



# THM80X Series Operation Manual

## Industry Degree Temp. & Humidity Transmitter

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V 0.1



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# THM80X Series Industry Degree Temp. & Humidity Transmitter Operation Manual

Order Code :

## 選 型 表

型號	THM80	3	—	T	48	1	H	00	1	—	D	N	S	2
安裝方式	掛壁型 風管型 分離型	1 2 3	— — —											
物理量輸出1	溫度輸出 濕度輸出 露點溫度 霜點溫度 濕球溫度 水蒸氣分壓 混合比 絕對濕度 比焓 RS-485 (預設溫度)			T H D F W E R V S N										
物理量範圍1	0 ... 50°C 0 ... 80°C 0 ... 100°C 0 ... 120°C 0 ... 180°C 0 ... 200°C -20 ... +40°C -40 ... +60°C -40 ... +120°C -40 ... +180°C -40 ... +200°C -70 ... +180°C 依物理量測範圍表 (H, F, W, E, R, V, S) 特殊範圍				30 38 40 42 48 47 13 14 16 18 20 49 00 YY									
訊號輸出1	4 ... 20 mA 0 ... 20 mA 0 ... 10 V 0 ... 5 V 0 ... 1 V RS-485					1 2 6 7 8 9								
物理量輸出2	溫度輸出 濕度輸出 露點溫度 霜點溫度 濕球溫度 水蒸氣分壓 混合比 絕對濕度 比焓 RS-485 (預設溫度)						T H D F W E R V S N							
物理量範圍2	0 ... 50°C 0 ... 80°C 0 ... 100°C 0 ... 120°C 0 ... 180°C 0 ... 200°C -20 ... +40°C -40 ... +60°C -40 ... +120°C -40 ... +180°C -40 ... +200°C -70 ... +180°C 依物理量測範圍表 (H, F, W, E, R, V, S) 特殊範圍							30 38 40 42 48 47 13 14 16 18 20 49 00 YY						
訊號輸出2	4 ... 20 mA 0 ... 20 mA 0 ... 10 V 0 ... 5 V 0 ... 1 V RS-485							1 2 6 7 8 9						
顯示	無 有										X D			
電氣連接座	M16金屬電纜固定座 M12金屬連接座											N M		
濾頭	S.S.金屬網濾頭 金屬網結濾頭												M S	
分離型導線長度 (最長10米)	2米TEFLON線材 5米TEFLON線材 特殊長度													2 5 —
Option或其它要求	其它要求 RS-485 + 類比訊號													W U

## 1. Features

- IP67 protection degree, rugged aluminum case, fit in variety harsh environment
- Capable of temperature compensation
- Linear adjustment temperature & humidity by computer, analogue output or option RS-485
- Measure high accuracy temperature & humidity, reaction quickly, the sensor can work well after temporary condensation, long term stable in high humidity environment
- Process temp. : up to 200°C, S.S. probe proof pressure : 10 bar, metal connector : installation repeatedly
- Switch multifunction physical quantities : [%RH] 、 [°C] 、 [mbar] 、 [g/kg] 、 [g/m<sup>3</sup>] 、 [kJ/kg]
- Calibration physical quantities, measuring range, analogue output, station, etc
- Free calibration software : data logger / record 65535 datas/ charts

## Applications

- Industrial Process Monitoring / Air Conditioning/ Environmental Ventilation Control
- Buildings, factories, hospitals, clean rooms, laboratories, weather stations Environmental monitoring
- Storage rooms, environmental chambers, greenhouses, mushroom farms
- Semiconductor, electronics, paper, printing, textiles, steel and iron Industry, food, chemical, pharmaceutical, biotechnology industry

## 2. Security considerations

Please read this Specification carefully, prior to use of this, and keep the manual properly, for timely reference.

### Solemn Statement:

This product can not be used for explosion-proof area.

Do not use this product in a situation where human life may be affected.

This product can not be used for explosion-proof area.

Do not use this product in a situation where human life may be affected.

EYC-TECH will not bear any responsibility for the results produced by the operators.

CE  
EN 61326-1:2006    EN61326-2-2:2006  
Emissions  
EN55011:2009/A1:2010  
Immunity  
IEC 61000-4-2:2008 , IEC 61000-4-3:2006/A1:2007/A2:2010 , IEC 61000-4-8:2009)



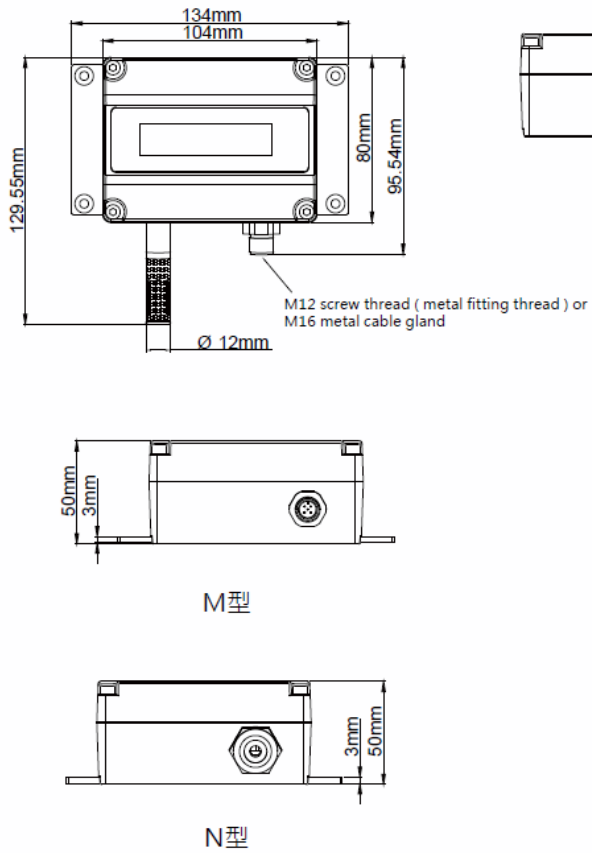
## **Warning!!**

- Installation and wiring must be performed by qualified personnel in accordance with all applicable safety standards.
- This product must be operated under the operating conditions specified in manual to prevent equipment damages.
- Please use the product under the ordinary pressure, or it will influence safe problem.
- This product must be operated under the operating condition specified in this manual to prevent equipment damages.
- This product must be operated under the normally atmospheric condition to prevent equipment damages.
- To prevent products damage, always disconnect the power supply from the product before performing any wiring and installation.
- All wiring must comply with local codes of indoor wiring and electric installation rules.
- Please use crimp type terminal.
- To prevent personal injury, do not touch the moving part of product in operation.
- It may cause high humidity atmosphere during the product was breakdown. Please take safety strategy.

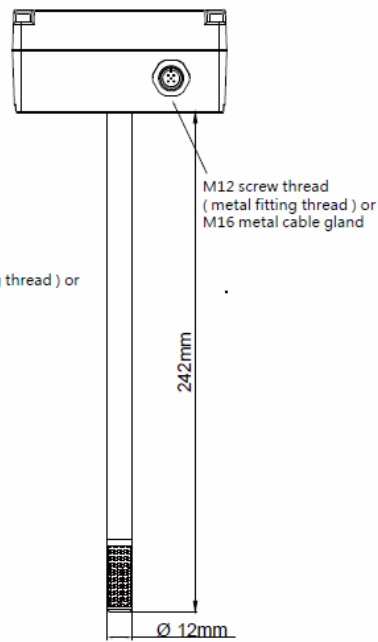
## 3. Installation

### 3.1 Dimension

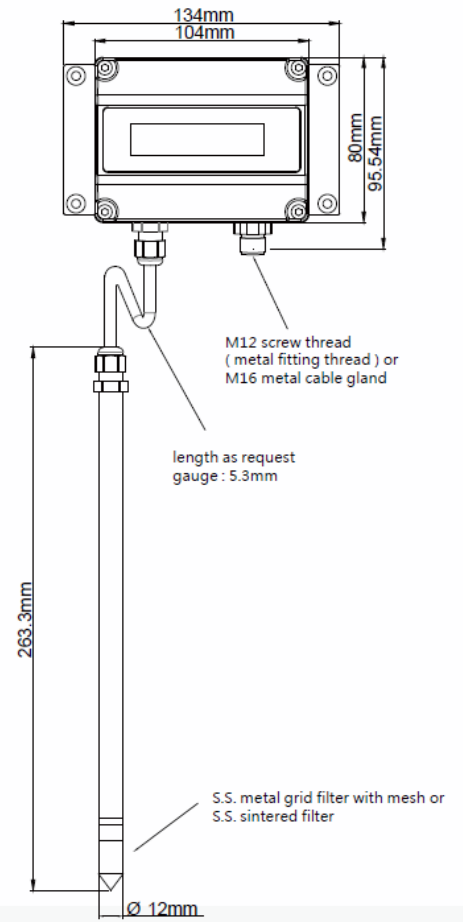
THM801 ( wall )



THM802 ( duct )



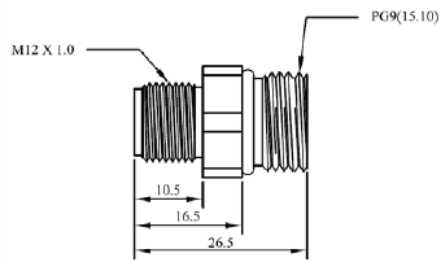
THM803 ( remote )



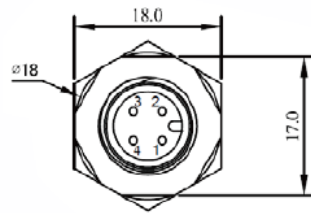
# THM80X Series Industry Degree Temp. & Humidity Transmitter Operation Manual

## 3.2 Electric Connector Dimension

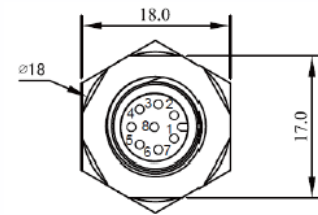
unit : mm



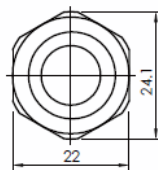
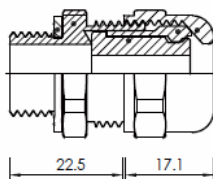
【 M type (M12-4PIN metal connector) 】  
RS-485 or analogue



【 M type (M12-8PIN metal connector) 】  
RS-485+analogue





【 N type (M16 cable gland) 】 RS-485+analogue



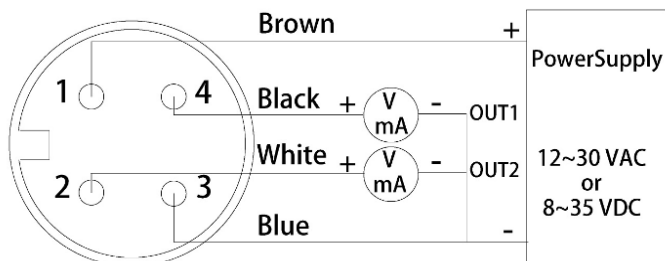
### 3.3 Option accessory

#### Filter SPEC. :

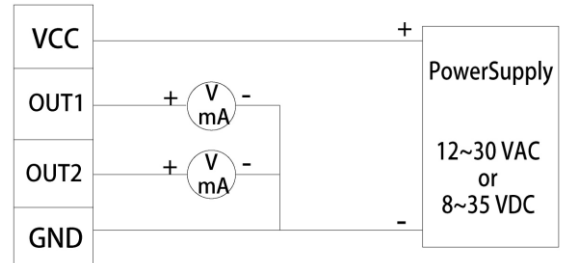
Order code	Name	Description	Features
4425000011	SUS sintered filter 	Material : SUS316L Sinter type HD : 40μm OD : 12mm L : 34.5mm	Excellent filterable, and pollution, corrosion and pressure resistance. Max. Temper. : 200°C max
8203104011	Metal grid filter with mesh 	Material : SUS304 OD : 12mm L : 32mm	Common resisting pollution. React quickly. Endure high temp. Nice ventilation. Max. temp.:200°C

## 4. Connection

### 4.1 Analogue Diagram



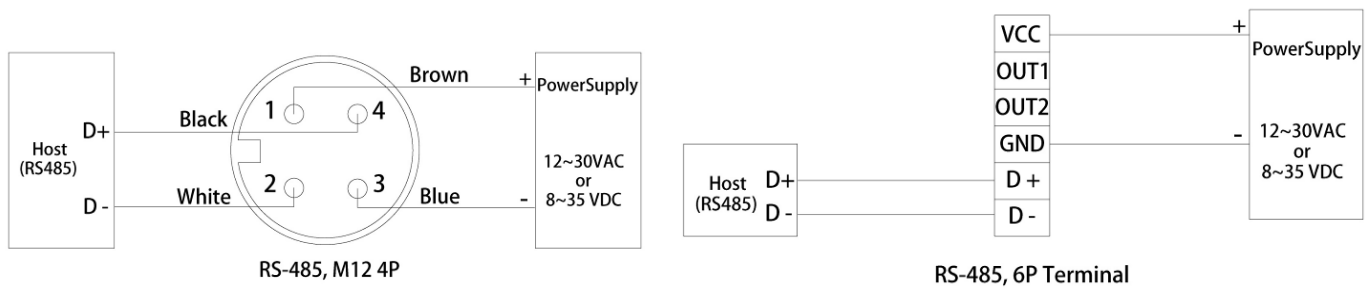
Analogue, M12 4P



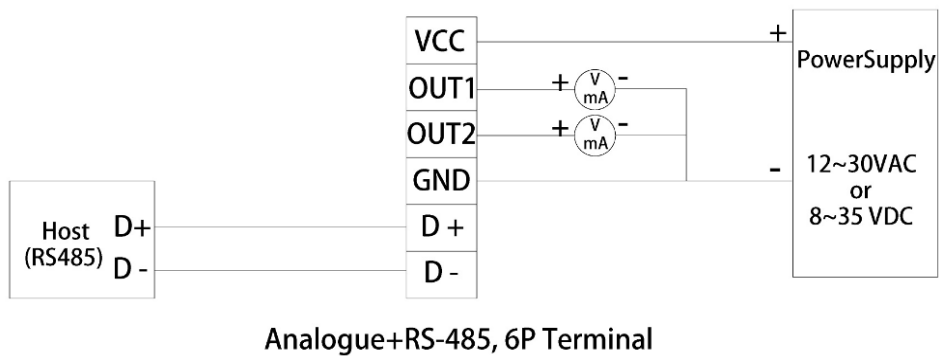
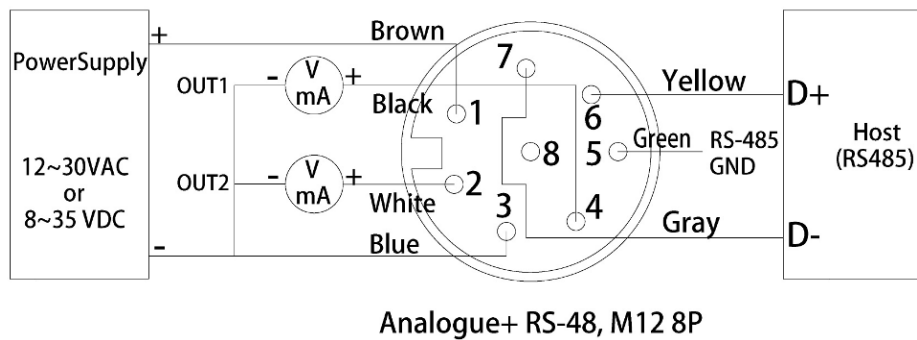
Analogue, 4P Terminal



