Thank you for your purchase of a FISHMAN product. Please read these instructions carefully. If you have any questions or problems, please feel free to call our PRODUCT INFORMATION LINE at 978-988-9665.

The Acoustic BLENDER is a dedicated 2 channel preamp that addresses the specific needs of acoustic stringed instrument players. The BLENDER System combines the sounds from a pickup and instrument-mounted mini-microphone.

There are three basic components to the BLENDER System:

1) MICROPHONE and PICKUP:
A microphone alone is capable of capturing the natural ambience and resonance of an acoustic stringed instrument. A single piezo pickup delivers a clear, balanced, high output signal with low feedback. Combining the two sounds results in tone quality and projection in which the sum is greater than the parts. Before the BLENDER System, there was no simple and practical means to combine a microphone and pickup for the performing acoustic musician.

The mini-microphone is conveniently positioned on the instrument with a microphone mount specifically designed for the application. This allows you the unique opportunity of having a permanent microphone setup, precisely at the instrument’s “sweet spot”. The advantages of this are clear - especially to anyone who has ever had to set up a microphone without a sound check - five minutes before the gig! With the BLENDER System, you can now arrive at the gig, take your mic’ed instrument out of its case, plug in and play with complete freedom of movement.

2) STEREO INSTRUMENT CABLE:
The microphone and pickup signals are fed into a stereo jack (also called TRS or Tip / Ring / Sleeve) that is mounted on the instrument. The two signals are then routed through a stereo instrument cable (again,TRS) to the STEREO IN jack of the BLENDER. The BLENDER provides low voltage Phantom Power to the mini-microphone through the same cable.

With pickup and microphone wired to Tip and Ring respectively, and your instrument connected by a stereo instrument cable to the BLENDER’s STEREO IN jack, the pickup is controlled by the TRANSDUCER channel, and the microphone is controlled by the MICROPHONE channel. (See pages 12-13 for more information on Suggested Input Options.)

By consolidating the two signals plus phantom power, you save both setup time and aggravation. The stereo instrument cable provides a simple solution to the hassle of multiple cable runs and outboard phantom power supplies.

3) The BLENDER: The BLENDER is the brain of the System. The signals from the instrument are sent to the MICROPHONE and TRANSDUCER channels. Each channel is optimized for the particular input impedance, level, phase and equalization needs of both microphone and pickup. The two signals are then “blended” together and a composite signal can be sent to amplification, recording, signal processing and/or broadcast gear.

NOTE: If your instrument has an onboard battery, and you want to route microphone and pickup signals through a stereo instrument cable, you may need to install a Fishman SMART SWITCH for the system to operate. (See Page 22)
Before you begin using your Blender, you will need to have a pickup and microphone in place on your instrument.

Here are four common scenarios:

**PASSIVE PICKUP AND MICROPHONE:**
If your instrument has a passive piezo pickup, it’s easy to connect it and a microphone to the same stereo endpin jack. Connect the pickup to tip, and the microphone to ring.

**ACTIVE PICKUP AND MICROPHONE:**
If your instrument has an active piezo pickup - such as the Fishman Acoustic Matrix - you will need a Fishman Smart Switch to connect a microphone to the stereo endpin jack for the system to operate. (See Page 22.)

**PICKUP WITH POWERJACK AND MICROPHONE:**
If your instrument has a piezo or magnetic pickup and a Fishman Powerjack, connect a microphone to the ring by soldering it to the appropriate terminal on the Powerjack circuit board.

**PICKUP AND MICROPHONE WITH SEPARATE MONO INSTRUMENT CABLES:**
You may choose to route the pickup and microphone through two separate mono instrument cables.

**WARNING:** INSTALLATION BY A QUALIFIED PROFESSIONAL REPAIRMAN IS STRONGLY RECOMMENDED. FISHMAN TRANSDUCERS WILL NOT BE RESPONSIBLE FOR ANY DAMAGES TO YOUR INSTRUMENT DUE TO IMPROPER INSTALLATION.
QUICK START

You don’t have to read this manual to get up and running, although we recommend that you do in order to get the most out of your BLENDER. Here’s what you need to do if you want to “plug in and play”.

COMPONENTS

1) ACOUSTIC BLENDER
2) 9 Volt Alkaline Battery
3) Pickup and mini-electret condenser Microphone connected to a Stereo Jack (TRS = Tip / Ring / Sleeve) See Page 3
4) Stereo Instrument Cable (TRS = Tip / Ring / Sleeve)
5) XLR or 1/4” Mono Instrument Cable

PROCEDURE

1) Lift the battery compartment lid on top of the BLENDER and install a fresh 9 Volt alkaline battery. Replace the lid.
2) With the stereo cable, connect the instrument to the STEREO IN jack on the BLENDER front panel.
3) Set all front panel switches to the OUT position. Set both Gain controls fully counter-clockwise. Set the Output Level to 3:00. Set Bass and Treble controls to 12:00.
4) Run a cable from one of the MIX outputs on the back of the BLENDER to your amp or PA system.
5) With the BLENDER Output level at 3:00, adjust both the MICROPHONE and TRANSDUCER Gain controls to approximately the same volume level.

BATTERY OPERATION

Make note of the following precautions when using the BLENDER under battery power.

The BLENDER has no ON/OFF switch. Under battery power, the BLENDER is turned on only when the STEREO IN jack is plugged in. Power is always on when using an AC Adapter (See Page 11).

