

- Frequencies from 0.2 Hz to 127 500 Hz
- 254 manually selectable frequencies
- 9 gain steps to x500 (+54dB)
- Fits in Kemo 21 Series Racks
- Single/Multi Channel options
- Signal level indication
- Single ended / differential Input
- IEPE (ICP®) transducer power
- Filter Bypass setting
- Optional Ethernet interface
- Simple design for ease of use



The CardMaster 21.255G is a powerful and flexible solution based on a single channel signal conditioning filter/amplifier card with front panel control of filter frequency and gain, this provides improved ease of use and flexibility to the user avoiding factory fixed frequency settings or internal dip switch settings.

Signal level is indicated by a three colour front panel indicator.

Each channel is configurable with single ended or differential input, AC/DC coupling and IEPE (ICP®) 24VDC, 4mA supply for transducer power. This allows direct use with suitable IEPE transducers; eliminating intermediate amplifiers and signal conditioning, all set individually for each channel. Up to 18 channels can be fitted to a Kemo 19" rack, (only 17 channels with optional ethernet interface).

A rugged single channel rack is available.

The CardMaster 21.255G is designed for occasional changes of filter frequency and gain using front panel controls. Removable knobs prevent accidental changes to the filter settings. Gain is set by 2 switches, x1,x2,x5 and x1,x10,x100 to give a total of 9 gain steps to x 500. Signal level is indicated by a green/orange/red panel indicator. A separate indicator indicates input overload. A front panel setting bypasses the filter, so the gain and front end can be used without the filter.

The CardMaster 21.255G uses the Kemo 1600 programmable series of filter modules, available in a wide range of frequencies and filter responses. A 10 Hz base frequency filter has 255 steps of 10 Hz, providing filtering from 10 Hz to 2550 Hz. Base frequencies of 1,2,5,10,20,50,100,200 and 500 Hz are available for Kemo filter responses:

- 01 (anti-aliasing)
- 03 (48dB/Octave Butterworth)
- 41 (general purpose)

These are usually available from stock. Other specialist responses and frequencies are available to special order.

An optional Ethernet interface provides external control of CardMaster 255G settings.

This interface uses simple text commands sent via Ethernet TCIP hardware, easy to integrate with measurement systems. [FREQ,1,26](#) sets channel 1 to frequency step 26.

# Specification

(Electronic: Typical specifications after 30 minutes warm up at 20 °C ambient temperature)

Frequency Setting  
Filter Frequencies

254 steps, set by two front panel Hexadecimal switches.

0.2 – 50.8 Hz	1 – 254 Hz	2 – 508 Hz	5 – 1270 Hz	10 – 2 540Hz
20 – 5 080Hz	50 – 12 700 Hz	100 – 25 400 Hz	200 – 50 800 Hz	500 – 127 000 Hz

Operating modes  
Control  
Operating Temperature  
Input

Filter in / Filter bypass – filter bypass is frequency setting 255.  
Front panel switches for frequency and gain setting.  
-10 to 45 °C, non-condensing.  
Signal +/- 10 Volt. Single ended/differential input. Coupling DC, AC.

Input Gain  
Signal Indication  
Trim Adjustments  
Output Attenuation

IEPE (ICP®) 24VDC, 4mA, (1 – 10 mA selectable by on board resistor).  
x1, x2, x5, x10, x20, x50, x100, x200, x500 (+54dB) front panel switches.  
0-1V no indication, 1V –6.5V **Green**, 6.5V – 9.5V **Orange**, >9.5V **Red**  
DC Offset, Bypass offset, Gain, all by 10 turn pot.  
User defined by two resistor network.

Connectors  
Interface FICL II(Optional)  
Dimensions  
Power Input

BNC input and output, front panel mounted.  
Text commands via Ethernet (TCIP RJ45)  
100 mm x 160 mm x 20 mm. (Kemo 21 Series Rack 1 slot)  
Kemo 21 Series Rack 1 slot  
+/- 15 V @ 100 mA (typical), + 5 Volt, + 24 Volt.

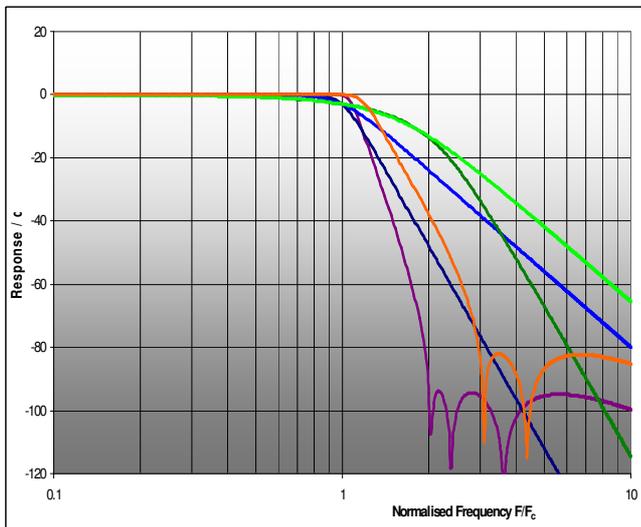
## Ordering Information and Filter Responses

The CardMaster 21.255G is available with a range of filter responses. When ordering select the frequency range and a suitable filter response. Some response types are shown below and can be ordered as:-

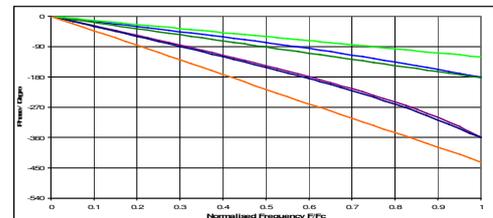
- 05** 4 pole Butterworth, 24 dB/Octave, monotonic stopband.
- 03** 8 pole Butterworth, 48 dB/Octave, monotonic stopband.
- 09** 4 pole Bessel, 24 dB/Octave, monotonic stopband.
- 07** 8 pole Bessel, 48 dB/Octave, monotonic stopband.
- 13** Elliptic type response, 94 dB/Octave, - 90 dB stopband.
- 41** Flat, linear phase response, 52 dB/Octave, - 80 dB stopband.



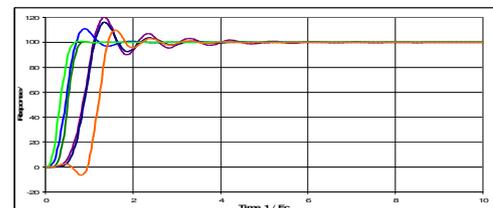
Single channel CardMaster 255G in compact mini rack.



Some CardMaster 21.255G Filter responses



Some CardMaster 21.255G Filter Phase responses



Some CardMaster 21.255G Filter Step responses

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