Instruction Manual
Digital Thermohygrometer Model PC-7980GTI

Thank you for purchasing the digital thermohygrometer PC-7980GTI
  - This product is designed to measure indoor temperature and humidity and to help prevent seasonal influenza or heatstroke. Do not use it for other purposes.
  - Read this manual thoroughly before use. Keep this manual in a safe place for future references.

⚠ Warning

  - This product is designed to indicate the heat stress and influenza indexes as a guideline for seasonal influenza or heatstroke. The index is just for the reference to control air-condition or manage health condition.
  - Keep the batteries out of reach of children. If swallowed accidentally, consult a medical attention immediately.
  - Do not dispose of exhausted batteries in a fire.
  - For environmental conservation, dispose of used batteries in compliance with local rules and regulations

⚠ Cautions in Use

Be sure to observe the following precautions in order to use this unit correctly.
  - Use this unit in a normal atmosphere.
  - This is not waterproof type. Do not get wet the unit.
  - Be sure to use this unit within the specified measurement range. Using the unit outside the specified measurement range will result in failure or damage.
  - Do not drop this unit or apply impact to it. This unit is a precision instrument.
  - Never disassemble or modify this unit. Doing so may result in failure.
  - Do not use this unit in an environment where electrical noise is generated. Doing so may result in unstable display or larger errors.
  - Do not wash or wipe this unit with alcohol, thinner, or other solvents. Also, do not wash it in water. If the unit becomes dirty, wipe it with a tightly wrung cloth that has been dipped in warm water with neutral detergent.
  - If this unit is not to be used for a long time, always remove the batteries from the unit. Otherwise, the batteries may leak fluid, resulting in failure.
  - Always use new and the same type of batteries for a battery replacement.
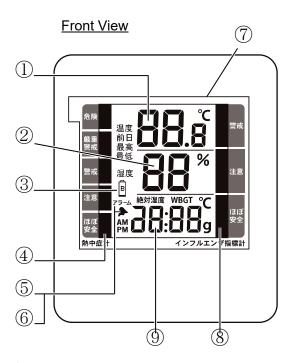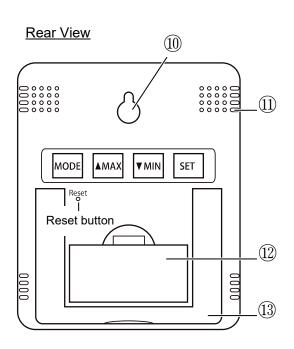
1. Names of components

⚠ Precautions before measurement

After replacing the batteries or changing the location or environment of the unit, it takes time before accurate readings are displayed due to the sensor built into the unit.
After replacing the batteries, it takes about one hour for accurate values to be displayed, which is the time required for the sensor to detect and adapt to the new environment (only when installed for the first time).

■ First, remove the protection film from the LCD.
  Remove the battery lid and install the batteries by following "Replacing the batteries".
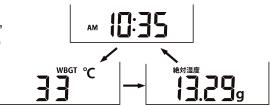

Front View   Rear View

① Temperature (°C)

② Humidity (%)

③ Low battery icon: Lights up when the battery is low. Immediately replace with new batteries.

④ Heatstroke indicator: Caution and warning are displayed in five levels, under the current temperature and humidity conditions.

⑤ Lights up when the alarm is turned on.(In the clock display mode)

⑥ Lights up when the WBGT warning sound is turned on.(In the WBGT display mode)

⑦ LCD protection film

⑧ Seasonal influenza index indicator:
   Caution and warning are displayed in three levels, under the current temperature and humidity conditions.

⑨ Clock display (12/24 hour time format), WBGT value (°C) display, Absolute humidity (g/m^3) display
   * Press the MODE button to switch between the modes.

⑩ Hook hole   (Wall-mounting hole)

⑪ Air vents: Do not use the air vents as wall-mounting holes. Doing so is dangerous and could cause the unit to fall, resulting in injury.

⑫ Battery lid: two AAA batteries are used

⑬ Stand

2. Functions

2-1. Switching the display

● Switching between the clock display, WBGT display and absolute humidity display:

   a. While the current temperature and humidity are displayed, press the MODE button. Every time the button is pressed, the screen changes to the clock display, WBGT display and absolute humidity display, in this order.
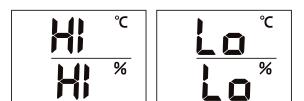
● Switching between today's or yesterday's maximum/minimum temperature and humidity:

   a. While in the clock display mode, press the [▲ 最高] (MAX) button to display today's maximum temperature and humidity ([▲ 最高] on the LCD starts flashing).

   - To display yesterday's maximum temperature and humidity, press the button again.

