Digital Sling Psychrometer

THWD-2

INSTRUCTION MANUAL

AMPROBE®

MX / MN   HOLD
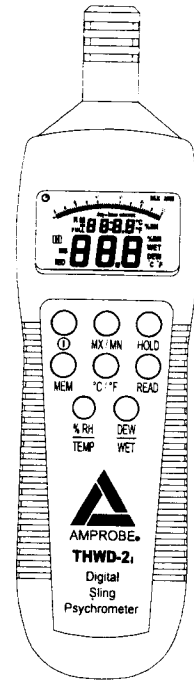
MEM   °C / °F   READ

% RH   DEW
TEMP   WET

AMPROBE®

THWD-2
Digital
Sling
Psychrometer

1. SPECIFICATIONS

Display : LCD Dual display and Analog scale display.

Measurement Range :

Humidity : 1% ~ 99% RH

Temperature : -4°F ~ +140°F (-20°C ~ +60°C)

Resolution : 0.1% RH , 0.1°C , 0.1°F

Accuracy (after calibration) :

Humidity : ± 3%RH (at 77°F (25°C), 10 ~ 90% RH).

± 6%RH (at 77°F (25°C), 1 ~ 10% RH).

± 6%RH (at 77°F (25°C), 90 ~ 99% RH).

Temperature : ± 0.8°C , ± 1.5°F

Sensor Type : Humidity : Precision capacitance sensor.

Temperature : Thermistor sensor.

Response Time : Humidity : 45% RH → 95% RH ≦1 min.

95% RH → 45% RH ≦3 min.

Temperature : 50°F(10°C) / 2 sec

Sampling Rate : 2 times per second.

Manual Data Memory Capacity : 99 sets.

Auto Power Off : 30 minutes.

Operation Temperature & Humidity :

32°F to 140°F (0°C to 60°C), below 99% RH. (no condensation)

Storage Temperature & Humidity : 14°F to 140°F (-10°C to 60°C), below 70% RH.
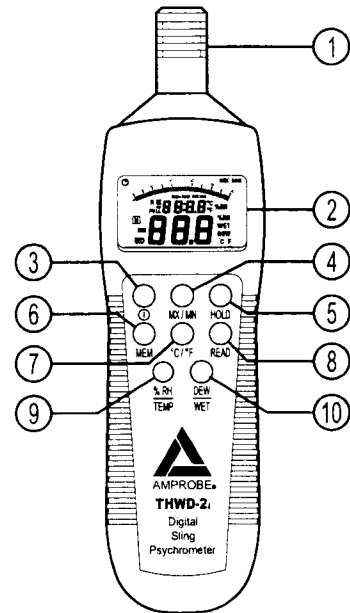
Power Supply : Three 1.5V AAA size.

Battery Life : Approx. 200 hours.

Weight / Dimensions : 0.22 lb / 6.7 (L)x1.8(W)x0.8(H)in

100g / 170(L) x 46(W) x 20(H)mm

Accessories : Instruction manual, Battery and Soft case.

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(1) **Humidity & Temp. Sensor probe**

(2) **Display**

(3) ① **Power key** : Press ① Power key to turn the meter on or off.

(4) **MX/ MN key** : Press MX/MN (MAX/MIN) key to cycle through
the Maximum Humidity & Temperature → Maximum
Humidity & Elapsed time (min : sec) →
Maximum Humidity & Elapsed time (day : hour) →
Maximum Temperature & Humidity reading →
Maximum Temperature & Elapsed time (min : sec) →

Maximum Temperature & Elapsed time (day : hour) ➜
Minimum Temperature & Humidity reading ➜
Minimum Temperature & Elapsed time (min : sec) ➜
Minimum Temperature & Elapsed time (day : hour).
Minimum Humidity & Temperature reading ➜
Minimum Humidity & Elapsed time (min : sec) ➜
Minimum Humidity & Elapsed time (day : hour) ➜
Press MX/MN key 2 seconds to exit MX/MN mode.

(5) **H** **Hold key :**
Press **H** Hold key to freeze or unfreeze the display readings. In **H** mode, press DEW / WET key to select desired display readings.

(6) MEM key : Manual data memory control key.

(7) ℃/ ℉ key : Press ℃/℉ key to switch between Celsius (℃) and Fahrenheit (℉) units.

(8) READ key : Manual memory data reading control key.

(9) %RH/TEMP key : Press %RH/TEMP key exchange the main display and second display reading. The setting change will be retained during power down.

