SHURE BETA GREEN

BG 1.0
- Dynamic vocal mic
- Cardioid pattern
- Built-in shock mount
- Low or High impedance

BG 2.0
- Neodymium magnet for high output
- Dynamic vocal mic
- Cardioid pattern
- Improved shock mount
- Low impedance

BG 3.0
- Neodymium magnet for extra-high output
- Dynamic vocal mic
- Cardioid pattern
- Superior shock mount
- Low impedance

BG 4.0
- Condenser instrument recording mic
- Battery or phantom power
- Extended flat frequency response
- Cardioid pattern
- Low impedance

BG 5.0
- Condenser vocal mic
- Battery or phantom power
- Extended, tailored frequency response
- Cardioid pattern
- Low impedance

BETA*GREEN* MODEL BG 4.0
UNIDIRECTIONAL CONDENSER MICROPHONE

The BG 4.0 microphone represents the latest in microphone technology, utilizing an advanced condenser transducer design. The BG 4.0 delivers the high performance and rugged construction that you need for demanding applications such as live music, sound reinforcement, and home studio recording.

The BG 4.0 is the ideal choice for instrument recording and sampling in the home studio environment. Its electret condenser design provides high sensitivity and low noise for producing quality demo tapes, while its flat frequency response keeps instruments and samples sounding accurate and clear.

Features:

- Highly sensitive and reliable electret condenser design for high quality instrument recording or sampling
- Cardioid pickup pattern reduces feedback and pickup of unwanted noise
- Wide, flat frequency response for accurate, natural sound reproduction
- Internal shock mount for reduced pickup of handling noise and stand vibration
- On/Off switch for convenient control of audio signal by performer
- Operates on internal AA battery for one year of continuous use, or on phantom power from mixer
- Padded Nylon carrying case and unbreakable swivel adapter included

Basic Microphone Technique

Good microphone technique will add to your effectiveness as a performer. Keep the following points in mind when using your Shure Beta*Green* Microphone.

1. The distance from the performer or instrument to the microphone has a significant effect on the sound. For increased bass response, get close to the microphone (within 6 inches or less). The closer the microphone is to the sound source, the more the bass response will be increased.

DISTANCE FROM MICROPHONE AFFECTS PERFORMANCE
FIGURE 1

27A2655 (LD)

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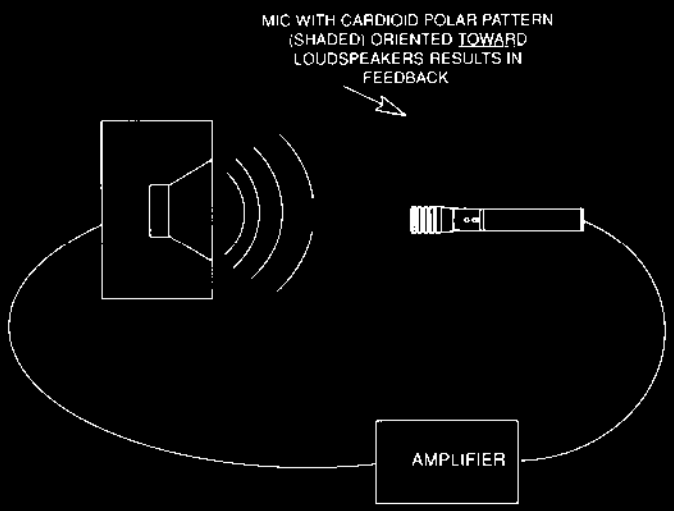
2. Beneficial changes in the level and character of sound coming from the loudspeakers can be achieved by changing your distance from the microphone. For instance, working up close can provide maximum bass enhancement without feedback. Practice and experience will develop your skill in varying your distance to achieve the desired effects.
3. For maximum isolation from other sound sources and background noise, position the microphone as close to the source as practical, and aimed at the sound source.

Feedback and Directional Microphones

A performer's worst enemy in using a microphone is feedback. This is a harsh howl or squeal that occurs when the microphone picks up sound from the loudspeakers, reamplifies and reproduces it over and over again (see Figure 2). This vicious circle results in feedback.

