Model Beta 98/S User Guide



MODEL BETA 98/S

SUPERCARDIOID CONDENSER MICROPHONE

GENERAL

The Shure BETA 98/S is a compact, high-output, supercardioid condenser microphone for professional sound reinforcement and studio recording. Its extremely uniform supercardioid pickup pattern provides high gain before feedback and excellent rejection of unwanted noise. Its high maximum sound pressure level (SPL) makes it useful for a variety of acoustic instruments, including drums, percussion, piano, reed, wind, and string instruments. The BETA 98/S can also be used for amplified guitars.

The BETA 98/S includes either a shockmount swivel adapter (BETA 98/S) or the A98D drum mount (BETA 98D/S). The A98D drum mount has a specially designed gooseneck that allows the microphone to be positioned freely, yet holds it securely in place once the ideal placement has been found.

The BETA 98/S is supplied with a windscreen, storage bag, preamplifier, and an interconnect cable. The preamplifier can be powered by any 48 Vdc phantom power supply.

FEATURES

- *Tailored frequency response for studio quality performance*
- *Wide dynamic range for use in high SPL environments*
- *Uniform supercardioid pattern for high gain before feedback and superior rejection of off-axis sound*
- *Optional A98D drum mount is unobtrusive and versatile—allows precise positioning of the microphone while holding it firmly in place*
- *Compact design reduces stage clutter*
- *Detachable cable for easy storage*
- *Interchangeable microphone cartridges with different polar patterns are available*
- *Legendary Shure quality, ruggedness, and reliability*

MODEL VARIATIONS

BETA 98D/S includes microphone, 4.6 m (15 ft) heavy-duty interconnect cable, preamplifier, and A98D microphone drum mount.

BETA 98/S includes microphone, 7.6 m (25 ft) light-weight interconnect cable, preamplifier, and shockmount swivel adapter.

GENERAL RULES FOR MICROPHONE USE

1. Aim the microphone toward the desired sound source and away from unwanted sources. This may not be obvious or intuitive, since supercardioid microphones such as the BETA 98/S can pick up sounds from the rear.
2. Place the microphone as close as practical to the desired sound source (refer to the table below).
3. Work close to the microphone for extra bass response.
4. Use only one microphone to pick up a single sound source.
5. Use the fewest number of microphones as practical.
6. Keep multiple microphones separated by a distance equal to at least 3 times the distance to the nearest sound source.
7. Place mics as far as possible from reflective surfaces.
8. Use a windscreen when using the microphone outdoors.

APPLICATIONS AND PLACEMENT

The most common BETA 98/S applications and placement techniques are listed in the following table. 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	Using the A98D drum mount, place one on each tom, or between each pair of toms, 1 to 3 in. (2.5 to 7.6 cm) above drum heads. Aim each mic at top drum heads.	Medium attack; full, balanced sound.
	On double head toms, remove bottom head and place mic inside pointing up toward top drum head.	Medium attack; full, balanced sound.
Snare Drum	1 to 3 in. (2.5 to 7.5 cm) above rim of top head of drum. Aim mic at drum head.	More “snap” from drumstick.
	If desired, place a second mic just below rim of bottom head.	More “snare” sound.
Hi-Hat Cymbals	Using the A98D drum mount, place the mic close to the cymbal, but far enough away that it doesn’t touch it when cymbal is struck.	Bright, with plenty of attack.
Reed Instruments	Place microphone a few inches from and aiming into bell.	Bright, minimizes feedback and leakage.
Guitar Amplifier	Place microphone 4 inches from grille at center of speaker cone.	Natural, well-balanced.

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.

INTERCONNECTING CABLE

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

USING THE SHOCKMOUNT SWIVEL ADAPTER

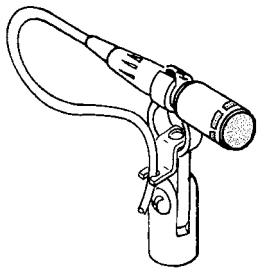
Use the following procedures to mount the Beta 98/S on the swivel adapter (see Figure 1):

1. Connect the microphone to the connector.

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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 a couple of inches slack on the connector side.

