

INTRODUCTION

EP8706/EM8716

This unique meter designed as pocket size, battery operated instrument for Humidity, Dry Bulb, Dew Point, Wet Bulb, External Temperature & Temperature Differential measurement. The sensor is also specially protected by turnable cap.

The psychrometer is a micro processor-based design. A must device for HVAC Technicians use.

Features :

- **Field Calibratable**
- **Turnable cap** to protect sensor.
- **External Temp. Probe.** (Model:EM8716)
- **Triple LCD** digital display.
- **T1-T2 & T2-DP** function. (Model:EM8716)
- **Data Hold** to capture readings.
- **Pocket size.**
- **Low battery** indication.
- **Fast response.**
- **Accurate reading.**
- **Min/Max** record function.
- **Dew Point** calculated in seconds.
- **Wet Bulb** calculated in seconds.
- **Microprocessor** circuitry for reliability.
- **Auto power off** time frame selectable.
- **Auto power off** may be disabled to record.

MATERIAL SUPPLIED

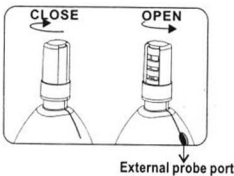
This package contains:

- ✓ Meter
- ✓ Battery x 2 (AAA size)
- ✓ Operation manual

Optional accessory :

- ✓ External temperature probe : P/N: P8706
- ✓ Calibration salt bottles : (33% and 75%) P/N: CS338706 Low Hum.ref. CS758706 Low Hum.ref.
- ✓ Hard carry case : C4

WARNING



IMPORTANT:

BE SURE TO OPEN THE SENSOR PROTECTION CAP BEFORE STARTING THE MEASUREMENT IN ORDER TO GET ACCURATE VALUE FOR ALL MODELS.

WET BULB FUNCTION

EP8706

Turn the meter on by pressing \odot button. User will see "Wb" temperature indicated on the display. See Fig.E

EM8716

Press Δ key until Wb appear on the LCD. User will see "Wb" temperature indicated on the display. See Fig.E1

EXTERNAL TEMPERATURE FUNCTION

EP8706

Plug the external probe into the meter. Press Δ key until "Ex" appears on display. Unit will now display external probe temperature. See Fig.F2

EM8716

Plug the external probe into the meter. Press Δ key until "T2" appears on display. Unit will now display external probe temperature. See Fig.F3

Remark: For EP8706 and EM8716, if the probe isn't plugged in meter, "Ex" or "T2" won't appear on display even pressing the RESET or Δ key.

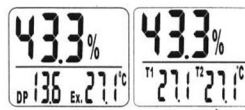


Fig. F2

Fig. F3

MIN./MAX. FUNCTION

- Press MN/MX (EP8706) or Δ (EM8716) button until (MIN) appears on display. (See Fig.G) Display is now showing minimum humidity and temperature reading in the memory.
- Press MN/MX (EP8706) or Δ (EM8716) button again until (MAX) appears on display. (See Fig.H) Display is now showing maximum humidity and temperature readings in the memory.
- To return back current temperature and humidity readings press the MN/MX or Δ button until Min or Max disappear from the display.
- Press RESET or Δ button for more than two seconds to clear current reading from the memory.

WARNING: While checking MIN/MAX value for EX, T2, Δ and Δ , don't replace the probe. Otherwise an error code will be displayed.

If you don't plug the probe into socket before turning the meter on, the error code will also appear when you check MIN/MAX value.

Note: Remember Low Batteries will tend to give inaccurate readings, so make sure you have new batteries.



Fig. F1

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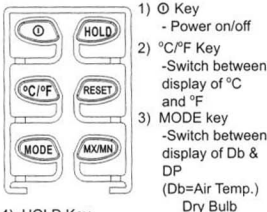
EP 8706

LCD DISPLAY



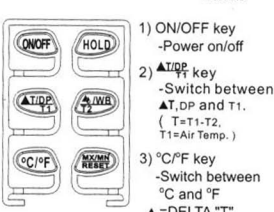
EM 8716

LCD DISPLAY



- \odot Key - Power on/off
- C/F Key - Switch between display of $^{\circ}\text{C}$ and $^{\circ}\text{F}$
- MODE key - Switch between display of Db & DP (Db=Air Temp.) Dry Bulb
- HOLD Key - Hold display - \odot + HOLD = Non-Sleep mode (The default setting is auto-sleep in 5 min.)
- RESET Key - Reset Min/Max memory - Wb and Ex mode switch (Press to display while external probe is plugged in.)
- MN/MX Key - Display minimum value of memory from power on current moment. - Display maximum value of memory from power on current moment.

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- ON/OFF key - Power on/off
- Δ key - Switch between Δ , DP and T1. (T=T1-T2, T1=Air Temp.)
- C/F Key - Switch between $^{\circ}\text{C}$ and $^{\circ}\text{F}$ Δ = DELTA "T"
- HOLD Key - Hold display - ON/OFF + HOLD = Non-Sleep mode. Non-sleep time is selectable from 2, 5, 10, 20, 40 to 60 min. (The default setting is auto-sleep in 10 min.)
- Δ key - Switch between Δ , Wb and T2. (Δ = T2-DP, T2=External Temp.)
- MN/MX key - Reset Min/Max memory. - Display minimum value of memory. - Display maximum value of memory.

