

HG970

Handheld Dew Point & Temperature & Humidity Meter User Manual

(High Precision、Multi-function、Replaceable Probe、Software Calibration)



- Please read this manual carefully before use
- The company reserves the right to interpret the specification
- Please refer to the actual product for its appearance
- No prior notice if the product technology or software upgrade

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1 Product Introduction

Thank you for purchasing our HG970 handheld multi-function digital dew point meter, which is an industrial grade, high precision temperature and humidity measurement instrument. The instrument is powered by a 9V battery. It can measure humidity, temperature, dew point temperature, wet bulb temperature with an external high-precision probe. Also, it can easily respond to your need for accurate temperature and humidity measurements in a variety of situations. This product is the ideal choice for laboratory, industrial, engineering and other temperature and humidity measurement, inspection, verification.

2 Product Feature

- Accurate and stable meter display values with high-precision temperature and humidity sensor .
- Temperature, humidity, dew point temperature, and wet bulb temperature can be measured at the same time.
- The measurement data is calculated every 10 milliseconds , timely collection of environmental changes.
- 99 sets of special marking data can be stored (special data can be manually saved on demand, directly read on the display).
- 32,000 pieces of data can be recorded .
- The temperature units °C and °F can be switched
- Maximum and minimum measurement function
- Data hold functions, the current readings can be frozen.
- Large LCD display for easy reading.
- Backlight display, can also be used normally in dark environment.
- Powerful software functions, connecting software to achieve data processing and visual chart analysis, reports can be exported in PDF, data can be exported in CSV or Excel files.
- Ultra-low power consumption, a 6LR61 9V alkaline battery can last 300 hours.
- Can be connected to an external 9V DC power supply to meet long-term measurement needs.
- Data recording and USB interface.
- Automatic shutdown without operation for 20 minutes, can also be set to long standby.

3 Special Functions

(1) Replaceable probe

The HG970 handheld multifunctional digital dew point temperature and humidity meter is designed with a detachable probe section, and one handheld meter is equipped with two identical probes.

For specific disassembly and replacement methods, please refer to <Replacing the Probe>——

The replaceable probe design has the following characteristics:

- Improving product lifespan: In industrial measurement processes, probes are extremely sensitive and easily damaged components. When one probe is damaged, replacing another probe can effectively extend the service life of the equipment.
- Reduce maintenance costs: The detachable probe design can reduce reliance on maintenance services and lower equipment maintenance costs.
- Stable measurement accuracy: The detachable probe has the same performance parameters, which can ensure measurement accuracy and stability. During the replacement process, the calibration status of the equipment can be checked to further improve measurement accuracy and stability.
- Emergency response capability: The detachable and replaceable probe can provide additional protection in case of emergencies, without the need for equipment replacement. The detachable and replaceable probe can be used for quick replacement, ensuring the continuity of measurement and production.

(2) Software automatic calibration

The HG970 handheld multifunctional digital dew point temperature and humidity meter has software calibration function. If there is a deviation in the measurement value during long-term use of the equipment, it can be automatically calibrated through software integration.

The HG970 handheld multifunctional digital dew point temperature and humidity meter has been fully calibrated and adjusted before leaving the factory. The typical calibration cycle is one year, and depending on different applications, more frequent calibration is more conducive to the accuracy and stability of measurement results.

The software automatic calibration method can be found in the <Calibration Operation Steps Description>——

4 Function Keys

2-Display screen

3-Power button

4-°C / °F unit selector button

5-Dew point temperature/wet bulb temperature
/ambient temperature selection button