1) To avoid excessive battery drain:
   a. Unplug the STEREO IN jack when the unit is not being used.
   b. When using the BLENDER without a mini-electret microphone, be sure the Phantom Power is OFF (switch is pushed IN). Battery life is an estimated 15 hours continuous use.

2) To avoid hazardous TURN ON/OFF TRANSIENTS:
   a. Always plug into the STEREO IN jack before turning on your amplifier or PA System.
   b. Always unplug the STEREO IN jack after turning off amplifier or PA System.

3) Under battery power, the AUX / MIC IN jack will work only when the STEREO IN jack is plugged in. (See Page 12 #3)
**FRONT PANEL**

1) BATTERY COMPARTMENT: (See Page 6)
2) MICROPHONE GAIN: (See Page 7)
3) MICROPHONE BASS CONTROL: (See Page 7)
4) MICROPHONE TREBLE CONTROL: (See Page 7)
5) PHANTOM POWER OFF SWITCH: (See Page 7)
6) BASS CUT SWITCH: (See Page 7)
7) MICROPHONE PHASE SWITCH: (See Page 8)
8) MICROPHONE TRIM CONTROL: (See Page 8)
9) AUX / MIC IN: (See Page 6)
10) STEREO IN: (See Page 6)
11) TRANSDUCER GAIN CONTROL: (See Page 9)
12) TRANSDUCER BASS CONTROL: (See Page 9)
13) TRANSDUCER TREBLE CONTROL: (See Page 9)
14) TRANSDUCER TRIM CONTROL: (See Page 9)
15) TRANSDUCER PHASE SWITCH: (See Page 9)
16) BATTERY LOW LED: (See Page 10)
17) HEADPHONES OUTPUT: (See Page 10)
18) MUTE SWITCH: (See Page 10)
19) OUTPUT LEVEL CONTROL: (See Page 10)

**REAR PANEL**

(See Page 11)

20) AC ADAPTER INPUT
21) 1/4" MIX OUTPUT
22) XLR MIX OUTPUT
23) RECESSED GROUND LIFT
24) XLR TRANSDUCER OUTPUT
25) 1/4" TRANSDUCER OUTPUT
26) MIX EFFECTS LOOP
27) TRANSDUCER EFFECTS LOOP
28) MICROPHONE EFFECTS LOOP
29) 1/4" MICROPHONE OUTPUT
30) XLR MICROPHONE OUTPUT

**ACOUSTIC BLENDER SYSTEM**
Make note of the following precautions when using the BLENDER under battery power.

1) To avoid excessive battery drain (Battery life is an estimated 15 hours continuous use):
   a. Unplug the STEREO IN jack when the unit is not being used.
   b. When using the BLENDER without a mini-electret microphone, be sure the Phantom Power is OFF (switch is pushed IN).

2) To avoid hazardous TURN ON/OFF TRANSIENTS:
   a. Always plug into the STEREO IN jack before turning on your amplifier or PA System.
   b. Always unplug the STEREO IN jack after turning off amplifier or PA System.

3) Under battery power, the AUX / MIC IN jack will work only when the STEREO IN jack is plugged in. (See Page 12 #3)

BATTERY COMPARTMENT

To replace the battery (See Page 10) lift the battery compartment lid on the top of the BLENDER and install a 9 Volt alkaline battery.

STEREO IN

The STEREO IN jack is a TRS (Tip / Ring Sleeve) input that can accept two discrete signals through a stereo instrument cable.

The STEREO IN jack can function in two modes:

1) MICROPHONE and TRANSDUCER CHANNELS OPERATION (Stereo Cable): Two signals from your instrument (For example: Internal microphone and pickup) are routed through a stereo instrument cable to the STEREO IN jack. The Ring signal goes to the MICROPHONE channel and the Tip signal goes to the TRANSDUCER channel.

2) TRANSDUCER CHANNEL ONLY OPERATION (Mono Cable): One signal from your instrument is routed through a mono instrument cable to the STEREO IN jack. This signal goes to the TRANSDUCER channel.

AUX / MIC IN

Accepts a mono signal from a microphone or pickup. This signal is controlled by the MICROPHONE channel.

The AUX / MIC IN jack can provide 4.5 Volt Phantom Power to a mini-condenser microphone. This input can accept either magnetic or piezo pickups. Piezo signals will have a slight roll off at lower frequencies.

The AUX / MIC IN jack is an alternative to the Ring terminal of the STEREO IN jack. Sometimes, using a stereo instrument cable for both of your signals is not practical. The AUX / MIC IN jack allows you the option of sending two signals through separate mono instrument cables to both the AUX / MIC IN jack and the STEREO IN jack.

AUX/MIC IN OVERRIDE: If you are sending two signals through the STEREO IN jack and you plug a third signal into the AUX/MIC IN, the signal appearing at the RING of the STEREO IN jack will be replaced (overridden) by the signal appearing at the AUX / MIC IN jack. (See page 13 - #6)
GAIN CONTROL
Controls the volume of the MICROPHONE Channel.

BASS and TREBLE CONTROLS
Controls the Bass and Treble for the MICROPHONE Channel.
These are boost / cut shelving tone controls. Setting them at 12:00 yields a flat response.

PHANTOM POWER OFF SWITCH
Pushing this switch IN shuts OFF the Phantom Power - for applications that use a dynamic microphone or pickup. The OUT position provides 4.5 Volt Phantom Power to the Ring of the STEREO IN jack OR the Tip of the AUX / MIC IN jack.

