
BETA98A -- Miniature Cardioid Condenser Microphone

General Description

The Shure Beta 98A is a compact, high-output, condenser microphone for professional sound reinforcement and studio recording. An extremely uniform cardioid polar pattern provides excellent gain before feedback and off-axis rejection of unwanted noise. Its high sound pressure level (SPL) capability makes it useful for a variety of acoustic or amplified instruments including drums, piano, reed, wind, and strings.

Variations

- **Beta 98A/C** includes microphone, 7.6 m (25 ft) light-weight interconnect cable, preamplifier, and RK282 shock-mount swivel adapter.
- **Beta 98AD/C** includes microphone, 4.6 m (15 ft) heavy-duty interconnect cable, preamplifier, and A98D microphone drum mount.

Performance Characteristics

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

Features

- Premier live performance microphone with Shure quality, ruggedness, and reliability
- Uniform cardioid pick-up pattern for maximum gain before feedback and superior rejection of off-axis sound
- Tailored frequency response specifically shaped for drums, percussion, reeds, and horns
- Compact design reduces stage clutter
- Wide dynamic range for use in high SPL environments
- Optional A98D mount is unobtrusive, versatile, and easy to adjust
- Enamel-coated metal construction and stainless steel inner grille resist wear and abuse

Interconnecting Cable

The supplied cable connects the BETA 98A to the preamplifier. If necessary, up to 23 m (75 ft) of cable can be used between the microphone and preamplifier without signal loss.

Applications

General Rules for Use

- Do not cover any part of the microphone grille with your hand, as this will adversely affect microphone performance.
- Aim the microphone toward the desired sound source (such as the talker, singer, or instrument) and away from unwanted sources.
- Place the microphone as close as practical to the desired sound source.
- Work close to the microphone for extra bass response.
- Use only one microphone to pick up a single sound source.
- For better gain before feedback, use fewer microphones.
- Keep the distance between microphones at least three times the distance from each microphone to its source (“three to one rule”).
- Place microphones as far as possible from reflective surfaces.
- Add a windscreen when using the microphone outdoors.
- Avoid excessive handling to minimize pickup of mechanical noise and vibration.

Applications and Placement

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
Tom-Toms	One mic on each tom or between a pair of toms, 2.5 to 7.5 cm (1 to 3 in.) above drum heads.	Medium attack; full, balanced sound.
	Remove bottom head and place a mic inside pointing up toward top drum head.	Maximum isolation; full, balanced sound.
Snare Drum	2.5 to 7.5 cm (1 to 3 in.) above rim of top head of drum. Aim mic at drum head.	Most "snap" from drumstick.
Cymbals	Close-mike with an A98D mount for maximum isolation, but place out of cymbal movement range.	Bright, with plenty of attack.
Brass & Woodwinds	Brass: 30 to 90 cm (1 to 3 ft.) away, on-axis with bell of instrument.	Bright, clear sound.

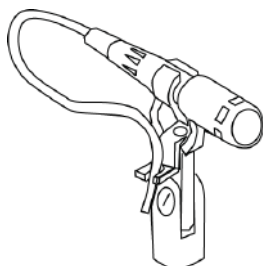
Application	Suggested Microphone Placement	Tone Quality
	Woodwinds: 2.5 to 15 cm (1 to 6 in.) away, on-axis with bell of instrument.	Bright, clear sound.
	Bell of instrument 90° off-axis from front of mic.	Softer, mellow sound.

Note: Before each use, make sure the cartridge is tightly secured on the microphone, as vibration and accidental hits with drumsticks may loosen it, resulting in signal loss.

Shockmount Swivel Adapter

Use the following procedures to mount the Beta 98A on the swivel adapter:

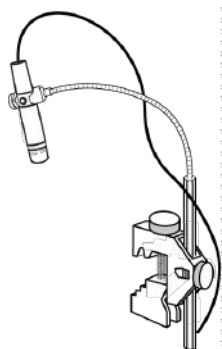
1. Connect the microphone to the adapter.
2. Thread the cable through the C-clamp and slide the connector into the C-clamp until snug.
3. To reduce wear on the cable, snap it into the stress reliever clip leaving 5 to 7 cm (2 to 3 inches) of slack on the connector side.



BETA 98A MOUNTED WITH SWIVEL ADAPTER

A98D Drum Mount

The Shure A98D mounts the Beta 98A on a drum or cymbal stand. Reference the furnished A98D guide to correctly mount the microphone.



