CO90 SPECIFICATIONS

Element:
Electret condenser

Frequency Response:
40 to 15,000 Hz

Polar Pattern:
Omnidirectional

Impedance:
150 ohms nominal (balanced)

Output Level:
-57 dB
0 dB = 1 mW/10 dynes/cm²

EIA Sensitivity:
-148 dB

Operating Voltage:
1.1 to 1.8 Vdc

Current Required:
150 microamps

Battery Required:
1.35 V battery (not included)
(See Replacement Guide)

Battery Life:
Greater than 1000 hours

Case Material:
Mikro capsule:
Brass

Electronic Housing:
Aluminum

Battery Transformer Housing:
Steel

Dimensions:
See Figure 1

Cable Length:
(microphone to battery housing)
1.83 m (6 feet)

Finish:
Fawn beige micromatte

Furnished Accessories:
385 windscreen
Belt clip
Storage pouch
Tie clasp

Optional Accessories:
512 connector adapter kit

CO90E SPECIFICATIONS

Element:
Electret condenser

Frequency Response:
40 to 15,000 Hz

Polar Pattern:
Omnidirectional

Impedance:
Approximately 7,000 ohms

Operating Voltage:
2 to 30 Volts

Current Required:
150 microamps

Cable Length:
1.83 meters (6 ft.)

Dimensions:
See Figure 1

Furnished Accessories:
385 windscreen
Tie clasp

DESCRIPTION & APPLICATIONS – CO90/CO90E

The CO90 is a miniature omnidirectional electret condenser microphone. Designed to be worn as a lavalier, the CO90 uses a tie clasp bar to attach the microphone to the talent’s clothing. The CO90 is comprised of two separate assemblies, the microphone element and the battery/transformer housing. The microphone element and battery/transformer housing are connected by a 1.83 meter (6 ft) length of a durable miniature cable. This cable contains two conductors and a shield and is designed to withstand normal abuse commonly encountered in professional use. In normal operation, the microphone element is attached to the talent utilizing the supplied tie clasp bar. The battery/transformer housing may be clipped to the talent’s belt using the supplied belt clip. The small physical size of the CO90 is aesthetically pleasing for on-camera use.

The CO90 microphone requires one RM625 (or equivalent) battery for operation. The nominal output of the CO90 is equivalent to that of a standard low impedance dynamic microphone in both impedance and output level.

The CO90E is identical to the CO90 with the exception that it is not supplied with a battery/transformer housing or its related accessories. The CO90E is designed for adaptation to many special applications. One special application is the direct interface of the CO90E with a wireless transmitter. In this special adaptation, the CO90E derives its power required for the FET amplifier in the head element directly from the wireless transmitter. Another special application is the direct interface of the CO90E with a miniature Nagra SNN tape recorder. The special adaptations mentioned above eliminate
the need for the battery/transformer housing. The C090E is for those customers who do not require the entire C090 system. The C090E is comprised of the microphone capsule or element with a 1.83 meter (6 ft) length of cable. A windscreen and tie clip are also supplied.

OPERATING INSTRUCTIONS – C090
To prepare the C090 for use, install the 1.35 volt battery (positive “+” side down) in the battery/transformer housing (Figure 3). The threaded cable connector should be inserted through the hole in the belt clip bracket and threaded into the battery/transformer housing. The belt clip is supplied to provide a strain relief at the junction of the C090 and the microphone cable. It is recommended that the belt clip be used unless concealment is a prime concern. The microphone itself should be inserted into its accessory tie clip holder. It should be centered in the holder so that the spring-wire clamps the microphone at the junction of the head capsule and its electronic package. The C090 may be used with any balanced or unbalanced low impedance input.

IN CASE OF DIFFICULTY
If the microphone fails to function properly, check the battery voltage, and be sure battery is inserted properly into the battery/transformer housing. Also, be sure the microphone capsule is screwed down tight onto its electronics package.

TECHNICAL INFORMATION – C090
The C090 microphone can be broken down into three major subassemblies: the microphone capsule, the electronics/cable assembly, and the battery/transformer housing. The microphone capsule houses the omnidirectional electret condenser element. The capacitance of this element changes in response to sound pressure variations occurring at the diaphragm. These changes in capacitance are converted to a usable output voltage by the electronics subassembly. Electrical connection to the electronics subassembly is accomplished through a probe which extends from the electronics assembly into a recess in the back of the microphone capsule. The capsule is grounded to the electronics package by the threaded interface between the electronics and the microphone capsule. The electronics package houses an integrated circuit which is molded onto the miniature audio cable and its strain relief. This modular approach allows for ease of repair or replacement of damaged subassemblies and provides maximum reliability and durability. The integrated circuit contains a field effect transistor preamplifier.

The other end of the miniature audio cable is terminated in a threaded cable connector. This connector screws into the battery/transformer housing, retaining the battery and belt clip mechanically and electrically, and connecting the microphone electronics to the battery/transformer housing. The battery/transformer housing contains a

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**FIGURE 1 – Dimension**

**FIGURE 2 – Frequency Response**

**FIGURE 3 – Battery Transformer Housing/Head Assembly**

**FIGURE 4 – Schematic**
FIGURE 5 –
CO90E Typical Wiring Diagrams

REPLACEMENT PARTS LIST

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<td>Head Capsule</td>
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<td>Tie clasp</td>
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FIGURE 6 – Assembly Exploded View