

Electro-Voice®
a gulton company

Model PL78 Condenser Cardioid Vocal Microphone

SPECIFICATIONS:

Generating Element:
Electret condenser

Frequency Response:
50 Hz - 18 kHz*

Polar Pattern:
Cardioid

Impedance:
150 ohms balanced

Output Level:
-49.0 dB (0 dB = 1 mW/10 dynes/cm²)
2.5 mv/Pascal @ 1 kHz

Dynamic Range:
122 dB

Equivalent Noise Level:
Less than 30 dB
(0 dB = .0002 dynes/cm²
A-weighted)

Switch:
On/off

Power Supply:
4.5-volt battery (not included) or
24- to 48-volt phantom supply

Current Drain:
3.5 mA

Recommended Batteries: (Alkaline)
Eveready No. 523
Mallory PX 21

Pop Filter:
Built-in Acoustifoam™ filter

Grille Screen Material:
Memraflex (tempered spring steel)

Case Material:
Diecast zinc and aluminum

Finish:
Snow gray and charcoal

Dimensions:
201.9 mm (7.95 in.) long
48.3 mm (1.90 in.) maximum diameter

Weight:
288 grams (10.16 oz)

Accessories Furnished:
301 stand clamp
Zippered vinyl carrying pouch

* Useable response range.

DESCRIPTION

The Electro-Voice PL78 is a Single-D, cardioid, low impedance, electret condenser microphone featuring smooth frequency response in a rugged diecast case. The PL78 can be powered using an internal battery or any phantom power source between 24 and 48 volts. An on/off switch is provided to mute the microphone in either battery or phantom power and, in the battery mode, open the power connection to conserve battery life.

APPLICATIONS

The PL78 is designed to provide superior gain-before-feedback in live entertainment use where sound is reflected into the microphone. The PL78 minimizes feedback by emphasizing: a smooth, peak-free frequency response; employing a cardioid polar pattern; and, finally, transducer element positioning. The placement of the condenser element close to the front of the microphone insures the highest ratio of gain-before-feedback. Electronic tailoring is used to control the subsequent increase of bass energy. Feedback problems can be further reduced by close microphone placement to the performer that yields a significant reduction in undesirable background and reflected sound.

USING THE VARIABLE LOW-FREQUENCY RESPONSE

The PL78 low-frequency response varies with the distance from the source to the microphone as shown in the response curve (Figure 2). Maximum bass response is produced in close-up use with the microphone ¼ inch from the sound source (Figure 2A). Minimum bass response is experienced at distances greater than 24 inches (Figure 2C).

Useful special effects can be created by an imaginative application of the variable low-frequency response:

1. By varying the distance between the mouth and the microphone a wide range of tonal variations are possible. Generally, the greater working distances provide a natural, more intelligible output while the closer provide a deeper, more robust sound.
2. Feedback in a sound reinforcement system is sustained by reflection of sound into the microphone. As the level of the voice (at the microphone) increases, 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 variable low-frequency response of the PL78 provides a further feedback reducing advantage in close talking applications. At ¼ inch, low-frequency response is greatly enhanced, 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 cardioid directional characteristic alone.

In short, system sensitivity reduction because of close working, added to the advantage resulting from the bass boosting low-frequency characteristic of the PL78, makes this instrument an exceptionally effective tool for stage and nightclub use.

3. For musical pickup, the variable bass response can be utilized to achieve "clean"

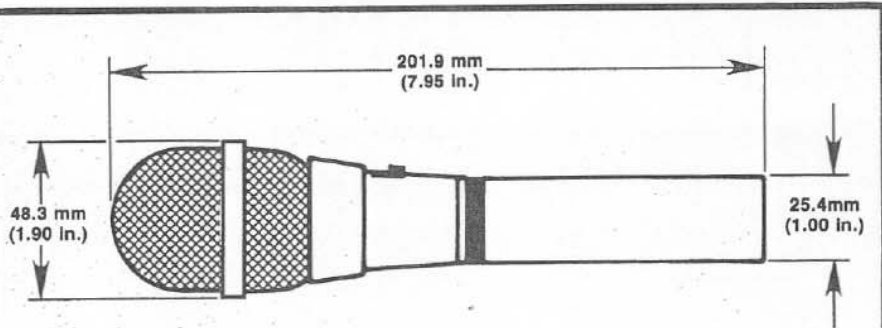
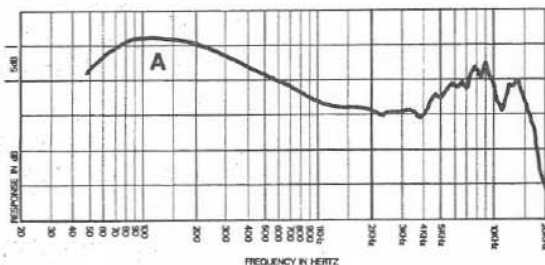


