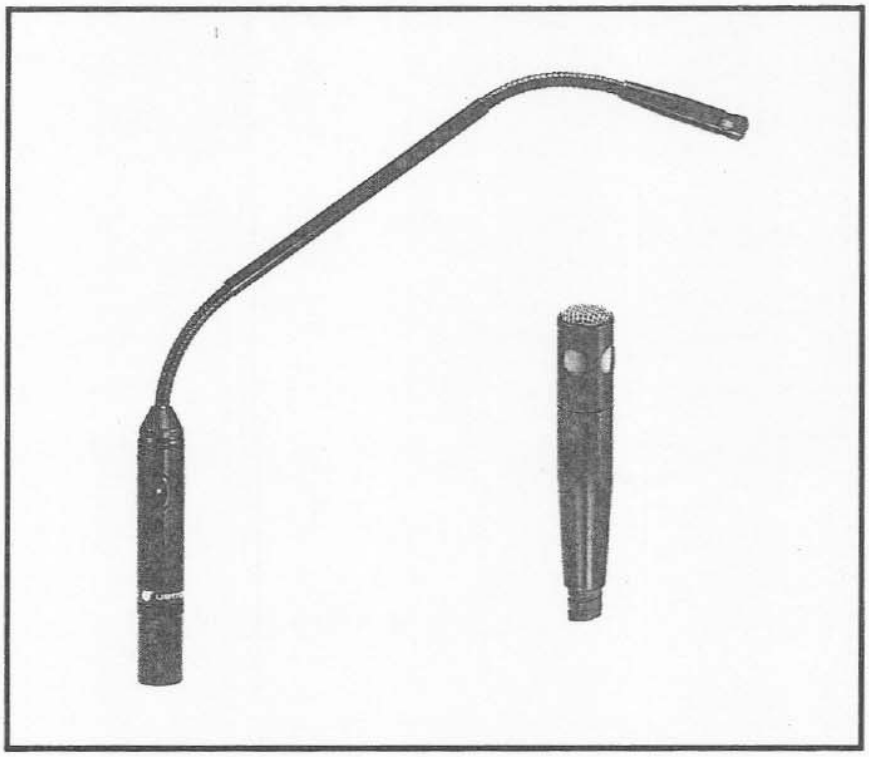
University Sound™

a MARK IV company

SPECIFICATIONS

Generating Element:
Condenser, Back Electret
Frequency Response:
70-20,000 Hz (5 in. or greater)
50-20,000 Hz (3 in. distance)
(see Figure 1)
Polar Pattern:
Cardioid (see Figure 3)
Sensitivity at 1,000 Hz,
Power Level:
−43.0 dB (0 dB = 1 mV/Pascal)
Open Circuit Voltage:
4.5 mV/Pascal
Dynamic Range:
117 dB
Equivalent Output Noise:
23 dB SPL "A" weighted (0 dB = 20 micro Pascals)
Impedance,
Rated:
150 ohms, balanced
Actual:
95 ohms at 1,000 Hz, balanced
Power Requirements,
Voltage:
9-52 V dc phantom supply
Current:
2.5 mA
Switch:
Flat, low-frequency roll-off, Fo = 130 Hz, 12 dB/octave (see Figure 1)
Color:
Non-reflecting black
Environmental Conditions,
Relative Humidity 0-50%:
−29 to 74°C (−20 to 165° F)
Relative Humidity 0-95%:
−29 to 57°C (−20 to 135° F)
Net Weight,
US-1700:
182 grams (6.4 oz.)
US-1718:
244 grams (8.6 oz.)
Shipping Weight,
US-1700:
400 grams (14.1 oz.)
US-1718:
528 grams (18.6 oz.)
Mounting:
Male XLR-type 3-pin connector
Dimensions,
US-1700:
406 mm (15.98 in.) overall length
20 mm (0.79 in.) maximum diameter
10.5 mm (0.42 in.) head diameter
US-1718:
571.5 mm (22.5 in.) overall length
20 mm (0.79 in.) maximum diameter
10.5 mm (0.42 in.) head diameter
(see Figure 2)
Accessories Furnished:
Windscreen
Optional Accessories:
Flange mount 1700 MF



US-1700 US-1718

Condenser Cardioid Gooseneck Microphone

DESCRIPTION

The University Sound model US-1700/US-1718 podium microphones are phantom powered "Back Electret" miniature condenser gooseneck microphones. The "Back Electret" feature provides greater sensitivity, wider frequency response, and superior immunity from handling noise than a diaphragm electret microphone. The US-1700/US-1718 are mechanically designed for easy mounting to a lectern, pulpit, or podium and acoustically designed for high quality sound reinforcement and broadcast applications. The frequency response is tailored for wide range sound reproduction with very natural sound pick-up for either distant or close-up use. The small diameter gooseneck has two supple joints and a rigid center tube. The rigid tube prevents unsightly twisting of the gooseneck but permits the user to exactly position the microphone. The electronics housing's ¾-inch diameter base is terminated with an XLR 3-pin connector which allows the microphone to be plugged directly into an existing panel mount XLR receptical for rapid direct connection. The housing is machined steel for ruggedness and superior EMI/RFI attenuation. A low frequency roll-off switch has been provided to configure the low-frequency response proximity effect, background noise, and mechanical vibration. The switchable low-frequency response is not load sensitive and provides a constant corner frequency regardless of mixer input impedance. The electronic's output circuit design utilizes a specially produced hum-bucking transformer to further attenuate external magnetic pick-up from lighting or electrical power sources and to provide a balanced low output impedance. The low output impedance, which is typically less than 95 ohms, permits applications which require very long cable runs without the usual degrading of microphone performance. The US-1700/US-1718 are designed to be operated from phantom power with a wide voltage range of 9-52 V dc (DIN Standard 45 596).

