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audio-technica®

# AT853a
# AT853Wa
# MINIATURE CARDIOID CONDENSER MICROPHONES

**Description**

The AT853a is a wide-range miniature condenser microphone with a cardioid (unidirectional) polar pattern. It has been designed for use in high-quality sound reinforcement, professional recording, television, and other demanding sound pickup applications. The AT853a is furnished with a vinyl-coated steel hanger that allows it to be positioned inconspicuously over a choir, orchestra, stage, etc., for very low-profile situations.

Supplied as a cardioid, the AT853a easily accepts interchangeable elements to permit selection of angle of acceptance from 100° to 360°. The following optional elements are available from an authorized Audio-Technica dealer or the A-T service department: AT853H-ELE hypercardioid, AT853O-ELE omnidirectional, AT853SC-ELE subcardioid.

The microphone features a 25' (7.6 m) permanently-attached miniature cable with a 3-pin TA3F output connector, which mates with a 3-pin TB3M connector on the AT8531 power module provided. It can be powered from an external 9V to 52V DC phantom power supply or from a 1.5V AA battery. Current demands are so low that a premium battery will provide about 1200 hours of continuous use. A built-in 3-position switch on the power module allows selection of off, on/flat response or on/low-roll-off.

The microphone element is enclosed in a rugged housing with a low-reflectance black finish. The microphone is also available in white as the AT853Wa, with a white-finished microphone housing, cable and steel hanger, for applications where the microphone must be hung against a light background.

**Installation and Operation**

The combination of small size and excellent response makes the AT853a ideal for suspension over choirs, instrumental groups or theater stages. A uniform 120° angle of acceptance provides well-balanced audio pickup. The microphone should be located forward of the front-most source, above the rear-most source, and "aimed" between them (Fig. 1). Increasing the height of the mic above the sources will tend to equalize sound levels between them, but may also increase background/reverberant sound pickup. Whenever possible, the distance from the mic to the rear-most pickup should be no more than twice the distance to the front source, to maintain front-to-rear balance (Fig. 1).

Width of pickup is approximately three times the distance to the closest performer. If additional mics are needed for wide sources, they should not be closer together laterally than three times the distance to the front source, to avoid phase cancellation (Fig. 2).

To orient in the proper direction, twist the microphone housing slightly in its wire holder (clockwise rotation moves the microphone to the right; counterclockwise rotation moves it to the left).

The foam windscreen slips over the head of the microphone, effectively reducing noise from wind or ventilation air currents.

Output is low impedance balanced. The output connector of the power module 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.

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). For longest battery life, the switch should remain off except when the microphone is in use. 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 9V to 52V DC.

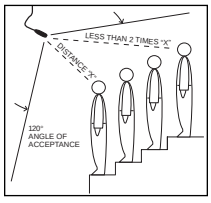



Figure 1.
Vertical positioning.

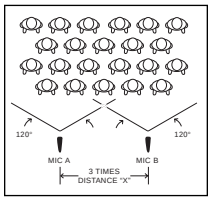



Figure 2.
Horizontal spacing.

While a modern condenser microphone is not unduly sensitive to the environment, temperature extremes can be harmful. 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**

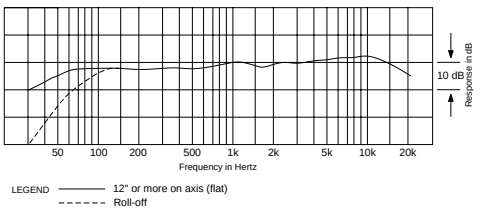
The microphone shall be a fixed-charge condenser with a cardioid polar pattern and a frequency response of 30 Hz to 20,000 Hz. It shall be capable of accepting optional interchangeable elements for additional polar patterns. It shall operate from an external 9V to 52V DC phantom power source or, alternatively, from a 1.5V AA/UM3 battery. Nominal open-circuit output voltage shall be 6.3 mV (phantom) or 5.6 mV (battery) at 1 kHz, 1 Pascal. Output shall be low impedance balanced (200 ohms-phantom, 270 ohms-battery).

The microphone shall have a permanently-attached 25' (7.6 m) miniature cable, terminating in a TA3F output connector. The output connector shall connect to a TB3M jack on a power module. The included 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 steel hanger that allows permanent overhead installation for pickup of dialogue, orchestras, choirs, and other large groups. The microphone shall be 1.39" (35.2 mm) long with a head diameter of 0.47" (12.0 mm). The microphone weight shall be 0.4 oz (10 grams) without cable. The microphone case, cable and steel hanger shall be black [white].

The Audio-Technica AT853a [AT853Wa] is specified.

