



Installation Guide

Z-MODE™ IMPEDANCE CONTROL AND PREAMP FOR ELECTRIC BASS GUITAR

READ THESE INSTRUCTIONS PRIOR TO INSTALLATION

The Z-Mode preamp is sold as a replacement for existing on-board preamps and our instructions assume that the mounting holes are already in the instrument. Installation is simple if you have experience with installing music electronics. Typical hand tools for soldering wire connections and assembly are required. If you are uncertain about the installation we recommend you have a trained guitar technician install it for you. You can also send an email to service@audereaudio.com if you have any questions.

IMPORTANT NOTE: Every instrument is different; we have made the module small and easy to install but if you find you need to make modifications to your instrument, drilling a hole for the LED is one example, in order to install this product please take extra care. Audere Audio is not responsible for any damage or modifications you make to your instrument as part of the product installation of the product. See our Limited Warranty for restrictions on liability.

Each product is configured to the customer's order; these are general instructions and apply to most configurations, some portions of it may not be applicable to your particular installation. Refer to the preamp's Wiring Drawing for more specific wiring information. Additional information is available in the Frequently asked Questions (FAQ) page on our website.

We offer a 10 day return period from receipt of the preamp, see our Satisfaction Guarantee for details. We recommend that you follow our instructions and conduct a "test play" to check out the product's performance before completing the installation and before making any modifications to the product or your instrument.

Knobs are not provided with the preamp. All potentiometers are solid shafts so the knobs should have a set screw to secure them. The single potentiometer has a 6mm shaft. Dual potentiometers have an 8mm outer shaft and 6mm inner shaft.

STEP 1: PICKUP CONNECTIONS

The preamp wires used for the pickups are: Green on White (common), Black on White (Bridge or single pickup) and Blue on White (Neck pickup). Refer to the Wiring Drawing for specifics.

If you did not opt for the A/P switch, the preamp wires will come from the module. If your configuration includes an Active/Passive (A/P) switch, the preamp wires for the pickups will come from the A/P switch. With the switch in Active position the signal passes to the module, in Passive position it bypasses the module and goes to the output jack.

- A. Disconnect your pickup wires from the original preamp.
- B. All wire connections must be insulated to prevent shorting and to keep the leads isolated from the output jack and from the cavity ground. Prior to connecting the wires, slide the heat shrink over each pickup wire and the module Green on White wire. These will be reduced over the solder joints later.
- C. For a single pickup system: connect the hot lead from the pickup to the white with black stripe wire which is located at the upper left corner of the module. Connect the pickup "common" lead to the white with green stripe wire.
- D. For a dual pickup system: connect the bridge pickup hot lead to the white with black stripe wire. Connect the neck pickup hot lead to the white with blue stripe wire. Connect both of the pickups "common" leads together and then solder them to the module's white with green stripe wire.
- E. For all systems: Slide the heat shrink from bullet A over the solder connections and shrink with a heat gun or hair dryer (do not over heat and protect other components from the heat). You may prefer postpone shrinking the heat shrink until after the play test - just be sure that the exposed wires do not touch anything that will cause an electrical short.
- F. If your pickups have an additional shield wire, solder it to the output jack ground (center tab) or cavity ground.

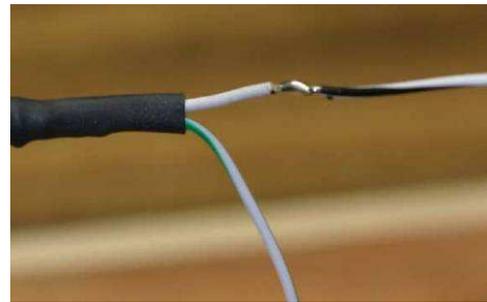
Alternate Temporary Grounding for Play Test:

- A. If you prefer, you can delay the ground wire connections until after the play test. Instead you can temporarily ground the Green and White wire to the cavity just while you conduct the Test Play in the next step. You'll need to complete the ground steps above after completing the testing.

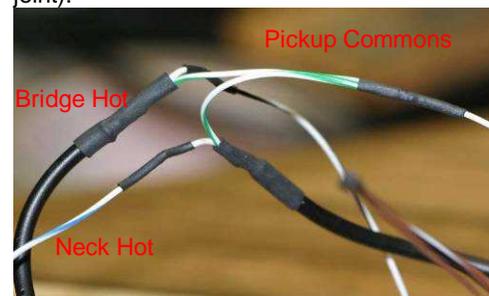
Pickup Connections

Pickups wiring varies widely and may have 2 to 4 wires and may also have a shield. Wiring schemes and color codes vary by manufacturer; check with the pickup manufacturer for their wiring recommendations.

