University Sound™

a MARK IV company

SPECIFICATIONS

Element:
Dynamic

Frequency Response:
300-3,800 Hz (see Figure 1)

Polar Pattern:
Noise-cancelling, pressure gradient
(see Figure 2)

Impedance:
150 ohms

Output Level:
– 57 dB
(0 dB = 1 mW/10 dynes/cm²)

Diaphragm:
Acoustalloy®

Case:
Lexan

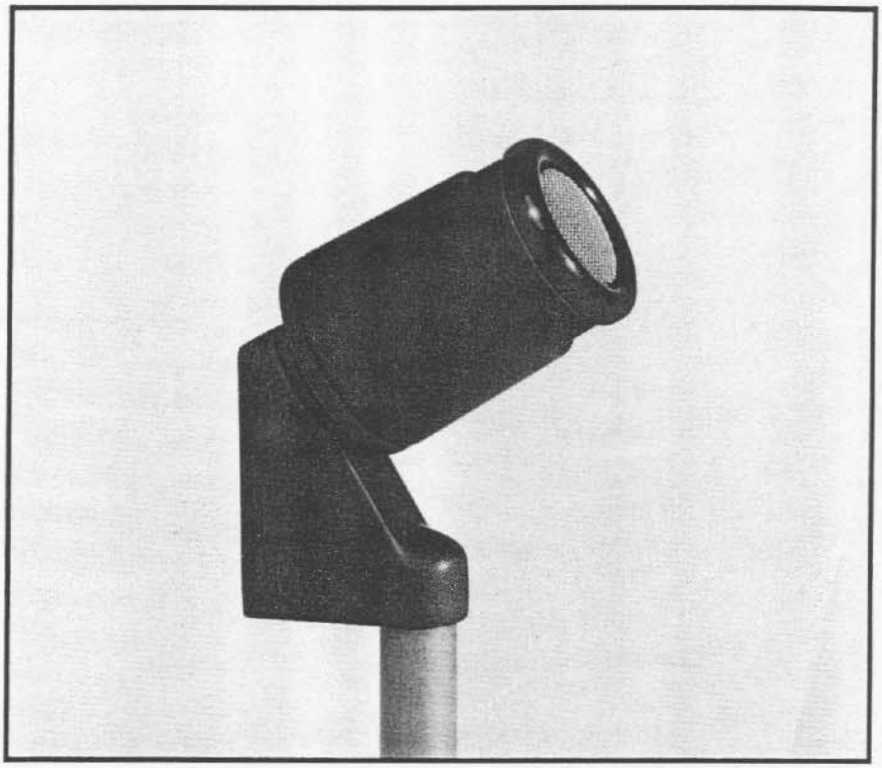
Finish:
Non-reflecting blue/black

Net Weight:
340 g (12 oz)

Dimensions,
Width:
44.5 mm (1.75 in.)
Diameter:
82.6 mm (3.25 in.)
104.8 mm (4.12 in.), including stud

Cable Connector:
XLR-type

Stand Coupler:
⅝"—27 thread



US607L

Noise-Cancelling Stud-Mounted Dynamic Microphone

DESCRIPTION

The University Sound Model US607L is a stud-mounted noise-cancelling microphone. This close talking, compact, sturdy microphone has a frequency response designed to insure excellent intelligibility. The case form factor offers a pleasing appearance while maintaining simplicity and minimum weight. It is especially designed for use where background noise is at a high level or for elimination of feedback under difficult acoustical conditions.

The US607L allows the user to speak closely into the microphone in a normal voice, while effectively cancelling distant noise. This is ideal for public address work, all types of dispatching and call systems, and paging systems. Rugged construction permits indoor and outdoor use without damage due to hard usage, temperature, or humidity.

The diaphragm in the Model US607L is constructed of non-metallic Acoustalloy.® It is practically indestructible, withstands high humidity, extreme temperatures, corrosive effects of salt air and severe mechanical shock.

