

Metrix+™ DT305-S Operating Manual

High Precision Thermometer

Thanks for your selecting and using our product!
Please peruse this Operating Manual prior to the use of this product.

A. Overview

This product is a high-precision thermometer with such functions as out-of-limit alarming for high and low temperature and storage of 100 groups of data.

B. General Specifications

Display method: the super-large liquid crystal display (LCD) with the maximum display 19999;

Measuring range: (-50~1300)°C or (-58~1999.9) °F;

Polarity: negative display "-";

Low voltage indication: when the battery voltage is lower than the working voltage, it will automatically display "E+";

Sampling rate: 2.5 times per second

Storage temperature: (-10~60)°C;

Working temperature: (0~50)°C

Relative humidity: 0~80%

Power: AAA 1.5V*2

Size: 128mm (L) x 64mm (W) x 27mm (H);

Weight: about 140g.

C. Technical Parameters:

The accuracy is expressed as: ±(a% reading + word number);

The condition of accuracy assurance: Temperature: 23±5°C; Relative humidity: less than 80%.

Shelf life: one (1) year

Resolution	Quantum	Accuracy
0.1°C	-50°C~1300°C	±(0.5%+1°C)
0.1 °F	-58 °F ~1999 °F	±(0.5%+2 °F)

Note: 1. In order to guarantee the accuracy of measurement, the measurement shall be carried out after the machine is switched on and preheated three minutes.


2. The error of the test probe is not included in the accuracy listed in the above table. During measurement, please modify it in accordance with the accuracy of the thermometric probe used.

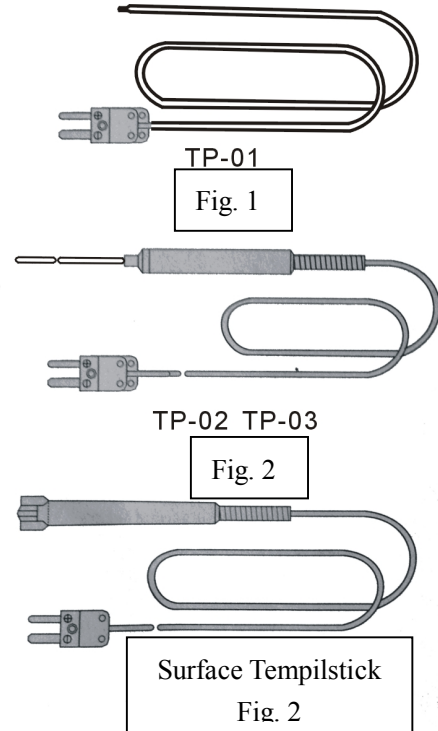
3. Model TP01 thermometric probe shall be attached to this machine, but remember: never use this probe to measure the temperature above 250°C. Specifications of Thermometric Probes

Models	TP01	TP02	TP03	Surface Tempilstick
Items				
Range	(-50~250°C)	(-50~750°C)	(-50~1300°C)	(-50~750°C)
Contact Types	Exposed	Grounded	Grounded	Exposed
Size	Bead-shaped	Φ3.2*150mm	Φ6.2*300mm	Φ15*100mm
Handle		Heatproof 150°C; Size Φ12*100mm		Heatproof 150°C; Size Φ12*90mm
Compensating Line	About 1m long	(-20~90°C) about 1m long		
Thermoreceptor	K-Thermocouple			
Accuracy Grade	JISC1602 0.75 Grade or ±2.5°C			
Purpose	Used for measurement in the place hard to enter.	Suitable for measurement of liquid or semisolid		Suitable for measurement of surface temperature
Shape	Fig. ①	Fig.②	Fig. ②	Fig. ③

D. Methods of Application:

1. Preparation before measurement:

- After the battery is determined to be mounted well, and if LCD displays the  symbol, it means it is necessary to replace the battery.
- Please check whether the thermometric probe is correctly connected to the thermometric socket (the "+" end of the connection terminals of the thermometric probe must be connected to the "+" end of the temperature measurement socket, and the "-" end of the connection terminals of the thermometric probe to the "-" end of the thermometric socket.)
- In order to ensure the higher accuracy of temperature measurement, if the thermometric probe is inserted into the thermometer for the first time, or replace the thermometric probe or temperature probe or hold the thermometer with hand, please wait for 3 minutes before testing.



Methods of Application

Start-up: Long-press the POWER key to turn on or off. The machine can enter the normal measurement state when it is opened.



The machine can be set with the automatic shutdown function: Long-press the POWER key to turn on the machine and short-press the "DOWN" key to choose whether to close it down automatically. If the main screen shows "ON", the automatic shutdown is on; if it shows "OFF", the automatic shutdown is off. The Power key can be released after the setting is okay. The mode you choose will be memorized automatically, so it is unnecessary to reselect for each time. It is the same in the power-down state. In the normal measurement state, the machine can be turned off by long-pressing the POWER key; in other states, long-press the POWER key and the machine can return to the normal measurement.

