

Three-Element Multidirectional Boundary Microphone

engineered sound® microphones



Features

- **Three cardioid condenser elements mounted in a single housing**
- **Easily reposition two elements (via levers on the microphone base) to adjust the acceptance angle of the microphone from 360° to 300°; each element can be powered and used individually or in any combination**
- **Also functions as a stereo boundary microphone**
- **Provides full, efficient and flexible coverage of conference tables—fewer microphones required**
- **Small-diameter capsules near boundary eliminate phase distortion and deliver clear, high-output performance**
- **Low-frequency attenuation improves sound pickup without affecting voice quality**
- **Cable routes through any of four recessed pathways on the microphone base (or down for direct feed through a table surface); no tools or disassembly required**
- **UniGuard® RFI-shielding technology offers outstanding rejection of radio frequency interference (RFI)**
- **Heavy die-cast case and non-slip silicon foam bottom pads minimize coupling of surface vibration to the microphone**
- **Low-profile design with low-reflectance finish for minimum visibility**

Description

The ES963 is a three-element multidirectional condenser microphone. It is designed for surface-mount applications such as high-quality sound reinforcement, conferencing, professional recording, television and other demanding sound pickup applications.

The microphone requires 11V to 52V DC phantom power for operation. Elements can be powered and used individually, or in any combination.

The microphone is equipped with UniGuard® RFI-shielding technology, which offers outstanding rejection of radio frequency interference (RFI).

Three cardioid condenser elements mounted in the microphone housing are factory set with an angle of 120° between them to provide complete 360° coverage (in the hemisphere above mounting surface). Two positioning levers on the microphone base allow two of the three elements to be reoriented (with no tools or disassembly required) to offer angles of 90°/90°/180° between elements – ideal for positioning at the end of long conference tables, for example.

Four recessed pathways on the base of the microphone enable the user to route the cable as necessary to accommodate any installation requirements; no tools or disassembly are needed. The cable can also be fed directly down from the microphone base to route through a table surface.

The microphone includes a 7.5 m (24.6') permanently attached output cable. Its free end is unterminated stripped and tinned pigtailed. This allows the installer flexibility in interfacing with a variety of equipment. For custom installation, refer to the wiring chart for termination connection.

The microphone's heavy die-cast case and non-slip silicon foam bottom pads minimize coupling of surface vibration to the microphone. The microphone includes a soft protective pouch and features a low-reflectance black finish.

Installation and Operation

The ES963 requires 11V to 52V DC phantom power for operation.

Output from the microphone is low impedance (Lo-Z) balanced. The signal appears across the pair of colored wires (red and yellow wires for Element 1, white and blue wires for Element 2, green and brown wires for Element 3); audio ground is the shield connection. Output is phased so that positive acoustic pressure produces positive voltage on the yellow, blue and brown wires.

The microphone should be placed on a flat, unobstructed mounting surface. The sound source should not be below, or higher than 60° above, the plane of the mounting surface. The fixed element (3) is facing the front of the microphone, indicated by the Audio-Technica logo on the exterior housing.

For 360° coverage, slide each of the two microphone positioning levers on the microphone base to the 120° positions. At this setting, ideal for providing omnidirectional coverage of four people at a round table, there will be 120° between elements; each of the two moveable elements (1 and 2) will face a triangle printed on the microphone's exterior housing (see Fig. A).

For 300° coverage, slide each of the two microphone positioning levers on the bottom of the microphone to the 90° positions. At this setting, ideal for covering three people at the end of a table, there will be 90° between elements; each of the two moveable elements (1 and 2) will face a circle printed on the microphone's exterior housing (see Fig. B).

Figure A

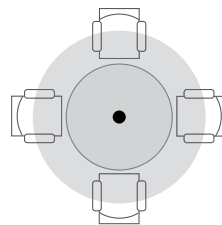
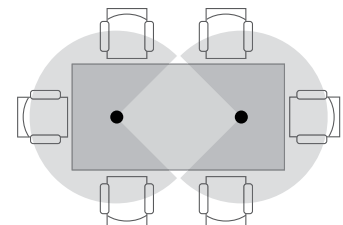


Figure B



Since elements can be powered and used individually or in any combination, further flexibility is easily achieved. For example, with two elements powered (1 and 2 in the 120° positions) and the (unpowered) stationary element pointed away from the sound source, the microphone provides the functionality of a stereo boundary mic; with two elements powered (1 and 2 in the 90° positions), the microphone provides figure-of-eight coverage; with a single element powered, the microphone functions as a standard cardioid boundary microphone.

The cable may be routed through one of the four recessed pathways on the microphone base (or down for direct feed through a table surface) to accommodate any installation requirements without the need for tools or disassembly.

Avoid leaving the microphone in the open sun or in areas where temperatures exceed 43°C for extended periods. Extremely high humidity should also be avoided.

Note: Placing any object on a surface (such as a conference table) before its finish is fully cured may result in damage to the finish.

Architect's and Engineer's Specifications

The microphone shall be a three-element multidirectional fixed-charge condenser designed for use in surface-mount applications. It shall have three cardioid elements (cardioid in hemisphere above mounting surface)

and a frequency response of 75 Hz to 15,000 Hz. The microphone shall operate from an external 11V to 52V DC phantom power source. It shall be capable of handling sound input levels up to 135 dB with a dynamic range of 110 dB. Nominal open-circuit output voltage shall be 14.1 mV at 1V, 1 Pascal. Output shall be low impedance balanced (100 ohms). It shall offer outstanding rejection of radio frequency interference (RFI).