## 4.2 RS-485 Diagrams



## 4.3 Analogue + RS-485 Diagram



## **5. Software and calibration operation step**

- 5.1 Application Program statement
- 5.2 Setting RS-485connection
- 5.3 Scan RS-485 connection
- 5.4 Setting RS-485 ModBus Protocol
- 5.5 Display and save data
- 5.6 Choose parameter of Output
- 5.7 Temperature Calibration with two points
- 5.8 Humidity Calibration with two points
- 5.9 Temperature Calibration with signal points
- 5.10 Humidity Calibration with signal point
- 5.11 Restore factory setting of signal/two point(s)
- 5.12 Temperature Calibration with more points
- 5.13 Humidity Calibration with more points
- 5.14 Restore factory setting of more points

## 5.1 Application Program statement

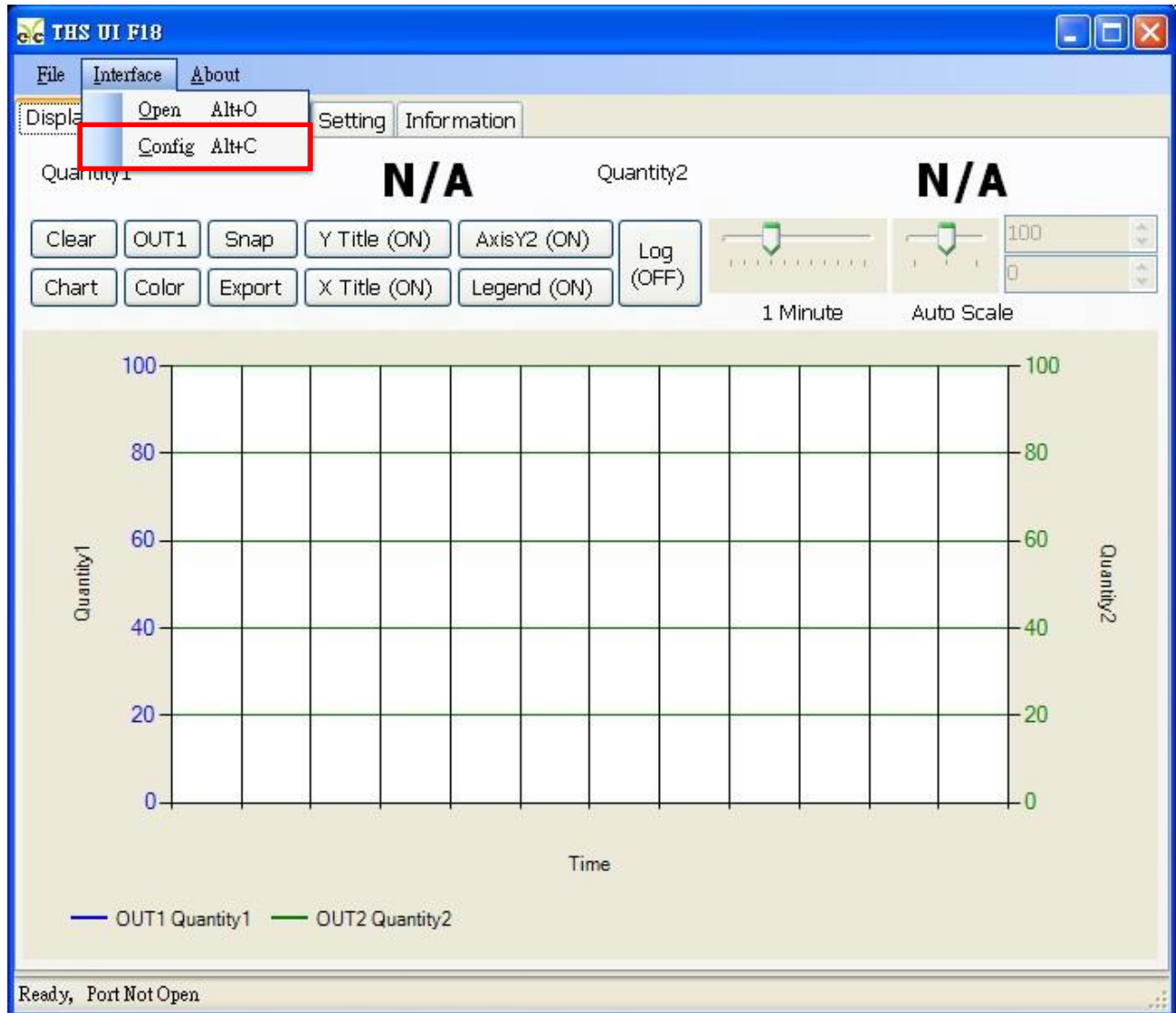
1. Free installation program : THM85\_UI\_1.0.1.exe  
(※Please use installation program when free program doesn't execute)
2. Installation program : THM85\_UI\_XXXXXXX(date)\_1.0.1(EXE).rar
  - a. Operating System requirements : above Windows XP
  - b. Click Setup to install

名稱	修改日期	類型	大小
zh-Hans	2017/12/19 下午 ...	檔案資料夾	
zh-Hant	2017/12/19 下午 ...	檔案資料夾	
THM85_UI_1.0.1	2017/2/14 上午 1...	應用程式	2,828 KB

3. Other application program requirements : above Microsoft Office 2003

## 5.2 Setting RS-485connection

1. Connect product to PC via RS-485 cable
2. Execute “THM UI”
3. Click “Interface > Config”



4. Select the corresponding values of com port as following :

**Interface**

PORT a. COM5

BAUD RATE b. 9600

DATA FRAME c. None-8Bit-1Stop

TIMEOUT 250 ms

RETRY 2 times

**Physical Interface**

☐ RS-232 d. ☒ RS-485

STATION ID e. 1

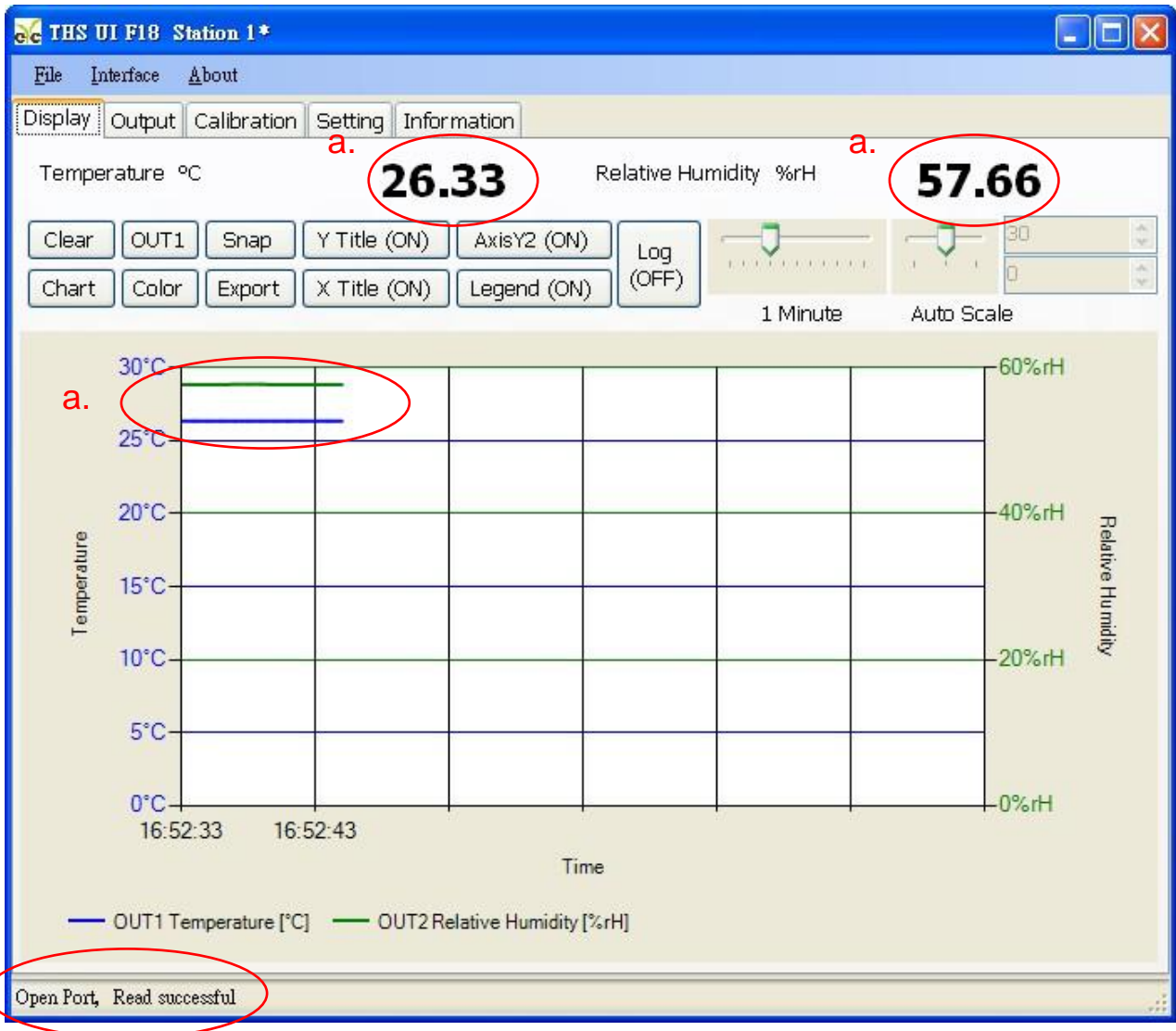
Station ID	Baud Rate	Data Type
------------	-----------	-----------

Scan Apply Cancel

5. Click “Apply”

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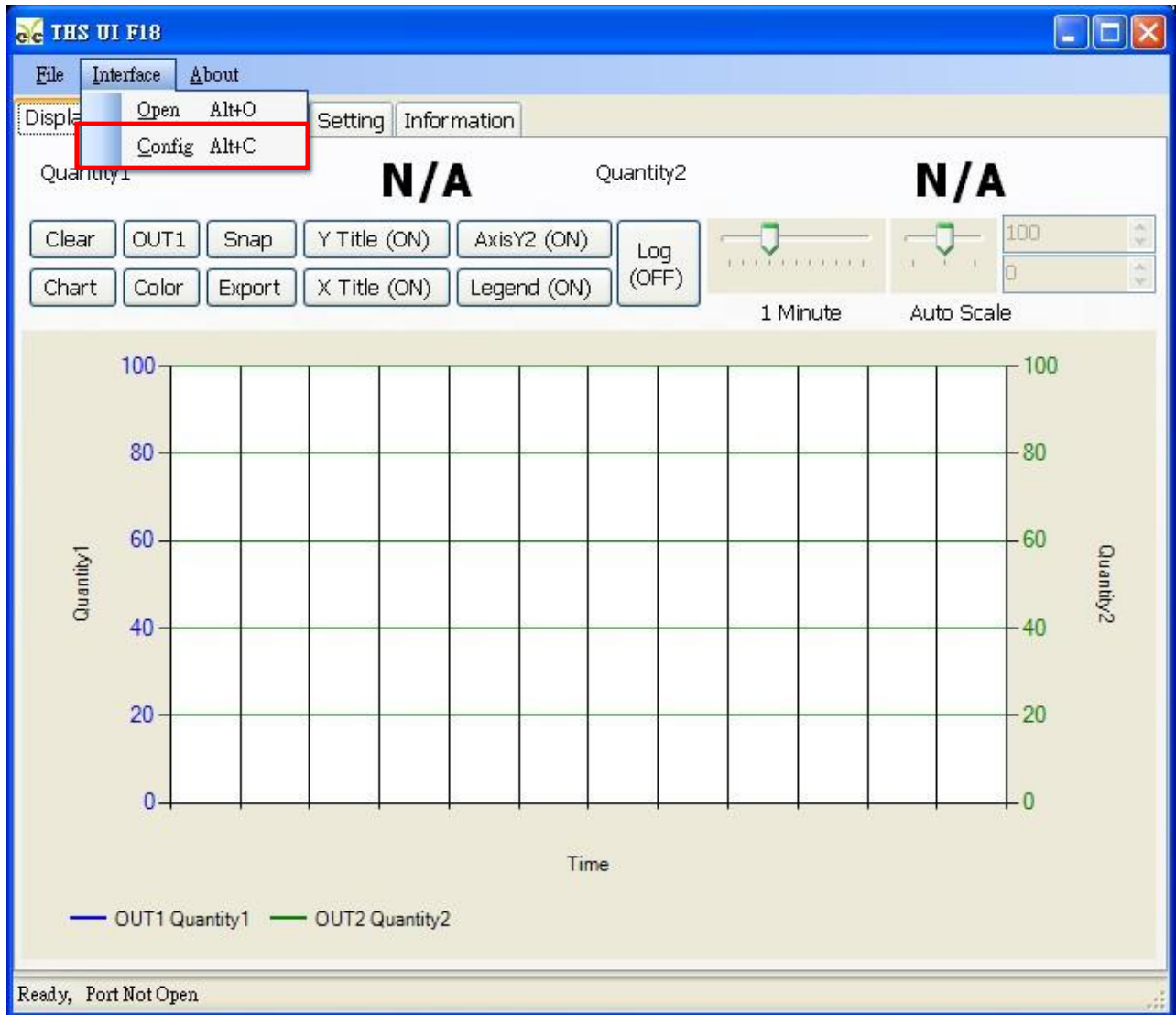
6. Connect successfully
  - a. Show value and trend chart of Temperature and Relative Humidity
  - b. Show Open port, Read successful



## 6.3 Scan RS-485 connection

※Use scan function to connect when forgetting the connection information or having more facilities.

1. Connect the product to PC via RS-485 cable
2. Execute “THS UI”
3. Click “Interface > Config”



## THM80X Series Industry Degree Temp. & Humidity Transmitter Operation Manual

4. Select the corresponding values of com port as following:

- a. Port :
- b. RS-485

Interface

PORT a. COM5

BAUD RATE 9600

DATA FRAME None-8Bit-1Stop

TIMEOUT 250 ms

RETRY 2 times

Physical Interface

☐ RS-232 b. ☒ RS-485

STATION ID 1

Station ID	Baud Rate	Data Type
------------	-----------	-----------

Scan Apply Cancel

4. Click “Scan” to execute connection facilities



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5. Scan connection facilities and set up
  - a. Select "Station ID"
  - b. Click "CLOSE AND EXPORT"

Scan

Baud: 9600

Data Type: N81

Station ID: 54

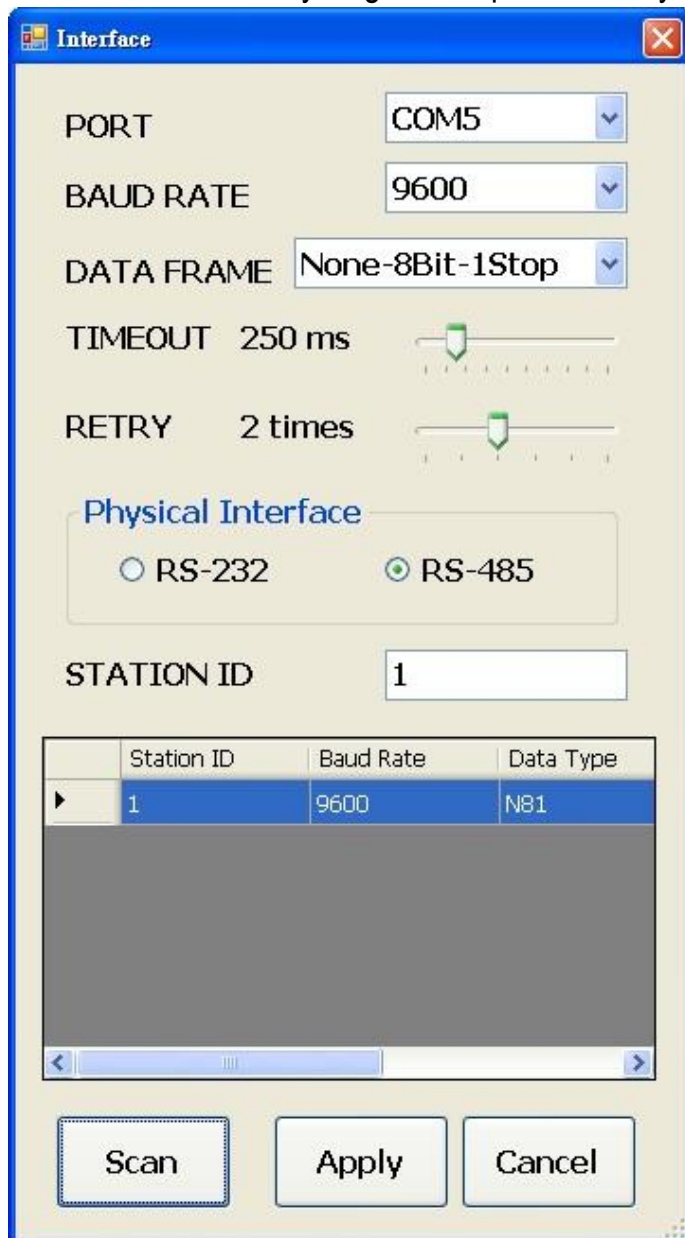
Progress: 1%

	Station ID	Baud Rate	Data Type	Model Name	FW Version
a. ▶	1	9600	N81	THS84	V1.1.2