BASS CUT SWITCH
Pushing this switch IN rolls off bass frequencies from the MICROPHONE Channel.
This can be helpful in eliminating excessive boominess; especially in larger-bodied instruments.
In an amplified band situation, the Bass Cut may minimize microphone leakage from a bass guitar or a kick drum.
PHASE SWITCHES
Compensate for Phase differences that often occur between instrument, microphone, pickup and speaker.

HOW TO USE THE BLENDER’S PHASE SWITCHES

1. GET THE MICROPHONE PHASE ALIGNED WITH THE SOUND SYSTEM
Determine your position on stage.
Adjust the BLENDER output Level to 3:00 and the Transducer Channel Gain fully counter-clockwise.
Adjust the MICROPHONE Channel Gain to just below the threshold of feedback. Play a sustained note or chord on your instrument while flipping the MICROPHONE Channel Phase switch. Listen to and compare each position.
Find the Phase switch position that yields the least low frequency (instrument cavity resonance) feedback.
If you decide to move more than a few feet from your playing position, you may need to repeat this test. (See Page 21)

2. GET THE PICKUP IN PHASE WITH THE MICROPHONE
Having done part one of this test, raise the level of the TRANSDUCER Channel Gain control to suit your taste.
Play a sustained note or chord on your instrument while flipping the TRANSDUCER Channel Phase switch.
Listen to and compare each position. When the pickup and microphone are in Phase, the sound is full with lots of deep bass. When out of Phase, the sound is thin with less bottom end.

3. MAKE NOTE OF THE RELATIVE POSITION OF BOTH PHASE SWITCHES
Once you have the BLENDER Phase aligned, note and memorize the relative position of both Phase switches. They will be either in the same position, or one in and one out.
When you set up in a different venue, the Phase of the house sound system and room acoustics can contribute to different Phase relationships compared to your previous gig. You will also find that the Phase issue depends a lot on the exact performance setting; it tends to be a bigger problem in small rooms and less of a problem in large outdoor setups.
To determine if there is a Phase difference at a new venue, play a sustained note or chord and invert both Phase switches at once. Listen to and compare each position. The proper Phase switch position yields the least low frequency (instrument cavity resonance) feedback.
See Page 21 for more information on Phase.

TRIM CONTROL
Sets the MICROPHONE Channel sensitivity for optimum signal strength before clipping.
To attain the best signal to noise ratio, start with the control fully clockwise and play your loudest note or chord. If you hear distortion, lower the control with a small slotted screwdriver until the distortion disappears.
The Trim control can also be used to calibrate the MICROPHONE and TRANSDUCER Gain controls. If there is a disparity between the signal strength of the two channels, use the Trim control to "normalize" the levels. Try setting the Trim controls this way:

1) Set the Output Level to 3:00.
2) Set the MICROPHONE and TRANSDUCER Channel levels to 12:00.
3) Play a note or chord on your instrument and lower the MICROPHONE or TRANSDUCER Trim control until both levels are equal, or are balanced to suit your taste.
GAIN CONTROL
Controls the volume of the TRANSDUCER Channel.

BASS and TREBLE CONTROLS
Controls the Bass and Treble for the TRANSDUCER Channel. These are boost / cut shelving tone controls. Setting them at 12:00 yields a flat response.

TRIM CONTROL
Sets the TRANSDUCER Channel sensitivity for optimum signal strength before clipping.
To attain the best signal to noise ratio, start with the control fully clockwise and play your loudest note or chord. If you hear distortion, lower the control with a small slotted screwdriver until the distortion disappears.
The Trim control can also be used to calibrate the MICROPHONE and TRANSDUCER Gain controls. If there is a disparity between the signal strength of the two channels, use the Trim control to "normalize" the levels. Try setting the Trim controls this way:

1) Set the Output Level to 3:00.
2) Set the MICROPHONE and TRANSDUCER Channel levels to 12:00.
3) Play a note or chord on your instrument and lower the MICROPHONE or TRANSDUCER Trim control until both levels are equal, or are balanced to suit your taste.

PHASE SWITCHES
Compensate for Phase differences that often occur between instrument, microphone, pickup and speaker. Refer to Page 8 for more information on How to use the BLENDER’s Phase Switches.
**BATTERY LOW SWITCH / INDICATOR**

With the STEREO IN jack plugged in, push this switch **IN** to check your battery. If the LED lights up when you push the switch in, you should replace your battery.

**HEADPHONES OUTPUT**

This sends a line-level mixed signal to 32Ω headphones or a power amp input. This is the BLENDER’s only line level output. This output will send a mono mixed signal to a pair of headphones. The signal is not a stereo image, but a composite of the MICROPHONE and TRANSDUCER Channels appearing in both the left and right channels of your headphones. The signal produced is powerful enough to drive many power amps. To drive a power amp, split the signal with a Stereo Y Cable (available from Fishman). Send either (or both) of the mono outputs to your power amp input(s). DO NOT insert a mono plug into the Phones jack. It will short out the headphone amplifier circuit.

**MUTE SWITCH**

Shuts off all signals to the main outputs of the BLENDER and allows you to disconnect your cable from the BLENDER or from your instrument silently. It does not affect the Phones jack or the Effects Sends. You may connect an electronic tuner to the TRANSDUCER Effects Send and tune your instrument in silence with the Mute switch in.

**DURING BATTERY OPERATION:**

Under battery power, the Mute switch does **NOT** silence the harmful turn on/off transients that occur when plugging in and unplugging the STEREO IN jack.

- Always plug into the STEREO IN jack **before** turning on your amplifier or PA System.
- Always unplug the STEREO IN jack **after** turning off your amplifier or PA System.
- When changing instruments, always unplug the cable at the instrument’s output jack, not at the BLENDER’s STEREO IN jack.

