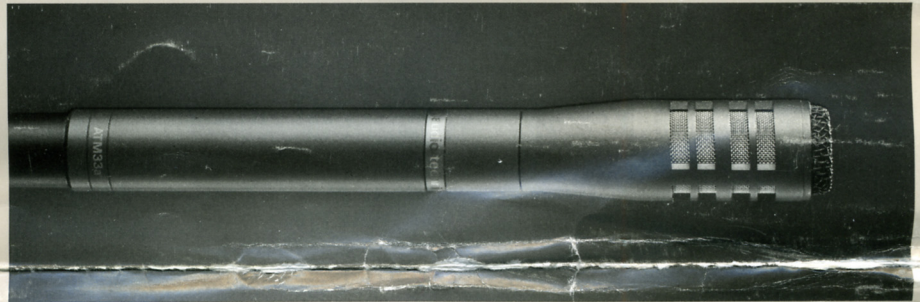


ATM33a

BATTERY/PHANTOM CARDIOID CONDENSER MICROPHONE



Description

The ATM33a is a wide-range fixed-charge condenser microphone with a cardioid polar pattern. It has been designed for use in high quality sound reinforcement systems and for use by professional musicians, especially for instrumental pickup. It can also be used for professional recording and broadcasting, which demand the highest quality sound performance coupled with excellent reliability.

Audio-Technica 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 on the moving element. With the 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, improving frequency response and transient response while reducing distortion. The result is remarkable stability of performance.

The ATM33a will accommodate any external phantom power source supplying from 9V to 52V DC. If, however, remote powering is not available, a common 1.5V AA "penlight" battery will provide sufficient power to the microphone. Current demands are so low that a premium battery will provide thousands of hours of intermittent service.

The cardioid (unidirectional) polar pattern of the ATM33a is more sensitive to sound originating directly in front of the element than to sounds 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.

When used ultra-close the ATM33a 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.

The ATM33a is enclosed in a rugged housing with a low-reflectance finish. Internal shock-mounting is designed to minimize handling and cable noise. A built-in cable connector mates with professional XLR-type connectors. A snap-in microphone stand adapter for mounting to any stand with $\frac{5}{8}$ "-27 threads is included.

Operation and Maintenance

If remote power is not available, install a battery before attempting operation. Unscrew the lower section of the microphone body, just below the nameplate. Place the battery in the handle compartment, then reassemble the microphone. Be certain to observe the polarity as indicated (+ end up). Replacement AA batteries are readily available. While standard carbon-zinc batteries will power the microphone satisfactorily, alkaline cells are preferred for longer service life. Only "leakproof" batteries should be used, and they should be removed for long-term microphone storage.

Output is low impedance balanced. The output connector mates with XLR-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.

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 the color code, it is important that both ends of each cable are wired consistently, with the shield always connected to Pin 1, Pin 2 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.

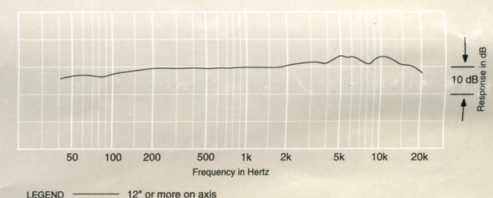
For unbalanced low-impedance inputs (battery operation), AT8312 cable (or equal) is recommended. A $\frac{1}{4}$ " phone plug is wired to the equipment end of the AT8312 cable.

For a high-impedance input, use AT8314 cable (or equal). Plug this cable into a CP8201 line matching transformer, which has an integral $\frac{1}{4}$ " phone plug for connecting directly to the Hi-Z amplifier input. Locating the transformer at the equipment input minimizes pickup of noise and hum, typical problems experienced with long high-impedance lines. Use of the CP8305 Hi-Z transformer cable is also recommended.

The high sensitivity of the ATM33a 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, an attenuator such as the Audio-Technica AT8202 may be required between the microphone and preamplifier to avoid overloading sensitive input stages.