STOP

b. CLOSE AND EXPORT

CANCEL



**Interface**

PORT: COM5

BAUD RATE: 9600

DATA FRAME: None-8Bit-1Stop

TIMEOUT: 250 ms

RETRY: 2 times

**Physical Interface**

☐ RS-232 ☒ RS-485

STATION ID: 1

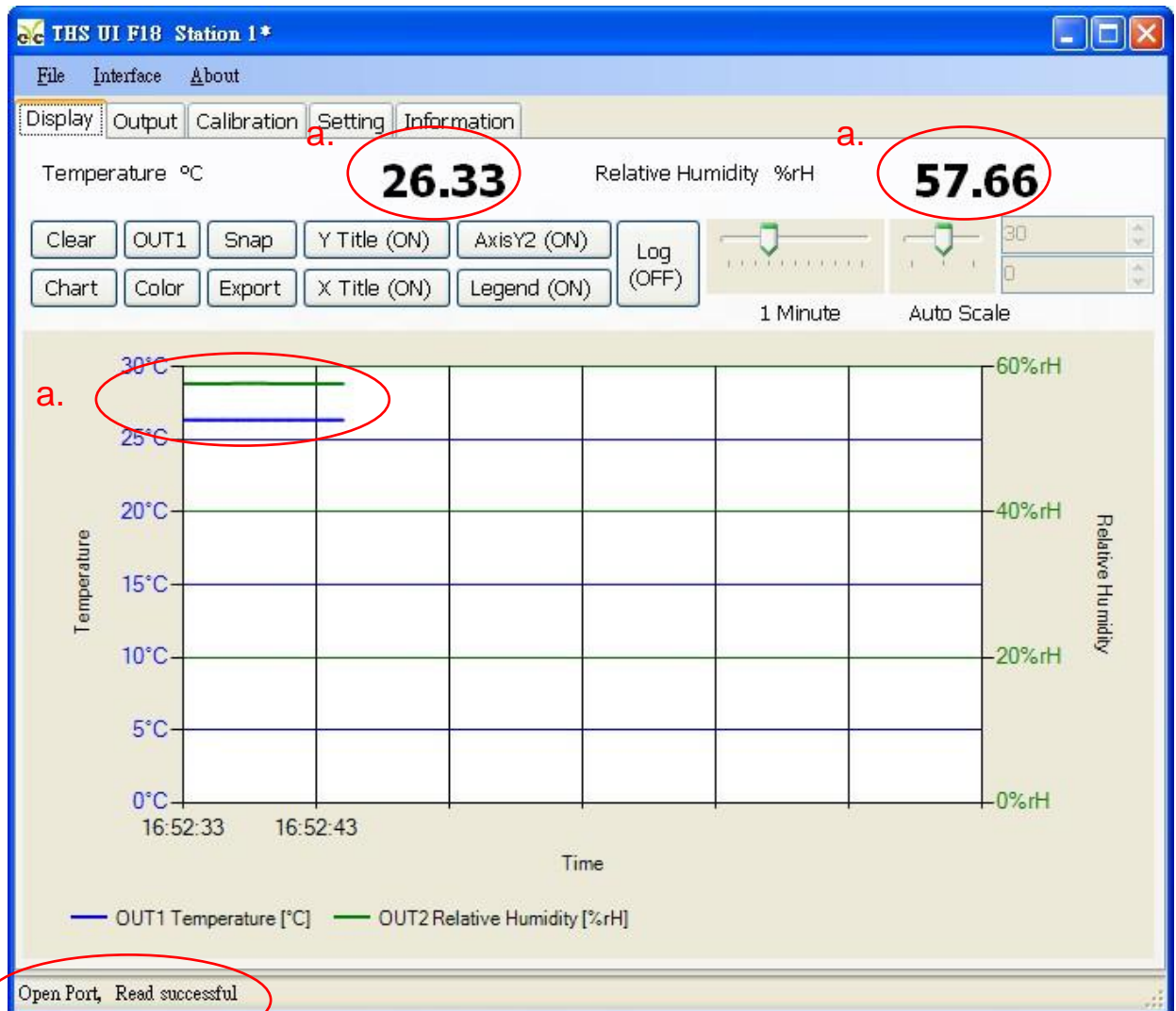
Station ID	Baud Rate	Data Type
1	9600	N81

Scan Apply Cancel

6. Click “Apply”

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7. Connect successfully
  - a. Show values and trend chat Temperature and Relative Humidity
  - b. Show Open port, Read successful



## 5.4 Setting RS-485 ModBus Protocol

1. Setting RS-485 connection step as step 5.1
2. Click “Setting”

The screenshot shows the 'THS UI F18 Station 1\*' software window. The 'Setting' tab is selected and highlighted with a red rectangle. The interface includes a menu bar (File, Interface, About) and a tab bar (Display, Output, Calibration, Setting, Information). The main content area is divided into three sections: 'Environment' with an 'Air Pressure (mBar)' spinner set to 1013.25; 'Modbus Protocol' with 'Station ID' (1), 'Baud Rate' (9600), and 'Data Frame' (None-8Bit-1Stop), along with 'Echo Test (OFF)' and 'Reset Counter' buttons; and 'Dew Point Auto Calibration' with 'Calibration Interval (min)' (1024) and 'Under -70°C Interval (min)' (720). At the bottom are 'Apply' and 'Read' buttons. A status bar at the very bottom reads 'Read OUT1 Config, Read successful'.

THS UI F18 Station 1\*

File Interface About

Display Output Calibration **Setting** Information

**Environment**

Air Pressure (mBar) 1013.25

**Modbus Protocol**

Station ID 1

Baud Rate 9600

Data Frame None-8Bit-1Stop

Test Result Test Result

Echo Test (OFF) Reset Counter

**Dew Point Auto Calibration**

Calibration Interval (min) 1024

Under -70°C Interval (min) 720

Apply Read

Read OUT1 Config, Read successful

## THM80X Series Industry Degree Temp. & Humidity Transmitter Operation Manual

### 3. Select Modbus Protocol parameter

- a. Station ID : 1~247
- b. Baud Rate : 9600, 19200, 38400, 57600, 115200
- c. Data Frame: None-8Bit-1Stop, None-8Bit-2Stop, Even-8Bit-1Stop, Even-8Bit-2Stop, Odd-8Bit-1Stop, Odd-8Bit-2Stop

The screenshot shows the THS UI F18 Station 1\* software interface. The 'Setting' tab is selected. Under the 'Modbus Protocol' section, the following parameters are configured:

- Station ID: 1 (highlighted with a red box and labeled 'a.')
- Baud Rate: 9600 (highlighted with a red box and labeled 'b.')
- Data Frame: None-8Bit-1Stop (highlighted with a red box and labeled 'c.')

Other visible settings include:

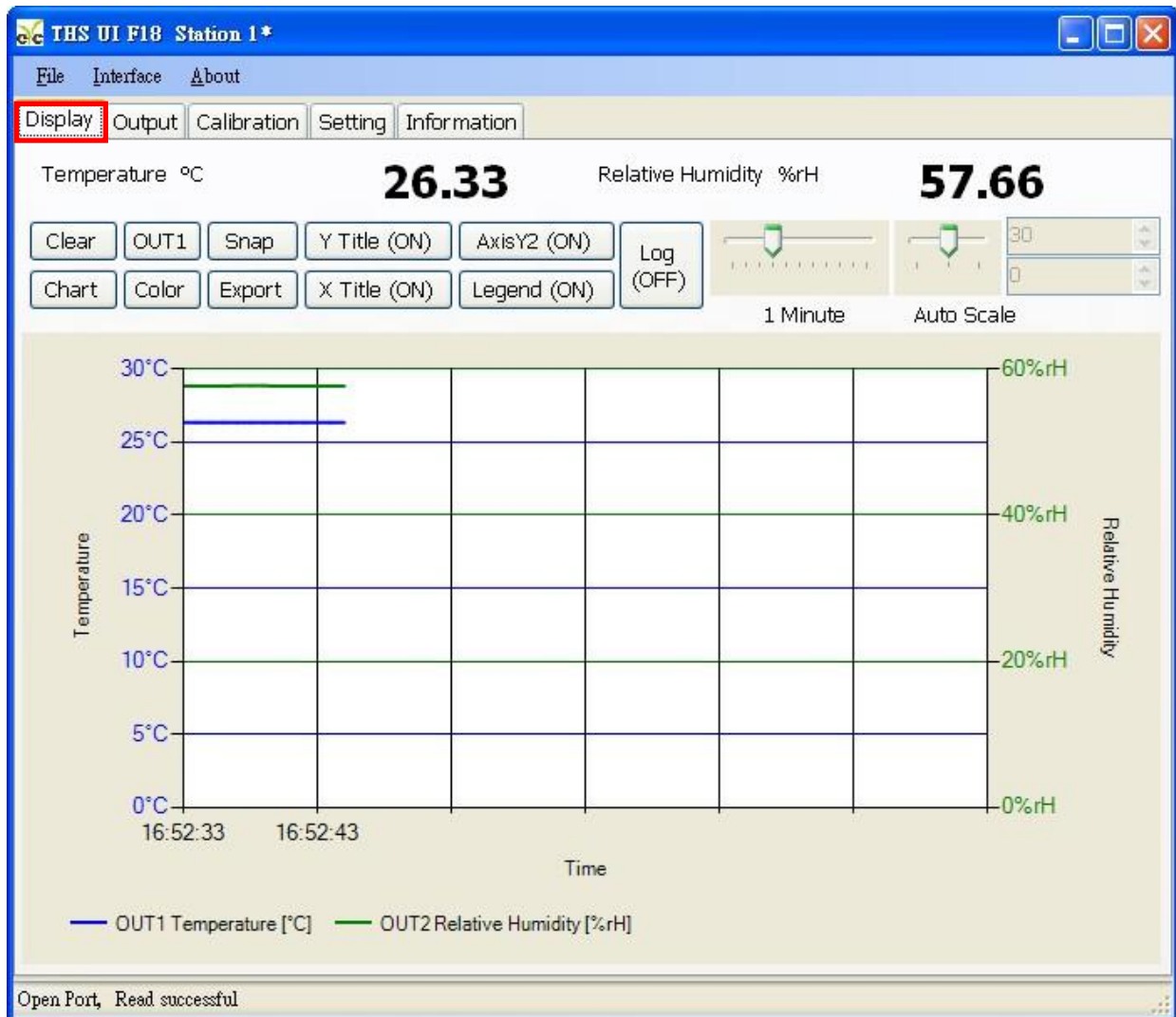
- Environment: Air Pressure (mBar) set to 1013.25.
- Dew Point Auto Calibration: Calibration Interval (min) set to 1024, Under -70°C Interval (min) set to 720.
- Buttons: Echo Test (OFF), Reset Counter, Apply, Read.
- Status bar: Read OUT1 Config, Read successful.

### 4. Click "Apply"

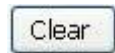
### 5. Execute connection as step 5.2 or 5.3 again

## 5.5 Display and save data

1. Show data : Click “Display”



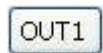
## 2. Icon function statements



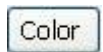
Clear the chart records



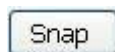
Change the chart style



Select the OUTPUT channel



Set line color chosen from OUTPUT



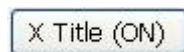
Snap chart



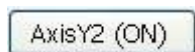
Save the data measuring when the system start connecting before clicking the Export icon



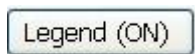
Show/Not show the statement of Y axis



Show/Not show the statement of X axis



Show/Not show the statement of Y secondary axis



Show/ Not show chart



Log/Not Log measuring data



Adjust time range of X axis

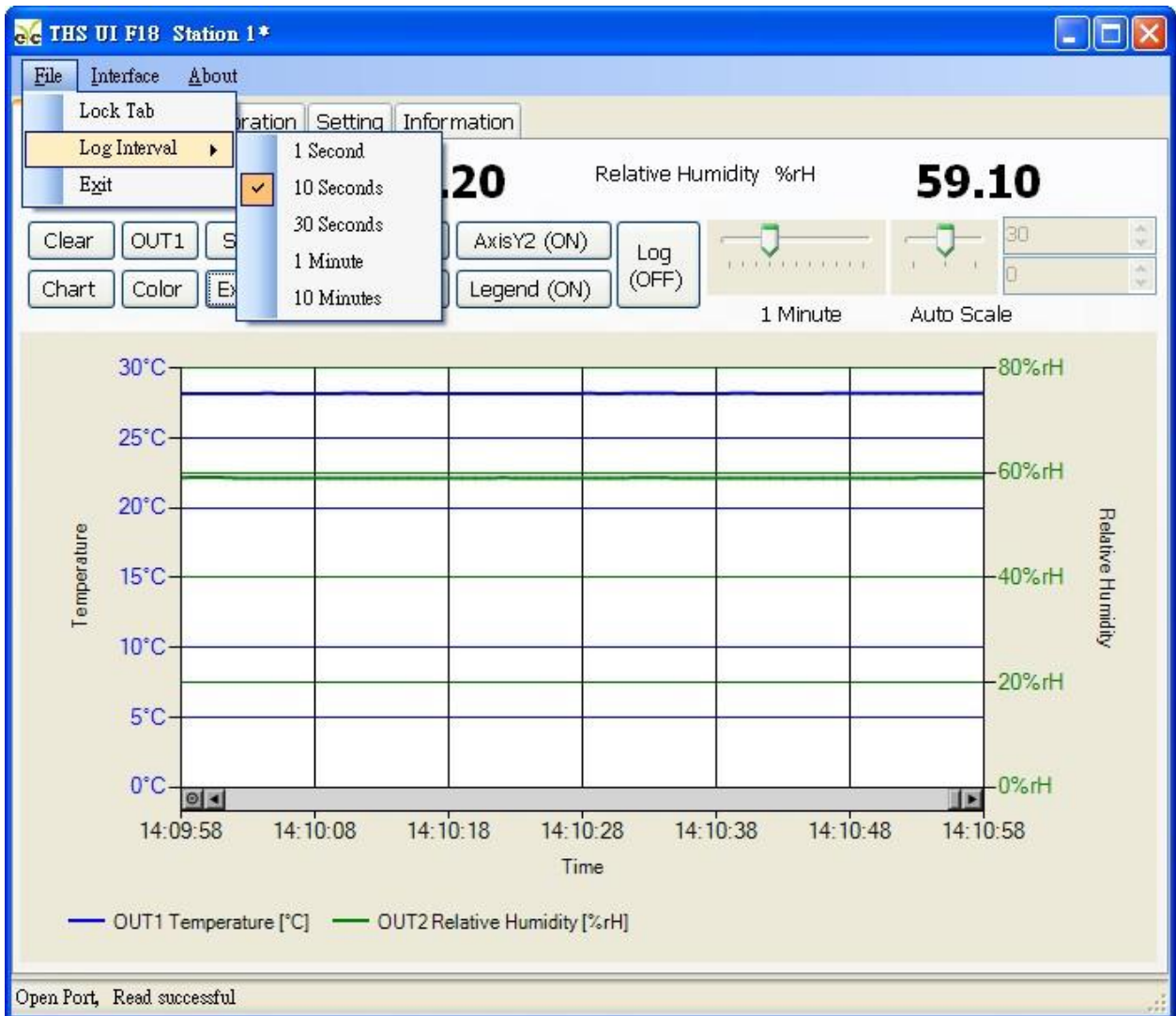


Adjust range of Y axis



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3. Setting time interval of record
  - a. File > Log Interval
  - b. Select time interval of record



