

# DUAL SOURCE

## INSTALLATION MANUAL & USER'S GUIDE

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### 1. PACKAGE CONTENTS

One (1) Dual Source preamp  
One (1) Dual Source mic  
One (1) Ribbon Transducer  
One (1) prewired strapjack assembly  
One (1) Battery Bag  
Three (3) self-stick wire clips  
One (1) Remote Control  
One (1) Remote Control cable

### 2. OVERVIEW AND CAUTIONS

The Dual Source is designed to support most acoustic guitar pickups and popular mini-microphones. If this unit was purchased as the Dual Source System, it will include our Ribbon Transducer and Dual Source mic. No soldering will be needed. If you purchased only the preamp, connectors are provided for the mic and pickup. Do not use the mic channel for a second pickup.

We recommend that this system be installed by a professional dealer/installer. We do not provide installation advice or support for home or hobbyist installations. Installers: please read the instructions carefully before proceeding. We will not be responsible for any damage to the guitar or personal injury resulting from installation, improper installation, use or misuse of the product.

### 3. INSTALLATION

1. Strapjack installation: Drill a 1/2" hole in the tail block using a step drill. Cover the area you are drilling with masking tape to protect the finish.

Remove the strap ring, retaining nut and one washer from the end of the jack. There should still be one star locking washer, one flat washer and a nut remaining on the mid section of the jack. Bring the jack down into the sound hole and through your pre-drilled hole in the tail block. Using the internal nut (be sure to include the flat and star washers), set the proper depth that will allow the smaller threaded section at the end of the jack to protrude out of the end of the guitar. When the jack is fully seated in the tailblock, there should be about 2 threads of the small threaded section remaining inside the hole. With the jack in place, lay the remaining washer over the threads and attach the external retaining nut until it's tight. Finish by attaching the strap button (it should cover the retaining nut and washer) carefully so as to not crack the finish of the guitar by asserting too much pressure.

2. Pickup installation: Install the pickup at this time by following the instructions provided with the pickup. If you are using any pickup other than the Ribbon Transducer, attach the mini-plug (provided) to the pickup wire after it has been installed. The pickup wire should be long enough to reach through the sound hole to facilitate the soldering. Cover the top of the guitar to protect it. Remove the black threaded barrel from the plug and slide it over the wire with the threaded section facing the end of the wire; forgetting to do this may cause severe headaches. Now solder the hot wire (the inner part of the coax) into the small, tube-shaped area in the center of the plug. Bend the ground tabs around the shield wire and solder the shield wire to them. Clip the excess shield wire, and firmly screw the barrel onto the plug.

3. Microphone setup: This system is engineered for the Dual Source mic, but will support most other popular internal mini guitar mics with the standard two-wire connection. If you are installing a mic other than the Dual Source mic, consult the mic owner's manual for the proper connection. Attach the connector to the wire at this time as follows:

A: The Dual Source Preamp kit provides two small metal crimp pins and a brown plastic connector for the mic. Crimp the signal wire in one of the pins (refer to your mic's manual to identify the wires), and the ground and shield wires together in the other one, as shown in figure 2.

B: Now slip the crimped wires into the brown connector so they snap into place. The signal wire needs to go into the side marked with a "1" (see figure 2). The preamp provides nine volts on the signal (pos.) pin for the mic, making phantom power from an outside source unnecessary. Set the mic aside at this time and continue with step 4. Placement of the mic will be completed later, after the preamp is installed.

4. Remote Control setup: The Remote Control Module consists of a black circuit board and the anodized aluminum top plate forming two halves of a clamp that mounts on the top edge of the soundhole. Connect the ribbon cable (provided) to the ZIF (zero insertion force) socket connector on the bottom side of the remote module in the same manner as shown in figure 3.

fig. 1

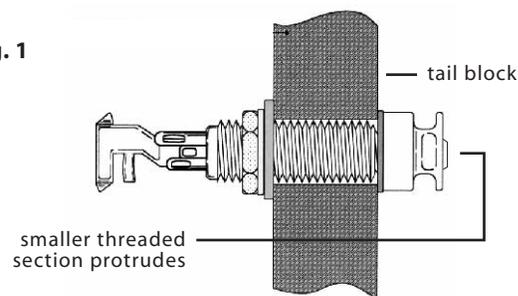
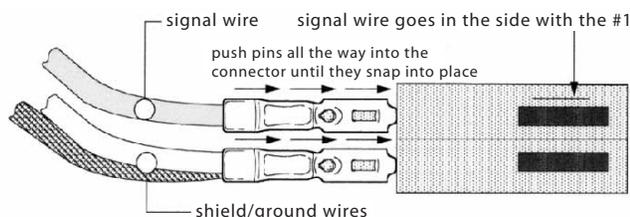


fig. 2: mic connector



**Preamp installation:** The preamp should be mounted on the back surface of the guitar, with the pre-set controls on the unit accessible through the sound hole (see figure 4 for correct placement). Just before you mount the preamp, plug in the output jack, pickup, mic and ribbon cable for the Remote Control to their receptacles on the circuit board.

