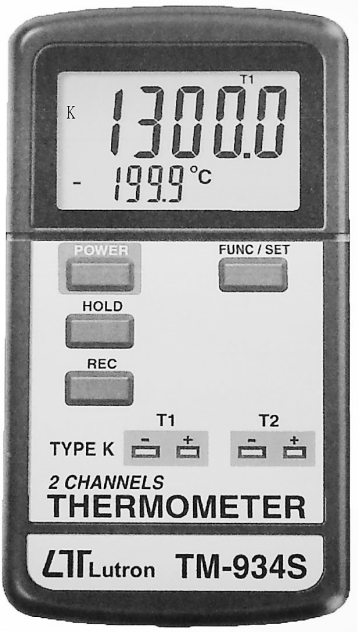
T1, T2, T1-T2, Type K

TWO CHANNELS THERMOMETER

Model : TM-934S



Your purchase of this THERMOMETER marks a step forward for you into the field of precision measurement. Although this THERMOMETER is a complex and delicate instrument, its durable structure will allow many years of use if proper operating techniques are developed. Please read the following instructions carefully and always keep this manual within easy reach.

OPERATION MANUAL

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1. FEATURES

* Two channels thermometer, T1, T2, T1-T2, T1 only.
* type K temp. measurement, wide range.
* ℃/℉, 0.1 degree.
* Microcomputer circuit provides intelligent function and high accuracy.
* LCD with two display, easy readout.
* Records Maximum and Minimum readings with recall.
* Data hold function for freezing the desired value.
* Meter can default auto power off or manual power off.
* Meter can default the measuring unit to ℃ or ℉.
* Few panel buttons, easy operation.
* Built-in low battery indicator.
* Heavy duty & compact housing case.

2. SPECIFICATIONS

2-1 General Specifications

Circuit	Custom one-chip of microprocessor LSI circuit.
Display	LCD size : 46 mm x 28 mm dual function LCD display.
Display Unit	℃, ℉.
Resolution	0.1 ℃, 0.1 ℉.
Channels	T1, T2.
Thermocouple type	Type K.
Temperature Compensation	Automatic temp. compensation for the cold junction for type K thermometer
Linear Compensation	Linear Compensation for the full range.

Probe Input Socket	Standard 2 pin thermocouple socket.
Over Indication	Show " ----- ".
Data Hold	Freeze the display reading.
Memory Recall	Maximum & Minimum value.
Sampling Time of display	Approx. 1 second.
Power off	Auto shut off saves battery life or manual off by push button.
Operating Temperature	0 to 50 ℃.
Operating Humidity	Less than 80% R.H.
Power Supply	006P DC 9V battery (Alkaline or Heavy duty type).
Power Current	Approx. DC 5.5 mA
Weight	110 g/0.24 LB.
Dimension	131x70x27 mm, (5.1x2.7x1.1 inch).
Accessories Included	Instruction manual.....1 PCS
Optional Accessories	* Type K thermocouple probe. TP-01, TP-02A. TP-03, TP-04

2-2 Electrical Specifications (23±5 ℃)

Type K thermometer

Sensor Type	Reso-lution	Range	Accuracy
Type K	0.1 ℃	-50.0 to 1300.0 ℃	± (0.4 % + 0.8 ℃)
		-50.1 to -199.9 ℃	± (0.4 % + 1 ℃)
	0.1 ℉	-58.0 to 2372.0 ℉	± (0.4 % + 1.5 ℉)
		-58.1 to -327.8 ℉	± (0.4 % + 1.8 ℉)

* *Accuracy value is specified for the meter only.*

* *Type K probe TP-01 TP-02A, TP-03. TP-04 is the optional accessory*

* *Above specification tests under the environment RF Field Strength less than 3 V/M & frequency less than 30 MHz only.*

