



SHURE BROTHERS INC.

222 HARTREY AVE. • EVANSTON, ILL.
PHONE DAVIS 8-9000 • CABLE: SHUREMICRO
CHICAGO PHONE: SHELDRAKE 3-1600

Microphones ~ Electronic Components

DATA SHEET

Model 330 "Unitron" Microphone

UNI-DIRECTIONAL SUPER-CARDIOID RIBBON ELEMENT Multi-Impedance

General: The Model 330 "Unitron" is a slender compact uni-directional microphone. An improved ribbon element (coupled with a newly designed phase-shift network) provides an Super-Cardioid uni-directional characteristic which gives highly satisfactory operation under adverse acoustic conditions. These unique features permit placement of the microphone at a 92% greater distance from the performer than is possible with non-directional (omni-directional) microphones. The Model 330 reduces reverberation, reflection and pickup of undesired random sound by 73%, thus minimizing disturbing studio noises often heard in telecasting, and radio broadcasting. The sound is received through hundreds of tiny apertures in the acoustically streamlined external grill which attenuates blast and breath noises. The extended smooth frequency response and attending faithful reproduction is largely due to a sensitive metallic ribbon carefully suspended between the poles of the magnetic structure. The use of high efficiency magnetic materials and specially designed magnetic circuits has made it possible to achieve maximum operating efficiency in such a small microphone. The microphone is ruggedly built to withstand hard usage and is unaffected by temperature and humidity variations. To prevent mechanical vibration pickup, the Model 330 is provided with an isolation unit of live rubber construction. The 20 foot Broadcast-quality two conductor shielded cable is supplied with a Cannon XL-3-11 microphone plug.

A new trouble-free, adjustable swivel permits tilting of the head through 45 degrees forward and 70 degrees backward making it simple to aim the microphone at the source of sound.

Applications: The Model 330 meets the exacting requirements of broadcast, television and recording because it is controlled within close tolerances in frequency response and directivity. It is also ideal for the highest quality indoor public address systems. The true uni-directional characteristic of the Model 330 provides an easy solution to the feedback problems in reverberant locations; facilitates orchestral placement; permits best utilization of space in small broadcast studios and provides significant reduction of unwanted noises.

Installation: The Model 330 "Unitron" Microphone has a standard 5/8"-27 thread and may be mounted on a conventional desk, banquet, or floor stand. Adapter stand couplers are available at no charge for 1/2" pipe thread or 5/8"-24 thread by writing Shure Brothers, Inc. To avoid hum induction when long lines are used, care should be taken that the cable does not parallel A.C. power lines for long distances.



Connections: The Model 330 "Unitron" Microphone is a multi-impedance microphone. It may be connected directly to a 50 ohm line, a 150 ohm line or a 250 ohm line. Selection of these impedances is accomplished by changing positions of the switch in the isolation unit of the microphone. Switch positions are marked 50, 150, and 250 indicating the impedance in ohms.

The microphone receptacle is designed to receive the Cannon XL-3-11 plug. The number 1 pin is connected to the microphone case and to the shield of the cable. (See Fig. A). Pins number 2 and number 3 are connected to the internal elements, and the microphone may be used with a balanced line. The Model 330 may be connected directly to a standard low or medium impedance input amplifier (Fig. B-1).

