

Accu-Temp Precision RTD Thermometer

The Tecal Accu-Temp RTD thermometer is an excellent choice for use as a laboratory grade reference thermometer.

It offers the flexibility of two RTD input channels, along with direct temperature readout in degrees °F, °C and ohms. Combine the Tecal Accu-Temp with one of our PRT's for a high accuracy temperature measurement system.

- User programmable linearisation (ITS90)
- Accepts either 10, 25.5 or 100 ohm platinum RTD's
- Direct readout in °C, °F, and ohms
- Temperature accuracy of $\pm 0.015^{\circ}\text{C}$ up to 500°C
- Temperature and ohm meter resolution of 0.001
- Wide temperature range -200 to $+660^{\circ}\text{C}$
- Accepts probe alphas of either 0.00385 or 0.003925
- Single or dual RTD input channels
- Switchable 230 or 120V operation
- Includes NIST traceable calibration certificate

Technical Specification

Temperature accuracy of thermometer					
	-100°C	0°C	200°C	400°C	500°C
+/-	0.005(0.009°F)	0.005(0.009°F)	0.007(0.013°F)	0.011(0.020°F)	0.013(0.023°F)
	Ohmmeter uncertainty		+/-0.002 ohms or 15 ppm		

Dimensions h x w x d	90 x 220 x 295
Weight	4kg (5.5 kg shipping)
Option	RS-232 interface

Ordering Information

Product Code	Model	Voltage
FACTMPD	Accu-Temp RTD Thermometer	230/120v Dual Channel
FACTMPS	Accu-Temp RTD Thermometer	230/120v Single Channel
FACTMRD	Accu-Temp RTD Thermometer	230/120v Dual Channel + RS-232
FACTMRS	Accu-Temp RTD Thermometer	230/120v Single Channel + RS-232



See page 19 and 20 for RTD probes for use with the Accu-temp and Accu-temp II



Accu-Temp Precision RTD Thermometer



Accu-Temp Precision RTD Thermometer and PRT probe



Tecal Accu-Temp II

Tecal Accu-Temp II Laboratory Grade Reference Thermometer

The Tecal Accu-Temp II is a high accuracy multi purpose digital thermometer for both platinum resistance thermometers and thermocouples. Dual Channel input allows a probe on Channel B to be calibrated against a standard on Channel A - directly compare any combination of PRT and Thermocouple. The Tecal Accu-Temp II supports 13 thermocouple Types B, E, J, K, N, R, S, T, D, C, I, U, Au/Pt and both 3 and 4 wire 100 ohm Platinum resistance thermometers and RTDs.

- Accuracy of RTD and PRT measurement $\pm 0.010^{\circ}\text{C}$
- Accuracy of T/C measurement, better than $\pm 0.1^{\circ}\text{C}$
- 0.001 resolution for RTDs/PRTs and thermocouples
- 2 measuring inputs
- 13 thermocouples: B, E, J, K, N, R, S, T, D, C, I, U, Au/Pt
- T/C CJC internal or external
- Input of RTD coefficients: Calendar Van Dusen & ITS90
- Probe self-heat check
- Automatic current reversal for RTDs/PRTs
- Suitable for 3 and 4 wire RTDs/PRTs
- Units $^{\circ}\text{C}$, $^{\circ}\text{F}$, K, mV, ohms
- Math functions max/min, std. deviation & mean
- Data logging 4000 values
- Expandable by plugging in optional 4 input RTD or thermocouple scanner cards to 1 of 2 rear panel slots available.
- RS232 talk/listen - included
- Rechargeable sealed lead acid battery: 8 hrs operation continuous

The powerful math function enables statistical analysis of the captured data, mean, max, min, peak and standard deviation. The Tecal Accu-Temp II can be expanded by adding either a 4 input Thermocouple or 4 input PRT card into one of the two available slots in the rear of the unit. Ultimately two cards of the same type could be added to allow the measurement of up to 10 sensors of the same type or one PRT as a reference and nine thermocouples. Each unit includes an RS232 cable, NIST traceable calibration, instruction manual and mains cable. Combine the Tecal Accu-Temp II with one of Techne's Secondary Standard PRTs, a Techne Dry block calibrator or liquid calibration bath and Technetworks software to create a thermometer and sensor calibration system with high overall accuracy.

