



BETA27

Instrument Microphone

The Shure supercardioid condenser microphone, BETA27, user guide.
Version: 3.1 (2023-I)

Table of Contents

BETA27 Instrument Microphone	3	Setting Attenuation	5
General Description	3	Integral Pop Filter	6
Features	3	Load Impedance	6
Performance Characteristics	3	Power Requirements	6
Applications	3	Specifications	6
Avoiding Pickup of Unwanted Sound Sources	4	Accessories	9
Stand Adapter	4	Furnished Accessories	9
Positioning the Microphone	4	Optional Accessories	9
Selecting Low-Frequency Response	5	Certifications	9

BETA27

Instrument Microphone

General Description

The Shure® Beta 27 is a studio-grade, side-address condenser microphone for professional sound reinforcement. Its flat frequency response, low self noise, and superior construction quality provide unerring precision in demanding performance and recording environments. A tight supercardioid pattern ensures high gain before feedback, maximum sound isolation, and consistent off-axis rejection.

Features

- Supercardioid polar pattern targets intended sound source with minimized bleed from off axis sound sources
- 1 inch, externally biased, ultra-thin, 2.5 µm, 24 Karat gold-layered, low mass, Mylar® diaphragm provides superior transient response
- Class A, discrete, transformerless preamplifier for transparency, extremely fast transient response, no crossover distortion, and minimal harmonic and intermodulation distortions
- Premium electronic components and gold-plated internal and external connectors
- Subsonic filter eliminates rumble from mechanical vibration below 17Hz
- Switchable 15dB pad for handling extremely high sound pressure levels (SPLs)
- Three-position low-frequency filter switch reduces unwanted background noise or counteracts proximity effect
- Integrated three-stage "pop" protection grille reduces plosives and other breath noise
- Internal shock mount reduces handling and stand noise

Performance Characteristics

- Low self-noise
- Consistent, highly directional polar response
- Exceptional low-frequency reproduction
- Extremely high SPL handling
- High output level
- Extended frequency response
- No crossover distortion

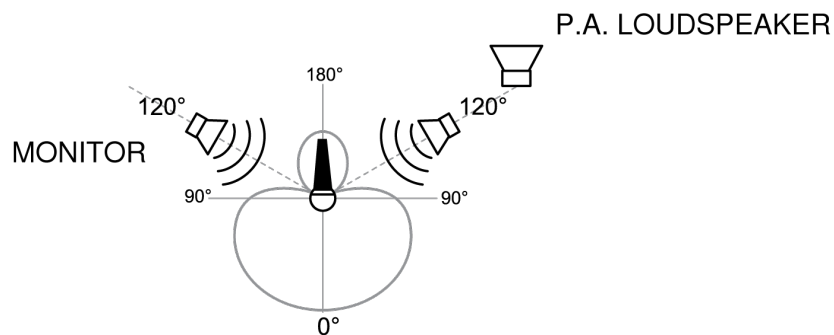
Applications

- Electric guitar and bass amplifiers
- Brass and woodwind instruments
- Orchestras, choirs, and wind ensembles
- Overhead miking of drums and percussion instruments
- Close-miking of acoustic instruments such as piano, guitar, violins, drums, and percussion
- Low-frequency instruments such as double bass and kick drum
- Vocals and speech

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.

Avoiding Pickup of Unwanted Sound Sources

A supercardioid microphone has the greatest sound rejection at points 120° toward the rear of the microphone. Place the microphone so that unwanted sound sources, such as monitors and loudspeakers, are at these angles, not directly behind it. To minimize feedback and ensure optimum rejection of unwanted sound, always test microphone placement before a performance.



Recommended Loudspeaker Locations for Supercardioid Microphones

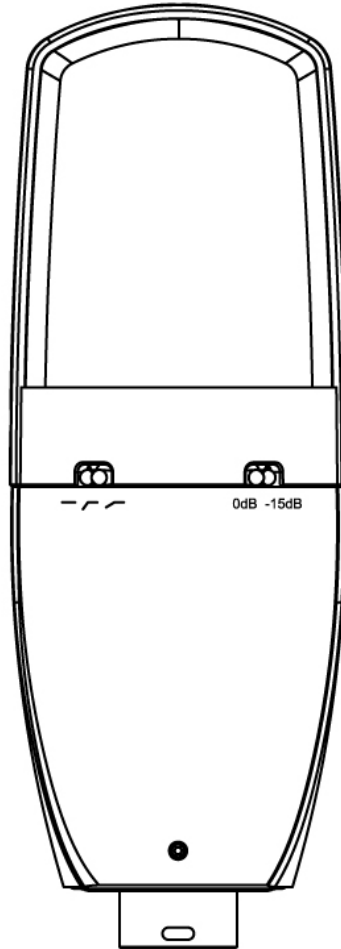
Stand Adapter

Thread the supplied stand adapter onto a floor or boom stand, then thread the microphone onto the adapter.