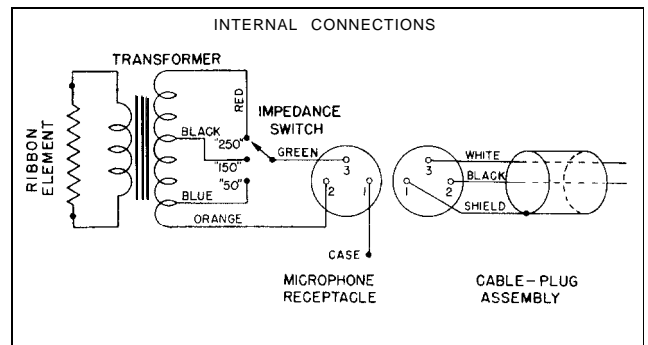


FIG. A

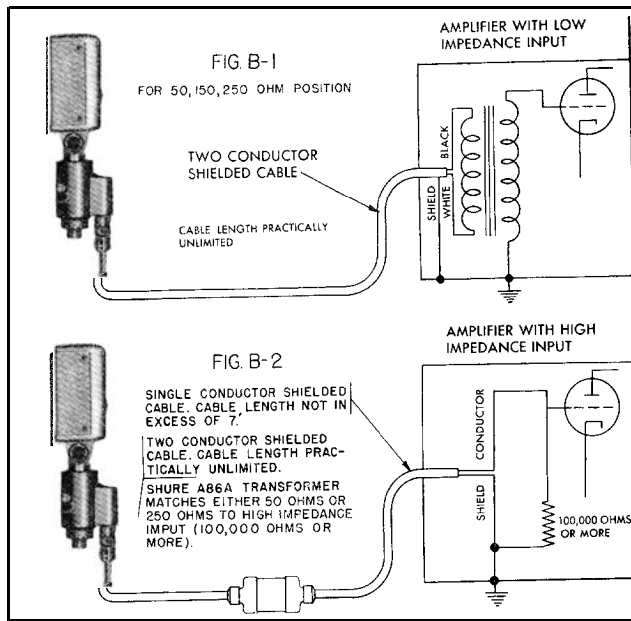


FIG. B

The 50 and 150 ohm impedance positions are recommended where unusually long cable lengths are required or under conditions of severe hum disturbances. For additional lengths of cable, a Broadcast-quality two conductor shielded cable may be used. The Shure 25-foot, A26C extension cables, which come with the necessary connections and require no additional soldering, are recommended for this use. The permissible cable length is practically unlimited, since neither response nor level is appreciably affected.

For use with high impedance amplifiers and tape recorders with high impedance inputs, the Shure Model A86A Cable-Type Transformer is available for coupling the low impedance line to the amplifier input as shown in Fig. B-2. The double winding primary of the Shure Model A86A Cable-Type transformer permits coupling either a 50 ohm line or 250 ohm line to the high impedance input. The shield, chassis or amplifier ground should be securely connected to a water pipe or similar ground to prevent shock hazard during operation of the amplifying system.

When used with amplifiers using the grid leak type of bias at the input tube, it may be desirable to use a .01 mfd. condenser between the microphone and the input grid circuit.

Operation: No special precautions beyond ordinary care are necessary in the operation of Model 330 "Uni-tron" uni-directional microphone. It will operate efficiently and dependably under ordinary conditions in hot and cold climates. To retain the full strength of the highly efficient permanent magnets and to maintain alignment of the structure, dropping or other severe mechanical shocks should be avoided.

To adjust swivel tightness, if necessary, loosen hex nut and adjust slotted swivel screw. Lock swivel screw in place by securely retightening hex nut.

CAUTION: To prevent serious or permanent damage to the ribbon element, do not check the continuity of the microphone with a circuit fester or an ohmmeter.

Acoustic Considerations: The smooth, wide-range response-frequency characteristic of the Model 330 Microphone is ideal for high-quality reproduction of music and speech.

"Super-Cardioid" describes the horizontal polar characteristic. This polar characteristic resembles a cardioid, but is more directional. There is a wide useful pickup angle at the front of the microphone, while the rear response is down from the front response approximately 12 to 20 db. The Model 330 provides these characteristics over a broad band of frequencies.

In broadcasting and recording, this type of polar characteristic enables one to point the back of the microphone at unwanted noises, thus, giving the interference-free pickup of desired sound. Pickup of reverberation energy is decreased approximately 73%.

High-quality, feedback-free, Public Address reproduction is assured at volume levels which would cause considerable feedback with conventional semi-directional or omni-directional microphones.

Specifications

Response Frequency Characteristic from 30 to 15,000 c.p.s. uniformly insured to plus or minus 2½ db.

