

AT4050/CM5

MULTI-PATTERN
CAPACITOR MICROPHONE



Description

The AT4050/CM5 is a transformerless, multiple-pattern studio microphone designed for use in the most demanding applications. The capacitor element utilizes dual, gold-plated and aged, large diaphragms for extended frequency response. The microphone polar pattern can be switched for cardioid, omnidirectional or figure-of-eight operation. This, coupled with low-noise transformerless electronics, makes this microphone ideal for the most critical digital recordings. The dynamic range of the AT4050/CM5 is 132 dB without the built-in attenuator and it accepts up to 149 dB SPL without capsule or electronic-system distortion above 1% T.H.D.

The AT4050/CM5 is the culmination of extensive field evaluations in studio environments with resultant significant advances in microphone performance factors. The AT4050/CM5's low-noise circuitry is symmetrical and transformerless, resulting in exceptional transient response and clean output signals, even under high-output conditions. The microphone is totally free of the distortion associated with conventional transformer-coupled outputs. Its fast response to transients contributes to the open, transparent reproduction of even the most troublesome of instruments and sound effects. To ensure optimum performance, floating-construction mounting of the element provides isolation from noise and vibration.

The AT4050/CM5 combines the benefits of exceptionally low self-noise with very high output. Equally important, it handles very high sound pressure levels with ease. The AT4050/CM5 may be used with confidence in a wide variety of miking applications, even under the stringent demands of modern digital recording systems. A switchable 10 dB (nominal) pad is built-in, increasing the SPL capabilities to 159 dB.

An integral 80 Hz hi-pass filter provides easy switching from a flat frequency response to a low-end roll-off. The hi-pass switch is recessed to prevent accidental activation. The hi-pass position reduces the microphone's sensitivity to "popping" in close vocal use, and handling noise. It reduces the pickup of low-frequency ambient noise (i.e. traffic, air-handling systems, etc.) and room reverberation.

The AT4050/CM5 incorporates a dual-diaphragm configuration that allows undistorted reproduction of high sound pressure level signals at all frequencies. The 2-micron-thick vapor-deposited gold diaphragms provide accurate reproduction of even the most subtle sounds, especially high-frequency signals not easily reproduced by conventional large-diaphragm condenser transducers. For a warm, true-to-life quality, the dual, large-diaphragm design provides remarkable low-frequency performance in all the polar pattern settings.

Every AT4050/CM5 diaphragm is aged through five different steps to assure the optimum characteristics achieved will remain constant over years of use. The symmetrical housing assembly surrounding the microphone capsule and its open acoustical environment allow the off-axis response to be ideally suited for studio work where natural reproduction of off-axis sound is of paramount importance.

The AT4050/CM5 will operate in conjunction with any remote "phantom" or "simplex" power source supplying 48 volts DC, such as the AC-powered Audio-Technica AT8801 single-channel and CP8506 four-channel phantom power supplies.

The AT4050/CM5 includes an AT8441 shock mount. This effective shock mount fits $\frac{5}{8}$ "-27 threaded stands. A stand clamp without shock mount, the AT8430, is available as an optional accessory.



AT4050/CM5 with included AT8441 shock mount

Architects and Engineers Specifications

The microphone shall be a multiple-pattern capacitor with a frequency response of 20 Hz to 20,000 Hz. Polar pattern shall be switchable to cardioid, omnidirectional or figure-of-eight. It shall operate from an external 48V DC ($\pm 4V$) phantom power source. The dual-diaphragm element shall be internally shock mounted.

Nominal open-circuit output voltage shall be 15.8 mV at 1 kHz, 1 Pascal. The microphone shall have an output impedance of 100 ohms and output shall be transformerless balanced. The microphone shall accept a 149 dB SPL at 1 kHz while producing no greater than 1% T.H.D.

The microphone shall have a length of 7.40" (188.0 mm), a maximum body diameter of 2.10" (53.4 mm), and a weight of 16.9 oz (480 grams). Finish shall be matte black. A separate shock mount shall be included.

The Audio-Technica AT4050/CM5 is specified.

