TZONE 深圳天圆数码科技有限公司
TZONE DIGITAL TECHNOLOGY CO.,LTD

Handheld Thermometer

TC604/TC602/PTD602

---User Manual V1.0

Contents

1. Notes

Warning:

- Only operate the product properly, for its intended purpose, and within the parameters specified in the technical data.

- Dangers may also arise from objects to be measured or the measuring environment. Always comply with the locally valid safety regulations when carrying out measurements.

- Do not store the product together with solvents.

- Only perform maintenance and repair work on this instrument that is described in this documentation. Follow the prescribed steps exactly when doing the work.

2. Features

TC604/TC602/PTD602 is a four channels / two channels with a calibration high precision measurement instrument used to measure temperature. It has the following features:

- High measurement accuracy

- Good stability

- Wide range

- Excellent performance, such as the temperature overrun alarm, calibration, maximum value/minimum value/average display, and more information display of oversized line screens.

- Compatible with a variety of probes, such as: TC604/602 is compatible with Type-K, Type-T, Type-J, PTD602 compatible with PT100 and PT1000.

3. Application field

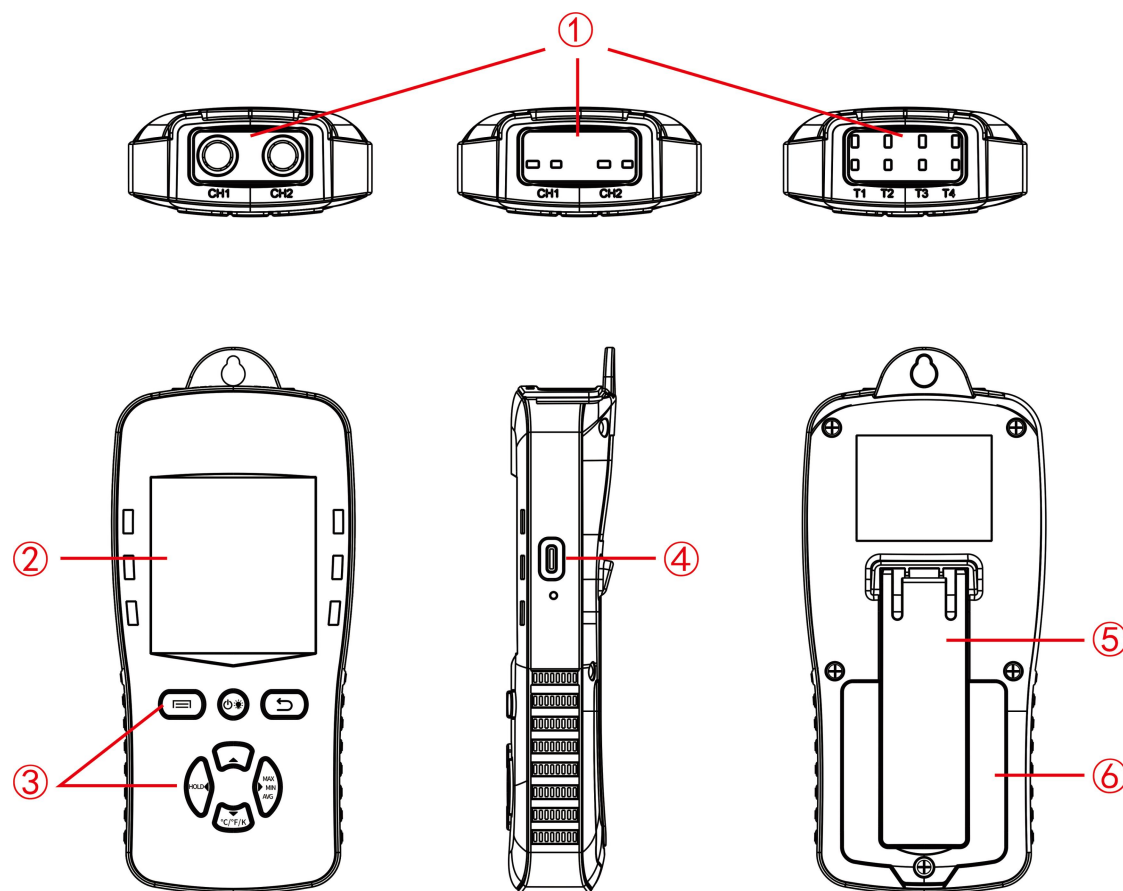TC604/TC602/PTD602 can be widely used in various fields, such as:

- HVAC field

- Measurement of surface temperatures

4. Device Descriptions

This section describes the outlines of device structure and its functions.

