

SHURE®

LEGENDARY
PERFORMANCE™

Wired Microphones
BETA 91A

BETA 91A

Instrument Microphone

Microphone pour instruments

Instrumentenmikrofon

Microfono per strumento

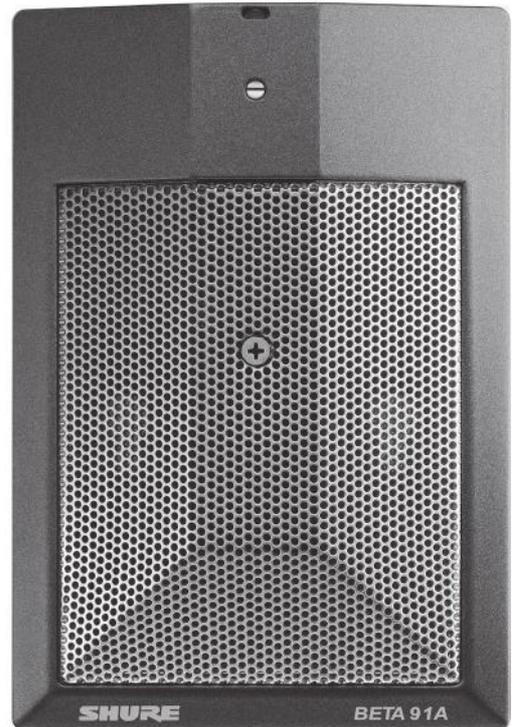
Micrófono para instrumentos

Инструментальный микрофон

楽器用マイクロホン

악기 마이크

乐器话筒



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27A14270 (Rev. 1)
Printed in U.S.A.



General Description

The Shure Beta 91A is designed for use with kick drums, piano and other traditional low frequency applications. An updated microphone capsule is tailored for bass-heavy environments to produce a powerful low frequency response, and a new design integrates the preamplifier and XLR connection for easy setup and minimal stage clutter. The Beta 91A combines superior attack and punch for studio-quality sound, even at extremely high sound pressure levels (SPLs).

Features

- Premier live performance microphone with Shure quality, ruggedness, and reliability
- Uniform half-cardioid polar pattern (in the hemisphere above mounting surface) for maximum gain before feedback and rejection of off-axis sound
- Tailored frequency response for kick drums and bass-heavy instruments
- Wide dynamic range for use in high SPL environments
- Two-position contour switch enhances attack and clarity
- Integrated preamp and XLR connector reduce stage clutter and provide a quick, secure setup
- Low profile design requires no external mounting hardware
- Steel grille and die-cast metal construction resist wear and abuse

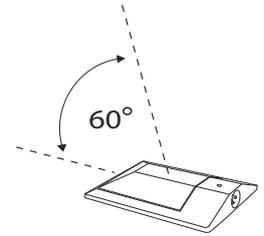
Performance Characteristics

- Exceptional low-frequency reproduction
- Extremely high SPL handling
- High output level
- No crossover distortion

Applications and Placement

Half-cardioid Polar Pattern

Boundary microphones pick up sound in a cardioid polar pattern in the hemisphere above the mounting surface. Keep sound sources within the 60 degree range above this surface.



General Rules for Use

- Aim the microphone toward the desired sound source; angle unwanted sounds toward its *null* point.
- Use the fewest amount of microphones as practical to increase the *Potential Acoustic Gain* and prevent feedback.
- Follow the *3 to 1 Rule* by spacing each microphone by at least three times the distance to its source to reduce *Phase Cancellation*.
- Place microphones as far as possible from reflective surfaces to reduce *Comb Filtering*.
- When using directional microphones, work closely to the microphone for extra bass response to take advantage of *Proximity Effect*.
- Avoid excessive handling to minimize pickup of mechanical noise and vibration.
- Do not cover any part of the microphone grille, as this will adversely affect microphone performance.

