

### Amplitude Response

Kemo Filter Response 05 is a classic 4 pole Butterworth filter, 24 dB/Octave roll off, -3 dB at cut-off. A 8 pole Butterworth is available Response 03. This response is also available in high pass (05 HP).

Response 05 Data			
Equivalent Slope		24 dB / Octave	
Stopband (theoretical)		> monotonic	
Overshoot (theoretical)		10.8 % at 0.90 $F_c$	
Risetime to 0.996		0.7/ $F_c$	
Mean phase line (theoretical)		-165.2 $f/F_c$	
Attenuation / dB	Normalised Frequency $F / F_c$		Attenuation / dB
0.10	0.626	1.00	3.0
0.25	0.703	1.10	5.0
0.50	0.769	1.25	8.4
1.00	0.845	1.50	14.3
3.00	1.000	1.75	19.4
6.00	1.146	2	24.0
12.00	1.405	3	38.2
24.00	2.000	4	48.0
36.00	2.818	5	55.9
48.00	3.981	8	72.2
60.00	5.623	10	80.0
80.00	10.000	-	-

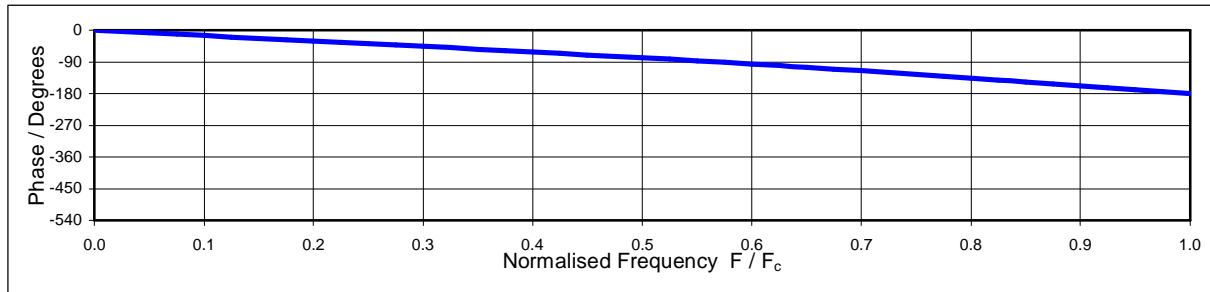
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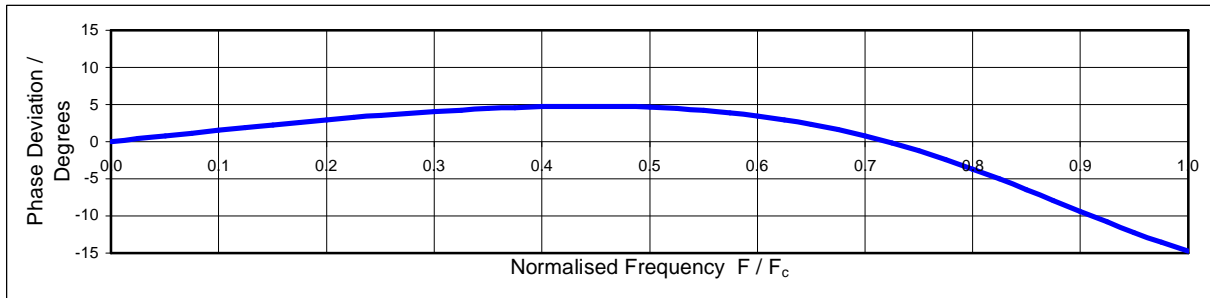
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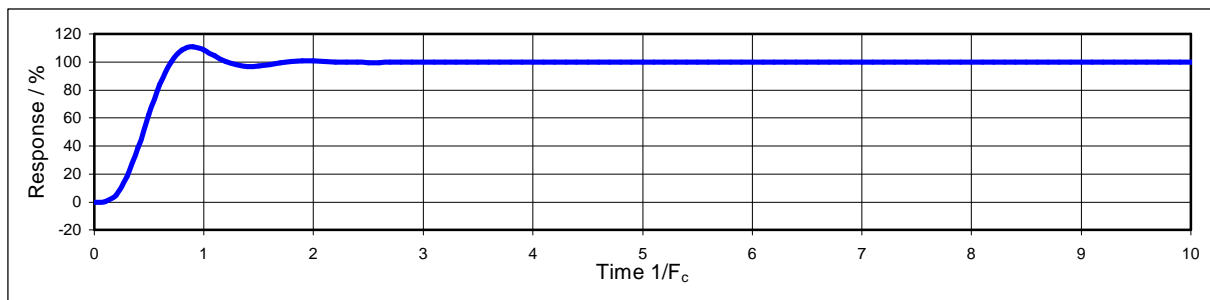
### Passband Phase Response

The Curve above shows the phase of response 05 filter in the passband.



### Passband phase deviation

The above curve shows the passband phase variation for the Kemo 05 filter, this is the difference between the mean phase line and the actual variation of the filter.



### Time Response to Step Input

The curve above shows the time response to a step input of the Kemo 05 filter.

### Other Filter Responses

Anti-Aliasing (01) – a filter optimised for anti-aliasing protection before sampling and D-A conversion, where analysis is in the frequency domain.

General Purpose (41) – a filter optimised for low signal distortion. Flat passband and linear phase characteristics, with moderate settling time.

Bessel (07) (09) – traditional Bessel filters, linear phase, and small time delay with no overshoot, but significant roll off in the passband.

### General Notes about Filter Responses

Selecting a filter is a compromise. We have been manufacturing filters since 1965, and this sheet shows our selection of standard responses built up over a number of years to meet most applications. One of the most important aspects of filter selection is to allow for the total effect on the signal, passband amplitude, phase variation, and step response.

**Note** –  $F_c$  is cut-off frequency

Due to continued product development Kemo Limited reserve the right to change specification without notice

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