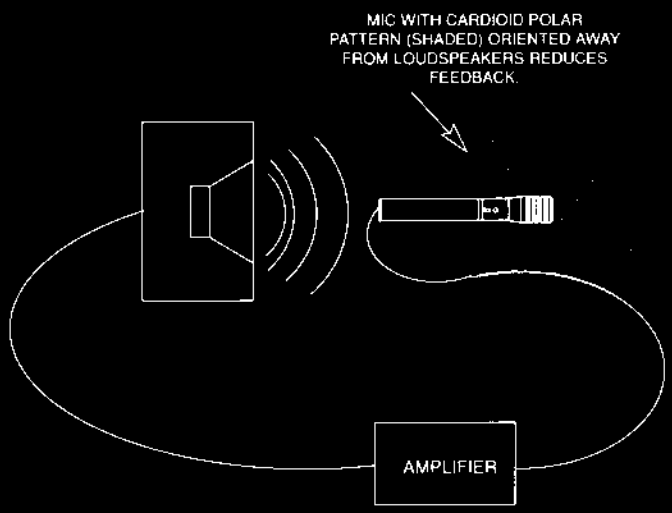


FEEDBACK LOOP
FIGURE 2

A directional microphone with a cardioid pickup pattern aids in preventing feedback because it rejects sound that originates from the sides and rear (see Figure 3). Sound pickup from the sides is reduced by about one half, and pickup from the rear is reduced by about nine tenths. You can demonstrate this reduction in pickup by speaking into the microphone as you rotate it from front to back.

If you use your directional microphone close to the performer or instrument, you will ensure that the direct sound will be much louder than the feedback-producing amplified sound. Because less amplifier gain is required to achieve the desired overall loudness, the amplified sound will likely remain below the volume that triggers feedback.

Other hints in preventing feedback are: keep the loudspeakers as far to the sides as possible; be sure that the microphones point toward the performers and away from the loudspeakers; and make certain that any stage monitor speakers are positioned in front of the performers and face the insensitive rear of the microphone.



CARDIOID MICROPHONE MINIMIZES POSSIBILITY OF FEEDBACK
FIGURE 3

Directional Microphones and Proximity Effect

Because of their usefulness in reducing the likelihood of feedback, directional microphones are best in sound reinforcement and public address.

When directional microphones are used close to a musical instrument or vocalist, there is an increase in bass (low-frequency) output called proximity effect. Typical increases due to proximity are shown in Figure 4.

Proximity effect can be used to **improve** your sound.

1. **With instruments,** it allows the user to change bass output without tone controls, simply by changing the distance between source and microphone. In addition, close miking improves acoustical isolation by minimizing pickup of other instruments.
2. **With vocalists,** it increases bass response, giving a fuller, more powerful quality to the voice. Proximity effect can be especially effective during soft passages where extra emphasis is needed.

The cardioid directional characteristics of your microphone are provided by means of rear sound entry ports that cancel sounds originating from the sides and back of the microphone. It is therefore important that these ports not be covered at any time.

Most Shure directional microphones are designed to provide satisfactory response at low frequencies yet still allow proximity effect to be used advantageously when desired. To learn how to use proximity effect, you need to hear the amplified result. Use monitor speakers or headphones, and, just as you practice your instrument, practice your microphone technique to get the precise sound you want.

Applications

Your BG 4.0 Microphone is intended particularly for pickup of acoustic instruments such as acoustic guitar, hi-hat, drums, various strings, and piano. This microphone can also be used for vocal pickup, when stand mounted and used with the Shure A3WS Windscreen. For advice on instrument miking techniques, request the publication *Microphone Techniques For Music* (AL707) from the Shure Customer Services Department.

OPTIONAL WINDSCREEN

In addition to its usefulness in minimizing popping when used for vocals, the Shure A3WS windscreen will also minimize pickup of wind noise when the microphone is used outdoors.

SHOCK MOUNTING

Your Shure Beta*Green* microphone features a carefully engineered shock mount to minimize transmission of mechanical noise. To reduce noise pickup, take care to avoid unnecessarily handling the microphone in use. To further reduce mechanical noise when the microphone is used on a stand, use a shock-mounted stand adapter such as the Shure A55HM. Also, be sure to locate the stand on a solid, flat surface.

OPERATION

The BG 4.0 is designed for powering by virtually any available microphone phantom power supply providing 11 to 52 Vdc (such as a Shure PS1A Power Supply or many mixing consoles or power mixers). As an alternative, the BG 4.0 can also be powered by a single 1.5-volt AA battery (alkaline is recommended). The battery also serves as backup in case of phantom power failure.

A new alkaline battery will provide up to 10,000 hours of continuous microphone operation. Note that the microphone is powered at all times during battery operation (the on/off switch affects only the audio signal) but there is no battery drain during phantom-powered operation.

