SPECIAL PURPOSE MICROPHONES

AT835b
LINE + GRADIENT CONDENSER MICROPHONE

Description

The AT835b 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. The AT835b is also uniquely suited for both boom and hand-held use in TV and film production, ENG, outdoor nature recording and similar specialized applications.

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 AT835b will accomodate 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 AT835b 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 ⅝"-27 threads is included. The microphone is protected by a specially compartmented carrying case designed to hold the microphone, battery, windscreen 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 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 high sensitivity of the AT835b 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 40 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.

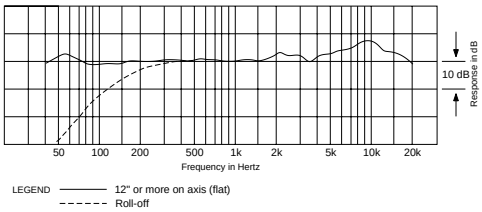
Nominal open circuit output voltage shall be 12.5 mV (phantom)/11.2 mV (battery) at 1 kHz, 1 Pascal. The microphone shall have an output impedance of 500 ohms (phantom)/600 ohms (battery) and output shall be balanced. The microphone shall accept a 130 dB SPL (phantom)/115 dB SPL (battery) at 1 kHz while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

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

The microphone shall be 14.53" (369.0 mm) long and 0.83" (21.0 mm) in diameter. The weight shall be 5.3 oz (150 grams). Finish shall be low-reflectance matte.

The Audio-Technica AT835b is specified.

Frequency Response



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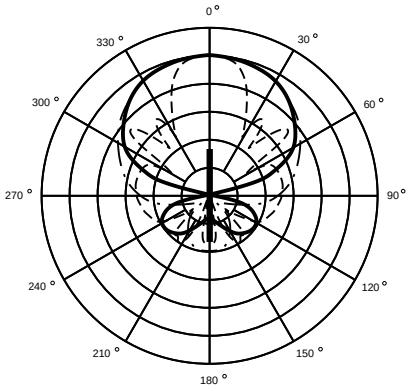
AT835b

Polar Pattern



AT835b SPECIFICATIONS†

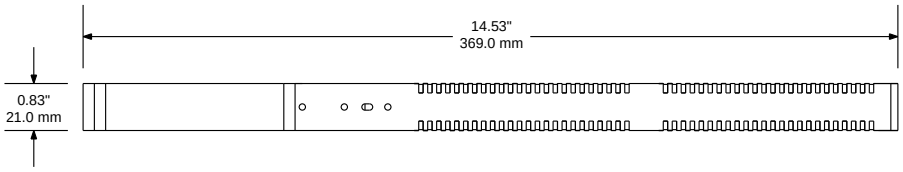
ELEMENT		Fixed-charge back plate permanently polarized condenser
POLAR PATTERN		Line + gradient
FREQUENCY RESPONSE		40-20,000 Hz
LOW-FREQUENCY ROLL-OFF		180 Hz, 12 dB/octave
OPEN CIRCUIT SENSITIVITY	PHANTOM BATTERY	–38 dB (12.5 mV) re 1V at 1 Pa* –39 dB (11.2 mV) re 1V at 1 Pa*
IMPEDANCE	PHANTOM BATTERY	500 ohms 600 ohms
MAXIMUM INPUT SOUND LEVEL	PHANTOM BATTERY	130 dB SPL, 1 kHz at 1% T.H.D. 115 dB SPL, 1 kHz at 1% T.H.D.
SIGNAL-TO-NOISE RATIO[1]		70 dB, 1 kHz at 1 Pa*
DYNAMIC RANGE (TYPICAL)	PHANTOM BATTERY	106 dB, 1 kHz at Max SPL 91 dB, 1 kHz at Max SPL
PHANTOM POWER REQUIREMENTS		9-52V DC, 2 mA typical
BATTERY TYPE		Use only "leakproof" AA/UM3 1.5V battery
BATTERY CURRENT		0.4 mA typical
BATTERY LIFE		1200 hours, premium battery, continuous use
SWITCH		Flat, roll-off (recessed)
WEIGHT (LESS ACCESSORIES)		5.3 oz (150 grams)
DIMENSIONS		14.53" (369.0 mm) long 0.83" (21.0 mm) diameter
OUTPUT CONNECTOR		Integral 3-pin XLRM-type
ACCESSORIES FURNISHED		AT8405 snap-in clamp for standard 5/8"-27 threaded stands; AT8132 windscreen; battery; 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.

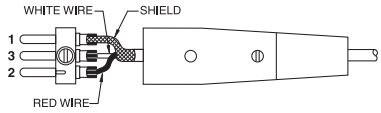
* 1 Pascal = 10 dynes/cm^2 = 10 microbars = 94 dB SPL

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

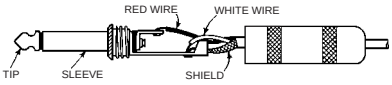
Dimensions



XLRM-Type Plug Wiring
Low Impedance Balanced



1/4" Phone Plug Wiring
Low Impedance Unbalanced



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