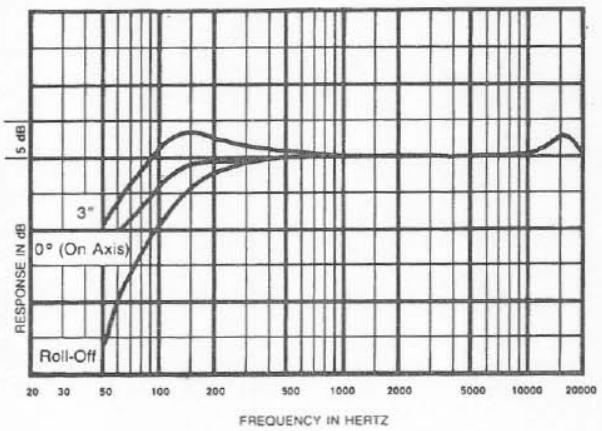


FIGURE 1
Frequency Response

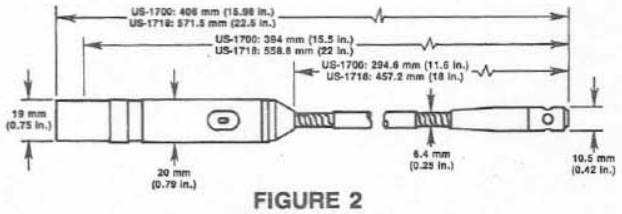


FIGURE 2
Dimensions

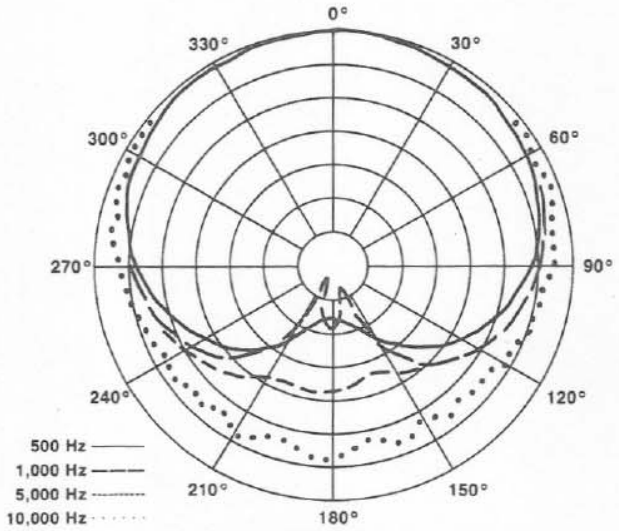


FIGURE 3
Polar Response

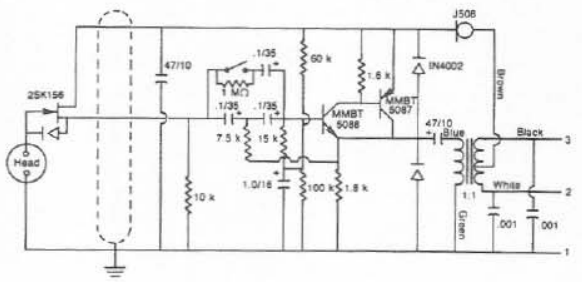


FIGURE 4
Schematic

ARCHITECTS' AND ENGINEERS' SPECIFICATIONS

The microphone shall be a Single-D cardioid back electret condenser type with frequency response of 70 to 20,000 Hz.

The microphone shall have a 150-ohm balanced output, with an output level of – 43.0 dB (0 dB = 1 mW/Pascal). The microphone shall have a back electret condenser generating element whose output shall not be appreciably affected by temperature extremes from – 17.8°C (0°F) to 54.4°C (130°F) and/or by humidity extremes. A switchable high-pass filter (Fo = 130 Hz) shall be provided.

Dimensions shall be 20 mm (0.79 in.) diameter and 406 mm (15.98 in.) long. The microphone shall include a 294.6 mm (11.6 in.) gooseneck with professional A3M style terminating connector and an external windscreen. The microphone shall be of metal construction.

The University Sound Model US-1700 is specified.

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The microphone shall have a 150-ohm balanced output, with an output level of – 43.0 dB (0 dB = 1 mW/Pascal). The microphone shall have a back electret condenser generating element whose output shall not be appreciably affected by temperature extremes from – 17.8°C (0°F) to 54.4°C (130°F) and/or by humidity extremes. A switchable high-pass filter (Fo = 130 Hz) shall be provided.

