ENGLISH

User manual

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1. SAFETY PRECAUTIONS AND PROCEDURES

This instrument conforms to safety guidelines relating to electronic measuring instruments. For your own safety and that of the instrument, please follow the procedures described in this instruction manual and specially read all the notes preceded by the symbol ⚠ carefully. Strictly keep to the following instructions before and during measurements:

- Do not perform measurements in environments with explosive gas, fuels or dust.
- Do not perform any measurement in case of unusual conditions of the instrument such as deformation, breakage, leakage of substances, absence of display reading etc.

The following symbols are used on the instrument and in this manual:

⚠ Caution: refer to the instructions reported on this manual; improper use may damage the instrument or its components.

1.1. PRELIMINARY INSTRUCTIONS
- Use the instrument only as specified in this manual otherwise, the protection provided by the instrument may be impaired.
- Only the accessories supplied with the instrument guarantee compliance with the safety standards. They must be in good conditions and must be replaced, if necessary, with identical models.
- Do not perform measurements beyond the limits specified in this manual.
- Check that batteries have been placed correctly.

1.2. DURING USE
Carefully read the following recommendations and instructions:

⚠
CAUTION
No compliance with the Warnings and/or Instructions may damage the instrument and/or its components or injure the operator.

- Use the instrument only within the temperature/humidity ranges specified in this manual
- If during a measurement the read value or sign never changes, please verify if the HOLD function is active

1.3. AFTER USE
- When the measurements are completed, please switch off the instrument
- Remove the battery when the instrument remains unused for long periods

2. GENERAL DESCRIPTION

The instrument has the following functions:

- Air temperature measurement with integrated sensor
- Relative humidity (%RH) measurement with integrated sensor
- Dew point temperature measurement
- Wet bulb temperature measurement
- MAX MIN function
- Data HOLD
- Backlight
- Auto Power OFF

Each function can be selected via the corresponding key. The selected quantity appears on a high-contrast display with indication of measurement unit and of the active functions. The instrument is also provided with function keys, for their use please see § 4.2.

3. PREPARATION FOR USE

3.1. INITIAL CHECKS

The instrument has been checked from every point of view before shipment. Every care has been taken to make sure that the instrument reaches you in perfect conditions. However, it is advisable to make a rapid check in order to detect possible damages, which may have occurred in transit. Should this be the case, please immediately enter the usual claims with the carrier. Make sure that all the accessories listed in § 7.3 are contained in the package. In case of discrepancies, please contact the dealer. In case the tester needs to be returned, please keep to the instructions given in § 8.

3.2. POWER SUPPLY

The instrument is supplied by 1x9V alkaline battery type IEC 6F22 included in the package. Battery life: about 200 hours. When battery is low, the symbol "⬜" appears on the display. Replace it immediately, following the instructions given in § 6.2.

3.3. STORAGE

In order to guarantee the accuracy of the measurements, after a period of storage in extreme environmental conditions, wait for the necessary time so that the instrument returns to normal measuring conditions (see § 7.2.1).

