Measurements International

Metrology is Our Science, Accuracy is Our Business™

6311A PRECISION CURRENT DIVIDER

Featuring

- 10 A (100:1) and 300 A (1000:1) ranges
- No stabilization period
- No power coefficient
- No temperature coefficient
- DC and AC operation

Replaces Current Shunts, Saves Time, and Improved Uncertainty

Overview

Measurements International has developed the 6311A Precision Current Divider with the aim of replacing the outdated and often inaccurate Current Shunts being used as well as improving the overall measurement of both DC and AC current. The Model 6311A offers a simple and accurate method to measure currents without the significant drawbacks incurred when using a resistive current shunt. Traditional Current Shunts suffer from large temperature and power coefficients that affect stability and require a long period where the element needs to stabilize at any specific current. The current transformer used in the 6311A has no such issues. Simply apply power and measure the divided output.

The 6311A builds upon the world-renowned DC Current Comparator (DCC) that is the heart of every MI resistance bridge and range extender. Leveraging two sets of primary windings of a DCC to measure, the current is accurately divided by either 100:1 or 1000:1, providing a more manageable signal to measure.

The 10 A max range divides the input current by 100 range while the 300 A max range divides the input current by 1000. Both ranges can accept both DC and AC current to 1 kHz with an uncertainty of < 5 and < 20 parts in 106 respectively. In comparison, a DC Current Shunt will have a calibration uncertainty of 0.01 % or larger in most cases

Feature	Benefit
No temperature coefficient	Reduces uncertainty
No stabilization period	Measurements can be made immediately
No power coefficient	No error difference from 5% to 100% of range
AC/DC	Works at DC and AC up to 1 kHz
CT/Current Divider	Current In is divided by either 100 or 1000
< 5 ppm (DC) / < 20 ppm (AC)	~20 times less than a traditional Current Shunt

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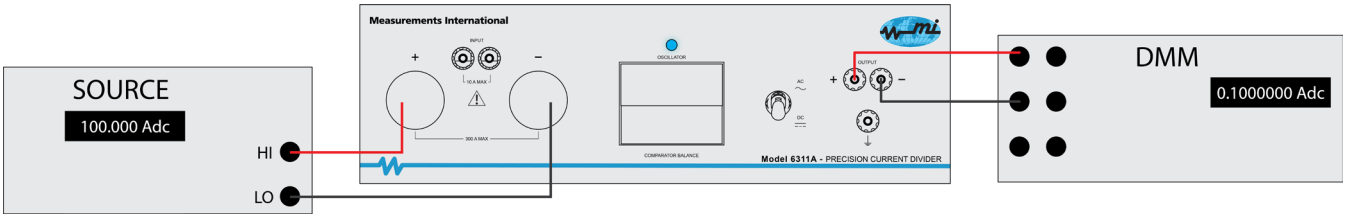
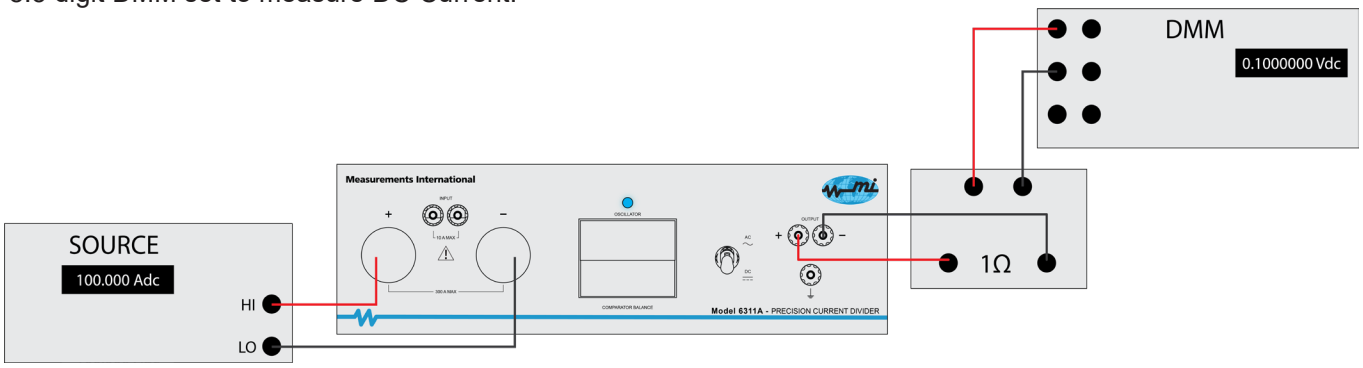
Measuring the divided current output of the 6311A can be accomplished in 2 ways.