Dimensions shall be 20 mm (0.79 in.) diameter and 571.5 mm (22.5 in.) long. The microphone shall include a 457.2 mm (18.0 in.) gooseneck with professional A3M style terminating connector and an external windscreen. The microphone shall be of metal construction.

The University Sound Model US-1718 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, 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.

MICROPHONE SELECTION AND APPLICATION GUIDE

HOW DO MICROPHONES GENERATE THEIR ELECTRICAL VOLTAGE?

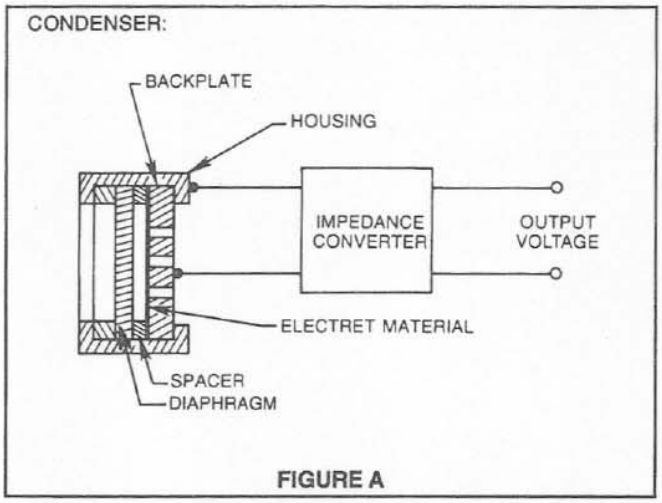

FIGURE A

The diaphragm of a condenser microphone is a very thin stretched plastic membrane. A thin conductive coating is plated on one side of the diaphragm material, forming the flexible plate of the condenser transducer. The stationary plate of the condenser is sometimes called a backplate. An electret material laminated to the backplate* has the ability to hold a controlled electrical charge "self-polarized." Sound pressure moves the diaphragm inwards and outwards from the backplate. The diaphragm motion increases and decreases the static capacitance. The changing capacitance transforms into an output voltage.

The capacitance of the condenser microphone is typically low. At audio frequencies the reactance is high and requires electronics to impedance match the high impedance transducer to the lower impedance of the user's equipment. To operate the electronics a power source is needed. Either an internal battery or an external dc voltage is fed to the microphone via the microphone cable for proper operation.

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).

USING THE VARIABLE LOW-FREQUENCY OF DIRECTIONAL MICROPHONES

The low-frequency response of unidirectional Single "D" microphones varies with distance from sound to the microphone (see Figure E). Maximum bass boost occurs in close-up use of the microphone. Minimum bass response is experienced at distances greater than 24 inches.

Useful special effects can be created by imaginative application of the variable low-frequency response. By working closer to the microphone than might otherwise be natural, the human voice will sound more robust.

Feedback in a public address system is sustained by reflection of sound back into the microphone. For all microphones, as the artist moves closer, the level of his voice (at the microphone) increases and the microphone's signal to the amplifier is increased. For a constant volume of sound from the system, the amplifier gain setting must be proportionately reduced. This results in a reduction of the system's sensitivity to reflected sound, hence a reduction of the tendency to feedback.

The low-frequency response is enhanced when working the microphone close while response to distant sound (as from sound system loudspeakers) is unaffected. The result is a reduced tendency to feedback, over and above that provided by the unidirectional characteristic alone.

In short, system sensitivity reduction, because of close-working, added to the advantage resulting from the bass-boosting low-frequency characteristic of unidirectional microphones is an effective tool for public address or stage use.

*(Back Electret)

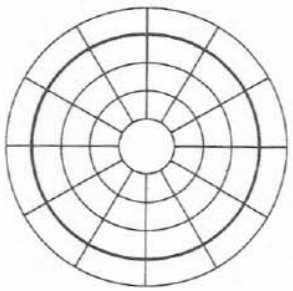

FIGURE B
Polar Pattern

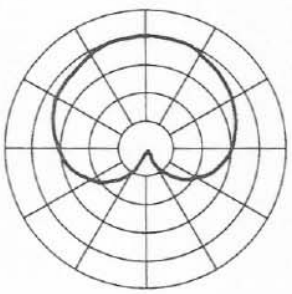

FIGURE C
Polar Pattern

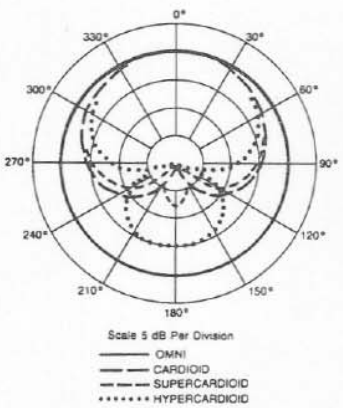

FIGURE D
Polar Pattern

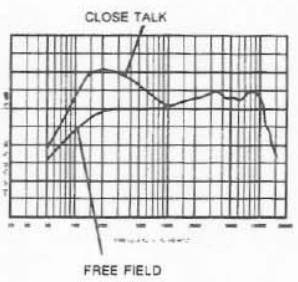

FIGURE E
Vocal Frequency Response