

Switchable IF FILTER ADDER PCB™ Instructions

The switchable IF FILTER ADDER PCB™ is easy to install. The 3 pin socket solders in place of the ceramic filter being taken out. You can use any bandwidth of filter with this PCB. The most common application is for a dual bandwidth approach. In this case the input filter (left socket side) would be a wider bandwidth part such as a 280 kHz filter, and the two right hand sockets would use narrower parts such as 150 kHz filters.

INSTALLATION

The instructions for the PCB assume that you have a skill level and the proper tools to install this PCB in modern hi-fi equipment. The PCB does not need any tuning to operate. Optimal stereo separation and getting the lowest distortion figures require checking the alignment of the unit when the installation is complete.

First disconnect power from the unit you are going to modify. Remove the ceramic filter you want to replace by unsoldering it. Check for the direction of the signal flow. The input pin on the PCB is on the left (with the PCB facing you), the output pin is on the right side. Solder the PCB in place. Locate a DC supply point of +11 to +15 VDC, that will provide as much as 13 mA of supply current. The red wire on the PCB is the power supply lead. Solder it in place at the DC connection point.

The ON/OFF function of the PCB is controlled by the green wire attached to the PCB. When the wire is not connected, the PCB is in the bypass mode which routes the signal through the first ceramic filter and back out to the right output pin.

When the green wire is grounded, this activates a diode matrix that routes the signal from the output of the first ceramic filter through the FET amplifier and two remaining filter positions. To control the PCB find a switch closure to ground, or install a new switch somewhere on the unit.

Install the ceramic filters into the PCB. The WIDE or bypass filter is the left hand side. The NARROW or ON filters are the two right filter positions. Make sure all three pins of the ceramic filters are in the sockets. The filters are bi-directional, so placement of the filters where there is no alignment equipment is by experimentation.

OPERATION

The PCB in the bypass mode has about 0.5 dB of loss above the loss of the ceramic filter selected for the first (or wide) position. In operate the total net input to output gain is about 1 to 2 dB more than the loss of the first ceramic filter used (i.e. if the input filter loss is -6 dB, the average net loss from input to output in the ON mode would be about -4.5 dB).

If you want more gain out of the PCB it is possible to use it with one of the output filters removed. It is recommended that the last filter position (right side lower) be the one that is bypassed. The input to output pins may be connected with a wire or you can use a 01 uF capacitor with short leads. There is a DC voltage present at the input to the second ceramic filter and the output of the third ceramic filter. DC grounding of either point will cause the PCB not to work.

HOW TO MAKE A THREE IF BANDWIDTH TUNER USING TWO PCB'S

If you are converting a single IF bandwidth tuner into a two band tuner, you have the option of adding a third bandwidth by adding a PCB in a second ceramic filter position. By using different bandwidth ceramic filters you can customize and control the IF bandwidth of your tuner.

Let's take an example of a tuner that has three ceramic filters in the IF strip. To modify the tuner for multiple bandwidths, you would install a PCB in the second ceramic filter position and use for example a 280 kHz filter for the wide position, and two 230 kHz filters for the narrow (or ON) positions.

You would then install a second PCB in the third ceramic filter position. In this PCB you would install a 280 kHz in the wide filter socket and let's say two 150 kHz filters in the narrow or ON positions.

You would switch PCB number one on to get your middle bandwidth. You would then switch on the second PCB to get your most narrow IF bandwidth.

TROUBLESHOOTING

The most common problems found in installing the PCB are solder shorts on the main PCB, installing the PCB backwards (will operate in the OFF mode, but not the ON), and a DC supply feed point that is always available. Check to make sure that all three pins of each ceramic filter are properly socketed.

For more information contact:

William Ammons
10602 S 43rd Place
Phoenix AZ 85044-1310

Email: ammonsphx@earthlink.net

PCB BLOCK DIAGRAM

