OPERATION MANUAL

LASER INFRARED HYGRO-THERMOMETER

Model:8857

CE

Authorized Distributor
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INTRODUCTION

Thank you very much for purchasing this Laser Infrared Hygro-Thermometer!

This unique meter design with 3 H.V.A.C &R must parameters in 1. The meter designed as battery operated for Humidity ,Air temp., Dew Point, Wet Bulb, Surface Temp. & Temp. Differential measurement.

The sensor is also specially protected by gear damper device. While the sensor is retracted, the meter will not work. The sensor designed to auto detect the air temp. and humidity if it is not retracted.

The psychrometer is a micro processor-based design. A must device for HVAC engineers use. No need to whirl the meter or refer to the chart. Easy to get wet bulb, dew point and surface temp. Quickly!

Features :

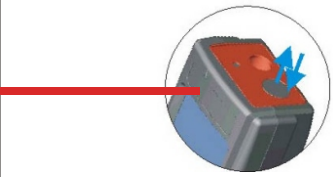
- **Gear damper** to protect sensor.
- **Infrared** to measure surface temp.
- **Triple LCD** digital display.
- **T1-dew point** function.*(T1=surface temp.)*
- **Emissivity adjustable**.
- **Handheld size**, easy to carry.
- **Low** battery indication.
- **Fast** response .
- **Accurate** reading .
- **Dew Point** calculated in seconds.
- **Wet Bulb** calculated in seconds.
- **Microprocessor** circuitry for reliability.
- **Auto power off** time frame adjustable.
- **Red laser indicator** included.
- **Back light** for dark places.

MATERIAL SUPPLIED

This package contains:

- ✓ The meter x 1
- ✓ Battery x 4 (AAA size)
- ✓ Operation manual
- ✓ Calibration salt bottles (33% and 75%) are optional
- ✓ Hard carry case
- ✓ AC to DC adaptor is optional
- ✓ RS232 cable is optional

WARNING



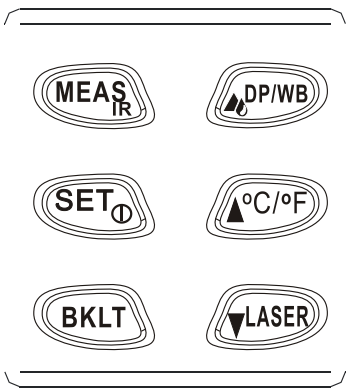
Important:

Press the gear damper device before operation. While the sensor is retracted, the air temp. and humidity will not be displayed on the LCD.

Press the gear damper device again to retract the sensor while turn off the meter. To retract the sensor will help to maintain the sensor away from dirt.

CONTROLS AND INDICATORS

LCD DISPLAY



1) MEAS IR Key
   - Press to measure surface temp. by activating IR function.
   - Released to hold the surface temp. Value.
   - Press MEAS IR and ▼LASER at the same time to inactivate laser targeting function or activate targeting function.

2) **SET** Key
   - Press to turn on the meter without IR value displayed.
   - Press at least 2 seconds to turn off the meter
   - While the meter is on, press again to enter auto-off time setting and emissivity setting.
3) **BKLT** Key
   - Press to turn on the back light.
   - Press again to turn off the back light.
4) **DP/WB** Key
   - Press to select the operation mode from air temp., dew point to web bulb.
   - Press for 2 seconds to show T1-dew point. (T1=surface temp.)
5) **▲°C/°F** Key
   - Press to change temp. unit
   - Press for up when setting the auto-off time and emissivity.
   - Press **SET** and **▲°C/°F** at the same time to disable auto power off function.
6) **▼LASER** Key
   - Press **MEAS** and **▼LASER** at the same time to inactivate laser targeting function or activate targeting function.
   - Press for down while setting the auto-off time and emissivity.

IR THERMOMETER

(1) Press the sensor device before operation.
(2) To turn on the meter by pressing **SET** or **MEAS** key.
(3) Press **MEAS** key to measure the surface temp. by IR. While IR is working, the symbol will appear on LCD.
(4) Press **MEAS** + **LASER** at the same time to inactivate the laser targeting. Press above keys again to activate laser targeting.

