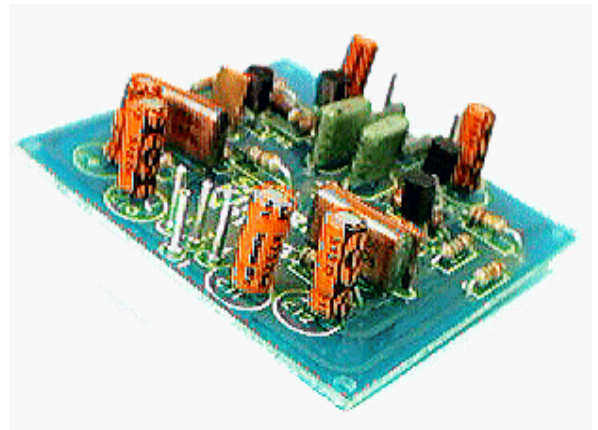


QUASAR ELECTRONICS PRODUCT No. 1023

DYNAMIC HEAD PREAMPLIFIER

General Description

This STEREO preamplifier has been specially designed for dynamic PU heads. As you most probably know the signal from a dynamic head must be equalised following the RIAA standard curve before it is sent to the amplifier. This is necessary because all records today are recorded according to this standard and as the information on the record has the higher frequencies boosted it must be restored to its original shape before we hear it. It is a relatively simple project to build but its performance is Hi-Fi leaving nothing to be desired.



Technical Specifications – Characteristics

Input Sensitivity: 2-5 mV
Input impedance: 47 K ohm
Frequency response: ... 20 Hz-20 KHz
Output voltage:150mV
Supply voltage: 18-25 VDC

How it Works

The circuit consists of two transistor stages with a feedback loop from the collector of the second transistor back to the emitter of the first which is a specially designed R-C network and it controls the frequency response of the circuit according to the RIAA standards. The power supply of the circuit is connected to points 1 and 2 of the PCB and can be anything from 18 to 25 VDC. The inputs are 5 and 6 for one channel and 7 and 8 for the other. The outputs are 3 and 2 and 4 and 2 respectively. (The point 2 is common to both channels.)

Construction

First of all let us consider a few basics in building electronic circuits on a printed circuit board. The board is made of a thin insulating material clad with a thin layer of conductive copper that is shaped in such a way as to form the necessary conductors between the various components of the circuit. The use of a properly designed printed circuit board is very desirable as it speeds construction up considerably and reduces the possibility of making errors. Quasar Electronics Kit boards also come pre-drilled and with the outline of the components and their identification printed on the component side to make construction easier. To protect the board during storage from oxidation and assure it gets to you in perfect

condition the copper is tinned during manufacturing and covered with a special varnish that protects it from getting oxidised and makes soldering easier. Soldering the components to the board is the only way to build your circuit and from the way you do it depends greatly your success or failure. This work is not very difficult and if you stick to a few rules you should have no problems. The soldering iron that you use must be light and its power should not exceed the 25 Watts. The tip should be fine and must be kept clean at all times. For this purpose come very handy specially made sponges that are kept wet and from time to time you can wipe the hot tip on them to remove all the residues that tend to accumulate on it.

DO NOT file or sandpaper a dirty or worn out tip. If the tip cannot be cleaned, replace it.

There are many different types of solder in the market and you should choose a good quality one that contains the necessary flux in its core, to assure a perfect joint every time. DO NOT use soldering flux apart from that which is already included in your solder. Too much flux can cause many problems and is one of the main causes of circuit malfunction. If nevertheless you have to use extra flux, as it is the case when you have to tin copper wires, clean it very thoroughly after you finish your work. In order to solder a component correctly you should do the following:

Clean the component leads with a small piece of emery paper.

Bend them at the correct distance from the component body and insert the component in its place on the board.

You may find sometimes a component with heavier gauge leads than usual, that are too thick to enter in the holes of the p.c. board. In this case use a mini drill to increase the diameter of the holes slightly.

Do not make the holes too large as this is going to make soldering difficult afterwards.

Take the hot iron and place its tip on the component lead while holding the end of the solder wire at the point where the lead emerges from the board. The iron tip must touch the lead slightly above the p.c. board.