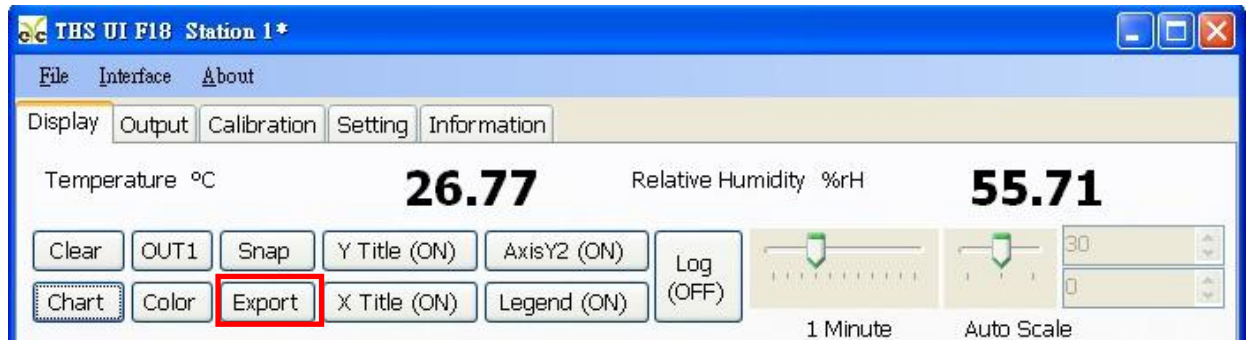


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## 4. Save/Log measuring data

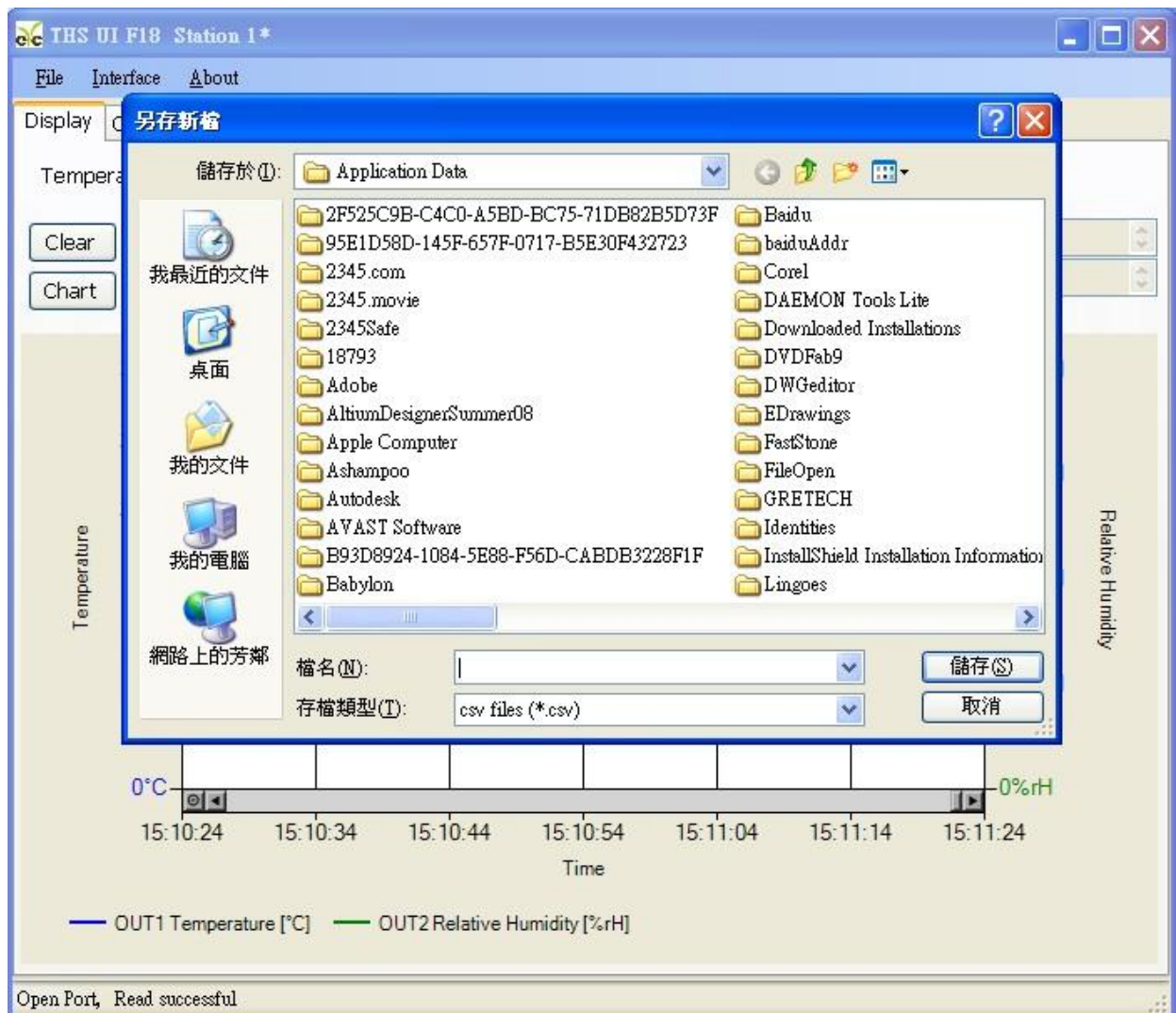
a. Log measuring range : Save the data measuring when the system start connecting before clicking the Export icon

a-1. Click Display > Export



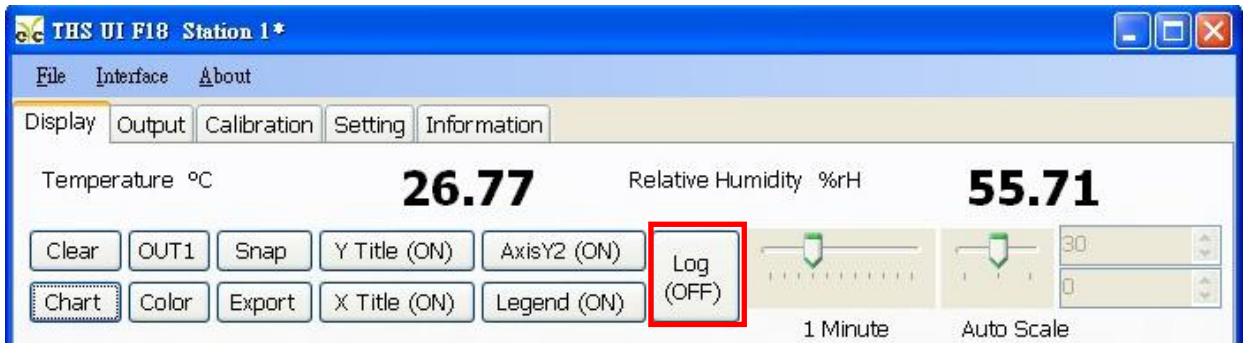
a-2. Appoint path and Key in file name > save

※1. If file name is same as the path name, the original file will be covered.



b. Log measuring data : Log the data which is on from start or off

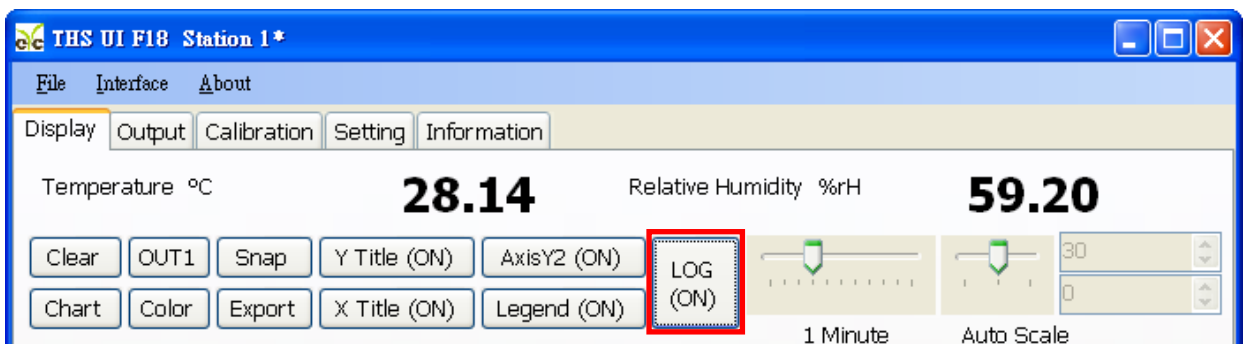
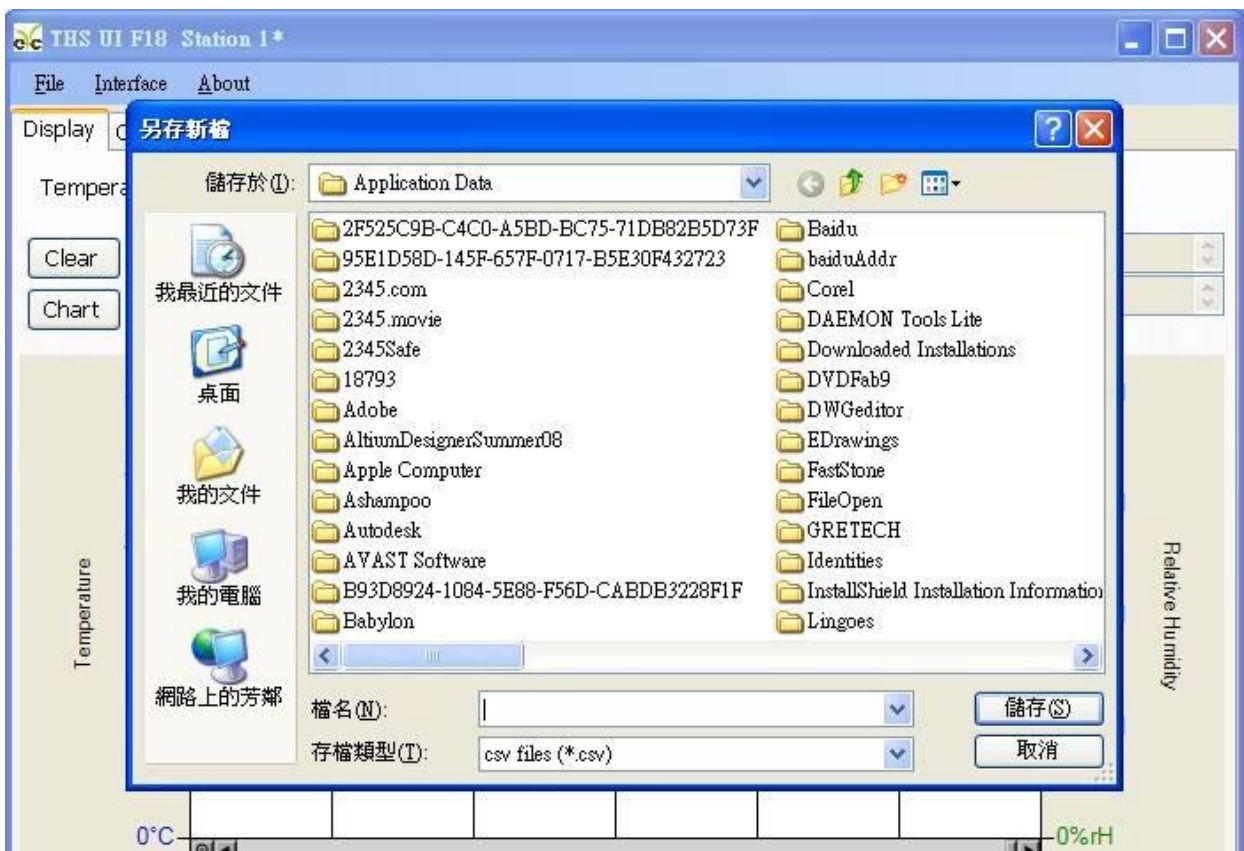
b-1. Display > Log(OFF)



b-1. Appoint path and Key in file name > save > Log(ON)

※1. If file name is same as the path name, the original file will be covered.

※2. If logging records exceed 65536, the log file will be split 65536 records each file which the file name append “\_NNN” and N start from 1.



## 5.6 Choose parameter of Output

1. Click “Output”

The screenshot displays the 'THS UI F18 Station 1\*' software window. The 'Output' tab is selected and highlighted with a red box. The interface is divided into two main sections: 'OUT1' and 'OUT2'.

**OUT1 Configuration:**

- Quantity: Temperature (dropdown menu)
- Response Rate (0~100): 100 (spin box)
- Output Type: ☐ Voltage, ☒ Current
- Analog Range: 4-20mA (dropdown menu)
- Upper Range: 100 (spin box)
- Lower Range: 0 (spin box)
- Alarm Mode: ☐ Alarm Mode
- Upper Point: 0.0 (spin box)
- Lower Point: 0.0 (spin box)
- Upper Level: 4.0 (spin box)
- Lower level: 4.0 (spin box)
- Buttons: Apply, Read

**OUT2 Configuration:**

- Quantity: Relative Humidity (dropdown menu)
- Response Rate (0~100): 100 (spin box)
- Output Type: ☐ Voltage, ☒ Current
- Analog Range: 4-20mA (dropdown menu)
- Upper Range: 100 (spin box)
- Lower Range: 0 (spin box)
- Alarm Mode: ☐ Alarm Mode
- Upper Point: 0.0 (spin box)
- Lower Point: 0.0 (spin box)
- Upper Level: 4.0 (spin box)
- Lower level: 4.0 (spin box)
- Buttons: Apply, Read

At the bottom of the window, a status bar reads: 'Read OUT1 Config, Read successful'.

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## 2. Select relative parameters from Output1 and Output2

- Output selection
- Responding time
- Voltage or current Output
- Voltage or current analog range
- Upper and Lower point of Output

The screenshot shows the 'THS UI F18 Station 1\*' software window with the 'Output' tab selected. It displays configuration settings for two outputs, OUT1 and OUT2. Red boxes and letters a-e highlight the following settings:

- a.** Quantity: Temperature (OUT1), Relative Humidity (OUT2)
- b.** Response Rate (0~100): 100 (OUT1), 100 (OUT2)
- c.** Output type: Current (selected for both)
- d.** Analog Range: 4-20mA (OUT1), 4-20mA (OUT2)
- e.** Upper Range: 100 (OUT1), 100 (OUT2); Lower Range: 0 (OUT1), 0 (OUT2)

Other visible settings include Alarm Mode (unchecked), Upper Point, Lower Point, Upper Level, and Lower level, all set to 0.0 or 4.0. 'Apply' and 'Read' buttons are at the bottom of each output section. A status bar at the bottom reads 'Read OUT1 Config, Read successful'.

