

# Model Beta 91A Wired Microphones Specification Sheet

# **BETA 91A Instrument Microphone**



## **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.





1000 Hz





# **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.

#### Mounting the Microphone

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

#### 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  $\Omega$ . 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 head-room 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 <sup>[1]</sup> (3.8 mV)	
Maximum SPL 1 kHz at 1% THD <sup>[2]</sup>	2500 Ω load 155 dB 1000 Ω load 151 dB	
Signal-to-Noise Ratio <sup>[3]</sup>	64.5 dB	
<b>Dynamic Range</b> @ 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 pro- duces positive voltage on pin 2 with respect to pin 3	
Power Requirements	11–52 V DC <sup>[4]</sup> phantom power (IEC-61938), 5.4 mA	
Net Weight	470 g (16.6 oz.)	

1] 1 Pa=94 dB SPL

 $^{\mbox{\tiny [2]}}\mbox{THD}$  of microphone preamplifier when applied input signal level is equivalent to cartridge output at specified SPL

<sup>[3]</sup>S/N ratio is the difference between 94 dB SPL and equivalent SPL of self noise, A-weighted <sup>[4]</sup>All specifications measured with a 48 Vdc phantom power supply. The microphone operates at lower voltages, but with slightly decreased headroom and sensitivity.



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# Accessories and Parts

Furnished Accessories	
Zippered Carrying Bag	95A2314
Optional Accessories	
7.6 m (25 ft.) Cable	C25E

### **Replacement Parts**

Cardioid Cartridge

RPM98A/C



**Dimensions** 

#### 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:

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