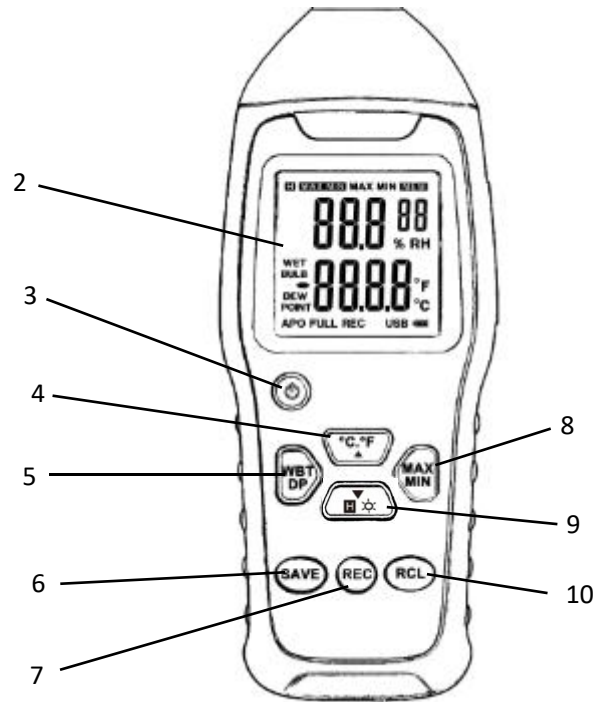
6-Data store

7-Record button

8-Maximum and minimum button

9-Data hold button

10-Data invocation



<Display Indication>

1. Data hold is enabled and the display freezes the current reading

2. Max min recording mode enabled, showing Max reading, min reading

3. Display wet bulb temperature or dew point temperature

4. Automatic shutdown reminding

5. Display the reading from memory

6. Memory location number taken from memory reading

7. Unit of measurement for relative humidity

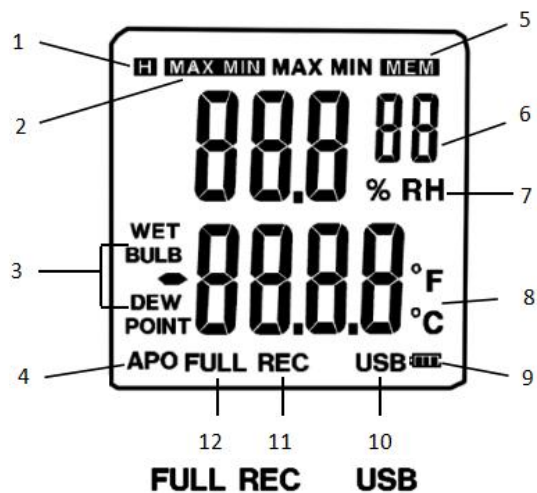
8. Temperature unit

9. Battery level indicator

10. Connect to computer USB

11. Recording

12. Record full



Notes: The DC9V power interface and Macro USB interface are on the side of the meter, and the battery position is on the back of the meter.

5 Operation

<Start Measuring>

- 1) Take out the meter from protective casing, press the button  in the upper left to open the instrument;
- 2) Keep the meter in the environment which to be measured and wait for the appropriate time to ensure stable readings;
- 3) Press the <°C. °F >key to select the temperature unit .

<Dew Point Temperature and Wet Bulb Temperature>

When the meter is just started, it shows the ambient temperature. To show dew point temperature (DP), press  . Pressing  again and switch to wet bulb temperature (WBT). Pressing  again and return to the ambient temperature. There is a symbol to display that you've selected the dew point temperature or the wet bulb temperature.

<MAX/MIN Mode>

- 1) You must first select the wet ball, dew point, or environment to read the corresponding Min Max (Min, Max) read value.
- 2) Press the <MAX/MIN> button once, the meter enters MAX/MIN mode, "MAX" will appear on the screen, the meter will display and freeze the Max reading value. The display screen will not update until a higher value is measured.
- 3) Press the <MAX/MIN> button again. "MIN" will appear on the screen, the meter will display and freeze the Min reading value. The display screen will not update until a lower value is measured.
- 4) Press <MAX/MIN> again. "MAX MIN" display icon will start blinking, the meter will display the current value, and will continue to recording the maximum and minimum values at the same time.
- 5) Press <MAX/MIN> again to alternate display the MAX and the MIN values.
- 6) To exit the MAX MIN mode, hold the <MAX/MIN> button for 2 seconds until the MAX and MIN icons completely disappear.

Note: When MAX/MIN mode is enabled, the temperature switch (°C.°F), SAVE, RCL (call) and HOLD buttons, as well as APO(auto power off) functions are disabled.