**Note:** It is vital that the ribbon cable be in the correct position when inserted into the ZIF (zero insertion force) socket connector (see figure 3 for proper alignment). Clean all dust and oil from the area inside the guitar where the preamp will be mounted, remove the backing from the velcro and press the unit into place. Be careful to leave enough space between the preamp and the brace below the preamp for wires and connectors.

**6. Battery bag:** Stick the double-sided adhesive to an easily accessible spot inside the guitar. The battery can then be changed by opening the flap on the bag and pulling out the battery.

**7. Remote Control installation:** Adjust the two top screws and bottom screw until the top and bottom plates are parallel with about a 1/8" gap. Be sure the top plate drops freely over the LED before you tighten the screws. Do not push or adjust the position of the LED. Push the plate over the edge of the soundhole as far as it will go. The screws are padded and will provide the proper position for the Remote when they touch the inside edge of the soundhole. On a few guitars you might hit a brace, so either move the remote to miss the brace or expand the screws to clamp over it.

Lightly tighten the two top plate screws, adjust the bottom screw if necessary to make the two halves parallel, then tighten the top screws enough to hold the remote securely in place.

Be sure the knobs rotate freely. If they bind against the top plate, back the top screws off and increase the length of the bottom screw. This will raise the edge of the top plate and free the knobs.

**8. Mic placement:** Depending on which mic you are using, the placement and the method of locating the "sweet spot" will vary greatly. If you are using any microphone other than the Dual Source mic, follow the manufacturer's instructions for your mic.

**For placement of the Dual Source mic:**

A. Fashion a simple placement tool out of a wire coat hanger or 12- to 14-gauge copper wire. The tool should be about 1 1/2' to 2' long and have a U shape at one end for lightly gripping the small foam block that houses the mic.

B. Attach the tool to the mic by wrapping it around the base of the foam block and insert the mic into the inside of the instrument. Temporarily unplug the pickup from the preamp so all you will hear is the mic. Now string the guitar.

C. Plug the guitar into a P.A. or similar sound source using a standard mono cable. Set the stereo/mono switch located on the circuit board to mono. Turn up the "vol" and the "mic" knobs on the Remote module, and gradually bring the volume of the P.A. to a comfortable level. With the guitar on its back, strum the open strings and move the mic around to the back side of the guitar with the wire tool until the optimum spot is located in the guitar. The best location for this mic is generally somewhere in the lower section of the guitar under or behind the bridge (see figure 5 for recommended placement).

D. When you've found the optimum positioning, look inside the guitar, carefully observe the position of the mic and unstring the guitar. The sweet spot on some guitars is a small area, and a half inch in any direction can make significant difference. Remove the mic from the wire tool and plug the pickup back into the preamp. Before you place the mic in position, first clean the area where it will be mounted so it is free of any dust or oil. Remove the backing from the velcro and place the mic inside the guitar precisely on the sweet spot. Be careful to place the mic in a way that won't kink or severely bend the wire as it exits the foam block.

**9. Finishing touches:** Secure all wires with the clips provided, restraining the guitar.

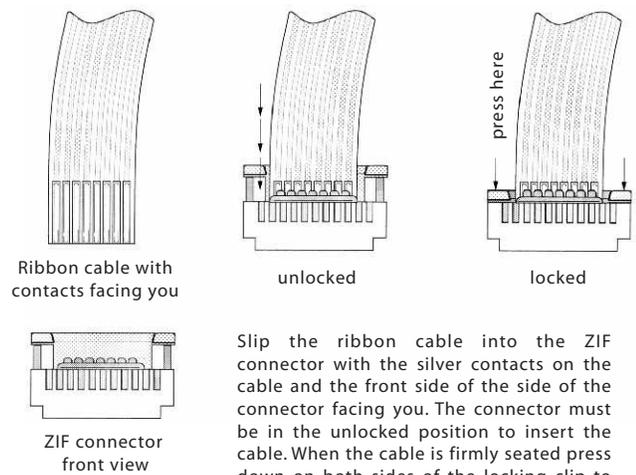
**10. Dual Source setup and testing:** If this installation is employing the complete Dual Source System with the Ribbon Transducer and the Dual Source mic, set the controls on the preamp to match the default settings shown on the preamp label.

