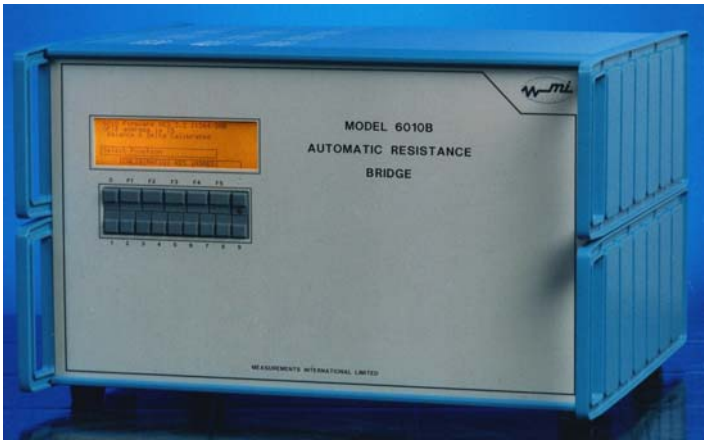
Measurements International

A Metrology Based Company



Model 6010C

Automated Resistance
Thermometry Bridge

DCC Technology
Quantum Hall Applications
DC Current Reversal
100, 400 & 2000 Amps
"Turn-Key" System
IEEE488 and Manual Operation

General Description:

The Model 6010C is a fully automated resistance ratio bridge based on the Direct-Current-Comparator (DCC) principle. Using innovative technology, the 6010's speed and measurement accuracy accounts for its preferred status as the primary resistance measurement system in many national laboratories throughout the world. It is designed for flexibility and ease of use and is perfectly suited for stand-alone use or with Measurements International's Window based Software with real time uncertainty analysis, history logging, and graphing and regression analysis.

Only after many years of research and development is it possible to elaborate on this remarkable instrument. Recognized as the worlds leading Automated Resistance/Thermometry Bridge, the 6010 is ideal for both resistance and temperature measurements. Automatic current reversal insures that dc offsets and thermals are cancelled out during the measurement. Self-calibration of the DCC can be carried out at any time.

The Model 6010C has two inputs for Rx and Rs. The number of inputs can be expanded to 40 when the 6010 is used in conjunction with Models 4210A and 4220A, ten and twenty channel, Low Thermal Four Terminal Matrix Scanners. Measurements and values can be performed automatically and with Measurements International's 6010SW, delayed or scheduled measurements can all be done at anytime.

Model 6010C

The range of the Model 6010C can be extended, when used in conjunction with the 6011B 100 Amp Range Extender and 6100A 100 Amp Power Supply to 100 μΩ (Model 6010C/100). The range can be extended further to 1μΩ with the Model 6013M 400 Amp Range Extender (Model 6010C/400) and with the Model 6012M 2000 Amp Range extender (Model 6010C/2000).

The model 6010C Current Comparator achieves a permanent linearity to 1 part in 10^8 with no need for frequent calibration. The instrument determines resistance by measuring the ratio of the unknown resistance to a known resistance standard. To achieve the remarkable accuracy, the range of the 6010 is limited from 0.01 ohms to 13,000 ohms at accuracy's to < 0.05 PPM.

As a stand-alone device, the 6010C will measure both ratio and absolute values. Menu driven functions are selectable using the front panel keys for calibration, ratio measurements and absolute measurements where the value and related uncertainty are entered in from the front panel keyboard. Measurement functions such as current through the unknown resistor and settletime, number of measurements and number of statistics are all that is required to make measurements. The large LCD display chosen for its low noise characteristics displays two measurements at a time. When the reading is complete the average value and uncertainty based on the number for statistics are displayed. All uncertainty calculations are 2 sigma calculations.

System Software:

The Measurements International's 6010SW controls all of the above automatically. The software features report generation, historical analysis and tracks and corrects for resistor drift rates. Combined with the Measurements International model 9301JW oil bath, alpha and beta calculations can be performed automatically on resistors under test. All data can be exported directly to Excel for various test patterns or mainframe applications. External atmospheric pressure, humidity and temperature indicators are optional and the entire system can be enclosed in a 4 or 6 ft. rack. Resistor baths (oil or air), instrument controllers, printers, system software, IEEE interface, installation and training are all available for complete system packages. See section on 6010SW for more details on the software.

System Requirements:

To run the MI Software (6010SW) requires a computer, PII or higher running at 300 MHz or higher, with 32 MEG of RAM, Windows 95, 98 and a National Instruments IEEE488 Interface Card (not included).

