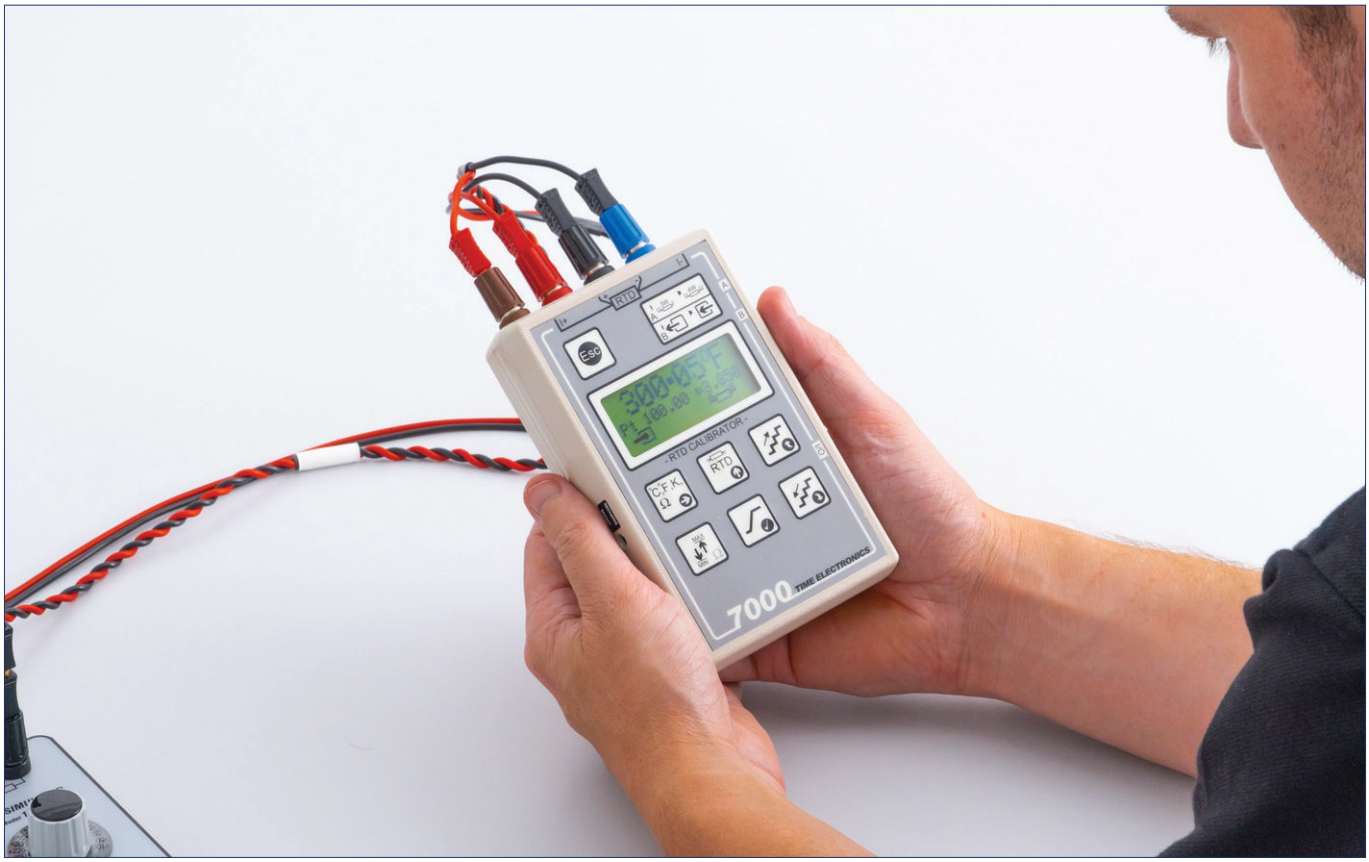
Time Electronics
7000 RTD Temperature Calibrator



Description

The 7000 is a portable process control test 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 rechargeable batteries or an external mains adaptor, 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.

