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Introduction

The DTH31 Digital Psychrometer is an advanced handheld humidity and temperature meter. Its triple display shows three parameter readings simultaneously and includes a second temperature probe for external measurements. It has everything you need to charge an air-conditioning system and determine heating, cooling, and ventilation needs. It gives you incredible fast and accurate wet bulb, dry bulb, and dew point measurements. Nothing compares to this fully featured, hand-size digital psychrometer.

Features include

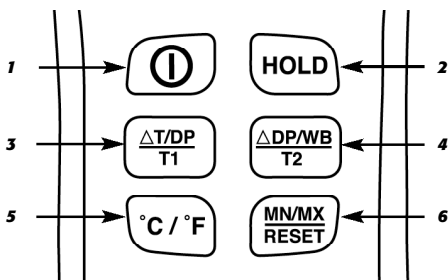
- Triple display, RH, dry bulb and wet bulb temp.
- C/F selectable
- Turnable cap to protect sensor
- T2-Air temp. and T2-Dew Point
- Data hold
- MIN/MAX
- Automatic power off

Safety Notes

Before using this instrument, read all safety information carefully. In this manual the word "**WARNING**" is used to indicate conditions or actions that may pose physical hazards to the user. The word "**CAUTION**" is used to indicate conditions or actions that may damage this instrument.

Controls and Indicators

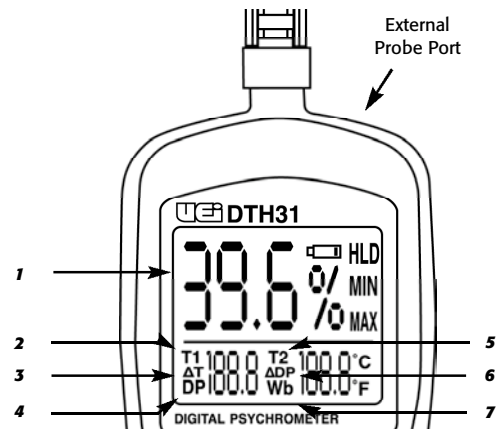
Buttons



1. **ON/OFF** - "⏻" : Turns unit on and off.
2. **Hold - Data Hold:** Freezes data input.
 - "HLD" appears in upper right corner of display
 - View frozen data for any of these functions: C/F, Td/WBT, MIN/MAX
 - Cancel hold by pressing "RESET"
 - "⏻" + HOLD = non-sleep mode (default setting is auto-sleep in 5 minutes)
3. **ΔT/DP** : Switch between ΔT, DP and T1.
T1 (ΔT=T1-T2, T1=Air Temp.)

4. **ΔT/WB**: Switch between ΔT, WB and T2.
T2 (ΔT=T2-DP, T2=External Temp.)
5. **(°C/°F) - Centigrade/Fahrenheit:** Toggles between these two standard scales.
6. **MN/MX:**
RESET
 - Reset MIN/MAX memory
 - Display minimum value of memory
 - Display maximum value of memory

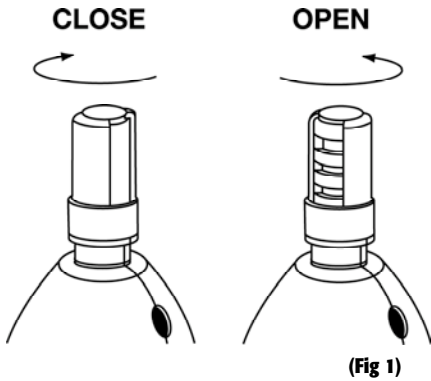
LCD Display



1. **RH%**
2. **Air Temperature (T1)**
3. **T1 - T2***
4. **Dew Point**
5. **External Temperature (T2)***
6. **T2 - DP***
7. **Wet Bulb**

*Not available without external probe connected.

Operating Instructions



WARNING!

Be sure to open the sensor protection cap before taking measurements.

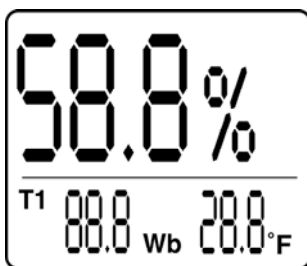
Auto Power Off (Sleep Function)

Unit will turn itself off after ten (10) minutes of non-use (factory programmed). The auto power off delay offers 2, 5, 10, 20, 40, and 60 minute options. To change auto power off:

1. Press "⏻" + **HOLD** buttons.
2. When "⏻" appears in the LCD, release "**HOLD**" button. Unit is now in non-sleep mode.

