

Microphone Preamp Kit v1.1

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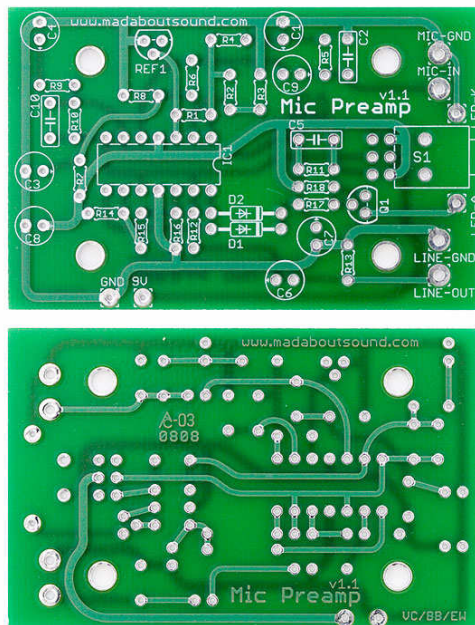
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This microphone preamplifier kit will amplify the signal from an inexpensive but accurate microphone electret, such as the Panasonic WM-61A, to line level for use with computer soundcards.

It can be used to measure and test loudspeakers for distortion and frequency response and has two gain settings and a clipping detector.

The design is based on Eric Wallin's Mic Preamp v2. Thanks also to Brian Bell for the first layout on which this is based. This v1.1 PCB includes v1.0 fixes.



Component List

PCB	V1.1 PCB
R1	15k
R2	22k
R3, R6	33k
R4	1k
R5, R9, R11	3.3K
R7, R8, R13, R15	100K
R10	68K
R12	100 Ohm
R14, R16	47k
R17	10k
R18	470 Ohm
C1, C8	100uf 16v
C2	100pf NPO
C3, C6	10uf 50v
C4	47uf 16v
C5	330pf NPO
C7	1uf 50v
C9	10uf 16v Bipolar
C10	5pf NPO
IC1	LM6134BIN
IC1 Socket	14 pin socket
Q1	2N3904
REF1	LM4040 2.5v precision reference
D1, D2	1N914
S1	DPDT centre-off mini toggle
MIC IN, LINE OUT	Gold plated RCA jacks
Battery Strap	
PCB screws x4	
LED	3mm Red LED
Enclosure	

Tools Required:

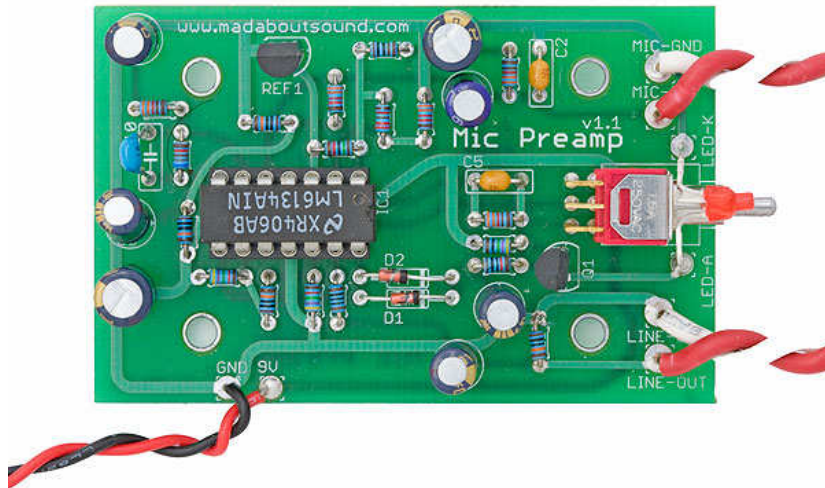
- Soldering Iron/Solder
- Multimeter
- Drill

Other required items:

- Wire
- 9v Battery

PCB Loading Instructions

1. Begin by identifying the resistors using a multimeter.
2. Begin by soldering the lowest profile component, the resistors, to the PCB using the component list.
3. Next solder the low profile capacitors followed by Q1, REF1 and the 14 pin socket.
4. Now solder the remaining electrolytic capacitors paying attention to the polarity. C9 is bipolar (bright shiny blue capacitor) and can be inserted in either way.
5. Solder the switch, battery strap and wires into MIC IN/GND and LINE OUT/GND. Twist wire pairs together to keep them neat.
6. Solder the LED which sits over the switch. The longer leg is the anode (LED-A).
7. Firmly push the LM6134 IC into the socket making sure of the correct orientation (as shown below).



Enclosure

1. Fasten the finished PCB to the enclosure using the supplied screws, being careful not to over-tighten.
2. Download the template document from the website. Print and cut out each of the images.
3. Attach the first image to the front plate then drill the holes for the switch and LED where marked.
4. Drill two 6mm holes in the case lid from the underside, going right through the two long standoffs nearest the front panel end. Then glue the second image to the top of the case (cut out the holes). Alternatively glue the image first then drill where the holes are marked.
5. Finish by inserting the RCA sockets and soldering the wires from the PCB.



Usage

- Connect the line out RCA socket to the line in of a soundcard, and a suitable microphone electret to the mic in rca socket.
- Moving the switch to the left or right will switch the preamp ON (LED will light briefly), to either a gain of 2 or 20 depending on which side the switch is flicked. Resetting the switch to centre switches the amp OFF.
- The LED indicator will light when signal clipping is detected.



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Document History:

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|-----|------------|---------------------------------------|
| 1.1 | 11/06/2008 | Picture updates |
| 1.2 | 18/06/2008 | LED anode and cathode wiring updated. |