

# Camden 500 Preamp and Signal Processor Technical Specifications

Camden 500 was designed from the ground-up to be the ultimate front-end for the modern studio and engineer. It features a completely original, custom-designed preamp topology that features modern components yet to find their way into the audio industry... until now.

Camden 500 is a mic, line, and instrument preamp that achieves stunning low-noise and low-distortion performance as well as frequency and phase linearity at all gain settings. The sum result is a stunningly clean and natural sounding preamp offering a perfectly neutral palette to apply analogue and digital processing.

For moments when that extra bit of 'British' character is required, rather than use a transformer and learn to live with its drawbacks, we developed our "Mojo" circuit; two discrete analogue saturation styles that can turn Camden 500 into the fattest, warmest, and most characterful preamp in your arsenal - all at the turn of a dial. Mojo can be subtle, it can also be exaggerated, but best of all - it can be bypassed.

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**Minimum Gain:**

Mic= 8dB, Line = 0dB, Hi-Z = 3dB

**Maximum Gain:**

Mic = 68dB, Line = 60dB, Hi-Z = 63dB

**Input Impedance:**

Mic= 8.9kOhms 48v Off, 5.4kOhms 48v ON,  
Line = 24.3kOhms  
Hi-Z= 1.5MOhm unbalanced, 3MOhm balanced

**Max Input Level:**

Mic = 17.6dBu (<0.003%)  
Line = 26.5dBu (<0.02% THD)  
Hi-Z = 24dBu (<0.02% THD)

**Output Impedance:**

150 Ohms

**Max Output Level:**

27.5dBu (<0.002% THD, 30dB gain)

**Equivalent Input Noise (EIN):**

<-129.5dBu, 150 ohm source, unweighted  
<-131dBu, 150 ohm source, A-weighted  
<-135.5dBu, Inputs common, unweighted

**Frequency Response:**

±0.25dB, <5 Hz to >200 kHz, 35dB gain  
<±1dB, <5 Hz to >200 kHz, max gain

**Phase Shift:**

<2.25°, 40dB gain, 20Hz to 20kHz  
<4°, Max gain, 20Hz to 20kHz

**THD+N:**

<0.0004%, 1kHz, 35dB gain, 24dBu out

**Intermodulation Distortion:**

<0.0008%, 50Hz and 7kHz, 35dB gain, 20dBu out  
<0.0006%, 50Hz and 7kHz, 35dB gain, 15dBu out

**Hi-Pass Filter (HPF)**

80Hz, -3dB, 12dB/Oct

**Current Draw:**

120mA per rail - idle  
140mA per rail - typical use case

**CMRR:**

>70dB, typ >85dB, 35dB gain, 10-20kHz, 100mV  
Common mode

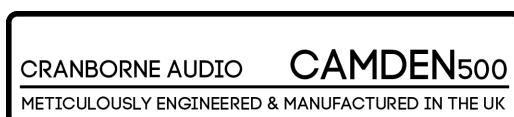
**Slew Rate:**

20V/uS, 35dB gain, 25dBu out

**Dimensions (mm):**

31.8/133.35/170.11 (w/h/d)

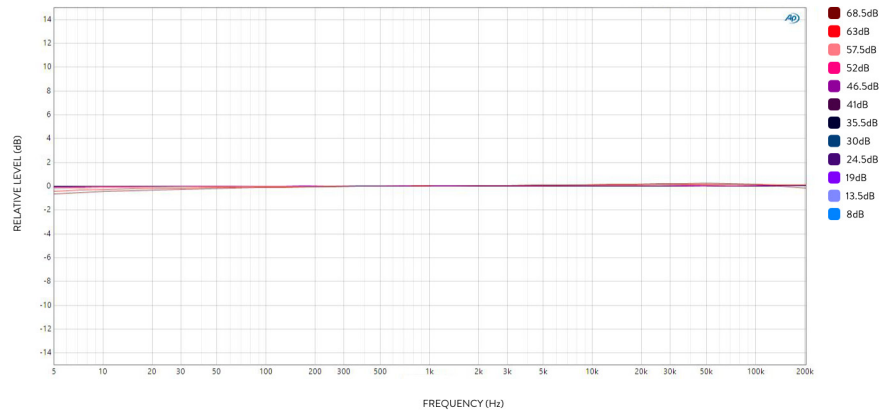
All specifications were generated using an Audio Precision APx555, Camden 500 pre-production unit, and 500R8 prototype. Camden 500 specifications will vary depending on the specifications of the 500 series rack used. All specifications are subject to change at any time and are likely to improve with production units.