Battery Installation

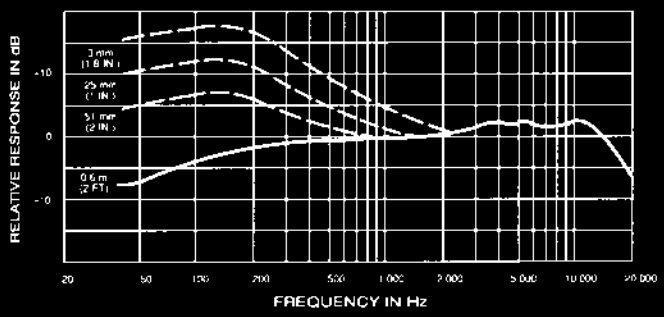
Disconnect the microphone cable and unscrew the microphone handle, turning it counterclockwise. Slide the handle away from the grille, exposing the battery compartment. Insert the battery, observing the polarity marking in the compartment.

Slide the handle back toward the grille and tighten the handle by turning it clockwise.

SPECIFICATIONS

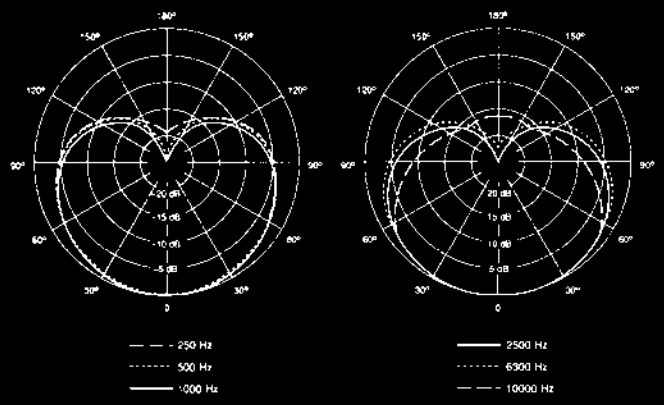
Type
Condenser (electret bias)

Frequency Response
40 to 18,000 Hz (see Figure 4)



TYPICAL FREQUENCY RESPONSE
FIGURE 4

Polar Pattern
Cardioid (directional), symmetrical about axis (see Figure 5)



TYPICAL POLAR PATTERNS
FIGURE 5

Output Impedance
600 Ω rated

Recommended Input Load Impedance
For connection to microphone inputs rated at 800 Ω minimum

Output Level (at 1,000 Hz)
Open Circuit Voltage . . . . . – 68.0 dB (0.400 mV)
0 dB = 1 V/μbar

Maximum SPL
2,000 Ω load . . 131 dB (phantom), 127 dB (battery)
800 Ω load . . . . 129 dB (phantom), 126 dB (battery)

Output Noise
20 dB typical, A weighted
24 dB typical, weighted per DIN 45 405

Dynamic Range (maximum SPL, 2 kΩ load, to A-weighted noise level)
111 dB (phantom); 107 dB (battery)

Phasing
Positive pressure on diaphragm produces positive voltage on pin 2 relative to pin 3 of microphone output connector

Power

Phantom

Supply Voltage ..... 11 to 52 Vdc

Current Drain ..... 2.0 mA max at 52 Vdc

Reverse polarity protected to ..... 100 Vdc

Battery

Recommended type .... 1.5 V alkaline AA size (NEDA 15A)

Life ..... up to 10,000 hours

Environmental Conditions

This microphone will operate reliably and effectively over a temperature range of –29 to 57°C (–20 to 135°F), and at relative humidity of 0 to 95%.

Connector

3-pin professional audio (XLR) designed to mate with Cannon XL series, Switchcraft A3 (Q.G.) series, or equivalent connector

Case

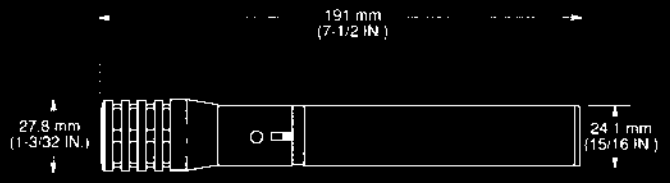
Steel and brass construction with black painted finish

Dimensions

See Figure 6

Net Weight

250 g (8.8 oz) less battery



OVERALL DIMENSIONS
FIGURE 6

FURNISHED ACCESSORIES

Swivel Adapter A25C

Carrying/Storage Bag (less foam insert) 26A16

OPTIONAL ACCESSORIES

Phantom Power Supply PS1A

Shock Stopper™ Isolation Mount A53HM

Windscreen A3WS

Cable (7.6 m [25ft]) C25J

REPLACEMENT PARTS

Screen and Grille Assembly 90HN2600

Cartridge Assembly R138

Plug Element 90A1984

SHURE®

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