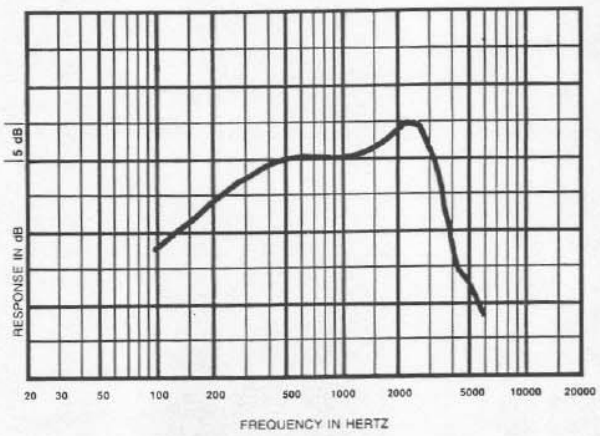


FIGURE 1
Frequency Response

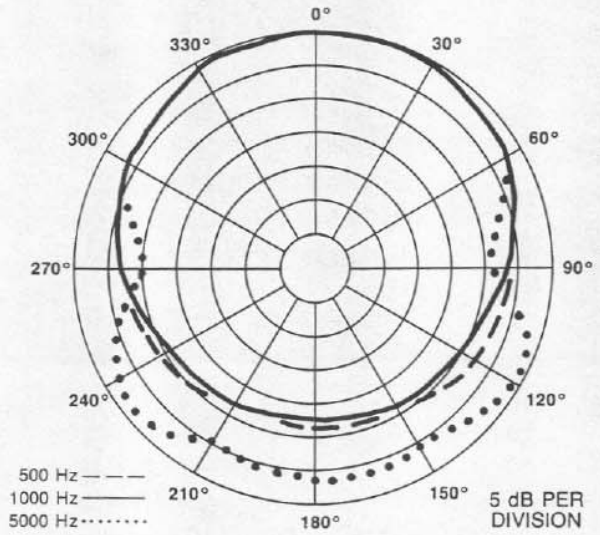


FIGURE 2
Polar Response

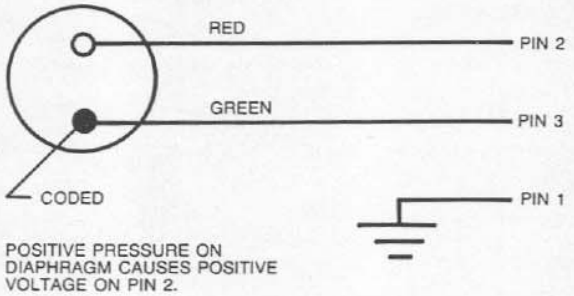


FIGURE 3
Wiring Diagram

ARCHITECTS' AND ENGINEERS' SPECIFICATIONS

The microphone shall be a noise-cancelling, dynamic type with rising frequency response from 300 to 3,800 Hz. The diaphragm shall be of non-metallic Acoustalloy.® The microphone shall have an impedance of 150 ohms balanced to ground.

The case shall be of Lexan with non-reflecting blue/black finish. The microphone shall have a maximum net weight of not more than 340 g (12 oz.) less cable. The microphone shall have an XLR-type connector. The microphone shall include a stand coupler with a ⅝-inch –27 thread on the stud and the head shall be tilted at a fixed angle of 30°.

The output level shall be –57 dB with 0 dB equalling 1 mW/10 dynes/cm². The magnetic circuit shall be nonwelded and shall employ Alnico V and Armco magnetic iron.

The University Sound Model US607L 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)

Specifications subject to change without notice.

MICROPHONE SELECTION AND APPLICATION GUIDE

HOW DO MICROPHONES GENERATE THEIR ELECTRICL VOLTAGE?

DYNAMIC TRANSDUCER:

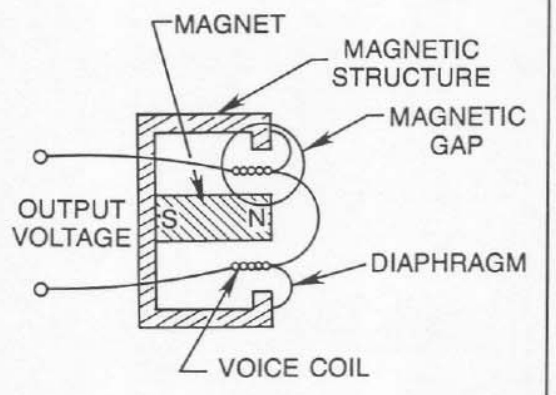


FIGURE A

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.)

NOISE CANCELLING

The term "noise cancelling" is widely used for communications products. What does it mean? A true noise-cancelling microphone is a pressure-gradient microphone (bi-directional polar pattern). When a directional microphone is talked at a close distance, ¼-inch or less, the low-frequency response is greatly emphasized. This emphasis is known as "proximity effect." Look at Figure E; both the free-field curve (equivalent to having the source a long way from the microphone) and the close-talking curve are shown. The difference between the on-axis close response and the free-field distant response greatly reduces the low-frequency noise arriving at the microphone. Since most unwanted noise is at low frequencies, the subjective effect is one of a much clearer voice signal. The ratio of direct to indirect sound is very high. In addition, the microphone element is directional, which further reduces unwanted noise arriving at the microphone from different angles.

NOISE-CANCELLING FREQUENCY RESPONSE

For communications noise-cancelling style microphones, the frequency response is tailored for voice. Typically, the 2,000-to-5,000-Hz response is peaked to provide presence and the low ferquencies are rolled off. The tailoring of the frequency response provides greater intelligibility.

The combination of the noise-cancelling effect and frequency tailoring make communications microphones ideal for voice applications where ambient noise is extremely high.

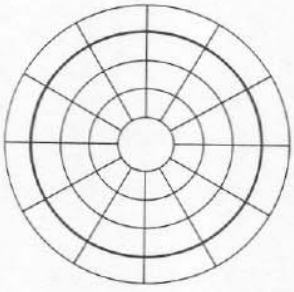


FIGURE B
Polar Pattern

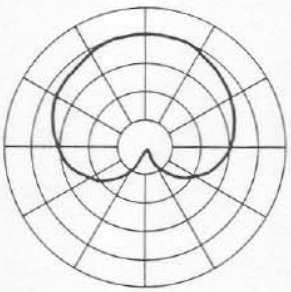


FIGURE C
Polar Pattern

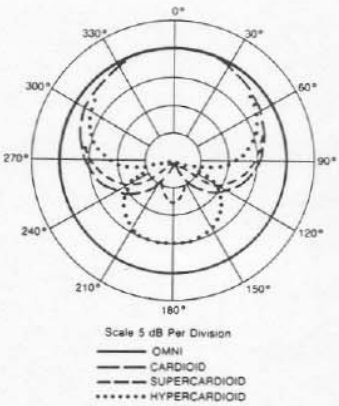


FIGURE D
Polar Pattern

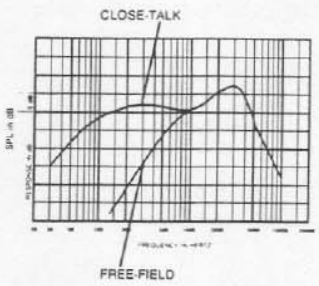


FIGURE E
Frequency Response