**NOTE:** The Mute switch does not normally affect the Phones jack. Should you want to have the Mute affect the Phones jack, the BLENDER can be modified by Fishman or by a qualified technician.

**OUTPUT LEVEL**

Controls the overall volume of the TRANSDUCER, MICROPHONE and MIX outputs as well as the MIX Effects Send. This does not affect the MICROPHONE or TRANSDUCER Effects Sends.
AC ADAPTER INPUT

USE ONLY the FISHMAN Model 910-R or the ROLAND PSA Series Regulated AC Adapters.
The BLENDER is turned on at all times when using the AC adapter. Use of the AC adapter will prevent any battery drain.
WARNING: DO NOT daisy-chain your AC adapter in parallel with other devices. The BLENDER will malfunction in this manner.

MIX OUTPUTS

The 1/4” MIX output provides an unbalanced, instrument-level signal of the two channels combined. It is primarily used as a send to an instrument amplifier.
The XLR MIX output provides a balanced, instrument-level signal from the two channels combined. It is primarily used as a send to a PA System or Recording Console.

RECESSED GROUND LIFT SWITCH

Used to eliminate hum that may occur when connecting the BLENDER to the XLR input of other devices. Use a small screwdriver to push in the switch.

TRANSDUCER OUTPUTS

The XLR TRANSDUCER output provides a balanced instrument-level signal from the TRANSDUCER Channel only.
The 1/4” TRANSDUCER Output provides an unbalanced instrument-level signal from the TRANSDUCER Channel only.

EFFECTS LOOPS

The MIX EFFECTS LOOP allows you to interface blended MICROPHONE and TRANSDUCER Channel signals with outboard signal processors and effects such as equalizers, compressors, volume pedals, and reverb units. The MIX Send is affected by all Front Panel controls except the Mute switch. The MIX Return is affected only by the Mute switch.
The TRANSDUCER EFFECTS LOOP allows you to interface the TRANSDUCER Channel signal with outboard effects and signal processors. The TRANSDUCER Send is affected by the Bass, Treble and Trim controls. It is excellent for use with electronic tuners. The TRANSDUCER Return is affected by the TRANSDUCER Channel Gain, Phase, Output Level, and the Mute switch.
The MICROPHONE EFFECTS LOOP allows you to interface the MICROPHONE Channel signal with outboard effects and signal processors. The MICROPHONE Send is affected by the Bass, Treble and Trim controls and the Bass Cut switch. The MICROPHONE Return is affected by the MICROPHONE Channel Gain, Phase, Output Level, and the Mute switch.

MICROPHONE OUTPUTS

The 1/4” MICROPHONE output provides an unbalanced instrument-level signal from the MICROPHONE Channel only.
The XLR MICROPHONE output provides a balanced instrument-level signal from the MICROPHONE Channel only.
1) INTERNAL MICROPHONE AND PICKUP

Pickup goes to Tip, microphone goes to Ring.
Pickup and microphone signals are sent through a stereo instrument cable to the STEREO IN jack.
Pickup signal is controlled by TRANSDUCER Channel.
Microphone signal is controlled by MICROPHONE Channel.
The Phantom Power should be turned ON (switch pushed OUT).

NOTE: If your instrument has an onboard battery, and you want to route microphone and pickup signals through a stereo instrument cable, you may need to install a Fishman SMART SWITCH for the system to operate. (See Page 22)

2) PICKUP ALONE

Single pickup is sent through a mono instrument cable to the STEREO IN jack.
The signal is controlled by the TRANSDUCER Channel.
Under battery power, turn the Phantom Power OFF (switch pushed IN) to save battery life.

3) MINI-MIC ALONE

Microphone signal is sent through a mono instrument cable to the AUX / MIC IN jack.
The signal is controlled by the MICROPHONE Channel.
The Phantom Power is ON (switch is OUT).

NOTE: Under battery power, the STEREO IN jack must be plugged in to turn on the BLENDER.
4) PIEZO AND MAGNETIC PICKUP

A) Signal from piezo pickup is sent through a mono instrument cable to the STEREO IN jack. This signal is controlled by the TRANSDUCER Channel.

B) Signal from magnetic pickup is sent through a mono instrument cable to the AUX / MIC IN jack. This signal is controlled by the MICROPHONE Channel.

Phantom Power must be turned OFF (switch pushed IN).

NOTE: Both signals may be routed through a stereo instrument cable. (See example #1)

5) UNDER-THE-SADDLE PICKUP AND SURFACE-MOUNT PIEZO PICKUPS

A) Signals from both pickups are sent through a stereo instrument cable to the STEREO IN jack.

B) Under-saddle pickup signal (Tip) is sent to the TRANSDUCER Channel.

C) Surface-mount pickup signal (Ring) is sent to the MICROPHONE Channel.

Phantom Power must be turned OFF (switch pushed IN).

NOTE: Both signals may be routed through two mono instrument cables.

NOTE: If your instrument has an onboard battery, and you want to route both pickup signals through a stereo instrument cable, you may need to install a Fishman SMART SWITCH for the system to operate. (See Page 22)

6) PICKUP AND DYNAMIC MIC

A) Signal from pickup is sent through mono instrument cable to the STEREO IN jack.

B) Signal from dynamic mic (possibly for vocals) is sent through a mono instrument cable to the AUX / MIC IN jack.

Phantom Power must be turned OFF (switch pushed IN).

