

## Description

The AT891R/C is a condenser boundary microphone with a hemi-cardioid (half-space cardioid) polar pattern. It features a touch-sensitive on/off switch, indicator LED and external contact closure ability for controlling remote devices such as tally lights, camera calls, speaker zones and other equipment. The touch switch can be configured for touch-on/touch-off, momentary on ("press to talk"), or momentary off ("press to mute"). The indicator LED and external contact closure follow the operation of the touch switch.

A "Remote" mode enables the AT891R/C microphone element to operate independently of the touch switch, LED and contact closure. This mode is ideal for applications such as teleconferencing and video conferencing that use echo cancellers and other processing equipment, which often require continuous audio from the microphone. The touch switch and contact closure are used to mute the audio within the external processing equipment, rather than at the microphone itself.

The AT891R/C can be powered from any external 11V to 52V DC phantom power supply. A switch on the bottom of the unit permits choice of flat response or low-frequency roll-off to help control undesired ambient noise. A 20' (6.1 m) unterminated cable is attached to the microphone via internal screw terminals and can be routed from either the back or the bottom of the housing for maximum positioning flexibility.

The microphone is enclosed in a rugged case and protected by two layers of perforated steel. The rubber non-slip bottom pad minimizes mechanical coupling of surface vibrations to the microphone. The low-profile housing has a low-reflectance black finish.

## Installation and Operation

The AT891R/C requires 11–52V phantom power, which operates the microphone and switch circuitry. The electronics in the microphone take up to 30 seconds to stabilize after power is applied; during this start-up period, some thumps or other sonic disturbances may be heard upon switching if the system is "live."

The AT891R/C has a touch-sensitive switch that can be configured to operate in three modes: touch-on/touch-off (TOUCH ON/OFF), momentary on (MOM. ON), or momentary off (MOM. OFF). Slide the switch marked "SW. FUNCTION" (located on the bottom of the microphone) to the appropriate mode. Note that only one mode can be active at a time.

For applications that require the microphone to remain active regardless of the touch switch function setting, a "Local/Remote" control function is provided. When the switch marked "CONTROL" (located on the bottom of the microphone) is in the "Local" position, the audio output is controlled internally by the touch switch. When the "CONTROL" switch is in the "Remote" position, the microphone audio output will remain active or "on"

all the time. Refer to the table below for switch/LED/closure states.

The microphone's 20' (6.1 m) cable may be attached to exit the microphone from either the back or the bottom. (If you need to extend the cable length, be certain to use the exact same type of cable used on the microphone: the audio signal should use two-conductor shielded cable, and the three control wires should not be under the audio shield.) The microphone comes with the cable exiting at the back. To route the cable from the bottom of the microphone, you will need a very small (No. 0) Phillips screwdriver.

1. Partially loosen the screw in the center of the microphone base; press up on the screw head to loosen the grille assembly. Then remove the screw.
2. If necessary, carefully push out the perforated steel grille by gently pushing the screwdriver through the two mounting holes on the bottom. The grille and foam windscreen should pop off easily.
3. To remove the wires from the screw terminals, loosen the screws, and then gently pull the wires out.
4. Untie the knot in the cable and pull it out through the strain relief.
5. Remove the rubber strain relief from the rear opening of the microphone.
6. Feed the cable through the hole in the bottom of the microphone.
7. Leaving a little slack for connecting the wires to the screw terminals, knot the cable inside the microphone to prevent strain on the connections. (Once the microphone has been installed, secure the cable below the mounting surface.)
8. Reconnect the wires to the screw terminals using the labels as a guide [see Figure A].
9. Tighten the screws to secure the wires. Do not use the rubber strain relief with the bottom-exit configuration.
10. Replace the perforated steel grille (with foam windscreen) and secure with screw.
11. Cover the rear hole with the provided plug.

Output is low impedance balanced. The balanced signal appears across the red and yellow wires, while audio ground is the shield connection. Output is phased so that positive acoustic pressure produces positive voltage on the yellow wire.

The blue and white wires are the contact closure. A black "ground" wire is provided to maintain ground integrity when the contact closure is connected to an external device. When connecting the contact closure output to other equipment, be careful not to exceed the switch current and voltage ratings outlined in the specifications.