PARAMETER SETTING

Unit will turn itself off after 5 minutes. To override auto power off function, press **SET** + **°C/°F**. When " **n** " appears, release keys and unit now is in Non-Sleep Mode. (Fig. A)

The auto power off time frame could be adjusted from 5 to 600 seconds. While the meter is on, pressing **SET** key to enter setting procedure. Pressing **°C/°F** for up and **LASER** for down. Press **SET** again to save parameters and enter emissivity setting. (Fig. B)

Fig. A➔

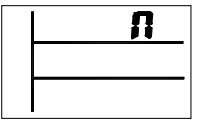
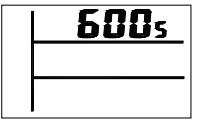
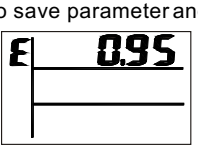


Fig. B➔



The emssivity could be adjustable from 0.3 to 0.99. Pressing SET key twice to enter setting procedure while the meter is on. E will flash on the left side. Pressing ▲°C/°F for up and ▼LASER for down. Press SET again to save parameter and back to normal.

Fig. C➔



& DP/WB

Press DP/WB key to show the DP on the LCD. Press again to show the Wb on the LCD. Press again to show the air temp. on the LCD. (See Fig. D, E, F)

Press DP/WB key for 2 seconds to show on the LCD. means T1-DP. (See Fig. G). Press DP/WB again for 2 seconds back to IR temp. Display.

Fig. D↑

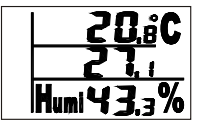


Fig. F↑

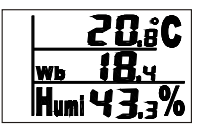


Fig. E↑

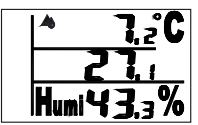


Fig. G↑

LOW-BATTERY

Two level low battery indication:
-Level 1: Battery indicator will flash when meet level 1. In this situation, the meter will work normal however users should prepare new batteries.
-Level 2: Battery indicator will always display on the LCD while meet lever 2. In this situation, users need to change batteries immediately.

1. Open the battery cover on the rear side.
2. Remove the expired batteries.
3. Insert new 4pcs AAA batteries and make sure the batteries are inserted with correct polarity, put on the cover.

AC TO DC ADAPTOR

The compatible AC to DC adaptor is 6~9V, at least 200mA. 6V is the best choice.

Please be suggested only to use 6V adaptor when operating the meter with red laser targeting function.

If using 9V adaptor when the meter red laser targeting function is active, the red laser module might be damaged.

CALIBRATION

1.Turn off the meter and plug the meter probe into the 33% salt bottle. Pressing ▼LASER+▲°C/°F at the same time and then press **SET** key as well to turn the meter on. The meter will enter calibration mode.

2.**32.8** will flash on LCD. After 30 minutes, the flashing stops to indicate the 32.8% calibration procedure is finished.

3.Move the meter probe to the 75% salt bottle and pressing **SET** to enter 75.3% calibration.

4.Also **75.2** will flash on LCD. After 30 minutes the flashing stops to indicate the whole calibration has been completed, and the calibration data has been saved in memory. Press **SET** key more than 2 second to turn off meter.

Note:

a)You can exit calibration without saving by pressing **SET** key more than 2 sec. before step 5.

b)Auto power off is disable in calibration mode.

c)In order to get high accuracy, you have better to do the calibration at 23 degree C.

d)To plug the meter probe into salt bottle, slightly rotate the probe into bottle and **DO NOT** push too hard.

RS232 SOFTWARE

Software

Using Window's integrated Hyper-Terminal software.

Setting the COM port and the bout rate as 9600bps, 8 data bits.

