

>163.65546 67818.72395 911 56-203 88889<
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 >145.523286 64486.22-2689 986 56-203 88849<
 >368.688789 12437.23-2333 977 56-203 55549<

DATA SHEET

MODEL 6242T



Automated Secondary Thermometry Bridge

- **0.1 to 10,000 Ohm Range**
- **Best Accuracy: < 0.1 PPM (0.025m°C)**
- **Maximum Ratio: 14:1**
- **DC Current Comparator Technology**
- **Resolution: 0.01 PPM**
- **Linearity: 0.01 PPM**

MODEL INFORMATION

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.



Specifications:

| | |
|-----------------------------------|---|
| Resistance Range | Accuracy (PPM) |
| 1 to 10,000 Ω | < 0.1 (0.025 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 Rs = 0.1, 1, 10, 100 Ω |
| 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/°C |
| Resolution | ± 0.01 PPM of full scale |
| Mode of Operation | Manual or Automatic (IEEE488) |
| Operating Conditions | 0 to 34°C, 10 to 90% RH |
| Operating Power (Selectable) | 100, 120, 220, 240V - 50/60Hz |
| Warranty | 2 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 Included:

6242T Software for W98/2000/XP/Vista
IEEE 488 Card & Cable
One 9331 Standard Resistor (Specified Value)
SPSCW XX YY 4 (4 conductor cable)

Optional Accessories:

4220A Low Thermal Matrix Scanner
612.5 mm (24 inch) high Equipment Rack
9331 Standard Resistors (1, 10, 25, 100, 1k Ω)

Distributed By:

How to Order:

Model 6242T Automated Secondary Thermometry
Bridge

Form MI 66, Rev. 5, Dated 08-08-18 (QAP19, App. "N")

Data Subject to Change-Revision 2

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