BETA 98A MOUNTED WITH A98D

Load Impedance

Maximum SPL capability, output clipping level, and dynamic range vary with the input load impedance of the pre-amplifier to which the microphone is connected. Shure recommends a minimum input load impedance of 1000 Ohms. 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

Electret Condenser

Frequency Response

20 to 20,000 Hz

Polar Pattern

Cardioid

Output Impedance

at 1kHz

179 Ω

Sensitivity

at 1kHz, open circuit voltage, typical

-48.0 dBV/Pa (4.0 mV) ^[1]

Maximum SPL

1 kHz at 1% THD ^[2]

2500 Ω load	150.5 dB
1000 Ω load	144.0 dB

Signal-To-Noise Ratio ^[3]

64 dB

Dynamic Range

at 1kHz

2500 Ω load	120.5 dB
1000 Ω load	114.0 dB

Clipping Level

20 Hz to 20 kHz, at 1% THD

2500 Ω load	8.0 dBV
1000 Ω load	1.0 dBV

Self Noise

equivalent SPL, A-weighted, typical

30.0 dB SPL-A

Connector

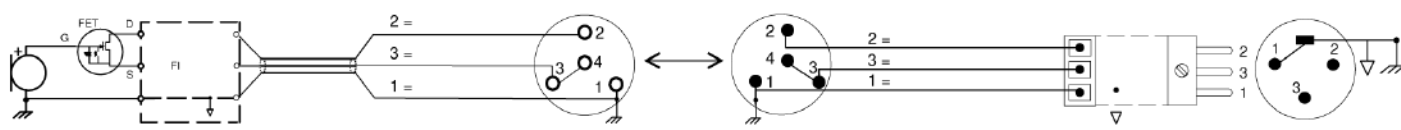
Three-pin professional audio (XLR), male, balanced

Power Requirements11–52 V DC phantom power ^[4], 3.6 mA**Polarity**

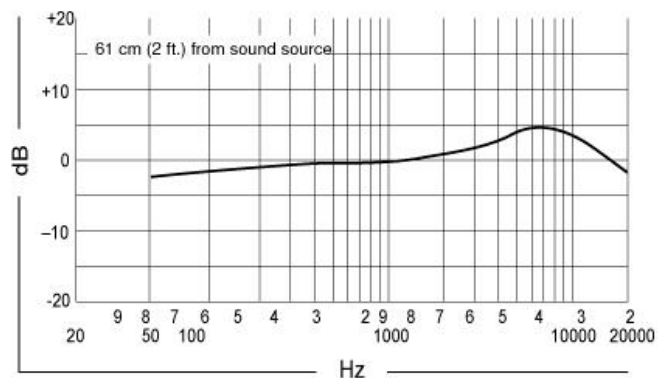
Positive pressure on diaphragm produces positive voltage on pin 2 with respect to pin 3

Weight

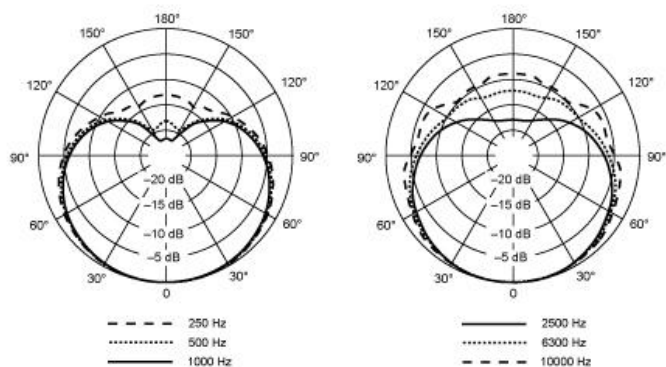
12 g (0.6oz.)

^[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

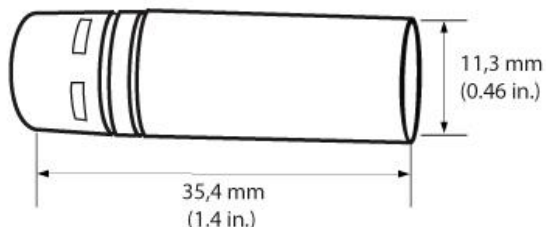
Internal Connections



Typical Frequency Response



Typical Polar Patterns



Overall Dimensions

Accessories

Furnished Accessories

Zippered Carrying Bag	95A2314
In-Line Microphone Preamp for WBH53 (BETA53), WBH54 (BETA54), BETA91, WB98H/C (BETA98), MC50B, MC51B and SM35-XLR	RPM626
Snap-fit Windscreen	95A2064

BETA98/S Stand Adapter with Integral Shock Mount	RK282
Zippered Carrying Bag	95A2398
Microphone Drum Mount for BETA98 & SM98A Microphones, Features Goose-neck Adapter for Flexible Positioning	A98D
15' Triple-Flex™ Cable (TA3F to TA4F) for BETA91, BETA98/S, BETA98D/S	C98D

Optional Accessories

Black Locking Metal Windscreen for Microflex® Gooseneck Microphones	A412MWS
Universal Microphone Mount with Large and Small Clip Adapters and Universal Threaded Adapter Post	A75M

Replacement Parts

Cardioid Cartridge	RPM98A/C
98A Replacement Housing	RPM98A-HT
Clamp Assembly (A98D)	RPM618
Black Snap-Fit Foam Windscreens (4) for BETA98, BETA98A, BETA98/S, BETA98D/S, BETA98H/C, MX183, MX184, MX185, MX202, WH30, WL183, WL184 and WL185	RK183WS

Certifications

This product meets the Essential Requirements of all relevant European directives and is eligible for CE marking.

The CE Declaration of Conformity can be obtained from: www.shure.com/europe/compliance

Authorized European representative:

Shure Europe GmbH

Headquarters Europe, Middle East & Africa

Department: EMEA Approval

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