<Data-hold>

Press the <HOLD> button to HOLD the read value displayed, the meter stops measuring. “” will appear on the screen. Pressing HOLD again and return to normal working mode.

<Save and Invoke Readings>

- 1) The meter can hold up to 99 sets of read values for later calls. Each memory location holds relative humidity as well as ambient, dew point, and wet-bulb temperature values.
- 2) Press  to save the current reading to a memory location.  and the memory location number appear on the display, indicating that the reading has been saved.. Press  the display returns the current reading. After all 99 memory locations are used up, subsequent saved data is overwritten from the first memory location.
- 3) Press  to call a reading held in memory. Press  or  until the memory location you need is displayed. To return the meter to normal operation, press  2 seconds.
- 4) When a memory location is called, the default displays the relative humidity and ambient temperature values held at that location. Press  loop toggles the saved Wet Bulb, Dew Point, and Ambient temperature values at the displayed memory location.
- 5) If you want to clear all 99 memory locations hold data, press  button and  at least 5 seconds.

<Backlight>

Hold down  button 3 seconds, turn on or turn off the backlight.

<Record Mode>

The temperature and humidity meter has recording function. Please connect the meter to the computer via Marco USB before starting the record. The Smart Logger upper computer software was used to set the instrument. Set the record start mode to By Button. After setting the parameters, disconnect the instrument from the computer, press the REC key to start the recording function, long press the REC key to pause the recording.

32,000 pieces of data can be recorded

In the recording mode, please do not turn off the power, otherwise you need to use the computer again to set the instrument. In the recording mode, in order to reduce power consumption, the

instrument will automatically turn off the backlight function after 2 minutes of keyless operation. When the memory is FULL or the specified number of records is reached, the meter will automatically shut down. When the memory is FULL, the LCD screen will display the FULL icon.

<Auto Power-off>

- 1) To extend battery life, the thermohygrometer will shut down automatically after no operation for about 20 minutes (Automatic Power Off).
- 2) In recording mode, or when connecting to UCB, the 20-minute auto shutdown function (APO) is automatically disabled until the set number of records is reached.
- 3) To disable the APO function, simply press the power button and the APO icon on the LCD screen disappears.

6 Maintenance

<Cleaning and Storage>

To avoid damaging the instrument case, do not use corrosive or solvent to clean the instrument. Wipe the case with a clean wet cloth and detergent.

Store the instrument in an appropriate area of temperature and humidity.

<Replace Battery>



When the battery is low, low power symbol "  " will appear on the LCD. Please replace the 9V battery and lock the battery compartment.

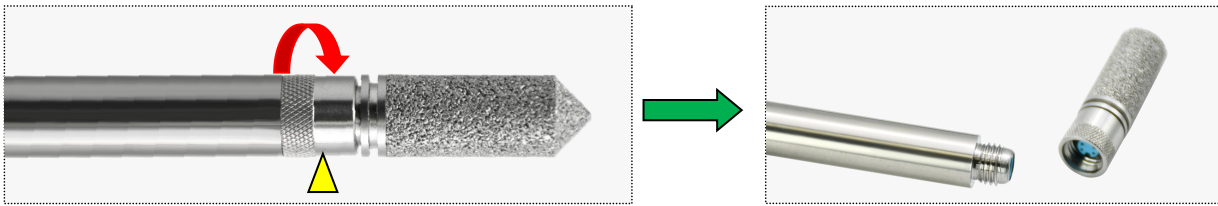
Do not discard old batteries or rechargeable batteries into household garbage.

As consumers, users are required by law to bring their used batteries to the appropriate collection point, the retail store where the batteries are purchased or any place where the batteries are sold.

Discard: Do not discard this meter into household waste. The user has the obligation to send the expired equipment to a collection point dedicated to the electronic equipment.

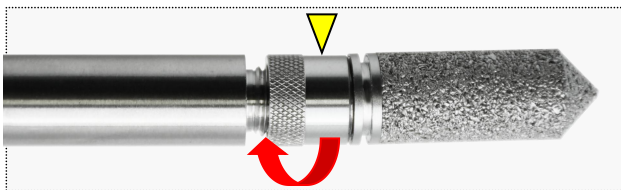
<Replace the Probe>

① Turn the connecting nut clockwise and disassemble the old probe.



