



# ES933H/MIC & ES933WH/MIC Hypercardioid Condenser Hanging Microphones



Engineered Sound® Microphones

## Features

- Uniform hypercardioid polar pattern with 100° acceptance angle
- Low-profile design with low-reflectance finish for minimum visibility
- Superior off-axis rejection for maximum gain before feedback
- UniGuard® RFI-shielding technology offers outstanding rejection of radio frequency interference (RFI)
- Available interchangeable elements permit angle of acceptance from 90° to 360°
- Steel hanger positions microphone over choirs, instrumental groups and theater stages
- Available in two colors: black (ES933H/MIC) and white (ES933WH/MIC)

## Description

The ES933H/MIC is a wide-range miniature condenser microphone with a hypercardioid polar pattern. It is designed for quality sound reinforcement, professional recording, television and other demanding sound pickup applications. The combination of small size and excellent response makes the microphone ideal for suspension over choirs, instrumental groups or theater stages.

The microphone requires a compatible Audio-Technica power module (not included) for operation.

The microphone is equipped with UniGuard® RFI-shielding technology, which offers outstanding rejection of radio frequency interference (RFI).

The microphone's hypercardioid polar pattern provides a 100° angle of acceptance. Additional interchangeable elements with omnidirectional (360°), cardioid (120°) and MicroLine® (90°) pickup patterns are available.

The microphone includes a 15.2 m (50') permanently attached miniature cable. Its free end connects to a compatible Audio-Technica power module (not included) via a special TA3F-type connector designed to optimize RFI immunity.

The microphone comes equipped with a vinyl-coated steel hanger for positioning over a choir/orchestra/stage, and a two-stage foam windscreen. The microphone is enclosed in a rugged housing with a low-reflectance black finish. It is also available with white housing, cable, hanger and windscreen as the ES933WH/MIC.

## Installation and Operation

The ES933H/MIC requires a compatible Audio-Technica power module (not included) for operation.

A uniform 100° angle of acceptance provides well-balanced audio pickup. The microphone should be located forward of the front-most source, above the rear-most source, and "aimed" between them (Fig. 1). Increasing the height of the mic above the sources will tend to equalize sound levels between them, but may also increase background/ reverberant sound pickup. When possible, the distance from the mic to

the rear-most source should be no more than twice the distance to the front source, to maintain front-to-rear balance (Fig. 1).

Width of pickup is approximately 2.5 times the distance to the closest source. If additional mics are needed for wide sources, they should be positioned apart laterally at least 2.5 times the distance to the front source, to avoid phase cancellation (Fig. 2).

To orient the microphone in the proper direction, twist the housing slightly in its wire holder. (Clockwise rotation moves the microphone to the right; counterclockwise rotation moves it to the left.)

The provided two-stage foam windscreen simply snaps over the head of the microphone, effectively reducing noise from wind or ventilation air currents.

Avoid leaving the microphone in the open sun or in areas where temperatures exceed 110° F (43° C) for extended periods. Extremely high humidity should also be avoided.

**Note:** Audio-Technica has developed a special RFI-shielding mechanism, which is an integral part of the connectors in the Engineered Sound® line. If you remove or replace the connector, you may adversely affect the unit's RFI immunity. Audio-Technica offers a crimp tool (ATCT) and RFI shields that enable you to shorten the cable and correctly reinstall the connector while maintaining the highest level of RFI immunity.

## Architect's and Engineer's Specifications

The microphone shall be a fixed-charge condenser designed for permanent installation or portable applications. It shall have a hypercardioid polar pattern with a uniform 100° angle of acceptance and a frequency response of 80 Hz to 20,000 Hz. It shall be capable of accepting optional interchangeable elements for additional polar patterns. The microphone shall operate from an Audio-Technica power module (not included). It shall be capable of handling sound input levels up to 138 dB with a dynamic range of 109 dB. Nominal open-circuit output voltage shall be 10.0 mV at 1V, 1 Pascal. It shall offer outstanding rejection of radio frequency interference (RFI).

The microphone shall have a permanently attached 15.2 m (50') miniature cable terminating in a special TA3F-type output connector designed to optimize RFI immunity.

An adjustable steel wire hanger shall be provided for suspended installations. The steel wire hanger shall attach to the microphone body and allow for the positioning of the microphone without the need for tools. A two-stage foam windscreen shall also be included.

