



## 6011D 150/300 AMP RANGE EXTENDER



### Featuring

- ▶ Modular Designed Base Unit with Expanded Capabilities to 3000 A
- ▶ Ampere-Turn Sensitivity =  $2 \mu\text{AT} = 0.02 \text{ ppm}$
- ▶ Precision Shunts and DCCT Calibrations
- ▶ Stand Alone Operation or Extend the Range of the 6010/6020/6242 Series of Resistance Bridges
- ▶ 6150 Series of High Current Linear Supplies
- ▶ Bench Top or Rack Mount
- ▶ Your Partner is ISO 17025 Accreditation Through Coaching, System Design and implementation, Calibration Services and Ongoing Expert Support

### Overview

The model 6011D is an automated precision DC Range Extender employing the Direct Current Comparator (DCC) principle developed at the National Research Council of Canada (NRCC). Measurements International Limited (MIL) has extended this technology into an extender that will operate as a stand-alone device for the measurement of DC current.

This instrument may also be used as an easy means of extending the resistor-to-resistor ratios of the MI DC Automatic Resistance Bridge to the micro-ohm region. For this application, the automated range extender acts as a precision current divider to extend the range of the bridge by ratios 10:1, 100:1, and 1000:1 or 30:1, 300:1, and 3000:1. Measurement selections, results, and calibration data are transmitted over the IEEE-488 interface bus.

The model 6011D has a precision DCC (also called DC Current Transformer). This is based on the original current comparator work done by N.L. Kusters at the NRCC. Over the years, MIL has improved this comparator in many ways.

This instrument uses a two-core magnetic modulation technique in a feedback loop to generate a secondary current. This secondary current is further modified by a circuit, which monitors the primary current and the turns ratio of the comparator toroid. Together, these two circuits create an effective loop-gain in excess of  $10^7$ , which forces the secondary ampere-turns to be equal to the primary ampere-turns, thus, making the instrument act as a precision DC Current Transformer.

Feature	Benefit
MI Design	20+ Years of proven reliability and accuracy.
6010/6020/6242 Compatible	Works with existing MI Resistance Bridges to extend current stimulus for Current Shunt Calibration.
No TC	No temperature coefficient contributor un uncertainty calculation.
Stand Alone Use	Can be used as a Current Divider for Precision Current Measurements.



## 6011D 150/300 AMP RANGE EXTENDER

Specifications: Rev 4

6011D/150	
Ratio	1000:1, 100:1, 10:1
Maximum Input Current	150 A, 10 A, 1 A
Maximum Output Current	150 mA
Linearity	< 0.02 ppm for All Ratios
Accuracy	< 0.4 ppm, < 0.3 ppm, < 0.2 ppm
Current Resolution	< 0.05 ppm of Full-scale Current
Output Compliance	10 V DC
Operating Environment	18 °C to 34 °C, 10 % to 80 % RH
Warranty	1 Years Parts & Labour

6011D/300	
Ratio	3000:1, 300:1, 30:1
Maximum Input Current	300 A, 30 A, 3 A
Maximum Output Current	100 mA
Linearity	< 0.02 ppm for All Ratios
Accuracy	< 0.4 ppm, < 0.3 ppm, < 0.2 ppm
Current Resolution	< 0.05 ppm of Full-scale Current
Output Compliance	10 V DC
Operating Environment	18 °C to 34 °C, 10 % to 80 % RH
Warranty	1 Years Parts & Labour

**Dimensions (L × W × H):**

265 x 439 x 380 (mm) - 6011D/150

426 x 559 x 213 (mm) - 6011D/300

**Weight:**

20 kg

**Shipping Weight:**

27 kg

**Mains Power:**

100, 120, 220, 240, 250 V<sub>ac</sub>, 50/60 Hz

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