



audio-technica®

ARTIST SERIES MICROPHONES



ATM31 Unidirectional Fixed-Charge Condenser Vocal Microphone

SPECIFICATIONS

Element

Fixed-Charge Condenser, permanently polarized.

Polar Pattern

Unidirectional (Cardioid)

Frequency Response

60 to 20,000 Hz

Sensitivity

-55 dBm (0 dB = 1 mW/Pascal)*

Open Circuit Sensitivity

0.28 mV (-71 dB re 1V/dyne/cm²)

EIA Sensitivity

-149 dB

Impedance

600 Ohms nominal, matches 150 to 1,000 ohm inputs.

Maximum Input Sound Pressure Level

125 dB at 1% T.H.D.

Signal to Noise Ratio

Greater than 50 dB at 1 kHz, 1 microbar

Battery Type

UM3 (AA). Use only "leakproof" batteries.

Can also use the following types:

Type	Eveready	Mallory	Panasonic	Ray-O-Vac
Carbon Zinc	915	M15F	UM3	7AA
Alkaline	E91	MN1500	AM3	815
Mercury	E9	ZM9		T9

Battery Current

200 microamps

Battery Life

Up to 5,000 hours (premium battery)

Weight (less cable and clamp)

6.5 ozs. (185 grams)

Dimensions

8" (204mm) long, 2" (51mm) head diameter, 1 13/16" (21mm) body diameter.

Output Connector

Integral 3-pin Switchcraft A3M/Cannon XLR-3-12, phased.

Accessories Furnished

Model AT8405 Snap-in Stand Clamp for standard 5/8"-27 threaded stands. Carrying case. Soft vinyl protective pouch.

Optional Accessories

Model AT8201 Line Matching Transformer (Lo-Z to 50,000 ohms).

Model AT8301 Cable, 16 1/2 feet (5.03m) 2-conductor, shielded with Switchcraft A3F (Cannon XLR-3-11C) connector at microphone end, output end unterminated.

Model AT8302 Cable, 16 1/2 feet (5.03m) 2-conductor, shielded with Switchcraft A3F (Cannon XLR-3-11C) connector at microphone end, 1/4" phone plug at output end.

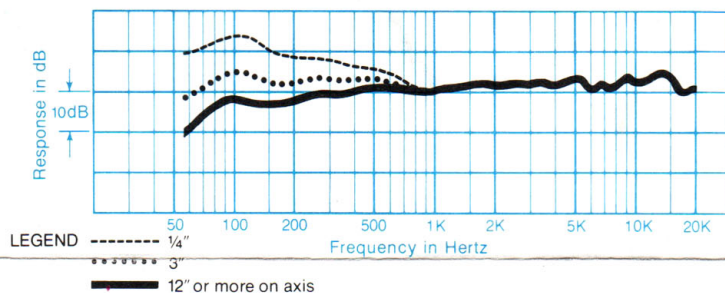
Model AT8303 Cable, 25 feet (7.6m) 2-conductor, shielded with Switchcraft A3F (Cannon XLR-3-11C) connector at microphone end, Switchcraft A3M (Cannon XLR-3-12C) connector at output end.

Model AT8304 Cable, 50 feet (15.2m) 2-conductor, shielded with Switchcraft A3F (Cannon XLR-3-11C) connector at microphone end, Switchcraft A3M (Cannon XLR-3-12C) connector at output end.

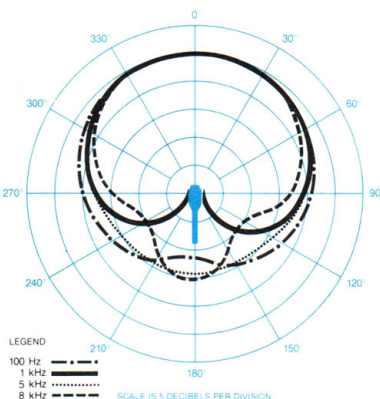
Model AT8407 Universal "clothes pin" stand clamp fits both tapered and cylindrical microphones.

Model AT8410a Shock Mount for boom or stand operation. Universal "clothes-pin" clamp fits tapered or cylindrical microphones.

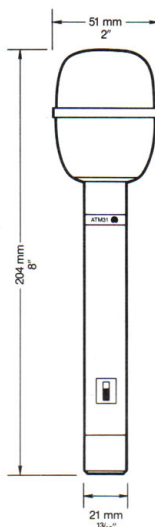
FREQUENCY RESPONSE



POLAR PATTERN



DIMENSIONS



*1 Pascal = 10 dynes/cm² = 10 microbars

Description

The Model ATM31 is a wide-range fixed-charge condenser microphone with a unidirectional polar pattern. It was 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 demanding the highest quality sound performance coupled with excellent reliability.

The ATM31 features an advanced "fixed charge" construction, a substantial improvement over earlier electret microphone design. By placing the electret charge on a fixed element rather than on the moving diaphragm (typical of earlier designs) the diaphragm material can be optimized for lowest distortion and widest range.

The advantages of this construction method can only be realized if the highest standards of design and manufacturing are maintained. Rigid quality monitoring at every step, plus the Audio-Technica experience in creating and producing precision transducers, insures performance benefits impossible with lesser designs.

Using the fixed-charge principle, Audio-Technica can employ a gold-vaporized diaphragm just 4 microns thick (or about 0.00016"). The result is remarkable stability of performance coupled with extremely low distortion and uniform wide range.