# Performance Graphs

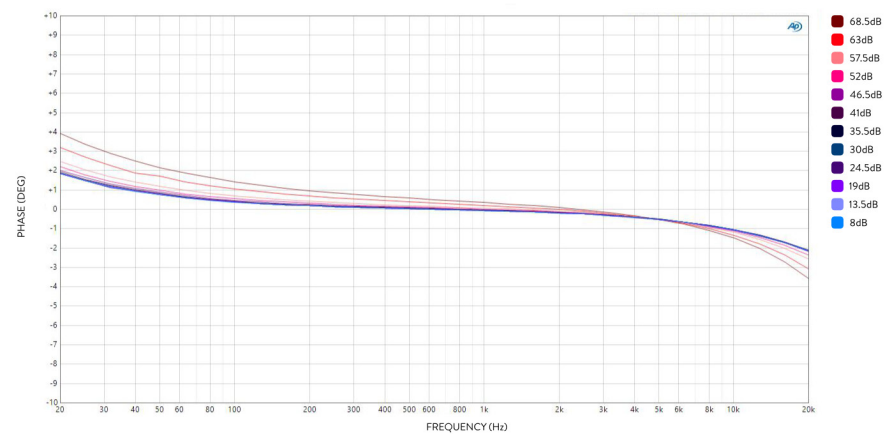
## Frequency Response

Camden 500's frequency response remains linear within 0.7dB from 5Hz to 200kHz at all gain settings. Maintaining an extended frequency bandwidth dramatically reduces intermodulation distortion and other complex interactions finding their way into the audio band and causing high-end smearing and 'hype'. A typical pre-amp can begin rolling off frequencies above 20kHz which makes them susceptible to a harsh and unnatural high-end character.



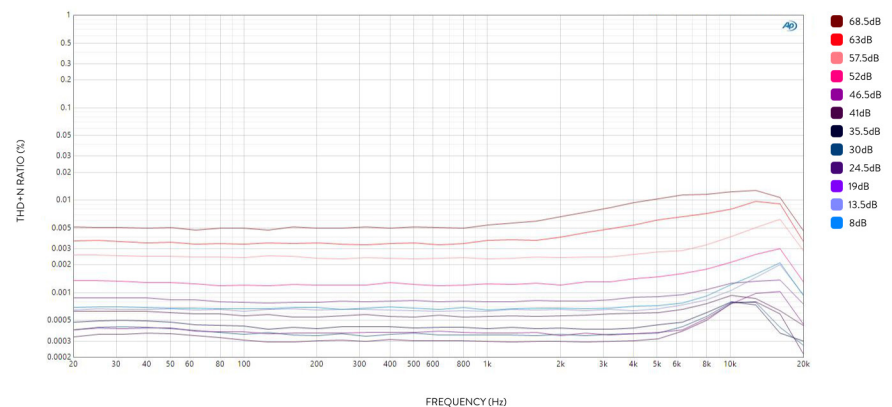
## Phase Shift

Camden 500's phase shift remains below 2.25° between 20Hz-20kHz up to 57.5dB of gain. This allows Camden 500 to produce punchy, sharp, and tight transients at all frequencies and on all sources without fear of reduced attack as gain is increased. At maximum gain, Camden 500's phase shift increases to only 4° - an unprecedented figure for a mic preamp at maximum gain.