If you have a pickup selector, coil splitting switch, or a series/parallel switch attached to the output of you pickups, you can keep those switches in place (in line before the preamp) and use the output wires from the switch like pickup wires.



Hot pickup wire soldered to Module wire before heat shrink is applied (the heat shrink is out of the photo to the right, it is over the black/white wire and will be slide over the joint).



Two ground common pickup wires (green/white) joined to the module wire. Shown after heat shrink has been applied, it was slide over the module wire before the connection was soldered.

STEP 2: TEST PLAY

To test play the preamp prior to a full installation: tape the preamp to the back of the instrument with low tack tape to hold it in place during testing (test the tape first to be sure it will not hurt the finish when removed).

- A. Connect a battery to the new preamp and insert the guitar cable into the new preamp's jack.
- B. Verify the battery LED lights up on insertion.
- C. You can now do an initial play test.

Note: it will pick up extra noise while it is out of the shielded cavity. Since this is just a test, we have not adjusted the Low Z gain, so the Low Z-Mode may be louder or softer than the other modes. This will be adjusted later.

Also note that touching the temporarily ungrounded pots or switches can cause hum.

It is important to prevent any electrical connections from touching and shorting to each other.

- D. If after playing the preamp in this test mode you are satisfied with the sound, proceed with the installation. If you used the temporary ground connection as described in Step 1, go back to Step 1 and make the permanent wire connections before proceeding.



STEP 3: REMOVE THE OLD PREAMP AND PREPARE THE CAVITY

- A. Remove screws holding the existing output jack plate and remove the jack nut. Set the plate and hardware aside for use with the new output jack.
- B. Pull jack back into the cavity.
- C. Remove the knobs from the pots and then remove the nuts and washers from pots and switches.
- D. Pull out the old preamp circuit.
- E. Determine the location for the module, battery, LED and any additional holes, if required for pots and switches.
- F. Most basses have the cavity shielded with either conductive paint or a foil shield; however some low cost basses do not have a shielded cavity. This is required for quiet operation and for providing a ground connection for the pots and switches. With shielding you don't need to get 100% coverage, but you want to get the best coverage that is reasonably achieved.
- G. It is important that the pots and switches are grounded to the cavity and that the cavity is grounded to the output jack (as described in Step 1). If the pots and switches are not grounded they will buzz when you touch them.
- H. You can see an example of installing a cooper foil shield on the website: www.audereaudio.com/support/documents.

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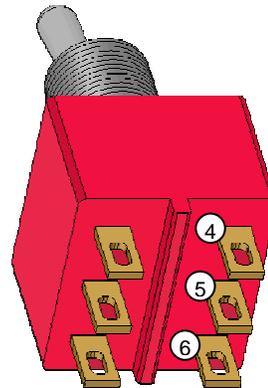
STEP 4: INSTALLING THE SWITCHES

Switch Identification

Z-Mode™ Switch:

- Tabs 1-3, on left side are not used.
- Tab 4) Red on Grey Wire to Module
- Tab 5) Green on Grey Wire to Module
- Tab 6) Blue on Grey Wire to Module

NOTE: We are in the process of changing to a single pole switch; your Z-mode switch may be a single row of tabs.

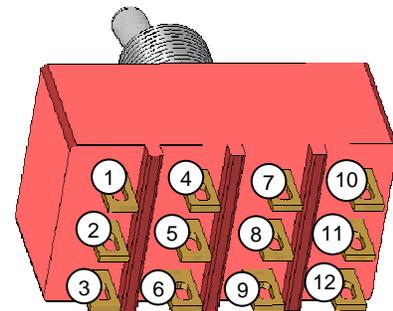


- Toggle direction
- High Z-Mode ↑
- Mid Z-Mode
- Low Z-Mode ↓

Optional Active Passive Switch:

- Tab 1) White Wire to Module
- Tab 2) Yellow on Grey Wire – Audio out
- Tab 3) Shorts to Pin 6 & 9 or White Wire*
- Tab 4) Blue on White wire - For 2nd pickup if present
- Tab 5) Blue on White wire - [Connects to your Neck Pickup Hot Wire](#)
- Tab 6) Shorts to Pin 3* & 9
- Tab 7) Black on White wire
- Tab 8) Black on White wire - [Connects to your Bridge Pickup Hot Wire](#)
- Tab 9) Shorts to Pin 3* & 6
- Tab 10) Green on White Module Wire
- Tab 11) Green on White - [Connects to your Pickup Common Wire](#)
- Tab 12) Grey on White, Jack Ground

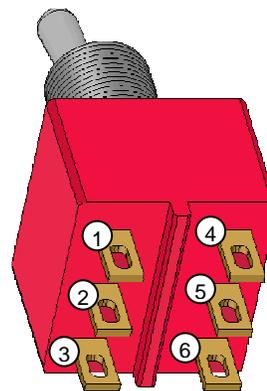
*White wire is for optional True Passive Treble Pot connection



- Toggle direction
- Passive Mode ↑
- Active Mode ↓

Optional Mid Frequency Switch:

- Tab 1) White on Green wire
- Tab 2) Solid Green wire
- Tab 3) Black on Green wire
- Tab 4) Yellow on Green wire
- Tab 5) Orange on Green wire
- Tab 6) Blue on Green wire



- Low Mid Freq ↑
- Center Mid Freq
- High Mid Freq ↓

The switch bushing diameter is 6.1mm and fits in a 6.35mm (0.25") mounting hole. In addition to the standard Bright Nickel hardware, we have included additional decorative hardware, consisting of a Gold plated nut/ washer set and a Black Nickel nut/washer set.

To install a switch, remove any hardware that came on the switch then insert the shaft through the body, use the hardware set of your choice on the exterior side of the cavity; test to be sure the switch is properly oriented then tighten.

Z-Mode Switch

The Z-Mode switch has a High, Mid and Low setting, giving you 3 Impedance (Z) loads to choose from. In addition, the High and Low Z settings have trimmers on the module to give you additional setup flexibility.

- **Capacitance level adjustment for the High Z setting**
You can adjust the capacitance load that is presented to the pickups when using the High Z-Mode switch setting. Changing the capacitance loading changes the shape of the frequency response. The trimmers are located at the top of the module, closest to wires. Each pickup has an independent control. The control is an 11 turn pot without end stops. Turning the control clockwise will increase the capacitance load on the associated pickup. Depending on the frequency range of your amplifier system combined with the characteristics of your pickups, you may have to give the pot multiple turns to get a noticeable difference.
- **Output gain level adjustment for Low Z setting**
One advantage of the Low Z-Mode is its ability to capture the low frequencies more completely. To fully realize this benefit, you may need to make a gain level adjustment. The trimmers for adjusting gain in the Low Z setting are located on the lower edge of the module, on the side away from the wires. This control is also an 11 turn pot. Turning the controls clockwise will increase the gain of the Low Z-Mode. Adjust the gain until you get your desired sound level compared with the Mid Z setting. Too high a setting can introduce distortion.
- With the above adjustments, if after tweaking the adjustments you want to 'start over', just turn the pots 11 times counter clockwise to ensure you are at one end of the adjustment range. Then start turning clockwise, noting that in 11 turns you will be at the opposite end of the adjustment range. The pots do not have hard stops.

Active/Passive Switch

The Active/Passive (A/P) switch allows you to bypass the bass preamp circuit. Switching in the passive switch mode will effectively wire your pickups directly to the output jack. You may experience a volume shift when moving the switch.

In the wiring diagram, switch tabs are identified by holding the switch with the tabs facing you and the plastic dividers between tabs running vertical.

Switch tab numbering starts in 1st column on the left with tabs facing you, top to bottom, then 2nd column, repeat top to bottom...

for example:

3Z Switch		Active/Passive Sw.			
1	4	1	4	7	10
2	5	2	5	8	11
3	6	3	6	9	12



Adjusting the Gain for Low Z-Mode.

STEP 5: POT INSTALLATION

Pot Identification

Tone Pots:

Blue wires = Bass

Grey wires = Mid

Violet wires = Treble if < 4 Band

Violet wires = Mid 2 if 4 Band

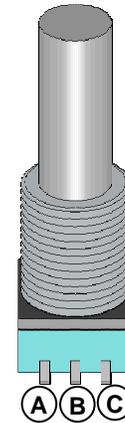
Green wire = Treble if 4 Band

Green wire = Mid Switch if 3 Band

Pin A) Black stripe = Minimum

Pin B) Solid color = Wiper, center

Pin C) White stripe = Maximum



Volume Pot:

Brown wires

Pin A) Black stripe = Minimum

Pin B) Solid color = Wiper, center

Pin C) White stripe = Maximum

Balance Pot:

Orange wires

Pin A) Black stripe = Bridge Max.