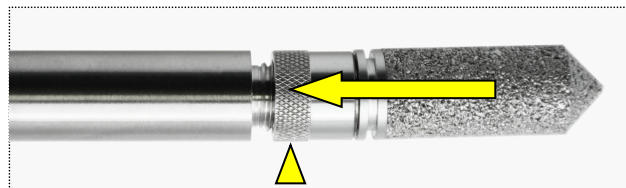
② Replace the new probe: Connect the connector, **slowly rotate the connector to find the docking hole position**. After the hole position is aligned, tighten the connecting nut counterclockwise. After 2-3 turns, gently push the probe towards the long rod until the connecting nut is tightened. Then continue to tighten the nut until it is tightened.

After docking the holes, tighten the connecting nuts counterclockwise

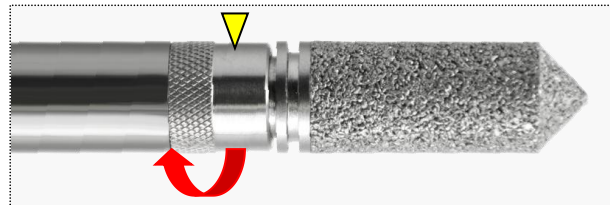


⚠ Ensure that the hole positions are correctly aligned before tightening the nut, otherwise it is easy to damage the joint

After 2-3 turns, gently push the probe towards the long rod until it reaches the connecting nut



Continue to tighten the nut until it is tight



<Precautions for Use>

This product belongs to precision instruments. Please note when using:

- 1) Please do not touch the sensor with your hands.
- 2) Please do not expose the sensor to direct sunlight.
- 3) Do not immerse the sensor or instrument in liquid, as this sensor is only intended for use in air.
- 4) When measuring the humidity of chemical vapor using this instrument, the diffusion of chemicals in the sensor leads to a decrease in the accuracy and sensitivity of the instrument. This can allow the instrument to be left in a clean environment for a long time and slowly recover.
- 5) When not in use, please put on a protective cover to prevent contamination of the sensor probe.

7 Specifications

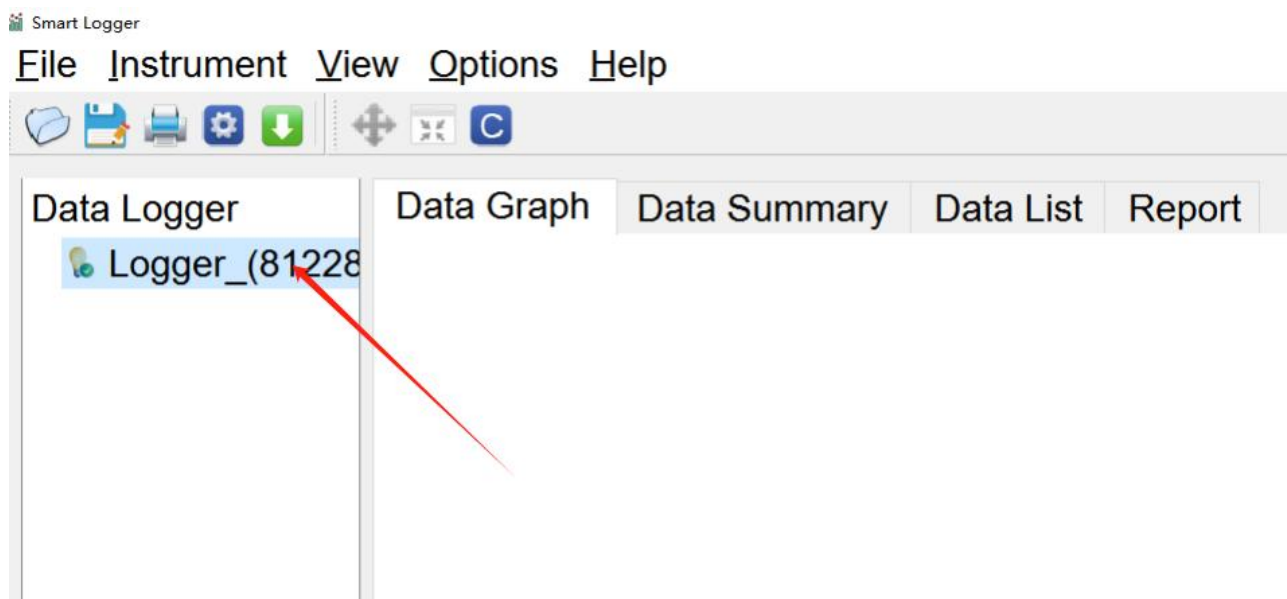
Environment temperature	
Measurement range	-30 ~ 80°C (-22~176°F) (probe only)
Accuracy	±0.1 °C (@20°C)
Resolution	0.01 °C/°F
Sampling frequency	1 time per second
Relative humidity	
Measurement range	0~100%RH
Accuracy	±1.5%RH (20~60% RH, @ 20°C)
Resolution	0.1%RH
Response time	Less 10S (90% 25°C, wind speed 1m/s)
Dew point temperature	
Dew point temperature range	-50 ~ 80 °C (-58~176 °F)
Wet bulb temperature	
Wet bulb temperature range	-20 ~ 60 °C (-4~140 °F)
Other	
Records	32000 records (Recorder function)
Store-in	99 groups (Special data can be manually saved on demand, additional saving, directly read on the display)
Power	A standard 9V 6LR61 or 6F22 battery
Battery life	About 300 hours (use 6LR61 9V alkaline battery)
Operating environment	0 ~ 40°C (32 ~ 104°F), < 80% RH Non - Condensing
Storage environment	-10~ 60°C (14 ~ 140°F), <80% RH Non - Condensing
Weight and size	About 200g (Battery included not including the probe) , 215mm*58mm*33mm
Probe rod length	Split ultra long distance with stainless steel housing