## THD+N Ratio:

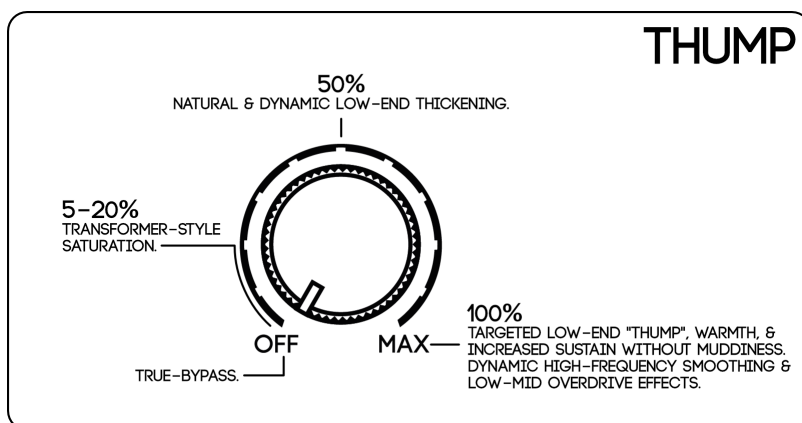
Camden 500's THD+N remains inaudible and below 0.02% at all frequencies and gain positions. THD+N reaches 0.0002% (1kHz) at 24.5dB gain, and remains below 0.0008% (1kHz) at all gain positions from 8dB to 46.5dB. The tonal qualities of THD are subjective, but what is objective is that THD is completely inaudible on Camden 500. This means that there is no colouration being applied onto your input signal - unless it has been applied using Mojo.



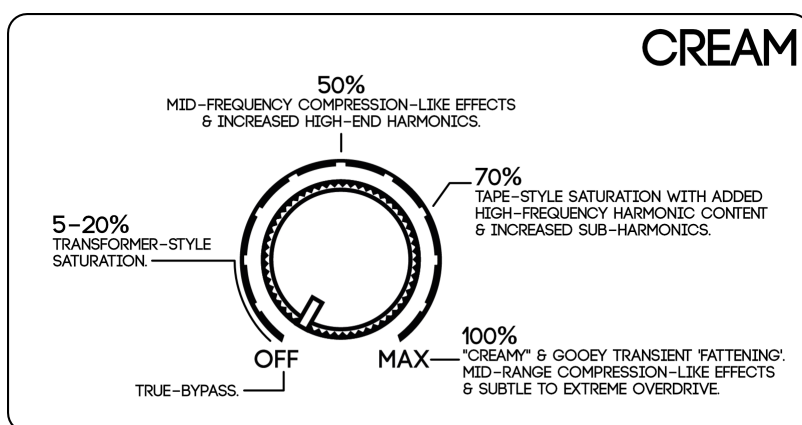
# Mojo Analogue Saturation

We developed Mojo so that we could turn Camden 500 from an extraordinarily clean, natural, and precise sounding preamp - perfect for classical and acoustic instruments; into a thick, gooey, and vintage-sounding preamp - to stand shoulder to shoulder with the most legendary transformer-based designs. Our Mojo design is a new type of saturation circuit consisting of an array of different filters as well as second and third order harmonic generators that allow precise emulation of the saturation and low-end reinforcement behaviours of vintage valve and transform-based equipment. By manipulating these filters and harmonic generators; we can create two discrete Mojo styles...

Thump is a style that works best on - but is not limited to - low-frequency based instruments. Thump excites low-end content by boosting harmonics in the range of ~100Hz to 20Hz and below without increasing the fundamental frequencies - resulting in fuller low-end on all reproduction mediums. As Thump is not EQ-based, the additional harmonic content is shaped by the sources and it's existing low-end frequency content resulting in a natural addition of extra "Thump". Similar-sounding EQ moves will result in extreme wooliness as all sonic energy is boosted - even unwanted audio in-between the hits.

