RE90H/RE90HW

Condenser Cardioid Hanging Microphone

Key Features:

- **Non-reflecting black (RE90H) or low-gloss white (RE90HW) with matching cable**
- **Shielded pre-amp is highly-resistant to electrical noise and radio frequency interference**
- **25-ft. braided, shielded cable maintains microphone's position (not rotation)**
- **Cardioid polar pattern**
- **Three-pin male XLR-type output connector fits with female bulkhead XLR-type connector**

General Description:

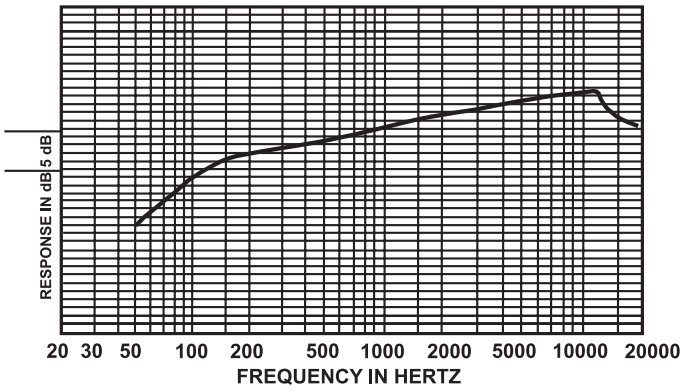
The Electro-Voice® RE90H and RE90HW of the Architectural Microphone Series are back-electret condenser hanging microphones providing an extended, flat frequency response with a controlled cardioid polar pattern for high-quality sound reinforcement. The RE90H is specifically designed for live pickup of choirs, instrumental and vocal groups, and theater. The size and color of the transducer and cable allow the microphone to blend in with its surroundings. RE90H's low self-noise and high-output signal level combine to produce low-noise, sound-reinforcement and recording. Exceptionally high sensitivity, a uniform cardioid polar response, and smooth frequency response make the RE90H ideally suited for distant sound pick-up. The cardioid polar pattern is precisely controlled and is highly effective in suppressing feedback without coloration of sound. Power for the RE90H is obtained from any phantom source supplying 9 to 52 volts. The RE90H is furnished with 25 feet of black (RE90H) or white (RE90HW) miniature braided shielded cable. The design of the cable ensures the microphone's horizontal position will be held stable without the need for fish-line tethering. The RE90H is easily aimed at the performance with the supplied steel wire hanger and holding nut. The wire hanger attached to the microphone element and cable can be bent to aim the microphone in the vertical plane. To position the microphone on the horizontal plane, loosen the holding nut on the back of the microphone and slightly twist the microphone on the wire holder (clockwise rotation rotates the RE90H to the left; counterclockwise rotation rotates the RE90H to the right). Secure this position by tightening the holding nut.

Note: For fixed installations, allow the microphone cable to hang for at least 24 hours so the cable can completely relax and establish a set. This allows the microphone to be accurately positioned over a choir, stage, or orchestra.

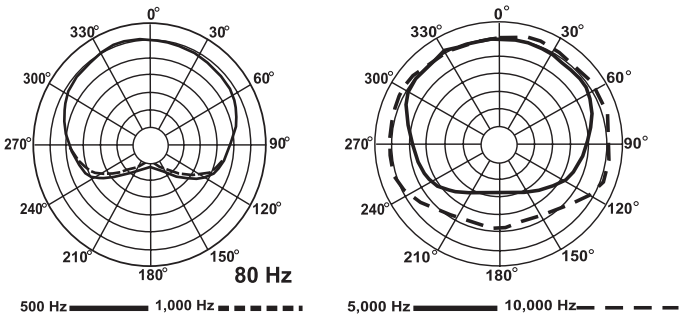
Technical Specifications:

