Engineered Sound®

ES933PM/H

Hypercardioid Condenser Hanging Microphone

with Wall/Ceiling Plate Power Module

[Description]

The ES933PM/H 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 ES933PM/H is furnished with a vinyl-coated steel hanger that allows it to be adjusted for correct positioning. An included snap-on foam windscreen effectively reduces noise from wind or ventilation air currents.

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

The microphone features a 50' (15.2 m) permanently-attached miniature cable. The cable may be cut to any length and connected to screw terminals on the AT8534 wall/ceiling plate power module provided. The power module features a white-finished standard electrical cover plate for easy, secure installation. It can be powered from any external 11V to 52V DC phantom power supply. Output is low impedance balanced.

The microphone is enclosed in a rugged housing with a low-reflectance black finish. It is also available with white housing, cable and hanger as the ES933PMW/H.

[Installation and Operation]

The combination of small size and excellent response makes the ES933PM/H ideal for suspension over choirs, instrumental groups or theater stages. 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 pickup of background or reverberant sound. Whenever 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 performer. 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 foam windscreen simply snaps over the head of the microphone, effectively reducing noise from wind or ventilation air currents.

An integral 80 Hz high-pass UniSteep® filter provides easy switching from a flat frequency response to a low-end roll-off (switch located on circuit board). The roll-off position reduces the pickup of low-frequency ambient noise (such as traffic, air-handling systems, etc.), room reverberation and mechanically coupled vibrations.

A 10 dB gain switch is provided for situations that demand extra sensitive pickup. The +10 position increases the microphone's overall output by 10 dB.

The AT8534 wall/ceiling plate power module is designed to be mounted in a standard metal U.S. single-gang electrical box. For safety and best performance, use the electrical box ***only*** for the AT8534; do not include any AC power conductors. (Also route the mic cable as far away from AC power cables as possible.)

Feed the small cable from the mic through the strain relief on the power module plate. Tie a loose knot in the cable at the desired length and push it down gently into the recess in the back of the strain relief to secure the microphone. Cut excess cable, strip the mic cable wires (Fig. 3) and attach them to their respective input terminals. Screw-terminal output connections of the AT8534 are the same as those of an XLR-type plug: shield to Terminal 1, balanced signal and phantom power to Terminals 2 and 3. Output is phased so that positive acoustic pressure produces positive voltage at Terminal 2, in accordance with industry convention. ***Do not connect the output cable shield to the box.*** Double-check to make certain that all input and output leads have no bare wires or loose strands that could touch each other, the circuit board or the electrical box. Then attach the power module plate to the electrical box.

While a modern condenser microphone is not unduly sensitive to the environment, temperature extremes can be harmful. Avoid leaving the microphone in the open sun or in areas where temperatures exceed 110° F (43° C) for long periods of time. Extremely high humidity should also be avoided.

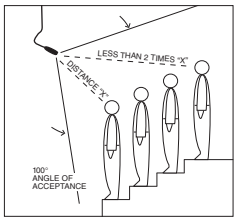

Figure 1

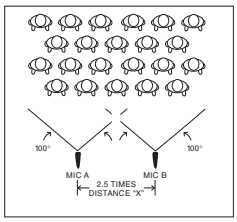

Figure 2

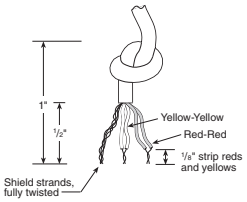

Figure 3

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[ES933PM/H Specifications†]

Element	Fixed-charge back plate permanently polarized condenser
Polar Pattern	Hypercardioid
Frequency Response	80-20,000 Hz
Low-frequency Roll-off	80 Hz, 18 dB/octave
Open Circuit Sensitivity	–39 dB (11.2 mV) re 1V at 1 Pa*
Impedance	200 ohms (1000 ohms without power module)
Maximum Input Sound Level	127 dB SPL, 1 kHz at 1% T.H.D.
Dynamic Range (typical)	98 dB, 1 kHz at Max SPL
Signal-to-noise Ratioˡ	65 dB, 1 kHz at 1 Pa*
Phantom Power Requirements	11-52V DC, 4 mA typical
Switches	Flat, roll-off; 0 dB, +10 dB gain setting
Weight	
Microphone	0.2 oz (5 grams)
Power Module	3.4 oz (97 grams)
Dimensions	
Microphone	0.92" (23.3 mm) long, 0.33" (8.4 mm) head diameter
Power Module	2.80" (71.0 mm) W x 4.55" (115.5 mm) H x 1.42" (36.0 mm) D
Power Module Connectors	Screw terminals
Cable	50' (15.2 m) long (permanently attached to microphone), 0.13" (3.2 mm) diameter, low-noise shielded cable with pigtail output
Accessories Furnished	
(ES933PM/H)	AT8109 two-stage foam windscreen; AT8452 steel hanger
(ES933PMW/H)	AT8109(WH) two-stage foam windscreen; AT8452(WH) steel hanger
(Both)	AT8534 power module
Optional Interchangeable Elements	ESE-C cardioid (120°) ESE-ML MicroLine® (90°)

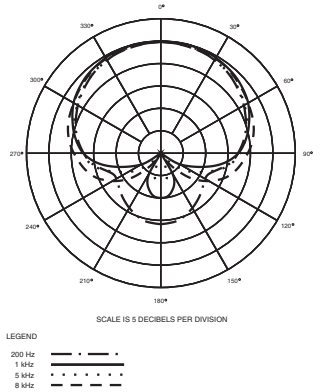
† In the interest of standards development, A.T.U.S. offers full details on its test methods to other industry professionals on request.