Mode Options

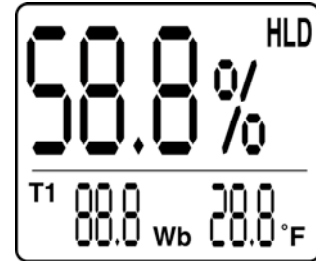
1. Turn the protective cap to the open position (Fig 1).
2. Press "⏻" button to turn the unit on.
3. Press "°C/°F" button for 1 second to convert readings to desired unit. Temperature relative humidity and wet bulb measurement will be displayed simultaneously (Fig 2).



(Fig 2)

Data Hold Function

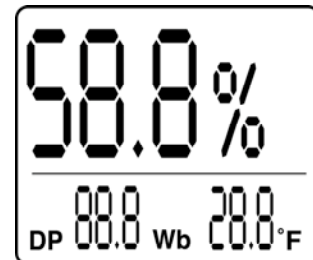
1. Press "**HOLD**" button until "**HLD**" appears in display.
 - The current reading is now held and will not change until the HOLD function is cancelled (Fig 3)
2. Press "**HOLD**" button again to cancel.
 - Hold function can be used for humidity, dew-point, dry bulb/T1, Ext. Temp./T2, wet bulb and temp. differential



(Fig 3)

Dew Point Function

1. Press " $\frac{\Delta T/DP}{T1}$ " button until "**DP**" appears in the display. Select dew point, T1 or delta T value in any mode while internal temperature is active (Fig 4).



(Fig 4)

Wet Bulb Function

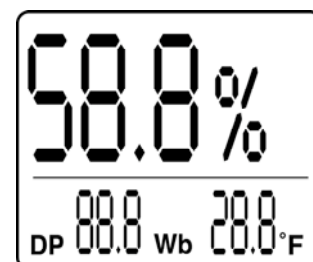
1. Press " $\frac{\Delta DP/WB}{T2}$ " button until "**Wb**" appears in the display (Fig 4).

NOTE: WB is always visible without external probe.

External Temperature Function

1. Plug the external probe into the meter.
2. Press " $\frac{\Delta DP/WB}{T2}$ " button until "**T2**" appears in the display (Fig 5). Unit will now display external probe temperature.

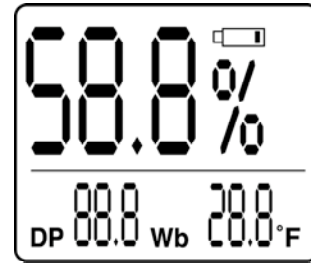
NOTE: If the external probe isn't plugged into the meter, "**T2**" will not appear on display or any delta temperature.



(Fig 5)

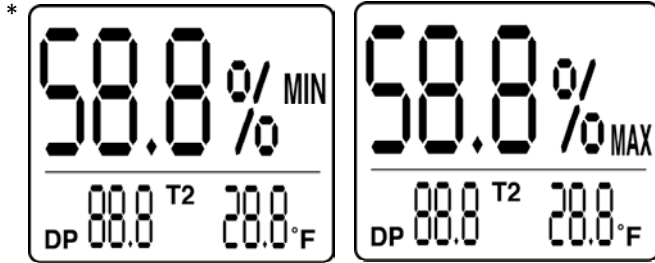
MIN/MAX Function

1. Press " $\frac{MN/MX}{RESET}$ " button until "**MIN**" appears in display (Fig 6). Display is now showing minimum humidity and temperature reading.
2. Press " $\frac{MN/MX}{RESET}$ " button again until "**MAX**" appears in display (Fig 7). Display is now showing maximum recorded humidity and temperature readings.
3. Press " $\frac{MN/MX}{RESET}$ " button until "**MIN**" or "**MAX**" disappear from display to return to current readings.
4. Press " $\frac{MN/MX}{RESET}$ " button for more than 2 seconds to clear current reading from memory.