**11. Other pickups and microphones:**

A. Set the mono/stereo switch to mono.

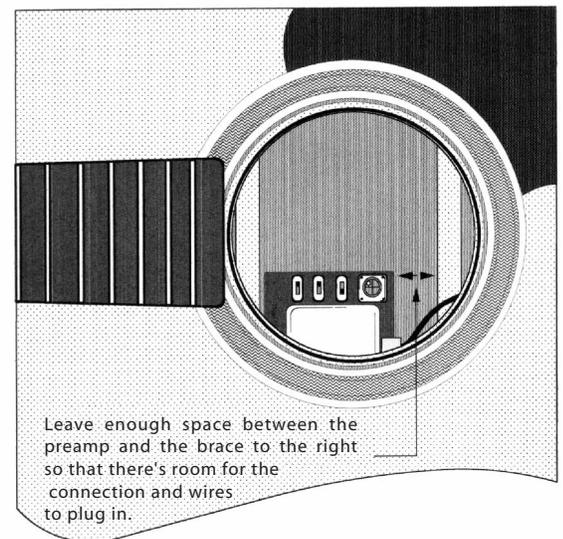
B. For the LB6 series of pickups, set the pickup high/low gain switch to low. Most other popular pickups on the market will work best in the low

**fig. 3**

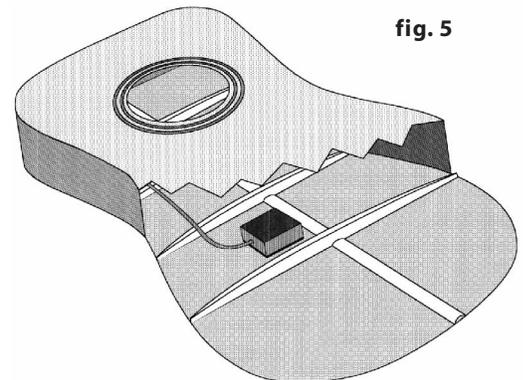


Slip the ribbon cable into the ZIF connector with the silver contacts on the cable and the front side of the side of the connector facing you. The connector must be in the unlocked position to insert the cable. When the cable is firmly seated press down on both sides of the locking clip to secure the cable.

**fig. 4: preamp placement**



**fig. 5**



gain position as well. But, since you can't be absolutely certain, try it in both positions to see which one is right for your situation.

C. A good starting point for the mic low cut knob is about 10:00, as shown on the Dual Source label.

D. With the two knobs on the Remote Control turned all the way down, plug into your sound system with a standard mono cable and gradually bring up the volume on the Remote Control. This will give you the pickup signal only. Gradually bring up the level of the "mic" knob to hear the blend of the mic and the pickup.

E. Especially try the mic phase switch in each position to see which sounds the best with your mic. Now you can experiment with the other controls to achieve the best overall sound.

## USER'S GUIDE

The Dual Source is engineered primarily for use with the Ribbon Transducer and our Dual Source microphone. All controls are pre-set at the factory for this use. Feel free to experiment with the settings or other pickups and mics. If you lose your way just return to the Ribbon Transducer and Dual Source mic and match the switches and the pot to the settings shown on the label. The controls mounted directly on the preamp are intended to be utilized as "set it and leave it" controls. However, they can be switched by extending a tool such as a pencil's eraser end through the sound hole.

Note: When the Dual Source preamp is mounted in the recommended location, the pre-set controls are accessible through the soundhole. The best tool we have found for adjusting them is a pencil eraser. The eraser has the perfect surface to grab the switches and turn the knob.

If you are using the Dual Source with the Ribbon Transducer and the Dual Source mic, the default settings are on the label on top of the preamp. The controls of the Remote Control have different functions in mono and stereo modes.

The letters in front of each control description correspond with the letters in figure 6.

### A. Stereo/Mono Switch:

**Mono:** The "mono" or mix mode is designed for hassle-free live performance and recording when you want to plug in and play.

**To Use:** Confirm that the "stereo/mono" switch is in the mono position and plug in a "standard" cable. In this mode the two dials on the Remote Control module function as a master volume ("vol" knob) and a microphone volume ("mic" knob). The "mic" dial allows you to add the amount of microphone you desire to the mix. Full clockwise is pickup only and full counter-clockwise brings in the mic. Once the blend is satisfactory, use the master volume to control everything with one knob.

**Stereo:** This mode provides independent buffered outputs for the mic and pickup. It is useful for recording and for achieving the ideal live sound. You can use individual outboard EQ and effects for each channel. For live work, a mic-blended system often presents problems with feedback in the monitors. In stereo mode you may send the pickup alone to the feedback-prone stage monitors, but use as much mic in the mains as you wish to get the perfect "house mix".

