



## **Model 6015T** Automated Primary Thermometry Bridge

*DCC Technology*  
*Current Reversal*  
*Front and Rear Panel Inputs*  
*Accuracy: <0.02 PPM*  
*Noise: <2nV*  
*IEEE488 and Manual Operation*

### **General Description:**

The Model 6015T is designed for automated resistance thermometry applications and provides the best accuracy and convenience based on the most recent developments in current comparator technology. The Model 6015T is completely self-calibrated directly against two stable standard resistors of equal value, where only the short-term drift of the resistors is important.

The Model 6015T is a fully automated resistance ratio bridge based on the Direct-Current-Comparator (DCC) principle, avoiding all polarization effects in PRT's caused by AC bridges (NOTE 1). Using innovative technology, the 6015T's speed and measurement accuracy accounts for increased interest and preferred status among many national laboratories. Self-calibration for verifying the linearity of the DC Comparator can be performed at any time.

The Model 6015T is ideal for temperature measurement. The maximum ratio of 1.5:1 improves the overall noise level while automatic current reversal insures that all dc offsets and thermal emf's are eliminated. Reversals are selectable from 2 seconds and the 6015T will track temperature changes up to 10% of full scale.

The Model 6015T can measure both ratio and resistance and has rear and front panel connections and the number of inputs can be expanded to 40 when used with a ten and/or twenty channel, low thermal matrix scanner (Models 4210A/4220A). Measurements are performed automatically with Measurements International's operating software.

The 6015T includes a wide range of features specifically tailored for temperature metrology. These include programmable currents with  $\sqrt{2}$  or  $1/\sqrt{2}$  excitation, selectable filters and manual or IEEE488 modes of operation.

# Model 6015T

## SPECIFICATIONS:

Accuracy:	<0.02 PPM (Completely Self-Checking)
Resolution:	0.001 PPM of Full Scale
Measurement Time:	20 Seconds for Full Balance
Variable Incremental Balance:	2 to 1000 Seconds
Warm Up Time:	None
Differential and Absolute Measurement:	Ratio and Ohms
Thermometer Measurement Range:	0.1 to 1K $\Omega$ (UUT and/or Standard)
Traceability to National Standards:	Completely Self Checking w/ 2 Std. Resistors
Maximum Ratio:	1.5 : 1
Linearity:	<0.01 PPM (Completely Self Checking)
Bandwidth:	0.5 to 0.001 Hz (2 to 1000 Seconds)
External Standards:	AC or DC Standard Resistors
Sensor Current:	10uA to 150mA - $\sqrt{2}$ or $1/\sqrt{2}$ at any value
Bridge Balancing:	Front Panel or Software Controlled
Lead Connections:	True Four Wire ( <i>No Series Lead Resistance</i> )
Analog Output:	Null Balance 0 - +5V
Stability:	<0.01 PPM/Year
Filter Selection:	0.3s, 1.0s, 3s
Sensor Current Accuracy	100 PPM
Noise:	<2nV
Temperature Coefficient:	0
Insulation Resistance:	>10 <sup>11</sup> Typically 10 <sup>12</sup>
Output Impedance:	Infinite

## GENERAL:

Power: 110/120/220/240 Vac 50/60 Hz 40 VA  
Ambient Temperature: 10<sup>o</sup> C to 35<sup>o</sup> C  
Size: 266mm x 451mm x 306mm  
Weight: 22.7 Kg

## Distributed By:

## How to Order:

Model: 6015T -Thermometry Bridge

NOTE 1: TEMPMEKO 99: CALIBRATION OF SPRTs IN THE SUB-RANGE BETWEEN THE TRIPLE POINT OF Hg AND THE MELTING POINT OF Ga, Piero Marcarino, Peter P.M. Steur, Roberto Dematteis CNR - Istituto di Metrologia "G.Colonnetti" (IMGC), Torino, Italy

Data Subject to Change

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