



Measurements International

A Metrology Company

Model 6242T

**Automated Secondary
Temperature Bridge**



*0.1 to 10,000 Ohm Range
Accuracy: 0.2 PPM (0.05m°C)*

Maximum Ratio: 14:1

DC Current

Comparator Technology

Resolution: 0.01 PPM

Linearity: 0.01 PPM

General Description:

The Model 6242T is a high accuracy resistance bridge designed specifically for resistance thermometry. Based on the Direct Current Comparator, its unique DC Reversal eliminates thermal EMF effects to provide you with fast, reliable measurements under a wide range of real operating conditions. Four terminal measurements allow you to make measurements up to 100 meters and more from the PRT. The differential capability allows the resistance of one PRT to be measured against another directly and provides the most accurate comparison calibration technique.

The Model 6242T Automated Secondary Temperature Bridge is ideal for those laboratories involved in resistance and temperature measurements that do not require the accuracy level of an NMI. It is also designed as an automated, direct replacement for the ASL F700 Temperature measurement system. The 6242T is based on the same Direct Current Comparator technology found in the bridge used by major laboratories to maintain their primary standards, the Model 6010. Therefore, it has some of the same features that metrologists have come to expect in an MIL bridge, such as four terminal measurements over the complete range, automatic current reversal to eliminate thermal EMF's and a built-in self-calibration routine.

The 6242T features include a front panel display, standard IEEE488 interface and two input channels. Up to three PRTs can be entered via the front panel keys. Besides temperature, the 6242T is capable of measuring resistance and resistance ratio. All uncertainties are calculated to 2 sigma.

An optional, easy to use Windows® based software package is also available. It offers the features that metrologists expect such as the ability to perform automatic data acquisition, real time uncertainty analysis, graphing, history logging and regression analysis.

The 6242T can be used with one or more of MIL 4200 series of scanners for multi channel calibration.

Model 6242T

Specifications:

Resistance Range	Accuracy (PPM)
1 to 10,000 Ω	< 0.2 (0.05 m°C)
0.1 to 1 Ω	< 0.5 (0.1 m°C)
Voltage Noise	< 10 nV
Thermometers	R 1000 Ω , 100 Ω , 25 Ω , 10 Ω , 1 Ω or any Intermediate value
Measurement range	0 to 14 where $R_s = 0.1, 1, 10, 100 \Omega$
External Standards	0.1 Ω to 1000 Ω
Linearity	± 0.01 PPM
Input Channels	2 (expandable to 40), Tellurium Copper - Rear Panel
Test Current Range	20 μ to 100m Amps FS
$\sqrt{2}$ @ $1/\sqrt{2}$	Front Panel Selectable on any current
Current Resolution	16 bit
Current Reversal	2 to 1000 Seconds
Time to Stated Accuracy (warm-up)	<20 sec.
Measurement Time	<20 sec.
Temperature Co-efficient	± 0.01 PPM/ $^{\circ}$ C
Resolution	± 0.01 PPM of full scale
Mode of Operation	Manual or Automatic (IEEE488)
Operating Conditions	0 to 34 $^{\circ}$ C, 10 to 90% RH
Operating Power (Selectable)	100, 120, 220, 240V - 50/60Hz
Warranty	1 Year Parts & Labor

Weight:

17 kg (35 lb.)

Dimensions:

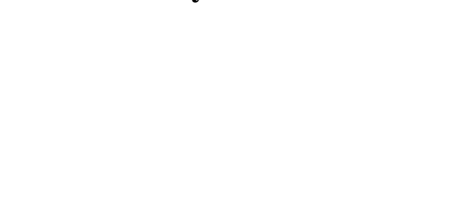
H 179mm (7 in) x W 484 mm (19 in) x L 484 mm (19 in)

Accessories:

4220A Low Thermal Matrix Scanner
6242T Software for W95/98/2000
SPSCW XX YY 4 (4 conductor cable)

612.5 mm (24 inch) high Equipment Rack
9331 Standard Resistors (1,10,25,100,1k Ω)

Distributed By:



How to Order:

Model 6242A Automated Resistance
Bridge

Data Subject to Change

Printed in Canada



Measurements International

118 Pirelli Dr., PO Box 2359, Prescott, Ontario, Canada K0E 1T0
Ph. 613.925.5934 • Fx. 613.925.1195 • North America: 1.800.324.4988

Form MI 67, Rev. 1, Dated 01-11-15 (QAP 19, App. "O")