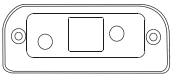
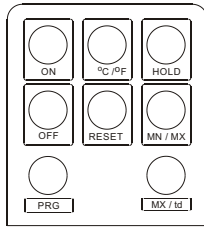
OPERATION MANUAL

THERMO-HYGROMETER

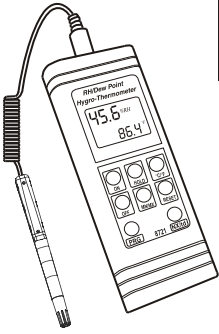
CE

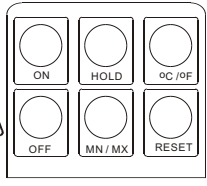
Model: ■8711
■8721





MODEL: 8721





MODEL: 8711

FUNCTION KEYS

1) ON key - Power on
2) OFF Key - Power off
3) PRG Key (8721 only)
   - Switch to alarm check mode from measuring mode
   - Switch to alarm setting mode from alarm check mode
   - Save the alarm settings and calibrations
   - Switch to temperature and humidity calibration
4) °C/°F Key
   - Switch between display of °C and °F

5) RESET Key
   - Reset Min/Max memory
   - Erase alarm settings
   - Skip calibration mode
   - Switch back to normal measuring mode from alarm check mode or calibration mode
6) HOLD Key
   - Hold display
7) MN/MX Key
   - Display minimum value of memory
   - Display maximum value of memory
   - Increase/Decrease the temperature deviation value
   - Sleep/Non-Sleep mode switch
8) NX/td Key (8721 only)
   - To flash next digit for alarm setting
   - To display the next alarm setting value
   - To flash next digit for calibration
   - Dew Point read out
9) 9V DC power jack
10) Probe socket
11) RS232 output socket

QUICK REFERENCE

A. MEASURING MODE

This is the basic function to measure temperature (°C or °F) and relative humidity.

B. CALIBRATION MODE

With our HR33 & HR75 humidity reference, the end users can do the calibration themselves. This feature provides a DO-IT-YOURSELF accuracy maintenance and replacement of the probe.

C. LOW/HIGH HUMIDITY CALIBRATION MODE

Two points' calibration is necessary for maintaining the accuracy of the meter.

D. ALARM CHECK MODE

An environment monitoring system is implanted in the meter for special uses. A monitoring range can be set up earlier,the user will be warned for any out-of-range reading.This Mode provides you to check the alarm settings to see if they are under your requirement.

E. ALARM SETTING MODE

Set, adjust and cancel the alarm settings.

F. RS232 OUTPUT

To link to the computer gets records.

G. SLEEP MODE OPTION

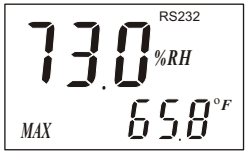
We have a Non-sleep mode and a 20 minutes sleep mode. You can switch easily between two.

H. MN/MX MODE

Maximum and Minimum monitoring. You can find out the minimum and maximum values of previous recording simply by pressing **MN/MX** key sequentially. The screen will display Fig. 1 & Fig. 2. Press it again to go back to normal mode or the meter will return to normal mode in 10 seconds.

FIG 1

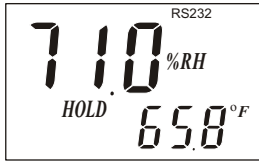
FIG 2



I. HOLD MODE

Hold the screen for specific measuring. Simply press **HOLD** key when you do the measurement. The screen will display Fig. 3. Press it again to go back to normal mode.

FIG 3



OPERATION MODES

The 8721/8711 provides 6 operation modes, 3 output port, sleep mode switch and °C/°F switch.

A. MEASURING MODE

This is the normal operation mode for measuring relative humidity and temperature in the default unit.
When the power is first on, the full LCD display will appear as Fig. 4.

Full display will appear for 1 second, then readings for humidity and temperature, (Big characters is humidity and small characters is temperature) will display.
Fig. 5

FIG 4

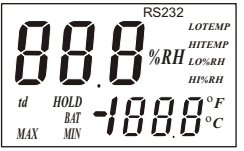


FIG 5

B. LOW HUMIDITY CALIBRATION MODE

(The calibration solution is optional, not included in standard package.)

Two points' calibration is necessary for the accuracy of the meter.

1. Power off. Push **ON & PRG** at the same time and hold till the LCD displays **CAL** (Fig. 6). As **ON** & **PRG** are released, the **ºC** (**or º F,** depended on which is the default unit) will display at the rig bottom corner (Fig. 7).