4. NOMENCLATURE

4.1. INSTRUMENT DESCRIPTION

Fig. 1: Instrument description
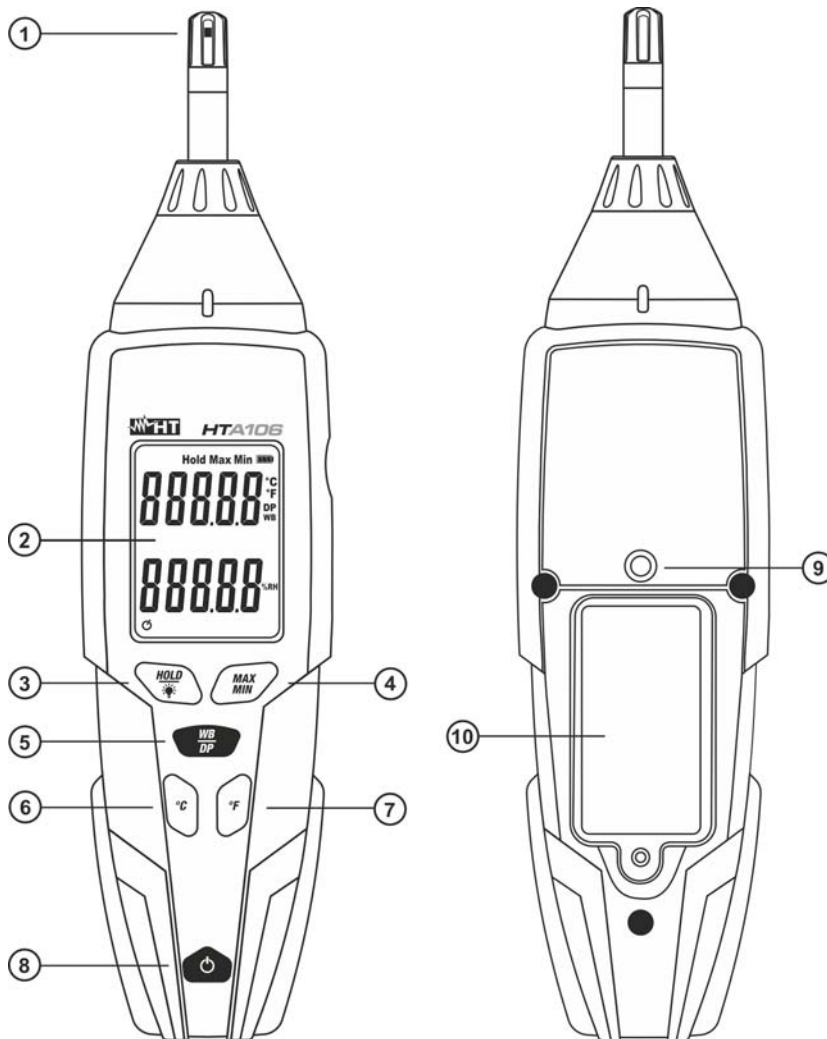
CAPTION:
1. Integrated sensor
2. LCD display
3. **HOLD/**☀ key
4. **MAX MIN** key
5. **WB/DP** key
6. **°C** key
7. **°F** key
8. **ON/OFF** key
9. Tripod hole
10. Battery cover

4.2. DESCRIPTION OF DISPLAY

Fig. 2: Display description
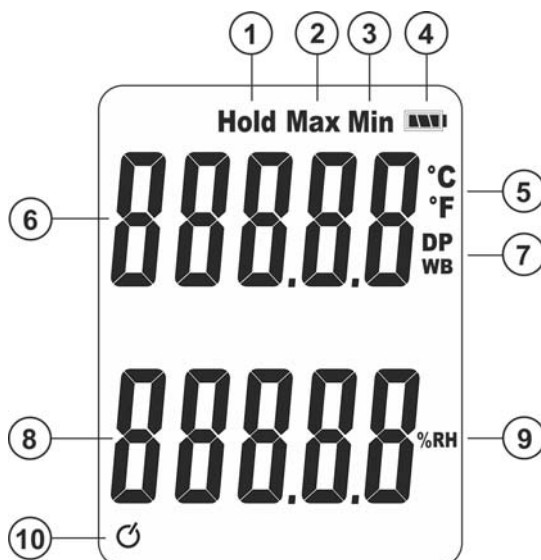
CAPTION:
1. HOLD function active
2. MAX function active
3. MIN function active
4. Low battery indication
5. Temperature measurement unit
6. Main display
7. DP and WB functions active
8. Secondary display
9. Relative humidity measurement unit
10. Auto Power OFF (APO) symbol

4.3. FUNCTION KEY DESCRIPTION
4.3.1. ON/OFF key
Press the **ON/OFF** key to switch on and off the instrument. The **ON/OFF** key also allows enabling/disabling the Auto Power OFF function (see § 4.3.6).

