



# 7000 RTD Temperature Calibrator

Time Electronics

Calibration, Test & Measurement

- **Temperature:** Accuracy 0.05 °C (0.09 °F)  
Resolution 0.01 °C (0.02 °F)
- **Resistance:** Accuracy 0.03Ω  
Resolution 0.01Ω
- **2, 3 and 4 Wire Connections**
- **Read and Simulate °C, °F, °K, and Ohms**
- **Ramp & Step**
- **PT100 plus 7 other RTD types**
- **User programmable**
- **Supplied in protective carrying case**



The **7000** is a portable process control instrument that combines a precision Digital Thermometer (using RTD probes) with an RTD/Ohms Calibrator.

Compact and easy to use, it solves the problem of making high accuracy temperature measurements without using bulky mains powered instrumentation.

Powered from internal long life re-chargeable batteries or an external mains adapter, it is equally valuable in laboratory, workshop or the field. It can also be used as an external temperature reference for dry block and other precision temperature baths.

## 7000 Technical Specifications

### MONITOR MODE (4 WIRE) FUNCTIONS

1. Check RTD probes by measuring their resistance at known temperatures.
2. Measure resistance values.
3. Indicate temperature when connected to an RTD probe.
4. Can be pre-programmed with a particular RTD's characteristics to allow very high accuracy.

Excitation current: 1mA on all ranges  
 Resistance range: 0.01Ω to 2.6kΩ  
 Resolution: 0.01Ω  
 Accuracy: See tables below  
 Auto re-calibration: Every 0.6 secs.  
 Temperature stability: Better than 0.0015%/°C  
 Max/Min values: Logged automatically

The 7000 may be used with a calibrated and certified probe to produce a highly accurate thermometer. The performance can be further enhanced by programming the actual characteristic of the probe into the unit.

### SIMULATOR MODE (4 WIRE) FUNCTIONS

1. Output resistance of precise known value.
2. Simulate an RTD value from an RTD table chart.
3. Simulate an RTD value using the internal table.

Excitation current: 0.6mA to 1mA.  
 Resistance range: 0.01 to 2.6kΩ  
 Resolution: 0.01Ω  
 Accuracy: See tables below  
 Auto re-calibration: Every 0.6 secs  
 Temperature stability: Better than 0.0015%/°C.

Enhanced performance may be achieved by programming the unit to simulate the characteristic of a particular probe.

Five fixed step points (0, 25, 50, 75, 100%) are available between a user set minimum (0%) and a maximum (100%). Programmable ramp function is also available.

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**Standard RTD types (Non standard RTD types user programmable)**

<u>Element</u>	<u>Alpha Coeff.</u>	<u>Celsius</u>		<u>Fahrenheit</u>	
		<u>Range</u>	<u>Accuracy</u>	<u>Range</u>	<u>Accuracy</u>
Pt100 DIN	0.003850	-200 to 250	0.05 °C	-330 to 480	0.10 °F
		250 to 849	0.07 °C	480 to 1560	0.14 °F
Pt100 US	0.003916	-100 to 250	0.05 °C	-150 to 480	0.10 °F
		250 to 457	0.07 °C	480 to 850	0.14 °F
Pt200 DIN	0.003850	-200 to 300	0.05 °C	-330 to 570	0.10 °F
Pt500 DIN	0.003850	-200 to 250	0.05 °C	-330 to 480	0.10 °F
		250 to 630	0.07 °C	480 to 1160	0.14 °F
Pt1000 DIN	0.003850	-200 to 250	0.05 °C	-330 to 480	0.10 °F
		250 to 630	0.07 °C	480 to 1160	0.014 °F
Ni 120	0.006180	-100 to 200	0.05 °C	-150 to 390	0.10 °F
Ni 1000	0.006180	-100 to 200	0.05 °C	-150 to 390	0.10 °F
	<b>Range ohms</b>	<b>Monitor</b>	<b>Generator</b>		
	20 to 400	0.03Ω	0.03Ω		
<b>Resistance</b>	400 to 800	0.10Ω	0.10Ω		
<b>Accuracy</b>	800 to 1200	0.20Ω	0.20Ω		
	1200 to 2600	0.50Ω	0.50Ω*		

*\*plus additional error of 0.05% of output value. If excitation current is less than 1mA.*

**General Specification**

<b>Operating temperature range:</b>	-10 to 50°C
<b>Battery power:</b>	NiCad rechargeable
<b>Mains power:</b>	External mains adapter.
<b>Battery life:</b>	> 30hrs
<b>Case:</b>	Impact resistant ABS
<b>Size:</b>	165mm x 90mm x 45 mm
<b>Weight:</b>	0.40 kg
<b>Optional Extras:</b>	Mains Adapter 230V AC, Mains Adapter 110V AC Calibration Certificates – traceable to NPL and UKAS

**Ordering Information**

<b>Code</b>	<b>Description</b>
7000	RTD Temperature Calibrator
7633	Mains Adapter 230V AC
7633	Mains Adapter 110V AC
9183	Factory (NPL Traceable) Calibration Certificate
9194	UKAS Calibration Certificate (ISO 17025)

Due to continuous development Time Electronics reserves the right to change specifications without prior notice.

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