

## FISHMAN GLM-200 MINI MICROPHONE

The Crown GLM-200 is Fishman Transducers' microphone of choice for the Pocket Blender System. It is a mini-electret condenser microphone with a hyper-cardioid response pattern. Its high SPL rating (130 dB), small size and crystal clear "rising" frequency response make it ideal for close-mic'ing acoustic stringed instruments. Fishman offers the GLM-200 optimized specifically for use with the Pocket Blender System.

The Fishman Pocket Blender provides low 9V bias voltage power through the Ring terminal of the output jack to the GLM-200 via the microphone channel signal wire.

A small zener diode is included with all GLM-200 microphones. It will prevent harmful electric spikes from damaging the microphone. It is pre-wired to the Bass Mic Assembly (BMA), BP-100-M, V-200-M and M-200-M kits. It is included separately with the Guitar Mic Assembly (GMA).

The GLM-200's small size allows it to be conveniently mounted in or outside the sound chamber of most stringed instruments. The microphone is most often wired to the RING terminal of a stereo jack (TRS) shared with a pickup that is wired to the TIP. Both signals can be routed to the Pocket Blender with a stereo instrument cable.

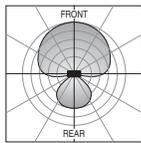
### WARNING!

The GLM-200 mini-microphone is intended for use ONLY with the Fishman Pocket Blender System.

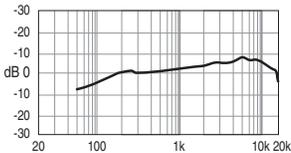
- It will not work plugged directly into an amplifier.
- It will not work without a dedicated 4.5 to 15 Volt power supply.
- It will not work with standard 48 Volt phantom power.

### Specifications

Microphone Type	Miniature hypercardioid electret
Frequency Response	60-20,000 Hz
Sensitivity	2.1 mV/Pa.
Maximum SPL	130 dB SPL
Operating Voltage	4.5 to 15 V power, unbalanced



GLM-200 RESPONSE PATTERN



GLM-200 FREQUENCY RESPONSE CURVE

### Wiring the Microphone

Before you can use the microphone, you need to solder it to an appropriate connector.

#### Tools

- Soldering iron (40 watt max)
- Wire strippers
- Rosin core solder
- Needle nose pliers

### General Guidelines

The RED microphone wire is the signal (hot) wire.

The WHITE wire and the SHIELD must both be tied to ground.

To protect the microphone's electronics from damage, the supplied zener diode must be soldered in place between the red wire and the ground. Note that the banded side of the diode must be closest to the red wire.

### Wiring the Mic & Pickup to a single Stereo Jack

The advantage of wiring the microphone and pickup to a single stereo jack is the simplicity and convenience afforded by one stereo instrument cable carrying two signals.

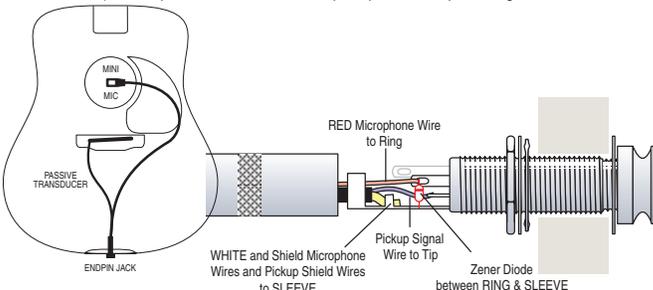
#### Tools

- Soldering iron (40 watt max)
- Wire strippers
- Rosin core solder
- Needle nose pliers

### Wiring a Passive Pickup & Microphone

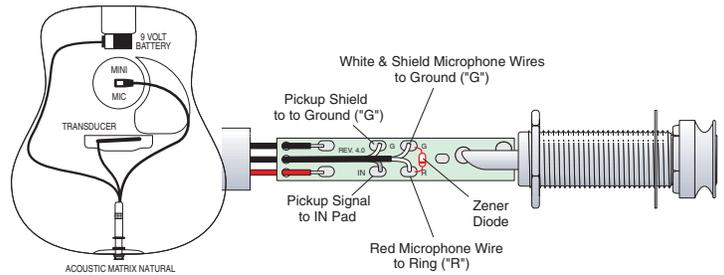
A passive pickup is any transducer (piezo or magnetic) that works without a battery.