The following table lists the most common applications and placement techniques. Keep in mind that microphone technique is largely a matter of personal taste; there is no one "correct" microphone position.

| APPLICATION | SUGGESTED MICROPHONE PLACEMENT | TONE QUALITY |
|-------------|--|---|
| Kick Drum | Inside drum, on a pillow or other cushioning surface, 25 to 152 mm (1 to 6 in.) from beater head. | Full, natural sound. |
| | Contour switch activated; 25 to 152 mm (1 to 6 in.) from beater head. | Sharp attack; maximum bass "punch." |
| Piano | Mount microphone on underside of lid over lower treble strings. Experiment with lid height and placement to hammers for desired sound. | Bright, well-balanced, strong attack; excellent isolation. |
| | Mount microphone vertically on the inside of the piano frame, near the apex of the piano's curved wall. | Full, natural; excellent isolation and minimal hammer and damper noise. |

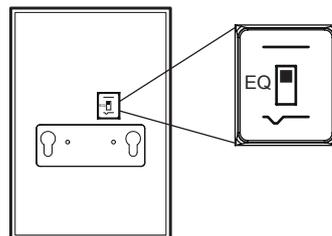
Note: Location and room acoustics strongly affect the sound quality of microphones. To achieve the best overall sound for a particular application, it may be necessary to experiment with microphone placement and room treatments.

Mounting the Microphone

For long-term installation, mount the Beta 91A to a surface using the mounting holes on the bottom of microphone.

Contour Switch

A two-position switch on the bottom of the microphone lets you selectively filter the low-mid frequency response without additional tools. Use this filter to enhance the attack and clarity of bass-heavy instruments.



Flat response: Provides the most natural sound in most applications.

Low-Mid Scoop: This setting tailors the microphone's frequency response to provide a strong 'punch' in the low frequencies, and plenty of attack in the higher frequencies.

Load Impedance

Maximum SPL capability, output clipping level, and dynamic range vary with the input load impedance of the preamplifier to which you connect the microphone. Shure recommends a minimum input load impedance of 1000 Ω . Most modern microphone preamplifiers meet this requirement. Higher impedance results in better performance for these specifications.

Power Requirements

This microphone requires phantom power and performs best with a 48 Vdc supply (IEC-61938). However, it will operate with slightly decreased headroom and sensitivity with supplies as low as 11 Vdc.

Most modern mixers provide phantom power. You must use a **balanced** microphone cable: XLR-to-XLR or XLR-to-TRS.

SPECIFICATIONS

| | | |
|--|---|----------|
| Cartridge Type | Electret Condenser | |
| Polar Pattern | Half-cardioid (cardioid in hemisphere above mounting surface) | |
| Frequency Response | 20 to 20,000 Hz | |
| Output Impedance @ 1 kHz | 146 Ω | |
| Sensitivity open circuit voltage, @ 1 kHz, typical | -48.5 dBV/Pa ^[1] (3.8 mV) | |
| Maximum SPL 1 kHz at 1% THD ^[2] | 2500 Ω load | 155 dB |
| | 1000 Ω load | 151 dB |
| Signal-to-Noise Ratio ^[3] | 64.5 dB | |
| Dynamic Range @ 1 kHz | 2500 Ω load | 125.5 dB |
| | 1000 Ω load | 121.5 dB |
| Clipping Level 20 Hz to 20 kHz, 1% THD | 2500 Ω load | 12.5 dBV |
| | 1000 Ω load | 7.5 dBV |
| Self Noise equivalent SPL, A-weighted, typical | 29.5 dB SPL-A | |
| Common Mode Rejection 20 Hz to 200 kHz | ≥ 55 dB | |
| Frequency Contour Switch | 7 dB of attenuation centered at 400 kHz | |
| Connector | Three-pin professional audio (XLR), male, balanced | |
| Polarity | Positive pressure on diaphragm produces positive voltage on pin 2 with respect to pin 3 | |
| Power Requirements | 11–52 V DC ^[4] phantom power (IEC-61938), 5.4 mA | |
| Net Weight | 470 g (16.6 oz.) | |

^[1] 1 Pa=94 dB SPL

^[2] THD of microphone preamplifier when applied input signal level is equivalent to cartridge output at specified SPL

^[3] S/N ratio is the difference between 94 dB SPL and equivalent SPL of self noise, A-weighted

^[4] All specifications measured with a 48 Vdc phantom power supply. The microphone operates at lower voltages, but with slightly decreased headroom and sensitivity.

Accessories and Parts

Furnished Accessories

| | |
|-----------------------|---------|
| Zippered Carrying Bag | 95A2314 |
|-----------------------|---------|

Optional Accessories

| | |
|----------------------|------|
| 7.6 m (25 ft.) Cable | C25E |
|----------------------|------|

Replacement Parts

| | |
|--------------------|----------|
| Cardioid Cartridge | RPM98A/C |
|--------------------|----------|

CERTIFICATION

Eligible to bear CE Marking. Conforms to European EMC Directive 2004/108/EC. Meets Harmonized Standards EN55103-1:1996 and EN55103-2:1996, for residential (E1) and light industrial (E2) environments.