NOTE: Any signal appearing at the Ring of the STEREO IN jack (such as a mini-mic) will be overridden by a signal appearing at the AUX / MIC IN jack.
ACOUSTIC BLENDER SYSTEM

SUGGESTED OUTPUT OPTIONS

1) 1/4” MIX OUTPUT JACK CONNECTED TO INSTRUMENT AMPLIFIER

Connect the 1/4” MIX output to the input of your instrument amplifier.
The amp will see a blended signal - both microphone and pickup.

2) XLR MIX OUTPUT JACK CONNECTED TO PA SYSTEM

Connect the XLR MIX output to the input of your PA System.
The PA will see a blended signal - both microphone and pickup.

This is a great way to control exactly what the soundman has to work with and what the audience will hear.

3) XLR MIX AND TRANSDUCER OUTPUTS CONNECTED TO PA ... TRANSDUCER SENT TO STAGE MONITORS

Connect the XLR MIX output to the input of your PA System.
The Mains will see a blended signal - both microphone and pickup.

Send only the transducer signal to the stage monitors.

Having the transducer signal on stage without the microphone signal can help control feedback.
4) USING MULTIPLE OUTPUTS

All of the Acoustic BLENDER’s outputs can be used simultaneously. This offers virtually any combination of signal routing and interfacing options to accommodate a wide variety of performance and recording situations.
EFFECTS LOOPS

The BLENDER has three Effects Loops; one each for the MICROPHONE, TRANSDUCER and MIXED signals. The Sends can be used as additional outputs and the Returns can be used as alternate inputs. The TRANSDUCER EFFECTS Send provides a perfect output signal for electronic tuners.
# Troubleshooting Guide

<table>
<thead>
<tr>
<th>Symptom</th>
<th>Typical Cause</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>No signal when using <strong>AUX / MIC IN</strong> Jack only with battery power</td>
<td><strong>Stereo In</strong> Jack must be plugged in for power to be on when using battery power</td>
<td>Insert a 1/4” plug or unused instrument cable into the <strong>Stereo In</strong> Jack</td>
</tr>
<tr>
<td>Distorted or no mic signal with active pickup (battery on instrument)</td>
<td><strong>Mic</strong> is grounded-out by the instrument’s onboard preamp</td>
<td>Install a Fishman Smart Switch or use separate cables for mic and pickup</td>
</tr>
<tr>
<td>No signal with battery power</td>
<td><strong>Mute</strong> switch in</td>
<td>Set <strong>Mute</strong> switch to out position</td>
</tr>
<tr>
<td></td>
<td>Loose battery compartment terminals</td>
<td>Remove battery and re-tension terminals by pulling them up with your finger</td>
</tr>
<tr>
<td></td>
<td>Device appearing at <strong>Mix Effects Return</strong> is breaking the signal path</td>
<td>Remove plug from <strong>Effects Return</strong></td>
</tr>
<tr>
<td>No signal with AC power</td>
<td><strong>Mute</strong> switch in</td>
<td>Remove other devices from Blender’s power supply</td>
</tr>
<tr>
<td></td>
<td><strong>Mute</strong> switch in</td>
<td>Set <strong>Mute</strong> switch to out position</td>
</tr>
<tr>
<td></td>
<td><strong>Mute</strong> switch in</td>
<td>Remove plug from <strong>Effects Return</strong></td>
</tr>
<tr>
<td>Microphone channel dead with mini-mic connected to <strong>Stereo In</strong> Jack</td>
<td><strong>Phantom power is off</strong> (switch is in)</td>
<td>Turn <strong>Phantom power</strong> on (switch is out)</td>
</tr>
<tr>
<td></td>
<td>When sending mic signal through <strong>Stereo In</strong> Jack, any signal connected to the <strong>AUX / MIC IN</strong> Jack overrides the mic</td>
<td>Disconnect signal from <strong>AUX / MIC In</strong> Jack</td>
</tr>
<tr>
<td></td>
<td>Device appearing at <strong>Mix Effects Return</strong> is breaking the signal path</td>
<td>Remove plug from <strong>Mic Effects Return</strong></td>
</tr>
<tr>
<td>Microphone channel dead with mini-mic connected to <strong>Stereo In</strong> Jack</td>
<td><strong>Mic and pickup are wired to Stereo output jack backwards</strong></td>
<td>Wire pickup to tip and mic to ring of <strong>Stereo Output</strong> jack</td>
</tr>
<tr>
<td></td>
<td><strong>Phantom power is on</strong> (switch is out)</td>
<td>Turn off <strong>Phantom power</strong> (switch is in)</td>
</tr>
<tr>
<td>Piezo / Magnetic pickup or dynamic mic dead or low level in mic channel</td>
<td><strong>Low battery</strong></td>
<td>Plug into <strong>Stereo In</strong> jack and push in battery low switch; if LED lights up replace battery lower <strong>Trim</strong> control(s) until distortion disappears; listen to instrument acoustically to isolate noise; tighten all plug hardware</td>
</tr>
<tr>
<td></td>
<td><strong>Trim</strong> control(s) set too high</td>
<td>Consult Fishman tech support line at 978-988-9665</td>
</tr>
<tr>
<td></td>
<td>Mechanical noise from instrument</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Mechanical noise from instrument cable</td>
<td></td>
</tr>
<tr>
<td>Noise or distortion from either channel</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Distortion from extremely ‘hot’ signals such as external pickup</td>
<td><strong>Input clips</strong> with <strong>Trim</strong> control all the way down</td>
<td>Use only Fishman 910-R or Roland PSA series AC adapters</td>
</tr>
<tr>
<td></td>
<td><strong>Use of an unregulated power supply will cause the blender to hum under AC power</strong></td>
<td>Use only quality fully shielded instrument cables</td>
</tr>
<tr>
<td>HUM</td>
<td><strong>Poorly shielded or unshielded cable</strong></td>
<td>Use only 15' or shorter instrument cables with passive pickup</td>
</tr>
<tr>
<td>Piezo high frequency loss</td>
<td><strong>Instrument cable is too long</strong></td>
<td></td>
</tr>
</tbody>
</table>
**OPTIONAL ACCESSORIES**