Pin B) Solid color = Wiper, center

Pin C) White stripe = Neck Max.

Stacked Volume Pots:

Orange and Yellow wires

Pin A) Short to Pin D

Pin B) Black on Yellow – Bridge

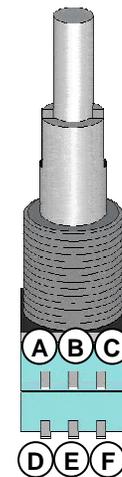
Pin C) Short to Pin F

Pin D) Green on Yellow wire

Pin E) Blue on Yellow - Neck

Pin F) Solid Orange

Top Pot = Outer Shaft, Bottom Knob



Stacked Tone Pots:

Colors are the shown in

Tone pot section above.

Pin A) Black stripe = Minimum

Pin B) Solid color = Wiper, center

Pin C) White stripe = Maximum

Pin E) Black stripe = Minimum

Pin F) Solid color = Wiper, center

Pin G) White stripe = Maximum

Bottom Pot = Inner Shaft, Top Knob

The pots are all 100K ohm with audio taper for volume pots and linear taper for tone and balance pots. Pots turn clockwise for the maximum setting.

Single pots have an M7 bushing which fits in a 7mm mounting hole. Stacked/dual pots have an M9 bushing and fit in a 9mm mounting hole.

- A. **If your existing holes are larger than the single pot shafts:**
An oversized washer has been provided for use in the cavity interior if required. This larger washer goes over the shaft first. Then add the two rubber spacer rings that fit over the shaft; these go up into the standard sized hole to center the pot shaft. If you need to space the pot down, deeper into the cavity, use a panel nut to set the depth.
- B. Check orientation of the control, then secure each pot and switch with a washer and panel nut on the face of the bass.
- C. The noise grounding for the knobs is obtained by contact with the cavity shielding, as described previously. Do not attempt to solder to the pot's metal bushing, it will not accept a solder connection. You can insert a thin grounding tab washer in between the case and pot if desired but if the cavity is properly grounded this should not be required.



Photo shows the metal spacer washer with two spacer rings on a potentiometer.

STEP 6: JACK AND BATTERY INSTALLATION

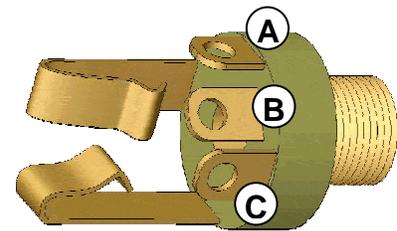
Output Jack

Tab A) Jack Audio Out , Positive - Solid White wire

Tab B) Jack Ground - center tab: 3 Grey on White wires.

The loose Grey/White wire Connects to your Cavity Ground.

Tab C) Jack Negative - Solid Black Wire



- A. Replace your existing output jack with the jack that is attached to the product, using your original hardware.
- B. Be aware that when the cable to the amplifier is partially inserted into the jack, the center connector gets the full battery voltage. This is the most common jack used with active basses and this aspect of their use is well known.

Install the output jack. Secure the jack plate with the original hardware or with the hardware provided on the jack. Set the depth of the jack using an internal panel nut, if required. Reinstall the plate with the original screws.

WARNING: it is a good idea to pull the cable connector from your amp before inserting the cable into the bass to avoid a loud pop. The pop, depending on your amplifier system, could be extremely loud and might cause damage to your speakers or potentially your hearing.

Battery Snap

The Red wire is the positive and Black is negative.

The Black stripe on Red wire ties into the circuit at 9 volts.

For 9V: The Red/Black wire ties into the Red positive connection.

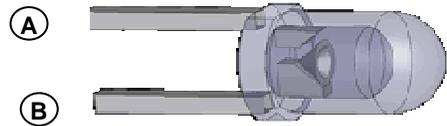
For 18V: The Red/Black wire is a center tap between the two batteries, which is at 9V. See the illustration to the right for 18V systems.