The Declaration of Conformity can be obtained from:

Authorized European representative:

Shure Europe GmbH

Headquarters Europe, Middle East & Africa

Department: EMEA Approval

Wannenacker Str. 28

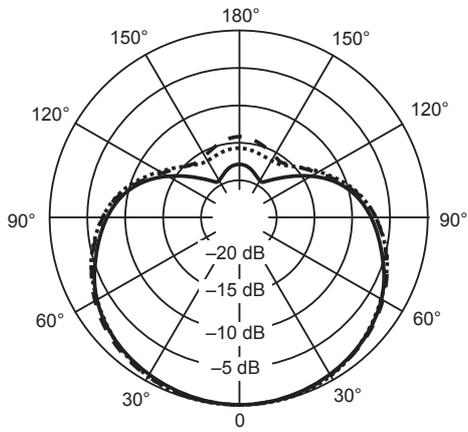
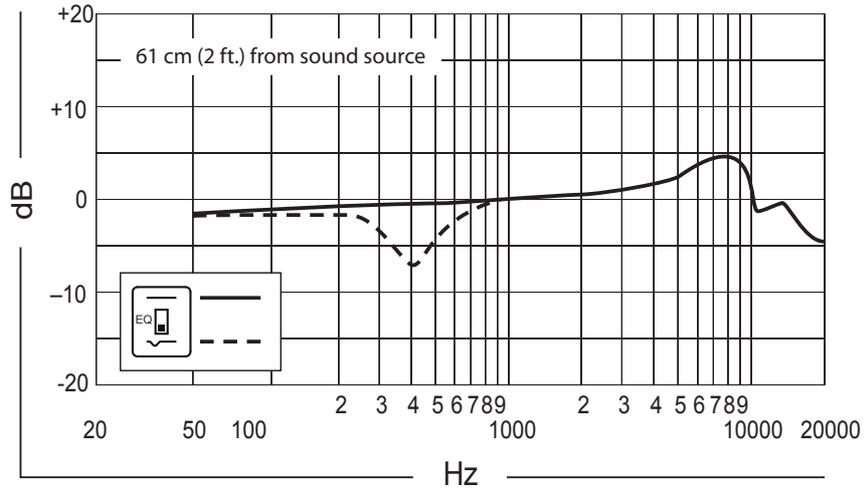
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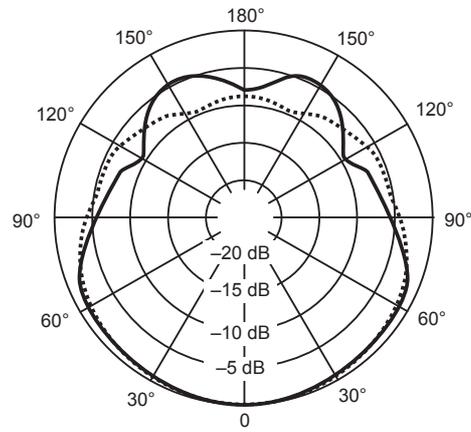
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Email: EMEAsupport@shure.de

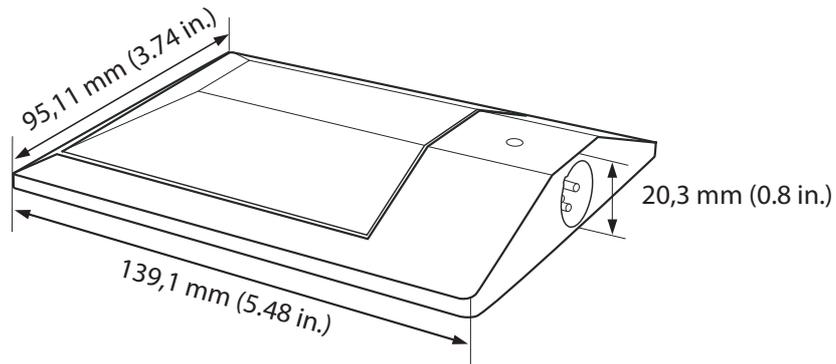
Beta 91A



--- 250 Hz
 500 Hz
 ——— 1000 Hz



..... 6300 Hz
 ——— 10000 Hz





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