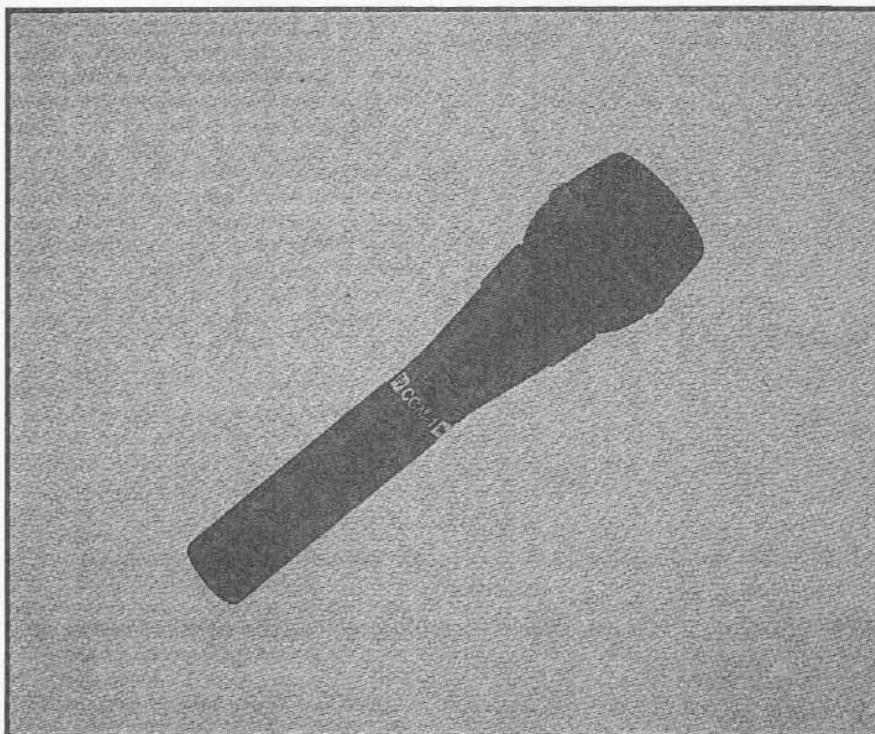




Electro-Voice®
a MARK IV company

Model CCM-1 Condenser Cardioid Vocal Microphone

SPECIFICATIONS

Generating Element:

Electret condenser

Frequency Response:

50-18,000 Hz

Polar Pattern:

Cardioid

Impedance:

150 ohms balanced

Output Level:

-50 dB (0 dB=1mW/10 dynes/cm²)

2.5 mv/pascal @ 1 kHz

Dynamic Range:

100 dB

Equivalent Noise Level:

Less than 30 dB typical

(0 dB=0.0002 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):

Ray-o-Vac RPX21

Panasonic PX-21

Varta V2/PX

Pop Filter:

Built-in Acoustifoam™ filter

Grille Screen Material:

Memraflex (tempered spring steel)

Case Material:

Diecast zinc and aluminum

Finish:

Non-reflecting black

Dimensions:

190.5 mm (7.50 in.) long

50 mm (1.97 in.) maximum diameter

Weight:

323 grams (10 oz)

Accessories Furnished:

301 stand clamp

Zippered vinyl carrying pouch

DESCRIPTION AND APPLICATIONS

The Alpha Audio CCM-1 is a Single-D electret condenser cardioid microphone featuring smooth frequency response in a rugged diecast case. The CCM-1 can be powered using batteries or any phantom power source between 24 and 48 volts. An on/off switch is provided to mute the microphone in either mode, and, in the battery mode, open the power connection to conserve battery life.

The CCM-1 is uniquely adapted to live entertainment use where sound is reflected back into the microphone causing ringing and feedback. The CCM-1 minimizes feedback by emphasizing smooth, peak-free frequency response and having a cardioid polar pattern. Feedback problems can be further reduced by close microphone placement that yields a significant reduction in background and reflected sound compared to the entertainer's voice or instrument sound.

USING THE VARIABLE LOW-FREQUENCY RESPONSE

The CCM-1 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 1/4-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 CCM-1 provides a further feedback reducing advantage in close talking applications. At 1/4-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 CCM-1, makes this instrument an exceptionally effective tool for stage and nightclub use.