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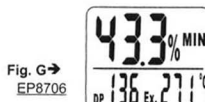


Fig. G

EP8706



Fig. H

EM8716

These functions are only for EM8716 model.

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

Δ is calculated by subtracting the DP (dewpoint) from T2 (Ex. temp.).

- Press Δ button until Δ appears on display. (See Fig.J)
- Press Δ button until Δ appears on display. (See Fig.K)



Fig. J

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Note:

- You can exit calibration procedure without saving in the memory by pressing "ON/OFF" key before step 4. At step 4, pressing "ON/OFF" key to exit calibration.
- Auto power off is disable in the calibration mode.
- To get high accuracy, calibration should be operated at (23 $^{\circ}\text{C}$, 73.4 $^{\circ}\text{F}$)
- If the reading is out of 75.3% \pm 0.5% at step 4, it means the calibration has failed. See troubleshooting 3.

TROUBLESHOOTING

? Power on but no display.

- You must press the \odot ON/OFF key more than 0.1 sec.
- Check the battery are in place and making good contact and correct polarity.
- Replace a new battery and retry.
- Remove the batteries for one min. And then put them back for second try.

? No Display.

- Check whether the low battery Indicator is displayed before display Disappear, if yes, replace with a new battery.
- Check whether sleep mode is active. If yes, press \odot + HOLD or ON/OFF + HOLD key to disable the auto power off function.

? Er.1

Circuit error in RH measurement channel, return the meter to your distributor for repair.

? Er.2

Circuit error in Internal temperature measurement channel, return the meter to the distributor for repairing.

AUTO POWER OFF (SLEEP FUNCTION)

Unit will turn itself off after 5 minutes (EP8706) or 10 minutes (EM8716). To override Auto Power Off function, press \odot + HOLD (EP8706) or ON/OFF + HOLD (EM8716) while the meter is off. When "n" appears (See Fig.A), release HOLD button. Unit now is in Non-Sleep Mode.

For EM8716, the auto power off time frame could be selectable from 2, 5, 10, 20, 40 to 60 minutes.

Fig. A

MODE OPTIONS

- Turning on the protective sensor cap in counterclockwise direction.
- Turn meter on by pressing \odot (EP8706) or ON/OFF (EM8716) button. (See Fig.B)
- Press C/F key more than 1 sec. to convert reading to desired unit. Both temperature and relative humidity measurement will display simultaneously. (See Fig.C)

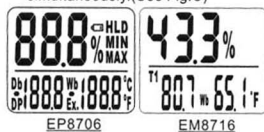


Fig. B

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Fig. C

DATA HOLD FUNCTION

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

EP8706

FIG. D



DEW POINT FUNCTION

EP8706:

Press MODE button until "DP" appears on display. Select to display dew point or dry bulb (air temp.) in any mode while the unit is on. See Fig. E

EM8716:

Press Δ button until "DP" appears on display. Select to display dew point, T1 (air temp.) or delta T (T1-T2) in any mode while the meter is on. See Fig. E1.

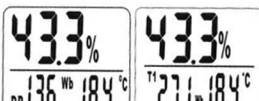


Fig. E

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Fig. E1

LOW-BATTERY

Battery symbol will appear on display in right hand corner when the power is low. Failure to replace batteries will have an effect on the accuracy of the reading.



- Open the battery cover on the rear side.
- Remove the expired batteries.
- Insert new 2pcs AAA batteries and make sure the batteries are inserted with correct polarity then return the cover.

CALIBRATION

- Turn the meter off and plug the sensor into 33% salt bottle. Press "ON/OFF + C/F" key more than one sec. to enter calibration mode.
- "32.8%" will flash on LCD and DP, Wb is displayed as "----" that means the values are invalid in the calibration process. After 30 min, the flashing will stop to indicate the procedure is finished.
- Move the sensor to 75% salt bottle and press "MN/MX" (EP8706), Δ (EM8716) more than one sec. to enter 75.3% calibration. "75.3%" will flash on LCD.
- Flashing stop after 30 min, and the calibration is completed. In addition calibration data has been saved in the memory.

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? Er.3

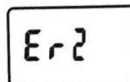
Circuit error in reference resistor channel, return the meter to the distributor for repair.

? Er.4

Internal temperature is out of range.

? Er.5

External temperature is out of range.



Note:

- Dry Bulb temperature means air (Internal) temperature. Dew point & Web Bulb are calculated from internal temperature.
- When the meter is on, plugging in an external probe might cause "ER 5" error in min. or max mode of ext. Temperature, T2-T1 and T2-DP.

SPECIFICATION

Temp. range : -4~122 $^{\circ}\text{F}$ (-20~+50 $^{\circ}\text{C}$)
 RH% range : 0~100%RH
 Wet bulb range : (EP 8706, EM8716) -6.88~122 $^{\circ}\text{F}$ (-21.6~49.9 $^{\circ}\text{C}$)
 Dew point range : (EP 8706, EM8716) -90.4~122 $^{\circ}\text{F}$ (-68~49.9 $^{\circ}\text{C}$)
 External temp. range : -4~158 $^{\circ}\text{F}$ (-20~70 $^{\circ}\text{C}$)

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