**NOTE:** To minimize crosstalk with a passive pickup, use a "2-pair" premium stereo cable (Fishman part # ACC-BLE-15C) with separate shield for both the pickup and microphone signals.



1. Connect Red microphone wire to Ring terminal.
2. Connect White and Shield microphone wires to Sleeve.
3. Connect Pickup Signal wire to Tip and pickup shield to Sleeve.
4. Connect supplied zener diode in place between Red wire (Ring) and Ground (Sleeve). Note that banded side of diode must be closest to Red wire.

### Wiring to Acoustic Matrix Natural I & II



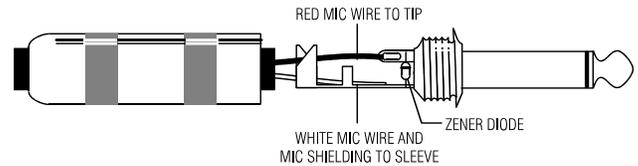
1. Remove shielding cap to expose preamp circuit board.
2. Connect Red microphone wire to Ring pad on circuit board.
3. Connect White and Shield microphone wires to "G" pad adjacent to Ring pad.
4. Connect supplied zener diode in place between Red wire and Sleeve. Note that banded side of the zener diode must be closest to Red microphone wire.

### Wiring the Mic & Pickup with Separate Connectors

The advantages to wiring the microphone and pickup to separate mono connectors are:

1. Microphone is interchangeable with other instruments.
2. Less cross talk between passive pickups and the microphone.

Typically, classical guitarists and double bassists find this arrangement convenient for sharing the microphone with several different instruments. Classical guitarists can install the microphone without drilling holes in the instrument. In this configuration, the microphone can also be removed without disturbing the pickup.

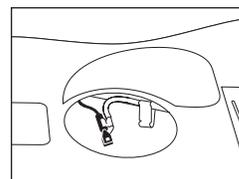


1. Connect Red microphone wire to Tip terminal on connector.
2. Connect White microphone wire and Shield to Sleeve terminal on connector.
3. Solder supplied zener diode in place between Red wire and Sleeve.

Note that the banded side of the diode must be closest to the red wire.

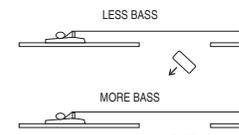
For use with the Pocket Blender, plug the mic into the RING jack of a stereo "Y" cable (available from Fishman).

### Mounting & Positioning the Microphone

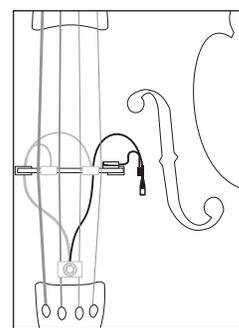


#### GMA-Guitar Microphone Assembly

Attach the Internal Microphone Mount to the X-brace of your guitar. Snap the microphone into the clip of the Internal Microphone Mount. Start with the microphone centered in the soundhole, slightly below the top. Position the face of the microphone (marked FRONT) toward the sound chamber of the instrument.



Tilting the microphone as much as 90° may help reduce boominess.



#### BMA-Bass Microphone Assembly

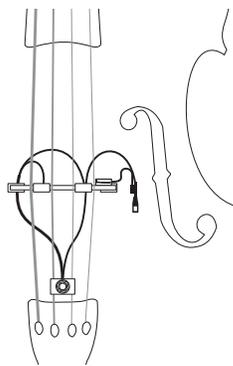
The Bass Microphone Assembly (BMA) comes with the microphone prewired to Tip for mono cable use. For use with the Pocket Blender, plug the Bass Mic Assembly into the RING jack of a stereo "Y" cable (Fishman part # ACC-BLE-CBY).

The Bass Microphone Assembly and a bass pickup can be wired to the same stereo jack, allowing both pickup and microphone signals to be carried by a single stereo instrument cable. You can wire your pickup to the Bass Microphone Assembly and route both signals through a stereo instrument cable into the Pocket Blender.

1. Move microphone signal wire from Tip to Ring.
2. Connect pickup signal wire to Tip.
3. Connect pickup shield and White wire to Sleeve.



