

Delptronics Ring Modulator Kit

Assembly Instructions

Introduction: For ease of assembly, we recommend that the shorter parts be inserted and soldered first, that is the order that the parts are listed below. The printed circuit board has an outline for every part, but not every outline is labeled. For clarification, please refer to the photograph of the finished kit. If this is the first electronic kit you have assembled, please read the soldering tutorial first.

4 Diodes: The four identical germanium diodes look like little glass tubes with a green or black stripe on them. Diodes are polarized, so the direction that they are inserted into the circuit board is important. The negative lead (wire) of the diode is on the side marked with the stripe. The negative lead on the circuit board is also marked with a stripe. The leads need to be bent close to the body of the diode. Hold the diode body and press down on each lead right at the body to make a U shape.

3 Resistors: There are two 1K resistors (marked with brown, black, black, brown, brown stripes) and one 10K resistor (marked with brown, black, black, red, brown stripes). Resistors can be inserted in either direction. The leads need to be bent close to the body of the resistor. Hold the resistor body and press down on each lead right at the body to make a U shape.

2 Ceramic Capacitors: The ceramic capacitors look like little blue blobs. They can be inserted in either direction. The two ceramic capacitors look very similar, so please check the marking on the capacitor. The 1 μF is marked with the number 105 and the 0.47 μF capacitor is marked with the number 474.

1 Electrolytic Capacitor: The 4.7 μF electrolytic capacitor looks like a little black and gray tin can. Electrolytic capacitors are polarized, so the direction that it is inserted into the circuit board is important. The negative lead on the capacitor is shorter and is marked with a gray stripe on its body. The positive hole on the circuit board is marked with a plus sign.

1 Chip: The 555 timer chip looks like a tiny black box with eight short wire legs. Make sure that the notch on the top of the chip lines up with the notch on the circuit board outline.

1 Switch: The switch can only be inserted one way. Make sure that it is seated flush against the circuit board, especially if you intend to mount the Ring Modulator in a panel or enclosure. You may want to tape it down while you solder it.

3 Jacks: The jacks snap into place and will stay still while you solder them. Even so, make sure that they are flush against the circuit board. There are outlines on the board for both 1/4 inch and 1/8 inch jacks.

2 Transformers: The transformers have a primary and a secondary side, so the direction that it is inserted into the circuit board is important. The primary side is marked on the transformers with a "P". You will also notice that, on top of the transformer, the primary side is white, while the secondary side is gray. The primary side is marked on the circuit board with a white dot. Insert the six wires of each transformer into the corresponding holes, then press the two tabs into the mounting holes. Apply gentle steady pressure until the transformer tabs squish into the holes. Solder the six leads. The tabs can be folded over on the underside of the board if you like, and they do not need to be soldered.

2 Potentiometers: The two 100K potentiometers are inserted with the shaft facing away from the circuit board. Make sure that they are seated flush against the circuit board, particularly side-to-side. You may want to tape them down while you solder them since they do not snap into the board.

1 Battery Connector: The pads for the battery connector wires are marked on the circuit board with "V+" and "GND". The red wire is positive and the black wire is negative (ground).

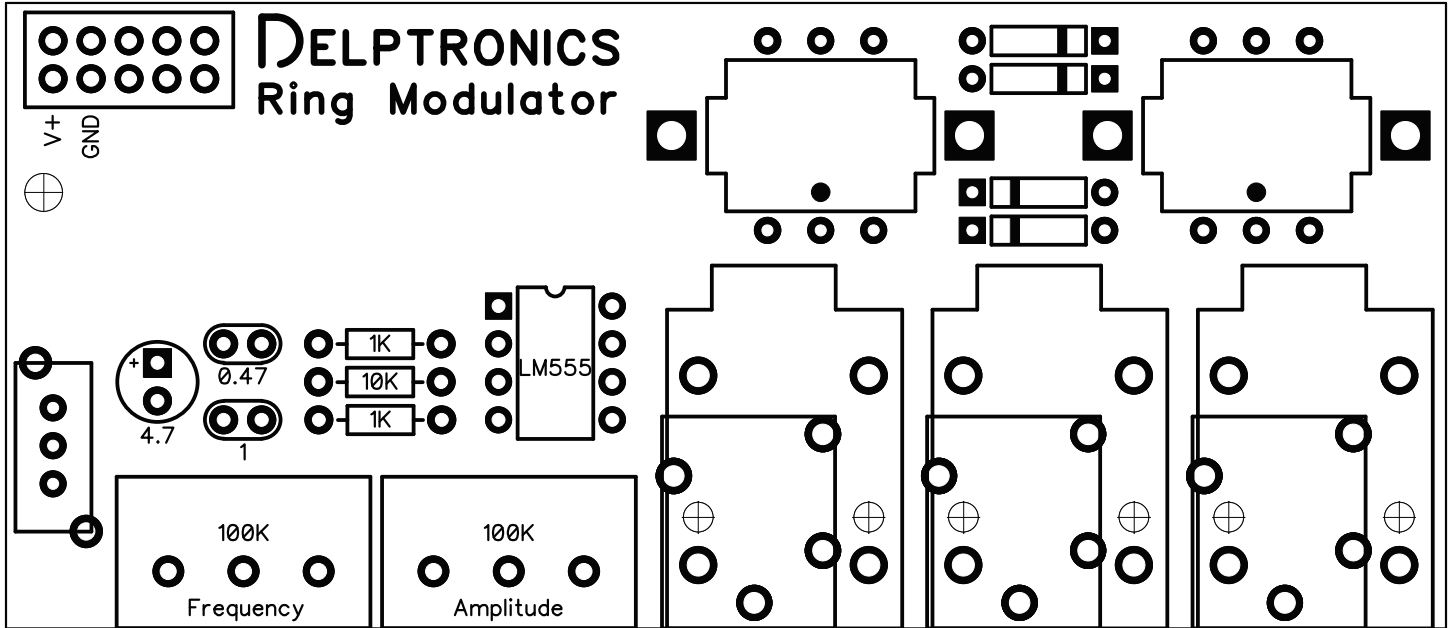
To help prevent the wires from accidentally getting pulled out of the board, there is a strain relief hole. The battery connector wires are first threaded up (or down) through the hole next to the battery pads, arched over, then soldered in place. This keeps the battery wires from getting accidentally pulled out of the board. The wires fit tightly, so it may help to crimp the insulation on the wires before pushing them through the strain relief hole.

If you intend to rack-mount the Ring Modulator, you can use the rack's power bus instead of a 9V battery. The Ring Modulator (technically the internal oscillator) works equally well with 9, 12 or 15 volts. The power connection on the board is a 10-pin Doepfer-style power header common in Eurorack standard modules.

Hardware: The kit also includes various hardware including: 1 switch cap, 2 potentiometer knobs, 3 nuts for the jacks and 2 nuts and 2 washers for the potentiometers.

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Circuit Board



Assembled Kit