8 Calibration Steps Description

- ① Connect the handheld meter to a computer using a USB cable, and open the Smart-Logger software

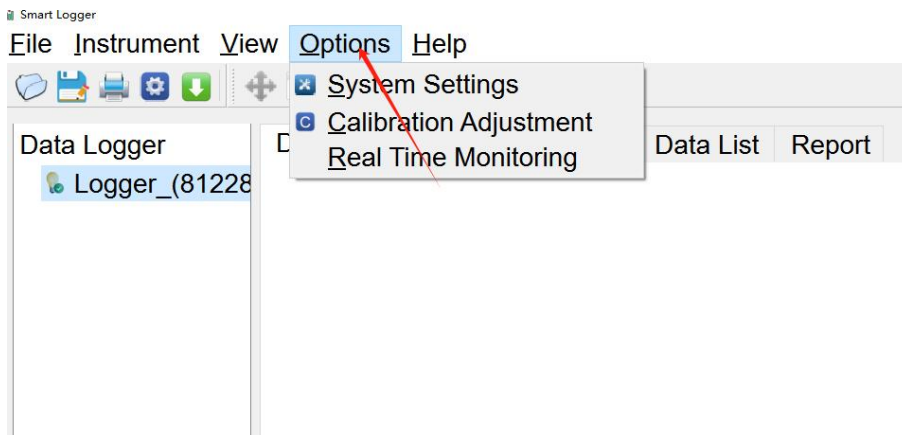


- ② Select the corresponding handheld meter

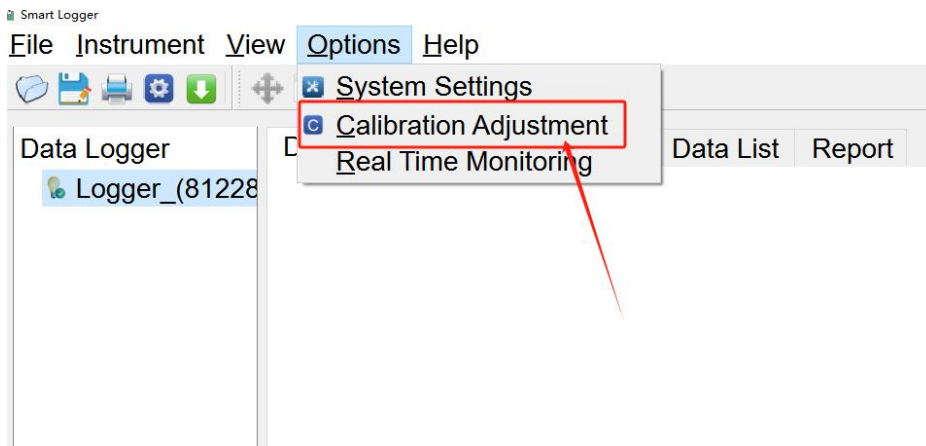


- ③ Click on the "Options" function, select "Calibration Adjustment", and enter "000000"

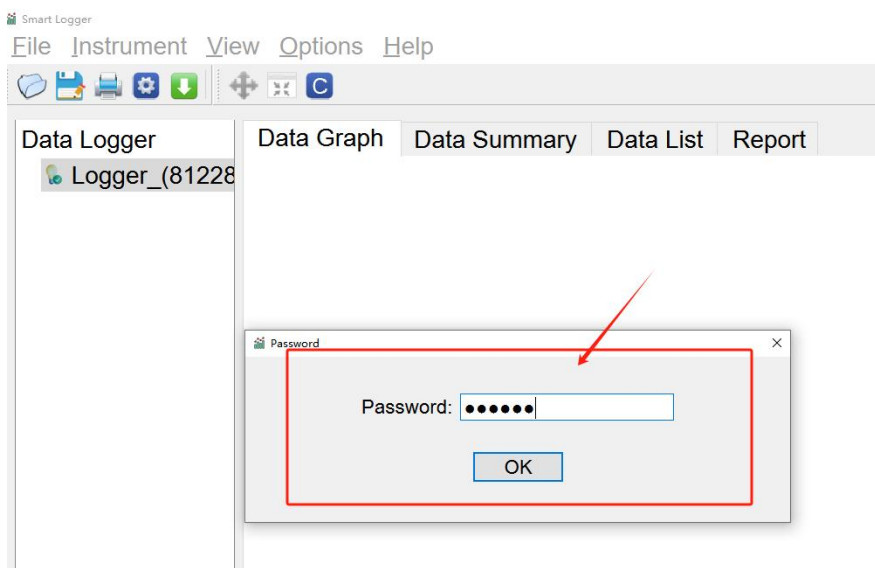
Step 1: Click on the "Options" function, as shown in the following figure:



Step 2: Select "Calibration Adjustment", as shown in the following figure:



Step 3: Enter "000000" as shown in the following figure:



- ④ Fill in the standard and measured values for temperature and humidity, and after calibration, click "Application" and then click "OK".

Calibration Password

Measurement Point

No.	Applied Temperature(°C)	Indicated Temperature(°C)	Test Point	Applied Relative Humidity(%RH)	Indicated Relative Humidity(%RH)
1	-10.0	-10.0	L	30.0	30.0
	-10.0	-10.0	M	50.0	50.0
	-10.0	-10.0	H	80.0	80.0
2	0.0	0.0	L	30.0	30.0
	0.0	0.0	M	50.0	50.0
	0.0	0.0	H	80.0	80.0
3	10.0	10.0	L	30.0	30.0
	10.0	10.0	M	50.0	50.0
	10.0	10.0	H	80.0	80.0

4.1 Fill in the standard and measured values

4.2 Click "Application"

4.3 Click "OK"

Load Save CAL Mode Application OK Cancel

Reminding:

The software calibration steps are recommended to be carried out in a standard reference environment that meets the measurement requirements (such as a calibration box in a metrology institute); If calibration errors occur accidentally, you can click "Calibration Mode" and then click "Confirm" to cancel the original calibration. Alternatively, after filling in the same standard and test values for temperature and humidity, click "Apply" and "Confirm" to restore to the status before calibration.

9 Precautions

1. Do not touch or blow the sensor components;
2. The working power supply voltage should be used within the range;
3. The usage environment should not contain polluting gases (acidic);
4. The wind speed and pressure of the environment must be within the range of use;
5. Keep the instrument away from sparks, flames, and flammable materials;
6. Other prohibited items for instrument use.