STEP 7: LED BATTERY INDICATOR INSTALLATION

Battery LED

Lead A) Flat side of LED - Blue wire to Module
 Lead B) Positive side, ties into Power – Red and Black wire to Module



LED Flash Pattern

When your amplifier cable connector is inserted into the output jack, the negative side of the battery is connected to ground and the circuit is powered up. The blue LED will flash in one of two patterns to indicate the battery strength.

The first pattern indicates a useable battery level; the sequence is 3 flashes: bright flash, intensity modulated flash, bright flash. Each flash lasts for about 1 second; the center flash represents your battery strength.

If you reach a dangerously low battery level, the LED will flash bright at a rate of about 1/2 second for 5 seconds, indicating you need to change the battery as soon as possible.

If you have an 18 volt system: the 2nd flash in the sequence (bright flash, intensity modulated flash, bright flash) will be at the maximum brightness until your pair of batteries drops to about 9.2 volts. If you are running the 18 volt system to get more signal head room then it is recommended that you replace the battery when the center flash first dims. If you are using the 18 volt system to get extra long battery life then continue using the system until the fast flash sequence starts.

Installation

The LED's diameter is 3mm. You can drill a 3mm hole and insert the led into the hole at any convent location. Normally an LED will simply press-fit and stay with a hole drilled in wood if the drill size is accurate. If the hole is drilled in plastic or the led will not stay in the hole as drilled a small drop of fast setting glue will secure the mount. See our website to see some of the common mounting locations other users have chosen.

We recommend that you fully test the product and ensure you are satisfied with its performance before you elect to make irreversible alterations to your instrument.

Off - prior to Jack insertion and after Flash sequence



1st Flash
 At Full intensity for comparison



2nd Flash
 Shows Actual battery strength

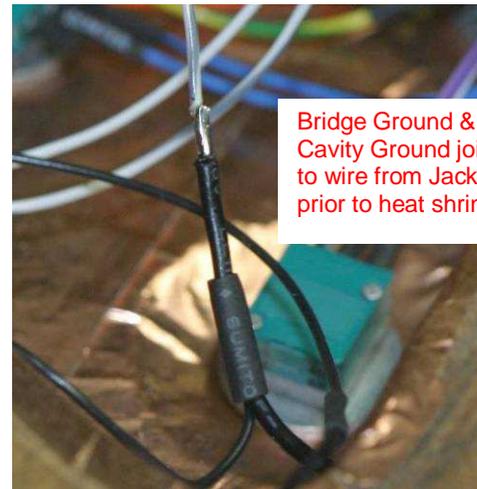


3rd Flash
 At Full intensity for comparison



STEP 9: FINAL STEPS TO FINISH INSTALLATION

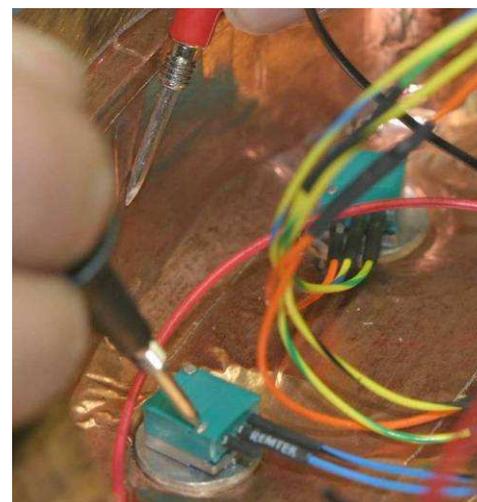
- A. The shielded cavity and bridge ground wires need to be grounded the output jack center tab. The output jack has an extra unattached ground wire for this use. Slide heat shrink over the Grey/White wire, then solder this wire to the Bridge and cavity ground wires. Slide the heat shrink over the solder joint and shrink it.
- B. The pickup Common is not the same as a ground wire. The Common wire should NOT be connected to the Output Jack nor to the cavity ground. The pickup common only connects to the module white with green stripe wire as explained previously.
- C. Apply one of the adhesive pads to the base of module; removing the first liner, press into place, then remove 2nd liner and press the module into position in the cavity.
- D. Press the LED into a prepared hole (3mm diameter), secure with instant adhesive.
- E. Install the battery.
- F. If you have an Ohm meter, test the ground connection from the Pot metal to the cavity shielding.
- G. Install door and attach your Knobs. Check Battery LED operation.



Bridge Ground & Cavity Ground joined to wire from Jack prior to heat shrinking

Jack Common – Grey on /White

Bridge & Cavity GND go to Jack GND



Checking Ground Connection