all in one, RS232/USB

HUMIDITY/TEMP. METER

Model : HT-306

Your purchase of this HUMIDITY/TEMP. METER marks a step forward for you into the field of precision measurement.

Although this METER is a complex and delicate instrument, its durable structure will allow many years of use if proper operating techniques are developed. Please read the following instructions carefully and always keep this manual within easy reach.

QUALITY ASSURED FIRM ISO 9001 SGS

UKAS QUALITY MANAGEMENT 005

OPERATION MANUAL

TABLE OF CONTENTS

1. FEATURES

* Humidity + Temperature + Dew point are combined into one meter, intelligent and professional.
* 0.01 %RH resolution for the humidity reading, 0.01 degree resolution for the Temp. reading.
* Pocket size, meter + humidity & temp. probe, all in one, easy operation.
* Fast humidity measuring response time.
* High accuracy and high precision.
* Dew point measurement.
* Manual and auto manual data logger.
* Just few panel buttons, easy operation.
* Microprocessor circuit assures maximum possible accuracy, provides special functions and features.
* LCD with two display, easy readout.
* Heavy duty & compact housing case, designed for easy carry out & operation.
* Records Maximum and Minimum readings with Recall.
* Auto shut off saves battery life.
* Data hold function for freezing the desired value on display.
* RS 232 PC serial interface.
* Show the humidity & temperature values on the LCD display at same time.
* Built-in low battery indicator.
  Wide humidity & temp. measuring range.
* DC 9V power adapter input socket.

2. SPECIFICATIONS

2-1 General Specifications

Circuit	Custom one-chip of microprocessor LSI circuit.
Display	LCD size : 44 mm x 29 mm dual function LCD display.
Measurement Unit	Humidity : %RH (Relative Humidity)
	Temperature : ℃ or ℉.
	Dew point : ℃ or ℉.
Response Time	5 to 30 seconds typically. ** Reach the 85% reading value*
Temperature Compensation	Automatic temp. compensation for the humidity function.
Data Hold	Freeze the display reading.
Memory Recall	Maximum & Minimum value.
Sampling Time	Approx. 0.8 second.
Power off	Auto shut off saves battery life or manual off by push button.
Data Output	RS 232 PC serial interface.
Operating Temperature	0 to 50 ℃.
Operating Humidity	Main instrument : Less than 85% R.H. Probe : 0 to 95 %RH.
Power Supply	006P DC 9V battery (Alkaline or Heavy duty type).

Power Current	Approx. DC 4.6 mA.
Weight	202 g/0.44 LB. ** Battery is included.*
Dimension	204 x 60 x 33 mm, (8.0 x 2.4 x 1.3 inch).
Accessories Included	Instruction manual.....1 PC Humidity probe.....1 PC
Optional Accessories	RS232 cable, UPCB-02 USB cable, USB-01 Data Acquisition software, SW-801-WIN Case wall holder Power adapter (ACV to DC 9V)

2-2 Electrical Specifications (23± 5 ℃)

Humidity / Temperature

Humidity	Range	10 % to 95 % R.H.
	Resolution	0.01 % R.H.
	Accuracy	≧70% RH : ± (3% reading + 1% RH). < 70% RH : ± 3% RH.
Temperature	Range	0 ℃ to 50 ℃,32 ℉ to 122 ℉.
	Resolution	0.01 degree
	Accuracy	℃ - 0.8 ℃. ℉ - 1.5 ℉.

Dew Point

℃	Range	-25.3 ℃ to 48.9 ℃
	Resolution	0.01 ℃
℉	Range	-13.5 ℉ to 120.1 ℉.
	Resolution	0.01 ℉.

Remark :

* Dew Point display value is calculated from the Humidity/Temp. measurement automatically.
* The Dew Point accuracy is sum accuracy value of Humidity & Temperature measurement..