Generation Element:	Condenser, back electret
Frequency Response:	75 Hz to 15,000 Hz (see chart)
Polar Pattern: (see chart)	Cardioid
Sensitivity, Open Circuit Voltage, 1 kHz:	20mV/Pascal
Power Level, 1 kHz (0 dB = 1 mW/Pascal):	-30.4 dB
Clipping Level (1% THD):	120 dB SPL
Equivalent Noise:	25 dB SPL "A" weighted (0 dB=20 micropascals)
Dynamic Range:	95 dB
Output Impedance, 1 kHz:	200 ohms
Power Requirements:	9 to 52 Volt Phantom Supply
Current Consumption:	2.0 mA
Polarity:	Pin 2 positive, referenced to pin3, with positive pressure on the diaphragm
Finish:	RE90H = Low-Gloss Black RE90HW = Low-Gloss White
Environmental Conditions:	Relative Humidity 0-50%: -29° to 74°C (-20° to 165°F) Relative Humidity 0 to 95%: -29° to 57°C (-20° to 135°F)
Dimensions, Transducer:	Diameter = 12.7 mm (0.4") Length = 36.8 mm (1.45")
Dimensions, Electronics Module:	Diameter = 19 mm (0.75") Length = 94 mm (3.7")
Cable:	Length = 7.6 m (25 ft.)
Net Weight:	157 g (5.5 oz.)
Shipping Weight:	324 g (11.4 oz.)

Frequency Response:



Polar Response:



Scale: 5 dB per Division

Application Notes:

When hanging one or more microphones to provide coverage for a choir, instrumental or theater group, the best microphone position for optimum sound quality and feedback control depends on many factors–sound system characteristics, construction of the auditorium or theater, and the size and nature of the performing group. Two general rules to observe for the best sound coverage are (1) microphone position and (2) the "3-to-1 rule."

The first rule is to suspend the microphone approximately two to three feet in front of the first row of performers and two to three feet higher than the heads of the last row of performers. The microphones are usually aimed to point at the last row of performers (see Figure 1). The second rule, the "3-to-1 rule," should be applied when more than one microphone is required, and their outputs are combined (as with a mixer). Following the 3-to-1 rule avoids the deep voids and dips in frequency response that occur when two or more microphones "see" the same signal from slightly different distances. The 3-to-1 rule is as follows: when multiple microphones are used, place them at least three times as far apart as any one of them is from the nearest sound source. Figure 2 shows a proper application of the 3-to-1 rule. The RE90H/HW may also be used to provide coverage for live theater applications (Figure 3). Most of the action occurs at center stage, so the microphone should be positioned above and pointed to the center of the stage.

Figure 1: Hanging Mic Placement

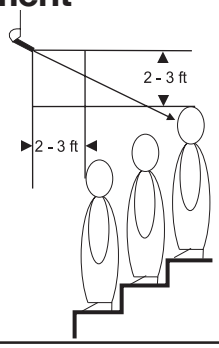


Figure 2: 3-to-1 Rule

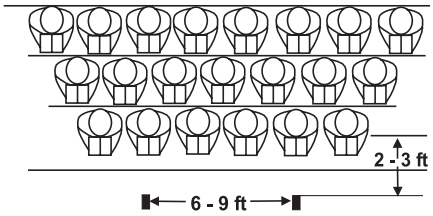
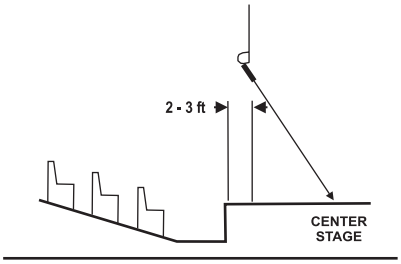


Figure 3: Live Theater Placement



Architectural and Engineering Specifications

The microphone shall be a back-electret condenser type with a frequency response of 75 Hz to 15 kHz. The microphone shall have a cardioid polar pattern with a rear response which is typically 15 dB below the front response at 1.0 kHz. The microphone shall have an output level of 20mV/pascal, and output shall not be appreciably affected by the following temperature and humidity extremes: -29° to 74° C (-20° to 165°F) when the relative humidity is 0-50%; -29° to 57° C (-20° to 135° F) when relative humidity is 0-95%. The microphone shall have a nominal, balanced output impedance of 200 ohms when connected to its electronics module. The microphone shall have a low-gloss black finish (RE90H) or a low-gloss white finish (RE90HW). The cable color shall match the transducer. The transducer shall have a wire hanger for directing the microphone. Dimensions: the transducer shall be 12.7 mm (0.4 in.) wide and 36.8 mm (1.4 in.) long; the cable shall be 7.6 m (25 ft) long and 2.6 mm (0.1 in.) in diameter. The electronics module shall be a metal cylinder 94 mm (3.7 in.) long and 19 mm (0.75 in.) in diameter. Termination to the electronics module shall be a 3-pin male XLR type connector. The Electro-Voice RE90H and RE90HW are specified.

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