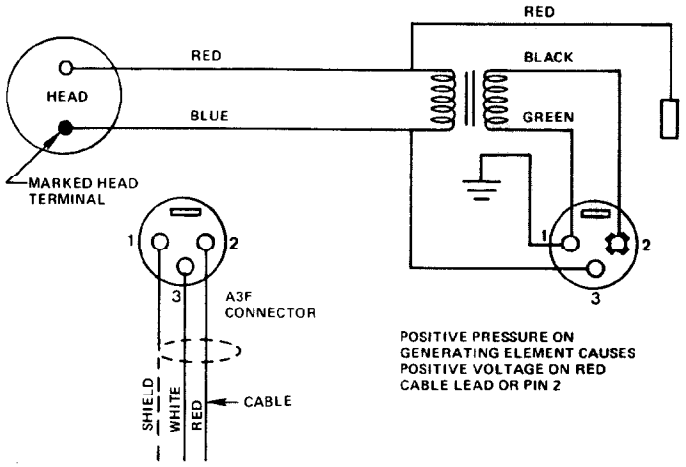


FIGURE 3
Wiring Diagram
US660/US660A

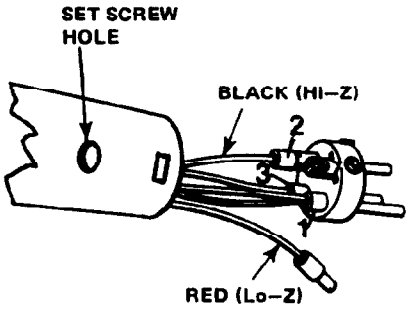


FIGURE 4
Changing Impedance
US660/US660A

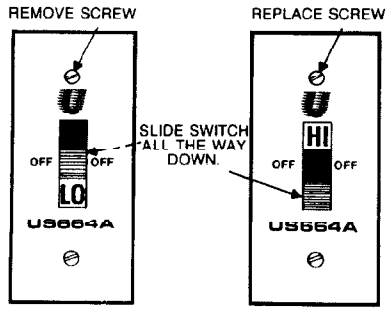


FIGURE 5
Changing Impedance
US664A

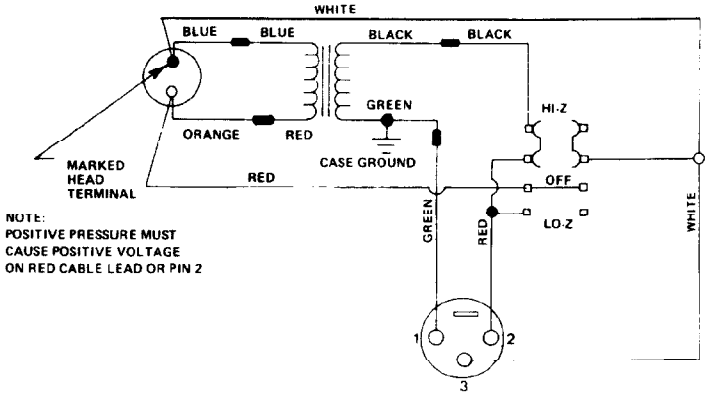


FIGURE 6
Wiring Diagram
US664A

IMPEDANCE CHANGE INSTRUCTIONS

The US660/US660A output may be either balanced low impedance or high impedance. To select impedance: (1) Turn the setscrew in the connector insert counterclockwise. (2) Pull the insert out from the end of the microphone, exposing the wires which are connected to it (see Figure 4). For high impedance, be sure that the black wire is attached to Pin 2 of the connector insert (a small connector sleeve slides over Pin 2 to assure firm connection). For balanced Low-Z (150 ohms) remove the black wire from Pin 2 and attach the red wire to Pin 2 by means of the sleeve type connector provided (see Figure 4).

The US664A features an impedance selector combined with the on/off switch. Either balanced 150 ohms or unbalanced Hi-Z output may be selected and locked with the flip of a switch and the turn of a screw. No wires to change, and the selected impedance is plainly indicated.

