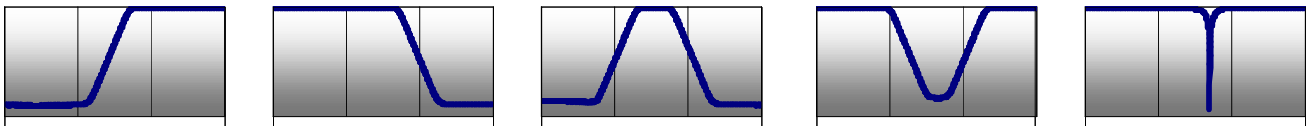
BenchMaster 8

Versatile 2 Channel Filter / Amplifier / IEPE
Switchable High / Lowpass Gain to x 500

- 2 Independent Channels
- Switchable High/Low pass
- 0.01 Hz – 99.9 kHz filter range
- Input gain to x 500 (+54 dB)
- 6 models, 6 filter responses
- 3 digit frequency setting
- Differential/Single ended input
- 'Pulse' and 'Flat' Modes
- Range of filter types
- IEPE 24VDC, 4 mA transducer supply
- 4 stage signal level indication
- Optional DC powered versions

Highpass / Lowpass / Bandpass / Bandstop / Notch



The BenchMaster 8 dual channel filter with gain, is considered by many to be the 'standard classic' benchtop laboratory analogue filter. Now in its 6th generation, it has been in continuous production since 1975, with 1000's in use worldwide.

The BenchMaster 8 is available in a range of different filter types:

- Butterworth
- Bessel (4 and 8 pole)
- General purpose
- Linear phase
- Anti-aliasing responses

The two independent channels can each be switched between highpass and lowpass or combined in series or parallel to give; two channels of lowpass, two channels of highpass, one lowpass/one highpass, series connection to give bandpass, and parallel connection for bandstop/notch filtering.

Inputs can be AC or DC coupled, single ended or differential. Up to +54dB(x500) of gain can be applied to the input before filtering (9 steps) with 4 stage signal level indication. An IEPE 24VDC,4 mA current source is available for transducer power with indication of correct connection.
The basic filter response has 3 'modifier' settings:

- Minimum overshoot 'pulse' mode for impulsive signals
- 'flat' which provides a flattened response to cut-off
- 'Butterworth' type response with –3 dB at cut off frequency.

Using the 'flat' modifier true 16 pole Bessel and Butterworth filters can be set, maintaining -3dB at cut off .
Optional 10 - 30 Volt DC power input allows use for portable and vehicle applications. The compact 1U metal case is designed for both bench top use and rack mounting.

All together, no other laboratory filter offers so many features for the price or size.

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BenchMaster 8, Filter Amplifier System Performance Specification	
Electronic: Typical specifications after 30 minutes warm up at 20 ºC ambient temperature.	
Frequency range: 0.01 Hz – 99.9 kHz **Filter cutoff resolution:** 999:1 in 5 ranges **Cutoff accuracy:** 2 % of F_c **Input impedance:** 1MΩ , 100pF **Input voltage, linear:** +/- 10 V **Input voltage maximum:** +/- 40 V **Input gain:** + 54 dB (x 500 in 9 steps: x1, 2, 5, 10, 20, 50, 100, 200, 500) **Input modes:** Single Ended/Diff. , IEPE (ICP®) (4 mA, 24V) **Input coupling:** DC, AC, -3 dB @ 0.17 Hz (matched AC coupling for differential input) **Output type:** Single ended	**Output impedance:** 50 Ω **Output voltage:** +/- 10 V (load > 2kΩ) **Output noise:** < 200 nV/√Hz **Output linearity:** < 0.03% **Offset voltage:** < 5 mV **Offset drift:** 200 µV/ °C **Cross talk:** > -80dB **Amplitude matching:** +/- 0.1 dB to 0.8 of F_c **Phase matching:** +/- 1° to 0.8 of F_c **Power AC:** 105-125, 210-250 VAC 50/60Hz 30 VA connector IEC 6 Amp **Power DC:** **(optional)** 10-30 VDC 30 VA connector XLR3 pin
Size and Weight: 390x482x44 mm, 15.4”x19”x1.7” (with handles), metal case, 1U 19” rack mounting, 390mm (13.8”) deep, integral mounting brackets, 3.7 Kg (8.2 lb)	

Ordering Information and 6 Filter Responses

The BenchMaster 8 is available as 6 models (6 filter types), each with 3 modifier settings.

The modifier settings are:-

- **‘flat’** modifier with a flatter bandpass, near 0 dB response at cut off;
- **‘Butterworth’** modifier with –3 dB at cutoff
- **‘pulse’** modifier optimised for minimum signal overshoot.

The six response types are shown below and can be ordered as:-

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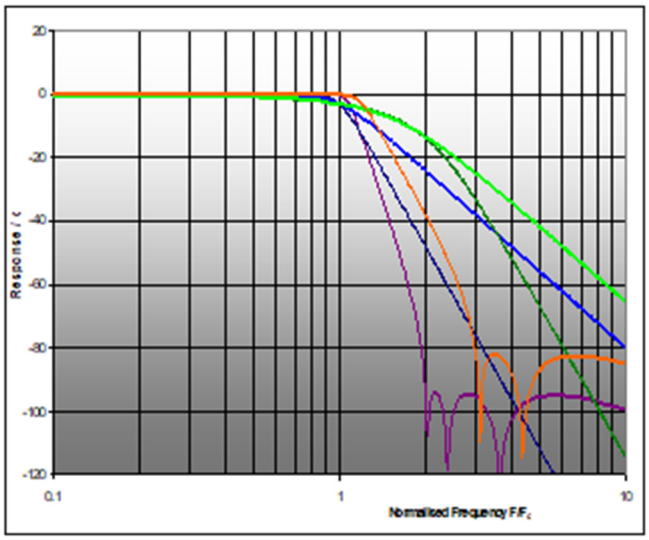
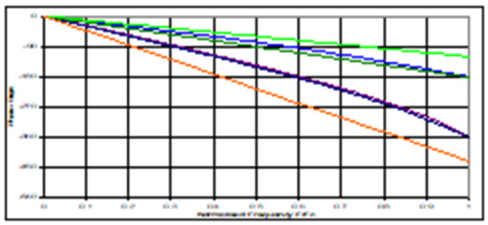
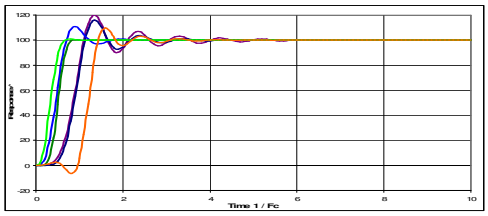
8.05 4 pole Butterworth, 24 dB/Octave, monotonic stopband.
8.03 8 pole Butterworth, 48 dB/Octave, monotonic stopband.
8.09 4 pole Bessel, 24 dB/Octave, monotonic stopband.
8.07 8 pole Bessel, 48 dB/Octave, monotonic stopband.
8.13 Elliptic type response, 94 dB/Octave, - 90 dB stopband.
8.41 Flat, linear phase response, 52 dB/Octave, - 80 dB stopband.



Benchmaster 8 filter responses



Benchmaster 8 Phase responses



Benchmaster 8 Amplitude responses

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

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