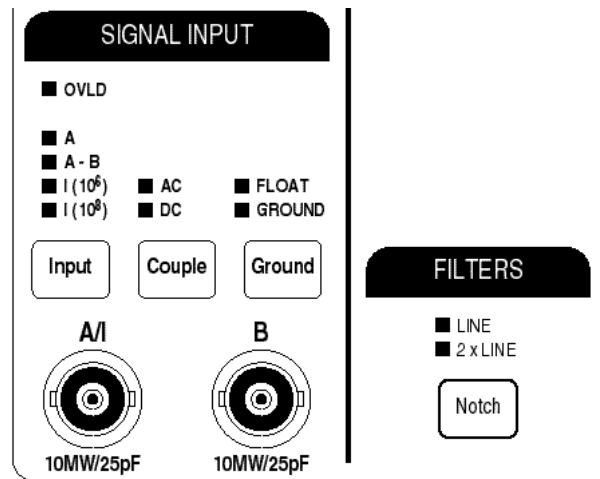


Signal Input and Filters



[Input]

The [Input] key selects the front end signal input configuration. The input amplifier can be either a single-ended (A) or differential (A-B) voltage or a current (I).

The voltage inputs have a 10 M Ω , 25 pF input impedance. Their connector shields are isolated from the chassis by either 10 Ω (Ground) or 10 k Ω (Float). Do not apply more than 50 V to either input. **The shields should never exceed 1 V.**

The current input uses the A connector. The input is 1 k Ω to a virtual ground. The largest allowable DC current before overload is 10 μ A (1 M gain) or 100 nA (100 M gain). No current larger than 10 mA should ever be applied to this input.

The current gain determines the input current noise as well as the input bandwidth. The 100 M Ω gain has 10 times lower noise but 100 times lower bandwidth. Make sure that the signal frequency is below the input bandwidth. The noise and bandwidth are listed below.

Gain	Noise	Bandwidth
1M	130 fA/ $\sqrt{\text{Hz}}$	70 kHz
100M	13 fA/ $\sqrt{\text{Hz}}$	700 Hz

The impedance of the current source should be greater than 1 M Ω when using the 1M gain or 100 M Ω when using the 100M gain.

Changing the current gain does not change the instrument sensitivity. Sensitivities above 10 nA require a current gain of 1 M Ω . Sensitivities between 20 nA and 1 μ A automatically select the 1 M Ω current gain. At sensitivities below 20 nA, changing the sensitivity does not change the current gain.

The message 'IGAn chG' is displayed to indicate that the current gain has been changed to 1 M Ω as a result of changing the sensitivity.