University Sound™

a MARK IV company

SPECIFICATIONS

Generating Element:
Dynamic

Frequency Response,
Close (¼" distance): 60-20,000 Hz
Far (5' or greater): 150-20,000 Hz

Polar Pattern:
Cardioid

Sensitivity,
Open Circuit Voltage:
3.1 mV/Pascal at 1,000 Hz
Power Level:
−51 dB at 1,000 Hz
(0 dB = 1 mW/Pascal)

Dynamic Range:
144 dB

Equivalent Output Noise:
14 dB (0 dB = .0002 dyne/cm²)

Impedance:
150 ohms, balanced (Lo-Z)

Color:
Black

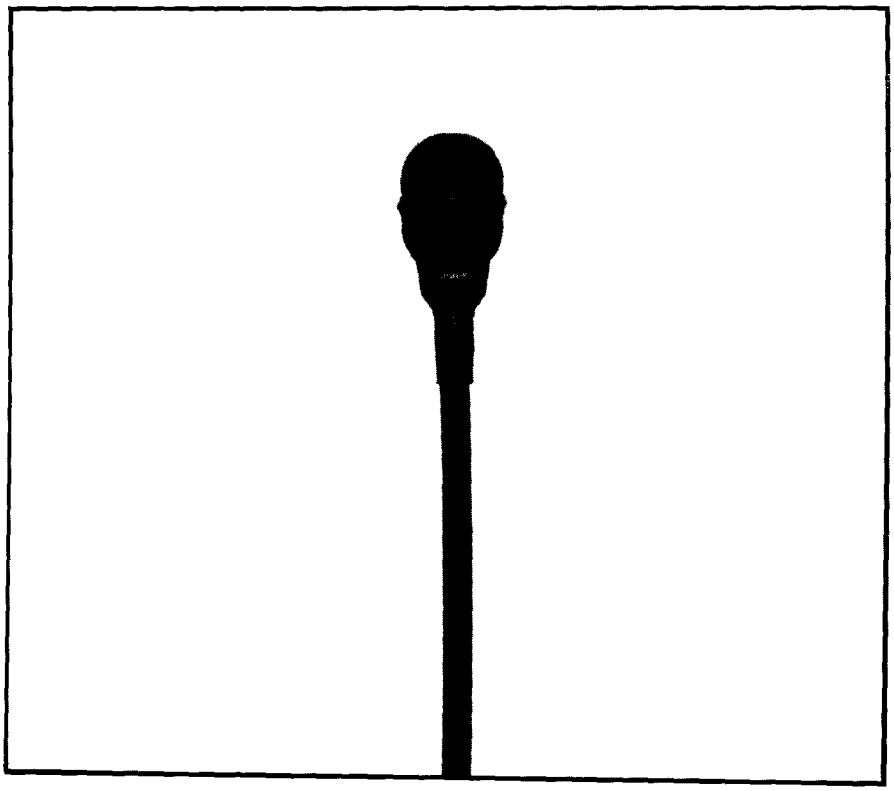
Weight,
US690: 504 gr (17.8 oz)
US690F: 522 gr (18.4 oz)

Dimensions,
US690: 52 mm (2.05 in.) diameter
US690F: 52 mm (2.05 in.) diameter
US690: 421 mm (16.58 in.) length
US690F: 418 mm (16.48 in.) length

Mounting,
US690: A3M connector
US690F: ¾ in. x 16 thread
with 1¼-in. flange

Cable,
US690: none
US690F: 1.8 m (6 ft) 2-conductor
shielded, black jacket

Optional Accessories:
379 color-coded windscreens
376 windscreen



US690 US690F Gooseneck, Dynamic Microphone

DESCRIPTION

The University Sound US690 and US690F are cardioid, shock mounted, gooseneck supported, dynamic microphones. Both microphones utilize a revolutionary neodymium alloy to form the exclusive N/DYM™ magnet with four times the power potential of conventional microphone magnets. With a computer-optimized design, the N/DYM magnetic structure is maximized in the US690 and US690F to provide up to 6-dB more output sensitivity over conventional designs, while the more uniform magnetic field lowers distortion during peak sound pressure levels.

The broadband sensitivity of the US690 and 690F combined with the inherently low noise of a dynamic transducer insures a superior signal-to-noise ratio. To further reduce noise, a highly effective humbucking coil is used to cancel hum from lighting and other sources.

A unique diaphragm design provides 50 percent more surface area than conventional designs and is reinforced to prevent "breakup." The result is an extended high-frequency response with an open transparent sound quality that provides greater intelligibility for today's most demanding sound systems.

The uniform cardioid polar pattern of the US690 and 690F insures superior gain-before-feedback in live applications at all frequencies—compared with other directional microphones with widely varying polar characteristics.

The US690 and 690F are enclosed in a rugged Memraflex grille with Acoustifoam™ pop filter to effectively eliminate explosive breath sounds and wind noise. Coupled with a unique shock mount totally surrounding the microphone element, this reduces all forms of handling or mechanically induced noise and eliminates the US690's the microphones of choice where ruggedness and performance are essential.