**FISHMAN TRANSDUCERS**  
340-D Fordham Road Wilmington MA 01887 USA  
Phone 978-988-9199 • Fax 978-988-0770  
www.fishman.com



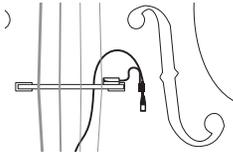
### BP-100-M Bass Pickup and Microphone

The BP-100-M features a prewired microphone and pickup and requires no modification. The BP-100-M can be plugged directly into the Pocket Blender with a stereo instrument cable.

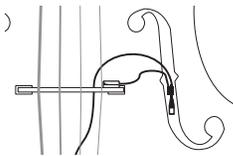
Position the face of the microphone (marked FRONT) toward the bass. The exact location of the microphone is up to your individual taste.

Tilting the microphone as much as 90° may help reduce boominess.

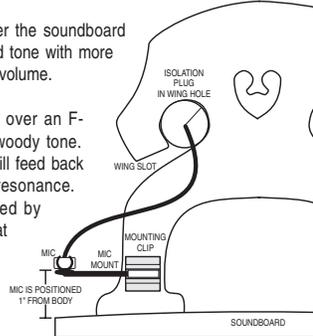
Placing the microphone halfway between the F-hole and the bridge foot yields a usable tone without cavity resonance feedback. In this position, a combination of sound components from both the F-hole and soundboard tones will be "seen" by the microphone. The result is a fairly accurate sound picture of the instrument.



Placing the microphone over the soundboard will give you a tight, focused tone with more midrange emphasis but less volume.



Placing the microphone 1" over an F-hole will produce a deep, woody tone. However, the microphone will feed back at the instrument's cavity resonance. This can easily be remedied by notching out the feedback at around 75Hz with an external equalizer.



### Addressing Feedback

#### LOW FREQUENCY CAVITY RESONANCE

All stringed instruments' sound chambers are tuned to resonate at an optimum frequency, in the instrument's lowest octave. Placing a microphone directly over the opening of the instrument may result in feedback at this "cavity resonance".

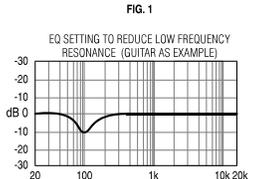
Typical resonances are:

- Guitar; 95-105 Hz
- Upright Bass; 65-75 Hz
- Violin and Mandolin; 275-300 Hz

To address Cavity Resonance Feedback:

1. Position the microphone away from the opening on non-flat-top instruments. This works well in low volume settings.
2. Turn down the BASS on the MICROPHONE channel.
3. Push in the LO CUT switch on the MICROPHONE channel.
4. Invert the PHASE switches on both channels.
5. Outboard Equalization: This works well in higher volume settings. An external equalizer may be used through the Pocket Blender's Microphone channel Effects Loop. (Fig 1)

- a. Parametric EQ: We suggest cutting 5 dB at the instrument's cavity resonance with a .5 octave bandwidth (Q).
- b. Graphic EQ may also be used. Cut 5 dB at the instrument's cavity resonance with 1/3 octave cuts on either side of the center frequency.



#### HIGH FREQUENCY FEEDBACK

Occurs when the microphone's rising response creates a feedback loop with a high frequency driver in your speaker system. This feedback usually starts above 1.5 kHz, peaks at 4 kHz and subsides at 9 kHz. There are several approaches to minimizing High Frequency Feedback;

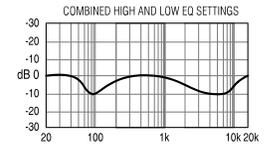
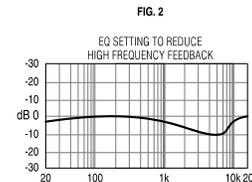
1. Strategic Positioning: This works best in low to medium volume settings. The simplest solution for this type of feedback is to keep the microphone out of the path of the loudspeaker.

To do this:

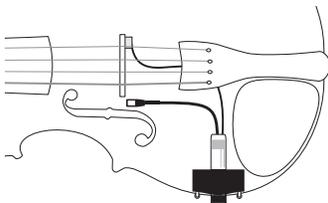
- a. Avoid standing directly in front of your amp.
- b. Send separate MIX and TRANSDUCER signals to your soundman and have only the TRANSDUCER signal sent to your stage monitor.