- **A/C ADAPTER:** FISHMAN 910-R regulated 9V power supply.
- **CROWN GLM-200 MINI-MIC:** Ships without jack; ready to be wired to the jack of your choice. Soldering and assembly required.
- **UNIVERSAL MIC MOUNT:** Allows you to mount a mini-mic to your instrument.
- **INTERNAL MIC MOUNT:** Allows you to mount a mini-mic to the X-brace of your guitar.
- **GUITAR MIC ASSEMBLY:** Mounts to the X-brace of your guitar. Includes a mini-mic, internal mic mount and stereo endpin jack. Soldering and assembly required.
- **BASS MIC ASSEMBLY:** Mounts to the bridge foot of an acoustic bass. Includes pre-wired mini-mic, mic mount and a stereo bass jack.
- **STereo ENDPin JACK**
- **STereo BASS Jack:** Mounts on the A and D strings between bridge and tailpiece.
- **TRANSDUCERS:** We make a full line of quality transducers for many types of acoustic stringed instruments.
  - **BP-100-M:** Bass pickup and mini-mic pre-wired to stereo bass jack.
  - **V-200-M:** Violin pickup and mini-mic pre-wired to a Carpenter-style output jack.
- **UNIVERSAL RACK TRAY:** Allows you to mount the BLENDER in a 19" rack.
- **MIC STAND ADAPTER:** Allows you to mount the BLENDER on any microphone stand.
- **15" STEREO CABLE**
- **PADDED CARRY BAG**
- **STEREO Y CABLE:** 1/4" stereo male to (2) 1/4" mono female.
- **SMART SWITCH:** If your instrument has an onboard battery, and you want to route microphone and pickup signals through a stereo instrument cable, you may need to install a Fishman SMART SWITCH for the system to operate. (See Page 22)

**SPECIFICATIONS**

- **Nominal Input Level:** -20 dBV
- **Input Overload:** (20 Hz - 20 kHz) -14dBV
- **Input Stage Impedance:**
  - Transducer: 10 Megohms
  - Microphone without Phantom Power: 1.0 Megohms
  - Microphone with Phantom Power: 2.2 kilohms
- **Phantom Power:** 4.5 Volts, 2 mA
- **Output Type:** Electronically Balanced XLR and unbalanced 1/4"
- **Output Impedance:** 220 Ohms
- **Nominal Output Level:** -11 dBV
- **Output Overload:** 8 dBV
- **Effects Loop Nominal Levels:**
  - Transducer Channel: -3.5 dBV
  - Microphone Channel: 0 dBV
- **Effects Loop Send Impedance:** 1 kilohm
- **Return Impedance:** 47 kilohms
- **Headphone Output Power:** 125mW @ 1% THD (32 ohm headphones)
- **Bass Control Range:** ± 8 dB Shelving
- **Treble Control Range:** ± 13 dB Shelving
- **Front Panel Trim Gain Range:** 10 dB
- **Overall THD:** 0.2% at 1 kHz, -14 dBV input
- **Signal to Noise Ratio:** 81 dB (A-weighted, referred to nominal -20 dBV input)
- **Dual Power Supply:** 9V regulated, or single 9V alkaline battery (estimated 15 hours continuous use)
- **Current Draw:** 30 mA
- **Dimensions:** 8.5" X 1.75" X 7"
- **Weight:** 2 lbs 3 oz

All specifications subject to change without notice
A variety of microphones can be used with the Acoustic BLENDER. However, the Crown GLM-200 is Fishman’s microphone of choice for the 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 BLENDER System.

The BLENDER provides 4.5 Volts of Phantom Power to the GLM-200 via the MICROPHONE channel. Phantom Power is sent through either the Ring of the STEREO IN jack (for stereo cable use) or the Tip of the AUX/MIC IN jack (for mono cable use).

A small zener diode is included with all GLM-200 Crown microphones. It is pre-wired to both the Bass and Violin Microphone Assemblies. It is included separately with all other kits. It will prevent harmful electric spikes from damaging the microphone.

NOTE: The zener diode MUST be wired to the output of the GLM-200. (Microphones installed without the zener diode are not covered under warranty.) However, it is not needed when a SMART SWITCH is installed.

The GLM-200’s small size allows it to be conveniently mounted in or outside the sound chamber of most stringed instruments. The microphone, with a (TRS) stereo jack included, can be attached to the instrument using one of the following mounting systems:

**GMA - GUITAR MICROPHONE ASSEMBLY**

The microphone is mounted in the sound hole with a clip that attaches to the X-brace under the instrument’s soundboard. The jack is run through the instrument’s endpin hole. Soldering and some assembly is required.

**BMA - BASS MIC ASSEMBLY**

The microphone is held in an isolation collar to reduce low frequency microphonics which are common with bowed instruments. The mount attaches to a bridge foot with an adhesive backed nylon clip. The jack (pre wired to Tip) mounts between the A&D strings. Also available with a pre-wired pickup (BP-100-M).