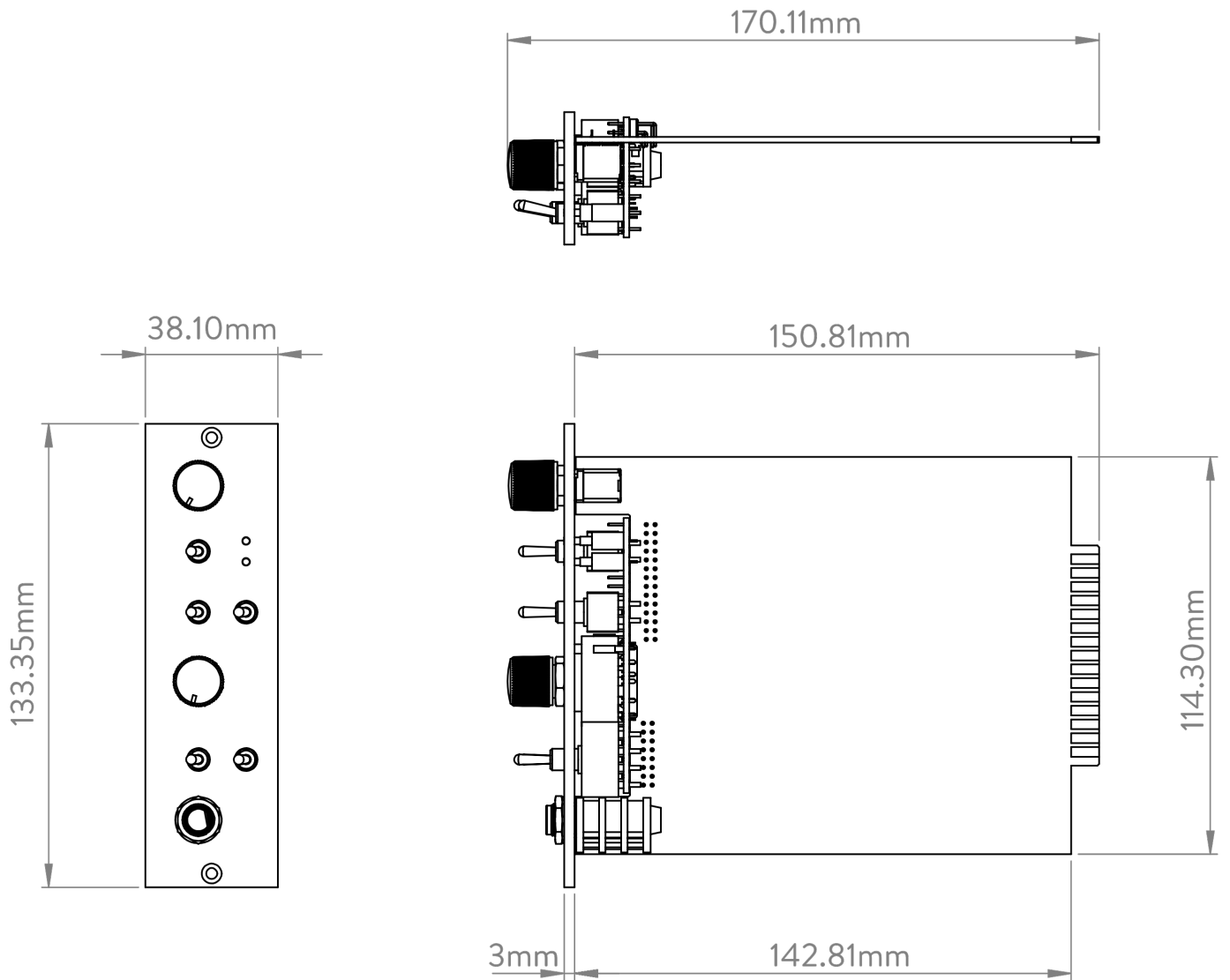


Cream introduces a vintage smoothness that enables tracks to sit deep within a complex mix in a way that cannot be replicated with EQ. The Cream setting drastically increases THD whilst smoothing out the low-mids. As with Thump, Cream is not EQ based and is purely achieved by blending 2 saturation stages with the dry signal and additional harmonics. Cream varies entirely on the harmonic signature of the incoming source. It will increase high-end forwardness and create unique harmonic-based tonal shaping effects on mid-range instruments, but it will also add low-end on full range sources as well as unique "compression-style" effect on transients.



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# Technical Drawing



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