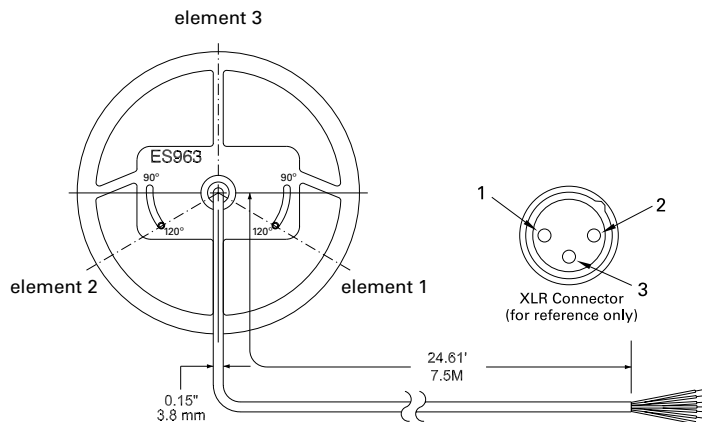
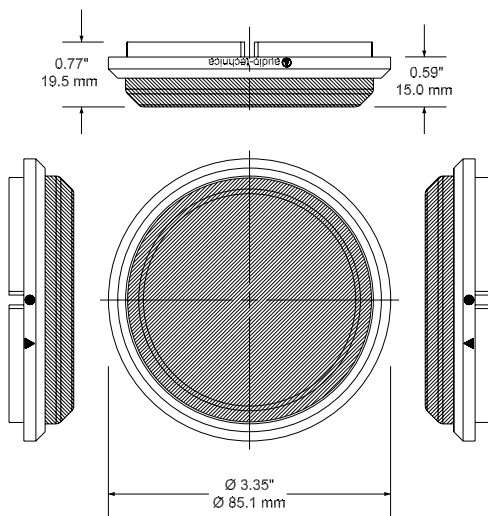
The microphone shall include two positioning levers to permit angles of 90°/90°/180° between elements or 120° between elements; this flexibility shall permit change of the microphone's coverage area with no tools or disassembly required. The microphone shall incorporate self-contained electronics, eliminating the need for an external power module. The microphone shall have a permanently attached 7.5 m (24.6') miniature cable. The output end of the cable shall have stripped and tinned color-coded leads for connections. The microphone shall offer cable-routing recessed pathways on its base to accommodate installation requirements without the need to disassemble the microphone or use tools to change the cable exit location.

The microphone shall have a diameter of 85.1 mm (3.35") and a height of 19.5 mm (0.77"). Weight shall be 162 grams (5.7 oz). The microphone shall be housed in a die-cast case with a perforated steel grille. Finish shall be low-reflectance black. The microphone shall include a soft protective pouch.

The Audio-Technica ES963 is specified.

Wiring Chart

| | Connect to XLR connector | Function | ES963 wire color |
|------------|--------------------------|------------------|------------------|
| Element #1 | pin #1 | audio ground | shield wire |
| | pin #2 | audio signal (+) | yellow wire |
| | pin #3 | audio signal (-) | red wire |
| Element #2 | pin #1 | audio ground | shield wire |
| | pin #2 | audio signal (+) | blue wire |
| | pin #3 | audio signal (-) | white wire |
| Element #3 | pin #1 | audio ground | shield wire |
| | pin #2 | audio signal (+) | brown wire |
| | pin #3 | audio signal (-) | green wire |



Specifications

| | |
|--|--|
| Elements | Fixed-charge back plate, permanently polarized condenser |
| Polar pattern | Half-cardioid (cardioid in hemisphere above mounting surface) |
| Frequency response | 75-15,000 Hz |
| Low frequency roll-off | 80 Hz, 18 dB/octave |
| Open circuit sensitivity | -37 dB (14.1 mV) re 1V at 1 Pa |
| Impedance | 100 ohms |
| Maximum input sound level | 135 dB SPL, 1 kHz at 1% T.H.D. |
| Dynamic range (typical) | 110 dB, 1 kHz at Max SPL |
| Signal-to-noise ratio¹ | 69 dB, 1 kHz at 1 Pa |
| Phantom power requirements | 11-52V DC, 2 mA typical |
| Element levers | Adjusts the position of microphone elements from 90° to 120° |
| Weight | 162 g (5.7 oz) |
| Dimensions | 85.1 mm (3.35") diameter, 19.5 mm (0.77") height |
| Output connector | Unterminated—stripped and tinned |
| Cable | 7.5 m (24.6') long (permanently attached to microphone), 3.8 mm (0.15") diameter, 7-conductor shielded cable; unterminated |
| Accessory furnished | Soft protective pouch |

In the interest of standards development, A.T.U.S. offers full details on its test methods to other industry professionals on request.

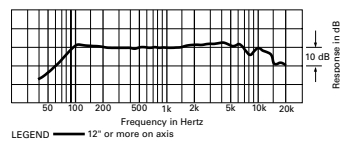
1 Pascal = 10 dynes/cm² = 10 microbars = 94 dB SPL

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

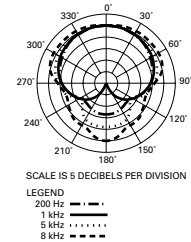
Specifications are subject to change without notice.



frequency response: 75–15,000 Hz



polar pattern



Audio-Technica U.S., Inc., 1221 Commerce Drive, Stow, Ohio 44224
 Audio-Technica Limited, Old Lane, Leeds LS11 8AG England
 ©2010 Audio-Technica U.S., Inc. audio-technica.com