

# SPECIAL PURPOSE MICROPHONES



## AT815b LINE + GRADIENT CONDENSER MICROPHONE

### Description

The AT815b is a wide-range condenser microphone with a line + gradient polar pattern specifically designed to provide the narrow acceptance angle desirable for long distance sound pickup. It was created for use in professional recording, broadcasting, film/TV/video production, high-quality sound reinforcement and other demanding applications requiring excellent sound rejection from the sides and rear.

Audio-Technica engineers have utilized the newest low-mass condenser 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 4 microns thick (about 0.00016") can be used. This reduces moving mass, improving frequency response and transient response while reducing distortion.

The AT815b will accommodate any external phantom power source supplying from 9V to 52V DC. If, however, remote powering is not available, a common AA "penlight" battery will provide sufficient power to the microphone. Current demands are so low that a premium battery will provide more than a thousand hours of intermittent use.

A recessed switch provides a choice of flat frequency response for full range sound pickup, or low-frequency roll-off for reduction of ambient background noise or wind.

The AT815b is enclosed in a rugged housing with a low-reflectance finish. A foam windscreen is provided for outdoor or boom use. A snap-in microphone stand adapter for mounting to any stand with  $\frac{5}{8}$ "-27 threads is included. The microphone is protected by a specially compartmented carrying case designed to hold the microphone, battery, windscreens and stand adapter.

### Operation and Maintenance

If remote power is not available, install a battery before attempting operation. Unscrew

the head of the microphone just below the nameplate. Place the battery in the handle compartment, then reassemble the microphone. Be certain to observe battery polarity as indicated (+ end up). While standard carbon-zinc batteries will operate the microphone satisfactorily, alkaline or mercury batteries 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.

The high sensitivity of the AT815b assures useful output for virtually all input circuits. It is designed to provide a distortion-free signal 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 electronics input to avoid overloading sensitive input stages.

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.

### Architects and Engineers Specifications

The microphone shall be a fixed-charge condenser with a line + gradient polar pattern and a frequency response of 30 Hz to 20,000 Hz. It shall be capable of operating from an external 9V to 52V DC phantom power source or, alternatively, from an AA/UM3 1.5V battery.

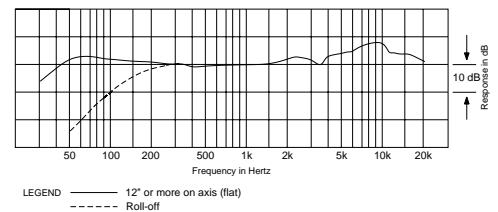
The microphone shall have a nominal open-circuit output of 12.5 mV (phantom)/11.2 mV (battery) at 1 kHz, 1 Pascal. It shall have an output impedance of 500 ohms (phantom)/600 ohms (battery) and output shall be balanced. The microphone shall accept a 130 dB SPL (phantom)/115 dB SPL (battery) at 1 kHz while producing no greater than 1% T.H.D.

The microphone shall operate on the line + gradient principle to provide a narrow sound acceptance angle. The microphone shall include a switch for low-frequency roll-off.

The microphone shall be 18.11" (460.0 mm) long and 0.83" (21.0 mm) in diameter. The weight shall be 7.1 oz. (200 grams). Finish shall be low-reflectance matte.

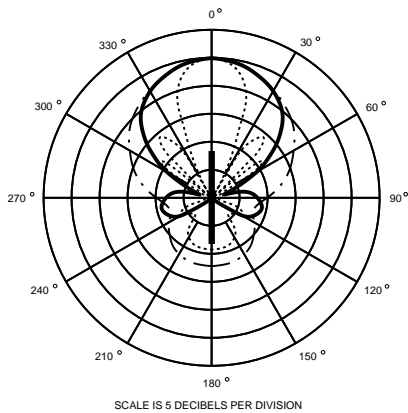
The Audio-Technica AT815b is specified.

### Frequency Response



# AT815b

## Polar Pattern

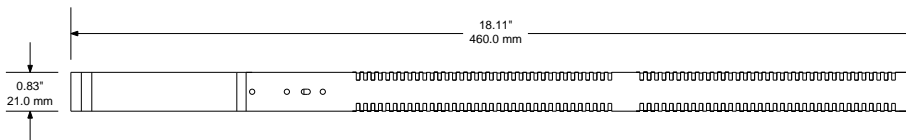


LEGEND  
 200 Hz ———  
 1 kHz - - - -  
 5 kHz .....  
 8 kHz - · - ·  
 SAME AS 5 kHz

## AT815b SPECIFICATIONS†

<b>ELEMENT</b>	Fixed-charge back plate permanently polarized condenser	
<b>POLAR PATTERN</b>	Line + gradient	
<b>FREQUENCY RESPONSE</b>	30-20,000 Hz	
<b>LOW-FREQUENCY ROLL-OFF</b>	180 Hz, 12 dB/octave	
<b>OPEN CIRCUIT SENSITIVITY</b>	PHANTOM BATTERY	-38 dB (12.5 mV) re 1V at 1 Pa* -39 dB (11.2 mV) re 1V at 1 Pa*
<b>IMPEDANCE</b>	PHANTOM BATTERY	500 ohms 600 ohms
<b>MAXIMUM INPUT SOUND LEVEL</b>	PHANTOM BATTERY	130 dB SPL, 1 kHz at 1% T.H.D. 115 dB SPL, 1 kHz at 1% T.H.D.
<b>SIGNAL-TO-NOISE RATIO†</b>	70 dB, 1 kHz at 1 Pa*	
<b>DYNAMIC RANGE (TYPICAL)</b>	PHANTOM BATTERY	106 dB, 1 kHz at Max SPL 91 dB, 1 kHz at Max SPL
<b>PHANTOM POWER REQUIREMENTS</b>	9-52V DC, 2 mA typical	
<b>BATTERY TYPE</b>	Use only "leakproof" AA/UM3 1.5V battery	
<b>BATTERY CURRENT</b>	0.4 mA typical	
<b>BATTERY LIFE</b>	1200 hours, premium battery, continuous use	
<b>SWITCH</b>	Flat, roll-off (recessed)	
<b>WEIGHT (LESS ACCESSORIES)</b>	7.1 oz (200 grams)	
<b>DIMENSIONS</b>	18.11" (460.0 mm) long 0.83" (21.0 mm) diameter	
<b>OUTPUT CONNECTOR</b>	Integral 3-pin XLRM-type	
<b>ACCESSORIES FURNISHED</b>	AT8405 snap-in clamp for standard 5/8"-27 threaded stands; windscreen; battery; protective carrying case	

## Dimensions

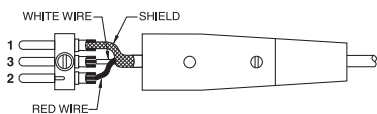


† In the interest of standards development, A.T.U.S. offers full details on its test methods to other industry professionals on request.

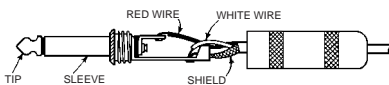
\* 1 Pascal = 10 dynes/cm<sup>2</sup> = 10 microbars = 94 dB SPL

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

## XLRM-Type Plug Wiring Low Impedance Balanced



## 1/4" Phone Plug Wiring Low Impedance Unbalanced



## Optional Accessories:

- CP8201 line matching transformer (Lo-Z to 50,000 ohms).
- AT8202 adjustable in-line attenuator for use with balanced Lo-Z microphones.
- AT8312 2-conductor, shielded, vinyl-jacketed, broadcast-type cable with XLRM-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 XLRM-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" 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).
- 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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