

**General:** Model 737A "Monoplex" is a high output Super-Cardioid Crystal Microphone employing the patented Shure "Uniphase" principle. The Super-Cardioid characteristic allows highly satisfactory operation under adverse conditions of background noise and reverberation where a conventional microphone would be practically useless.

The "Monoplex" contains a diaphragm-type element combined with acoustical networks which cause cancellation of sound pressures for sounds incident from the rear. The crystal is "Metal Seal" covered to withstand adverse climatic conditions. The case is pivoted at the rear and may be conveniently pointed in the direction of the desired sound, or pointed upwards for non-directional horizontal plane pick-up. The rich satin-chrome case is designed for improved acoustical performance and modern appearance.

The microphone is provided with a detachable plug and a 15 foot (4.6 m) single conductor shielded cable.

**Applications:** The model "737A" "Monoplex" is excellent for high quality public-address communications, all types of recording, and similar applications.

The true wide-range uni-directional characteristic of the "Monoplex" creates an easy solution to the feedback problem in reverberant locations, facilitates orchestral placement, permits good utilization of space in small recording or broadcasting studios, and allows a practically complete exclusion of unwanted noises.

By pivoting the microphone upwards, a 360° non-directional horizontal plane characteristic is obtained which is useful for group or roundtable pickup.

Frequency response is from 60 to 10,000 cycles over a wide range angle at the front, yet practically unaffected by sound approaching from the rear. Rear response is down approximately 15 db permitting more volume without feedback which simplifies microphone and speaker placement and greatly improves systems using conventional microphones.

**Connections:** The microphone cartridge element is connected across terminals 2 and 3 in the microphone receptacle. The microphone case is connected to terminal 1.

In the cable plug, pins 1 and 2 are connected to the shield of the cable, and the inner conductor is connected to

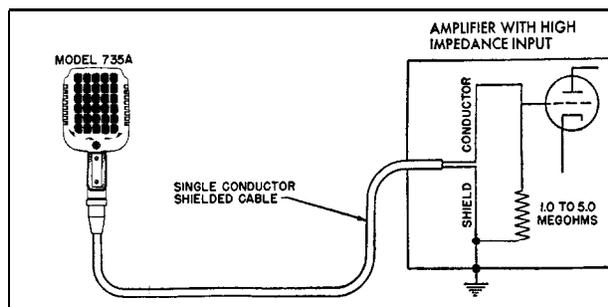


Fig. A. Connections for Model 737A Microphone.



number 3 pin. Therefore, one side of the cartridge element is grounded to the case and shield while the microphone is in operation.

The inner conductor or "hot" lead should be connected to the grid of the first tube in the amplifier across a load resistance of 5 megohms. Input resistances as low as 1 megohm may be used if necessary, but higher values are recommended because of the better low frequency response which will result. The shield or ground should be connected to the chassis. See Fig. A. The shield, chassis or amplifier should be securely connected to a water pipe or similar ground to prevent shock hazard during operation of the amplifying system.

Added lengths of connecting cable will be accompanied by a decrease in output level. There is no frequency discrimination introduced by the cable, regardless of length. Most modern high-gain amplifiers have a sufficient margin of gain to make up for output level decreases due to additional cable lengths. If the amplifier does not have the necessary gain a pre-amplifier at the microphone or near the main amplifier is suggested. Pre-amplifiers with low impedance output are recommended if the main amplifier system has a low impedance transformer or mixer input. Cable should be of high quality and low capacity. The inner leads should be soldered and insulated. Metal braid sleeve or a serve of fine wire should be soldered between the shields of the cables to complete the shielding.

**Operation:** No polarizing voltage is required for crystal microphones.

Crystal microphones may be seriously damaged if accidentally connected to loudspeaker or power supply outlets carrying high voltage. Check your connections carefully.

Shure crystal products are suitably moisture-protected to withstand the action of all ordinary atmospheric conditions in temperate climates. Rochelle salt crystal deteriorates rapidly when a temperature of 135° F. is reached. It is, in general, not safe to store or subject these crystals for prolonged periods of time to temperatures in excess of 115-120° F., or to extremely high humidity as this may result in a progressive deterioration of the crystal.