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 degrees F (43 degrees C) for long periods of time. Extremely high humidity should also be avoided.

## AT891R/C UNIDIRECTIONAL CONDENSER BOUNDARY MICROPHONE WITH LOCAL OR REMOTE SWITCHING

### Architects and Engineers Specifications

The microphone shall be a fixed-charge condenser with a unidirectional polar pattern designed for use in surface-mount boundary applications. The frequency response shall be 30 Hz to 15,000 Hz. The microphone shall operate from an external 11V to 52V phantom power source. Nominal open-circuit output voltage shall be 17.7 mV at 1 kHz, 1 Pascal. Output shall be low impedance balanced (200 ohms).

The microphone shall have a touch-sensitive switch that may be set to one of three operating modes: touch-on/touch-off, momentary on, or momentary off. An integral LED indicator and contact closure shall follow the touch switch operation. For applications requiring the microphone to operate independently of the touch switch, a "Local/Remote" mode shall be provided. When the "Remote" mode is selected, the microphone audio output shall always remain "on" regardless of the status of the contact closure and LED. The microphone shall include a switch to select low-frequency roll-off.

A 20' (6.1 m) unterminated cable shall be supplied for connection between the microphone and electronics input. The cable shall be attached to the microphone via internal screw terminals and shall have an unterminated 5-conductor output for connection to a variety of electronics. The cable shall be configurable for back- or bottom-of-mic exit. The microphone shall have a maximum width of 2.87" (73.0 mm) and a maximum length of 4.33' (110.0 m). Weight shall be 5.8 oz (165 g). The microphone shall be housed in a rugged case with a two-layer perforated steel grille. Finish shall be low-reflectance black.

The Audio-Technica AT891R/C is specified.



### CONTROL Switch in "Local" Position

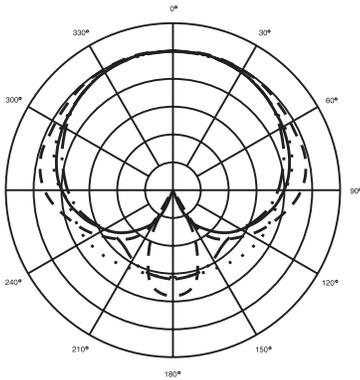
| SW Function  | Microphone Audio             | LED                          | External Contact Closure      |
|--------------|------------------------------|------------------------------|-------------------------------|
| TOUCH ON/OFF | Follows switch function      | Follows switch function      | Follows switch function       |
| MOM. ON      | "On" when switch is pressed  | "On" when switch is pressed  | Closed when switch is pressed |
| MOM. OFF     | "Off" when switch is pressed | "Off" when switch is pressed | Open when switch is pressed   |

### CONTROL Switch in "Remote" Position

| SW Function  | Microphone Audio | LED                          | External Contact Closure      |
|--------------|------------------|------------------------------|-------------------------------|
| TOUCH ON/OFF | Always "On"      | Follows switch function      | Follows switch function       |
| MOM. ON      | Always "On"      | "On" when switch is pressed  | Closed when switch is pressed |
| MOM. OFF     | Always "On"      | "Off" when switch is pressed | Open when switch is pressed   |