4.1 Display and Control Components
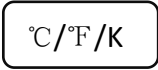
Device Overview

Description of instrument parts

parts	illustrate
①	Probe interface, this series of instruments contains three kinds of probe interface.
②	LCD screen.
③	Button.
④	USB interface, you can connect the instrument to a computer or other 5V output USB power supply device through a Type-C cable.
⑤	Support frame, users can flexibly adjust the support angle, easy to use.
⑥	Battery compartment, the instrument is powered by three 1.5V AA batteries.

Button Function

Button	Function
(≡)	Multi-function key 1, its function will be displayed at the bottom left of the screen.
(☼)	Turn on the device; turn off the device (Long press)；Turn on/off the backlight.
(↩)	Multi-function key 2, its function will be displayed at the bottom right of the screen.
HOLD	Keep the current reading.
MAX/MIN/AVG	Display maximum/minimum/average value.
℃/℉/K	Switch the unit of reading

important display

① ② ③ ④

⑤
⑥

L 1234 ※

1
K   23.0℃

2
K   22.3℃

3
K   22.7℃

4
K   22.3℃

Menu
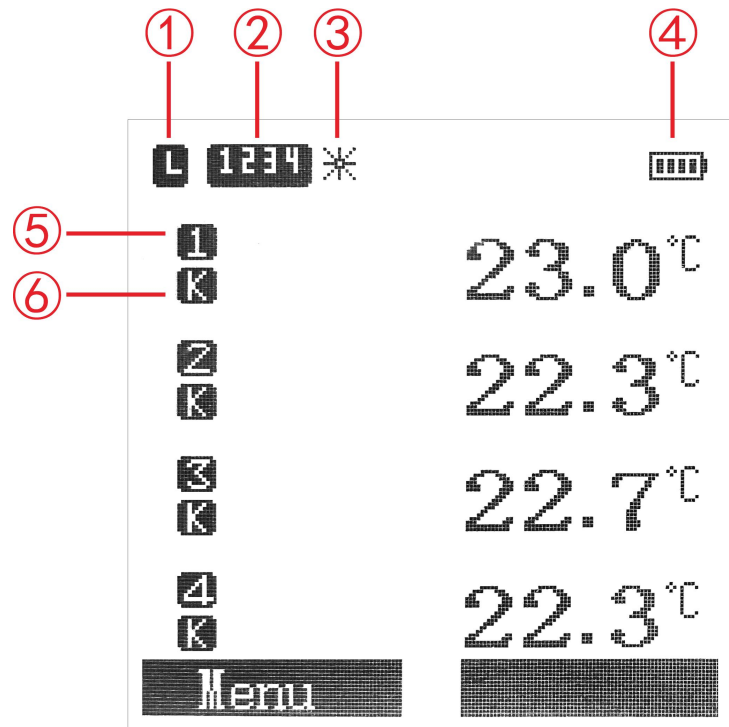
display instructions

display	illustrate
①	Auto Power Off: Displayed when the auto power off function is turned on.
②	Alarm enable: Displayed when the alarm function is turned on, and the number in the icon indicates the channel to turn on the alarm.
③	Backlight mode, displayed when the backlight mode is on.
④	Battery Capacity: Displayed when the instrument is powered by batteries.
⑤	show current channel.
⑥	Display the probe type of the current channel.