## 3. Click “Apply”



## 5.7 Temperature Calibration with two points

### 1. Calibrate upper point of temperature

- a. Click "Calibration"

**THS UI F18 Station 1\***

File Interface **Calibration** Setting Information

**Temperature**

UPPER POINT

LOWER POINT

OFFSET POINT

RECALL FACTORY CALIB

Tb now 35.69°C

Tunit [°C]	Tstd [°C]
17.8946	23.78
37.5325	44.3
78.6075	85.18

WRITE

READ

CLEAR

RECALL

**Relative Humidity**

UPPER POINT

LOWER POINT

OFFSET POINT

RECALL FACTORY CALIB

RH now 56.64%

Hunit [%]	Hstd [%]
17.8946	23.78
37.5325	44.3
78.6075	85.18

WRITE

READ

CLEAR

RECALL

Read Interpolation Table, Read successful

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- Put the sensor unit of product in the temperature control box, and adjust the upper point of temperature (ex: 100°C)
- Wait the temperature of control box is becoming stable
- Click Temperature > UPPER POINT

THS UI F18 Station 1\*

File Interface About

Display Output Calibration Setting Information

**Temperature**

UPPER POINT

LOWER POINT

OFFSET POINT

RECALL FACTORY CALIB

Tb now 35.69°C

Tunit [°C]	Tstd [°C]
17.8946	23.78
37.5325	44.3
78.6075	85.18

WRITE

READ

CLEAR

RECALL

**Relative Humidity**

UPPER POINT

LOWER POINT

OFFSET POINT

RECALL FACTORY CALIB

RH now 56.64%

Hunit [%]	Hstd [%]
17.8946	23.78
37.5325	44.3
78.6075	85.18

WRITE

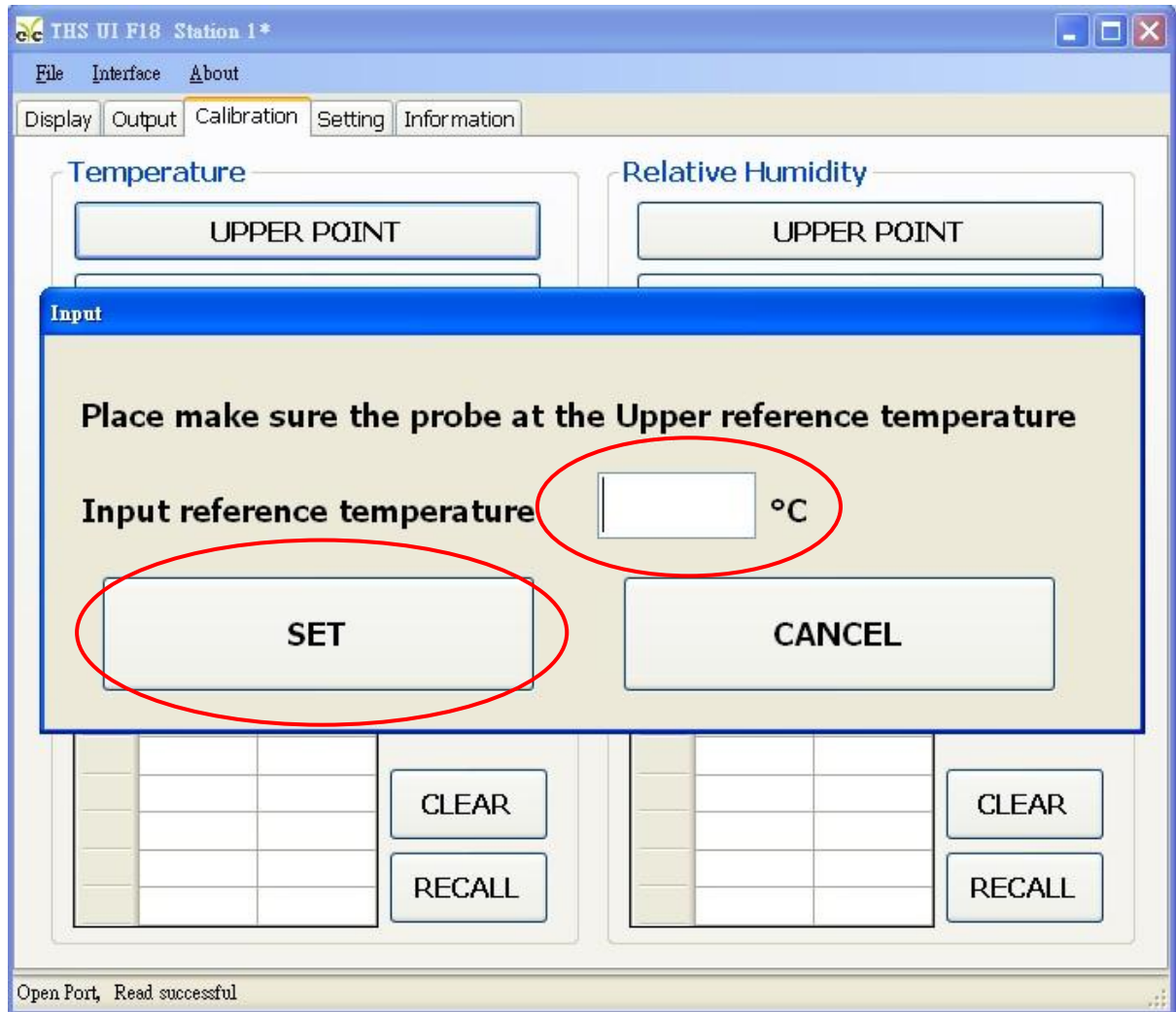
READ

CLEAR

RECALL

Read Interpolation Table, Read successful

- e. Input the reference temperature, then click ” SET”



- f. That calibrating upper point temperature is done.

# THM80X Series Industry Degree Temp. & Humidity Transmitter Operation Manual

## 2. Calibrate lower point of temperature

- Put the sensor unit of product in the temperature control box, and adjust the lower point of temperature (ex: 0°C)
- The difference temperature between Upper and Lower point must be at least 30°C.
- Wait the temperature of control box is becoming stable
- Click Temperature > LOWER POINT

THS UI F18 Station 1\*

File Interface About

Display Output Calibration Setting Information

### Temperature

UPPER POINT

**LOWER POINT**

OFFSET POINT

RECALL FACTORY CALIB

Tb now 35.69°C

Tunit [°C]	Tstd [°C]

WRITE

READ

CLEAR

RECALL

### Relative Humidity

UPPER POINT

LOWER POINT

OFFSET POINT

RECALL FACTORY CALIB

RH now 56.64%

Hunit [%]	Hstd [%]
17.8946	23.78
37.5325	44.3
78.6075	85.18

WRITE

READ

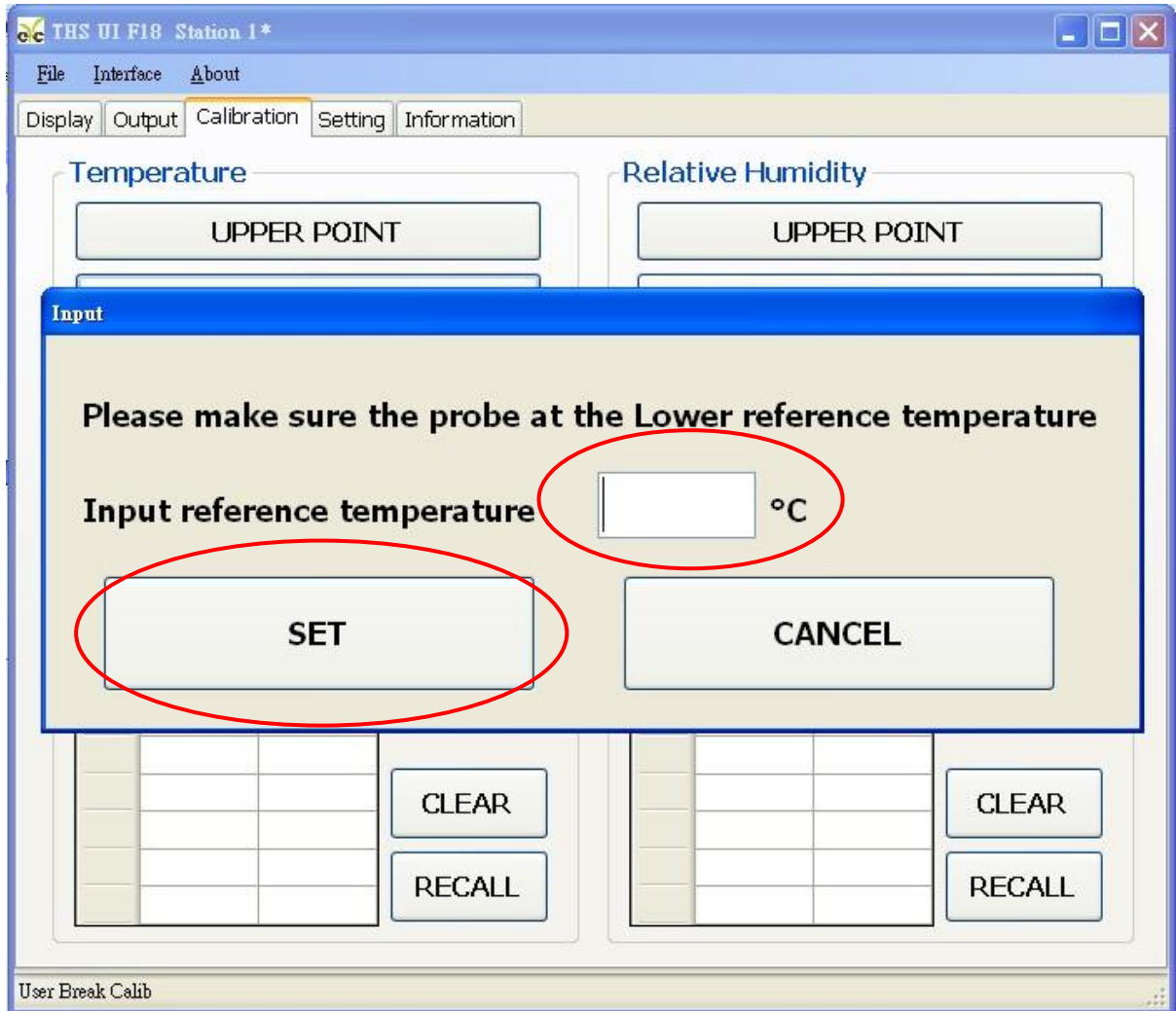
CLEAR

RECALL

Read Interpolation Table, Read successful



- e. Input reference temperature, then click " SET"

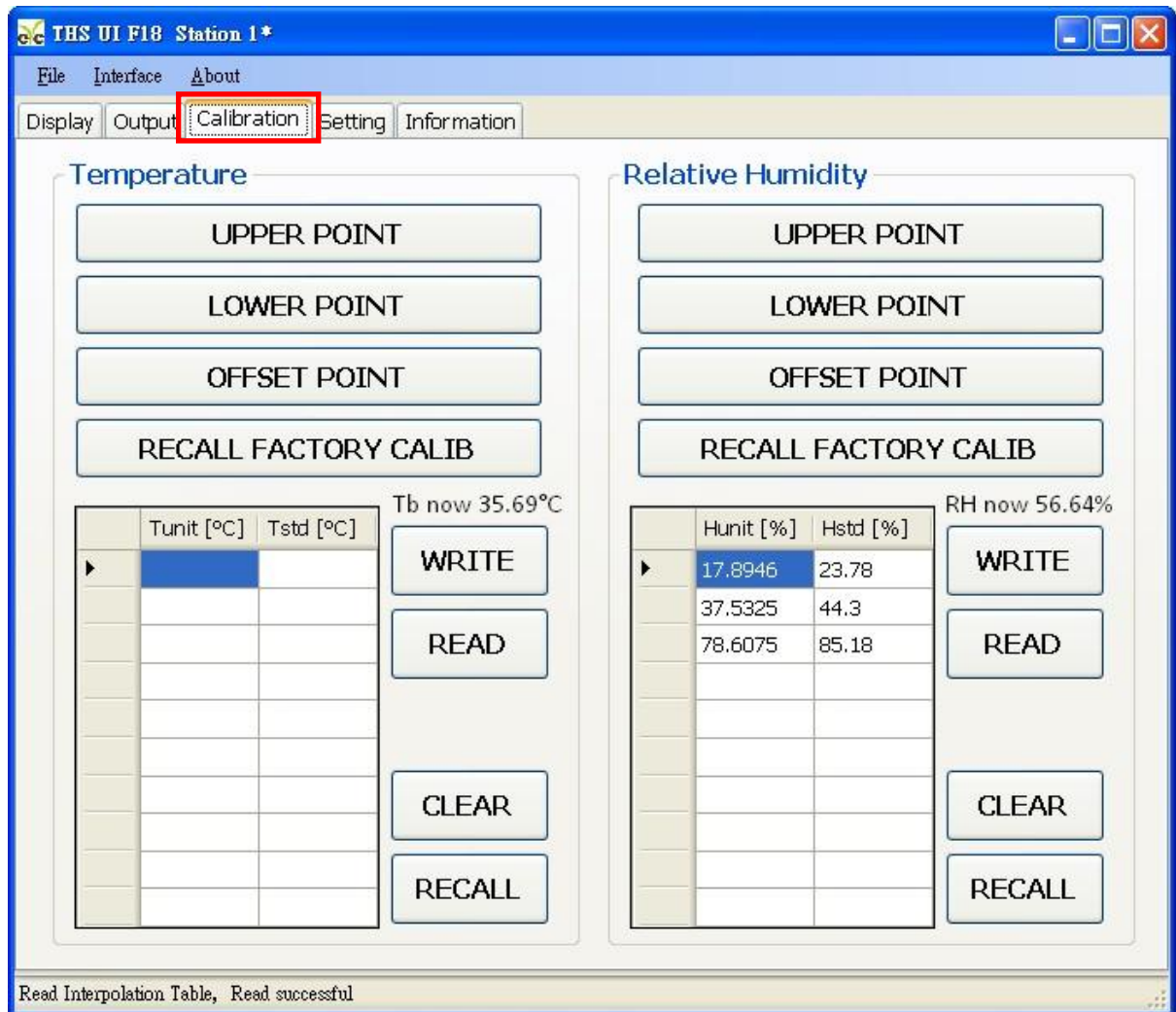


- f. That calibrating lower point temperature is done.

