DIGITAL THERMOMETER INSTRUCTION MANUAL

1. GENERAL DESCRIPTION

This 3 1/2 digital thermometer with highly stable performance and high accuracy is driven by 9V battery. Any K-type thermocouple can be used as the temperature sensor. It adopts new style holster with preventing dropping design, can be comfortably handled.

This instruction manual covers information on operation and safety. For better use, please read the relevant information carefully before your operation!

2. GENERAL SPECIFICATIONS

2.1 Display: 3 1/2 digit large LCD display, Max. display 1999.
2.2 Polarity display: automatically shows polarity symbol "-".
2.3 Over range display: "1" or "-1"
2.4 Low battery indication: LCD displays "[+ -]".
2.5 Sampling rate: approx. 2.5 times/sec.
2.6 Storage environment: relative humidity 0%-80% at -10～60℃ or 10～140℉.
2.7 Working temperature: 0～50℃ or 32～122℉
2.8 Max input voltage: DC 60V or AC 24V.
2.9 Battery: 9V battery 006P or IEC6F22 or NEDA1604.
2.10 Battery life: 200 hours for alkaline battery, and 100 hours for carbon battery.
2.11 Dimension: 130mm (L) × 95mm (W) × 28mm (H).
2.12 Weight: approx.240g (including battery).
2.13 Accessories: manual, gift box, TP01 thermocouple, 9V battery.

3. TECHNICAL DATA

3.1 Error coefficient: 0.1 × accuracy/℃ when the temperature is lower than 18℃ or higher than 28℃.
3.2 Accuracy: ± (a%×reading + digit).
3.3 Accuracy adjustment environment: 23℃±5℃.
3.4 Measurement range: (-50～1300)℃ (-50～1999)℉

Function	Range	Accuracy
℃	-50℃～0℃	±（0.5%+2℃)
℃	0℃～1000℃	±（0.4%+1℃)
℃	1000℃～1300℃	±（0.5%+1℃)
℉	-50℉～1999℉	±（0.7%+2℉)

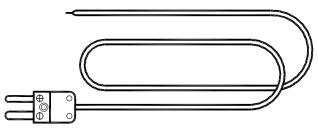
[T1-T2] input accuracy: ℃→±[0.3% (T1－T2) + 2℃]
℉→±[0.3% (T1－T2) + 3℉]

Note:

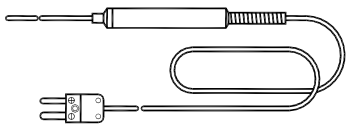
1. For obtaining an accurate measurement result, after you turn on the meter, please wait for 3 minutes to warm-up before taking measurements.
2. The accuracy above doesn't include the temperature error of probe. Please refer to the accuracy of the probe for reference.

3.5 Specifications of temperature probe

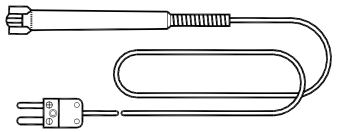
Model / Specification	TP01	TP02	TP03	Surface probe
Range	(-50～250)℃ (-58～482)℉	（-50～750）℃ （-58～1832）℉	（-50～1300）℃ （-58～2372）℉	（-50～750）℃ （-58～1382）℉
Contact point type	Contact type	Insert type	Insert type	Contact type
Dimension	Bead	Ø3.2×150mm	Ø6.2×300mm	Ø15×100mm
Handle	Heat resistance 260℃	Heat resistance 150℃ Ø12×100mm	Heat resistance 150℃ Ø12×100mm	Heat resistance 150℃ Ø12×90mm
Extension line	length: 1m	（-20～90）℃ length: 1m		
Thermocouple	K (CA)NiCr/NiAl alloy thermocouple			
Accuracy	±1.5℃	±0.4%	±0.3%	
Application	For measuring temperature in narrow space	For measuring temperature of liquid and semisolid		For measuring surface temperature
Picture	Picture ①	Picture ②		Picture ③



Picture ① TP01



Picture ② TP02, TP03



Picture ③ Surface probe

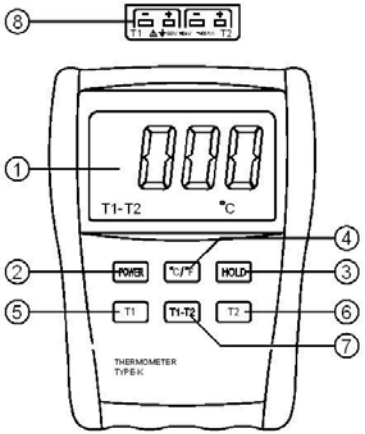
4. OPERATION INSTRUCTION

4.1 Preparation before measurement

4.1.1 Check the installation of the battery. If "[+ -]" shows up, please replace it with a new battery.
4.1.2 Make sure the setting of function keys is correct. (HOLD symbol shouldn't be shown on LCD when taking measurements).
4.1.3 Pay attention to the polarity of the temperature input terminal. Make sure the "＋" "－" ends of the thermocouple are inserted into the relative jack.
4.1.4 For obtaining an accurate measurement result, after you insert the thermocouple or change thermocouple, please wait for 3 minutes to warm-up before taking measurements.