5. Installation and maintenance

5.1 Install

Users need to install the battery and probe before using the instrument, as shown in the figure:

install battery
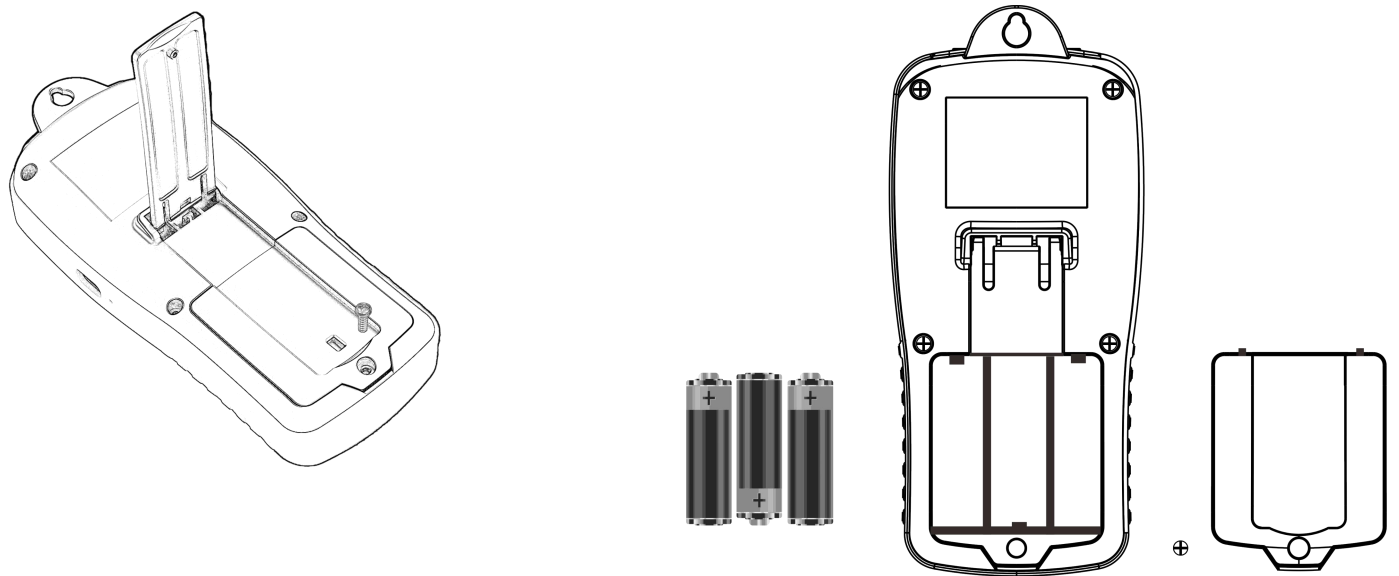
1.   Take the screw of the battery cover with a screwdriver and remove the battery.
2.   Take out the battery and put the new battery into the battery room. Please pay attention to the polarity of the battery.
3.   Put back the battery cover and lock the battery cover with a screw.

install the probe

1.   After installing the battery, turn on the power, and take out the probe..
2.   Insert the probe into the probe interface, and pay attention to align the probe with the interface.

5.2 Maintain

➢ **Cleaning the shell:**

 If the shell becomes dirty, use a clean wet cloth to clean the shell. Do not use corrosive detergents or solutions!

➢ **Replacement battery:**

After the battery power is too low, the instrument needs to replace the battery, and the instrument must be turned off before the replacement. The replacement steps are the same as "Installing the battery"

6. Operations

6.1 On/Off Device

➢ **Turn on the device**
   1. Short press the ⓧ key. The device enters the power-on state.

➢ **Turn off the device**
   1. Long press the ⓧ key. Lift the ⓧ key when you see "Goodbye" on the screen.

6.2 Backlight

➢ **Turn On/Off the Backlight**
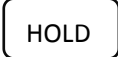   ✓ Turn on the device.

   1. Short press the ⓧ key. The display icon ☀ indicates that the backlight is on.

2. Short press the ⬤ key again to turn off the backlight.

6.3 Measurement

➢ **In the start -up state, put the probe in the temperature environment to be tested and read the current temperature**

➢ **Keep reading**

1. Short press the | HOLD | key to keep the main screen readings.

2. Short press the ⬤ key(Exit)exit the maintenance mode.

➢ **View maximum, minimum value and average value**

1. press the | MAX/MIN/AVG | key multiple times under the execution of the measurement interface to switch the display values.