## 5.8 Humidity Calibration with two points

### 1. Calibrate Upper point of humidity

- a. Click “Calibration”



## THM80X Series Industry Degree Temp. & Humidity Transmitter Operation Manual

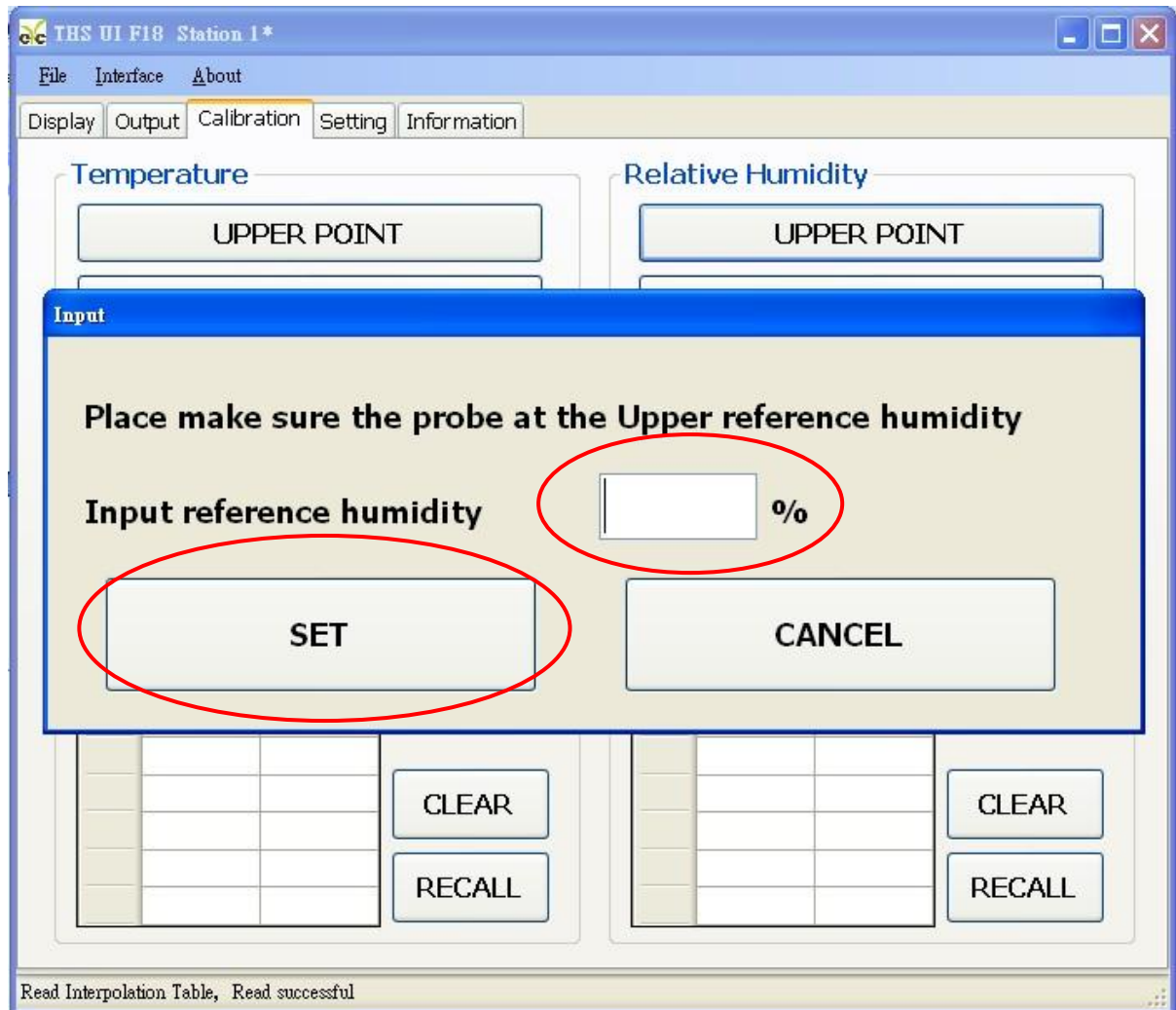
- b. Put the sensor unit of product in the humidity control box, and adjust upper point of humidity (ex: RH 80%)
- c. Wait the humidity of control box is becoming stable.
- d. Click Relative Humidity > UPPER POINT

The screenshot shows the THS UI F18 Station 1\* software interface. The 'Calibration' tab is active, and the 'Relative Humidity' section is highlighted with a red box. The 'UPPER POINT' button is selected. The 'Temperature' section shows 'Tb now 35.69°C' and a table with columns 'Tunit [°C]' and 'Tstd [°C]'. The 'Relative Humidity' section shows 'RH now 56.64%' and a table with columns 'Hunit [%]' and 'Hstd [%]'. Both sections have 'WRITE', 'READ', 'CLEAR', and 'RECALL' buttons. A status bar at the bottom indicates 'Read Interpolation Table, Read successful'.

Tunit [°C]	Tstd [°C]

Hunit [%]	Hstd [%]
17.8946	23.78
37.5325	44.3
78.6075	85.18

- e. Input reference humidity, then click " SET"



- f. That calibrating upper point humidity is done.

# THM80X Series Industry Degree Temp. & Humidity Transmitter Operation Manual

## 2. Calibrate humidity lower point

- Put the sensor unit of product in the humidity control box, and adjust lower point of humidity (ex: RH 20%)
- Wait the humidity of control box is becoming stable.
- Click Relative Humidity > LOWER POINT

THS UI F18 Station 1\*

File Interface About

Display Output Calibration Setting Information

### Temperature

UPPER POINT

LOWER POINT

OFFSET POINT

RECALL FACTORY CALIB

	Tunit [°C]	Tstd [°C]
▶		

Tb now 35.69°C

WRITE

READ

CLEAR

RECALL

### Relative Humidity

UPPER POINT

LOWER POINT

OFFSET POINT

RECALL FACTORY CALIB

	Hunit [%]	Hstd [%]
▶	17.8946	23.78
	37.5325	44.3
	78.6075	85.18

RH now 56.64%

WRITE

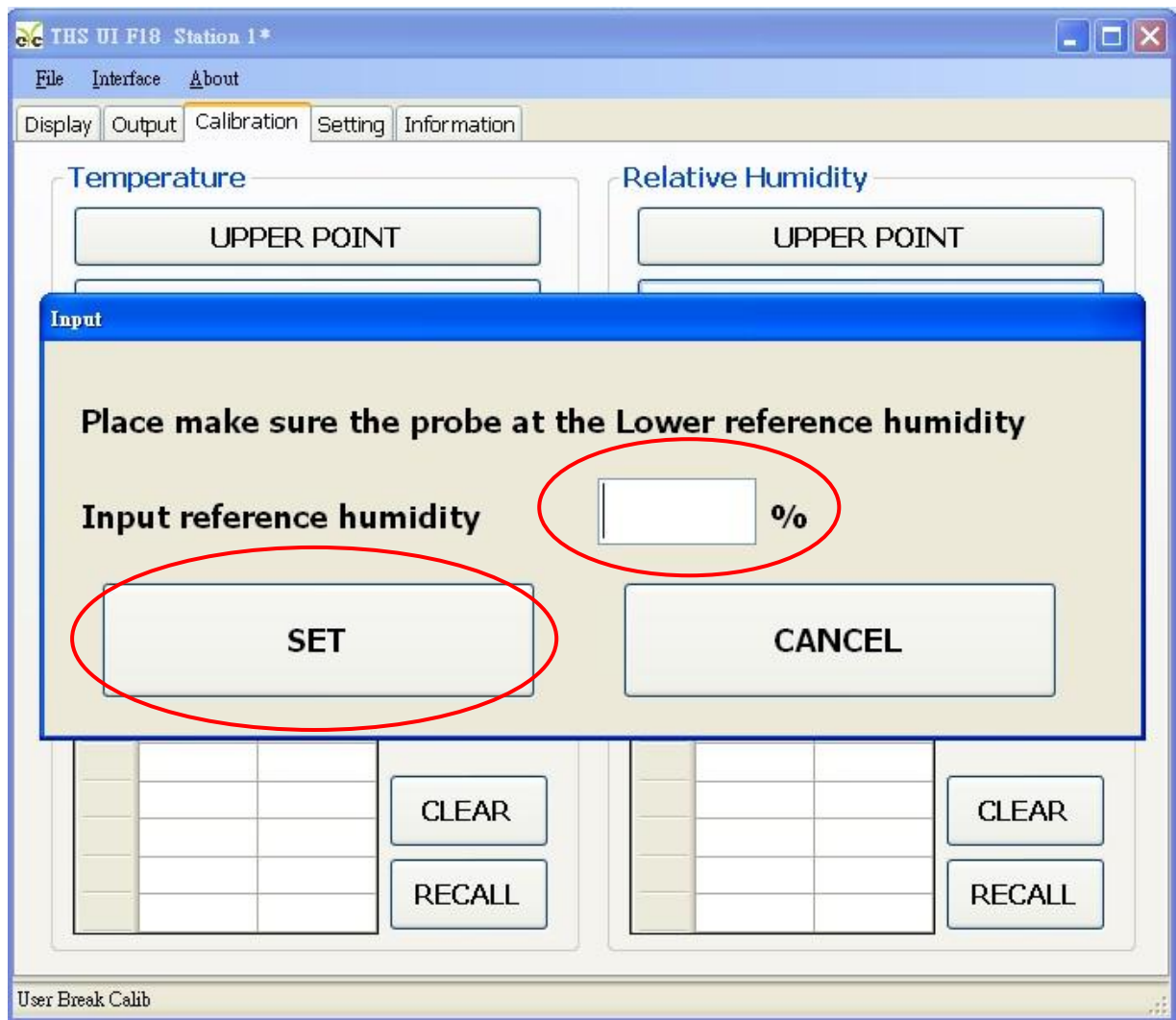
READ

CLEAR

RECALL

Read Interpolation Table, Read successful

- d. Input reference humidity, then click "SET"



- e. That calibrating lower point humidity is done.



## 5.9 Temperature Calibration with signal points

1. Click “Calibration”

**THS UI F18 Station 1\***

File Interface **Calibration** Setting Information

**Temperature**

UPPER POINT

LOWER POINT

OFFSET POINT

RECALL FACTORY CALIB

Tb now 35.69°C

Tunit [°C]	Tstd [°C]
17.8946	23.78
37.5325	44.3
78.6075	85.18

WRITE

READ

CLEAR

RECALL

**Relative Humidity**

UPPER POINT

LOWER POINT

OFFSET POINT

RECALL FACTORY CALIB

RH now 56.64%

Hunit [%]	Hstd [%]
17.8946	23.78
37.5325	44.3
78.6075	85.18

WRITE

READ

CLEAR

RECALL

Read Interpolation Table, Read successful

## THM80X Series Industry Degree Temp. & Humidity Transmitter Operation Manual

2. Put the sensor unit of product in the temperature control box, and adjust the temperature point which you want to calibrate (ex: 50°C)
3. Wait the temperature of control box is becoming stable.
4. Click Temperature > OFFSET POINT

**THS UI F18 Station 1\***

File Interface **Calibration** Setting Information

**Temperature**

UPPER POINT

LOWER POINT

**OFFSET POINT**

RECALL FACTORY CALIB

Tb now 35.69°C

Tunit [°C]	Tstd [°C]
▶	

WRITE

READ

CLEAR

RECALL

**Relative Humidity**

UPPER POINT

LOWER POINT

OFFSET POINT

RECALL FACTORY CALIB

RH now 56.64%

Hunit [%]	Hstd [%]
▶	
17.8946	23.78
37.5325	44.3
78.6075	85.18

WRITE

READ

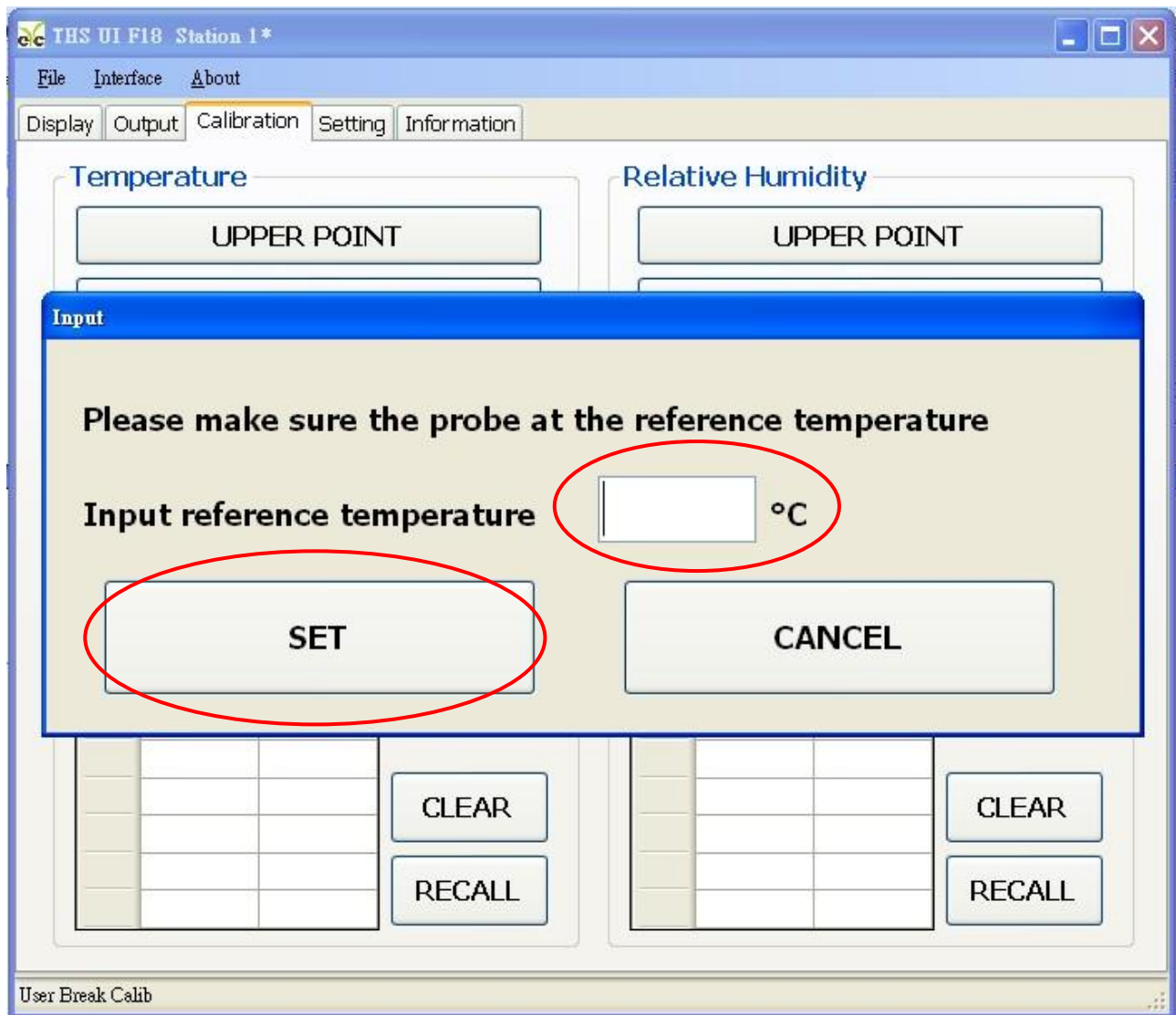
CLEAR

RECALL

Read Interpolation Table, Read successful



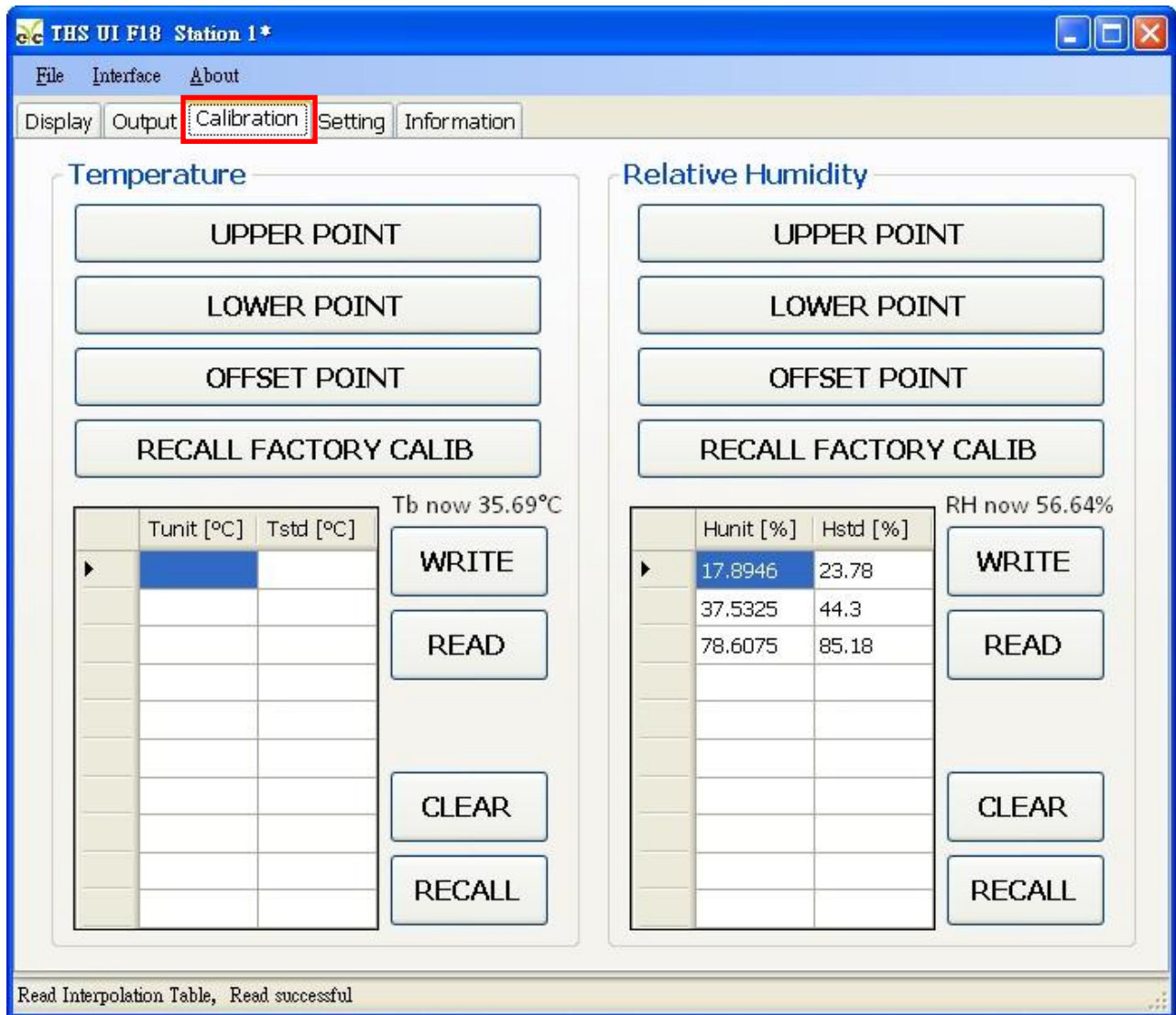
5. Input reference temperature, then click” SET”



