

# ----- BitMo™ 10-uator™ Box-----

The **BITMO 10-UATOR** gives you control of the speaker volume so you can get great cranked tube tone at studio or bedroom levels. It also includes a variable level, speaker-voiced line output so you can plug directly into a mixer for recording or live performance, or you can use the whole amp as a pre-amp into a bigger guitar amp. The 10 watt version **BITMO 10-UATOR** will work with the **Epiphone Valve Junior**, **Blackheart BH5H**, **Fender Champ**, **Vox AC4** and other low wattage single ended amps. The 30 watt version will work with the **Fender Deluxe**, **Princeton**, **Vox AC15**, **Marshall 18 Watt** and other low/medium wattage amps.

The level of the line output can be varied from low, so it can be used as input into guitar amps and effects, up to higher line-level inputs of mixers, power amps and computer sound cards. Try running 2 amps in stereo with effects inserted between the **10-UATOR** and the 2<sup>nd</sup> amp - sweet!

## Component Parts List

- R1 power resistor 10 ohm
- R2 step down resistor 10k
- C1 line out voicing cap .1  $\mu$ F
- C2 47  $\mu$ F attenuator voicing cap
- 3 mono  $\frac{1}{4}$ " phone jacks
- Line level pot - 10k
- Wire - two colors
- 2 Knobs
- 4 Self-stick rubber feet
- L-PAD 8 $\Omega$
- Mounting nuts and washers
- Box and label

## Assembly

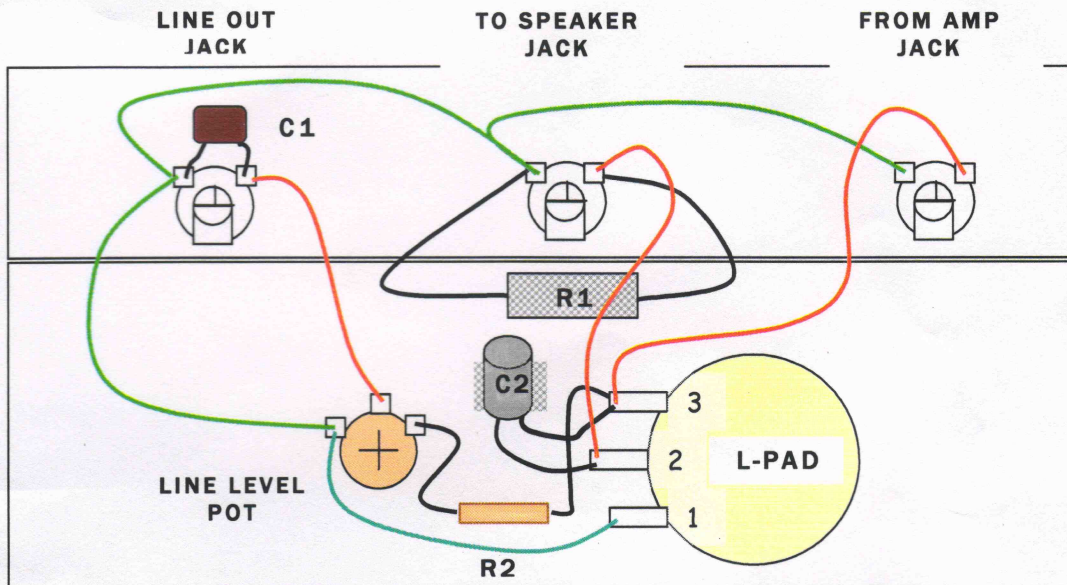
Please read all instructions before beginning assembly.

Tools you will need - screwdriver, soldering iron, solder, wire stripper, needle nosed pliers, (drill & 3/8" bit).