NOTE: To reduce low-frequency vibrations transmitted through the stand, use an isolating shock mount. Visit www.shure.com for more information.

Positioning the Microphone

The front of the microphone is marked by the Shure logo. Position this side toward the sound source.



Selecting Low-Frequency Response

A three-position switch on the back of the microphone lets you adjust the low-frequency response. Use the low-frequency filter to reduce wind noise, room noise, or proximity effect.

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

Low frequency cutoff. Provides an 18dB-per-octave cutoff at 80Hz. Helps eliminate floor rumble and low-frequency room noise from heating and air conditioning systems. This setting may also be used to compensate for proximity effect or to reduce low frequencies that make an instrument sound dull or muddy.

Low frequency rolloff. Provides a 6dB-per-octave rolloff filter at 115Hz. Use this to compensate for proximity effect or to reduce low frequencies that could make an instrument sound dull or muddy.

Setting Attenuation

The attenuation switch lets you reduce the signal level without altering the frequency response. This can prevent extremely loud sounds from overloading the microphone.

0dB For "quiet" to "normal" sound levels.

-15dB For use with extremely loud sound sources such as drums, horns, or loud guitar cabinets.

Integral Pop Filter

The microphone grille consists of 3 separate mesh layers that act as an integral pop filter. This helps reduce wind and breath noise. Depending on the performer, an external pop-protection screen or windscreen may be necessary when close-miking vocalists.

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.

Specifications

Type

Condenser (externally biased)

Frequency Response

20 to 20,000 Hz

Polar Pattern

Supercardioid

Output Impedance

160 Ω

Sensitivity

(at 1 kHz, open circuit voltage, Typical)

-37 dBV/Pa[1] (14.1 mV)

Maximum SPL

(1 kHz at 1% THD)

PAD ON	1000 Ω load	148 dB SPL
--------	-------------	------------

	2500 Ω load	154 dB SPL
PAD OFF	1000 Ω load	134 dB SPL
	2500 Ω load	140 dB SPL

Signal-To-Noise Ratio

(Ref. 94 dB SPL at 1 kHz)

86 dB[2]

Dynamic Range

(at 1 kHz)

1000 Ω load	126 dB
2500 Ω load	132 dB

Common Mode Rejection

(10 Hz to 10 kHz)

>50 dB

Clipping Level

(20 Hz to 20 kHz, at 1% THD)

1000 Ω load	2.0 dBV
2500 Ω load	8.5 dBV[3]

Attenuator Switch

0, -15dB

Low-Frequency Filter Switch

Flat, -6 dB/octave below 115 Hz, or -18 dB/octave below 80 Hz

Self Noise

(typical, equivalent SPL, A-weighted)

8.5 dB SPL-A

Polarity

Positive pressure on diaphragm produces positive voltage on pin 2 with respect to pin 3

Weight

428 g(15 oz..)