Look at the on/off switch located on the microphone stud (see Figure 5). Through the opening for the slider you will see either the word Hi or Lo indicating the present impedance. To change to the opposite impedance, remove the upper switch screw, the one nearer the microphone. Now push the switch butoon toward the indicated impedance (Hi or Lo). The switch button will slide the undesired impedance indication out of sight (push it all the way) and bring the desired impedance into view at the opposite end of the slot. Replace the switch screw and tighten. That's all there is to it. The impedance has been switched to the condition indicated.

Note: As indicated on the stud; the microphone off position is in the middle of the switch slot; "on" Hi impedance is down and "on" Lo impedance is up.

Unbalanced Lo-Z and Hi-Z operation requires that the black wire at the equipment end of the cable be connected together with the ground shield to the sleeve (or ground connection) of the plug. The white wire is connected to the tip (or positive). (See Figure 6.)

ARCHITECTS' AND ENGINEERS' SPECIFICATIONS

The microphone shall be a supercardioid dynamic type with uniform frequency response from 90-13,000 Hz. The diaphragm shall be non-metallic Acoustalloy.® The microphone low impedance output level shall be −56 dB (0 dB = 1 mW/10 dynes/cm²) balanced with an output impedance of 150 ohms. The microphone high impedance output level shall be −55.5 dB (0 dB = 1 volt/10 dynes/cm²).

The case shall be made of pressure cast zinc. The microphone shall have a maximum diameter of 38.1 mm (1.50 in.), with typical handle maximum length of 165.1 mm (6.50 in.). The case finish shall be satin chrome or non-reflecting blue/black.

The University Sound Models US660 and US660A are specified.

The microphone shall be a supercardioid dynamic type with uniform frequency response from 90 to 13,000 Hz. The diaphragm shall be non-metallic Acoustalloy.® The microphone low impedance output level shall be −56 dB (0 dB = 1 mW/10 dynes/cm²) balanced with an output impedance of 150 ohms. The microphone high impedance output level shall be −55.5 dB (0 dB = 1 volt/10 dynes/cm²).

The case shall be made of pressure cast zinc and shall include an integral stud and swivel of the same material. The stud shall include an on/off switch with provisions for selecting either 150 ohms balanced or Hi-Z unbalanced output requiring a wiring change. The microphone shall have a maximum diameter of 38.1 mm (1.50 in.), with tapered shank and a maximum length of 181.0 mm (7.13 in.).

The University Sound Model US664A is specified.

WARRANTY (Limited) — University Sound Commercial Microphones are guaranteed for two 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, cables, cable connectors, switches, or malfunction due to abuse or operation under other than specified conditions, 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 address for this product:
University Sound, 600 Cecil Street,
Buchanan, Michigan 49107.
(AC/616-695-6831)

Applications and technical information for University Sound products:
University Sound, Inc., Attention Technical Coordinator, 600 Cecil Street, Buchanan, MI 49107 (AC/616-695-6831).

Specifications subject to change without notice.

MICROPHONE SELECTION AND APPLICATION GUIDE

HOW DO MICROPHONES GENERATE THEIR ELECTRICL VOLTAGE?

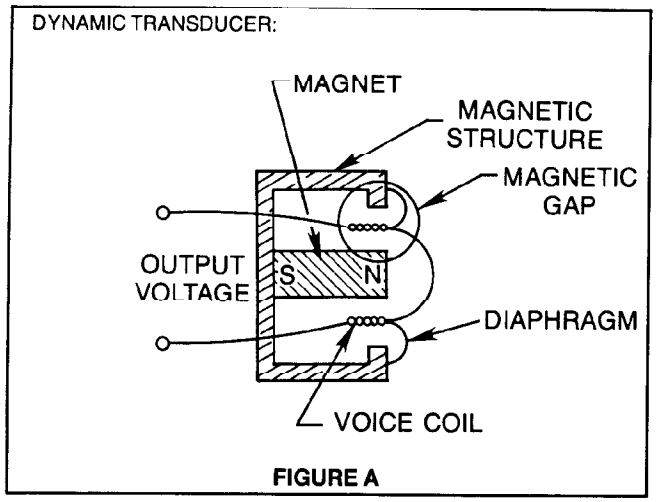


FIGURE A

The diaphragm of a dynamic microphone is a thin formed-plastic membrane. Attached to the diaphragm is a coil of wire, known as the "voice coil." As sound pressure moves the diaphragm/voice coil assembly within the magnetic gap, a very small voltage is generated. This small, induced voltage is the output of the microphone.

