

Model 5182 Current Sensitive Preamplifier

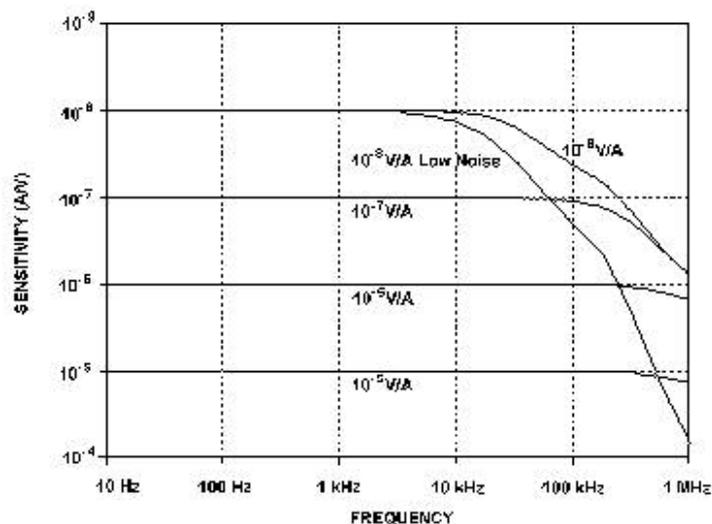


General

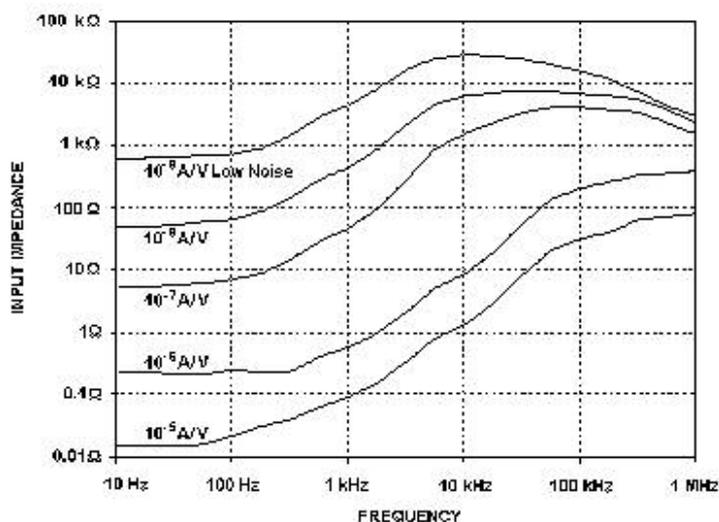
The model 5182 is a current-to-voltage preamplifier of low noise and low input impedance designed to amplify the extremely low low currents encountered in such areas as photometry and semiconductor research. It has four standard conversion factors but in addition includes a special low-noise mode on the highest gain position for even better low current measurement capability. The unit features two outputs, allowing both the AC and DC components of the input signal to be independently monitored, so that, for example, in a PMT application the bias current can be measured separately from the signal current. It can be powered from its own internally housed (alkaline) batteries, an external low voltage supply (± 15 V or ± 18 V) or from the model PS0108 remote line power supply (optional extra). This preamplifier can also be powered from most of our range of lock-in amplifiers and from the model 7310 noise rejecting voltmeter

The model 5182 is ideally suited to amplifying signals from current sources such as electron multipliers, ion collectors, photomultipliers and photodiodes.

Frequency Response (typical)



Input Impedance (typical)



Peak Input Current and Noise Current (typical)

Gain A/V	Max DC Input Current	Noise Current at 1 kHz
10^{-5}	9 mA	10 pA/root Hz
10^{-6}	900 μA	5 pA/root Hz
10^{-7}	9 μA	135 fA/root Hz
10^{-8}	900 nA	45 fA/root Hz
10^{-8} , low noise	90 nA	15 fA/root Hz

Input

Configuration	BNC connector, virtual ground.
Coupling	DC
Sensitivity	Switch selectable (5 settings)
AC Output	10^{-5} , 10^{-6} , 10^{-7} , 10^{-8} , 10^{-8} low noise A/V
DC Output	10^{-3} , 10^{-4} , 10^{-6} , 10^{-7} , 10^{-8} A/V
Accuracy	±2%
Stability	±300 ppm/degree C
Impedance	see plot above
Frequency Response	lower limit 0.5 Hz; upper limit depends on sensitivity setting, see plot above
Max DC current at input	see table above
Max input without damage	±15 V DC or 10 V rms. AC @ 50 Hz
Noise	see table above

Output

AC Output

Impedance 450 Ω

Max voltage swing > 10 V pk-pk

Slew rate > 22 V/ μ s

DC Output

Impedance 10 k Ω Max voltage swing > \pm 9 V

Polarity Current flowing into the input produces a positive output voltage

Power

Internal Four 9 V alkaline batteries provide approximately 15 hours of use

External a) \pm 15 V or \pm 18 V DC @ 25 mA

b) 110 V AC or 240 V AC via optional external model PS0108 power supply

Dimensions (excluding connectors)8.25" wide x 11" deep x 3.5" high
(210 mm wide x 279 mm deep x 89 mm high)**Weight**

5.3 lbs. (2.4 kg) excluding power supply