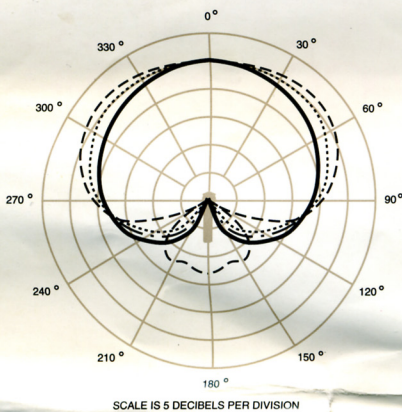
While a condenser microphone is not unduly sensitive to the environment, temperature extremes can be harmful. Exposure to high temperatures can result in gradual and permanent reduction of the output level. Avoid leaving the microphone in the open sun or areas where the temperature exceeds 110°F (43°C)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

Frequency Response



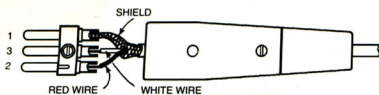
ATM33a

Polar Pattern

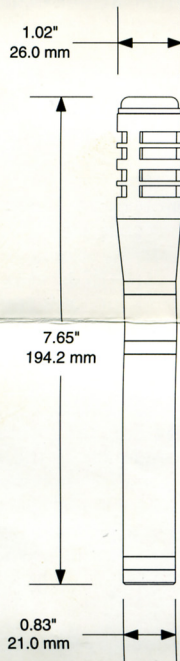


LEGEND
200 Hz ———
1 kHz - - - - -
5 kHz
8 kHz - . - . -

**XLRM-Type Plug Wiring
Low Impedance Balanced**



Dimensions



ATM33a SPECIFICATIONS†

ELEMENT	Fixed-charge back plate permanently polarized condenser	
POLAR PATTERN	Cardioid (Unidirectional)	
FREQUENCY RESPONSE	30-20,000 Hz	
OPEN CIRCUIT SENSITIVITY	PHANTOM BATTERY	-44 dB (6.3 mV) re 1V at 1 Pa*
	BATTERY	-45 dB (5.6 mV) re 1V at 1 Pa*
IMPEDANCE	PHANTOM BATTERY	200 ohms
	BATTERY	270 ohms
MAXIMUM INPUT SOUND LEVEL	PHANTOM BATTERY	137 dB SPL, 1 kHz at 1% T.H.D.
	BATTERY	123 dB SPL, 1 kHz at 1% T.H.D.
SIGNAL-TO-NOISE RATIO†	70 dB, 1 kHz at 1 Pa*	
DYNAMIC RANGE (TYPICAL)	PHANTOM BATTERY	113 dB, 1 kHz at Max SPL
	BATTERY	99 dB, 1 kHz at Max SPL
PHANTOM POWER REQUIREMENTS	9-52V DC, 2 mA typical	
BATTERY TYPE	Use only "leakproof" AA/UM3 1.5V battery	
BATTERY CURRENT	0.4 mA typical	
BATTERY LIFE	1200 hours, premium battery, continuous use	
WEIGHT (LESS ACCESSORIES)	5.3 oz (150 grams)	
DIMENSIONS	7.65" (194.2 mm) long, 1.02" (26.0 mm) maximum diameter	
OUTPUT CONNECTOR	Integral 3-pin XLRM-type	
ACCESSORIES FURNISHED	AT8405 stand clamp for standard 5/8"-27 threaded stands; soft vinyl protective pouch; AT8136 foam windscreen	

† 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).
- AT8202 adjustable in-line attenuator for use with low-impedance microphones.
- AT8312 2-conductor, shielded, vinyl-jacketed, broadcast-type cable with XLR-type connector at microphone end, 1/4" phone plug at equipment end. Available in 10', 20' & 25' lengths.
- 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).
- CP8508 single-channel 24V 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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