2. Turn down the TREBLE on the MICROPHONE channel.
3. Invert the PHASE switches on both channels.
4. Outboard Equalization: This works well in higher volume settings. An external equalizer may be used through the Pocket Blender's Microphone channel Effects Loop. (Fig 2)

- a. Parametric EQ: We suggest cutting 5 dB at 4 kHz, with a 1.5 octave bandwidth (Q).
- b. Graphic EQ (although less precise and much noisier) may also be used. Cut 3 dB at 1.2 kHz. Gradually increase the amount of cut to -9 dB at 4-5 kHz. Above 5 kHz, gradually decrease the amount of cut to -3 dB at 10 kHz.



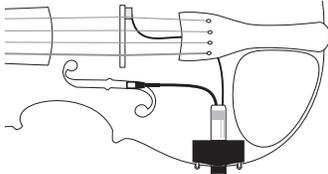
### V-200-M Violin Pickup and Microphone



The V-200-M features a prewired microphone and pickup and requires no modification. The V-200-M can be plugged directly into the Pocket Blender with a stereo instrument cable.

Be sure that the clip holds the mic at the isolation collar. The isolation collar acts as a low frequency filter. If you ever remove the mic from the clip, remember to reattach it at the isolation collar, not at the strain relief.

Position the face of the mic (marked FRONT) toward the violin. The exact location of the mic is up to your individual taste.

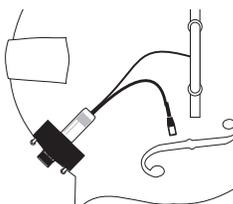


Placing the mic halfway between an F-hole and the bridge foot yields a usable tone without cavity resonance feedback. In this position, a combination of sound components from both the F-hole and soundboard tones will be "seen" by the microphone. The result is a fairly accurate sound picture of the instrument.

Placing the mic over an F-hole will produce a deep, woody tone. However, the mic will feed back at the instrument's cavity resonance. This can easily be remedied by notching out the feedback at around 275-300 Hz with an external equalizer.

Placing the mic over the soundboard will give you a tight, focused tone with more mid-range emphasis but less volume.

### M-200-M Mandolin Pickup and Microphone



The M-200-M features a prewired microphone (for "F" hole models) and pickup. It requires no additional modification. The M-200-M can be plugged directly into the Pocket Blender with a stereo instrument cable.

Position the face of the mic (marked FRONT) toward the mandolin. The exact location of the mic is up to your individual taste.

Placing the mic halfway between an F-hole and the bridge foot yields a usable tone without cavity resonance feedback. In this position, a combination of components from both the F-hole and soundboard tones will be "seen" by the microphone. The result is a fairly accurate sound picture of the instrument.

Placing the mic over an F-hole will produce a deep, woody tone. However, the mic will feed back at the instrument's cavity resonance. This can easily be remedied by notching out the feedback at 275-300 Hz with an external equalizer.

Placing the mic over the soundboard will give you a tight, focused tone with more mid-range emphasis but less volume.

### Limited Warranty

The FISHMAN GLM-200 is warranted to function for a period of One (1) Year from the date of purchase. If the unit fails to function properly within the warranty period, free repair and the option of replacement or refund in the event that FISHMAN is unable to make repair are FISHMAN's only obligations. This warranty does not cover any consequential damages or damage to the unit due to misuse, accident, or neglect. FISHMAN retains the right to make such determination on the basis of factory inspection. Products returned to FISHMAN for repair or replacement must be shipped in accordance with the Return Policy, as follows. This warranty remains valid only if repairs are performed by FISHMAN. This warranty gives you specific legal rights and you may also have other rights which may vary from state to state.

### Return Policy

To return products to FISHMAN TRANSDUCERS, you must follow these steps...

1. E-mail FISHMAN TRANSDUCERS tech@fishman.com or call us at 978-988-9199 for a Return Authorization Number ("RAN").
2. Enclose a copy of the original Bill of Sale as evidence of the date of purchase, with the product in its original packaging and a protective carton or mailer.
3. FISHMAN TRANSDUCERS' technicians will determine whether the item is covered by warranty or if it instead has been damaged by improper customer installation or other causes not related to defects in material or workmanship.
4. Warranty repairs or replacements will be sent automatically free of charge.
5. If FISHMAN TRANSDUCERS determines the item is not covered by warranty, we will notify you of the repair or replacement cost and wait for your authorization to proceed.

**FISHMAN TRANSDUCERS**  
**340-D Fordham Road Wilmington MA 01887 USA**  
**Phone 978-988-9199 • Fax 978-988-0770**  
**www.fishman.com**