



The Chimera VC100 is a low-noise, high-bandwidth current measurement system for research applications that require sensitive DC-biased voltage-clamp measurements. It consists of a small preamplifier connected by a cable to a custom data acquisition unit. The system is controlled over USB through a standard personal computer.

Preamplifier Headstage

Gain	10 <sup>8</sup> Ω
Bandwidth	DC – 1 MHz
Current Measurement Rise/Fall Time	< 1 μs
RMS Noise (open input)	0.5 pA <sub>RMS</sub> (0.1 Hz – 1 kHz) 1.5 pA <sub>RMS</sub> (0.1 Hz – 10 kHz) 8 pA <sub>RMS</sub> (0.1 Hz – 100 kHz) 100 pA <sub>RMS</sub> (0.1 Hz – 1 MHz)
Input Impedance	virtual ground
DUT Resistance	> 1 MΩ required
DUT Capacitance	< 100 pF required
Voltage Clamp	+/- 1V (differential; not ground referenced)
Voltage Clamp Resolution	< 0.5 mV
Voltage Clamp Rise/Fall Time	< 0.001 sec
Dynamic Range	+/- 20 nA
Dimensions	1.3 x 2 in (3.3 x 5.1 cm)

Data Acquisition Unit

Interface	USB 3.0 SuperSpeed
Maximum Continuous Sample Rate	> 4 MS/s
Resolution	14-bit
Hardware Data Buffer	64 million samples
Operating System	Windows 7 32-bit
Software	Matlab-based GUI
Power Supply	110V or 220V AC
Dimensions	10 x 10 x 5 in (26 x 26 x 13 cm)

*This datasheet is preliminary and subject to change.*