Dynamic microphones are used in a wide range of applications from public address to professional recording. The dynamic microphone provides excellent fidelity, extremely stable performance characteristics and ruggedness—all at a reasonable price to make the dynamic an excellent choice for any application.

POLAR PATTERN

A microphone's polar pattern is three dimensional in character. Omnidirectional microphones pick up sound from all directions. Unidirectional microphones reject or reduce sound from their sides and rear.

OMNIDIRECTIONAL POLAR PATTERN

The polar pattern of an omnidirectional microphone may be visualized as an inflated balloon with the microphone at the center.

Usually the polar pattern is represented on polar graph paper, as illustrated in Figure B. The polar pattern shows the loss in output level (in dB) experienced as the microphone is rotated 360° with a constant-output sound source at a fixed distance and frequency.

UNIDIRECTIONAL POLAR PATTERN

The most common unidirectional microphone is called a cardioid, with a "heart-shaped" polar pattern. The output of the microphone is moderately reduced (about 6 dB) for sources coming from the side and dramatically reduced for sources to the rear. The polar pattern of a cardioid microphone is shown in Figure C.

Directional microphones are widely used for live sound applications where gain-before-feedback is a problem. Depending on the applications, different null angles other than 180° may be advantageous. (See Figure D.)

A "VARIABLE-D® " UNIDIRECTIONAL EMPHASIZES CLARITY

In order to reduce bass-boosting proximity effect of the single "D" microphone a design now as "Continuously Variable 'D' " was employed. In a Variable "D" design a long slot entrance which has a continuously varying frequency acceptance along its length, with lowest frequency entering at the farthest point from the diaphragm. The frequency discrimination of a Continuously Variable "D" microphone ports can be effectively demonstrated by speaking, with lips touching, into the front, then mid, then rear openings. The change in vocal character will be readily apparent with the sound very "bassy" at the rear port of the microphone and much more "treble" in character toward the front port. A Continuously Variable "D" microphone frequency response is shown in Figure E demonstrating the low frequency increase of a Variable "D" versus Single "D" microphone.

In addition to the reduction of the Single D's proximity effect, the Variable "D" directional microphones also reduce breath popping and shock sensitivity. Thus, the popularity of the Variable-D® microphone is due to its combining of the omnidirectional's clarity and inherent pop and shock resistance with the directional microphone's feedback reduction and working-distance advantages.

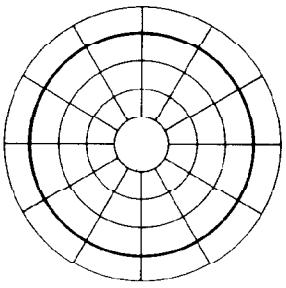


FIGURE B
Polar Pattern

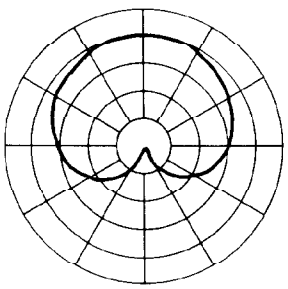


FIGURE C
Polar Pattern

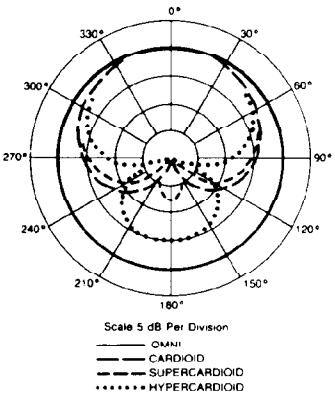


FIGURE D
Polar Pattern

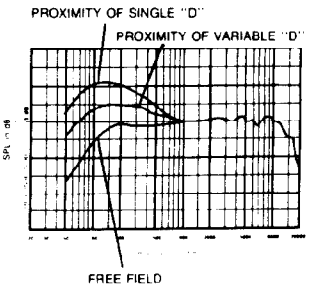


FIGURE E
Frequency Response

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