The "back electret" plate is permanently charged during manufacture, eliminating the need for the external high voltage power supply of conventional condenser microphones and making the ATM31 suitable for road and remote use. Only a common AA "penlight" battery is needed to power the FET impedance-matching network built into the microphone. Current demands are so low that a premium battery will provide up to 5,000 hours of service. Even with daily use, battery replacement will probably be needed only on a semi-annual basis.

The unidirectional (cardioid, or "heart-shaped") polar pattern of the ATM31 is more sensitive to sound originating directly in front of the element than to sound from the side or rear. Unidirectional microphones are useful in controlling feedback, reducing pickup of unwanted sounds, such as audience or machine noise, excess reverberation, etc. Or they can be used to allow greater microphone-to-performer distance with equal noise, compared to an omnidirectional microphone. They are also useful in providing some isolation between performers during recording.

When used ultra-close the ATM31 also provides extra bass emphasis (also called proximity effect) which can be used to achieve a fuller sound, or to further reduce feedback or unwanted noise in conjunction with equalization of the microphone input. Its large windscreen is especially effective in reducing "P-popping" and distortion from sibilant sounds.

The high sensitivity of the ATM31 assures useful output under most circumstances, and it is designed to provide a distortion-free signal even in sound fields as loud as 125 dB. Sounds approaching this intensity may require use of an attenuator between the microphone and electronics input to avoid overloading due to excess signal strength.

The Model ATM31 is enclosed in a rugged housing with a low-reflectance matte finish. An oversize ball-type multi-stage screen

reduces wind noise and "popping" when performers work extremely close. Internal shock-mounting is designed to minimize handling and cord noise. Battery installation and replacement is accomplished by simply unscrewing the "head" from the body of the microphone. Other A-T fixed-charge heads are interchangeable on this body as well. A built-in cable connector mates with standard professional Switchcraft A3F/Cannon XLR-3-11C 3-conductor plugs. A slip-in microphone stand adapter for mounting to any stand with $\frac{5}{8}$ "-27 threads is included.

The microphone is protected by a specially-compartmented carrying case designed to hold the microphone, battery, and stand adapter. A line of accessories designed to increase the utility of your ATM31 is also available from your Audio-Technica dealer.

Operation and Maintenance

Before attempting operation, the battery must be installed. Unscrew the head of the microphone just below the nameplate. Place the battery in the handle compartment then reassemble the microphone. Be certain to observe battery polarity as indicated (+ end up). Replacement AA batteries are readily available. While standard "penlight" batteries will operate the microphone satisfactorily, alkaline or mercury cells are preferred for longer service life. Only "leakproof" batteries should be used and they should be removed for long-term storage.

While a modern fixed-charge condenser microphone is not unduly sensitive to humidity, 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 areas where the temperature exceeds 110°F (43°C) for appreciable periods of time. Extremely high humidity should also be avoided if possible.

Output is balanced low impedance. The output connector mates with Switchcraft A3F/Cannon XLR-3-11C 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.

For balanced low-impedance inputs, Model AT8303 Cable (or equal) can be used. 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 at both ends, Pin 2 connected to Pin 2, and Pin 3 to Pin 3. This will assure that all microphones are electrically in phase and reduce problems of uneven response and sound cancellation when two microphones are used in close proximity.

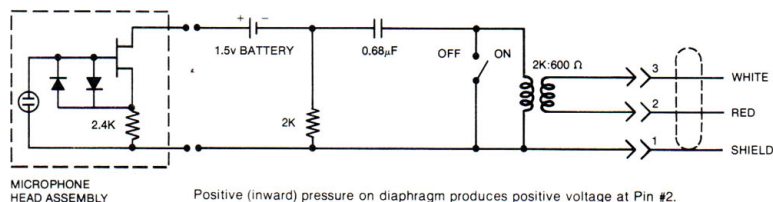
For unbalanced low-impedance inputs, Model AT8302 Cable (or equal) is recommended. A $\frac{1}{4}$ -inch phone plug is prewired to the equipment end of this cable as shown in the drawing.

For use into a high impedance input, use Model AT8303 Cable (or equal). Plug this cable into a Model AT8201 Line Matching Transformer which has an integral $\frac{1}{4}$ -inch phone plug which plugs directly into the amplifier input. Locating the transformer at the equipment input minimizes pickup of noise and hum, typical problems of long high-impedance lines.

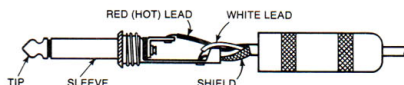
FULL ONE YEAR WARRANTY

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., 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 Audio-Technica U.S., Inc. prepaid. If satisfactory repair or replacement cannot be made, purchase price will be refunded upon substantiation of purchase price and date. Warranty excludes exterior finish, batteries, normal wear, failure due to abuse, or operation, outside specified ratings. Consequential damages are excluded. This warranty gives you specific legal rights, and you may also have other rights which vary from state to state. For instructions on return for repair of Audio-Technica products, whether in or out of warranty, please write: Service Department, Audio-Technica U.S., Inc., 1221 Commerce Drive, Stow, Ohio 44224.

WIRING DIAGRAM



LOW IMPEDANCE, UNBALANCED
AT8302 CABLE • $\frac{1}{4}$ " PHONE PLUG WIRING



LOW IMPEDANCE, BALANCED
AT8303 CABLE • SWITCHCRAFT A3M PLUG WIRING