4.2 Measuring method

4.2.1 Panel descriptions:



① LCD: display digits, polarity symbol "-", low battery indicator "", and temperature unit ℃ and ℉.

② POWER: turn ON/OFF the thermometer.

③ HOLD: press HOLD button to hold the current measurement value on the LCD for later

④ ℃/℉: choose ℃ or ℉ temperature mode

⑤ T1: choose T1 temperature measurement terminal.

⑥ T2: choose T2 temperature measurement terminal.

⑦ T1-T2: choose T1-T2 mode. Under this mode, it can measure the temperature difference between T1 and T2. LCD will display temperature value of T1-T2.

⑧ T1 and T2 temperature input terminal. Max. input voltage: DC 60V or AC 24V.

4.2.2 Operation steps:

4.2.2.1 Separately insert two "K-type" thermocouples into T1 and T2 temperature input terminal with relative polarity "＋" and "－".

4.2.2.2 Press POWER button to turn on the meter, and wait to warm-up for 3 minutes.

4.2.2.3 Choose T1 or T2 input terminal or T1-T2 mode (measure the temperature difference between T1 and T2).

4.2.2.4 Apply the probe to the object under measuring.

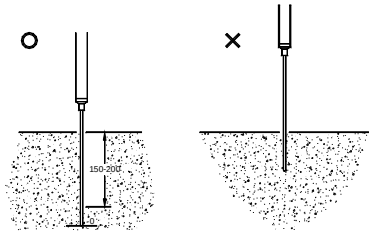
4.2.2.5 Get the reading.

Note:

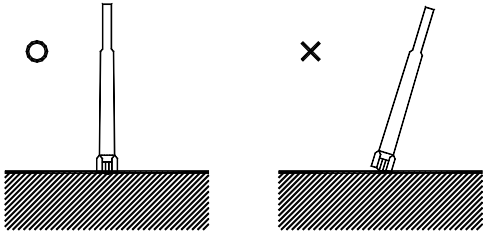
1. Under T1-T2 mode, if T1 or T2 input terminal is open circuit or doesn't connect with thermocouple, LCD will display an unstable wrong figure. By using T1 and T2 button, separately check T1 and T2 input terminal first with thermocouple inserted in. If there is stable figure on the LCD it means the T1 and T2 input terminal and the thermocouple is functional.
2. Under T1 mode or T2 mode, if T1 or T2 input terminal is open circuit or doesn't connect with thermocouple, "1" will be shown on the top digit of LCD.
3. Under T1-T2 mode, if both T1 and T2 input terminals are open circuit or doesn't connect with thermocouple, LCD will display "000" or unstable figure.

4.3 Thermocouple usage directions

4.3.1 When measure the internal temperature or the liquid temperature, for obtain accurate measurement result, the insert depth should be 15-20 times of the diameter of the probe.



4.3.2 When measure the surface temperature, for obtain accurate measurement result, the top of the probe should be clung to the surface under test.



5. MAINTENANCE

5.1 Do not expose the meter to the rapidly changed environment or environment with high temperature, high humidity and high vibration

5.2 Remove the battery if the thermometer will not be used for a long time.

5.3 Please use K-type thermocouple.

5.4 Do not use this meter for voltage and current measurement. To avoid damage, do not input voltage higher than DC 60V or AC 24V.

5.5 The probe of thermocouple might be oxidized corroded or polluted, which will cause the aging of the probe and affect the accuracy of measurement. So clean the probe frequently and change it if it is corroded.

5.6 During measurement, do not expose the thermometer to the heat source directly. Make sure the environment temperature for the thermometer isn't beyond its working temperature.

5.7 The meter is a precise instrument. Random changes to the circuit are not allowed.

- The specifications are subject to changes without prior notice.
- The content of this manual is regarded as correct. If users find out any mistakes or omissions, please kindly contact the manufacturer.
- The manufacturer will not be responsible for accidents and damage caused by improper operations. The functions described in this User Manual shall not be considered as the reason for any special usages.