    - The following values are displayed in turns: max (maximum value); min (minimum value); avg (average value); current reading.

2. Check the maximum value, minimum value, and equal value, and press the ⬤ RESET key to remove the statistical value and re -calculate the maximum value/minimum value/average value. Short press the ⬤ (exit) key exit maximum/minimum value/average mode.

➢ **Switching unit**

Short press the | ℃/℉/K | key to switch between the degree Celsius, Fahrenheit and Kelvin.

6.4 Read report

After setting the record data (see 7.3 setting the record data), the USB cable connection device and computer can generate temperature data report with our supporting USB cable connection device, and the report format supports TXT, XLS, CSV, PDF.

7. Set up

7.1 Set overview

➢ **Open the menu interface**

✓ The device is turned on and the instruction area display ▮ Menu ▮ .

1. Short press the (☰) (menu) and enter the menu interface for configuration.

!! All the functions in the menu can use [▲] /[▼] key (hereinafter referred to as the up/down key) to select the function，Use [◀]/[▶] key (hereinafter referred to as left /right) to adjust the value.

!! After selecting, you can confirm the (☰) key (hereinafter referred to as OK key), and exit through the (↩) key (hereinafter referred to as the return key).

!! The settings related to the attributes of the device itself are in the menu interface, as shown below:

Function	Illustrate
Channel Mode	Set the channel mode
Sensor Type	Set the sensor type
Sound	Set the sound mode
Language	language setting
Logging	Record data
Auto Off	Set automatic off
Alert	Set up alarm
Calibration	Set calibration
Backlight	Set backlight time
Recovery	Reset

➢ **Set the channel mode**

!! TC604 supports five channel modes: ALL Channel, CH1, CH2, CH3, and CH4.
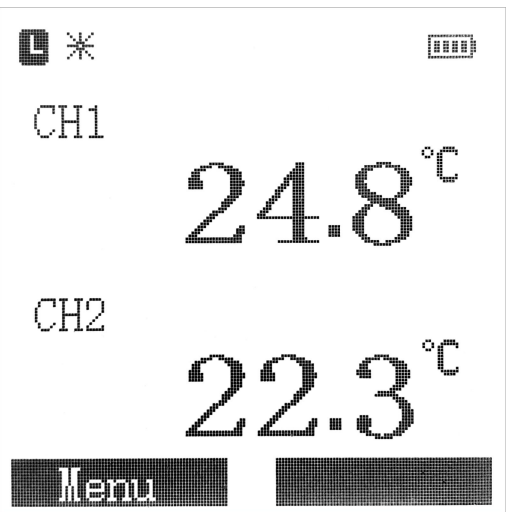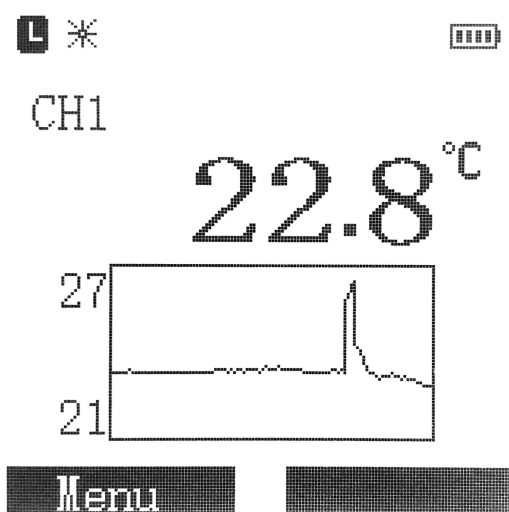
!! TC602 supports four channel modes: CH1 and CH2, CH1, CH2 and CH1-CH2.

!! PTD602 support four channel modes：CH1 and CH2, CH1, CH2, CH1-CH2.