   - Press the button again to return to the current temperature humidity. If no buttons are pressed for one minute, the unit also returns to the current temperature and humidity.

   b. While in the clock display mode, press the [▼ 最低] (MIN) button to display today's minimum temperature and humidity (the [▼ 最低] on the LCD starts flashing).

   - To display yesterday's minimum temperature and humidity, press the button again.

   - Press the button again to return to the current temperature and humidity. If no buttons are pressed for one minute, the unit also returns to the current temperature and humidity.

   Notes:
   - When the date changes, today's data on the maximum and minimum temperature and humidity are moved to where yesterday's data were, erasing yesterday's data. The unit restarts recording today's maximum and minimum temperature at 00:00.

   - To manually erase today's data on the maximum and minimum temperature and humidity and to restart recording, press the [▲ 最高] and [▼ 最低] (MAX and MIN) buttons together.

   - When the batteries are replaced, or if the system reset button is pressed, data on today's and yesterday's maximum and minimum temperature and humidity will be erased.

   ■ If the temperature exceeds 50°C, "Hi" appears.
     If the humidity exceeds 90%, "Hi" also appears.

   ■ If the temperature falls below −9.9°C, "Lo" appears.
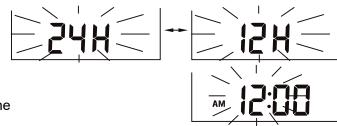   If the humidity falls below 20%, "Lo" also appears.

● Checking the WBGT warning value:

   While in the WBGT display mode, press the [▲ 最高] or [▼ 最低] (MAX or MIN) button to display the set warning value (31°C, as default). The value flashes for three seconds, and then the unit returns to the WBGT display.
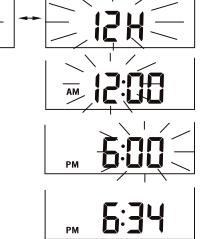
2-2. Setting the clock

● While in the clock display mode, press and hold the SET button for three seconds to enter the clock setting mode.

1. "24H" starts flashing. Use the [▲ 最高] or [▼ 最低] (MAX or MIN) button to set the 24H or 12H time format.

2. Press the SET button to flash the hours. Use the [▲ 最高] (MAX) button to increases the value or the [▼ 最低] (MIN) button to decreases the value for setting the hours.

3. Press the SET button again to flash the minutes. Use the [▲ 最高] (MAX) button to increases the value or the [▼ 最低] (MIN) button to decreases the value for setting the minutes.

4. Press the SET button again to complete the clock setting.

   ■ Press and hold the [▲ 最高] or [▼ 最低] (MAX or MIN) button to quickly change the value.
   ■ If no buttons are pressed for about one minute, the clock currently displayed is fixed.

2-3. Setting the alarm time and turning it on or off

   ● While in the current temperature and humidity display mode or in the clock display mode, press and hold the MODE button for three seconds to display the alarm time.

1. Press and hold the SET button for three seconds cause the [アラーム] and hour display to start flashing.
   Press the SET button again to cause the [アラーム] and minute display to start flashing. Set the alarm time following the same procedure as for setting the clock.

2. Press the SET button once again to complete the alarm time setting. To return to the current temperature, humidity and time display, press the MODE button. (If no buttons are pressed for one minute, the unit sets the alarm time to the time currently displayed and returns to the current temperature and humidity display or the clock display.)

   *While in the alarm time display, press the SET button. The "🔔" icon lights up to indicate that the alarm has been turned on. (The "🔔" icon remains lit when the clock display is resumed.) When the SET button is pressed a second time, the "🔔" icon goes out to indicate that the alarm has been turned off.

   ■ If the screen is switched to the WBGT or absolute humidity display while the alarm is turned on, the "🔔" icon goes out but the alarm-on state remains.

   ■ The alarm sounds for about one minute. To stop the alarm from sounding, press any button.

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2-4. Setting the WBGT warning value and turning the warning sound on or off

●While in the current temperature and humidity display mode or in the WBGT display mode, press and hold the SET button for three seconds to cause the WBGT value to start flashing.

1. Use the [▲ 最高] or [▼ 最低] (MAX or MIN) button to set the value.
    ■ Setting range: WBGT 21 to 50°C (WBGT 31°C, as default)

2. Press the SET button again to complete the WBGT warning value setting. If no buttons are pressed for one minute, the unit sets the WBGT warning value to the value currently displayed and returns to the current temperature and humidity display or the WBGT display.

    * While in the WBGT display mode, press the SET button. The "▲" icon lights up to indicate that the warning sound has been turned on. When the SET button is pressed a second time, the "▲" icon goes out to indicate that the alarm has been turned off.

    ■ If the screen is switched to the clock or absolute humidity display while the WBGT warning sound is turned on, the "▲" icon for the WBGT warning sound goes out but the warning sound-on state remains.

