

ATM89R

REMOTE-POWERED HYPERCARDIOID CONDENSER VOCAL MICROPHONE

Description

The ATM89R is a wide-range fixed-charge condenser microphone with a hypercardioid polar pattern. It has been designed for use in high-quality sound reinforcement systems and for use by professional musicians, especially for vocal pickup. It can also be used for professional recording and broadcasting, which demand the highest quality sound performance coupled with excellent reliability.

The ATM89R is a completely self-contained unit with an integral 3-pin XLRM-type output connector. Superior internal shock mounting eliminates virtually all handling and cable noise. The multi-level screen system, including a spaced foam layer fitted directly over the element, provides the ultimate in wind and pop protection. An external 48V DC source is required to power the unit.

Audio-Technica design engineers have utilized the newest low-mass technology in the quest for superior performance. The permanent charge is now on the fixed back plate, rather than the moving element. With A-T fixed charge "back plate" construction, a gold-vaporized diaphragm just 2 microns thick (or about 0.000079") can be used. This reduces moving mass, thus improving frequency response and transient response while reducing distortion. The result is remarkable stability of performance.

The hypercardioid (unidirectional) polar pattern of the ATM89R is more sensitive to sound originating directly in front of the element than to sounds coming from the sides or rear. Unidirectional microphones are useful in controlling feedback, reducing pickup of unwanted sounds and providing isolation between performers during recording. They can also be used to allow greater microphone-to-performer distance with equal noise, compared to an omnidirectional microphone.

The ATM89R easily accepts interchangeable elements to permit selection of angle-of-acceptance from 100° to 360°. The following optional elements are available from an



authorized Audio-Technica dealer or the A-T service department: AT853C-ELE cardioid, AT853O-ELE omnidirectional, AT853SC-ELE subcardioid.

When used ultra-close, the ATM89R provides proximity effect (extra bass emphasis) which can be used to achieve a fuller sound, or to further reduce feedback and unwanted noise in conjunction with equalization of the microphone input.

The microphone element is enclosed in a rugged housing with low-reflectance finish. The included AT8406 tapered stand adapter permits mounting on any microphone stand with 5/8"-27 threads.

Operation and Maintenance

Output is low impedance balanced. The output connector mates with XLRM-type cable connectors. The balanced signal appears across Pins 2 and 3 while the ground (shield) connection is Pin 1. Output is phased so that positive acoustic pressure produces positive voltage at Pin 2 in accordance with industry convention.

A variety of pickup patterns can be obtained via interchangeable elements that are easily field replaceable. To change the element, first unscrew and remove the outside metal grille. Slide off the internal windscreen assembly, unscrew the element and install the new one. Put the internal windscreen assembly back over the element, sliding it down *as far as it will go*. Finish by replacing the outside metal grille.

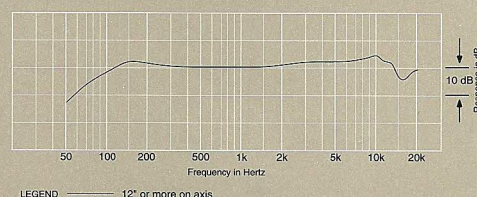
For balanced low-impedance inputs (required for phantom power), AT8314 cable (or equal) is recommended. An accompanying drawing shows the wiring used at the equipment end of this cable. Note that other manufacturers may employ other color codes for cable conductors. Regardless of color code, it is important that both ends of each cable are wired consistently, with the shield always connected to Pin 1, Pin 2 connected to Pin 2, and Pin 3 to Pin 3. This will ensure that all

microphones are electrically in phase and reduce problems of uneven response and sound cancellation when two microphones are used close to each other.

The high sensitivity of the ATM89R assures useful output and an excellent match to most mixer, tape recorder and amplifier inputs. It will provide undistorted output even in very intense sound fields. In some cases, however, the microphone's high output may overload sensitive electronic input stages. Many preamps, mixers and other electronics include a mic pad or input attenuator switch which may be used to prevent overload.