FIG 6

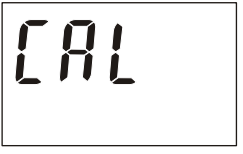
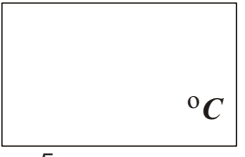


FIG 7



2. Gently open the cover of HR33 ref.salt. Insert the probe into the container from the top until you reach the end. (**Warning:** Be very careful and slow while inserting the probe or pulling it out. Any rough movement may damage the Humidity Reference Bottle).
3. Press **RESET** one time, the **32.X%RH** and **MIN** will appear on LCD (Fig. 8). The low humidity calibration will be in process automatically. This process will be completed in about 40 minutes with **SA**, **MAX** and **MIN** shown by LCD display (Fig. 9). (**Warning:** Do not touch any keys before the process is completed.)

FIG 8

FIG 9

NOTE:

The 40 minutes is suggested for a stable temperature environment. If the temperature variation is above ±0.5ºF in 5 minutes, the calibration time will be extended automatically. It is recommended to isolate or insulate the standard Humidity Reference if the environment temperature is not stable.

4. After 40 minutes, low humidity calibration is completed. Now you can press **OFF** to end the process or continue to process high humidity calibration. To do this, insert the probe into HR75 and press the **NX/td** key, the LCD will display 75.X and **MAX** (Fig. 10) which indicates the high humidity calibration will soon be in process automatically.

FIG 10

NOTE:

A convenient look-up table has been built in to aid calibration.

HR 33 **MgCl**

TEMP	**15°C**	**20°C**	**25°C**	**30°C**	**35°C**
RH%	**33.30**	**33.07**	**32.78**	**32.44**	**32.05**

If different temperatures, say 25°C, the RH of MgCl is 32.78 and in 30°C, the RH is 32.44.

The same reference says 30°C , the RH of Nacl is 75.09 RH% humidity and in 35°C , the RH is 74.87% .(See the table)

HR75 **NaCl**

TEMP	**15°C**	**20°C**	**25°C**	**30°C**	**35°C**
RH%	**75.61**	**75.47**	**75.29**	**75.09**	**74.87**

The relations are recorded in the look-up table.

Once the calibration mode in **ON**, the meter will search the right humidity value according to the current temperature to get more accurate calibration.

WARNING!

For Relative Humidity calibration , to ensure the longer life of the salt bottle .Keep the bottle in the bag when not in use and seal the bag tightly .

a. If you are sure of that temperature is stable and humidity is in equilibrium. You can reduce the time of the above process by pressing the **PRG** key. A **SA** will be shown on the screen. Be very careful with this. If the time interval is not long enough for unit to catch the right humidity, whole measurement later will not be valid.

b. To skip the on-going calibration process, press **RESET**. If you are not sure of the on-going process, press **OFF**.

c. After humidity calibration is done, if the measuring mode displays **E2** instead of the RH and temperature readings, this means something is wrong. Please refer to error messages section.

C. HIGH HUMIDITY CALIBRATION MODE

1. There are two ways to enter the high humidity calibration mode:

a. Turn off the meter. Plug probe into HR75, then press **ON** & **PRG** at the same time. Hold till **CAL** is displayed on screen. Release **ON** & **PRG** and press **RESET** twice, the LCD will show **75.X%** and **MAX** (Fig. 10). This indicates that the high humidity calibration is in automatic process.

b. When the automatic process for low humidity calibration is completed, the LCD displays **SA**, **MAX** and **MIN** (Fig. 9). Insert the probe into HR75, then press **NX/td**. The LCD will show **75.X%** and **MAX** (Fig. 10). This indicates that the high humidity calibration is in automatic process.

2. Once the meter starts the automatic calibration process, do not touch any key until the meter switches to measuring mode.

3. To reduce the time for calibration process, press **PRG**. Be cautious with this, refer to **NOTE** a. of the Low Humidity Calibration .

4. To skip the on-going calibration process, press **RESET**. Turn off the meter if you are not sure of the on-going process.

D. ALARM CHECK MODE

1. In measuring mode, press **PRG** key. The LCD will display the indicators **LOTEMP, HITEMP, LO%RH, HI%RH** plus XX.Xwith **LOTEMP** flashing first (Fig. 11).

