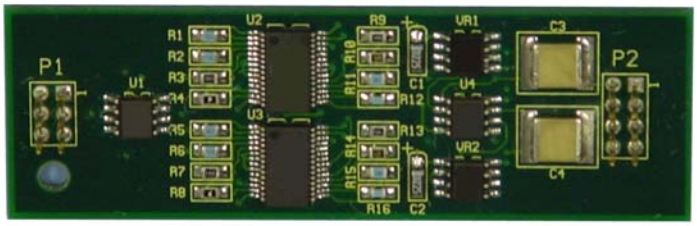
AAF-HP

Programmable, 2-Channel High-Pass Filter Module

Compatible with the AAF-3 and AAF-3PCI multi-channel amplifier/filter control boards

- **Compatible with AAF-3 and AAF-3PCI motherboards**
- **8-pole psudo-elliptic hi-pass filter**
- **Software-selectable cutoff frequencies 1 Hz to 10 kHz**
- **Set band-pass filters on AAF-3 and AAF-3PCI with maximum bandwidth of 200:1 high pass to low pass Fc**
- **±10V input and output**



The AAF-HP can be used with the low pass filters on the AAF-3 and AAF-3PCI Filter Board to create a programmable bandpass filter.

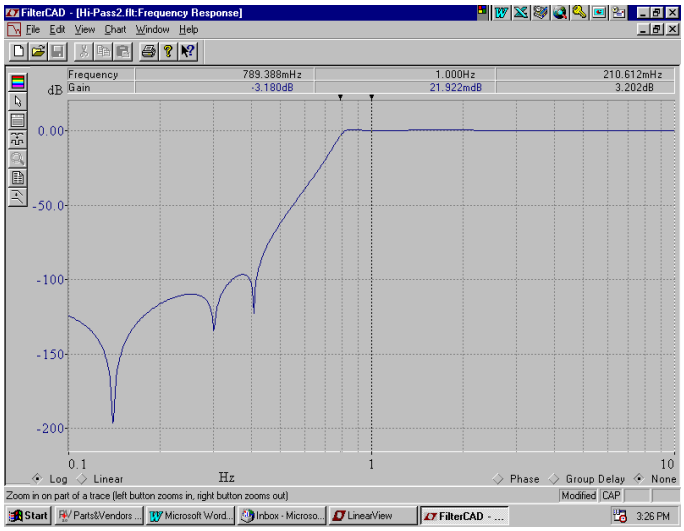
The AAF-HP series provides 2 programmable channels of hi-pass filtering on a plug-in module that is pin compatible with the popular AAF-1F, AAF-2F, and AAF-3F modules

The hi-pass filter is an 8-pole pseudo-elliptic which has been optimized for minimum pass-band ripple of ± 0.5 dB. The stop-band attenuation is of 100 dB typical.

The cutoff frequency of each 2-channel pair of filters can be set with an external clock or programmed for a range of frequencies from below 1Hz to 10kHz

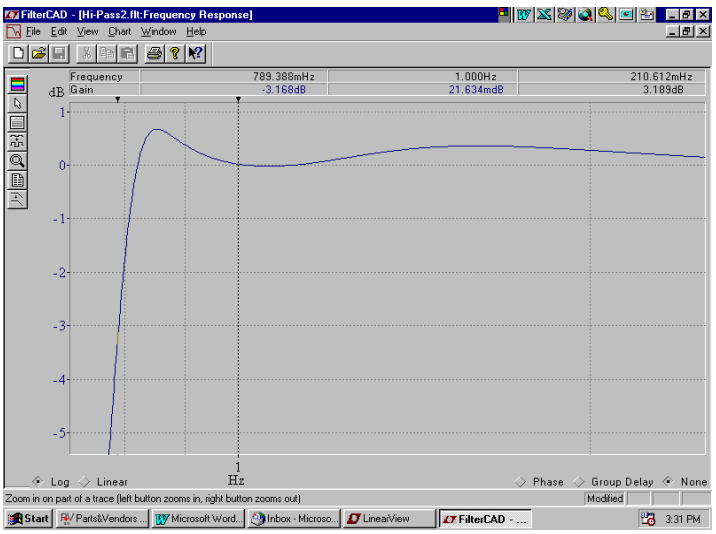
DC Offset The AAF-HP feature AC coupled outputs thus has no output DC offset.

Frequency Response



Filter Corner Frequency

The following figure details the corner frequency characteristics of the AAF-HP filter.



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Standard Filter Specifications (Software-selectable)

	Cutoff Frequency	Passband Performance	Stopband Rejection	Total Wideband Noise
High-Pass	1 Hz to 10 kHz (pseudo elliptic)	0 ± 5 dB max to cutoff, low-freq gain 0 ± 0.25dB max, <1Ohm output impedance, 0mV offset	90 dB Typ.	135μVRMS Typ.

Analog Input (with Gain)

DC offset..... Output is AC coupled
Passband gain ..... ±0.5 dB max
Input voltage ..... ±10 V max
Input protection ..... ±30 V max
Input impedance ..... 20 KΩ

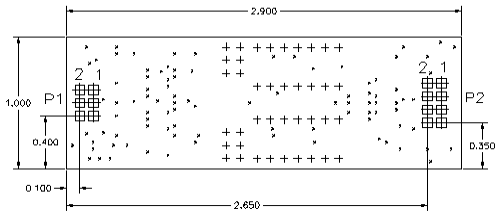
Analog Output

Output voltage .....±10 V min
Load resistance..... 1KΩ min
Output impedance..... <1.0Ω

Miscellaneous

Power consumption .....60mA at ±15V
Operating temperature.....0°C to 70°C

Physical Dimensions



How to create a 4 channel bandpass filter with the AAF-3

The AAF-HP has been specifically designed to be used with the AAF-3 and AAF-3PCI motherboards to provide band-pass filtering. the AAF-HP and one of the AAF-3F, AAF-2F, AAF-1F filter modules are wired in series to provide band-pass filtering. The system is configured with an optional gain module feeding a low-pass filter feeding the hi-pass filter. This configuration can be achieved in the cable connection to the AAF-3's input and output connectors or by attaching wires directly on the AAF-3. The AAF-3PCI bandpass channel cascade is controlled by a software selectable switch.

When configured in this manner, the software provided with the AAF-3 or AAF-3PCI can be used to control the high-pass f_c, the low-pass f_c and the Gain level. The AAF-HP is a switch-capacitor device which dictates the maximum input frequencies should not exceed 200 times the high-pass corner frequency otherwise aliasing will occur above 200Fc frequencies. For this reason, the AAF-HP must be used in conjunction with a low pass filter module with the low pass corner frequency set below 200Fc. This will remove all of the alias behavior of the AAF-HP. The result is a highly controllable band pass filter with exceptional performance.

Pin Description

Pin #	Input Connector	Output Connector
1	In_A_Hi	Agnd
2	In_A_Lo	Out_A_Hi
3	Agnd	Agnd
4	not used	Out_B_Hi
5	In_A_Hi	+12V
6	In_A_Lo	-12V
7	N/A	Filter Clock
8	N/A	DGnd

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