The microphone shall be a hanging design, with an overall length of 27.5 mm (1.08") and a head diameter of 8.4 mm (0.33"). Weight shall be 5.5 grams (0.2 oz) without cable. The microphone, cable and steel hanger shall be black [white].

The Audio-Technica ES933H/MIC [ES933WH/MIC] is specified.

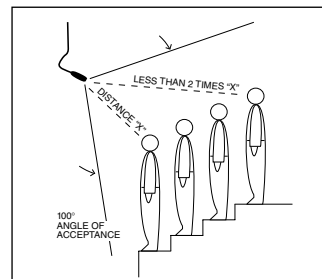


Figure 1

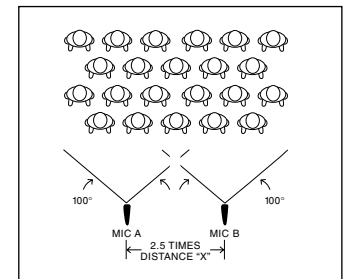
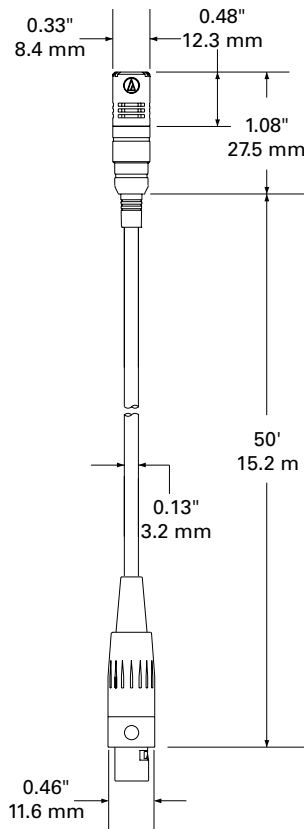


Figure 2

# ES933H/MIC & ES933WH/MIC



## Specifications

Element	Fixed-charge back plate, permanently polarized condenser
Polar pattern	Hypercardioid
Frequency response	80-20,000 Hz
Open circuit sensitivity	-40 dB (10.0 mV) re 1V at 1 Pa
Maximum input sound level	138 dB SPL, 1 kHz at 1% T.H.D.
Dynamic range (typical)	109 dB, 1 kHz at Max SPL
Signal-to-noise ratio <sup>1</sup>	65 dB, 1 kHz at 1 Pa
Weight	5.5 g (0.2 oz)
Dimensions	27.5 mm (1.08") long, 8.4 mm (0.33") head diameter
Output connector	TA3F-type
Cable	15.2 m (50') long (permanently attached to microphone), 3.2 mm (0.13") diameter, 2-conductor shielded cable, terminated with TA3F-type connector
Optional interchangeable elements	ESE-O omnidirectional (360°) ESE-C cardioid (120°) ESE-ML MicroLine® (90°)
Audio-Technica case style	M25
Accessories furnished	ES933H/MIC AT8109 two-stage foam windscreen; AT8452 steel hanger ES933WH/MIC AT8109(WH) two-stage foam windscreen; AT8452(WH) steel hanger
Compatible power modules	AT8534 wall/ceiling plate power module; AT8538 power module; ATND8734a network audio microphone power module

Specifications derived by using AT8538 power module.

In the interest of standards development, A.T.U.S. offers full details on its test methods to other industry professionals on request.

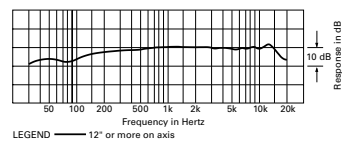
1 Pascal = 10 dynes/cm<sup>2</sup> = 10 microbars = 94 dB SPL

<sup>1</sup> Typical, A-weighted, using Audio Precision System One.

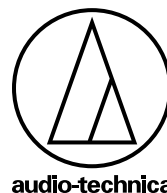
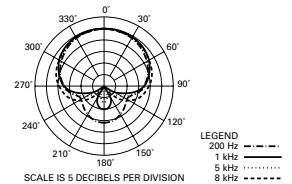
Specifications are subject to change without notice.



frequency response: 80–20,000 Hz



polar pattern



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