- If the label is not mounted, peel the back and stick the label on the top of the box. Be careful to center it properly - it is difficult to re-position.
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- Drill 2 holes (all holes are 3/8") where indicated on the label.
- Drill 3 holes on the back side for the jacks. These should be centered top to bottom and over the slots on the inside of the box. Drill ventilation holes on the other sides of the box (*and if you have a black box, at least 4 holes on the bottom plate. The gray box version does not use a bottom plate - the bottom is open for ventilation*)

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# BitMo™ 10-uator™ Box



Looking from the back/inside of the box

## Wiring Instructions

- ❑ Bend or break the nib on the small 10k pot so it will sit flat when mounted. Install the large L-PAD and the line level pot on the top of the box. Looking at the front, the L-PAD will be on the left, and the 3 jacks will be mounted on the back. Orient the components as in the diagram and tighten the nuts.
- ❑ Turn the L-PAD and the pot all the way down (counter-clockwise) before soldering.
- ❑ Run **ground** wires between all components. These are **green** in the diagram. The wire may be green or black. Ground goes on the sleeve lug on all jacks, lug marked 1 on the L-PAD, and the pot as indicated.
- ❑ When practical, for multiple connections to the same point, it is best to make all the connections before soldering. Use minimum heat necessary so you don't "burn" the pots.
- ❑ Run a **red** signal wire from the tip lug of the **FROM AMP** jack to L-PAD lug 3.
- ❑ Run a **red** signal wire from the tip lug of the **TO SPEAKER** jack to L-PAD lug 2 (center).
- ❑ Run a **red** signal wire from the tip lug of **LINE OUT** jack to the center lug of **LINE LEVEL** pot.
- ❑ **R1** large square power resistor goes between the ground lug and the sleeve lug of the **TO SPEAKER** jack. Position this so it does not contact the box or any other components. It can get hot and needs "air".
- ❑ **R2** small 10k resistor goes between L-PAD lug 3 and the upper right of the **LINE LEVEL** pot.
- ❑ **C1** brown .1  $\mu$ F capacitor goes between the tip and sleeve lugs of the **LINE OUT** jack. Make sure it is positioned so it is not in the way when a plug is inserted.
- ❑ **C2** 47  $\mu$ F non-polar electrolytic capacitor (may be axial or radial) goes between lugs 2 and 3 of the L-PAD.
- ❑ Recheck the routing and solder all connections.
- ❑ Put the knobs on the shafts of the L-pad and line level pot and tighten the set screws.
- ❑ **Test that the 10-uator works properly before you close it up (see below for operation).**
- ❑ *(If you have a black box, screw on the bottom plate and stick on the 4 rubber feet. The gray box version does not use a bottom plate - the bottom is open for ventilation. The rubber feet go on the screw posts.)*

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## Operation and Additional Hints

Always use the 8 ohm speaker output from the amp if you can. The 10-uator can be used with 4, 8 and 16 ohm speakers.

Use a short speaker cable from the amp to the input of the **10-UATOR FROM AMP** jack. Plug a cable from the **TO SPEAKER** jack to the speaker.

If no speaker is plugged into the **speaker out** jack, the power resistor acts as dummy load. It is OK to run the **10-UATOR** without a speaker but you should set the attenuation control in the middle so the load is shared between the L-Pad and the power resistor. Never run a tube amp without a speaker or a load like the **10-UATOR**.

The level of the **line output** can be varied from low, so it can be used as input into guitar amps and effects, up to higher line-level inputs of mixers, power amps and computer sound cards. You should use a shielded guitar cable for this connection. Try running 2 amps in stereo with effects inserted between the **10-UATOR** and the 2<sup>nd</sup> amp - sweet!

Even though the **10-UATOR** has a frequency compensation cap, like all passive attenuators, you will eventually lose some tone as you turn it nearly all the way down. A speaker will not sound the same being driven by 1/4 watt as it does at 15 watts. Sorry, but it is physics and psychoacoustics.

You may notice that the 1<sup>st</sup> third of the range of the attenuator knob has the most effect on lowering the volume and can get "jumpy" at very low settings. This is normal. This is because L-pads have a linear, not logarithmic taper, and because of the compensating effect of the voicing cap which passes more highs lower volumes.

The heat generated by the L-pad and power resistors needs to be dissipated. Make sure there is good ventilation and the more holes the better. I do not recommend using very high amp volume along with high attenuation (speaker volume more than three quarters of the way down) for extended periods. It can overheat. It is better to unplug the speaker from the **speaker out** jack, set the attenuation knob in the middle and run the signal into another amp or mixer. If you are gigging, I recommend using the 30 watt version even with an EVJ or similar low wattage amp.

*Your spouse, neighbors and I thank you for this purchase.*

*Save your ears and enjoy!*