(10) DEW / WET key : Press DEW / WET key to cycle through the Humidity, DEW point and WET bulb temperature reading on the main display.
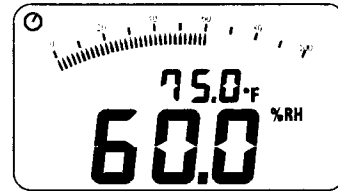
Second Display

Main Display

3
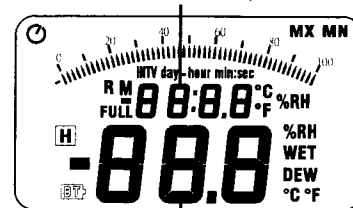
3. MEASURING PROCEDURE

3-1 Humidity Measurement :

① Press the " ⏻ " key to power on the meter.

② The display will show the humidity reading value (% RH) directly on the main display.

③ When testing humidity value of a different environment, please wait a few minutes in order to obtain a stable (%RH) reading.

```
75.0 °F
60.0 %RH
```

3-2 Temperature Measurement :

① Press the "⏻" key to power on the meter.

② Press ℃/℉ key to switch between Celsius (℃) and Fahrenheit (℉) units.

③ The display will show the Temperature reading (℃ or ℉) directly on the second display.

④ When the meter on, it is set to the temperature units that was in use when the meter was last turned off.

```
23.9 °C
60.0 %RH
```

4
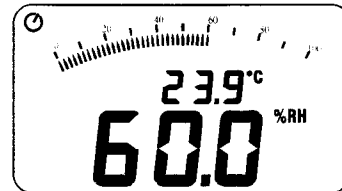
3-3 Dew Point Temperature Measurement :

① Press the " ⏻ " key to power on the meter.
② Press DEW / WET key to select display dew point temperature reading on the main display.

```
⟲
  \|||||||||||||||||||||||||  ' '  ,  ,
         75.0·F
    60.3 DEW
              °F
```
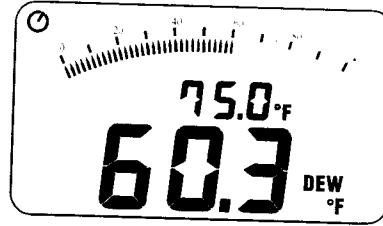
3-4 Wet Bulb Temperature Measurement :

① Press the " ⏻ " key to power on the meter.
② Press DEW / WET key to select display wet bulb temperature reading on the main display.

```
⟲
  \|||||||||||||||||||||||||  ' '  ,  ,
         75.0·F
    65.5 WET
              °F
```
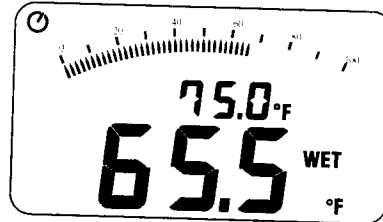
3-5 Maximum and Minimum Recorder Measurement:

① Press "MX/MN" key to enter the recorder mode and start elapsed timer. The auto power off function must be cancelled before this operation.
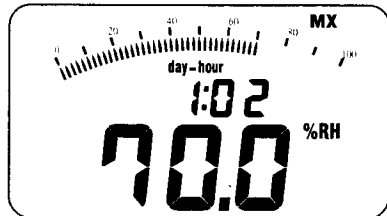
5

② MX/MN key : Press MX/MN (MAX/MIN) key to cycle through the Maximum Humidity & Temperature →
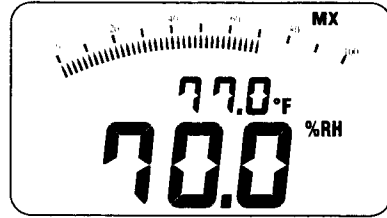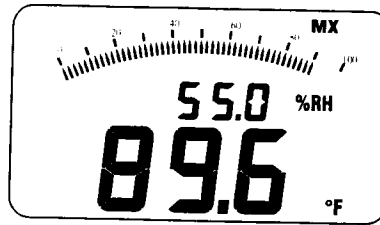

Maximum Humidity & Elapsed time (min : sec) →

Maximum Humidity & Elapsed time (day : hour) →

Example : Maximum Humidity Recorder is 70.0%RH, Happened Elapsed time is I day, 2 hours, 10 minutes, 38 seconds, and its temperature is 77.0°F.

