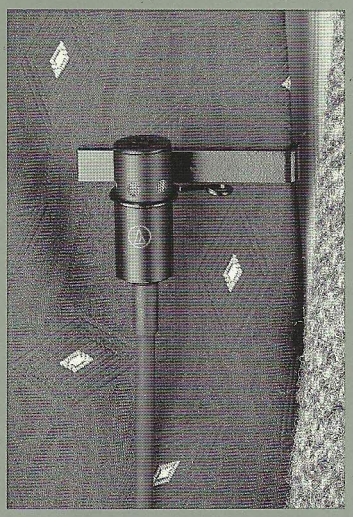
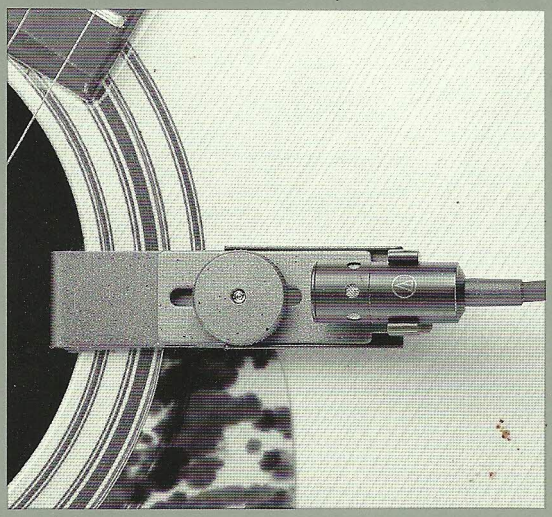
800 SERIES MICROPHONES





AT831b
MINIATURE CARDIOID CONDENSER MICROPHONE

Description

The Model AT831b is a miniature condenser microphone with a cardioid polar pattern. It was designed for use by professional musicians, especially for pickup of acoustic guitar, and for hands-free applications in sound reinforcement systems. The AT831b provides improved gain before feedback that normally cannot be achieved with miniature omnidirectional microphones. Close-up voice and instrument pickup are crisp and clean, yet full sounding, while suppression of background noise is significantly improved over that of stand-mounted full-size cardioid microphones.

Audio-Technica design engineers have utilized the newest low-mass fixed-charge condenser technology in the quest for superior performance. The charge is now on the fixed back plate, rather than the moving element. With the A-T "back plate" construction, a gold-vaporized diaphragm just 2 microns thick (about 0.000079") can be used. This reduces moving mass, improving frequency response and transient response while reducing distortion, and eliminates the high voltage external power supply of earlier condenser designs. The AT831b can be powered from an external 5V to 52V DC phantom supply or from an AA/UM3 1.5 volt battery (supplied). Current demands are low, and an alkaline battery should provide about 1000 hours of intermittent use.

The microphone element is enclosed in a rugged housing with low-reflectance finish. Internal construction is designed to minimize handling and clothing noise. A 6' (1.8 m) cable is provided between the microphone and power module. A built-in 3-position switch on the power module allows selection of battery off, battery on/flat response, or battery on/low-roll-off. In the phantom power mode the battery is bypassed, while selection of flat and roll-off is still available via the switch. A clothing clip and guitar adapter are provided, as well as an accessory windscreen. The microphone is well protected by a specially designed carrying case.

Operation and Maintenance

To install the battery, remove the cap from the top of the power module. Insert the battery, being certain to observe battery polarity as marked (+ end toward the cap release button). The switch controls both battery and microphone output (except in phantom power mode), and should remain off except when the microphone is in use for longest life. While standard carbon-zinc AA batteries will operate the microphone satisfactorily, alkaline or mercury cells are preferred for longer service life. Only "leakproof" batteries should be used. The battery does not have to be in place to use in phantom power mode. Phantom power requires 5V to 52V DC.

The microphone may be worn on the person or attached to a musical instrument. If used with an instrument, it may be attached by means of the tie clip or the special instrument adapter provided. The microphone can be clipped to a tie, lapel, or dress using the clasp provided. The power module may be worn on the belt, utilizing the belt clip, or located in any convenient place. An open-pore foam windscreen simply slips over the head of the microphone to reduce wind noise or "popping" when used extra close.

Output is balanced, low impedance via a 3-pin XLRM-type connector. 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.

While a modern condenser microphone is not unduly sensitive to humidity, 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 areas where the temperature exceeds 110°F (43°C) for appreciable periods of time. Extremely high humidity should also be avoided.

Architects and Engineers Specifications

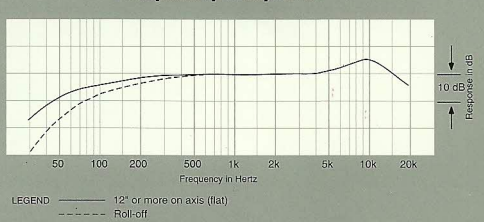
The microphone shall be a fixed-charge condenser with a cardioid polar pattern and a frequency response of 40 Hz to 20,000 Hz. It shall be capable of operating from an external 5V to 52V DC phantom power source or, alternatively, from an AA/UM3 1.5 volt battery. Output with power module shall be low impedance balanced (200 ohms). Nominal open-circuit output voltage shall be 5.6 mV at 1 kHz/1 Pascal.