There are four/two thermocouple measurement channels in this series of device, and there are multiple channel modes, which can meet various measurement needs. As shown in the table below:

Channel mode	Device model	Four channel merger mode	Single channel mode
Sample graph	TC604		
Feature		The four channels are measured and displayed at the same time.	Suitable for tracking the changes in the temperature of single channels.

Channel mode	Device model	Dual channel merger mode	Single channel mode
Sample graph	TC602		
Feature		The two channels are measured and displayed at the same time.	Single channels show that it is suitable for tracking the changes in single channel temperature.

Channel mode	Device model	Dual channel merger mode	Single channel mode
Sample graph	PTD602		
Feature		The two channels are measured and displayed at the same time.	Single channels show that it is suitable for tracking the changes in single channel temperature.

➢ **Set the sensor type**

!! TC604/TC602 supports three sensor types: K, T, and J type.

!! PTD602 supports two sensor types: PT100 and PT1000.

➢ **Set the key sound**

!! Support the two modes of opening the sound and closing sound.

➢ **Language setting**

!! Some device support.

➤ **Set automatic off**

!! Support the two modes of opening and turning off. After opening, automatically shut down at the main screen interface for 10 minutes without operation

➤ **Set backlight mode**

!! Support five modes: 5min, 10min, 30min, 60min, and Always.
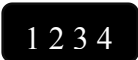
7.2 Set up alarm

➤ **Set the alarm value up/lower limit the alarm value**

!! The value of the upper and lower limit of the temperature can be adjusted to adjust the position, and the upper and lower keys can adjust the symbol and value.

!! The value of the upper limit must be higher than the lower limit value, otherwise the setting is unsuccessful.

➤ **Set the temperature alarm switch**

!! Support two modes: opening and off.

!! After the alarm function of the channel is opened, the status area will display the corresponding channel value. As shown in `1 2 3 4` , which mean all 4 channel alarm functions are opened.

!! When the temperature collected by the device exceeds the upper and lower limits of the settings, the bee tweee will tweet the alarm, and the main screen area will be displayed `↑` / `↓` reminded. Continue to stop or stop or the temperature stops normally after 5 minutes of stop or the temperature restores normally.

➤ **Set calibration**

!! Before using the calibration function, please select a reference target.

!! The calibration scope of this series of device is -9.9 ~+9.9.

7.3 Set record data

➢   **Open the record mode**

1. Select "**Logging**" with the upper and lower keys on the menu interface, and press OK key to determine to enter the "**Logging**" interface.

➢   **Enter the settings interface**

1. Select "**Setting**" with the upper and lower keys, and press the OK key to enter the "**Log Setting**" interface.

➢   **Set time**

1. Use the upper and lower keys to select "**Set Time**", and press the OK key to enter the "**Set Time**" interface.
2. Set the time through the up, down, left and right, and press OK key to confirm.

➢   **Set the sampling rate**

!! The sampling rate is set for 1 second to 65535 seconds.

1. Select "**Set Sample Rate**" with the upper and lower keys, and press the OK key to enter the "**Set Sample Rate**" interface.
2. Set the sampling rate through the up, down, left and right, and press the OK key to confirm.

➢   **Set the data file format**

!! This series of devices support four data file formats: TXT, CSV, XLS, and PDF.

1. Select "**Set File Format**" with the upper and lower keys, and press the OK key to enter the "**Set Sample Rate**" interface.

2.   Select the required data file format through the upper and lower keys, and press the OK key to confirm.

➤   **Start recording**

!! TC604 can store 49920 pieces of data, and TC602/PTD602 can store 61,440 pieces of data.

!! When the memory space is full, the record function will not be used normally. Please delete the record before using it.

!! In the record mode, the screen will be turned on after 10min without operation, and the instrument will still record data after the screen is turned off.