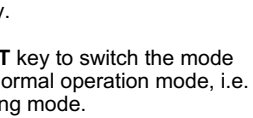
2. XX.X is the numeric value **previously set** for the flashing indicator. If **---** instead of a reading is displayed, it indicates that there is no alarm setting for this option.

3. Press **NX/td** key to check the value of **HITEMP**(**HITEMP** is flashing now), and press **NX/td** again to check **LO%RH** , and so on.

4. In monitoring range, **LOTEMP** indicates the warning point for low temperature. **HITEMP** indicates the warning point for high temperature. **LO%RH** indicates the warning point for low humidity. **HI%RH** indicates the warning point for high humidity.

5. Press **RESET** key to switch the mode back to the normal operation mode, i.e. The measuring mode.

FIG 11



E. ALARM SETTING MODE

For example, if a user needs to be alarmed when the temperature reading goes below 58°F or above 100°F and when the relative humidity reading goes below 56% or above75%, the user should set **LOTEMP, HITEMP, LO%RH**, and **HI%RH** as follows: **LOTEMP**=58°F; **HITEMP**=100°F **LO%RH**=56%; **HI%RH** =75%; Once the meter readings go out of the range, the alarm will start to beep. The LCD will also display which indicator is alarmed. Steps to set up the alarm are as follows

1. Power on the meter. When the %RH reading and the temperature reading are displayed (Fig. 5). Press **PRG** to switch from the measuring mode to alarm check mode (Fig.11 w/ **LOTEMP** flashing).
2. Press **PRG** key, it will display XX°F **as** Fig. 12 with " **X** " flashing**. LOTEMP** means we are in low temperature alarm setting screen.
3. Press **NX/td** key to change the digital flash. Press **MN/MX** and change the number until it displays 58°F as Fig. 13.

FIG 12

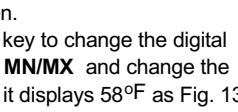


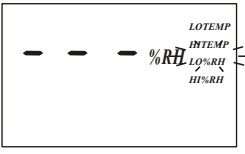
FIG 13

4. Press **PRG** key until it displays **SA**, release it, the display will show as Fig. 14 with **LOTEMP** flashing.
5. Press the **NX/td** key until **HITEMP** flash.
6. Press the **PRG** key. Repeat step 2, 3. Change the number to 45°C. Press **PRG** to save the setting. It will show as Fig. 15 with **HITEMP** flashing.
7. Press **NX/td** until **LO%RH** flash as Fig. 16.

FIG 14

FIG 15

FIG 16



8. Press **PRG**, it will display as Fig. 17 with **" 5 "** flashing.

9. By Pressing **NX/td, MN/MX** to change the number to 56. Then press **PRG** key to save. It shows as Fig. 18 with **LO%RH** flashing.

10. Press **NX/td** one time and it will flash **HI%RH**.

11. Do step 8, 9 but change the number to 75. It will show Fig. 19 with **HI%RH** flashing.

12. Press **OFF**, turn off the meter or press **RESET** (after hearing the beep, release the key) and goes back to measuring mode.

FIG 17

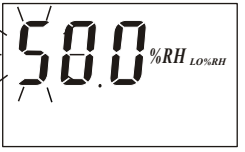


FIG 18

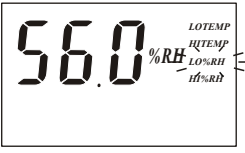
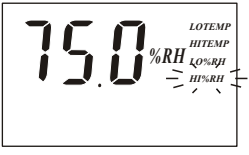


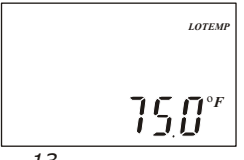
FIG 19



13. In measuring mode, if the meter reads 75.1% and 74.9°F, it will continue beeping and display as shown in Fig. 20.**LOTEMP**, it means temperature is below our setting. **HI%RH**, it means the humidity is above our setting.

14. Cancel setting: when in step 4 (or step 9), if you press **RESET** and hold it for 2 seconds and hear beeps. This means the setting has been cancelled and it will display as Fig. 21.

FIG 20



NOTE:

You can also cancel the whole setting by the following: Turn off the meter. Press **RESET** and **ON** at the same time the meter will display **OAL** one second as shown in Fig. 22 with two beeps, then turns to the normal mode. Thus **LOTEMP**, **HITEMP , LO%RH**,and **HI%RH** settings will be cancelled at one operation.