AT4050/CM5

Specifications†

ELEMENT	Externally polarized (DC bias) capacitor
POLAR PATTERNS	Cardioid (Unidirectional), Omnidirectional, Figure-of-eight
FREQUENCY RESPONSE	20-20,000 Hz
OPEN CIRCUIT SENSITIVITY (1 kHz)	-36 dB (15.8 mV) ± 2 dB, re 1V at 1 Pa* ¹
IMPEDANCE	100 ohms
MAXIMUM INPUT SOUND LEVEL	149 dB SPL, 1 kHz at 1% T.H.D. 159 dB SPL, with 10 dB pad (nominal)
NOISE, TYPICAL (A-WEIGHTED) ²	17 dB SPL
DYNAMIC RANGE, TYPICAL	132 dB, 1 kHz at Max SPL
SIGNAL-TO-NOISE RATIO, TYPICAL	77 dB, 1 kHz at 1 Pa*
HI-PASS FILTER (LOW-END ROLL-OFF)	80 Hz, 12 dB/octave
POWER REQUIREMENTS	48V DC phantom (±4V)
CURRENT CONSUMPTION, TYPICAL	3.2 mA
WEIGHT (LESS CABLE AND CLAMP)	16.9 oz (480 grams)
DIMENSIONS	7.40" (188.0 mm) long, 2.10" (53.4 mm) maximum body diameter
ACCESSORIES FURNISHED	AT8441 shock mount 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/cm² = 10 microbars = 94 dB SPL

¹ Measured at diaphragm

² Using Audio Precision System One

Optional Accessories:

- AT8137 large cylindrical foam windscreen.
- 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.
- AT8430 stand clamp for 5/8"-27 threaded stands.
- 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, pre-paid, 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.

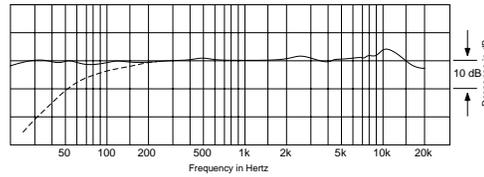
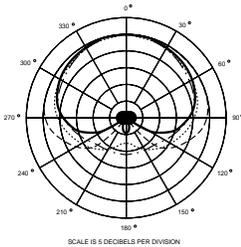
For return approval and shipping information, contact the Service Department, Audio-Technica U.S., Inc., 1221 Commerce Drive, Stow, Ohio 44224.

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.

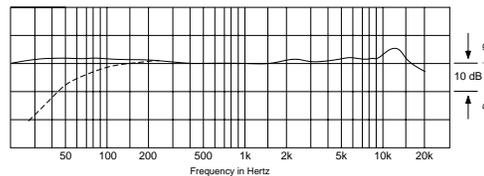
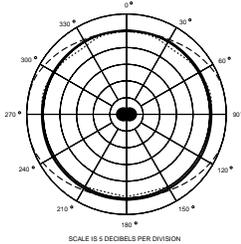
Cardioid



LEGEND ——— 12" or more on axis (flat)
- - - - - Hi-pass

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

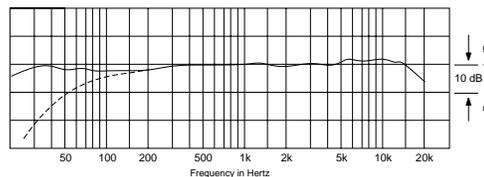
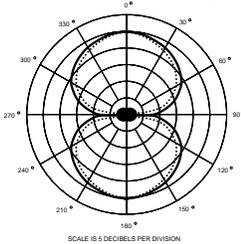
Omnidirectional



LEGEND ——— 12" or more on axis (flat)
- - - - - Hi-pass

LEGEND
200 Hz ——— SAME AS 1 kHz
1 kHz - - - - -
5 kHz
8 kHz - - - - -

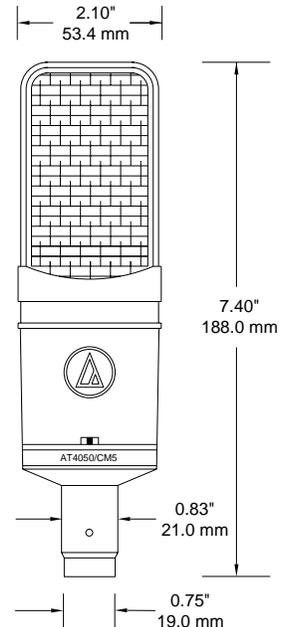
Figure-of-eight



LEGEND ——— 12" or more on axis (flat)
- - - - - Hi-pass

LEGEND
200 Hz ——— SAME AS 1 kHz
1 kHz - - - - -
5 kHz
8 kHz - - - - -

Dimensions



audio-technica®

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