When the solder starts to melt and flow wait till it covers evenly the area around the hole and the flux boils and gets out from underneath the solder. The whole operation should not take more than 5 seconds. Remove the iron and leave the solder to cool naturally without blowing on it or moving the component. If everything was done properly the surface of the joint must have a bright metallic finish and its edges should be smoothly ended on the component lead and the board track. If the solder looks dull, cracked, or has the shape of a blob then you have made a dry joint and you should remove the solder (with a pump, or a solder wick) and redo it.

Take care not to overheat the tracks as it is very easy to lift them from the board and break them.

When you are soldering a sensitive component it is good practice to hold the lead from the component side of the board with a pair of long-nose pliers to divert any heat that could possibly damage the component.

Make sure that you do not use more solder than it is necessary as you are running the risk of short-circuiting adjacent tracks on the board, especially if they are very close together.

After you had finished your work cut off the excess of the component leads and clean the board thoroughly with a suitable solvent to remove all flux residues that still remain on it.

NOTE THAT THE SECOND NUMBER AFTER THE DASH BESIDES THE COMPONENTS IS FOR THE OTHER CHANNEL WHICH IS NOT SHOWN IN THE DIAGRAM AND IS IDENTICAL TO THIS.

As with all electronic projects start building the circuit from the components that are less sensitive to heat and proceed to the more delicate ones. Solder first of all the pins in their

places, continue with the resistors and the capacitors taking care not to insert any electrolytic the wrong way round. Finally insert the transistors and solder them carefully because they can be damaged if they are overheated. When you finish everything clean the board from any flux residues that may have accumulated on its surface, using shielded cable connect your P.U. to the inputs and an amplifier (the AUX input) to the output of the circuit. Connect the circuit to a suitable power supply and the sound from the record should come out of the speakers clear and undistorted.

Adjustments

This kit does not need any adjustments, if you follow the building instructions.

Warning

Quasar Electronics kits are sold as stand alone training kits.
If they are used as part of a larger assembly and any damage is caused, our company bears no responsibility.

While using electrical parts, handle power supply and equipment with great care, following safety standards as described by international specs and regulations.

If it does not work

Check your work for possible dry joints, bridges across adjacent tracks or soldering flux residues that usually cause problems.

Check again all the external connections to and from the circuit to see if there is a mistake there.

See that there are no components missing or inserted in the wrong places.

Make sure that all the polarised components have been soldered the right way round.

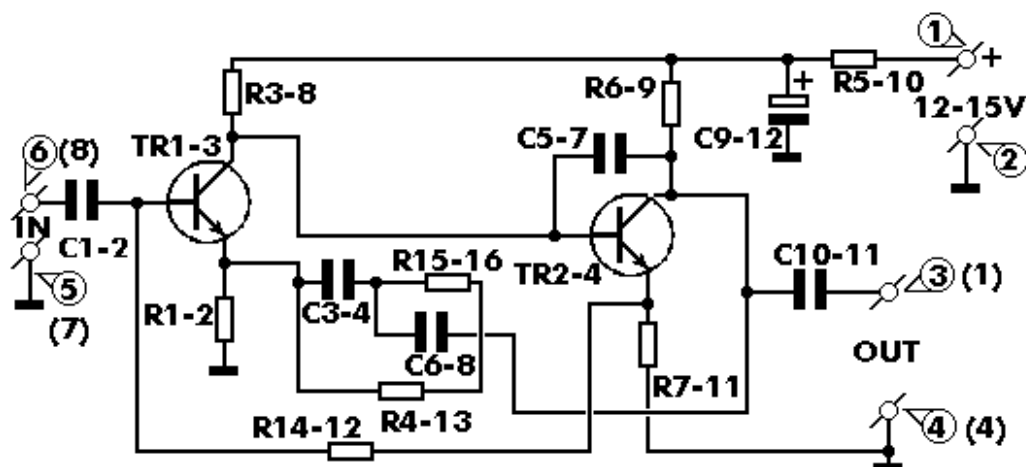
Make sure the supply has the correct voltage and is connected the right way round to your circuit.

Check your project for faulty or damaged components.

If your project still fails to work, please contact us for information about our Get-You-Going service.

Schematic Diagram

(Please note that the diagram supply voltage is incorrect and should read 18-25VDC)



Parts List

All components including printed circuit board, assembly instructions including schematics and detailed parts list are supplied when you purchase the kit.

Ordering

For pricing info and online ordering please visit:

<http://www.quasarelectronics.com/1023.htm>

For further info please contact us by e-mail:

[mailto: sales@QuasarElectronics.com](mailto:sales@QuasarElectronics.com)

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