Australian Monitor

HP-1 & LP-1 FILTER CARDS

The HP-1 and LP-1 filter cards were designed for retrofitting in K-Series amplifiers and are also compatible with the new Opal Series.

They offer a wide range of **filter frequencies** set to ISO third octave centres, and are suitable for most filtering applications, including equalisation, pop & rumble filtering, hiss and sibilance filtering and are especially suitable for active crossovers.

The filters offer symmetrical odd-order Butterworth and even-order Linkwitz-Riley characteristics. Together, these form a family known as **all-pass networks**, as they sum to an all-pass characteristic, which has a flat amplitude response and a smooth phase response. All-pass crossover networks also have the property of having a constant phase diffence between outputs.

This constant phase difference means that the **directional pattern** from two non-coincident drivers is stable and consistent throughout the crossover region. In the case of the even-order networks, it is also symmetrical about the driver axis for time-aligned drivers.

To make the most of this excellent directional behaviour, a **delay compensation network** has been incorporated to compensate for time offsets between drivers.

The filter modules feature extensive **electromagnetic and electrostatic shielding** and are highly immune to radio frequency interference.

A unique level control is provided which simultaneously allows the user to adjust both **signal level and polarity**.
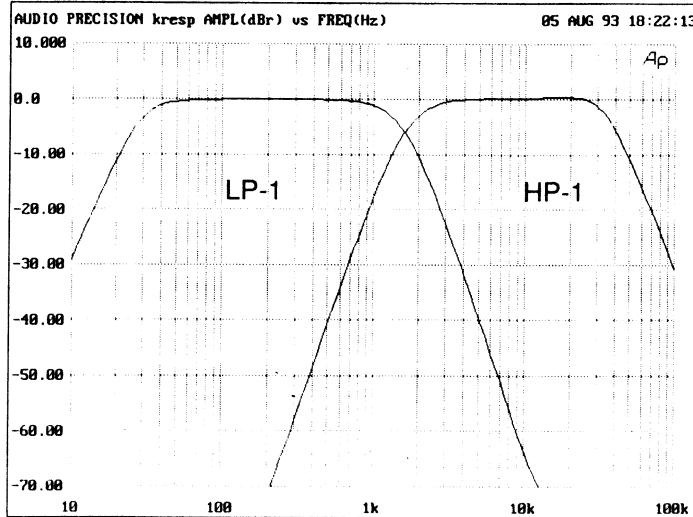
As with all Australian Monitor electronics, **performance and reliability** are guaranteed.
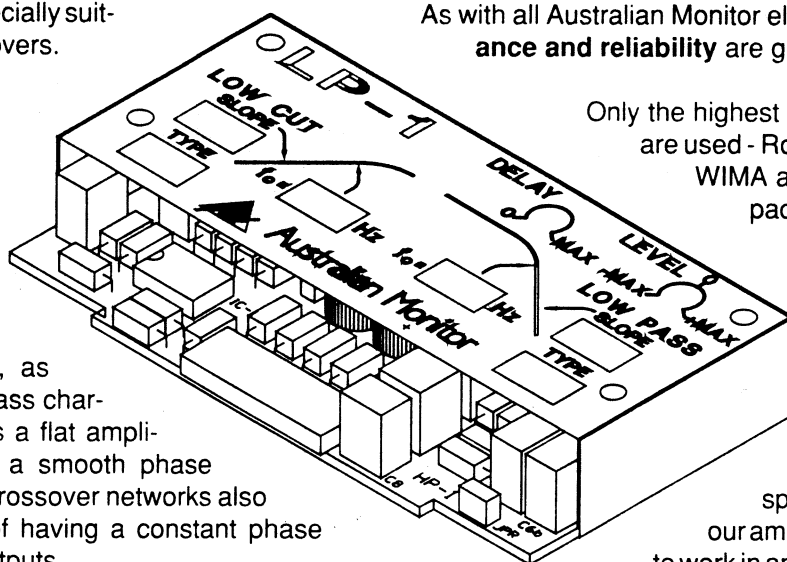
Only the highest quality components are used - Roederstein resistors, WIMA and Roederstein capacitors, fully enclosed cermet trimpots and high slew-rate, low-noise, low distortion op-amps. Each module is individually tested to meet a rigorous specification. And, like our amplifiers, they are built to work in any environment, and built to last.

The filter modules also include low-cut and high-cut filters which can be used for
- extra crossover points in multi-way systems
- low frequency equalisation
- reducing low frequency rumble
- reducing cone excursion at low frequencies
- reducing high frequency hiss
- reducing radio frequency interference.

```
  10.000
   0.0                                              Ap
 -10.00
            LP-1                      HP-1
 -20.00
 -30.00
 -40.00
 -50.00
 -60.00
 -70.00
        10        100       1k       10k      100k
```

LP-1 module standard options

Low-Cut Filter

Frequencies:	10 Hz	20 Hz	40 Hz	80 Hz
	12,5 Hz	25 Hz	50 Hz	100 Hz
	16 Hz	31,5 Hz	63 Hz	

1st order   (6 dB/octave)
2nd order   (12 dB/octave)
3rd order   (18 dB/octave)

Filter Types:
  Butterworth   (flattest pass-band response) or
  Bessel   (flattest delay, least overshoot)

Low Pass Filter

Frequencies, Hz:

40	50	63	80	100	125
160	200	250	315	400	500
630	800	1,0k	1,25k	1,6k	2,0k
2,5k	3,15k	4,0k	5,0k	6,3k	8,0k
10k	12,5k				

1st order   (6 dB/octave)   Butterworth
2nd order   (12 dB/octave)   Linkwitz-Riley
3rd order   (18 dB/octave)   Butterworth
4th order   (24 dB/octave)   Linkwitz-Riley

Other frequencies available on request.

HP-1 module standard options

High-Cut Filter

Frequencies:	5 kHz	10 kHz	20 kHz	40 kHz
	6,3 kHz	12,5 kHz	25 kHz	50 kHz
	8 kHz	16 kHz	31,5 kHz	

1st order   (6 dB/octave)
2nd order   (12 dB/octave)
3rd order   (18 dB/octave)

Filter Types:
  Butterworth   (flattest pass-band response) or
  Bessel   (flattest delay, least overshoot)

High Pass Filter

Frequencies, Hz:

40	50	63	80	100	125
160	200	250	315	400	500
630	800	1,0k	1,25k	1,6k	2,0k
2,5k	3,15k	4,0k	5,0k	6,3k	8,0k
10k	12,5 k				

1st order   (6 dB/octave)   Butterworth
2nd order   (12 dB/octave)   Linkwitz-Riley
3rd order   (18 dB/octave)   Butterworth
4th order   (24 dB/octave)   Linkwitz-Riley

Other frequencies available on request.

PERFORMANCE SPECIFICATION
(typical, using 1.6 kHz crossover in amplifier circuit)

Signal / Noise Ratio: > 95 dB re rated power
T.H.D.: < 0.005% @ 1 dB below rated power