

# UniPlate®

## Description

The AT851Rx is a wide-range condenser microphone with a hemi-cardioid (half-space cardioid) polar pattern. It is useful in surface-mount applications such as high-quality sound reinforcement, professional recording and conferencing, television, and other demanding sound pickup situations. Its small size makes the AT851Rx ideal for use in applications where minimum visibility is required.

Supplied as a cardioid, the AT851Rx easily accepts interchangeable elements to permit selection of angle of acceptance from 100° to 360°.

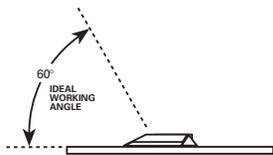
Positioning a properly designed miniature cardioid microphone centrally on a large, flat, unobstructed surface yields several distinct advantages. Directionality is increased by 3 dB, promoting enhanced gain before feedback and further suppression of ambient noise. Sensitivity is increased for improved signal to noise ratio. Phase distortion due to reflected sound energy from the boundary itself is eliminated.

The AT851Rx can be powered from any external 9V to 52V DC phantom power supply. A recessed switch in the power module permits choice of flat response or low-frequency roll-off to help control undesired ambient noise. A 25' (7.6 m) miniature cable is included, with a TA3F plug for connecting to the microphone. Its output end connects to the provided AT8533x power module via internal solderless screw terminals for simple cable-length adjustment in the field.

The microphone element is enclosed in a rugged die-cast case and protected by two layers of perforated steel. The low-profile housing has a low-reflectance black finish. The microphone is also available in white as the AT851RWx.

## Installation and Operation

The symmetry and area of the mounting surface directly affect the sensitivity of the boundary microphone at low frequencies. Ideally, the mounting surface should be circular; however, square or rectangular surfaces are most often used. If the mounting surface is rectangular, the smaller dimension tends to determine low-frequency cutoff. The microphone should be centered on the surface and positioned with the front of the microphone facing the sound source along the longer dimension of the mounting surface. The sound source should not be below, or higher than 60° above, the plane of the mounting surface.



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

**To attach the microphone cable using the pre-stripped end:** Remove the three screws from the base of the power module and slide the outer case off to reveal the circuit board and screw terminals. Next, slide the case onto the cable (narrow end first), and tie a single knot in the cable about 1" from the tinned ends. *Do not pull directly on the exposed small wires and shield.* Following Figure 2 on the back of this sheet, attach the wires to their respective terminals. Make certain that the terminals are clamped on the conductors, not on the insulation, and that there are no loose strands of wire that might touch other terminals. Replace the case, being certain that it goes *over* the case grounding contact and that the roll-off switch is accessible. Finish by replacing the three base screws and testing for proper operation.

**To shorten the cable:** Remove the cable from the module, and cut it to the desired length (allowing a few extra inches). Next, after sliding the case back onto the cable, tie a single knot in the cable about two inches from the cut end. Following Figure 1 on the back of this sheet, cut the cable off 1" down from the top of the knot and carefully remove 1/2" of the outer jacket. Strip the mic cable wires and attach them to their respective terminals. Reassemble the module following the instructions in the previous paragraph.

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 hemi-cardioid polar pattern designed for use in surface-mount boundary applications. It shall be capable of accepting optional interchangeable elements for additional polar patterns. The frequency response shall be 30 Hz to 20,000 Hz. The microphone shall operate from an external 9V to 52V DC phantom power source. Nominal open-circuit output voltage shall be 7.0 mV at 1 kHz, 1 Pascal. Output shall be low impedance balanced (200 ohms).

A 25' (7.6 m) miniature cable shall be supplied, with a TA3F plug at the microphone end and a pigtail output for connecting to the power module via internal solderless screw terminals. The power module shall include a switch for low-frequency roll-off and shall terminate in a 3-pin XLRM-type output connector.

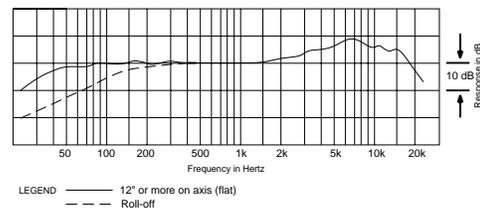
The microphone shall have a maximum width of 2.52" (64.0 mm) and maximum length of 3.60" (91.5 mm). Weight shall be 4.2 oz (120 grams). The microphone housing shall be a die-cast case with a two-layer perforated steel grille. Finish shall be low-reflectance black [white].

The Audio-Technica AT851Rx [AT851RWx] is specified.