APPLICATION

The model US690 gooseneck microphone was designed for use on lecterns, as a high quality mixing console talkback microphone or applications that require a plug-in gooseneck microphone.

The model US690F gooseneck microphone was designed to panel mount in fixed installations where a high performance rugged, non-removable microphone is required. The microphone has a permanently attached two-conductor shielded cable six feet long to permit ease of installation.

OPERATION

The frequency response of both the US690 and 690F has been tailored for optimum performance where smooth extended highly intelligible sound character is required. The microphone output is balanced and low impedance.

The dynamic element of the US690 and 690F will provide reliable operation in humidity and temperature extremes—adverse conditions that would render condenser microphones useless—for years of trouble-free operation.

MOUNTING INSTRUCTIONS FOR US690F

Select microphone location, taking care that there are no obstructions under panel which could be damaged; panel thickness may not exceed ½ inch. Drill ¾-inch hole at microphone location, drop cable through hole and position microphone assembly. Secure assembly with included panel washer and retaining nut. Attach connector. See *wiring diagram for correct wire placement* for 3-pin balanced or ¼-inch phone plug balanced or unbalanced termination. (See Figures 5 & 6)

ARCHITECTS' AND ENGINEERS' SPECIFICATIONS

The gooseneck microphone shall be a cardioid dynamic type with uniform frequency response from 60 Hz to 20,000 Hz. The microphone output shall be balanced with an impedance of 150 ohms. Output level shall be −51 dB with 0 dB equaling 1mW Pascal. Dimensions shall be 52 mm (2.05 in.) diameter and 421 mm (16.58 in.) long. The microphone shall include a 12-inch gooseneck with professional A3M style terminating connector. The microphone shall be of metal construction with plastic engraved grille screen retainer. The microphone transducer shall be shock mounted within grille screen structure.

The University Sound model US690 is specified.

The gooseneck microphone shall be a cardioid dynamic type with uniform frequency response from 60 Hz to 20,000 Hz. The microphone output shall be balanced with an impedance of 150 ohms. Output level shall be −51 dB with 0 dB equaling 1mW Pascal. Dimensions shall be 52 mm (2.05 in.) diameter and 418.6 mm (16.48 in.) long. The microphone shall include a 12-inch gooseneck with ¾-inch threaded panel mount with 2-conductor shielded cable six feet in length. The microphone shall be of metal construction with plastic engraved grille screen retainer. The microphone transducer shall be shock mounted within grille screen structure.

The University Sound model US690F 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 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.

MICROPHONE SELECTION AND APPLICATION GUIDE

The selection of a microphone based on performance for a given application is often regarded as highly mysterious. Understanding some basic microphone characteristics can remove the black magic from the selection and application process.

A microphone is a transducer, converting acoustical energy (sound) into electrical energy (small ac voltage).

Polar Patterns and Working Distance

Common questions are "How far will that microphone reach?" or "How much will the microphone not pick-up?" or "What is the effective working distance of the microphone?" The most important factor which influences the effective "working distance" of a microphone is the polar pattern of the microphone. The polar pattern determines how well the microphone will reject unwanted sounds that arrive from the rear and sides of the microphone.

To increase the "working distance" of a microphone requires improvement of the signal-to-noise ratio. Where the signal is what you want to hear and the noise is what you don't want to hear (background noise). An acceptable signal-to-noise ratio can vary greatly, depending upon the application. Some situations might require background noise or reverb to add authenticity. If clear intelligible voice transmission is required, the easiest solution may be to have the person speak close to the microphone.

Figure A shows some common polar patterns for microphones. These are two-dimensional representations of the directionality of the microphone. Keep in mind that the polar pattern is really three-dimensional but is typically presented as a two-dimensional graph. The polar pattern graph shows the output in dB of the microphone as it is rotated 360 degrees relative to the sound source, but this information may be difficult to interpret.

Figure B shows a polar pattern of an omnidirectional vs. a supercardioid microphone and demonstrates how the supercardioid microphone may increase the "working distance." First, look at the results obtained with the omni microphone. Three sound sources, with equal sound pressure level at 1 kHz, are positioned at 0, 90 and 125 degrees relative to the microphone at a distance of 1 foot. Since the output of an omni is equal for sound source at all angles, the output signal produced by the microphone is equal for the 3 sources.

Then substitute a supercardioid microphone for the omni. Because the supercardioid pattern is less sensitive to sound from the sides and rear, the microphone "hears" those sounds as if they were farther away. A supercardioid microphone is 8 dB to 9 dB less sensitive at 90 degrees relative to on-axis and approximately 20 dB at 125 degrees or rear, so to the supercardioid microphone, the sound source placed 1 foot to the side would appear as though it is 3 feet away and the sound source 1 foot away (to the rear of the microphone) will appear as if it is 10 feet away.