        Example: The WBGT warning value is set to WBGT 30°C.
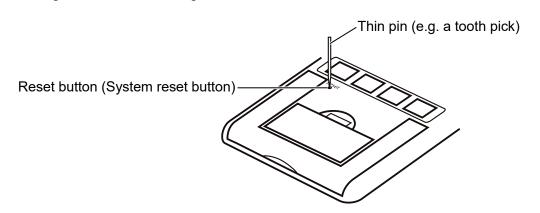   When the WBGT value reaches 30°C, the warning sound (short beeps) is heard for 30 sec.

        ■ If the WBGT value is over 30°C, the warning sound is heard once every 10 seconds for 30 sec.
        ■ To temporarily stop the warning from sounding, press any button.
        ■ If the WBGT value remains over WBGT 30°C, the warning sound (three short beeps) is heard once every five minutes.

    - When the WBGT value falls below 30°C and then rises to 30°C again, the warning sound is heard once every 10 seconds for 30 seconds.

3. Resetting the system

Push the "Reset" button (system reset button) using a thin pin or the like.

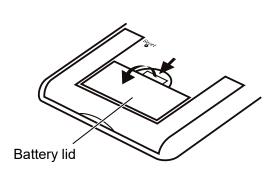■ Push this button if the display is not functioning after replacing the batteries or due to static electricity, or if the buttons cannot be operated. Once the system is reset, the data on today's and yesterday's temperature and humidity are erased, and the settings of clock, alarm time and WBGT warning value are reset to the initial settings. Set these values again.

Thin pin (e.g. a tooth pick)
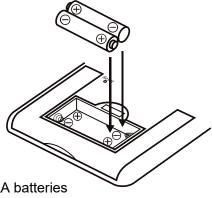
Reset button (System reset button)

4. Replacing the batteries

If the battery power becomes low, the " ▯ B ▯ " icon appears. Replace the batteries with new ones.

1. Remove the battery lid by lifting it in the direction of the arrow and lifting it out.

2. Remove the old batteries, and then install two new batteries.

■ The data on today's and yesterday's temperature and humidity are erased, and the settings of the clock, alarm time and WBGT warning value are reset to the initial settings. (Set these values again.)

Battery lid

used: Two AAA batteries
Install the batteries with their
polarities aligned correctly.
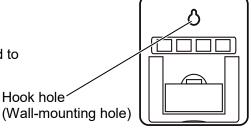
■ The batteries included with the unit are for verifying operation, and so may have a shorter life than expected.

⚠ Dispose of used batteries in compliance with local rules and regulations.
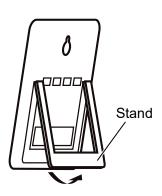
5. Installation

● Wall-mounting Use

- When mounting on a wall, use the wall-mounting hole to secure it to the wall with a screw.

- A screw is not included in the package. You need to purchase a screw from a home center.

Hook hole
(Wall-mounting hole)

● Desktop Use

Pull out the stand attached to the back of the unit for desktop use.
Find a stable place free of direct sunlight and air conditionings to install.

Stand

6. Wet Bulb Globe Temperature (WBGT) Value and Heatstroke

Caution and warning are displayed in five levels, under the current temperature and humidity conditions.

■ If the level is determined as Danger, the whole 5-level indicator flashes.

5- 危険
4- 厳重警戒
3- 警戒
2- 注意
1- ほぼ安全

温度 **32.5** °C
湿度 **68** %
AM **10:35**

警戒
注意
ほぼ安全

Clock display

WBGT °C display — WBGT °C **33** → 絶対湿度 **13.29** g — Absolute humidity display

To view the WBGT display while in the clock display mode, press the MODE button.

Guideline for Preventing Heatstroke in daily life

Level	WBGT value (°C)		Risk of occurrence in relation to physical activity	Remarks
5	31°C or higher	Danger	Risk during any physical activity	Risk is high in the elderly, even when resting. Avoid going out and stay in a cool room.
4	28°C or higher	Severe warning		Avoid direct sunlight outdoors and watch for any rise in room temperature indoors.
3	25°C or higher	Warning	Risk during moderate to vigorous physical activity	Regularly take adequate rest when exercising or doing vigorous work.
2	21 to 25°C	Caution	Risk during very vigorous physical activity	Basically low risk, but high risk when doing vigorous exercise or heavy labor.
1	Below 21°C		Very low risk	