** Above specification tests under the environment RF Field Strength less than 3 V/M & frequency less than 30 MHz only.*

3. FRONT PANEL DESCRIPTION

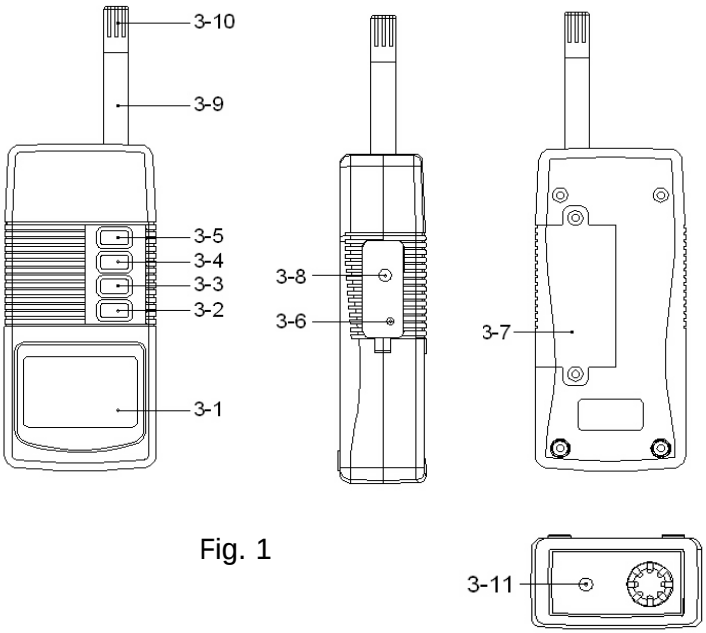


Fig. 1

3-1 Display
3-2 Power Button
3-3 Hold Button (Esc Button)
3-4 REC Button (Enter Button)
3-5 Function Button (Send Button)
3-6 Set Button (Logger Button)
3-7 Battery Compartment/Cover
3-8 RS-232 Output Terminal
3-9 Probe
3-10 Probe head (Humidity & Temperature)
3-11 DC 9V Power Adapter Input Socket

4. GENERAL MEASURING PROCEDURE

4-1 Humidity and Temperature measurement

1) Power on the meter by pressing the " Power Button " (3-2, Fig. 1), the LCD shows the unit " %RH " & " ℃ " at the same time and measured value will show on the display (upper display is Humidity value, the lower display is the temperature value) .
2) The meter Temp. display unit is defaulted to " ℃ ". If intend to let the meter's temperature unit default to " ℉ ", refer section 5-1 (page 9).

4-2 Dew point measurement

The procedures of " Dew point measurement " are same as the above " 4-1 Humidity and Temperature measurement " except select the " Dew point " function by pressing the " Function Button " (3-5, Fig. 1) once, the LCD will show the unit " DEW " & " ℃ (or ℉). The upper display show the Dew point value, the lower display show the temperature value.

4-3 Data Hold

During the measurement, press the " Hold Button " (3-3, Fig. 1) once will hold the measured value & the LCD will display a " HOLD " symbol.

* Press the " Hold Button " once again will release the data hold function.

4-4 Data Record (Max., Min. reading)

* The data record function records the maximum and minimum readings. Press the " REC Button " (3-4, Fig. 1) once to start the Data Record function.
  " REC " will be displayed.
* With the " REC " symbol on the display :
  a) Press the " REC Button " (3-4, Fig. 1) once, the " REC MAX. " symbol along with the maximum value will appear on the display.
     To delete the maximum value, just press the " Hold Button " (3-3, Fig. 1) once. The display will show " REC " and execute the memory function continuously.
  b) Press the " REC Button" (3-4, Fig. 1) again, the REC MIN. " symbol along with the minimum value will appear on the display.
     To delete the minimum value, just press the" Hold Button" (3-3, Fig. l) once, then the display will show the " REC " symbol only and execute the memory function continuously.
  c) To exit the memory record function, just press the REC" button for at least 2 seconds. The display will revert to the current reading.

5. ADVANCED MEASURING PROCEDURE

> Before executing advanced adjustment procedures, exit the " Hold function " and the Record " function.

a. Hold the " Set Button " (3-6, Fig. 1) at least two seconds until the lower display show " COde ", then release the " Set Button ", the upper display will show " 1000 ".

   * 1000 is the password code that allow to execute the Advanced Measuring Procedure following.

   After display show " COde 1000 ", push the " Enter Button " (3-4, Fig. 1) once will go to the following b. procedures.