- Function View: During the normal measurement, continuously short-press the POWER key and you can enter the data-storage address for setting both successively and circularly → Check the stored data → On or Off of high temperature alarm → On or Off of low temperature alarm → Setting of data for low temperature alarm → Normal measurement state.

In the normal measurement state, the presently measured temperature will be stored into the displayed address after each pressure of the UP key and the old data renewed; the display mode of the main screen will be switched into degree centigrade or Fahrenheit after each pressure of the DOWN key.

3. Application of Storage Function: In the normal measurement state, the current address of stored data can be set after each pressure of the POWER key. At this time the address digit will flicker. Press the UP or DOWN key and you can select the unit (00~99) where you want to store data. After the storage address is selected, long-press the POWER key 2 seconds and it will return to the normal measurement state; re-press the UP key and you can store the currently measured temperature into the selected address.

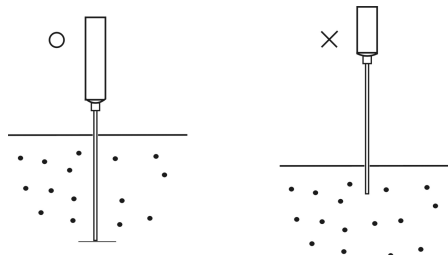
Storage Data View: in the normal measurement state, successively short-press the POWER key twice and you can enter the storage address unit; press the UP or DOWN key and you can select the unit (00~99) you want to view. Please notice that the unit can be different for storage address. The displayed "-----" means there is no storage data.

4. Application of High and Low Temperature Alarm: In the normal state of measurement, continuously short-press the POWER key three times and the device will show "HIGH". At this time, press the UP or DOWN key and you can open or close the setting of high-temperature alarm buzzer. Sometimes the device will show  symbol in case of buzzing. Following the setting of high-temperature alarm, short-press the POWER key once again and the main screen will demonstrate the upper limit value of temperature for alarm; at the time, long-press the UP or DOWN key and you can increase or reduce the times of setting rapidly; short-press the the UP or DOWN key again and you can increase or reduce the number by 1. Press the POWER key once and it will display "LOW". At this moment, press the UP or DOWN key and you can open and close the setting of prompt for low-temperature alarm buzz. If the machine buzzes, it will show  the symbol. After the setting of low-temperature alarm, short-press the POWER key again and the main screen will show the lower limit value of temperature for alarm. Long-press or short-press the UP or DOWN key and you can increase or reduce the number of setting; short-press the UP or DOWN key once and the number of setting will be increased or reduced by 1; after the setting of the lower limit value for temperature, short-press the POWER key once again and the machine will return to the normal measurement. Press the "UP" key rapidly after the POWER key and you can store the upper and lower limit values of temperature alarm in the alarm state, which you have set well. In such a case the values will not be lost even in case of power down.

View of Alarm Setting at High-low Temperature: In the normal measurement state, continuously short-press the POWER key and you can enter the upper and lower alarm values that you have set well and their alarm state.

5. Clearing of Stored Data: In the normal state of measurement, press the DOWN key after the "POWER" key and you can reset all the storage units.

Note: 1. In order to obtain the accurately measured temperature, if the internal temperature or the temperature in liquid is measured, the insertion depth of the protective tube should be 15~20 times longer than the outer diameter of the thermocouple as shown in the figure:



2. When the surface temperature is measured, the top of the tempilstick will contact the measured surface closely as shown in the figure:



E. Maintenance

1. Please avoid using this machine in the situation where the surrounding environment is rapidly changing. Besides, don't store it at the site with high temperature, high humidity and vibration.
2. Please take out the battery when the instrument lies idle for a long time.
3. This thermometer is designed for the use of Model K thermocouple thermometric probe.
4. This thermometer mustn't carry out any measurement of voltage and current; the thermometric end of the thermocouple can't contact the voltage of 30V for fear of any damage or electric shock to the instrument.
5. The thermocouple will be aging gradually due to oxidation, reduction, corrosion, pollution, evaporation, diffusion or other metallurgical effects. Its aging will have great influence on temperature measurement.
6. The tempilstick should be cleaned and inspected. Attention shall paid to that the smoke, coal, dust and greasy dirt attached on the protective tube of the tempilstick shall slow down the heat transmittance of the thermocouple, forming the error of the measured temperature, so it is needed to give regular cleaning to the tube. If the corrosion happens to the protective metal tube of the thermocouple, please change it without delay.
7. When the temperature is measured with Model K thermocouple, the instrument shall be kept away from the measured temperature to ensure the instrument works in the allowable temperature range and avoid the influence on accuracy.
8. This instrument is a piece of precise measuring equipment, so the circuit change is not allowed.

F. Accessories

Model TP01-K thermometric probe: 1 pair.