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Maximum Temperature & Humidity reading ➔


```
           MX
  55.0  %RH
  89.6
           °F
```

Maximum Temperature & Elapsed time (min : sec) ➔


```
              MX
      min:sec
  28:58
  89.6
           °F
```

Maximum Temperature & Elapsed time (day : hour) ➔


```
              MX
      day-hour
  3:18
  89.6
           °F
```
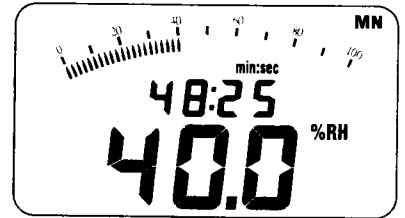
Example : Maximum Temperature Recorder is 89.6°F,
Happened Elapsed time is 3 days, 18 hours, 28
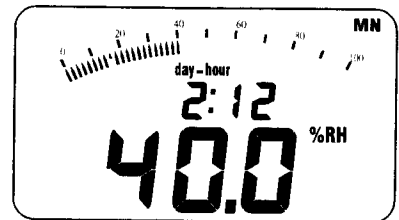minutes, 58 seconds, and its Humidity is 55.0%RH.

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Minimum Humidity & Temperature reading →
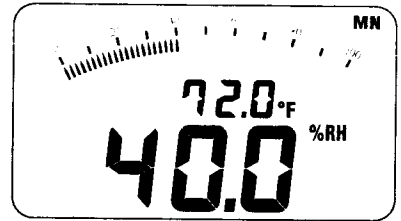
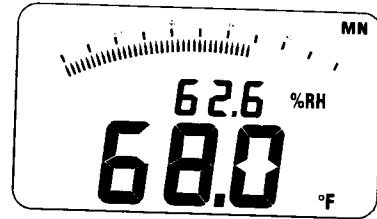Minimum Humidity & Elapsed time (min : sec) →

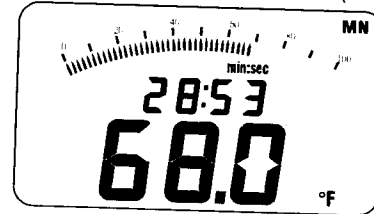Minimum Humidity & Elapsed time (day : hour) →

Example : Minimum Humidity Recorder is 40.0%RH, Happened
Elapsed time is 2 day, 12 hours, 48 minutes, 25
seconds, and its temperature is 72.0°F.

Minimum Temperature & Humidity reading ➔

62.6 %RH
68.0 °F
MN

Minimum Temperature & Elapsed time (min : sec) ➔

min:sec
28:53
68.0 °F
MN

Minimum Temperature & Elapsed time (day : hour).

day-hour
0:23
68.0 °F
MN
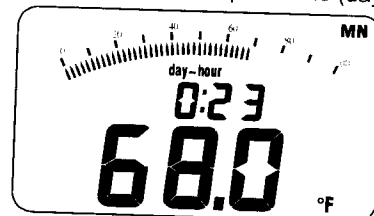
Example : Minimum Temperature Recorder is 68°F, Happened
Elapsed time is 0 day, 23 hours, 28 minutes, 53
seconds, and its Humidity is 62.6%RH.

Press MX/MN key 2 seconds to exit MX/MN mode.

③ Under this mode, you can also get the Dew point or Wet Bulb Temperature by pressing the DEW/WET key.

④ Press "MX/MN" key and hold down for 2 seconds to exit MX/MN mode.

Note : 1. MAX/MIN Hold with Time Stamp:
The timer function in MAX/MIN mode is the same as the "Stop-watch" mode, and the maximum time period for the timer is 8 hours. Once you press the button of timer, you can capture the MAX/MIN reading for Temp. or Humidity during the 8 hours or one period of time.

2. To read actual time, you must add the time for the stop-watch to the real time. For example at 9:00 AM you press the "timer", then you found the time for the MAX. to be 00:10:00 on the LCD, then the real time is 9:10 AM.

3. If you can not see the MAX/MIN Reading updating, this means the measured Humidity and Temperature Data did not exceed the recorded maximum or minimum Humidity or Temperature reading.

4. If the MAX/MIN Reading is updating, this means the measured Humidity and Temperature Data exceeded the recorded the maximum or minimum, Humidity or Temperature Data.

3-6 Manual Data Memory and Read Mode :
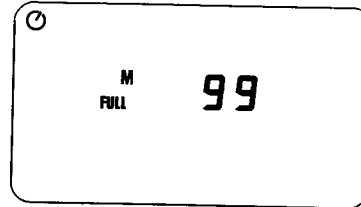
A. Clear the manual memorized data

① Press " ⭕ " key to turn off the meter.