FIGURE 1 — Dimensions



Normal 1/4" Working Conditions

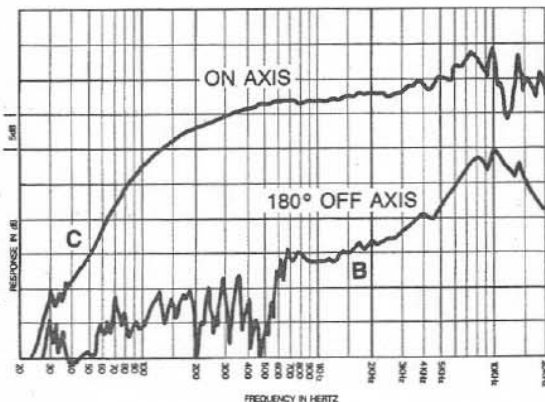


FIGURE 2 — Frequency Responses

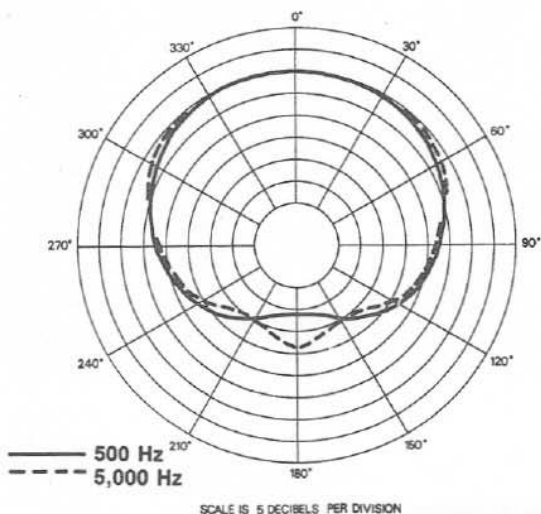


FIGURE 3 — Polar Response

bass pickup at a distance of 24 inches or more. By moving the PL78 to within a few inches of the instrument, bass response will be increased.

CAUTION NOTES: With the sound source (lips) closer than 4 inches, bass response is increased dramatically (as shown in Figures 2A and C). The resulting signal may be beyond the input range of your mixer or amplifier which can cause distortion. In these cases an in-line attenuator or "pad" installed between the microphone and the mixer will eliminate the distortion.

MAINTENANCE INSTRUCTIONS

You have purchased one of the finest electret condenser microphones available. A little care will allow you continued use of this precision instrument for many years.

Your electret condenser microphone should not be left in the open sun or other hot environments where temperatures may approach or exceed 54.4° C (130° F) for any period of time. Following this suggestion will prolong the life of the generating element.

If you feel your unit is malfunctioning, have it examined and repaired only by an Electro-Voice authorized repair service station.

POWERING THE PL78

Unlike normal condenser microphones, the electret condenser does not need a polarizing voltage because a permanent charge is captured in the diaphragm material. However, a small voltage with low current drain is necessary to power the FET impedance converter which must be used to lower the extremely high impedance of the electret head. You may gain access to the battery compartment by unscrewing and pulling away the rear sleeve of the microphone, exposing the battery clips (see Figure 5). A 4½-volt alkaline battery should be inserted, being sure to follow the polarization label. With the very small current drain of 3.5 mA, it is common to have 150 hours or more of battery life.

An Alkaline-type battery is recommended because of its much greater shelf life and less likelihood of leakage.

A noticeable reduction in output gradually occurs well before complete failure, usually allowing replacement of the battery without program interruption.

The PL78 may also be operated from any phantom power source between 24 and 48 volts. The microphone can be operated from a phantom supply with a battery installed without any affect on microphone performance.

ARCHITECTS' AND ENGINEERS' SPECIFICATIONS

The microphone shall be a Single-D cardioid electret condenser type with frequency response of 50 to 18,000 Hz.

The microphone shall have an 150-ohm balanced output, with an output level of -49.0 dB (0 dB = 1 mW/10 dynes/cm²), and 2.5 mv/Pascal @ 1 kHz. The microphone shall have an 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. An on/off switch shall be provided.