**V-200-M PICKUP AND MINI-MIC**

The microphone is held in an isolation collar to reduce low frequency microphonics which are common with bowed instruments. The mount is integrated into a Carpenter-style jack that attaches above the instrument’s chin rest.

**UNIVERSAL MICROPHONE ASSEMBLY**

For mandolin, banjo, dulcimer, harp. A small alligator clip at one end holds the microphone. At the other end, a set of firm gripping rubber-covered jaws attach to the instrument’s housing.
USING OTHER MICROPHONES
The BLENDER is also compatible with other manufacturers’ mini-electret microphones. Consult the manufacturer for specific minimum power requirements, wiring configuration and instrument mounting systems (the Fishman microphone mounts are dedicated to the Crown GLM series).
Dynamic microphones (such as the SM 58) may be used with the BLENDER. You’ll need a low to high impedance adapter in the AUX/MIC IN jack. Turn off the Phantom Power (switch is in) for this application.

POSITIONING THE MICROPHONE
It’s worth taking the time to experiment with the placement of the Crown GLM-200. Here are some suggestions to help you get started:

INTERNALLY MOUNTED MICROPHONE (flat top guitars)
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.

EXTERNALLY MOUNTED MICROPHONE (violin, bass, cello, arch-top guitar).
Start with the microphone centered halfway between a bridge foot and F-hole. Position the face of the microphone (marked FRONT) towards the instrument. Tilting the microphone as much as 90° may help reduce boominess. Placing the microphone directly over an F-hole will produce a deep, woody tone. However, the microphone will feedback at the instrument’s cavity resonance. This can be easily remedied by notching out the feedback with an external equalizer (see below). Placing the microphone over the soundboard will produce a tight, focused tone with more midrange emphasis but less overall volume.

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
- Bass: 65-75 Hz
- Violin: 275-300 Hz
- Cello: 125-135 Hz

ADDRESSING FEEDBACK

LOW FREQUENCY CAVITY RESONANCE
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 BASS CONTROL on MICROPHONE channel.
3) PUSH IN BASS CUT SWITCH on MICROPHONE channel.
4) INVERT PHASE SWITCHES on both channels. (See Pages 8 & 21)
5) OUTBOARD EQUALIZATION: This works well in higher volume settings. An external equalizer (such as the FISHMAN Dual Parametric D.I.) may be used through the BLENDER’S MICROPHONE channel EFFECTS LOOP. See FIG. 1 (See Page 16)
   a. PARAMETRIC EQ: We suggest cutting 5 dB at the instrument’s cavity resonance with a .5 octave bandwidth (Q).
   b. GRAPHIC EQ (although less precise and much noisier) 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.
   You can do this by:
   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 TREBLE CONTROL on MICROPHONE channel.
3) REVERSE PHASE SWITCHES on both channels.
4) OUTBOARD EQUALIZATION: This works well in higher volume settings. An external equalizer (such as the FISHMAN Dual Parametric D.I.) may be used through the BLENDER’S MICROPHONE channel EFFECTS LOOP. See 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.

FIG. 1
EQ SETTING TO REDUCE LOW FREQUENCY RESONANCE (GUITAR AS EXAMPLE)

FIG. 2
EQ SETTING TO REDUCE HIGH FREQUENCY FEEDBACK

COMBINED HIGH AND LOW EQ SETTINGS
-30
-20
-10
0
-10
-20
-30
20 100 1k 10k 20k
20 100 1k 10k 20k
20 100 1k 10k 20k
WHAT IS PHASE?
Phase is the relationship between two signals or sound waves, originating from the same instrument.
For our purposes, Phase relationships are expressed as being either “in phase” or “out of phase”. In phase tends to enhance, while out of phase tends to suppress the natural characteristics of an instrument. A simple way to determine the quality of Phase (in or out) of two sounds is to compare phase switch settings at low volumes.

IN PHASE
In phase is when the waveforms of two signals or sounds originating from the same instrument are similarly aligned in time. Similar phase is like looking at yourself in a mirror; your reflection directly follows your movement.

OUT OF PHASE
Out of phase is when the waveforms of two signals or sounds originating from the same instrument are aligned such that the upper peak of one wave occurs at the same moment in time as the lower peak of the other. Out of phase is like looking at yourself in a live video monitor; the image you see is similar, but the perspective is shifted. When you move to the right, the image appears to move to your left.

WHAT ARE THE BLENDER’S PHASE SWITCHES FOR?
The phase switches are useful for two reasons:
A. Due to the interactive and changing nature of phase, acoustic amplification depends on maintaining optimum phase relationships between amplified instruments, sound systems and venues.
B. Since an industry standard for polarity has never been established for all sound equipment, the phase switches compensate for any unintentional phase differences that might occur between components.

APPLICATIONS
When amplifying acoustic instruments with a microphone/pickup combination, there are two crucial phase relationships:
ACOUSTIC PHASE - The relationship between the sound waves of a mic’ed acoustic instrument and the speaker system.
ELECTRONIC PHASE - The relationship between pickup and microphone signals.

1. ACOUSTIC PHASE
In any situation where the mic’ed instrument faces a loudspeaker, there will be an interactive phase relationship between the two. This usually occurs with stage amps, side fill and floor monitors at close distances.

LOW VOLUME AMPLIFICATION
At low volumes, when a mic’ed instrument and speaker are at similar levels and are in phase, the sound is full and solid, with the lower frequencies emphasized.