!! When recording starts, the number of records will be displayed on the main screen, taking TC602 as an example, as shown in the figure below:
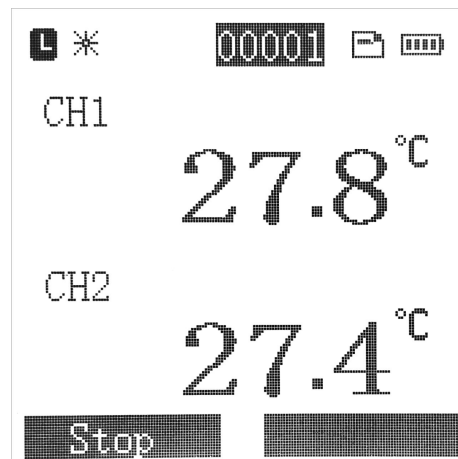
1.   Select "Start Logging" on the "**Logging**" interface, and press the OK key to confirm.

➢ Stop recording/saving results

!! After stopping the record, the current record data will be automatically saved into the internal storage. You can view the data through a USB connection computer.

!! In addition to manual stop, low -power shutdown and record numbers have been stopped.

1. In the record mode, press OK key to enter the confirmation stop recording interface.

2. After waiting for 5 seconds, press the OK key to stop the record.

➢ View record information

1. Use the upper and lower keys to select "**View**" into the viewing information interface.

2. Use the upper and lower keys to switch the page, and press the back key to exit.

➢ View disk information

1. Select "Disk" with the upper and lower keys, and press the OK key to enter the disk information interface.

2. The disk interface will display disk information: Total, Used, Free, and press the back button to exit the disk information interface.

➢ Delete Record

!! It is recommended to backup the data file before deleting records to avoid permanently deleting data files.

1. Use the upper and lower keys to select "**Delete Log**", and press the OK key to enter the confirmation delete record interface.

2. Wait for 5 seconds to press the OK key to delete the record.

➢ Re -generate files

!! This function is mainly used to restore data that is recently recorded or deleted.

!! When the device stops the record due to low -power shutdown in the record mode, the file needs to be re -generated to view the data file of the previous record in the disk

1. Use the up and down key to select "**Regneate File**", and press the OK key to confirm the re -generating file.

7.4 Reset

➢ **Reset**

!! Restore the factory setting will restore the settings in the instrument to the default state.

1. Select "**Recovery**" with the upper and lower keys on the menu interface, and press the OK key to enter the confirmation to restore the factory setting interface.

2. After waiting for 5 seconds, press the OK key to confirm the restoration of the factory settings.

8. FAQ

Question	Possible Reason	Possible Solution
Battery grid display ▭	● Device battery is too low.	● Replacement battery
The device shuts off automatically.	● Auto power off turned on. ● The battery is dead. ● The operating temperature exceeds the specified value. ● Component damage.	● Turn off the auto power off function. ● Replacement battery. ● Move to compliant location for measurement. ● Please contact supplier for after sales.
Channel interface display"- - - - - -"	● Unplugged probe. ● Probe error. ● The temperature exceeds the measuring range.	● Plug in the probe ● Replace with the correct probe. ● Please use the probe corresponding to the measuring range
Inaccurate measurement data.	● Probe not up to standard. ● Calibration value set incorrectly. ● The internal circuit of the instrument is damaged.	● Please use the specified probe ● Clear all calibration values ● Please contact supplier for after sales.

9. Technical Parameters

T602/TC604 Range	K type：-200℃~1372℃ T type：-200℃~400℃ J type：-200℃~1200℃ standard probe temperature range : 0℃~300℃
PTD602 Range	PT100:-200~660 PT1000:-50~300 standard probe temperature range : -80℃~120℃
Unit	℃/℉/K
T602/TC604 Accuracy	±（0.3%|t|+0.4）℃
PTD602 Accuracy	±（0.15+0.002*|t|）℃
Resolution	0.1
Power Supply	3 pieces of 1.5V AA batteries
Storage	TC604：49920pieces TC602：61440pieces PTD602：61440pieces
Measurement Rate	1 time/second
Log Sample Rate Interval	1~65535 seconds (adjustable)
Operating Temperature	-10~+50℃
Stored Temperature	-20~60℃ (without battery)
Protection level	IP52
Dimensions	183 x 83 x 35mm
Weight	TC604:300g (Without probe) TC602:290g (Without probe) PTD602:295g (Without probe)

System accuracy is affected by the quality of probe! The above is the accuracy of this device.