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② Press and hold down "MEM" key, then press " ⏻ " key to turn on the meter. When LCD shows "CLr" which means the manual memorized data is erased.

```
┌─────────────────────────┐
│ ⏻                       │
│                         │
│        ┌ ┌              │
│        L L r            │
│                         │
└─────────────────────────┘
```

B. Manual data memory

① Press "MEM" key each time, one set of reading to will be stored to the memory. At this moment, LCD will show the "M" mark and the memory address number. Total memory size is 99 sets.

② When memory is full, LCD will show "Full" mark.

```
┌─────────────────────────┐
│ ⏻                       │
│                         │
│          M              │
│        FULL    99       │
│                         │
│                         │
└─────────────────────────┘
```

C. Manual memory data READ

① Press "READ" key to enter READ mode, the LCD will show "R" mark and the memory address number.

② Press " READ" key to select the desired memory address number data for display.

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③ Press DEW / WET key to display or not display DEW point or WET bulb temperature reading on the main display.

④ Press READ key and hold down for 2 seconds to exit READ mode.

⌚ ▪ *18*
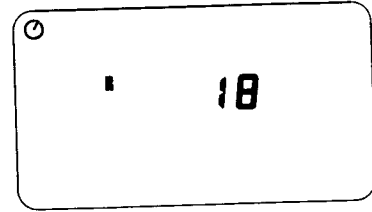
3-7 Setting Auto Power Off Mode :

The meter will be Auto power off if there is no key pressed in 30 minutes. Auto power off function is on each time you turn on the meter and is automatically disabled when in MX/MN mode.

Select different time frame of auto power off function via the following selection :

001 : To disable auto power off function

002 : In 1 minutes to be auto power off.

003 : In 3 minutes to be auto power off.

004 : In 5 minutes to be auto power off.

005 : In 10 minutes to be auto power off.

006 : In 15 minutes to be auto power off.

007 : In 30 minutes to be auto power off.

008 : In 59 minutes to be auto power off.

① Press ⏻ key to turn off the meter.

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② Press and hold down HOLD key then press ⓘ key to turn on the meter. Wait until main display shows 001. (or any other time frame you wish.)

③ Press HOLD key to display the desired auto power off time.

④ Press MAX/MIN key to select.

```
⏻

ᴵᴺᵀⱽ
     006
```
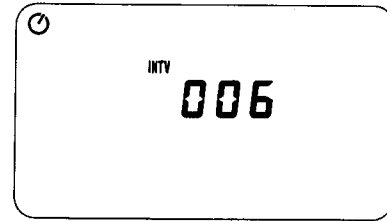
4. MAINTENANCE

4-1 Cleaning :

Periodically wipe the case with a damp cloth and mild detergent.
Do not use abrasives or solvents. Clean and dry as required.

4-2 Battery Replacement :

LCD display will show " BT " symbol when the battery power is not sufficient for accurate testing. Replace with new batteries of same value.

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PRECAUTIONS & WARNINGS:

- Do not expose the unit to direct sunlight for extend periods.

- Avoid storage in high temperature and humidity.

- Avoid extreme mechanical shock or vibrations.

- Do not expose the batteries to flame or to excessive heat or moisture.

- On cold days, or in cold environments, the capacity of the batteries tends to decrease.

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WARRANTY

Congratulations! Your new instrument has been quality crafted according to quality standards and contains quality components and workmanship. It has been inspected for proper operation of all of its functions and tested by qualified factory technicians according to the long-established standards of our company.

Your instrument has a limited warranty against defective materials and/or workmanship for one year from the date of purchase provided that, in the opinion of the factory, the instrument has not been tampered with or taken apart.

Should your instrument fail due to defective materials, and/or workmanship during this one-year period, a no charge repair or replacement will be made to the original purchaser. Please have your dated bill of sale, which must identify the instrument model number and serial number and call the number listed below:

Repair Department
ATP – Amprobe, TIF, Promax
Miramar, FL
Phone: 954-499-5400
**   800-327-5060**
Fax: 954-499-5454
Website: www.Amprobe.com

Please obtain an RMA number before returning product for repair.

Outside the U.S.A. the local representative will assist you. Above limited warranty covers repair and replacement of instrument only and no other obligation is stated or implied.