

### MODEL WCM16 ISOMAX\* HEAD-WORN CONDENSER MICROPHONE



#### GENERAL

The Shure Model WCM16 head-worn electret condenser microphone is intended for wireless use by performers, lecturers, and others who require the highest quality voice pickup with maximum mobility. Its wide frequency response, low RF susceptibility and reliable operation at temperature and humidity extremes make the WCM16 suitable for virtually any vocal application. When used with the Shure Body-Pack Transmitters, the performance of the WCM16 closely resembles the finest conventional vocal microphones.

Miniaturized active circuitry included in the cartridge assembly provides equalization that tailors the low-frequency response to resemble the warm proximity effect of larger vocal microphones. Because of this low-end response, it is not necessary to position the microphone directly in front of the mouth, thus avoiding much popping and breath noise, even without the supplied foam pop screen.

The microphone's hypercardioid unidirectional pickup pattern provides maximum isolation from ambient noise and from adjacent sound sources such as musical instruments, loudspeakers and other performers. This permits higher gain-before-feedback without loss or masking of vocals.

#### Features:

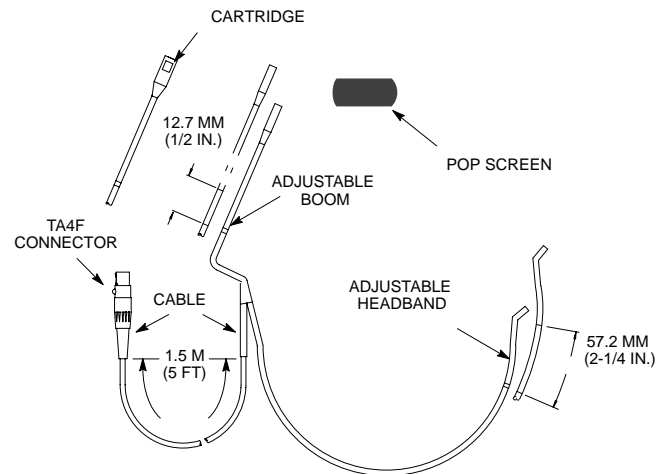
- *Extra lightweight, adjustable headband stays secure and virtually disappears while being worn*
- *Response comparable to the finest conventional vocal microphones*
- *Hypercardioid polar pattern provides maximum isolation from vocalist's own instrument and those of other performers*
- *Uniform polar pattern at all frequencies for maximum gain before feedback*
- *High input clipping level eliminates overload distortion*
- *Supplied acoustic foam pop screen*
- *Reliable at temperature and humidity extremes*

#### WEARING THE MICROPHONE HEADSET

1. Place the microphone on the user's head so that the large diameter band is horizontal across the back of the head. The band may be completely hidden under the hair. The ends of the headband should fit comfortably in front of the ears. Extend or retract the adjustable headband (see Figure 1) to achieve this result.
2. For maximum gain before feedback, carefully extend or retract the boom (see Figure 1) so that the microphone grille (silver side) is within 40 mm (1-1/2 in.) of the left corner of the mouth. It may be necessary to bend the headband tube just in front of the left ear for optimum microphone positioning. A slight bend downward and/or away is usually sufficient.

**NOTE:** The headband tubing will not withstand repeated bending, so make this adjustment only once, if necessary.

3. If breath noise or popping is audible, install the supplied pop screen so that the red dot on the pop screen corresponds to the location of the microphone grille.



PARTS OF THE WCM16 HEAD-WORN MICROPHONE

FIGURE 1

#### POSITIONING THE MICROPHONE PICKUP

The hypercardioid unidirectional pickup pattern of the WCM16 has maximum rejection of unwanted sound sources at about a 110° angle each way from the front axis of the microphone (see Figure 3). Directly to the rear of the microphone (at 180°) there is as little as 6dB rejection—not much less pickup than at the front of the microphone (at 0°).

Sound sources that may cause feedback (such as monitor or P.A. speakers) or sound that you do not want to pick up with the WCM16 (such as percussion instruments or other performers) should NOT be placed directly to the rear of the microphone. It is better to adjust positioning so that unwanted sound sources are located at the 110° maximum re-

jection points. Note that when wearing the headset the rear of the microphone points out towards the wearer's left.