The microphone shall have a permanently attached 6' (1.8 m) miniature cable between the microphone and power module. The power module shall house the battery and contain an off/on/low roll-off switch. The power module shall terminate in a 3-pin XLRM-type connector.

The microphone shall be mountable in an included instrument adapter or clothing clip. The microphone shall be 25.0 mm (0.98") long with a diameter of 10.0 mm (0.39"). The microphone weight shall be 2.8 grams (0.1 oz.) Finish shall be low-reflectance matte.

The Audio-Technica AT831b is specified.

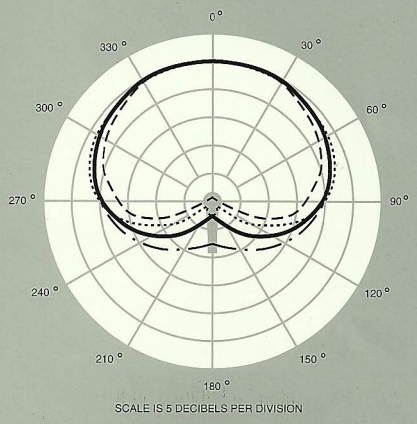
Frequency Response



audio-technica®

AT831b

Polar Pattern

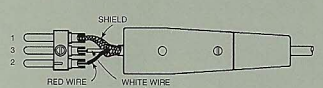


SCALE IS 5 DECIBELS PER DIVISION

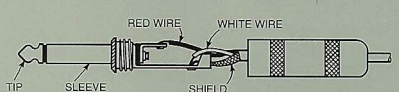
LEGEND

100 Hz
1 kHz
5 kHz
8 kHz

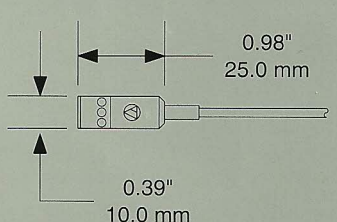
XLRM-type Plug Wiring
Low Impedance Balanced



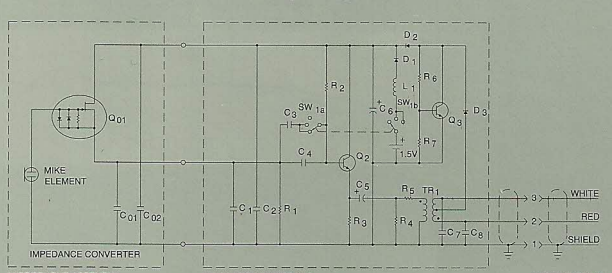
1/4" Phone Plug Wiring
Low Impedance Unbalanced



Microphone Dimensions



Wiring Diagram



Positive (inward) acoustic pressure at diaphragm produces positive voltage at Pin 2.

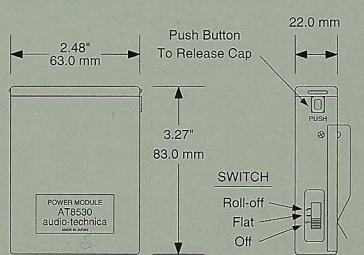
AT831b SPECIFICATIONS†

ELEMENT	Miniature, fixed-charge back plate permanently polarized condenser
POLAR PATTERN	Cardioid (Unidirectional)
FREQUENCY RESPONSE	40-20,000 Hz
SENSITIVITY	–44 dBm (0 dB = 1 mW/1 Pa*)
OPEN CIRCUIT SENSITIVITY	5.6 mV (–45 dB re 1V/1 Pa*)
IMPEDANCE	200 ohms
MAXIMUM INPUT SOUND LEVEL	130 dB SPL, 1 kHz at 1% T.H.D.
SIGNAL TO NOISE RATIO	Greater than 65 dB at 1 kHz/1 Pa*
BATTERY TYPE	Use only "leakproof" AA/UM3 1.5V battery.
BATTERY CURRENT	1 mA typical
BATTERY LIFE	1000 hours (alkaline battery)
PHANTOM POWER REQUIREMENTS	5-52V DC, 2 mA typical
SWITCH	Off, on-flat, on-roll-off (battery) On-flat, on-roll-off (phantom power)
WEIGHT (LESS CABLE AND ACCESSORIES)	
MICROPHONE	0.1 oz. (2.8 grams)
POWER MODULE	5.2 oz. (147.4 grams)
DIMENSIONS	
MICROPHONE	0.98" (25.0 mm) long, 0.39" (10.0 mm) dia.
POWER MODULE	3.27" (83.0 mm) H x 2.48" (63.0 mm) W x 0.87" (22.0 mm) D, not including clip.
CABLE	Integral 6' (1.8 m), permanently attached between microphone and power module.
ACCESSORIES FURNISHED	Model AT8411 clothing clip; guitar adapter; windscreen; 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

AT8530 Power Module Dimensions



Optional Accessories

- Model AT8412 double tie clip.
- Model AT8414 tie tac.
- Model 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' and 100' lengths.
- Model CP8201 line matching transformer (Lo-Z to 50,000 ohms)
- Model CP8506 4-channel 48V DC microphone power supply.

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.

audio-technica®

AUDIO-TECHNICA U.S., INC., 1221 Commerce Drive, Stow, Ohio 44224

Form No. 0310-0764-05 © 1993 Audio-Technica U.S., Inc. Printed in U.S.A.