## AT851Rx AT851RWx MICRO CARDIOID CONDENSER BOUNDARY MICROPHONE

### Frequency Response

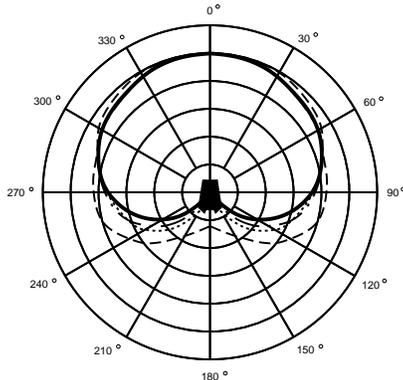


LEGEND ——— 12" or more on axis (flat)  
----- Roll-off



# AT851Rx AT851RWx

## Polar Pattern



SCALE IS 5 DECIBELS PER DIVISION



## Dimensions

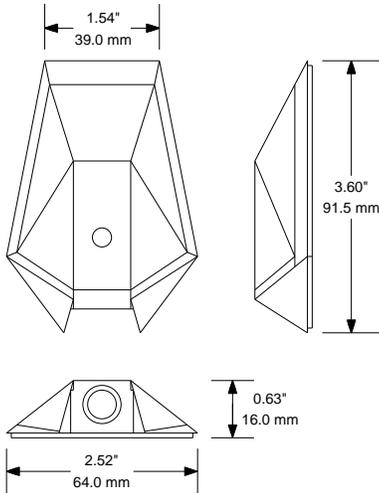


Figure 1

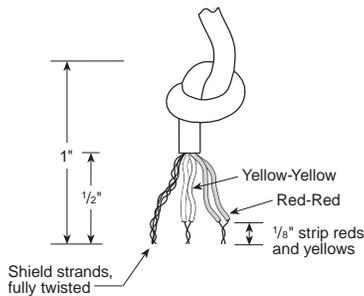
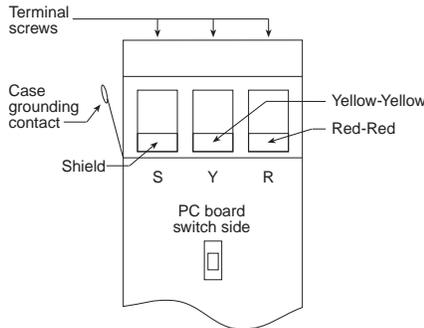


Figure 2



## AT851Rx/AT851RWx SPECIFICATIONS†

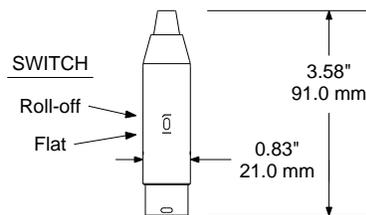
<b>ELEMENT</b>	Fixed-charge back plate permanently polarized condenser
<b>POLAR PATTERN</b>	Half-cardioid (cardioid in hemisphere above mounting surface)
<b>FREQUENCY RESPONSE</b>	30-20,000 Hz
<b>LOW-FREQUENCY ROLL-OFF</b>	150 Hz, 6 dB/octave
<b>OPEN CIRCUIT SENSITIVITY</b>	-43 dB (7.0 mV) re 1V at 1 Pa*
<b>IMPEDANCE</b>	200 ohms
<b>MAXIMUM INPUT SOUND LEVEL</b>	138 dB SPL, 1 kHz at 1% T.H.D.
<b>DYNAMIC RANGE (TYPICAL)</b>	111 dB, 1 kHz at Max SPL
<b>SIGNAL-TO-NOISE RATIO†</b>	67 dB, 1 kHz at 1 Pa*
<b>SWITCH</b>	Flat response, low-roll-off (recessed)
<b>PHANTOM POWER REQUIREMENTS</b>	9-52V DC, 2 mA typical
<b>WEIGHT (LESS CABLE AND ACCESSORIES)</b>	
<b>MICROPHONE</b>	4.2 oz (120 grams)
<b>POWER MODULE</b>	2.1 oz (60 grams)
<b>DIMENSIONS</b>	
<b>MICROPHONE</b>	2.52" (64.0 mm) max width, 3.60" (91.5 mm) max length, 0.63" (16.0 mm) height
<b>POWER MODULE</b>	3.58" (91.0 mm) long, 0.83" (21.0 mm) diameter
<b>OUTPUT CONNECTOR (POWER MODULE)</b>	Integral 3-pin XLRM-type
<b>CABLE</b>	25' (7.6 m) long, 0.13" (3.2 mm) diameter, 2-conductor, shielded cable with TA3F connector at microphone end; pigtail output attaches to screw terminals in power module
<b>ACCESSORIES FURNISHED</b>	AT8533x power module; battery; soft vinyl protective pouch
<b>OPTIONAL INTERCHANGEABLE ELEMENTS</b>	AT853H-ELE hypercardioid (100°) AT853O-ELE omnidirectional (360°) 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/cm<sup>2</sup> = 10 microbars = 94 dB SPL

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

## AT8533x Power Module Dimensions



## Optional Accessories:

- CP8201 line matching transformer (Lo-Z to 50,000 ohms).
- 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.
- CP8506 four-channel 48V phantom power supply (AC powered).
- CP8508 single-channel 24V 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.



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Outside the U.S.A., please contact your local dealer for warranty details.