* 1 Pascal = 10 dynes/cm² = 10 microbars = 94 dB SPL

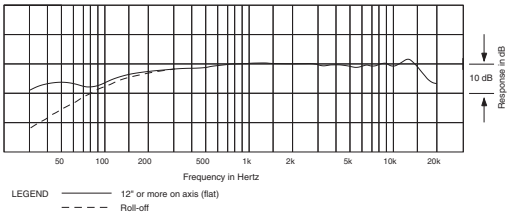
ˡ Typical, A-weighted, using Audio Precision System One.

Specifications are subject to change without notice.

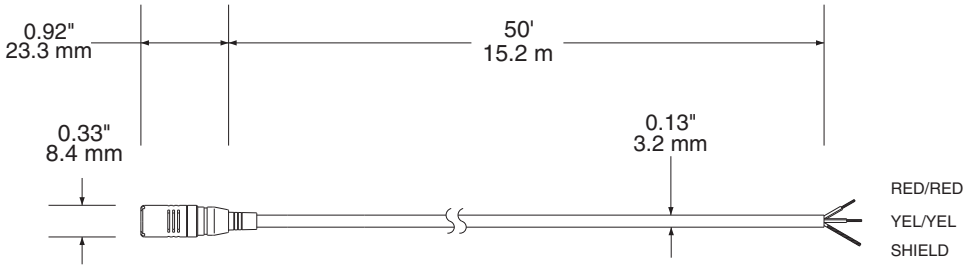
[Polar Pattern]



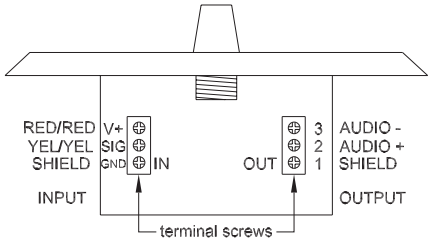
[Frequency Response]



[Dimensions]



[Power Module]



[Visit our Web site at www.audio-technica.com]

One-Year Limited Warranty

Audio-Technica microphones and accessories purchased in the U.S.A. are warranted for one year from date of purchase by Audio-Technica U.S., Inc. (A.T.U.S.) to be free of defects in materials and workmanship. In event of such defect, product will be repaired promptly without charge or, at our option, replaced with a new product of equal or superior value if delivered to A.T.U.S. or an Authorized Service Center, prepaid, together with the sales slip or other proof of purchase date. ***Prior approval from A.T.U.S. is required for return.*** This warranty excludes defects due to normal wear, abuse, shipping damage, or failure to use product in accordance with instructions. This warranty is void in the event of unauthorized repair or modification.

For return approval and shipping information, contact the Service Department, Audio-Technica U.S., Inc., 1221 Commerce Drive, Stow, Ohio 44224.

Except to the extent precluded by applicable state law, ***A.T.U.S. will have no liability for any consequential, incidental, or special damages; any warranty of merchantability or fitness for particular purpose expires when this warranty expires.***

This warranty gives you specific legal rights, and you may have other rights which vary from state to state.

Outside the U.S.A., please contact your local dealer for warranty details.

[Architects and Engineers Specifications]

The microphone shall be a fixed-charge condenser with a frequency response of 80 Hz to 20,000 Hz and a hypercardioid polar pattern with uniform 100° angle of acceptance. It shall be capable of accepting optional interchangeable elements for additional polar patterns. It shall operate from an external 11V to 52V DC phantom power source. It shall be capable of handling sound input levels up to 127 dB with a dynamic range of 98 dB. Nominal open-circuit output voltage shall be 11.2 mV at 1 kHz, 1 Pascal. Output shall be low impedance balanced (200 ohms).

The microphone shall have a permanently-attached 50' (15.2 m) miniature low-noise cable with a pigtail output. The pigtail output shall connect to screw terminals on the power module, which shall incorporate a face plate mountable to a single-gang electrical box for wall or ceiling installation. Output connections on the power module shall be screw terminals. The power module shall include switches for low-frequency roll-off and 10 dB gain setting.

The microphone shall be mountable in an included adjustable steel wire hanger that allows permanent overhead installation for pickup of dialogue, orchestras and choirs. A snap-on foam windscreen shall be provided. The microphone shall be 0.92" (23.3 mm) long with a head diameter of 0.33" (8.4 mm). The microphone weight shall be 0.2 oz (5 grams) without cable. The microphone case, cable and steel hanger shall be finished in black [white].

The Audio-Technica ES933PM/H [ES933PMW/H] is specified.

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Audio-Technica U.S., Inc.
1221 Commerce Drive, Stow, Ohio 44224

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