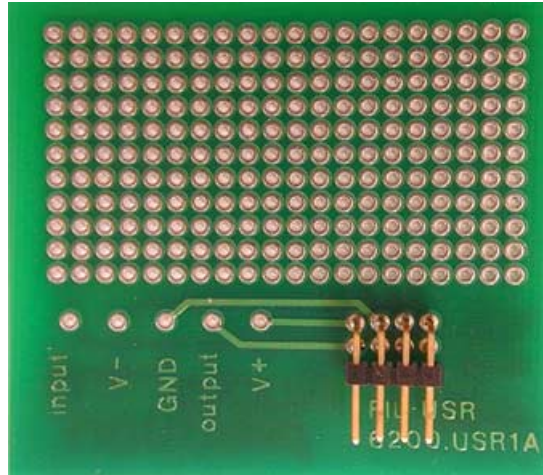


FIL-USR INSTRUCTIONS



General

The FIL-USR option consists of a small circuit board and connector allowing construction of custom passive or active filters for use with Audio Precision instruments. Please read all instructions carefully to prevent possible damage or performance degradation to your instrument.

Design Considerations

All components must be mounted on the connector side of the circuit board within the area provided. Maximum recommended component height is 0.4 inch (1.0 cm). The pin assignments are shown on the back of this page.

The dc supplies are approximately 6.5 Volts in System One and System Two, and 15 Volts in the Portable One family. Supply current must not exceed 20 mA per filter board. The power supplies should be bypassed with 0.1 μ F/25 V ceramic caps or equivalent on the filter board.

The maximum ac signal level presented to the filter input is approximately 350 mV peak in System One and System Two, and 3.5 V peak in Portable One. The signal may contain a dc offset up to 20 mV. The filter's input impedance should be at least 2 k Ω to prevent loading problems. Output dc offset must be \leq 20 mV or ac coupled with a 100 k Ω maximum dc return path to ground.

The nominal filter gain expected is 0 dB with detector accuracy optimized for a relative response window of + 2 dB to -40 dB. Please consider that the system's autoranging is based upon the peak level of the raw unfiltered signal. Therefore, filter response in excess of +2 dB may cause overloading or saturation of the subsequent detector stages with pure signal tones.

Choose the filter topology and impedance level wisely to minimize capacitor physical size, sensitivity, and noise. Mica or NPO ceramic dielectric capacitors are generally recommended for the smaller values. Polycarbonate, polypropylene, or polystyrene dielectric capacitors are recommended for larger values.

Polyester (mylar), non-NPO ceramic, and tantalum capacitors generally have worse tolerance, greater temperature coefficients and drift, and can exhibit unexpected frequency dependent effects.

Installation

Caution - for qualified service personnel only!

1. Disconnect the ac power cord and remove the protective covers from the instrument.
2. Insert the FIL-USR into the selected option filter socket. Be sure to follow good static control procedures to avoid accidental damage or performance degradation.

NOTE: It is normal for the filter board(s) to feel somewhat loose when installed. A compressible foam rubber strip mounted to the underside of the top cover provides the necessary restraint.

3. Make certain that the filter card is fully inserted and that there are no physical interference problems before reassembling. Reassemble.

Trouble?

Double check your wiring of the circuit board and socket interconnection. If you still have problems please call, fax, or email Audio Precision Technical Support .

Pin 1	+ DC power supply
Pin 2	Output from filter
Pin 3	GND
Pin 4	GND
Pin 5	no connection
Pin 6	no connection
Pin 7	-DC power supply
Pin 8	Input to filter

Top view of filter socket

