PRO 7a

Pro Series

MICROPHONES

MINIATURE CARDIOID FIXED-CHARGE CONDENSER MICROPHONES

Description

The Model PRO 7a is a miniature condenser microphone with a cardioid polar pattern. It was designed for use by professional musicians, especially for pickup of acoustic guitar, other acoustic instruments, and for hands-free applications in sound reinforcement systems. The PRO 7a provides improved gain before feedback that normally cannot be achieved with miniature omni-directional microphones. Voice and instrument pickup are crisp and clean, yet full sounding, while suppression of background noise is significantly improved over that of omnidirectional microphones.

Audio-Technica design engineers have utilized the newest low-mass fixed-charge 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 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 PRO 7a requires an AA/UM3 1.5V battery (supplied) to power the FET impedance matching network built into the microphone. Current demands are low, and a battery should provide an average of about 3500 hours of intermittent use.

The microphone element is enclosed in a rugged housing with a low-reflectance finish. Internal construction is designed to minimize handling and clothing noise. A 6 foot (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. A clothing clip and adapter are provided, as well as an accessory windscreen. The microphone is well protected by a specially designed carrying case.

Operation and Maintenance

The PRO 7a is designed for battery use only, and should not be used with phantom power. 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 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 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 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. The microphone can be clipped to a tie, lapel or dress using the clasp provided.

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.

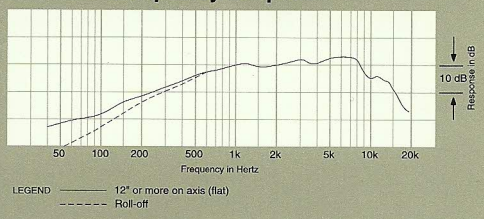
For balanced low-impedance inputs, Model AT8314 Cable (or equal) can be used. An accompanying drawing shows the wiring used at the equipment end of this cable. Note that other manufacturers may employ other color codes for cable conductors. Regardless of color code it is important that both ends of each cable are wired consistently, with the shield always connected to Pin 1 at both ends, Pin 2 connected to Pin 2, and Pin 3 to Pin 3. This will assure that all microphones are electrically in phase and reduce problems of uneven response and sound cancellation when two microphones are used in close proximity.

For unbalanced low-impedance inputs, Model AT8312 Cable (or equal) is recommended. A ¼" phone plug is prewired to the equipment end of this cable as shown in the drawing.

For use into a high impedance input, use Model CP8305 Lo- to Hi-impedance cable with an integral ¼" phone plug which plugs directly into the high impedance amplifier input. Locating the transformer at the equipment input minimizes pickup of noise and hum, typical problems of long high-impedance lines.

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 areas where temperatures exceed 110° F (43°C) for appreciable periods of time. Extremely high humidity should also be avoided if possible.

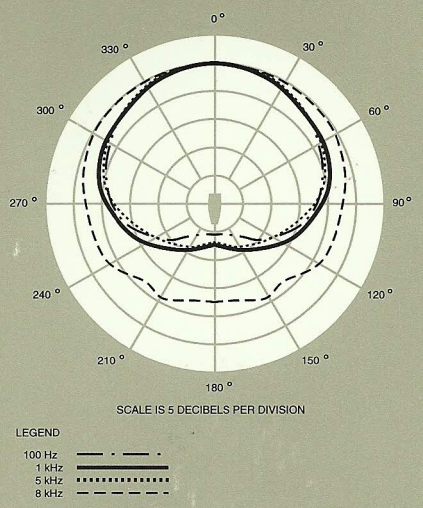
Frequency Response



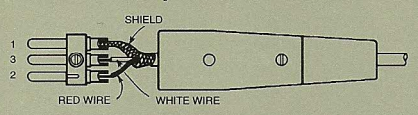
audio-technica®

PRO 7a

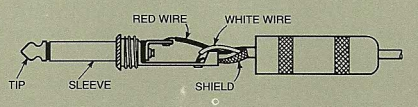
Polar Pattern



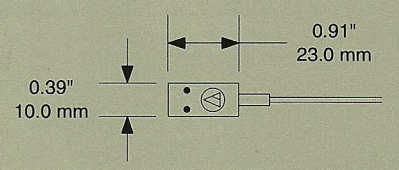
XLRM-type Plug Wiring
Low Impedance Balanced



¼" Phone Plug Wiring
Low Impedance Unbalanced



Dimensions



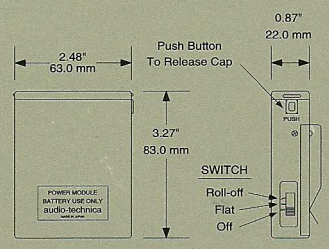
PRO 7a SPECIFICATIONS†

Element	Miniature fixed-charge back plate permanently polarized condenser
Polar Pattern	Cardioid
Frequency Response	50-18,000 Hz
Open Circuit Sensitivity	−45 dB (5.6 mV) re 1V at 1 Pa*
Impedance	600 ohms
Maximum Input Sound Level	124 dB, 1 kHz at 3% T.H.D.
Dynamic Range (Typical)	89 dB, 1 kHz at Max SPL
Signal-to-noise Ratio[1]	59 dB, 1 kHz at 1 Pa*
Battery Type	Use only "leakproof" AA/UM3 1.5V battery
Battery Current	Less than 300 µA
Battery Life	3500 hours (alkaline battery)
Weight (less cable and accessories)	
Microphone	0.1 oz (2.8 grams)
Power Module	4.4 oz (125 grams)
Dimensions	
Microphone	0.91" (23.0 mm) long, 0.39" (10.0 mm) diameter
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.
Output Connector	Integral 3-pin XLRM-type, phased
Cable	Integral 6' (1.8 m) long, 0.10" (2.6 mm) diameter cable is permanently attached between microphone and power module.
Accessories Furnished	Clothing clip; musical instrument adapter; 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/cm² = 10 microbars = 94 dB SPL

Power Module Dimensions



Optional Accessories:

Model CP8201 line matching transformer (Lo-Z to 50,000 ohms).

Model AT8202 adjustable in-line attenuator for use with low-impedance microphones.

Model CP8305 16.5 ft (5 m) 2-conductor shielded, vinyl-jacketed broadcast-type cable with XLRF-type connector at microphone end and Lo- to Hi-Z transformer with ¼" phone plug at output end.

Model AT8312 2-conductor, shielded, vinyl-jacketed, broadcast-type cable with XLRF-type connector at microphone end, ¼" phone plug at equipment end. Available in 10', 20' & 25' lengths.

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. 0320-0704-04