When a mic’ed instrument and speaker are out of phase at low levels, the bass frequencies cancel out to some extent. The resulting sound is somewhat unnatural and unbalanced compared to in phase.

HIGH VOLUME LEVELS
At high volume levels, when a mic’ed instrument and speaker are in phase, the sound pressure from the speaker will excite the instrument’s sound chamber, creating a feedback loop at the instrument’s lowest octave. This “cavity resonance” feedback can be dealt with by putting the mic’ed instrument and speaker out of phase or by adding outboard equalization.

A. PUTTING THE CAVITY RESONANCE OUT OF PHASE TO REDUCE FEEDBACK.
Inverting the MICROPHONE channel PHASE switch will put the mic’ed instrument and speaker out of phase with each other, cancelling the low frequency feedback (not recommended for bass instruments).

If you move from your position on stage more than a few feet, you may have to invert the phase switch again to maintain an out of phase relationship between the mic’ed instrument and speaker. Here’s why:
A typical guitar has a cavity resonance of about 100 Hz. This is the frequency that generally feeds back when a mic’ed guitar and speaker are in phase. 100 Hz has a wavelength of about 11 feet. phase inverts 180° for every 1/2 a frequency’s wavelength. In this case, 1/2 the wavelength is about 5 1/2 feet.

B. USING AN OUTBOARD EQUALIZER TO REDUCE FEEDBACK
Notching out instrument cavity resonance with an outboard equalizer patched through the Microphone channel effects loop (see Pages 16 & 23) will eliminate the low frequency feedback problem completely. The advantages to using notching equalization are:
• The physical distance from the speaker will no longer be a factor for potential low frequency feedback.
• The mic’ed instrument/speaker can remain in phase, maintaining a more natural and balanced response.

This is the preferred method for bass, since the mic’ed instrument and speaker can remain in phase, preserving low frequency content. (See Page 20)

2. ELECTRONIC PHASE
Once the mic’ed instrument is phase aligned with the sound system, the pickup signal can be added.
When a microphone and pickup are at similar levels and are in phase, the sound is full and solid, with the lower frequencies emphasized.
When a microphone and pickup are out of phase the bass frequencies cancel out to some extent. The resulting sound is somewhat unnatural and unbalanced compared to in phase.

It is especially important for the microphone and pickup to be in phase when recording to attain the fullest and most natural sound.
If your instrument has an active pickup/preamp and you are going to route electret microphone and pickup signals through a single stereo cable, you may need to install a SMART SWITCH for the system to operate.

**WHAT IS A SMART SWITCH?**
The SMART SWITCH is a voltage sensing electronic switch. A SMART SWITCH must be installed with certain pickup/preamp/microphone configurations due to the physical limitations of the Stereo (TRS) jack used on the instrument.

**WHY DO I NEED A SMART SWITCH?**
Most instrument mounted preamps have no on-off switch. Instead, they rely on a "switching" stereo jack that turns the preamp on when a 1/4" plug is inserted. The actual switching is performed by the plug: it shorts the negative battery wire (RING connection) to ground. Similar in function to the input jack on a "stomp box" pedal, the switching jack can extend battery life since the preamp is turned off with the plug removed. The standard wiring configuration is as follows:

- **TIP**: Pickup Signal carrier
- **RING**: Negative Battery wire
- **SLEEVE**: ground

Adding the Fishman/Crown GLM-200 microphone to a switching jack configuration creates an electronic version of musical chairs in which the microphone signal and negative battery wire are both vying for the same RING terminal on the stereo jack. Attempting to connect both the microphone and Battery wire to the RING terminal will ground out the microphone.

**WHAT DOES THE SMART SWITCH DO?**
The Smart Switch takes over the preamp power switching duty and frees up the RING terminal on the output jack for the microphone signal. The Smart switch takes its cue by electronically sensing phantom power, sent from the Blender and in turn switching on the preamp.

In cases where the mic is not needed, the Smart Switch will know to turn on the preamp with a mono phone plug inserted. Pretty smart, eh?

**WHO NEEDS A SMART SWITCH?**
The following Fishman pickup/preamp systems will require a SMART SWITCH to be installed in conjunction with the Fishman/Crown GLM-200 Microphone:

- Acoustic MATRIX Natural
- Acoustic MATRIX Hot
- Acoustic MATRIX Professional
- AGP-2 and ABGP Onboard Guitar Preamps

Other manufacturers' preamps may also require a SMART SWITCH. Contact the Fishman's PRODUCT INFORMATION LINE at 978-988-9665 for assistance.

**NOTE:** The SMART SWITCH is NOT required when using a Fishman POWER-JACK endpin preamp in conjunction with the Fishman/Crown GLM 200 mic.
The FISHMAN ACOUSTIC BLENDER® and ACOUSTIC BASS BLENDER® is warranted to function for a period of 90 days 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 TRANSDUCERS is unable to make repair are FISHMAN TRANSDUCERS’ only obligations. This warranty does not cover any consequential damages or damage to the unit due to misuse, accident, or neglect. FISHMAN TRANSDUCERS retains the right to make such determination on the basis of factory inspection. Products returned to FISHMAN TRANSDUCERS 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 TRANSDUCERS. 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) Call FISHMAN TRANSDUCERS at 978-988-9199 for a Return Authorization number.

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) Clearly label the outside of the shipping carton with the Return Authorization number.

4) Ship the carton prepaid to:

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

MODEL #

SERIAL #

DEALER

DATE OF PURCHASE

009-065-003 2-99