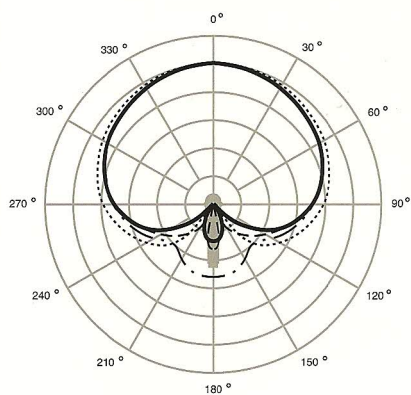
While a modern condenser microphone is not unduly sensitive to the environment, temperature extremes can be harmful. Exposure to high temperatures can result in gradual and permanent reduction of the output level. Avoid leaving the microphone in the open sun or in areas where temperatures exceed 110°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

Frequency Response



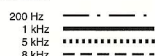
ATM89R

Polar Pattern

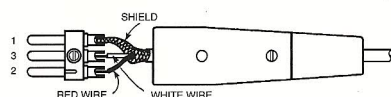


SCALE IS 5 DECIBELS PER DIVISION

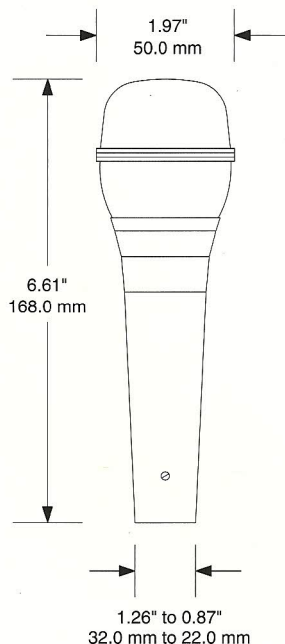
LEGEND



XLRM-Type Plug Wiring
Low Impedance Balanced



Dimensions



ATM89R SPECIFICATIONS†

| | |
|--|---|
| ELEMENT | Fixed-charge back plate permanently polarized condenser |
| POLAR PATTERN | Hypercardioid |
| FREQUENCY RESPONSE | 70-20,000 Hz |
| OPEN CIRCUIT SENSITIVITY | -42 dB (7.9 mV) re 1V at 1 Pa* |
| IMPEDANCE | 100 ohms |
| MAXIMUM INPUT SOUND LEVEL | 138 dB SPL, 1 kHz at 1% T.H.D. |
| SIGNAL-TO-NOISE RATIO† | 67 dB, 1 kHz at 1 Pa* |
| DYNAMIC RANGE (TYPICAL) | 111 dB, 1 kHz at Max SPL |
| PHANTOM POWER REQUIREMENTS | 48V DC, 3.2 mA typical |
| WEIGHT (LESS ACCESSORIES) | 10.2 oz (290 grams) |
| DIMENSIONS | 6.61" (168.0 mm) long, 1.97" (50.0 mm) head diameter |
| OUTPUT CONNECTOR | Integral 3-pin XLRM-type |
| ACCESSORIES FURNISHED | AT8406 stand clamp for 5/8"-27 threaded stands; soft protective pouch |
| OPTIONAL INTERCHANGEABLE ELEMENTS | AT853C-ELE cardioid (120°) AT853O-ELE omnidirectional (360°) AT853SC-ELE subcardioid (170°) |

† 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

† Typical, A-weighted, using Audio Precision System One

Optional Accessories:

- CP8201 line matching transformer (Lo-Z to 50,000 ohms).
- AT8314 2-conductor, shielded, vinyl-jacketed, broadcast-type cable with XLR-type connector at microphone end, XLRM-type connector at equipment end. Available in 10', 20', 25', 30', 50' & 100' lengths.
- AT8407 universal "clothes-pin" type stand clamp fits both tapered and cylindrical microphones.
- AT8410a shock mount for boom or stand operation. Universal "clothes-pin" stand clamp fits both tapered and cylindrical microphones.
- AT8415 low-profile shock mount for boom or stand operation.
- CP8506 four-channel 48V phantom power supply (AC powered).
- AT8801 single-channel 48V phantom power supply (AC powered).

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.



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