When used near a radio transmitter, use minimum length of cable consistent with placement requirements. Careful grounding of the cable shield is advisable.

As a precaution against mechanical vibration pickup, the unit is floated in sponge rubber inside the microphone case.

No special precautions, beyond ordinary care are necessary in the operation of the "Monoplex" Microphone. It will operate efficiently and dependably under all ordinary conditions.

**Acoustic Considerations:** The expression "Super-Cardioid type response" simply means that the polar characteristic of the microphone approximates a modified cardioid of revolution. There is a wide, useful pickup angle at the front of the microphone. The rear response is down of the order of 15 db over a broad range of frequencies and reduces pickup of random energy by 73%.

The Shure "Monoplex" employs the same type of acoustic phase shifting network used in the highest cost Shure Microphones. The true uni-directional "super-cardioid" characteristic of the "Monoplex" allows highly satisfactory operation under adverse conditions of background noise and reverberation where a conventional microphone would be practically useless. By directing the rear side of the microphone towards the audience or other source of interfering sound, pickup can be concentrated on the desired source. The microphone can be placed close to reflecting surfaces without objectionable effects if the rear side of the microphone is toward the reflecting surface. This is particularly valuable in small studios or rooms.

It is desirable to experiment with microphone placement and orientation in order to secure the greatest benefits from the uni-directional characteristic.

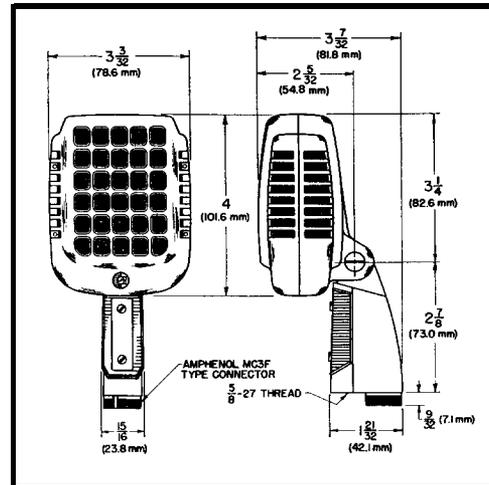
**Specifications:** Voltage Sensitivity: 2.25 millivolts per microbar at end of 15 foot (4.6 m) cable across 1 to 5 megohms. This is equivalent to 53 db below 1 volt per microbar.

RETMA Microphone Rating  $G_M$  (Sensitivity) -153 db.

RETMA Standard SE-105, August, 1949.

Internal Output Impedance: Equivalent to a 1000 micro-microfarad condenser.

Recommended Load Impedance: 1 to 5 megohms.



Finish	Satin Chrome Plate
Cable	15' Single Conductor
Net Weight, Less Cable	1-1/8 lb.
Packaged Weight	2-1/4 lbs.

**Guarantee:** Each 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 case is opened.

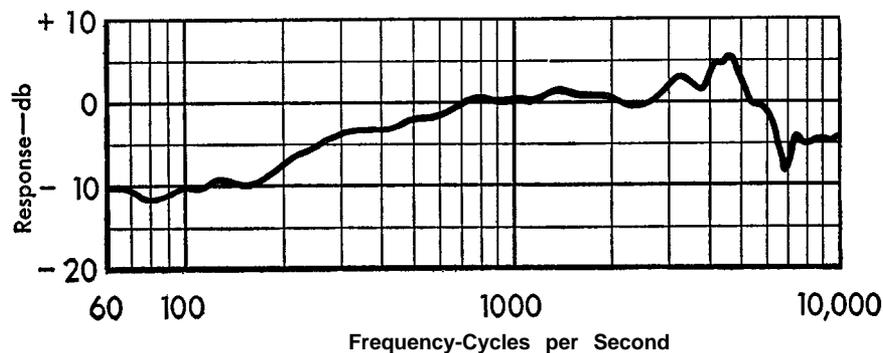


Fig. B. Front Response-Frequency Characteristic Model 737A Microphone.