Connector

Three-pin professional audio (XLR), male, balanced

Power Requirements

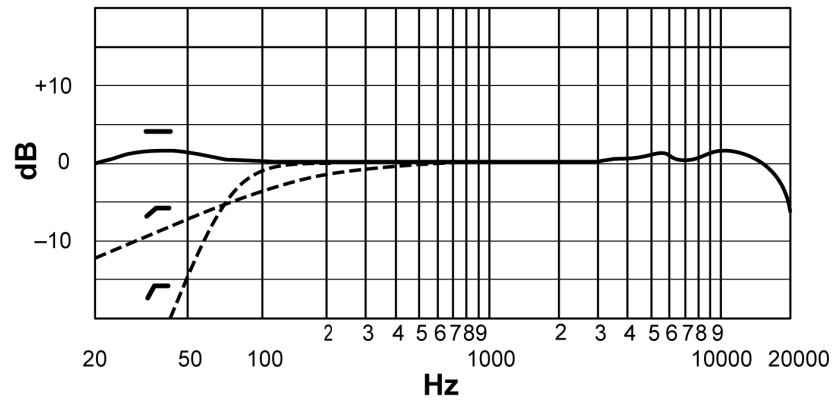
11 to 52 V DC[4]phantom power, 6 mA

[1] 1 Pa=94 dB SPL

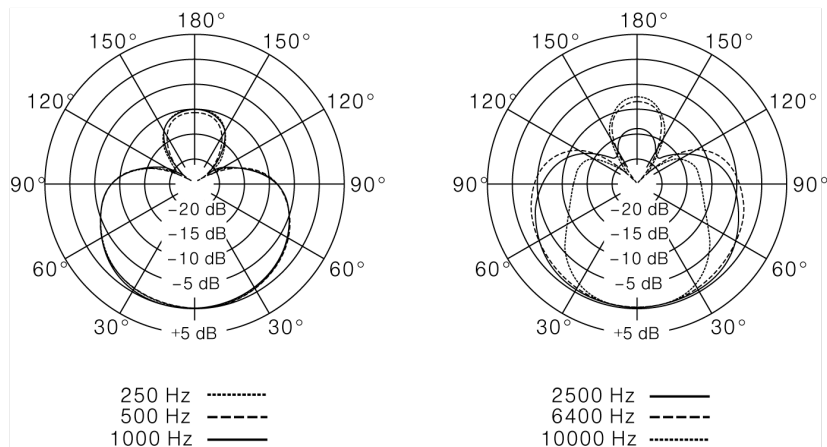
[2] S/N ratio is difference between 94 dB SPL and equivalent SPL of self noise, A-weighted

[3] THD of microphone preamplifier when applied input signal is equivalent to cartridge output at specified SPL.

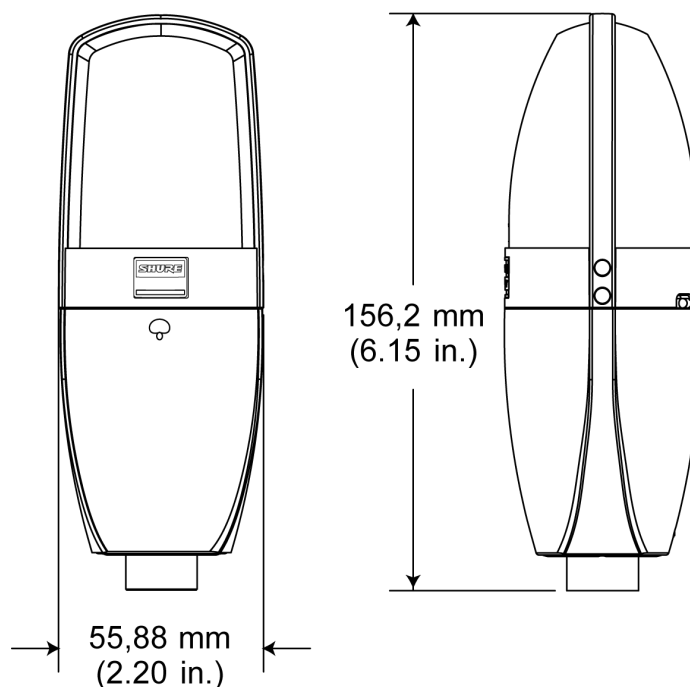
[4] All specifications measured with a 48 Vdc phantom power supply. The microphone operates at lower voltages, but with slightly decreased headroom and sensitivity.



Typical Frequency Response



Typical Polar Pattern



Overall Dimensions

Accessories

Furnished Accessories

Black Mount/Swivel Adapter for BETA27, KSM27, KSM32 and KSM44	A32M
Padded, Zippered Carrying Bag for BETA27, SM27	A27ZB

Optional Accessories

Black Foam Windscreen for BETA27, KSM27, KSM32, KSM42, KSM44, KSM44A, PG27, PG42 and SM27	A32WS
Popper Stopper® Pop Filter with Metal Gooseneck and Microphone Stand Clamp	PS-6
ShureLock® Rubber Isolated Shock Mount	A27SM

Certifications

CE Notice

Hereby, Shure Incorporated declares that this product with CE Marking has been determined to be in compliance with European Union requirements.

The full text of the EU declaration of conformity is available at the following site: <https://www.shure.com/en-EU/support/declarations-of-conformity>.

UKCA Notice

Hereby, Shure Incorporated declares that this product with UKCA Marking has been determined to be in compliance with UKCA requirements.

The full text of the UK declaration of conformity is available at the following site: <https://www.shure.com/en-GB/support/declarations-of-conformity>.