Model 330 "50" ohm Position

Open circuit voltage level..... - 87.0 db*
Power level into 50 ohms..... - 60.0 db**
RETMA Microphone rating
Gm (Sensitivity) - 152.0 db***

Model 330 "150" ohm Position

Open circuit voltage level..... - 81.0 db*
Power level into 150 ohms..... - 59.0 db**
RETMA Microphone rating
Gm (Sensitivity) - 152.0 db***

Model 330 "250" ohm Position

Open circuit voltage level..... - 79.0 db*
Loaded with 250 ohms..... - 59.0 db**
RETMA Microphone rating
Gm (Sensitivity) - 150.0 db***

(*) 0 db = 1 volt per Microbar

(**) 0 db = 1 milliwatt with 10 Microbars

(***) RETMA Standard SE-105, August 1949.

Rated Impedances: Model 330 is equipped with a multi-impedance switch furnishing a choice of three impedance positions – 50 ohms, 150 ohms, 250 ohms.

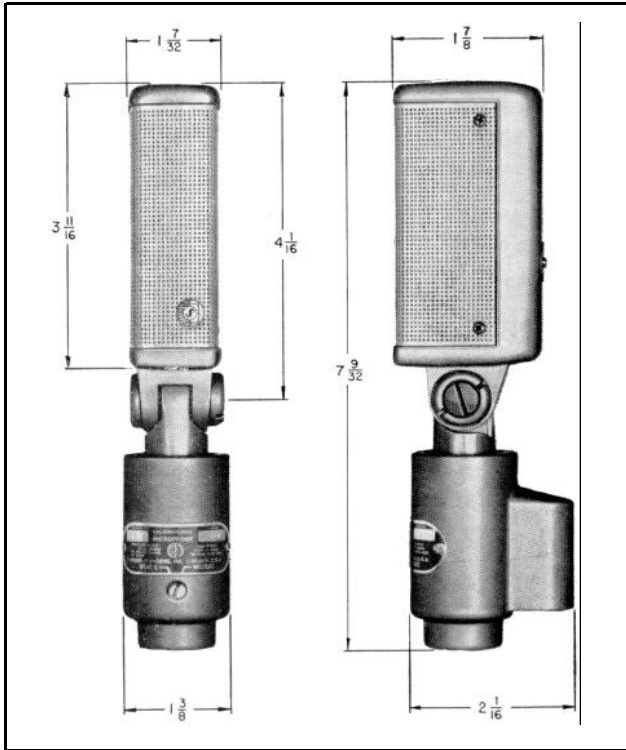


FIG. C

Model 330

Net Wt. 1½ lbs.
 Packaged Weight 4 lbs.
 Cable 20 Foot,
 Broadcast Two-Conductor Shielded

Height, Overall* 7-9/32"
 Height, Case* 4-1/16"
 Width* 1-7/32"
 Depth* 1-7/8"
 Finish Chrome

*See Fig. C.

Guarantee: The Model 330 "Unitron" Microphone is guaranteed to be free from electrical and mechanical defects for a period of one year from date of shipment from the factory, provided all instructions are complied with fully. In case of damage, return the microphone to the factory for repairs. Our guarantee is voided if the microphone is subjected to accident or abuse or if the case is opened.

MODEL 330

Architect's Specifications

The microphone shall be a moving ribbon type microphone with a frequency range of 30 to 15,000 c.p.s. The unit shall have a uni-directional horizontal polar characteristic. The cancellation at the rear shall be in the order of 15 db. The microphone shall be equipped with a three-position impedance change switch for adjusting the microphone impedance to 50 ohms, 150 ohms, or 250 ohms. The microphone rating Gm (sensitivity) at 1000 c.p.s. shall be within ±2 db of the following levels.

- 50 ohm Position of switch -152 db
- 150 ohm Position of switch -152 db
- 250 ohm Position of switch -150 db

RETMA Standard SE-105 August 1949.

The microphone shall be provided with a swivel adjustable from 45 degrees forward and 70 degrees backward. The microphone shall be equipped with a vibration isolation unit in combination with the stand connector, and it shall have a detachable Cannon cable connector capable of connecting to a two-conductor shielded cable.

The microphone will mount on a stand having a 5/8"-27 thread. The overall dimensions shall be 7-9/32 ± 1/4 inches in height, 1-7/32 ± 1/8 inches in width, and 1-7/8 ± 1/8 inches in depth.



The Mark of Quality