



MODEL: GM1312

# Thermometer Instruction manual



Version: GM1312-EN-01

## A. Introduction

Thermocouple is one of the most commonly used industrial elements in temperature measuring which is formed when 2 dissimilar metals are joined as a circuit with thermo current generated from the temperature difference between the metals. If there is any temperature difference between the thermocouple tip and reference end of the thermocouple, the instrument will display the temperature value versus the thermo emf generated from the thermocouple. On-site measurement and long distance transmission can both be carried out.

This device is able to measure the temperature of the liquid/vapors and surface temperature of a solid object, with a considerable wider measuring range than those of mercury thermometer and alcoholometer. It is suitable to be used both in the high temperature fields of blast furnace and cookery and the low temperature measuring for liquefied hydrogen and liquefied nitrogen etc.

- Features:
1. High accuracy: due to direct contact with the measured without intermedia which effects the final output.
  2. Convenient operation.
  3. Unit Celsius and Fahrenheit unit.
  4. Data hold and MAX、MIN、AVG.
  5. Human centered design, easy operation.
  6. Double display with backlight shows T1/T2 and combination of T1 and T2.
  7. To measure the thermocouple of J,K, T,E,N and R type.
  8. The electrical compensation function provide the compensation to the thermocouple error so as to improve the overall precision.

## B. Warning & Cautions

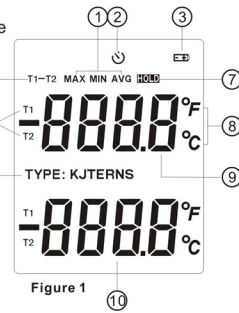
A Warning identifies conditions and actions that pose hazards to the user. To avoid electrical shock or personal injury, follow these guidelines:

- Before using the thermometer inspect the case. Do not use the thermometer if it appears damaged. Look for cracks or missing plastic. Pay particular attention to the insulation around the connectors.

- Disconnect the thermocouple(s) from the thermometer before opening the case.
- Replace the batteries as soon as the battery indicator “” appears. The possibility of false readings can lead to personal injury.
- Do not use the thermometer if it operates abnormally. Protection may be impaired. When in doubt, have the thermometer serviced.
- Do not operate the thermometer around explosive gas,vapor, or dust.
- Reflective objects result in lower than actual temperature measurements. These objects pose a burn hazard.
- Do not connect to voltages >30 V ac rms, 42 V pk, 60 V dc from earth ground.
- Measurement errors may occur if voltages on the measurement surfaces result in potentials greater than 1 V between the two thermocouples. When potential differences are anticipated between the thermocouples, use electrically insulated thermocouples.
- Use the proper thermocouples, function, and range for your thermometer.
- Do not attempt to recharge the batteries.
- Do not throw batteries into a fire to prevent explosion.
- Match the + and - polarities of the battery with the battery case.

## C. LCD display( Figure 1)

1. Maximum, minimum, average
2. Auto power shut off symbol
3. Low battery indication
4. Thermocouple T1-T2
5. Thermocouple T1 and T2
6. Thermocouple Types
7. Reading Hold symbol
8. Temperature Units
9. Primary Display
10. Sub display



## D. Name and functions (Figure 2)

1. Thermocouple T1 input
2. Thermocouple T2 input
3. LCD Display
4. ON/OFF key
5. Data hold key
6. °C/°F selection key
7. MAX/MIN/AVG key
8. Type selection key
9. T1/T2 and T1-T2 key
10. Battery door

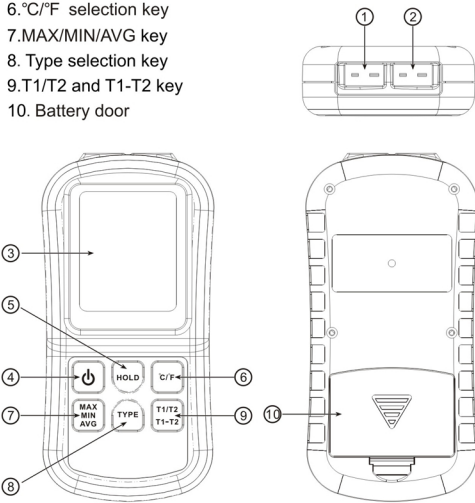


Figure 2

## E. Operation

1. ON/OFF key  
Press it to turn on/off the unit.

2. Data hold  
On the top left of the LCD appears the “**HOLD**” icon after pressing the **HOLD** key to hold the reading. Press **HOLD** key again to release the hold function.

3. Unit switch  
Press “**C/°F**” key to switch the temperature unit between the °C/°F.
4. **MAX/ MIN and AVG**  
(1) Press the key until there is **MAX** icon appearing on the LCD together with the maximum reading.  
(2) Press the key again until there is **MIN** icon appearing on the LCD together with the minimum reading.  
(3) Press the key until there is **AVG** icon appearing on the LCD together with the average reading.  
(4) Repeatedly press the key to show the readings in sequence above.
5. Option of thermocouple type  
Press **TYPE** key to switch the type of thermocouple in sequence of **K-J-T-E-R-N-S** for option.

6. Switch between **T1/T2** & **T1-T2**  
The following information in sequence repeatedly: main display **T1** & auxiliary display **T2**>main display **T2** & auxiliary display **T1**>main display **T1-T2** & auxiliary display **T2**.

7. Backlight  
Press any key to activate the backlight. The backlight will be turned off automatically within 30 seconds if there is no further operation on the key.

8. Automatically turn-off  
To save power the device will be turned off automatically if there is no operation on the key within 8 minute. To close this function, hold on pressing the **HOLD** key to activate the device and there is no “” displaying on the LCD, and can only manual power-off be used. After power off the device again, this auto turn-off function will be cancelled again.

9. battery replacement  
when the “” flashes on the LCD indicating the insufficient battery, replace the old ones with 3 fresh 1.5V AAA batteries.

## F. Specification

Main unit	
Measuring range	J-type:-210°C to 1200°C(-346°F to 2192°F) K-type:-200°C to 1372°C(-328°F to 2501°F) T-type:-250°C to 400°C(-418°F to 752°F) E-type:-150°C to 1000°C(-238°F to 1832°F) N-type:-200°C to 1300°C(-328°F to 2372°F) R-and S-type:0°C to 1767°C(32°F to 3212°F)
Resolution	0.1t <1000°; 1.0t ≥1000°
Accuracy	±0.1%+0.6°C
input	Double channel input
Operating Temperature	0°C ~ 40 °C
Storage Temperature	- 10 °C ~ 50 °C
Storage Humidity	20~90%
Power supply	3*1.5V AAA Battery
Size	72*29*145.5mm
Weight	159.0g
K-type thermocouple(2 pieces attached)	
Measuring range	0~250°C (300°C in short time)
Error allowed	2.5°C or 0.75% , Class II
Heat response time	The < 10 seconds

\*If you need the device of other specification please contact the local dealer.

Specific Declarations:  
We reserves the right to modify product design and specification without notice.  
Our company shall hold no any responsibility resulting from using output from this product as an direct or indirect evidence.

