

- 2550:1 cutoff span
- Systems from 0.1 Hz – 51 kHz
- AC / DC / IEPE Inputs
- -18dB to +66 dB of gain
- Single ended / Differential Inputs
- Lowpass and highpass versions
- BNC connectors
- Computer Control; RS 232
- 16 Channels per Rack
- Up to 16 channels per rack
- Optional DC power



The Kemo BenchMaster 21CF30 is a versatile computer controlled (RS232 or Ethernet) filter/amplifier system. Ideal for use as the front end for data acquisition systems, the BenchMaster 21CF30 is available with a range of filter responses, and frequency ranges to suit most applications.

Systems are available with frequency ranges covering filter cutoff frequencies from 0.1 Hz to 51 kHz. Each channel has two frequency ranges covering 255:1 and 2550:10. This gives fine control at lower frequencies, and still gives a higher frequency filter cutoff. The following 'standard' frequency ranges are available:-
1 Hz – 2550 Hz, 10 Hz – 25 500 Hz and 20 Hz – 51 000 Hz.

Input coupling is switched AC/DC, with a IEPE (ICP®) 24 V, 4 mA supply for transducer power. This allows direct use with suitable transducers; eliminating intermediate amplifiers and signal conditioning. Signal input and output is by front panel BNC connectors. BenchMaster 21CF30 systems have two gain stages, one before the filter, 0 dB to +42 dB, and one after the filter, -18 dB to +18 dB. This combination allows the signal amplitudes to be optimised through the filter system, including signal attenuation after the filter. This provides flexibility to the measurement set up, and optimisation of the measurement gain.

A range of factory set filter responses are available with the BenchMaster 21CF30. Kemo filter responses 01 (anti-aliasing), 03 (48dB/Octave Butterworth), 05 (24dB/Octave Butterworth), 07 (48dB/Octave Bessel), 09 (24dB/Octave Bessel), 41 (general purpose), these are usually available from stock. Other specialist responses and frequencies are available to special order.

The 21CF30 system is the ideal front end filter/amplifier for many data acquisition systems.

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

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BenchMaster 21CF30 Performance Specification

Electronic Typical specifications after 30 minutes warm up at 20°C ambient temperature.

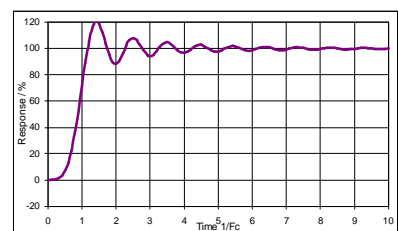
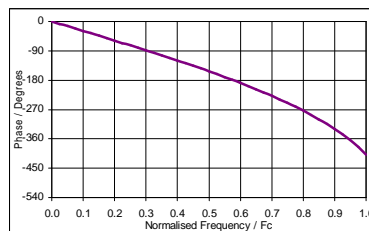
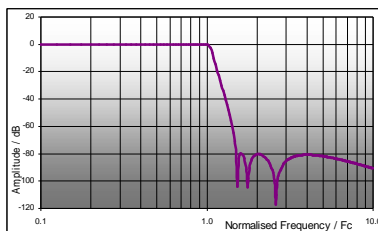
Filter cutoff resolution	255:1 in 2 decade ranges
Frequency cutoff ranges	Specified at order 1 – 2 550 Hz, 10 – 25 500 Hz, 20 – 51 000 Hz.
Cutoff accuracy	< 0.8 % of F_c
Input impedance	1M Ω , 50pF
Input gain (before filter)	0 dB (x1) - +42 dB (x128), in 6 dB (x2) steps.
Output gain (after filter)	-18 dB (x0.12) - +18 dB (x8) in 6 dB (x2) steps. Note:- exact gain step is x2 (6.02 dB)
Input voltage, linear	+/- 10 V
Input voltage maximum	+/- 30 V
Input AC coupling	-3 dB @ 0.10 Hz
Input modes	Single Ended, Differential, IEPE (ICP [®]) (4 mA, 20V)
CMRR	>70 dB DC – 500 Hz
Output type	Single ended
Output impedance	50 Ω
Output voltage	+/- 10 V (load > 2k Ω)
Output noise	< 800 nV/ $\sqrt{\text{Hz}}$ depending on gain, frequency, and filter response
Output linearity	<0.03%
Offset voltage	< 2 mV
Offset drift	> 200 $\mu\text{V}/^\circ\text{C}$
Cross talk	> -80dB
Amplitude matching	+/- 0.1 dB to 0.8 of F_c ($F_c < 25$ kHz)
Phase matching	+/- 1 $^\circ$ to 0.8 of F_c ($F_c < 25$ kHz) typical depends on filter type fitted
Control	FICL, text commands via RS 232, or Ethernet.

Mechanical

Number of channels	1 - 16 plus interface in 21.18 rack
Power	21.18 AC rack, 105-125, 210-250 Vac 50/60 Hz 100 VA
Connector AC	IEC 6 Amp
21.18 DC	9 – 36 V DC 80 VA
Connector DC	XLR 3 pin
Size 21.18 (19 ")	420 x 155 x 350 mm, 16.6" x 6.1" X 13.8" (excluding handles)

Filter Responses for BenchMaster 21CF30

The 'standard' filter response for BenchMaster 21CF30 is anti-aliasing, Kemo response 01. This filter has, a flat passband , falls to –82 dB at 1.5 times cutoff. Other responses, Butterworth, Bessel, and General purpose are available. Contact Kemo or your local representative for details, and filter response data sheets.



Anti-aliasing filter response 01 characteristics

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