6. That calibrating signal point temperature is done.

## 5.10 Humidity Calibration with signal point

### 1. Click” Calibration”



## THM80X Series Industry Degree Temp. & Humidity Transmitter Operation Manual

2. Put the sensor unit of product in humidity control box, then adjust the humidity point which you want to calibrate (ex: 50%)
3. Wait the humidity of control box is becoming stable.
4. Click Relative Humidity > OFFSET POINT

The screenshot shows the THS UI F18 Station 1\* software interface. The 'Calibration' tab is selected, and the 'Relative Humidity' section is active. The 'OFFSET POINT' button is highlighted with a red rectangle. The interface includes buttons for 'UPPER POINT', 'LOWER POINT', 'OFFSET POINT', and 'RECALL FACTORY CALIB'. Below these are tables for 'Tunit [°C]' and 'Hunit [%]' with corresponding 'Tstd [°C]' and 'Hstd [%]' columns. The 'WRITE', 'READ', 'CLEAR', and 'RECALL' buttons are also present. The status bar at the bottom indicates 'Read Interpolation Table, Read successful'.

**Temperature**

UPPER POINT

LOWER POINT

OFFSET POINT

RECALL FACTORY CALIB

Tb now 35.69°C

Tunit [°C]	Tstd [°C]

WRITE

READ

CLEAR

RECALL

**Relative Humidity**

UPPER POINT

LOWER POINT

OFFSET POINT

RECALL FACTORY CALIB

RH now 56.64%

Hunit [%]	Hstd [%]
17.8946	23.78
37.5325	44.3
78.6075	85.18

WRITE

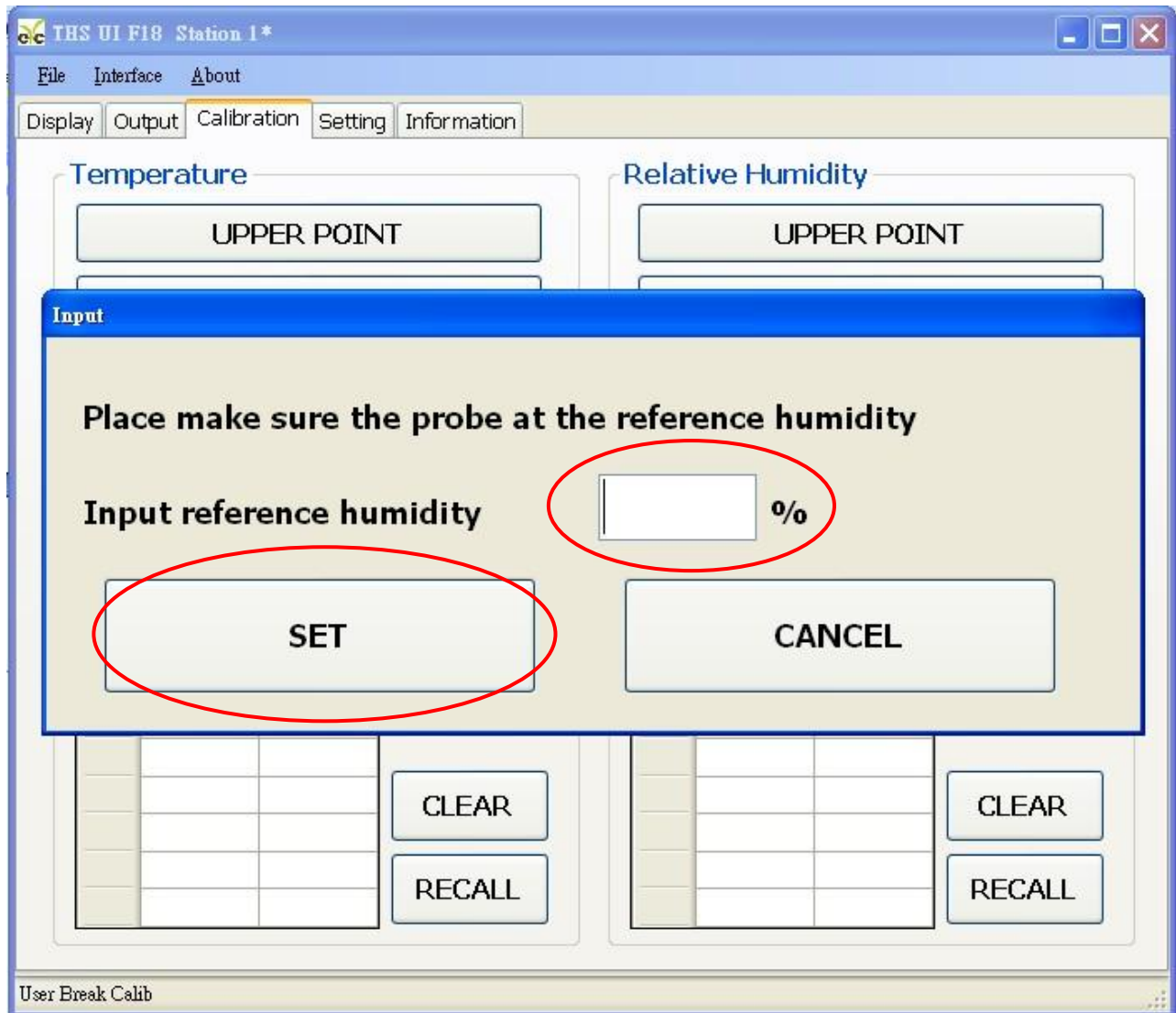
READ

CLEAR

RECALL

Read Interpolation Table, Read successful

5. Input reference humidity, and then click” SET”

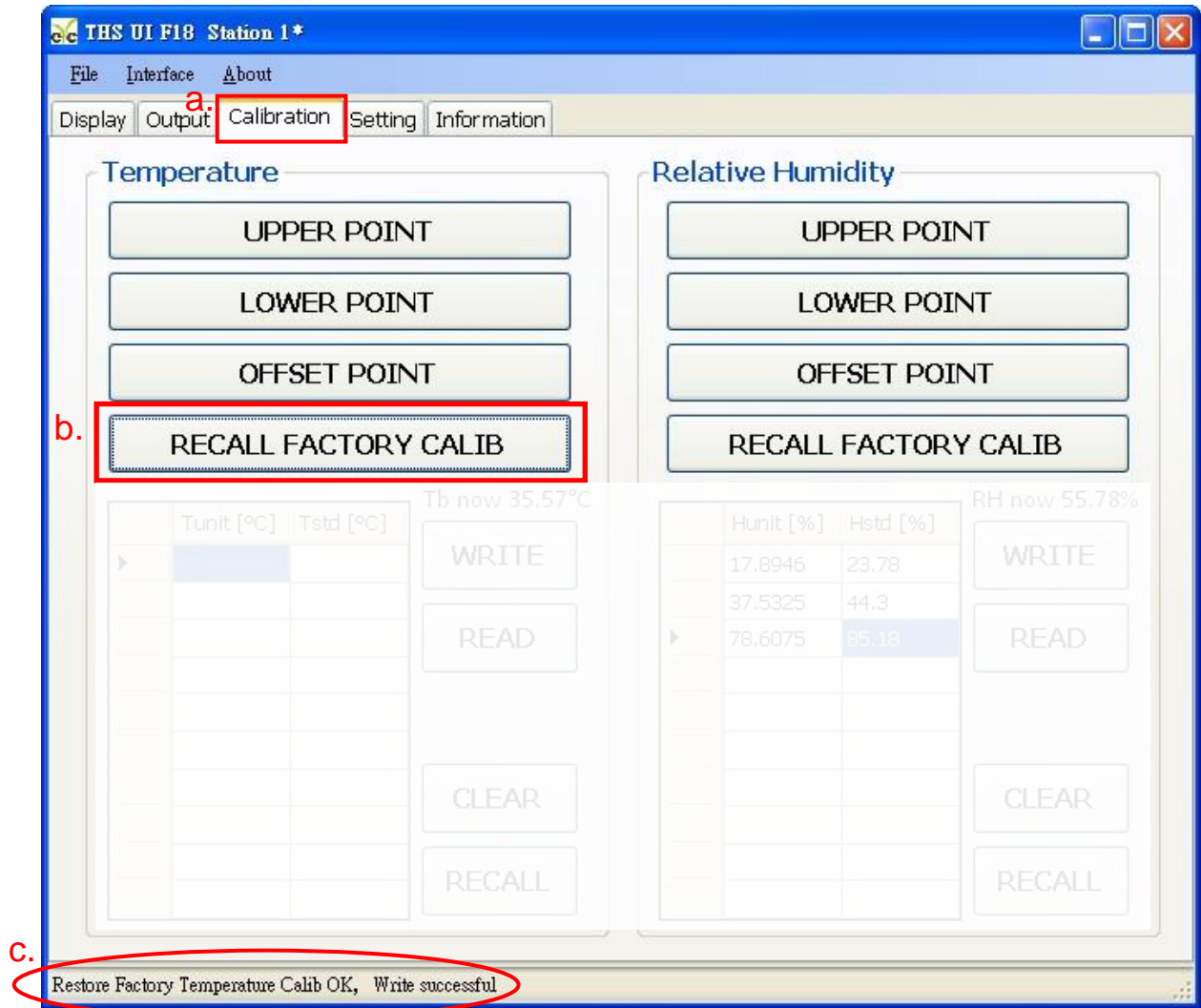


6. That calibrating signal point humidity is done.

## 5.11 Restore factory setting of signal/two point(s)

### 1. Restore factory setting temperature

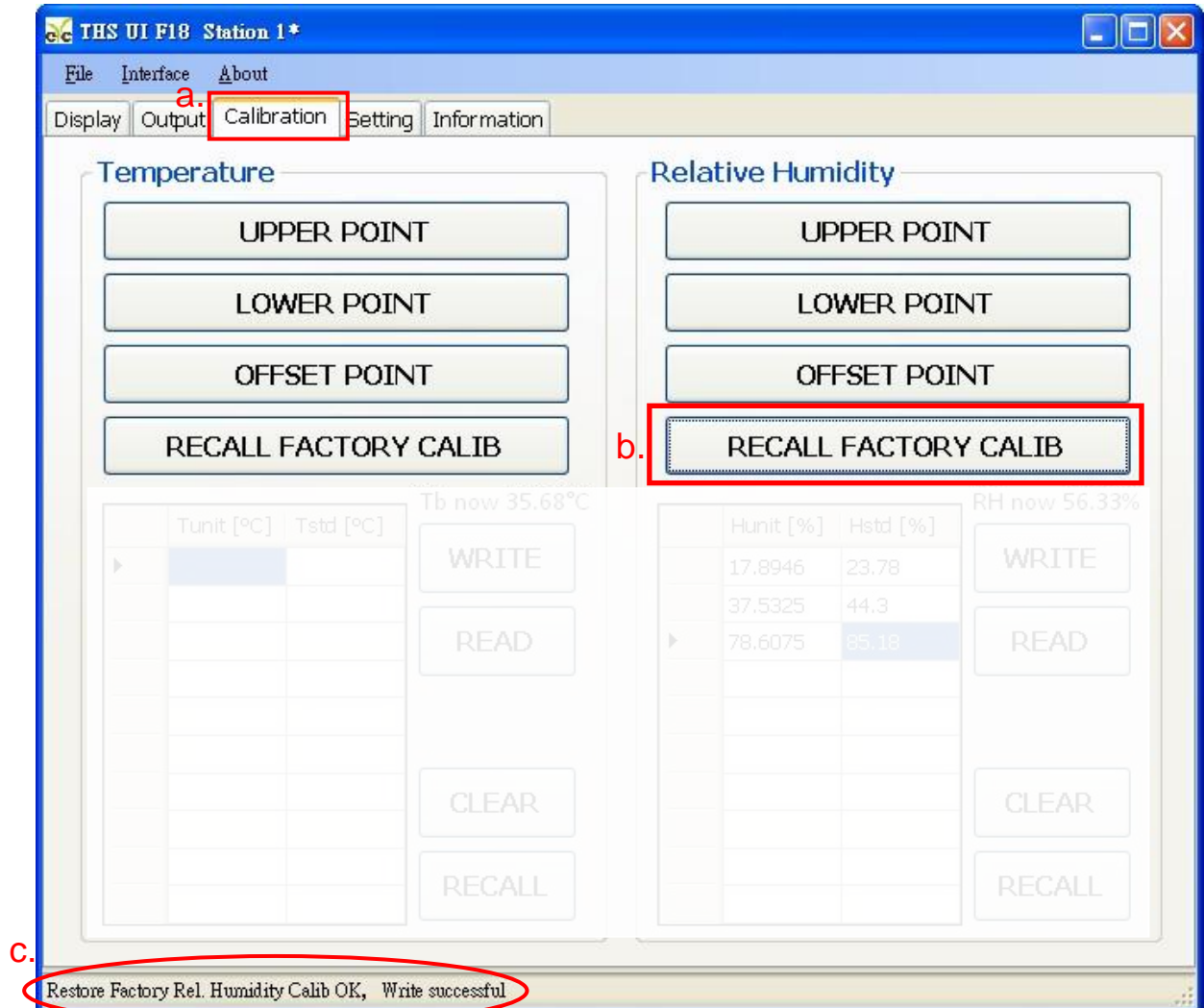
- Click "Calibration"
- Click temperature > RECALL FACTORY CALIB
- Show "Restore Factory Temperature Calib OK, Write successful"



- That restore temperature of factory setting is done.