**To Use:** For this option flip the "Stereo/Mono" switch to Stereo, and plug in a stereo cable or stereo Y cable into the two muted channels of whatever outboard gear you're playing through. The live pickup signal is routed to the "tip" and a live mic signal goes to the "ring" contacts of the strapjack. The stereo switch also changes the way the Remote Control functions. The "mic" knob becomes the mic-only volume and the "vol" knob becomes the pickup-only volume.

**B. Pickup high/low gain switch:** This switch makes it possible to use a pickup other than the Ribbon Transducer with the Dual Source, such as the LB6; however, we do not recommend using the iBeam with the Dual Source. The high gain position is specifically engineered for use with the Ribbon Transducer which has a low level of output. Some magnetic soundhole pickups also work well with the high gain setting. Almost all piezo pickups are best in the low gain position.

**To Use:** Confirm that the switch is in the correct position. It will be apparent if you get it wrong: the signal will be very quiet and full of noise if the switch is in the low position when used with the Ribbon Transducer. Conversely, most other pickups will be loud and distorted when used with the switch in the high position.

**C. Mic phase switch:** The phase switch changes the polarity of the mic signal. Its purpose is to optimize the blend between your chosen pickup and microphone when the Dual Source is used in mono mix mode. We suggest the mic placement decision be made using headphones and with the pickup unplugged prior to setting the mic phase, as the mic position will influence the phase relationship. The lowest frequencies will be most affected by this phase relationship. It will be apparent which phase sounds best when you flip the switch. However, the best sound may not be the "best" phase in every situation. For instance, in a live situation, the low frequency cancellation between an out-of-phase mic and pickup provides a measure of feedback resistance. Here, the low frequency conflict between the two signals acts as a shock absorber to dampen feedback. This effect is often helpful when using a live mic. In the studio, with headphone monitors, having the mic and pickup in phase with each other will usually result in the warmest and richest blend of the two.

Please note that when the mic and pickup are mixed in phase with each other, the mic will seem nearly twice as loud as when they are out of phase. You will not need as much mic level with an in-phase mix to get a nice blend.

**D. Mic low cut filter:** This rotary control allows for fine tuning the low frequency response of your chosen mic. The range of control will allow adjustment of the low cut-off frequency from 2kHz to 100Hz. The nicest sound is usually achieved by using as much microphone bass as possible without inducing boominess or feedback. In mono mix mode a higher cut-off frequency is advised than when in stereo. The lows of the pickup and the mic reinforce each other when they are mixed together, so it is easy to get too much bass. A great strategy to minimize feedback is to let

fig. 6



the pickup handle most of the low frequency duties. Pickups are usually less prone to boominess and feedback than microphones, so try setting the mic low cut to around 1000Hz (approximately 9:00), then boost the bass control on the P.A. The bass control will then have little effect on the mic but will add warmth to the mic without inducing feedback. The correct low frequency cut-off will also vary with the preferred mic phase and from venue to venue. It is useful to have a tool handy (such as a pencil with an eraser) to adjust this control at sound check. The mic bass default setting, shown on the label, is quite safe when used with the Dual Source mic. It has been proven to give good results under a wide variety of conditions.

**Onboard controls:** The Remote Control soundhole-mounted controller gives you fingertip access to your volume and mix without the need to cut any holes for knobs or to permanently attach anything to the guitar. We have done extensive research to provide an anchoring system for the Remote Control that will not harm the guitar finish; however, there is a slight chance that the felt-backed module can alter certain finishes. Remove the Remote Control from time to time and inspect the area where it is located to make sure your finish is satisfactory. We disclaim responsibility for any damage to the instrument resulting from the use of this product.

**Battery status LED:** The battery status LED remains on at all times when the unit is plugged in. As the battery weakens the light will gradually dim. When it becomes difficult to see, replace the battery.

**Power switch:** The output jack acts as an on-off switch; plug it in and it's on, unplug it and it is off.

**Connection:** There is a ZIF Socket on both the Remote Control and the preamp. Should you need to remove the Remote Control from the preamp for any reason, just lift the locking tabs on either end of the ZIF connector housing and gently pull the ribbon cable out. Be sure that you have the silver side of the ribbon cable facing the connector pins, as shown in figure 3, and inserted fully into the socket before you lock the housing.

## S P E C I F I C A T I O N S

Size: 3.3" x 2.3" x 1.9"

Weight: 1.4 oz with battery

Battery Type: Single 9V

Battery Life: 200+ hours (alkaline)

Current Consumption: 2.3mA

Signal to Noise: -92dB unweighted

Output Level: -10dB

Output Impedance: 1200 ohms