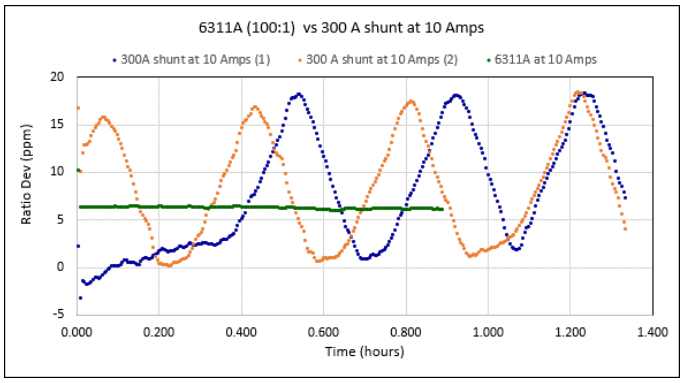
Example 1

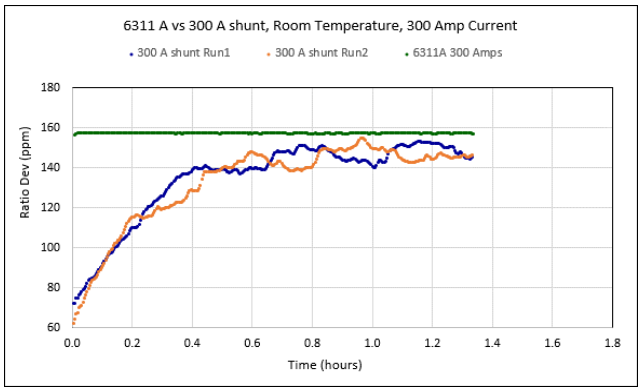
The current output of the 6311A can be measured in 2 simple ways. Example 1 above shows current being applied to the Current input terminals. When connected to the 300 A inputs, the 6311A divides the current by 1000 making it easy to measure directly. The output of the 6311A is then connected to the input of a precision 8.5 digit DMM set to measure DC Current.



Example 2

Example 2 illustrates a smiliar setup. However, the output of the 6311A is connected to a precision standard resistor current terminals. The potential terminals of the standard resistor are then connected to the precision 8.5 digit DMM set to measure DC voltage. This example provides the best measurement uncertainity. Please refer to the 6311A Operators Manual for exact calculation of current using this method.





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Specifications: Rev 3

	Min. Input (A)	Max. Input (A)	Division Ratio	Accuracy (µA/A)		Frequency Range (Hz)	Stability 12 Month (µA/A)	Time Constant (s)	TC (µΩ/°C)	Power Coefficient (µΩ/W)
Range				DC	AC					
10 A	0.1	10 A	100:1	< 5	< 20	10 to 1000	< 0.05	< 10	0	0
300 A	3	300 A	1000:1	< 5	< 20	10 to 1000	< 0.05	< 10	0	0
Operating Temperature			23 °C ± 5 °C							
Operating Humidity			20 % to 70 % RH							
Warranty			Standard 2 Year Parts and Labour							

Dimensions (L × W × H):
660 × 609 × 267 (mm)

Weight:
20.5 kg

Shipping Weight:
30 kg

Mains Power:
100 to 120 V_{ac}, 220 to 240 V_{ac}
50/60 Hz

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