Modes of Operatation

Monitor mode (4 wire)

Typical functions

- Check RTD probes by measuring their resistance at known temperatures.
- Measure resistance values.
- Indicate temperature when connected to an RTD probe.
- Pre-programmed with a particular RTD's characteristics for very high accuracy.

Excitation current .....1 mA on all ranges.
Resistance range..... 0.01 Ω to 2.6 kΩ.
Resolution .....0.01 Ω.
Accuracy ..... See specifications on next page.
Auto re-calibration..... Every 0.6 secs.
Temperature stability.....Better than 0.0015 % per °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.

Features

- Temperature accuracy 0.05 °C (0.09 °F)
- Temperature resolution 0.01 °C (0.02 °F)
- Resistance accuracy 0.03 Ω
- Resistance resolution 0.01 Ω
- 2, 3, and 4 wire connections
- Measure and simulate °C, °F, °K, & Ω
- Ramp and step
- PT100 plus 7 other RTD types
- User programmable
- 24 hours typical use between charges

Simulator Mode (4 wire)

Typical functions.....Output resistance of precise known value.
Simulate an RTD value from an RTD table chart.
Simulate an RTD value using the internal table.
Excitation current ..... 0.6 mA to 1 mA.
Resistance range.....0.01 Ω to 2.6 kΩ.
Resolution ..... 0.01 Ω.
Accuracy .....See specifications on next page.
Auto re-calibration.....Every 0.6 secs.
Temperature stability..... Better than 0.0015 % per °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.

Time Electronics Ltd, Unit 5, TON Business Park, 2-8 Morley Road, Tonbridge, Kent, TN9 1RA, United Kingdom
T: +44 (0) 1732 355993 | F: +44 (0) 1732 350198 | mail@timeelectronics.co.uk | www.timeelectronics.com

Technical Specifications

Standard RTD types (non standard RTD types user programmable)

Element	Alpha coefficient	Temp range °C	Accuracy °C	Temp range °F	Accuracy °F
Pt100 DIN	0.003850	–200 to 250	0.05	–330 to 480	0.10
		250 to 849	0.07	480 to 1560	0.14
Pt100 US	0.003916	–100 to 250	0.05	–150 to 480	0.10
		250 to 457	0.07	480 to 850	0.14
Pt200 DIN	0.003850	–200 to 300	0.05	–330 to 570	0.10
Pt500 DIN	0.003850	–200 to 250	0.05	–330 to 480	0.10
		250 to 630	0.07	480 to 1160	0.14
Pt1000 DIN	0.003850	–200 to 250	0.05	–330 to 480	0.10
		250 to 630	0.07	480 to 1160	0.14
Ni 120	0.006180	–100 to 200	0.05	–150 to 390	0.10
Ni 1000	0.006180	–100 to 200	0.05	–150 to 390	0.10

Resistance accuracy

Range (Ω)	Monitor (Ω)	Generator (Ω)
20 to 400	0.03	0.03
400 to 800	0.10	0.10
800 to 1200	0.20	0.20
1200 to 2600	0.50	0.50 *

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

General Specifications

Operating temperature range ..... 10 to 50 °C.

Battery power..... NiMH re-chargeable.

Mains power ..... External mains adaptor.

Battery life ..... > 24hrs typical use.

Case..... Impact resistant ABS.

Dimensions ..... H 165 x W 90 x D 45 mm.

Weight..... 0.42 kg.

Optional extras ..... Mains adaptor 230 V AC, Mains adaptor 110 V AC.
Calibration certificates: Traceable (Factory) and Accredited (ISO 17025).

Ordering Information

7000.....**RTD Temperature Calibrator**

7633..... Mains adapter 230V AC

7633..... Mains adapter 110V AC

C183..... Traceable calibration certificate (Factory)

C194..... Accredited calibration certificate (ISO 17025)

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

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