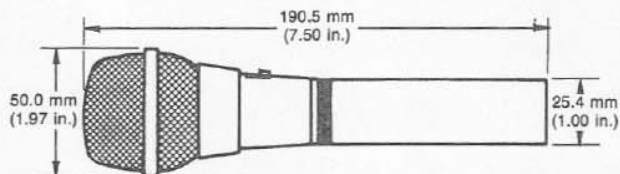


FIGURE 1 — Dimensions

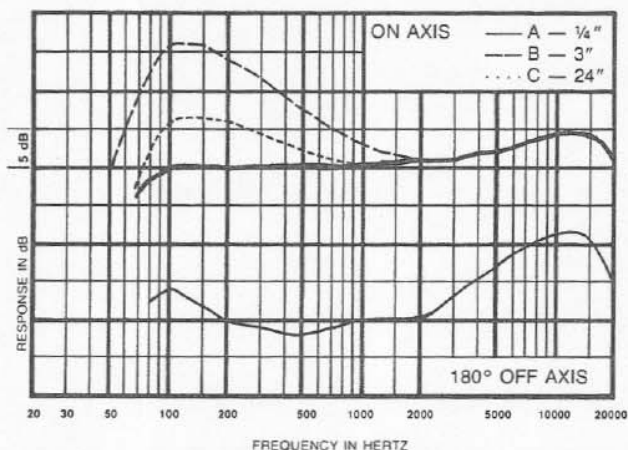


FIGURE 2 — Frequency Response

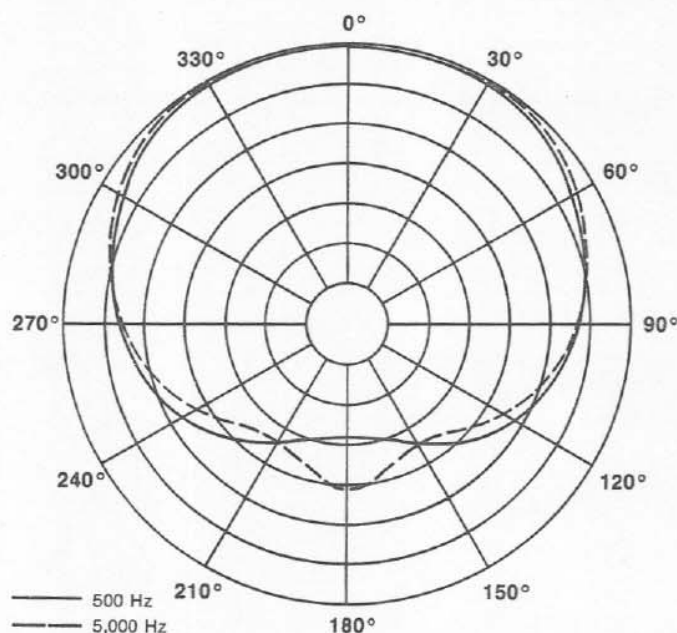


FIGURE 3 — Polar Response

3. For musical pickup, the variable bass response can be utilized to achieve "clean" bass pickup at a distance of 24 inches or more. By moving the CCM-1 a few inches from the instrument, bass 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 B). 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 CCM-1

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 AA 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 CCM-1 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 effect on microphone performance.

Electro-Voice Professional, PL & BK Series Microphones are guaranteed 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 material. Any active electronics incorporated in the microphone are guaranteed for three years from date of original purchase for parts and labor against such malfunction. 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. 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 Electro-Voice or its authorized warranty service agencies will void this guarantee. A list of authorized warranty service centers is available from Electro-Voice, Inc., 600 Cecil Street, Buchanan, MI 49107 (AC/616-695-6831); or Electro-Voice West, 8234 Doe Avenue, Visalia, CA 93291 (AC/209-651-7777). 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:
Electro-Voice, Inc., 600 Cecil Street,
Buchanan, Michigan 49107.

The schematic diagram shows a 400 Hz audio amplifier. The input is connected to a 'HEAD' through a 1000 MEG resistor. The signal is then amplified by a 2N5067 transistor. The output of the transistor is connected to a 43194 tube, which is biased by a 4.5V battery. The tube's output is connected to a speaker. The circuit includes several resistors (3.3k, 8.8k, 6.8k, 1000k) and capacitors (1.5 MFD, 3.3 MFD, .001, .005). Wires are color-coded: RED, WHITE, BLACK, and GREEN.

A diagram showing a microphone assembly. A cylindrical microphone body is shown with a textured, mesh-like section at the top. A small rectangular switch is located on the side of the microphone body. A battery is shown above the microphone, with a '+' sign on the right end and a '-' sign on the left end. A strip of tape is shown wrapped around the microphone body, connecting the battery to the switch. Below the microphone body, there is a label 'OFF' with a double-headed arrow pointing to the right, and a label 'ON' with a double-headed arrow pointing to the left.

The diagram consists of two parts. The top part shows a 3-pin audio connector, which is a rectangular plug with three pins. The pins are labeled: RED (PIN 2), BLUE (PIN 3), and SHIELD (PIN 1). The bottom part shows a 1/4 inch phone plug, which is a cylindrical plug with a sleeve connection. The plug is labeled: WHITE, TIP CONNECTION, SHIELD, BLACK, and SLEEVE CONNECTION.

FIGURE 6 — 3-Pin Connector and ¼" Phone Plug Wiring Connections