**Frequency Response**



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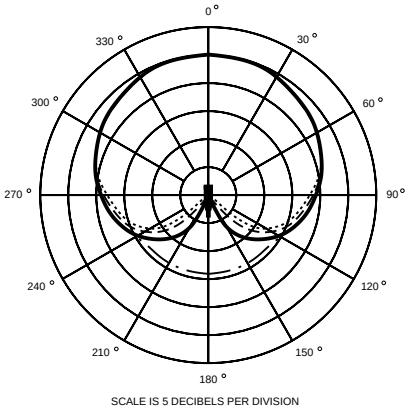
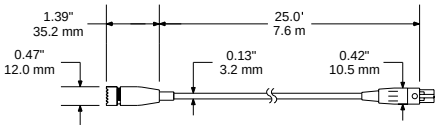
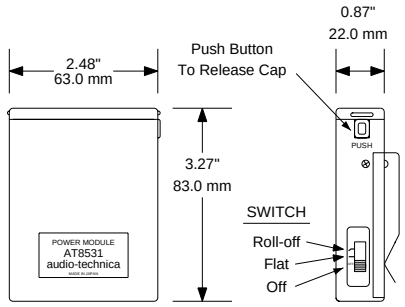
### Polar Pattern




### Dimensions




### AT8531 Power Module




## AT853a/AT853Wa SPECIFICATIONS†

| | | |
|---|---|---|
| **ELEMENT** | | Fixed-charge back plate permanently polarized condenser |
| **POLAR PATTERN** | | Cardioid (Unidirectional) |
| **FREQUENCY RESPONSE** | | 30-20,000 Hz |
| **LOW-FREQUENCY ROLL-OFF** | | 80 Hz, 18 dB/octave |
| **OPEN CIRCUIT SENSITIVITY** | PHANTOM<br>BATTERY | –44 dB (6.3 mV) re 1V at 1 Pa*<br>–45 dB (5.6 mV) re 1V at 1 Pa* |
| **IMPEDANCE** | PHANTOM<br>BATTERY | 200 ohms<br>270 ohms |
| **MAXIMUM INPUT SOUND LEVEL** | PHANTOM<br>BATTERY | 135 dB SPL, 1 kHz at 1% T.H.D.<br>121 dB SPL, 1 kHz at 1% T.H.D. |
| **DYNAMIC RANGE** (TYPICAL) | PHANTOM<br>BATTERY | 108 dB, 1 kHz at Max SPL<br>94 dB, 1 kHz at Max SPL |
| **SIGNAL-TO-NOISE RATIO**[1] | | 67 dB, 1 kHz at 1 Pa* |
| **SWITCH** | | Off, on-flat, on-roll-off |
| **BATTERY TYPE** | | Use only "leakproof" AA/UM3 1.5V battery |
| **BATTERY CURRENT** | | 0.4 mA typical |
| **BATTERY LIFE** | | 1200 hours (alkaline battery) |
| **PHANTOM POWER REQUIREMENTS** | | 9-52V DC, 2 mA typical |
| **WEIGHT** | | |
| **MICROPHONE** | | 0.4 oz (10 grams) less cable |
| **POWER MODULE** | | 5.2 oz (147 grams) |
| **DIMENSIONS** | | |
| **MICROPHONE** | | 1.39" (35.2 mm) long<br>0.47" (12.0 mm) head diameter |
| **POWER MODULE** | | 3.27" (83.0 mm) H x 2.48" (63.0 mm) W x 0.87" (22.0 mm) D |
| **OUTPUT CONNECTOR** (POWER MODULE) | | Integral 3-pin XLRM-type |
| **CABLE** | | 25' (7.6 m) long (permanently attached to microphone), 0.13" (3.2 mm) diameter, 2-conductor, shielded cable with TA3F output connector that mates with TB3M jack on power module |
| **ACCESSORIES FURNISHED** | (AT853a)<br>(AT853Wa)<br>(BOTH) | AT8102 two-stage foam windscreen;<br>AT8451 steel hanger;<br>AT8102WH foam windscreen;<br>AT8451WH steel hanger<br>AT8531 power module; battery |
| **OPTIONAL INTERCHANGEABLE ELEMENTS** | | AT853H-ELE hypercardioid (100°)<br>AT853O-ELE omnidirectional (360°)<br>AT853SC-ELE subcardioid (170°) |

† 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

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

### Optional Accessories:

- AT8202 adjustable in-line attenuator for use with low-impedance microphones.
- 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' & 100' lengths.
- AT8438 stand adapter.
- CP8201 line matching transformer (Lo-Z to 50,000 ohms).
- 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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**Audio-Technica Limited,** Old Lane, Leeds LS11 8AG England

Form No. 0310-0791-08-B/W P50873-01 