Technical Specification

Dimensions	219mm W x 315mm H x 110mm D
Weight	5.5kg approx

Thermocouple Accuracy

Type	Range $^{\circ}\text{C}$	Resolution $^{\circ}\text{C}$, $^{\circ}\text{F}$ or K	Display Resolution mV	Uncertainty @20 $^{\circ}\text{C}$ $^{\circ}\text{C}$ 5 \pm 1 year	Uncertainty @20 $^{\circ}\text{C}$ $^{\circ}\text{C}$ 5 \pm 60 days	Temperature Coefficient / $^{\circ}\text{C}$
B	+250 to +1820	0.001	1.0	$\pm(0.025\% \text{ Rdg} + 0.006\% \text{ FS})^*$	$\pm(0.02\% \text{ Rdg} + 0.006\% \text{ FS})^*$	7 ppm Rdg + 6 ppm FS
C	0 to +2315	0.001	1.0	$\pm(0.075\% \text{ Rdg} + 0.005\% \text{ FS})$	$\pm(0.05\% \text{ Rdg} + 0.005\% \text{ FS})$	7 ppm Rdg + 6 ppm FS
D	0 to +2315	0.001	1.0	$\pm(0.75\% \text{ Rdg} + 0.005\% \text{ FS})$	$\pm(0.05\% \text{ Rdg} + 0.005\% \text{ FS})$	7 ppm Rdg + 6 ppm FS
E	-200 to +1000	0.001	1.0	$\pm(0.026\% \text{ Rdg} + 0.004\% \text{ FS})$	$\pm(0.01\% \text{ Rdg} + 0.004\% \text{ FS})$	7 ppm Rdg + 6 ppm FS
J	-210 to +1200	0.001	1.0	$\pm(0.03\% \text{ Rdg} + 0.005\% \text{ FS})$	$\pm(0.008\% \text{ Rdg} + 0.005\% \text{ FS})$	7 ppm Rdg + 6 ppm FS
K	-200 to +1372	0.001	1.0	$\pm(0.035\% \text{ Rdg} + 0.006\% \text{ FS})$	$\pm(0.01\% \text{ Rdg} + 0.006\% \text{ FS})$	7 ppm Rdg + 6 ppm FS
N	-200 to +1300	0.001	1.0	$\pm(0.035\% \text{ Rdg} + 0.005\% \text{ FS})$	$\pm(0.01\% \text{ Rdg} + 0.005\% \text{ FS})$	7 ppm Rdg + 6 ppm FS
R	-50 to +1768	0.001	1.0	$\pm(0.02\% \text{ Rdg} + 0.015\% \text{ FS})$	$\pm(0.005\% \text{ Rdg} + 0.015\% \text{ FS})$	7 ppm Rdg + 6 ppm FS
S	-50 to +1768	0.001	1.0	$\pm(0.02\% \text{ Rdg} + 0.015\% \text{ FS})$	$\pm(0.005\% \text{ Rdg} + 0.015\% \text{ FS})$	7 ppm Rdg + 6 ppm FS
T	-200 to +400	0.001	1.0	$\pm(0.025\% \text{ Rdg} + 0.015\% \text{ FS})$	$\pm(0.005\% \text{ Rdg} + 0.015\% \text{ FS})$	7 ppm Rdg + 6 ppm FS
U	-200 to +600	0.001	1.0	$\pm(0.025\% \text{ Rdg} + 0.015\% \text{ FS})$	$\pm(0.005\% \text{ Rdg} + 0.015\% \text{ FS})$	7 ppm Rdg + 6 ppm FS
L	-200 to +600	0.001	1.0	$\pm(0.03\% \text{ Rdg} + 0.005\% \text{ FS})$	$\pm(0.008\% \text{ Rdg} + 0.005\% \text{ FS})$	7 ppm Rdg + 6 ppm FS
Au/Pt	0 to +1000	0.001	1.0	$\pm(0.02\% \text{ Rdg} + 0.015\% \text{ FS})$	$\pm(0.005\% \text{ Rdg} + 0.015\% \text{ FS})$	7 ppm Rdg + 6 ppm FS

RTD & PRT Accuracy

Type	Range $^{\circ}\text{C}$	Resistance	Current	Resolution	Resistance $^{\circ}\text{C}$, $^{\circ}\text{F}$ or K	Accuracy Typically @20 $^{\circ}\text{C}$ \pm
Pt100	-200 to 660	18 to 340 Ω	0.5mA	0.001	0.001 Ω	0.010
Pt100	660 to +450	340 to 450 Ω	0.5mA	0.001	0.001 Ω	0.020



Technical Specification

Display

LCD Graphics Panel, 240 x 64 Dot, with LED backlight contrast control via Keyboard.

Inputs

Thermocouples via 4mm sockets in copper block on 19mm pitch adaptor plug for direct connection of thermocouple wire. Reference Junction Compensation - Automatic with external Pt100 probe. PRT's via 6-pin Lemo socket, also used for external RJ measurement.

Calibration

Digital, security code protected.

Working Temperature

0 to 40°C rel humidity.
80% max non condensing.

Storage Temperature

-20 to +50°C.

Mains Supply

100/120/220/240 Volts + 10% - 13% 47 to 63Hz max. 40VA.

Dimensions

219mm W x 315mm H x 110mm D

Weight

5.5 kg approx

Data Logging

The Tecal Accutemp II Thermometer comes complete with a data logging function, enabling up to 4000 single channel (2000 dual channel) readings to be stored together with a date and time stamp. The stored values can be recalled to the instrument display and scrolled through using the front panel keyboard, alternatively these values can be downloaded to a PC file or printer.

Battery

Sealed lead acid, rechargeable cell giving approximately 8 hours continuous operation. Internal battery charger.

Maths

Displays max/min values Peak to Peak, mean & standard deviation.

Analogue Output - optional

This is a factory fitted option comprising of a single BNC socket fitted to the rear panel. The function is as per the main value display and is scaled 1mV°C. A 12 bit D/A is used and the resolution is 0.5°C.

Expansion cards - optional

There are two expansion slots in the rear panel which will accept a 4 Input thermocouple or RTD plug and play card giving a total of 8 additional channels.

IEEE-488 optional

Conforms to the ANSI-IEEE Std 488.1-1987. The interface performs the following functions: SH1, AH1, T5, TEO, L3, LEO, SR1, RL1, RL1, PPO, DC1, DT1, C0, E2. The interface can also be set to a talk only mode to permit stand alone printer output.

Ordering Information

Product Code	Model	Voltage	Shipping Weight
FACT2PD	Tecal Accu-Temp II thermometer	120 & 240 switchable	5.5
FACT2TC	4 input Thermocouple scanner card	N/A	0.9
FACT2PC	4 input RTD scanner card	N/A	0.9
FACT2LC	Front panel RTD Lemo connector	N/A	0.1



See page 19 and 20 for RTD probes for use with the Accu-temp and Accu-temp II



Thank you for reading this data sheet.

For pricing or for further information, please contact us at our UK Office, using the details below.



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Please note - Product designs and specifications are subject to change without notice. The user is responsible for determining the suitability of this product.