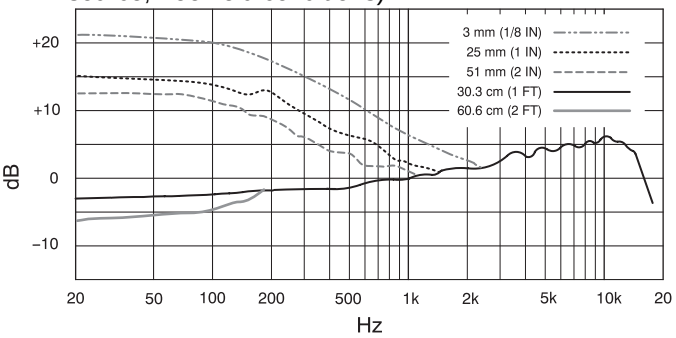


BETA 98/S MOUNTED ON SWIVEL ADAPTER
FIGURE 1

SPECIFICATIONS

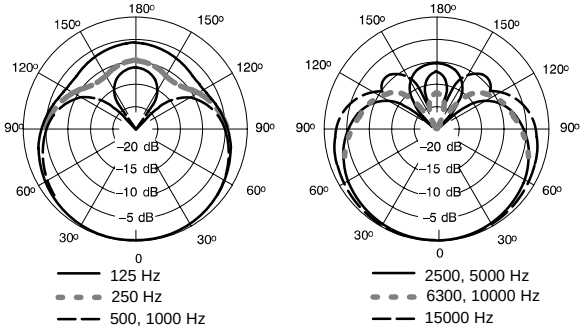
Type
Condenser (electret bias)

Frequency Response
20 to 20,000 Hz
(measured at 304.8 mm [1 ft] from a spherical sound source, free field conditions)



TYPICAL FREQUENCY RESPONSE
FIGURE 2

Polar Pattern
Supercardioid (as supplied), uniform with frequency, symmetrical about axis. Cartridge for cardioid polar pattern also available.



TYPICAL POLAR PATTERN
FIGURE 3

Output Level (at 1,000 Hz)
Open Circuit Voltage: –59 dBV/Pa* (1 mV) typical
*1 Pa = 94 dB SPL

Maximum SPL
(20 Hz to 20 kHz, less than 1% THD)
2.5 kΩ load . . . . . 160 dB
1 kΩ load . . . . . 156 dB

Preamplifier Output Clipping Level
(20 Hz to 20 kHz, less than 1% THD)
2.5 kΩ load . . . . . + 6 dBV (2.0 V)
1 kΩ load . . . . . + 2 dBV (1.26 V)

Dynamic Range
(at 20 Hz to 20 kHz, less than 1% THD, 2.5 kΩ load)
125 dB (max SPL minus A-weighted noise)

Output Noise
35 dB SPL, A-weighted

Signal-to-Noise Ratio
59 dB re 94 dB SPL

Output Impedance
Rated at 150 Ω (actual)
Recommended minimum load impedance: 1 kΩ

Hum Pickup
–7.5 dB equivalent SPL in 1 mOe field (60Hz)

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

Phantom Power
48 Vdc ±4 Vdc(IEC-268-15/DIN 45 596),
positive pins 2 and 3.

Cable
BETA 98/S: 7.6 m (25 ft) light-weight, two-conductor shielded, TA4F to TA3F mini connectors.
BETA 98D/S: 4.6 m (15 ft) heavy-duty, two-conductor shielded, TA4F to TA3F mini connectors.

Case
Microphone: Matte black enamel brass case and stainless steel inner grille
Preamplifier: Matte black enamel finished steel

Dimensions
Microphone: 11.7 mm X 35.6 mm (0.46 in. X 1.40 in.)
Preamplifier: 20 mm X 99 mm (0.79 in. X 3.89 in.)

Net Weight
Microphone: 12 g (0.4 oz) less cable
Preamplifier: 96 g (3.4 oz)

Certification
Eligible to bear CE Marking. Conforms to European EMC Directive 89/336/EEC. Meets applicable tests and performance criteria in European Standard EN55103 (1996) parts 1 and 2, for residential (E1) and light industrial (E2) environments.

FURNISHED ACCESSORIES

Storage Bag 26B21
Preamplifier RPM626
Gooseneck Drum Mount (BETA 98D/S) A98D
Shock-Mount Swivel Adapter (BETA 98/S) RK282
4.6 m (15 ft) heavy-duty cable (BETA 98D/S) C98D
7.6 m (25 ft) light-weight cable (BETA 98/S) 90A4697

ADDITIONAL ACCESSORIES

Cardioid cartridge RPM108
Metal Locking Windscreen A412MWS
1.47 m (5 ft) light-weight cable 90A4039

REPLACEMENT PARTS

Windscreen (4 per package) RK183WS
Supercardioid cartridge RPM110
Gooseneck Assembly (A98D) RPM616
Clamp Assembly (A98D) RPM618
Case Assembly with Interface Board RPM624