3. FRONT PANEL DESCRIPTION

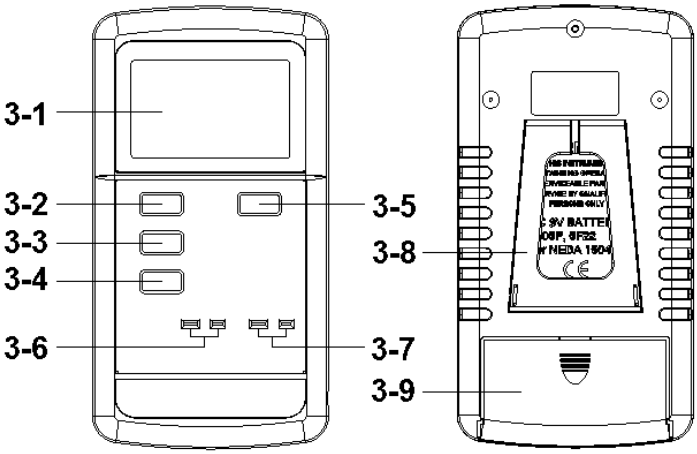


Fig. 1

3-1 Display
3-2 Power button
3-3 Hold button
3-4 REC button
3-5 FUNC/SET button
3-6 T1 probe socket
3-7 T2 probe socket
3-8 Stand
3-9 Battery compartment/Cover

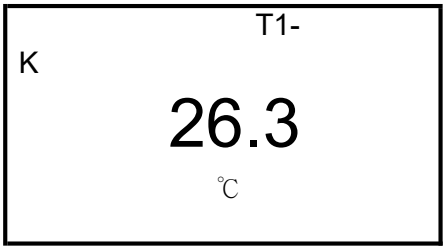
** FUNC = Function*

4. GENERAL MEASURING PROCEDURE

Meter defaults :
* The temperature reading unit is ℃.
* Beeper sound on.
* Auto power off.

4-1 one probe (single channel) measurement

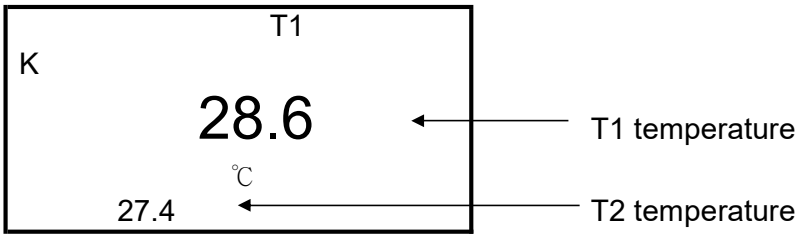
1) Insert the " Temp. probe plug " into the " T1 probe socket " (3-6, Fig. 1).
2) Power on the meter by pressing the " Power button " (3-2, Fig. 1) once.
3) Press the " Function button " (3-5, Fig. 1) once can select the sequence until the LCD show the " T1- " symbol, the display will show the temperature reading that sensing from the probe's head.



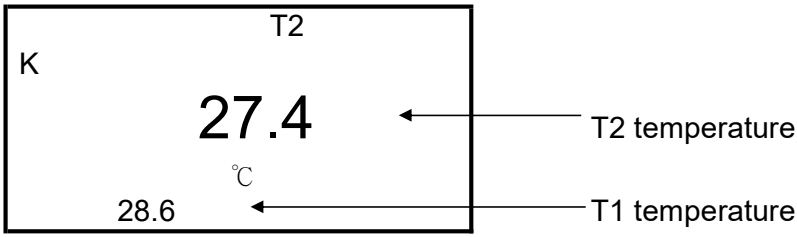
4-2 two probes (dual channels) measurement

1) For two probes (dual channels) measurement, insert the first " Temp. probe plug " into the " T1 probe socket " (3-6, Fig. 1) and insert the second " Temp. probe plug " into the " T2 probe socket " (3-7, Fig. 1).
2) Power on the meter by pressing the " Power Button " (3-2, Fig. 1) once.

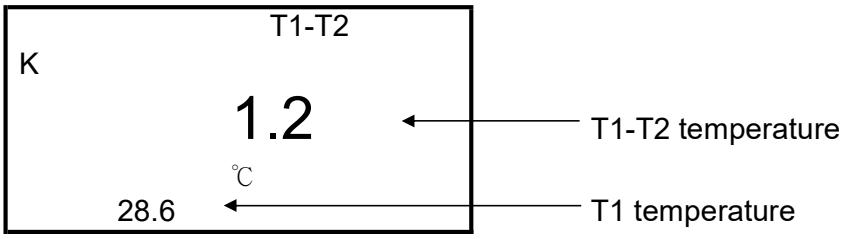
3) Press the " Function button " (3-5, Fig. 1) once can select the sequence unit the LCD show the " T1 " symbol the upper
display will show the T1 temperature reading, the lower display will show the T2 temperature reading.