4.3.2. HOLD/☀ key
By pushing **HOLD/☀** key the value measured by the instrument is frozen on the display and the symbol "Hold" appears on it. Press the **HOLD/☀** key again to disable this function and resume normal operation. Press and hold the **HOLD/☀** key for at least 1s to enable/disable the display's backlight.

4.3.3. MAX MIN key
Press the **MAX MIN** key permits to detect the Maximum or Minimum values in the "**°C**", "**°F**", "**%RH**", "**WB**" and "**DP**" functions. The display shows the symbol associated with the selected function: "Max" for maximum value and "Min" for minimum value. Both values are constantly updated and are displayed cyclically every time the same key is pressed. Long pressing the **MAX MIN** key allows quitting the function.

4.3.4. WB/DP key
Press the **WB/DP** key to enable/disable the Dew Point (DP) and Wet Bulb (WB) temperature measurement used in buildings and meteorology applications.

4.3.5. °C and °F keys
Press the **°C** key to select the "Celsius" temperature measurement unit or the **°F** key to select the "Fahrenheit" temperature unit. The keys are disabled if the function "HOLD" is activated.

The formulas for the conversion between Celsius and Fahrenheit degrees are:

$$T\,[°C] = \frac{T\,[°F] - 32}{1.8} \qquad \text{or} \qquad T\,[°F] = T\,[°C] * 1.8 + 32$$

so: 0°C is equal to 32°F,   100°C is equal to 212°F

4.3.6. Disabling the Auto Power OFF function
The instrument is provided with an Auto Power OFF (APO) feature which automatically allows switching it off after 15 minutes of idleness, in order to preserve the internal battery. To disable this feature please follows the steps below:

1. With the instrument on, press and hold the **°C** key
2. Press the **ON/OFF** key. The "⏱" symbol (see Fig. 2 – part 10) disappears from display
3. Repeat the same operation of the points 1 and 2 to enable the function again. This function is automatically restored after each shutdown

5. OPERATING INSTRUCTIONS

5.1. AIR TEMPERATURE AND HUMIDITY MEASUREMENT

CAUTION
Do not perform measurements in humid environments. Do not perform measurements in presence of explosive materials or combustible gases or in dusty environments. Do not expose the integrated sensor to high mechanical stress

1. Turn on the instrument by pressing the **ON/OFF** key
2. Select the temperature measurement unit (see § 4.3.5)
3. Position the integrated sensor (see Fig. 1 – part 1) in the test area. The real-time temperature value is shown on the main display (see Fig. 2 – part 6) while the real time relative humidity value (% RH) is shown on the secondary display (see Fig. 2 - part 8). The "**OL**" value indicates that the maximum measurable values have been exceeded

Fig. 3: Use of the instrument for air temperature/humidity measurement

4. Press the **HOLD/** ☼ key to freeze the result on the display (see § 4.3.2)
5. Press the **MAX MIN** key to read the Maximum or Minimum values on the display (see § 4.3.3)
6. Press the **WB/DP** key in order to show the wet bulb or dew point temperature values (see § 4.3.4)
7. Switch off the instrument after measurement

6. MAINTENANCE

6.1. GENERAL
Whether in use or in storage, please carefully follow the recommendations listed in this manual in order to prevent any possible damage or danger during use. Do not place this instrument in environments with a high temperature and do not expose to direct sunlight, Be sure to switch off the instrument after use. For long time storage, remove the battery to avoid leakage of battery liquid that would damage the internal parts.

6.2. BATTERY REPLACEMENT
When the symbol "⬚" is displayed replace the battery.

⚠	**CAUTION**
	Only expert and trained technicians are allowed to perform this operation

1. Switch off the instrument
2. Remove the battery cover (see Fig. 1 – part 10)
3. Remove the battery from its connector
4. Connected the new battery to the connector, and restore it into the battery compartment
5. Replace the battery compartment cover
6. Use the appropriate battery disposal methods for Your area

6.3. CLEANING
To clean the instrument please use a soft dry cloth. Never use a wet cloth, solvents or water, etc.

6.4. END OF LIFE

CAUTION: this symbol indicates that equipment, its accessories and battery shall be subject to a separate collection and proper disposal.