**CONNECTING TO A TRANSMITTER**

The WCM16 is configured for direct connection to a Shure Body-Pack Transmitter, such as models T1, T1G, T11, SC1, EC1, or LX1, using the attached cable.

**MICROPHONE POWERING**

The WCM16 is designed to be powered from the +5 Vdc source at microphone connector pin 2 of a Shure transmitter.

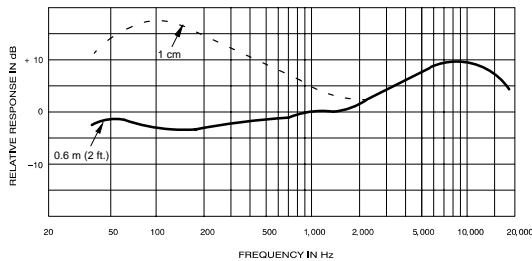
**SPECIFICATIONS** (Measured using test circuit in Figure 4)

**Type**

Condenser (electret bias)

**Frequency Response**

50 to 18,000 Hz (see Figure 2)

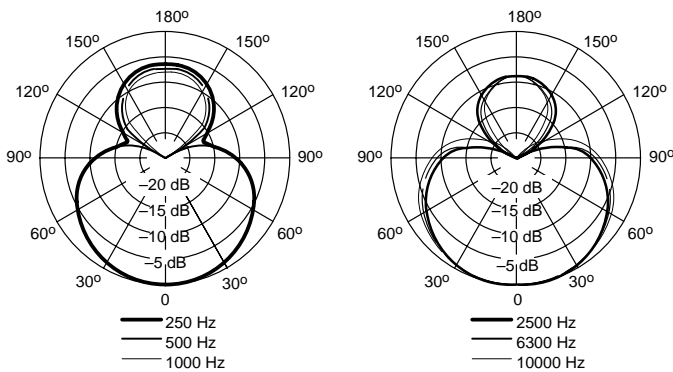


TYPICAL FREQUENCY RESPONSE

FIGURE 2

**Polar Pattern**

Hypercardioid, uniform with frequency (see Figure 3)



TYPICAL POLAR PATTERNS

FIGURE 3

**Output Impedance**

1200 ohms

**Output Level** (close-talked at 1,000 Hz)

Open Circuit Voltage

-55.0 dBV (1.8 mV) at 0.6 m  
1 Pascal=94 db SPL

**Maximum Sound Pressure Level**

150 dB at 1% THD

**Dynamic Range**

121 dB

**Output Noise**

29 dB equivalent SPL, A-weighted

**Signal-to-Noise Ratio**

65 dB at 94 dB SPL

**Polarity**

*Microphone:* Positive sound pressure on diaphragm produces positive voltage on pins 3 and 4 with respect to pin 1 (ground) of microphone output connector

*Receiver—1/4" Phone Jack Output:* Positive sound pressure on diaphragm produces positive voltage on tip of receiver 1/4" output connector

*Receiver—XLR Output:* Positive sound pressure on diaphragm produces positive voltage on pin 2 with respect to pin 3 of the XLR output connector

**Current Drain**

0.35 mA

**Recommended Operating Voltage**

+5 Vdc (positive on pin 2, negative on pin 1)

**Environmental Conditions**

Operating Temperatures: -18° to 60°C  
(0° to 140°F)

Storage Temperatures: -29° to 66°C  
(-20° to 150°F)

Humidity: 0 to 95%

**Cable**

1.5m (5 ft), small-diameter, shielded, with miniature female 4-pin connector (Switchcraft Tini Q-G® type TA4F)

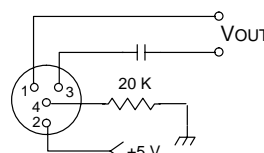
**Case Finish** (Microphone and Headband)

Matte black enamel

**Net Weight**

36 g (1.27 oz)

SPECIFICATIONS TEST CIRCUIT



MICROPHONE INTERNAL CONNECTIONS

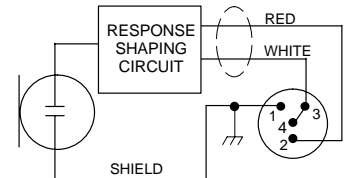


FIGURE 4

**REPLACEMENT PARTS**

- Cable Connector ..... WA330
- Pop screen ..... 36A624



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