

ATM87R HIGH-SPL CONDENSER BOUNDARY MICROPHONE

Description

The ATM87R is a wide-range fixed-charge condenser microphone with a hemi-cardioid (half-space cardioid) polar pattern. It has been specifically designed to meet the most critical requirements of high-quality sound reinforcement systems, and to meet the needs of professional musicians. It can also be used for professional recording and broadcasting, which demand the highest quality sound performance coupled with excellent reliability.

The ATM87R is particularly suited for applications involving high sound pressure levels, making it a very effective tool in picking up highly dynamic instruments such as kick drum, piano, etc. The microphone's low-profile design makes it ideal for use in applications where minimum visibility is required.

The cardioid polar pattern of the ATM87R is more sensitive to sound originating directly in front of the element than to sounds coming from the sides or rear. This increased directionality promotes enhanced gain before feedback and suppression of ambient noise. Sensitivity is increased for improved signal-to-noise ratio.

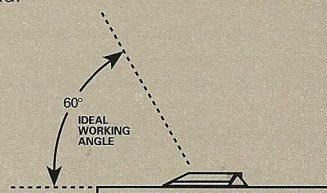
Audio-Technica design engineers have utilized the newest low-mass technology in the quest for superior performance. The permanent charge is now on the fixed back plate, rather than the moving element. With A-T fixed charge "back plate" construction, a gold-vaporized diaphragm just 2 microns thick (or about 0.000079") can be used. This reduces moving mass, thus improving frequency response and transient response while reducing distortion. The result is remarkable stability of performance.

The ATM87R requires 48V DC phantom power for operation. A built-in 2-position switch on the bottom of the microphone permits choice of flat response or low-frequency roll-off to help control undesired ambient noise. A 25' (7.6 m) miniature cable is provided with TA3F and XLRM-type connectors for use between the microphone and electronics input.

The microphone element is enclosed in a rugged die-cast case and protected by two layers of perforated steel. The combination of heavy die-cast case and rubber non-slip bottom pad minimizes mechanical coupling of surface vibrations to the microphone. The low-profile housing has a low-reflectance black finish.

Operation and Maintenance

The symmetry and area of the mounting surface directly affect the sensitivity of the boundary microphone at low frequencies. In order to take full advantage of the ATM87R's ideal working angle, the microphone should be positioned with the front of the microphone facing the sound source along the longer dimension of the mounting surface. Ideally, the sound source should not be below, or higher than 60° above, the plane of the mounting surface. However, since the position of the microphone will vary with the application, experimentation with placement may be necessary to achieve the desired sound.



The ATM87R is supplied with a 25' (7.6 m) shielded cable with TA3F and XLRM-type connectors. Simply plug the TA3F cable connector into the microphone and the mating XLRM-type connector into the electronics input. An external 48V DC source is required to power the unit.

Output is low impedance balanced. 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.

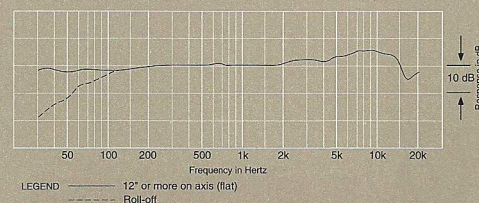


If an extension cable is necessary, AT8314 cable (or equal) is recommended. An accompanying drawing shows the wiring used at the equipment end of this cable. Note that other manufacturers may employ other color codes for cable conductors. Regardless of color code, it is important that both ends of each cable are wired consistently, with the shield always connected to Pin 1, Pin 2 connected 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.

The high sensitivity of the ATM87R 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, the microphone's high output may overload sensitive electronic input stages. Many pre-amps, mixers and other electronics include a mic pad or input attenuator switch which may be used to prevent overload.

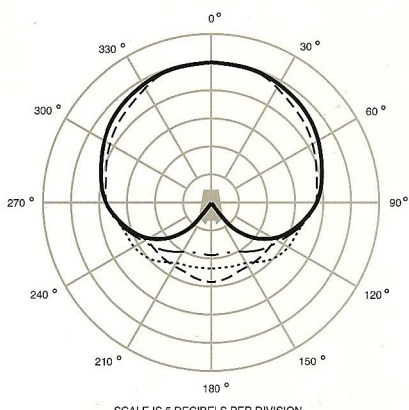
While a modern condenser microphone is not unduly sensitive to the environment, temperature extremes can be harmful. Exposure to high temperatures can result in gradual and permanent reduction of the output level. Avoid leaving the microphone in the open sun or in areas where temperatures exceed 110°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

Frequency Response



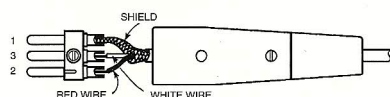
ATM87R

Polar Pattern

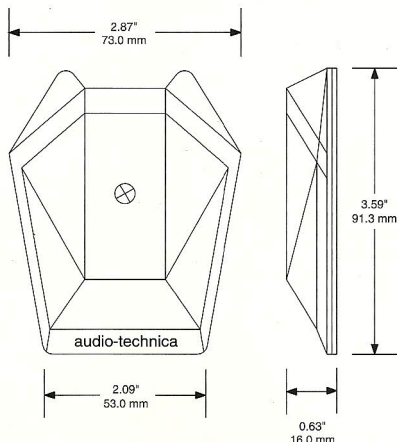


LEGEND
 200 Hz ———
 1 kHz - - - - -
 5 kHz
 8 kHz - · - · -

XLRM-Type Plug Wiring
Low Impedance Balanced



Dimensions



ATM87R SPECIFICATIONS†

ELEMENT	Fixed-charge back plate permanently polarized condenser
POLAR PATTERN	Half-cardioid (cardioid in hemisphere above mounting surface)
FREQUENCY RESPONSE	30-20,000 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	151 dB SPL, 1 kHz at 1% T.H.D.
SIGNAL-TO-NOISE RATIO†	66 dB, 1 kHz at 1 Pa*
DYNAMIC RANGE (TYPICAL)	123 dB, 1 kHz at Max SPL
PHANTOM POWER REQUIREMENTS	48V DC, 4.0 mA typical
WEIGHT	4.8 oz (135 grams)
DIMENSIONS	2.87" (73.0 mm) max width, 3.59" (91.3 mm) max length, 0.63" (16.0 mm) height
CABLE	25' (7.6 m) long, 0.13" (3.2 mm) diameter, 2-conductor, shielded cable with TA3F and XLRM-type connectors
ACCESSORY FURNISHED	Soft protective pouch

† 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).
- 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.
- 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.

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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