Source: Japanese Society of Biometeorology, April 2008

 The term "WBGT value (°C)" is obtained based on the values of temperature and humidity, referring to the "Guideline for preventing heatstroke in daily life" published by the Japanese Society of Biometeorology.
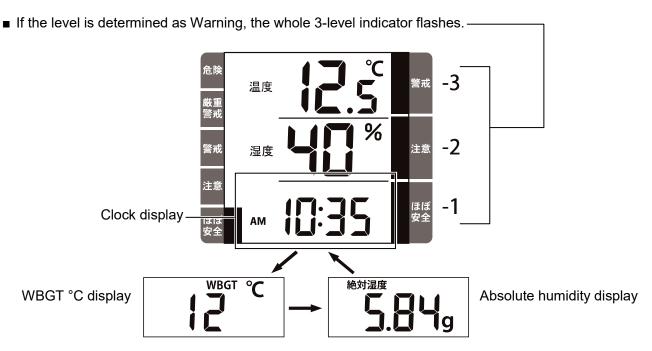
⚠ Precautions on using the heatstroke indicator

● The heatstroke indicator should be used only as a guideline for controlling room temperature or people's physical conditions. The risk of heatstroke depends on the physical condition of the individual, and the degree of tolerance varies among individuals.

● The heatstroke indicator does not guarantee that heatstroke will or will not occur.

● The information shown by the heatstroke indicator may not match cautions and warnings issued by public institutions.

7. Seasonal influenza index indicator

Caution and warning are displayed in three levels, under the current temperature and humidity conditions.

■ If the level is determined as Warning, the whole 3-level indicator flashes.

危険　温度 **12.5** ℃　警戒 -3
厳重警戒
警戒　湿度 **40** %　注意 -2
注意
Clock display — ほぼ安全　AM **10:35**　ほぼ安全 -1

WBGT °C display　WBGT ℃ **12** → 絶対湿度 **5.84** g　Absolute humidity display

To switch from the WBGT display to the absolute humidity display, press the MODE button.

Relation between Absolute Humidity and Viruses

	Absolute humidity		Virus survival	Living environment	Measures for physical activity
3	7 g/m^3 or less	Warning	20%	Environment suitable for viruses, risk of infection	Increase the humidity such as by using a humidifier, or increase the temperature.
2	11 g/m^3 or less	Caution	5%	Environment where viruses can survive and care is necessary to prevent infection	Avoid a decrease in temperature and humidity.
1	17 g/m^3 or less	Very low risk	Nearly 0%	Ordinary living environment	Keep the temperature and humidity at a reasonable level.

■ Absolute humidity refers to the amount of water vapor present per unit volume of air, regardless of the temperature, expressed in grams per cubic meter (g/m^3).
Relative humidity is the humidity usually used. It refers to the ratio of the actual amount of water vapor in the air to the total amount of water vapor in the air at saturation at a given temperature, expressed as a percentage (%).

⚠ Precautions on using the seasonal influenza index

● The seasonal influenza index indicator only shows environments where seasonal influenza viruses are likely or unlikely to thrive, assumed based on absolute humidity. Therefore, it does not guarantee the existence or nonexistence of viruses. Please use it as a guideline for preventing infection.

● This unit does not cover new types of influenza.

8. Specifications

Name	: No. 1078-00 Digital Thermohygrometer	
Model	: PC-7980GTI	
Measuring range (Display range)	: Temperature Humidity	: -9.9 to 50.0˚C : 20 to 90%rh
Accuracy	: Temperature	: ±1.0˚C at 10 to 40˚C ±1.5˚C at other above
	: Humidity	: ±5%rh at 40 to 70%rh at 20 to 30˚C ±8%rh at other than above
Resolution	: Temperature Humidity	: 0.1˚C : 1%rh
Sampling time	: Every 20 sec.	

Operation & Storage ambient

    : -9.9 to 50°C, less than 90%rh (no condensing nor freezing)

Accuracy of clock   : within ±30 sec. per months (at normal temperature)

Display functions   : Temperature: "Lo" displays at lower than -9.9 0˚C
                                      "Hi" displays at higher than 50.0˚C
                   Humidity: "Lo" displays at lower than 20 %rh
                                         "Hi" displays at higher than 90%rh
                   Today's max. & min. temperature, Today's max. & min. humidity
                   Yesterday's max. & min. temperature, Yesterday's max. & min. humidity
                   Clock (hour and minute display: switchable 12 or 24H), alarm clock
                   Heatstroke meter (5 levels: very low risk – caution – warning –
                   severe warning - Danger), WBGT value (˚C), WBGT alarm value (˚C),
                   Seasonal influenza index (3 levels: very low risk – caution – warning)
                   Absolute humidity (g/m^3), low battery mark ⊏ B ⊐

Power requirement   : "AAA" size battery x 2 pcs.

Battery life   : about one year (in the room ambient of 20˚C and 50%rh)

Dimensions   : 100 (W) × 120 (H) × 17 (D) mm

Materials (body)   : ABS resin, acryl resin

Weight   : about 143 g (inclusive batteries)

Standard accessories : "AAA" manganese battery x 2 pcs. (for monitoring purpose)