The case shall be zinc diecast with an aluminum battery compartment cover. The finish will be non-reflecting snow gray and charcoal paint. Dimensions shall be 201.9 mm (7.95 in.) long, not including cable connector, with shank diameter of 25.4 mm (1.00 in.). Net weight (including battery, but less cable) shall be 288 grams (10.16 oz). The Electro-Voice Model 301 stand clamp and a zippered vinyl carrying pouch shall be furnished.

The Electro-Voice Model PL78 is specified.

WARRANTY (Limited) —

Electro-Voice PL78 Microphones are guaranteed unconditionally against malfunction from any cause for a period of two years from date of original purchase. Also, these microphones are guaranteed without time limit against malfunction in the acoustic system due to defects in workmanship and materials. If such malfunction occurs microphone will be repaired or replaced (at our option) without charge for materials or labor if delivered prepaid to the proper Electro-Voice service facility. Unit will be returned prepaid. (Any active electronics incorporated in a microphone are guaranteed for three years from date of original purchase against such malfunction.) Warranty does not cover finish, appearance items, cable, cable connectors, or switches. Defect guarantee does not cover malfunction due to abuse or operation at other than specified conditions. Repair by other than Electro-Voice or its authorized service agencies will void this guarantee.

For repair information and service locations, please write: Service Dept., Electro-Voice, Inc., 600 Cecil Street, Buchanan, Michigan 49107 (Phone: 616/695-6831) or Electro-Voice West, 8234 Doe Avenue, P.O. Box 3297, Visalia, CA 93277 (Phone: 209/651-7777).

Electro-Voice also maintains complete facilities for non-warranty service of EV products.

Specifications subject to change without notice.

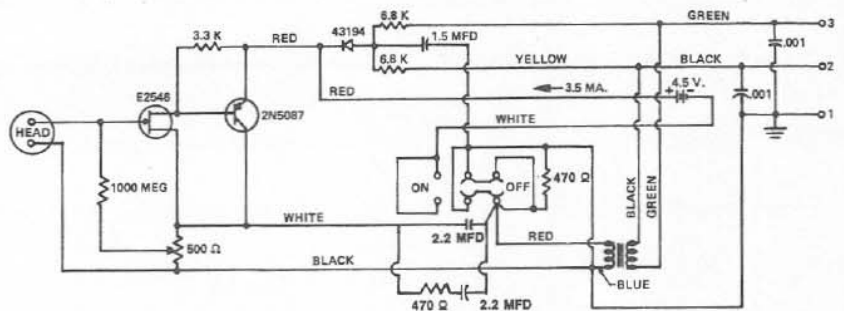


FIGURE 4 — Schematic

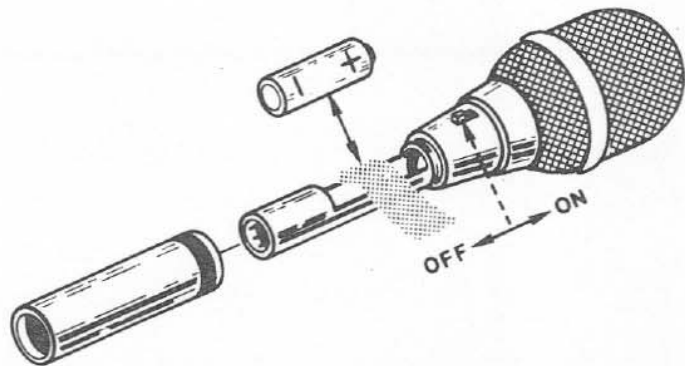


FIGURE 5 — Battery Replacement

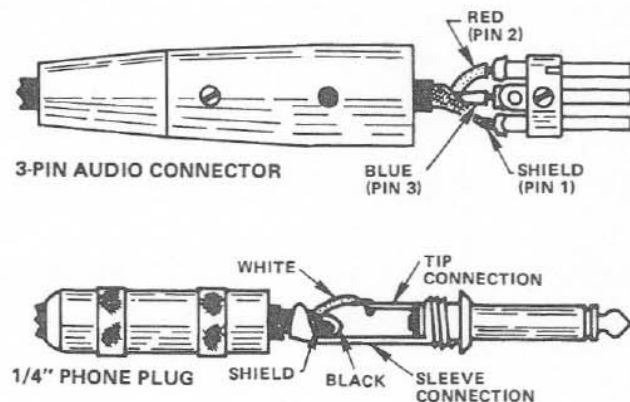


FIGURE 6 — 3-Pin Connector & 1/4" Phone Plug Wiring Connections



ELECTRO-VOICE, INC., 600 Cecil Street, Buchanan, Michigan 49107

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