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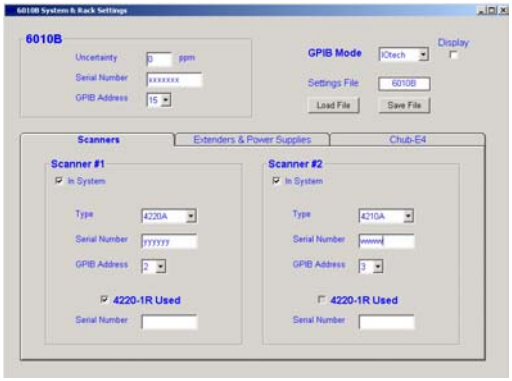
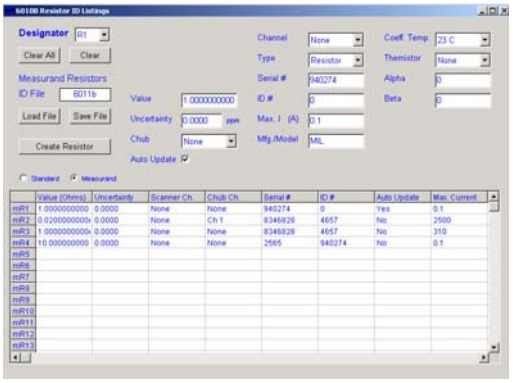
Model 6010C

6010SW – Windows Operating Software:

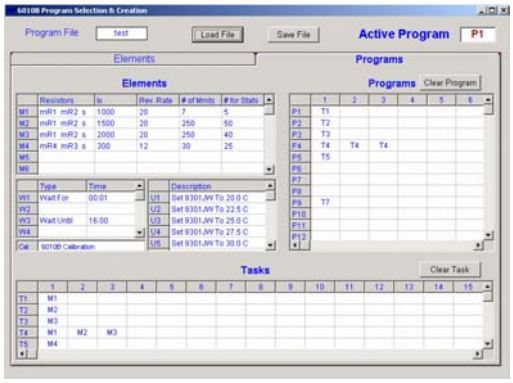
System & Rack Menu



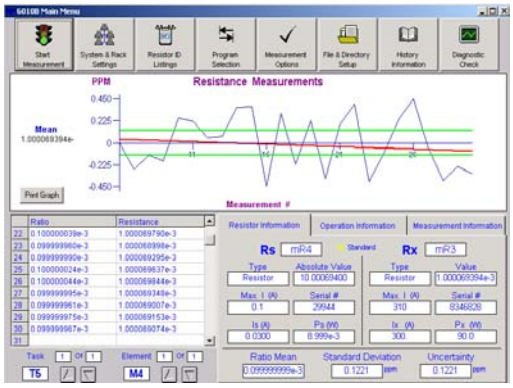
Resistor ID Menu



Program ID Menu

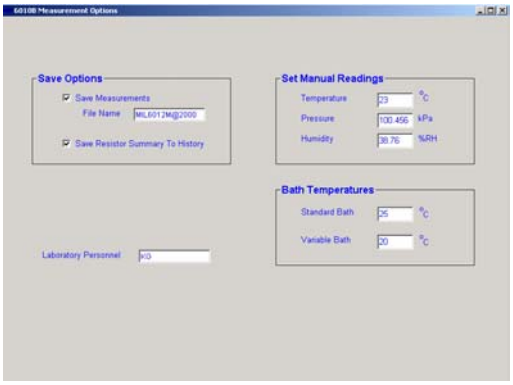


Measurement Menu



History Menu

Measurement Options



Measurements International's 6010SW was developed by metrologists for metrologists. The software features real time uncertainty analysis, graphing, history logging, and data storage with export to excel and regression analysis. The 6010SW provides ultimate programmability and control for all your resistors and temperature calibrations, now and in the future.

Data Subject to Change Printed in Canada

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Model 6010C

Specifications:

Range	Accuracy (95%)
0.001 to 0.01 Ohm	< 5 PPM
0.01 to 0.1 Ohm	<0.5 PPM
0.1 to 1.0 Ohm	<0.1 PPM
1.0 to 10K Ohm	<0.05 PPM
Maximum Ratio	13:1
Resolution	.001 PPM
Linearity	< 0.01 PPM
Test Currents	10uA to 150mA
Automatic DC Current Reversal	4 to 1000 Seconds
Insulation Resistance	$>10^{11}$, typically 10^{12}
Operating Environment	18 to 34°C, 10 to 80% RH
Warranty	1 Year Parts & Labor

Dimensions:
265 x 439 x 380 mm

Weight:
19 kg

Shipping Weight:
23 kg

Accessories:
SPSCW XX YY 4
6010SW
4210A/4220A
4220/30A
6011A
6013M
6012M

Operating Power:
100, 120, 220, 240V - 50/60 Hz

Distributed By:

How to Order:
Model: 6010C - Resistance/Thermometry Bridge

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