4) Press the " Function button " (3-5, Fig. 1) once can select the sequence until the LCD show the " T2 " symbol the upper display will show the T2 temperature reading, the lower display will show the T1 temperature reading.



5) Press the " Function button " (3-5, Fig. 1) once can select the sequence until the LCD show the " T1-T2 " symbol the upper display will show the T1-T2 temperature reading, the lower display will show the T1 temperature reading.



Note :

If intend to change the measuring unit from ℃ to ℉, refer section 5-3, page 9.

4-3 Data Hold

During the measurement, press the " Hold Button " (3-3, Fig. 1) once will hold the measured value & the LCD will display a " HOLD " symbol.

* Press the " Hold Button " once again will release the data hold function.

4-4 Data Record (Max., Min. reading)

* The data record function records the maximum and minimum readings. Press the " REC Button " (3-4, Fig. 1) once to start the Data Record function and there will be a " REC " symbol on the display.

* When the " REC " symbol on the display :
  a) Press the " REC Button " (3-4, Fig. 1) once, the " REC MAX " symbol along with the maximum value will appear on the display.
  b) Press the " REC button " (3-4, Fig. 1) again, the " REC MIN " symbol along with the minimum value will appear on the display.
  c) Press the " REC button " (3-4, Fig. 1) once, the Display will show the " REC " symbol only and execute the memory function continuously.
  d) To exit the memory record function, just press the " REC " button for 2 seconds at least. The display will revert to the current reading.

5. ADVANCED SETTING PROCEDURE

> Before executing advanced setting procedures, exit the " Hold function " and the Record " function.

a. Hold the " FUNC/SET button " (3-5, Fig. 1) at least five seconds will enter the Advanced Setting Procedures.
b. One by one to press the " FUNC/SET button " (3-5, Fig. 1) once to select the three main function and show the text on the lower display as :

PoFF..... Auto power ON/OFF management
bEEP..... Change the beeper sound ON/OFF
t-CF..... Change the Temp ℃, ℉ unit

5-1 Auto power ON/OFF

(Lower display show " PoFF ")

a. Use " HOLD button " (3-3, Fig. 1) to select " YES " or " no ".
   ** YES : Auto power off.*
   ** no : Auto power disable,*
b. After select the desiring function (YES or no), press the " REC button " (3-4, Fig. 1) to save the function with default.

5-2 Change the beeper sound ON/OFF

(Lower display show " bEEP ")

a. Use " HOLD button " (3-3, Fig. 1) to select " YES " or " no ".
   ** YES : Beeper sound ON*
   ** no : Beeper sound OFF (disable),*
b. After select the desiring function (YES or no), press the " REC button " (3-4, Fig. 1) to save the function with default.

5-3 Change the Temp ℃, ℉ unit

(Lower display show " t-CF ")

a. Use " Hold button " (3-3, Fig. 1) to select " C " or " F ".
   ** C : ℃*
   ** F : ℉*
b. After select the desiring text (℃ or ℉), press the " REC button " (3-4, Fig. 1) to save the data with default.

6. BATTERY REPLACEMENT

1) When the left corner of LCD display show "  ", it is necessary to replace the battery. However, in-spec. measurement may still be made for several hours after low battery indicator appears before the instrument become inaccurate.

2) Slide the " Battery Cover " (3-9, Fig. 1) away from the instrument and remove the battery.
3) Replace with 9V battery (Alkaline or Heavy duty type) and reinstate the cover.
4) Make sure the battery cover is secured after changing the battery.

7. OPTIONAL TYPE K TEMP. PROBES

(Type K) TP-01	* Max. short-term operating Temperature: 300 ℃ (572 ℉). * It is an ultra fast response naked-bead thermocouple suitable for many general purpose application.
Thermocouple Probe (Type K), TP-02A	* Measure Range: -50 ℃ to 900 ℃, -58 ℉ to 1650 ℉. * Dimension:12cm tube, 3.2mm Dia.
Thermocouple Probe (Type K), TP-03	* Measure Range: -50 ℃ to 1100 ℃, -58 ℉ to 2012 ℉. * Dimension: 13.6 cm tube, 8mm Dia.
Surface Probe (Type K), TP-04	* Measure Range: -50 ℃ to 400 ℃, -58 ℉ to 752 ℉. * Size : Temp. sensing head - 15 mm Dia. Probe length - 120 mm.