   * If push the " ESC Button " (3-3, Fig. 1) will escape the selecting function and return to the normal measuring display.

b. One by one to press the " Set Button " (3-6, Fig. 1) once a while to select the two main function that show on the lower display as :

   ℉ **.....** Change the Temp ℃, ℉ unit
   OFF..... Auto power ON/OFF management

5-1 Change the Temp ℃, ℉ unit

Use the " Set Button " to select the main function to " ℉ ", then one by one to press the " Function Button " (3-5, Fig. 1) a while will determine the default Temp. unit to ℃ or ℉

@ Press the " Function Button ", if the upper display value show " 0 ", the default Temp. unit is ℃
@ Press the " Function Button ", if the upper display value show " 1 ", the default Temp. unit is ℉.

After the function is determined, press the " Enter Button " (3-4, Fig. 1) to confirm and save the selection data into memory IC permanently. Press the " Esc Button " (3-3. Fig. 1) will revert to normal display screen.

5-2 Auto power ON/OFF

Use the " Set Button " to select the main function to " OFF ", then one by one to press the " Function Button " (3-5, Fig. 1) a while will determine the default the power management system is Auto Power Off enable or disable.

@ Press the " Function Button " once, if the upper display value show " 0 ", it is not Auto Power Off management (disable).
@ Press the " Function Button " once, if the upper display value show " 1 ", it is the Auto Power Off management (enable).

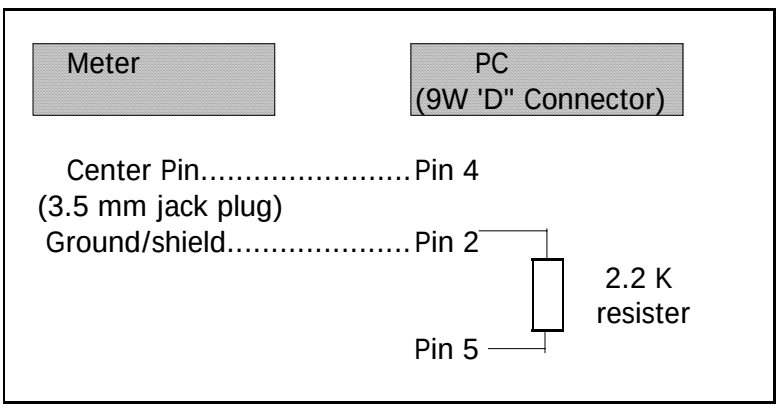
After the function is determined, press the " Enter Button " (3-4, Fig. 1) to save the selection function into memory IC permanently. Press the " Esc Button " (3-3. Fig. 1) will revert to normal display screen.

6. RS232 PC SERIAL INTERFACE

The instrument has RS232 PC serial interface via a 3.5 mm terminal (3-8, Fig. 1).

The data output is a 16 digit stream which can be utilized for user's specific application.

A RS232 lead with the following connection will be required to link the instrument with the PC serial port.



The 16 digits data stream will be displayed in the following format :

D15 D14 D13 D12 D11 D10 D9 D8 D7 D6 D5 D4 D3 D2 D1 D0

Each digit indicates the following status :

D15	Start Word		
D14	4		
D13	When send the upper display data = 1 When send the lower display data = 2		
D12, D11	Annunciator for Display		
	℃ = 01	℉ = 02	% RH = 04
	For example : %RH = 04, D12 = 0, D11 = 4		
D10	Polarity 0 = Positive 1 = Negative		
D9	Decimal Point(DP), position from right to the left 0 = No DP, 1= 1 DP, 2 = 2 DP, 3 = 3 DP		
D8 to D1	Display reading, D1 = LSD, D8 = MSD *For example :* *If the display reading is 1234, then D8 to D1 is : 00001234*		
D0	End Word		

RS232 setting

Baud rate	9600
Parity	No parity
Data bit no.	8 Data bits
Stop bit	1 Stop bit

7. BATTERY REPLACEMENT

1) When the left corner of LCD display show " 

', it is necessary to replace the battery. However, in-spec. measurement may still be made for several hours after low battery indicator appears before the instrument become inaccurate.
2) Slide the " Battery Cover " (3-7, Fig. 1) away from the instrument and remove the battery.
3) Replace with 9V battery (Alkaline or Heavy duty type) and reinstate the cover.
4) Make sure the battery cover is secured after changing the battery.