audio-technica®

AT4054

HANDHELD CARDIOID CAPACITOR MICROPHONE

Description

The AT4054 is a large-diaphragm, pressure-gradient capacitor microphone with a uniform cardioid polar pattern. The frequency response is smooth over an extended 60-20,000 Hz range. Based on the same advanced technology used in 40 Series studio microphones, the AT4054 is the result of a dedicated effort by Audio-Technica to bring studio-quality sound to the stage. It is designed for use in the most demanding sound reinforcement and recording applications.

The AT4054 is the culmination of extensive field evaluations in live-sound environments with resultant significant advances in microphone performance factors. It features very low self-noise, with a transformer-coupled output optimized for live-sound applications. The AT4054 features a tailored low-frequency response and slight enhancement of the vocal-range frequencies to bring vocals to the front in a live mix.

The AT4054 incorporates a specially-contoured large diaphragm that is aged through five different steps to assure the optimum characteristics achieved will remain constant over years of use. The 2-micron-thick, vapor-deposited gold diaphragm provides extremely smooth, warm and true-to-life reproduction of even the most subtle sonic nuances.

The off-axis response of the AT4054 is linear and uniform across the entire frequency range of the microphone. Any off-axis sounds (leakage) remain accurate and lifelike, resulting in a much more natural vocal/instrument mix.

For exceptional transient response and sound pressure level capability, the element back plate is precision-milled and aged to provide stable, optimum capacitance. The reductions in frequency response peaks and diaphragm distortion result in a microphone that delivers an articulate output even in very high sound pressure environments.

To further enhance the on-stage performance capability, Audio-Technica engineers have employed a carefully-designed shock-mount system to provide outstanding handling noise characteristics and mechanical shock resistance. In addition, the AT4054 element is protected by a hardened-steel windscreen. For even greater durability and protection, the element is housed in a second, internal windscreen, which also provides excellent resistance to popping.

The microphone element is enclosed in a rugged housing with baked-on, low-reflectance black 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 XLRF-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.

The AT4054 will operate in conjunction with any remote “phantom” or “simplex” power source supplying 48 volts DC. The phantom voltage not only powers the microphone’s impedance converter, but is stepped-up to a higher voltage internally to polarize the capacitor element.

While a modern capacitor 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.

Architects and Engineers Specifications

The microphone shall be an externally polarized DC bias capacitor with a cardioid polar pattern and a frequency response of 60 Hz to 20,000 Hz. It shall operate from an external 48V DC (±4V) phantom power source.

Nominal open-circuit output voltage shall be 5.0 mV at 1 kHz, 1 Pascal. The microphone shall have an output impedance of 200 ohms and output shall be balanced. The microphone shall accept a 147 dB SPL at 1 kHz while producing no greater than 1% T.H.D.

The microphone shall have a length of 6.97" (177.0 mm), a maximum head diameter of 1.95" (49.5 mm), and a weight of 10.6 oz (300 grams). Finish shall be low-reflectance black.

The Audio-Technica AT4054 is specified.

40 SERIES PRECISION MICROPHONES

AT4054

Specifications†

ELEMENT	Externally polarized (DC bias) capacitor
POLAR PATTERN	Cardioid (Unidirectional)
FREQUENCY RESPONSE	60-20,000 Hz
OPEN CIRCUIT SENSITIVITY (1 kHz)	–46 dB (5.0 mV) ± 2 dB, re 1V at 1 Pa*[1]
IMPEDANCE	200 ohms
MAXIMUM INPUT SOUND LEVEL	147 dB SPL, 1 kHz at 1% T.H.D.
NOISE, TYPICAL (A-WEIGHTED)[2]	18 dB SPL
DYNAMIC RANGE, TYPICAL	129 dB, 1 kHz at Max SPL
SIGNAL-TO-NOISE RATIO, TYPICAL	76 dB, 1 kHz at 1 Pa*
POWER REQUIREMENTS	48V DC phantom (±4V)
CURRENT CONSUMPTION, TYPICAL	4.0 mA
WEIGHT (LESS CABLE AND CLAMP)	10.6 oz (300 grams)
DIMENSIONS	6.97" (177.0 mm) long, 1.95" (49.5 mm) maximum head diameter
ACCESSORIES FURNISHED	AT8406 tapered clamp for $^{5}/_{8}$"-27 threaded stands; protective carrying case

† 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^2 = 10 microbars = 94 dB SPL

[1] Measured at diaphragm

[2] Using Audio Precision System One

Optional Accessories:

- AT8114 foam windscreen (slip-on).
- AT8314 2-conductor, shielded, vinyl-jacketed, broadcast-type cable with XLRF-type connector at microphone end, XLRM-type connector at equipment end. Available in 10', 20', 25', 30', 50' & 100' lengths.
- AT8407 universal “clothes-pin” stand clamp fits both tapered and cylindrical microphones.
- AT8410a shock mount for boom or stand operation. Universal “clothes-pin” clamp fits tapered and cylindrical microphones.
- AT8415 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, or removal or defacing of the product labeling.

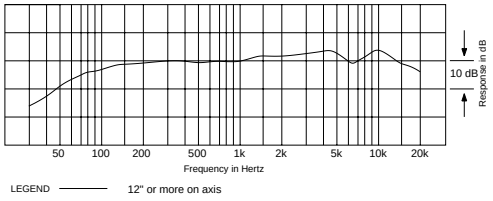
For return approval and shipping information, contact the Service Department, Audio-Technica U.S., Inc., 1221 Commerce Drive, Stow, Ohio 44224.

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.***

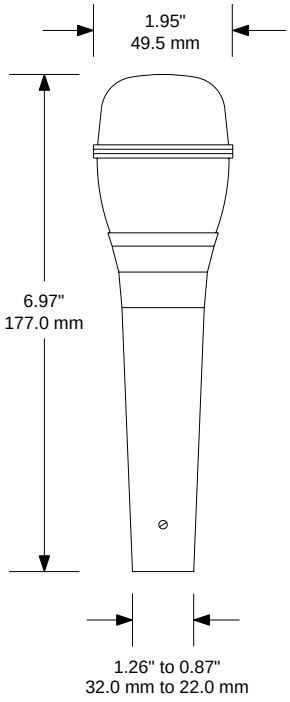
This warranty gives you specific legal rights, and you may have other rights which vary from state to state.

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

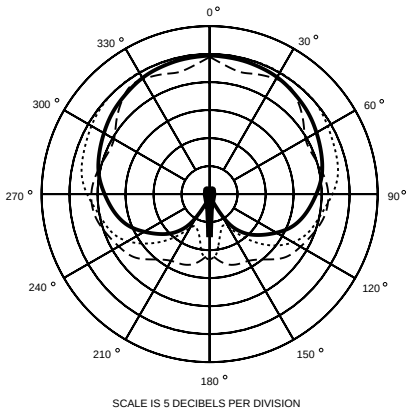
Frequency Response



Dimensions



Polar Pattern



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