7. TECHNICAL SPECIFICATIONS

7.1. CHARACTERISTICS

Accuracy is calculated as ±[indication] at 25°C, <70%RH

Air Temperature measurement

Range	Resolution	Accuracy
-20.0°C ÷ 60.0°C	0.1 °C	±0.5°C
-4.0°F ÷ 140.0°F	0.1 °F	±0.9°F

Wet Bulb Temperature measurement

Range	Resolution	Accuracy
-20.0°C ÷ 50.0°C	0.1 °C	±1.0°C
-4.0°F ÷ 122.0°F	0.1 °F	±1.8°F

Dew Point Temperature measurement

Range	Resolution	Accuracy
-26.0°C ÷ 50.0°C	0.1 °C	±1.0°C
-14.8°F ÷ 122.0°F	0.1 °F	±1.8°F

Relative Humidity measurement

Range	Resolution	Accuracy
0.0%RH ÷ 100.0%RH	0.1%RH	±3.0%RH

7.1.1. General data
Mechanical characteristics

Dimensions (Lx W x H):   270 x 65 x 45mm; (11 x 3 x 2in)
Weight (including battery): 260g (9 ounces)
Mechanical protection: IP40

Supply

Battery type: 1x9V alkaline NEDA 1604 IEC 6F22 JIS 006P
Low battery indication: "⬛⬛⬛" symbol is displayed
Battery life: ca 62h (backlight ON), ca 135h (backlight OFF)
Overload indication: "**OL**" message displayed
Auto Power OFF: after 15 minutes of idleness (disabled)

Display

Characteristics: double 4 LCD, decimal sign point and backlight
Sample rate: 3times/s

7.2. ENVIRONMENTAL CONDITIONS

7.2.1. Climatic conditions

Reference temperature: 25°C ; (77°F)
Operating temperature: 0°C ÷ 50 °C ; (32°F ÷ 122°F)
Operating humidity: <70%RH
Storage temperature: -10°C ÷ 60°C ; (14°F ÷ 140°F)
Storage humidity: <70%RH
Max height of use: 2000m (6562ft)

This instrument satisfies the requirements of EMC Directive 2014/30/EU
This instrument satisfies the requirements of European Directive 2011/65/EU (RoHS)
and 2012/19/EU (WEEE)

7.3. ACCESSORIES

7.3.1. Accessories provided

- Battery
- Rigid carrying case
- User manual

8. SERVICE

8.1. WARRANTY CONDITIONS

This equipment is guaranteed against material faults or production defects, in accordance with the general sales conditions. During the warranty period (one year), faulty parts may be replaced. The manufacturer reserves the right to decide either to repair or replace the product. In case the instrument is returned, all transport charges must be paid by the customer. The instrument must be accompanied by a delivery note indicating the faults or reasons of returning. The returned tester must be packed in its original box. Any damage occurred in transit because of lack of original packaging will be debited to the customer. The manufacturer is not responsible for any damage against persons or things. Accessories and batteries are not covered by warranty.

The warranty shall not apply in the following cases:

- Faults due to improper use of the equipment.
- Faults due to combination of the tester with incompatible equipment.
- Faults due to improper packaging.
- Faults due to servicing carried out by a person not approved by the company.
- Faults due to modifications made without explicit authorization of our technical department.
- Faults due to adaptation to a particular application not provided for by the definition of the equipment or by the instruction manual.

The contents of this manual cannot be reproduced in any form without our authorization.

> **Our products are patented. Our logotypes are registered. We reserve the right to modify characteristics and prices further to technological developments.**

8.2. SERVICE

If the equipment does not work properly, before contacting the SERVICE, test the batteries, the probes and change them if necessary. If the equipment still does not work, make sure that your operating procedure complies with the one described in this manual. In case the instrument need to be returned, all transport charges must be paid by the customer. The instrument must be accompanied by a delivery note indicating the faults or reasons of returning. The returned tester must be packed in its original box. Any damage occurred in transit because of lack of original packaging will be debited to the customer.