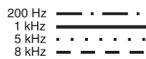
# AT891R/C

## Polar Pattern

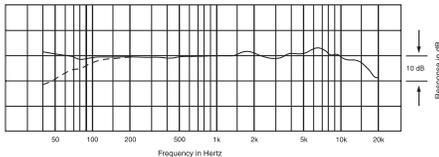


SCALE IS 5 DECIBELS PER DIVISION

### LEGEND

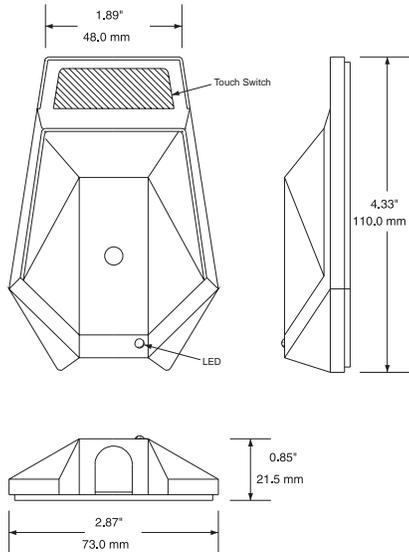


## Frequency Response

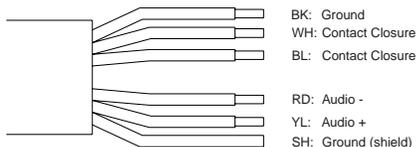


LEGEND ——— 12° or more on axis  
 - - - - - Roll-off

## Dimensions



## Mic Cable Connections



## AT891R/C SPECIFICATIONS†

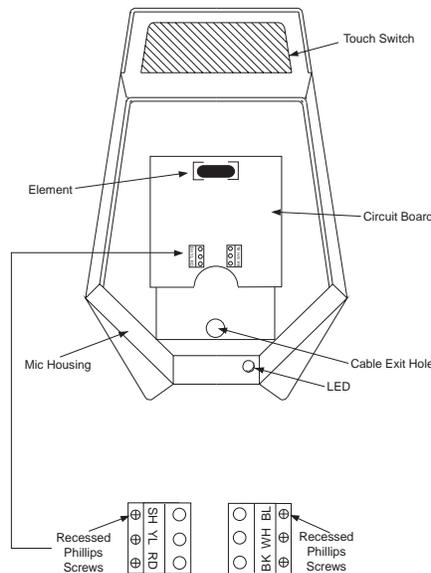
|  |  |
|--|--|
| <b>ELEMENT</b>                           | Fixed-charge back plate permanently polarized condenser  |
| <b>POLAR PATTERN</b>                     | Half-cardioid (cardioid in hemisphere above mounting surface)  |
| <b>FREQUENCY RESPONSE</b>                | 30–15,000 Hz   |
| <b>LOW-FREQUENCY ROLL-OFF</b>            | 80 Hz, 12 dB/octave  |
| <b>OPEN CIRCUIT SENSITIVITY</b>          | -35 dB (17.7 mV) re 1V at 1 Pa*  |
| <b>IMPEDANCE</b>                         | 200 ohms   |
| <b>MAXIMUM INPUT SOUND LEVEL</b>         | 133 dB SPL, 1 kHz at 1% T.H.D.   |
| <b>DYNAMIC RANGE (TYPICAL)</b>           | 106 dB, 1 kHz at Max SPL   |
| <b>SIGNAL-TO-NOISE RATIO<sup>1</sup></b> | 67 dB, 1 kHz at 1 Pa*  |
| <b>SWITCHES</b>                          | Touch-sensitive switch: on/off<br>Switch function: touch on/off, momentary on, momentary off<br>Control (operating mode selection): local, remote<br>Low cut: Flat response, low roll-off          |
| <b>CONTACT CLOSURE</b>                   |  |
| <b>CLOSURE I/O VOLTAGE</b>               | -0.5V to 5.5V  |
| <b>CLOSURE THROUGH CURRENT</b>           | 100 mA   |
| <b>POWER DISSIPATION</b>                 | 720 mW   |
| <b>ON RESISTANCE</b>                     | 20 ± 8 ohms  |
| <b>I/O LEAKAGE CURRENT</b>               | 400 nA   |
| <b>PHANTOM POWER REQUIREMENTS</b>        | 11–52V DC, 4 mA typical  |
| <b>WEIGHT</b>                            | 5.8 oz (165 grams)   |
| <b>DIMENSIONS</b>                        | 2.87" (73.0 mm) max width,<br>4.33" (110.0 mm) max length,<br>0.85" (21.5 mm) max height   |
| <b>CABLE</b>                             | 20' (6.1 m) long, 0.13" (3.2 mm) diameter, 5-conductor, unterminated shielded cable attaches to microphone via screw terminals; output end stripped and tinned for connection to electronic device |
| <b>ACCESSORIES FURNISHED</b>             | Soft protective pouch, hole plug   |

† 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

<sup>1</sup> Typical, A-weighted, using Audio Precision System One.

Figure A:  
Internal Connections



## 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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