Interface of RS232(3.0V level)

A. 9600 bps, 8 data bits, no parity.

B. Format: Tx. ASCII code by every sec. while meter is on.

Txxx.xC:Txx.xC:Hxx.x%:Txx.xC:Txx.xCLRC*CRLF*

Where: The 1st value is IR temp., the 2nd value is Air temp., the 3rd value is Humidity, the 4th value is Wet bulb, the 5th value is Dew point.

The x here means one of {0|1|2| |9|-}

C. Format for error value:

E01 No value; E02 Overflow;

E03 Underflow. The unit for error code is n. Ex.

If IR is disable, then tx.

TE01n:T23.5C:H45.3%:T14.9C:T12.3CLRC*CRLF*

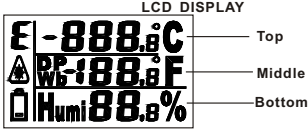
↑

Error value

RS232 Cable

Please contact with your vendor to purchase the compatible cable for your meter.

TROUBLESHOOTING



First of all, the LCD right side is divided into three parts for easy explanation.

1.? Power on but no display.
a)Make sure the time of pressing **SET** key is more than 0.1 second.
b)Check the batteries are in place and in good contact with correct polarity.
c)Replace a new battery and try again.
d)Move away the battery for one minute and put back again.

2.? Power on, LCD on, but no display immediately.
a)Circuit error in RH measurement channel; return the meter to the dealer for repairing.

3.? Display disappear
a)Check whether the low battery indicator displayed before Display disappear, if yes, replace a new battery.
b)Turn on the meter by pressing **SET** + ▲°C/°F key to disable auto power off function for long time using.

4.? TOP display **E9** (Calibration failure)
a)Check whether the low battery indicator displayed before calibration, if yes, use new batteries and try again.
b)Make sure the good sealing when the meter probe plugged into the salt bottle.
c)Make sure the free air temperature is within 23.2 degree C when calibration.

5.? TOP display **E1**
a)Circuit error in IR measurement channel; return to dealer for repairing.
b)Circuit error in temperature measurement channel. Return to dealer for repairing. (If displayed)

6.? TOP display **E2**
a)IR temperature > 500 degree C.
b)IR temperature < 500 degree C while room temp. >50degree C. (If displayed)

7.? TOP temperature **E3**
a)IR temperature < -40 degree C.
b)IR temperature > -40 degree C while room temp. <-20degree C. (If displayed)

8.? MIDDLE display **E1**
a)Circuit error in temperature measurement channel; return to dealer for repairing.

9.? MIDDLE display **E2**
a)Dp is out of the range(>50 degree C).
b)If always display E2 while air temp. is between -20 to 50 degree C means there is a circuit error in temp. Measurement channel, return the meter to dealer for repairing.

10.? MIDDLE display **E3**
a)Room temp. is out of the range (<-20 degree C).
b)If always display E3 while temp. range is -20 to 50 degree C, this means there is a circuit error in temp. Measurement channel, return to dealer for repairing.

11.? BOTTOM display **E1**
a)Circuit error in RH measurement channel; return to dealer for repairing.

12.? BOTTOM display **E5**.
Circuit error in RH measurement channel; return to dealer for repairing.

SPECIFICATION

Temp. range : -20~ +50°C(-4~ 122°F)

RH% range : 0~100%RH

Wet bulb range :

-21.6 ~ 49.9°C(-6.88~122°F)

Dew point range :

-68 ~49.9°C (-90.4~122°F)

IR temp. range :

-40~ 500°C (-40~932°F)

Accuracy: RH%: ± 3% at 10~90% , others± 5%

Air temp. : ±1°F (± 0.6°C)

IR temp. : ±2% or± 2°C (-20~450°C) whichever is greater. Others ± 3% or± 3°C.

Response time : 0.5 sec (IR sensing).

Size :175(H) x 50(D) x70(W)mm^3

Power:3 x 1.5V AAA battery or 6V~9V, >200mA adaptor.

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 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 year from the date of purchase. This warranty covers normal operation and does not cover battery, misuse, abuse, alteration, tampering, neglect, improper maintenance or damage resulting from leaking batteries.

Proof of purchase is required for warranty repairs. Warranty is void if the meter has been opened .

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
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