(Fig 10)

Troubleshooting



(Fig 6)

(Fig 7)

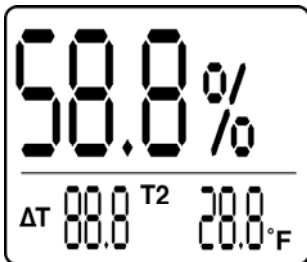
NOTE: While checking MIN/MAX value for T2, ΔT , ΔDP , don't replace the p probe or the error code will display. The error code will also appear if the p probe is not installed when checking MIN/MAX values.

$\frac{\Delta T}{T1}$ and $\frac{\Delta DP}{T2}$

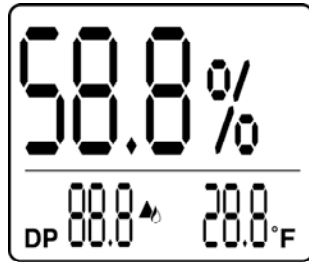
ΔT - is calculated by subtracting the T2 (Ex. temp.) from T1 (Air temp.).

ΔDP - is calculated by subtracting the DP (dew point) from T2 (Ex. temp.).

1. Press " $\frac{\Delta T/DP}{T1}$ " button until ΔT appears in display (Fig 8).
2. Press " $\frac{\Delta DP/WB}{T2}$ " button until ΔDP appears in display (Fig 9).



(Fig 8)



(Fig 9)

Low Battery

A battery symbol will display in the upper right corner when the battery is low. Inaccurate readings will result from low batteries (Fig 10).

1. Open the battery cover on the back of instrument.
2. Remove the expired batteries.
3. Insert two new AAA V batteries.

If I See This Malfunction	I Should Check
No display	<ul style="list-style-type: none"> Make sure the time of pressing "⏻" - ON/OFF key is more than 0.1 sec. Check that the batteries are inserted correctly. Replace batteries if needed Confirm battery indicator is displayed before display disappears. If yes, replace with new battery Check if sleep mode is active. If yes, press "⏻ + HOLD" button to disable auto power off function
Er 1	Circuit error in RH measurement - Return instrument to UEi for repair (see warranty)
Er 2	Circuit error measuring internal temperature - Return instrument to UEi for repair (see warranty)
Er 3	Circuit error in self calibration channel - Return instrument to UEi for repair (see warranty)
Er 4	Internal temperature is out of range
Er 5	External temperature is out of range

Note: Dry bulb temperature is air (internal) temperature. Dew point and wet bulb are calculated from internal temperature and humidity.

Specifications

Temperature	
Temperature range	-4 to 122°F (-20 to +50°C)
RH%	0 to 100% RH
Wet bulb	-69 to 122°F (-21.6 to 49.9°C)
Dew point	-90.4 to 122°F (-68 to 49.9°C)
External temperature	-4 to 158°F (-20 to 70°C)
Accuracy	
RH%	±3% at 77°F (25°C)
Temperature	±1°F 0.6°F (0.6°C)
General	
Response time	60 seconds typical
Size	1" (H) x 1 7/8" (W) x 7" (L)
Cable length	45 5/8"
Probe (w/handle)	7 7/8"
Battery	2 x 1.5V AAA batteries

Standard & Optional Accessories

Optional

External temperature probeATT31



DTH31

Digital Psychrometer

Limited Warranty

The DTH31 is warranted to be free from defects in materials and workmanship for a period of one year from the date of purchase. If within the warranty period your instrument should become inoperative from such defects, the unit will be repaired or replaced at UEi's option. This warranty covers normal use and does not cover damage which occurs in shipment or failure which results from alteration, tampering, accident, misuse, abuse, neglect or improper maintenance. Batteries and consequential damage resulting from failed batteries are not covered by warranty.

Any implied warranties, including but not limited to implied warranties of merchantability and fitness for a particular purpose, are limited to the express warranty. UEi shall not be liable for loss of use of the instrument or other incidental or consequential damages, expenses, or economic loss, or for any claim or claims for such damage, expenses or economic loss. A purchase receipt or other proof of original purchase date will be required before warranty repairs will be rendered. Instruments out of warranty will be repaired (when repairable) for a service charge. Return the unit postage paid and insured to:

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This warranty gives you specific legal rights. You may also have other rights which vary from state to state.