FIG 21

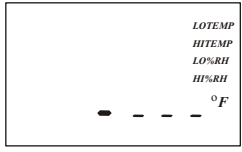


FIG 22

F. RS232 OUTPUT(Optional)

Plug the earphone jack of the cable VZRS232M into RS232 socket on the meter and connect 9-pin D-sub to the computer's available COM port. Press **ON** key to start measurement. The VZRS232M is optional accessory. Contact with the store for more cable & software purchasing information.

G. SLEEP MODE OPTION

1. In default, if there is no key pressed in 20 minutes, the meter will go off automatically. A warning continuous beep will sound shortly before 20 minutes, press any key can restart the 20 minutes counts.

2. You can switch the meter to non-sleep mode by first turn the meter off, then push and hold **MN/MX** and **ON** at the same time until **nSL** is displayed as shown in Fig. 23. Release the key and you are in Non-Sleep mode.

H. °C/°F SWITCH MODE

You can change the **°C/°F** display anytime you want by pressing the **°C/°F** key during operation. You can also change the default display by the following:

For example, if the meter default to °F, while turning off the meter, press **PRG** & **ON** at the same time until **CAL** is shown in one second, then release the keys. **°F** will display on the right bottom corner of the LCD. See Fig. 24

Press **MN/MX** to change °F to °C ,then press **PRG** until it displays **SA** in one second and **XX.X%RH** and **MIN** will appear on the left corner , turn off the meter. Now when you turn on the meter, it will default to °C

FIG 23

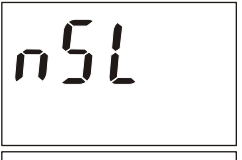
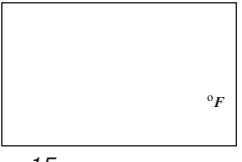


FIG 24



ERROR MESSAGES

1. Display **OP** with continuous beeps as shown in Fig. 25:
Probe is not connected in the right position.

2. Display **0.0%, 99.9%** for a long period of time:
Probe damaged. Please replace a new probe.

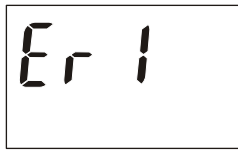
3. Display **Er 1, Er 2, Er 3** and **Er 4** with a beep as shown in Fig. 26:

Er 1, Er 3 and **Er 4**: Circuit error
Er 2: Improper calibration; Probe damaged

4. Screen flashing:
It means battery is weak, the batteries needs to be replaced .

FIG 25 →

FIG 26 →



TECHNICAL SPECIFICATION

1.Humidity measurement range:
8711: 5%-95%
8721: 0%-100%
Temperature measurement range:
8711: -10~50°C
8721: -20~50°C

2.Humidity Accuracy:
±2% from 0~95% at 25°C (8721)
±3% from20~90% at 25℃ (8711)

Temperature Accuracy:
±1℃ from -20~50°C

3.RS232 output: Baud rate: 1200bps
Data bit: 7 ,
Stop bit:1 ,
Parity: None
Format: **TXXX.XC(F):HXX.X%**

4.Storage Temperature: -20°C to 60°C

5.Operating Temperature: 0°C to 50°C

6.Power requirements: Single 9V battery

7.Battery life: 100 hours typical (alkaline)

8.Optional accessories:
a. Calibration salt
VZ0033AZ or VZ0033AZ1 for 33%
VZ0075AZ or VZ0075AZ1 for 75%
b. RS232 cable with software CD.

9.This package contains :
a. Meter x1 b. Hard carry case x 1
c. Battery 9 volt x 1
d. Operation instruction x 1

RETURN AUTHORIZATION

Authorization must be obtained from the supplier before returning items for any reason .
When requiring a RA (Return Authorization) , please include data regarding the defective reason, the meters are to be returned along with good packing to prevent any damage in shipment and insured against possible damage or loss .

WARRANTY

The meter is warranted to be free from defects in material and workmanship for a period of one years from the date of purchase.

This warranty covers normal operation and does not cover batteries,misuse, abuse, alteration, tampering, neglect, improper maintenance, or damage resulting from leaking batteries.
Proof of purchase is required for warranty repairs.

Accuracy, the Zenith of
Measuring / Testing Instruments !

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Thermometer
Anemometer
Sound Level Meter
Air Flow meter
Infrared Thermometer
K type Thermometer
K.J.T. type Thermometer
K.J.T.R.S.E. type Thermometer
pH Meter
Conductivity Meter
T.D.S. Meter
D.O. Meter
Saccharimeter
Manometer
Tacho Meter
Lux / Light Meter
Moisture Meter
Data logger
Temp. / RH transmitter
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