

AT4050

Multi-pattern Condenser Side-Address Microphone

40 series studio microphones



Features

- **Specially engineered to meet the most critical acoustic requirements of professional recording, broadcast and sound reinforcement**
- **Three switchable polar patterns: omnidirectional, cardioid, figure-of-eight**
- **Transparent uppers/mids balanced by rich low-end qualities combine with advanced acoustic engineering for extensive performance capabilities and highest quality**
- **Dual-diaphragm capsule design maintains precise polar pattern definition across the full frequency range of the microphone**
- **Transformerless circuitry virtually eliminates low-frequency distortion and provides superior correlation of high-speed transients**
- **The 2-micron-thick, vapor-deposited gold diaphragms undergo a five-step aging process so that the optimum characteristics achieved remain constant over years of use**
- **Open acoustical environment of the symmetrical housing assembly minimizes unwanted internal reflections**
- **Custom shock mount provides superior isolation**
- **Integral 80 Hz high-pass filter switch and 10 dB pad switch**
- **State-of-the-art design and manufacturing techniques ensure compliance with A-T's stringent consistency and reliability standards**

Description

The AT4050 is a large-diaphragm side-address externally polarized (DC bias) condenser microphone with three switchable polar patterns: omnidirectional, cardioid, and figure-of-eight. It is designed to meet the most critical acoustic requirements of professional recording, broadcast and sound reinforcement.

The microphone requires 48V phantom power for operation.

The omnidirectional polar pattern is sensitive to sound coming from all directions. Select the omni pattern to pick up several voices or instruments on the same microphone, to diminish proximity effect, and to preserve the location's ambient sound.

The cardioid polar pattern is more sensitive to sound originating directly in front of the element, making it useful in controlling feedback, reducing pickup of unwanted sounds and providing isolation between performers.

The figure-of-eight polar pattern is more sensitive to sound originating in the front and back of the microphone, rejecting sounds from the sides.

It is often used in conjunction with advanced stereo miking techniques.

The output of the microphone is a 3-pin XLRM-type connector.

The microphone is equipped with a switchable 10 dB pad and a switch that permits choice of flat response or low-frequency roll-off (via integral 80 Hz high-pass filter).

The microphone is enclosed in a rugged housing. The included AT8449 shock mount provides superior isolation and permits mounting on any microphone stand with $\frac{5}{8}$ "-27 threads. A dust cover and a protective carrying case are also included.

Operation and Maintenance

The AT4050 requires 48V phantom power for operation.

Output is low impedance (Lo-Z) balanced. The signal appears across Pins 2 and 3; Pin 1 is ground (shield). Output phase is "Pin 2 hot" — positive acoustic pressure produces positive voltage at Pin 2.

To avoid phase cancellation and poor sound, all mic cables must be wired consistently: Pin 1-to-Pin 1, etc.

A raised Audio-Technica emblem and the pattern-selection switch are on the front of the microphone. Position this side of the microphone toward the sound source.

The pattern-selection switch provides user-selection of omnidirectional, cardioid, and figure-of-eight polar patterns. To select the omnidirectional polar pattern, slide the switch to the circular polar pattern image. To select the cardioid polar pattern, slide the switch to the heart-shaped polar pattern image. To select the figure-of-eight pattern, slide the switch to the figure-eight shaped polar pattern image.

An integral 80 Hz high-pass filter provides easy switching from a flat frequency response to a low-end roll-off. The roll-off position reduces the microphone's sensitivity to popping in close vocal use. It also reduces the pickup of low-frequency ambient noise (such as traffic, air-handling systems, etc.), room reverberation and mechanically coupled vibrations. To engage the high-pass filter, slide the switch toward the "bent" line.

The microphone is also equipped with a switchable 10 dB pad that lowers the microphone's sensitivity, thus providing higher SPL capability for flexible use with a wide range of users and system configurations. To engage the 10 dB pad, slide the switch toward the -10 position.

In use, secure the cable to the mic stand or boom, leaving a slack loop at the mic. This will ensure the most effective shock isolation and reduce the possibility of accidentally pulling the microphone out of its mount.

Avoid leaving the microphone in the open sun or in areas where temperatures exceed 110° F (43° C) for extended periods. Extremely high humidity should also be avoided.

Architect's and Engineer's Specifications

The microphone shall be a large-diaphragm side-address externally polarized (DC bias) condenser with user-switchable omnidirectional, cardioid, and figure-of-eight polar patterns and a frequency response of 20 Hz to 18,000 Hz. The microphone shall operate from an external 48V DC phantom power source. It shall be capable of handling sound input levels up to 149 dB (159 dB with 10 dB pad) with a dynamic range of 132 dB. Nominal open-circuit output voltage shall be 15.8 mV at 1V, 1 Pascal. Output shall be low impedance balanced (100 ohms).

The output of the microphone shall be a 3-pin XLRM-type connector.

The microphone shall be equipped with a switchable 10 dB pad, a switch that permits choice of flat response or 80 Hz low-frequency roll-off, and a polar pattern selection switch.

The microphone shall be 188.0 mm (7.40") long and have a maximum body diameter of 53.4 mm (2.10"). Weight shall be 510 grams (18.0 oz). The microphone shall include a shock mount, a dust cover and a protective carrying case.

The Audio-Technica AT4050 is specified.

Specifications

Element	Externally-polarized (DC bias) condenser
Polar patterns	Cardioid, Omnidirectional, Figure-of-eight
Frequency response	20-18,000 Hz
Low frequency roll-off	80 Hz, 12 dB/octave
Open circuit sensitivity	-36 dB (15.8 mV), re 1V at 1 Pa
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)
Noise¹	17 dB SPL
Dynamic range (typical)	132 dB, 1 kHz at Max SPL
Signal-to-noise ratio¹	77 dB, 1 kHz at 1 Pa
Phantom power requirements	48V DC, 4.2 mA typical
Switches	Polar selection; Flat, roll-off; 10 dB pad (nominal)
Weight	510 g (18.0 oz)
Dimensions	188.0 mm (7.40") long, 53.4 mm (2.10") maximum body diameter
Output connector	Integral 3-pin XLRM-type
Audio-Technica case style	R1
Accessories furnished	AT8449 shock mount for 5/8"-27 threaded stands; microphone dust cover; 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.

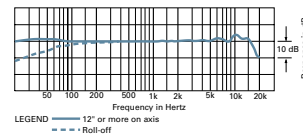
1 Pascal = 10 dynes/cm² = 10 microbars = 94 dB SPL

¹ Typical, A-weighted, using Audio Precision System One.

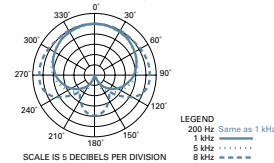
Specifications are subject to change without notice.



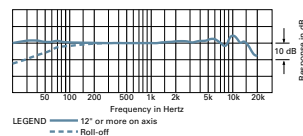
cardioid frequency response:
20–18,000 Hz



cardioid polar pattern



omni frequency response:
20–18,000 Hz



omni polar pattern

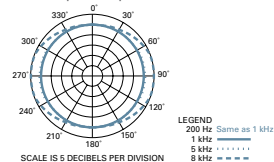


figure-of-eight frequency response:
20–18,000 Hz

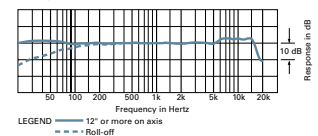
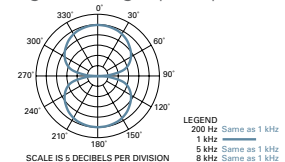


figure-of-eight polar pattern



 **audio-technica**

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0001-0198-01