## 2. Restore humidity of factory setting

- a. Click "Calibration"
- b. Click Relative Humidity > RECALL FACTORY CALIB
- c. Show "Restore Factory Rel. Humidity Calib OK, Write successful"



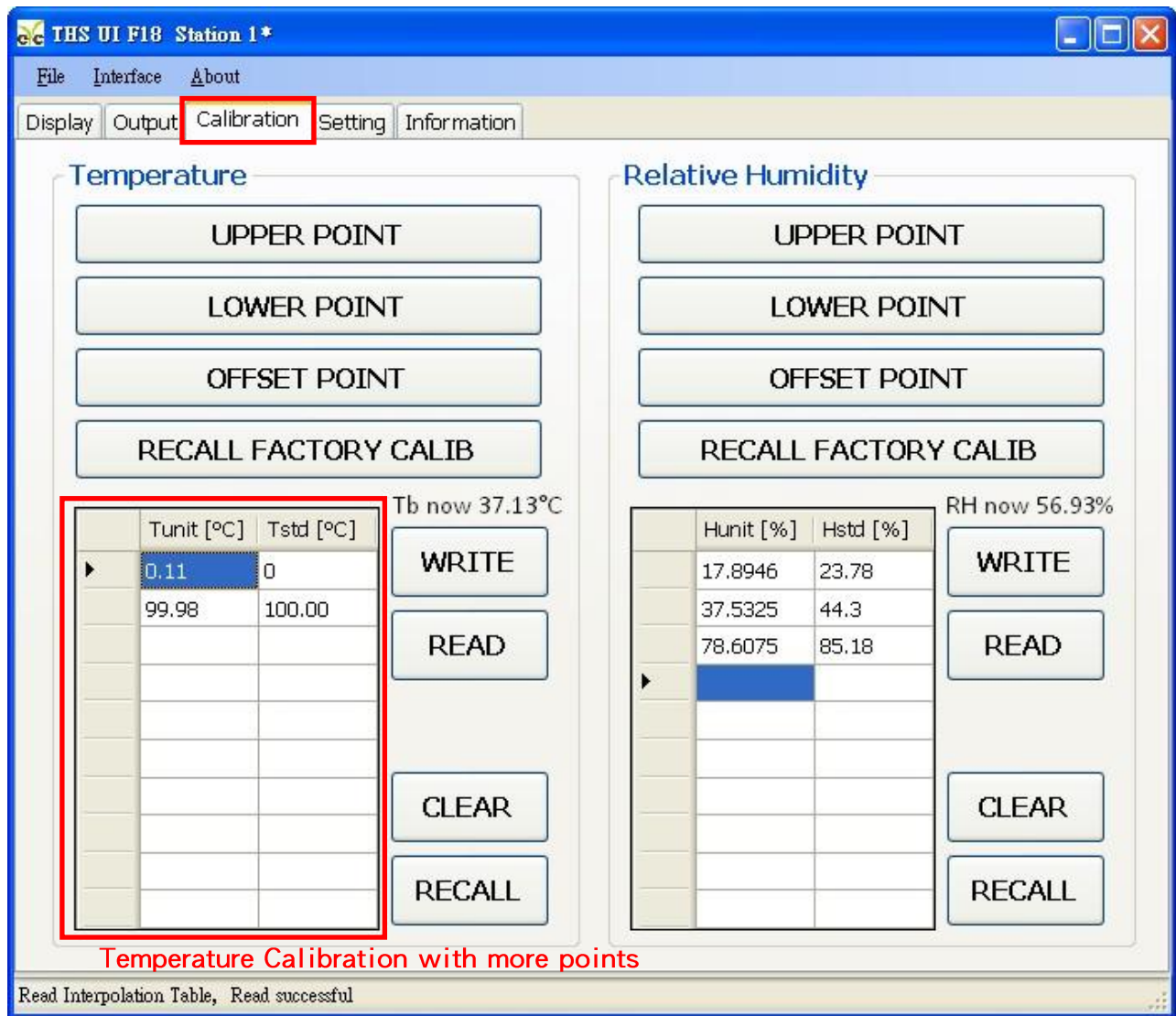
- d. That restore humidity of factory setting is done.



## 5.12 Temperature Calibration with more points

※ Because of that the product has high accuracy and using this calibration way can influence linear accuracy, we do not suggest to use this calibration way.

1. click “Calibration”



Statement : The existing value is record of more points of calibrating which was executed by factory when operators log in Calibration page at the first time.



## THM80X Series Industry Degree Temp. & Humidity Transmitter Operation Manual

2. Put the sensor unit of product in the environment of temperature which you want to calibrate
3. Wait the environment of temperature is becoming stable
4. Retain the factory setting :
  - a. Input the value which you want to calibrate in the Temperature area (ex: 25°C)
    - a-1. Tunit[°C] Value which product shows
    - a-2. Tstd[°C] Standard calibration value
  - ※1 : Please enter calibration points in the blank, 10 points maximal.
  - ※2 : The interval between two points should be 10°C above.
  - ※3 : Execute step 6 when you want to repeat the calibration points and factory setting points or the temperature is less than 10°C.

**THS UI F18 Station 1\***

File Interface About

Display Output Calibration Setting Information

**Temperature**

UPPER POINT

LOWER POINT

OFFSET POINT

RECALL FACTORY CALIB

a. 

	Tunit [°C]	Tstd [°C]
	0.11	0
	99.98	100.00
▶	55.6	55.1

Tb now 37.14°C

b. **WRITE**

READ

CLEAR

RECALL

**Relative Humidity**

UPPER POINT

LOWER POINT

OFFSET POINT

RECALL FACTORY CALIB

	Hunit [%]	Hstd [%]
	17.8946	23.78
	37.5325	44.3
	78.6075	85.18
▶		

RH now 55.94%

**WRITE**

READ

CLEAR

RECALL

Read Interpolation Table, Read successful

- b. click Temperature > WRITE

## THM80X Series Industry Degree Temp. & Humidity Transmitter Operation Manual

### 5. Delete factory setting :

- click Temperature > CLEAR (clear data)
- Click Temperature > WRITE (clear factory setting)

**THS UI F18 Station 1\***

File Interface About

Display Output Calibration Setting Information

**Temperature**

UPPER POINT

LOWER POINT

OFFSET POINT

RECALL FACTORY CALIB

Tb now 37.05°C

	Tunit [°C]	Tstd [°C]
▶		

**WRITE** b.

READ

**CLEAR** a.

RECALL

**Relative Humidity**

UPPER POINT

LOWER POINT

OFFSET POINT

RECALL FACTORY CALIB

RH now 55.80%

	Hunit [%]	Hstd [%]
	17.8946	23.78
	37.5325	44.3
▶	78.6075	85.18

**WRITE**

READ

CLEAR

RECALL

Read Interpolation Table, Read successful

# THM80X Series Industry Degree Temp. & Humidity Transmitter Operation Manual

c. Input the value which you want to calibrate

c-1. Tunit[°C] : Value which product shows

c-2. Tstd[°C] : Standard value of calibration

※1 : Please enter calibration points in the blank, 10 points maximal.

※2 : The interval between two points should be 10°C above.

**Temperature**

UPPER POINT

LOWER POINT

OFFSET POINT

RECALL FACTORY CALIB

Tb now 36.71°C

Tunit [°C]	Tstd [°C]
20.3	20.9
9.5	9.8
35.0	35.5
68.2	67.9

**WRITE**

**READ**

**CLEAR**

**RECALL**

**Relative Humidity**

UPPER POINT

LOWER POINT

OFFSET POINT

RECALL FACTORY CALIB

RH now 57.54%

Hunit [%]	Hstd [%]
17.8946	23.78
37.5325	44.3
78.6075	85.18

**WRITE**

**READ**

**CLEAR**

**RECALL**

Read Interpolation Table, Read successful

d. click Temperature > WRITE

# THM80X Series Industry Degree Temp. & Humidity Transmitter Operation Manual

## 6. Retain the part of factory setting :

- Click left keyboard twice on the mouse on the factory setting which you want to delete
- Click delete icon of Keyboard or right keyboard of mouse to clear data
- Click Temperature > WRITE (clear factory setting)

**THS UI F18 Station 1\***

File Interface About

Display Output Calibration Setting Information

**Temperature**

UPPER POINT

LOWER POINT

OFFSET POINT

RECALL FACTORY CALIB

Tb now 37.25°C

	Tunit [°C]	Tstd [°C]
a.	0.11	0
b.		

**WRITE** **READ** **CLEAR** **RECALL**

**Relative Humidity**

UPPER POINT

LOWER POINT

OFFSET POINT

RECALL FACTORY CALIB

RH now 53.89%

	Hunit [%]	Hstd [%]
	17.8946	23.78
	37.5325	44.3
	78.6075	85.18

**WRITE** **READ** **CLEAR** **RECALL**

Read Interpolation Table, Read successful

# THM80X Series Industry Degree Temp. & Humidity Transmitter Operation Manual

- d. Input the value which you want to calibrate  
d-1. Tunit[%] : Value which product shows  
d-2. Tstd[%] : Standard value of calibration

The screenshot shows the 'THS UI F18 Station 1\*' software window with the 'Calibration' tab selected. The interface is divided into two main sections: 'Temperature' and 'Relative Humidity'. Each section has buttons for 'UPPER POINT', 'LOWER POINT', 'OFFSET POINT', and 'RECALL FACTORY CALIB'. Below these buttons are tables for inputting calibration data. In the 'Temperature' section, the 'Tb now' is 36.19°C. The table has columns 'Tunit [°C]' and 'Tstd [°C]'. The second row is highlighted with a red box, showing '92.5' and '93.3'. A red arrow points to this row, labeled 'd.'. To the right of the table is a 'WRITE' button, also highlighted with a red box and labeled 'e.'. Below the table are 'READ', 'CLEAR', and 'RECALL' buttons. The 'Relative Humidity' section has a similar layout with 'Hunit [%]' and 'Hstd [%]' columns. The 'RH now' is 61.26%. The second row is highlighted with a blue box, showing '37.5325' and '44.3'. At the bottom of the window, a status bar reads 'Read Interpolation Table, Read successful'.

Tunit [°C]	Tstd [°C]
0.11	0
92.5	93.3

Hunit [%]	Hstd [%]
17.8946	23.78
37.5325	44.3
78.6075	85.18

- e. click Temperature > WRITE



## 5.13 Humidity Calibration with more points

1. Click “Calibration”

**THS UI F18 Station 1\***

File Interface **Calibration** Setting Information

**Temperature**

UPPER POINT

LOWER POINT

OFFSET POINT

RECALL FACTORY CALIB

Tb now 37.13°C

	Tunit [°C]	Tstd [°C]
▶	0.11	0
	99.98	100.00

WRITE

READ

CLEAR

RECALL

**Relative Humidity**

UPPER POINT

LOWER POINT

OFFSET POINT

RECALL FACTORY CALIB

RH now 56.93%

	Hunit [%]	Hstd [%]
	17.8946	23.78
	37.5325	44.3
▶	78.6075	85.18

WRITE

READ

CLEAR

RECALL

Humidity Calibration with more points

Read Interpolation Table, Read successful

Statement : The existing value is record of more points of calibrating which was executed by factory when operators log in Calibration page at the first time.

## THM80X Series Industry Degree Temp. & Humidity Transmitter Operation Manual

2. Put the sensor unit of product in the environmental of humidity which you want to calibrate
3. Wait the environmental of humidity is becoming stable
4. Retain the factory setting :
  - a. Input the value which you want to calibrate in the Relative Humidity area
    - a-1. Hunit[%] : Value which product shows
    - a-2. Hstd[%] : Standard value of calibration
      - ※1 : Please enter calibration points in the blank, 10 points maximal.
      - ※2 : The interval between two points should be 10% above.
      - ※3 : Execute step 6 when you want to repeat the calibration points and factory setting points or the humidity is less than 10%.

**THS UI F18 Station 1\***

File Interface About

Display Output Calibration Setting Information

**Temperature**

UPPER POINT

LOWER POINT

OFFSET POINT

RECALL FACTORY CALIB

Tb now 37.15°C

	Tunit [°C]	Tstd [°C]
▶	0.11	0
	99.98	100.00

WRITE

READ

CLEAR

RECALL

**Relative Humidity**

UPPER POINT

LOWER POINT

OFFSET POINT

RECALL FACTORY CALIB

RH now 55.12%

	Hunit [%]	Hstd [%]
	17.8946	23.78
	37.5325	44.3
	78.6075	85.18
▶	62.23	61.77

WRITE

READ

CLEAR

RECALL

Read Interpolation Table, Read successful

b. click Temperature > WRITE



## 5. Delete factory setting :

- click Relative Humidity > CLEAR (clear data)
- Click Relative Humidity > WRITE (clear factory setting)

**THS UI F18 Station 1\***

File Interface **Calibration** Setting Information

**Temperature**

UPPER POINT

LOWER POINT

OFFSET POINT

RECALL FACTORY CALIB

Tb now 37.15°C

	Tunit [°C]	Tstd [°C]
▶	0.11	0
	99.98	100.00

WRITE

READ

CLEAR

RECALL

**Relative Humidity**

UPPER POINT

LOWER POINT

OFFSET POINT

RECALL FACTORY CALIB

RH now 55.17%

	Hunit [%]	Hstd [%]
▶		

WRITE

READ

CLEAR

RECALL

Read Interpolation Table, Read successful

# THM80X Series Industry Degree Temp. & Humidity Transmitter Operation Manual

c. Input the value which you want to calibrate in the Relative Humidity area

c-1. Hunit[%] : Value which product shows

c-2. Hstd[%] : Standard value of calibration

※1 : Please enter calibration points in the blank, 10 points maximal.

※2 : The interval between two points should be 10% above.

**THS UI F18 Station 1\***

File Interface **About**

Display Output **Calibration** Setting Information

**Temperature**

UPPER POINT

LOWER POINT

OFFSET POINT

RECALL FACTORY CALIB

Tb now 37.22°C

	Tunit [°C]	Tstd [°C]
▶	0.11	0
	99.98	100.00

WRITE

READ

CLEAR

RECALL

**Relative Humidity**

UPPER POINT

LOWER POINT

OFFSET POINT

RECALL FACTORY CALIB

CH now 47.81%

	Hunit [%]	Hstd [%]
	29.51	29.8
	65.35	65.00
▶	42.36	42.52

WRITE

READ

CLEAR

RECALL

Read Interpolation Table, Read successful

d. click Relative Humidity > WRITE

# THM80X Series Industry Degree Temp. & Humidity Transmitter Operation Manual

## 6. Retain the part of factory setting :

- Click left keyboard twice on the mouse on the factory setting which you want to delete
- Click delete icon of Keyboard or right keyboard of mouse to clear data
- Click Relative Humidity > WRITE (clear factory setting)

setting)

**Temperature**

UPPER POINT

LOWER POINT

OFFSET POINT

RECALL FACTORY CALIB

Tb now 37.26°C

	Tunit [°C]	Tstd [°C]
▶	0.11	0
	99.98	100.00

WRITE

READ

CLEAR

RECALL

**Relative Humidity**

UPPER POINT

LOWER POINT

OFFSET POINT

RECALL FACTORY CALIB

RH now 54.25%

	Hunit [%]	Hstd [%]
	17.8946	23.78
▶		
	78.6075	85.18

WRITE

READ

CLEAR

RECALL

Read Interpolation Table, Read successful

# THM80X Series Industry Degree Temp. & Humidity Transmitter Operation Manual

d. Input the value which you want to calibrate in the Relative Humidity area

d-1. Hunit[%] : Value which product shows

d-2. Hstd[%] : Standard value of calibration

**THS UI F18 Station 1\***

File Interface **Calibration** Setting Information

**Temperature**

UPPER POINT  
LOWER POINT  
OFFSET POINT  
RECALL FACTORY CALIB

Tb now 34.38°C

	Tunit [°C]	Tstd [°C]
▶		

WRITE  
READ  
CLEAR  
RECALL

**Relative Humidity**

UPPER POINT  
LOWER POINT  
OFFSET POINT  
RECALL FACTORY CALIB

RH now 63.52%

	Hunit [%]	Hstd [%]
	17.8946	23.78
▶	35.665	35.2
	78.6075	85.18

WRITE  
READ  
CLEAR  
RECALL

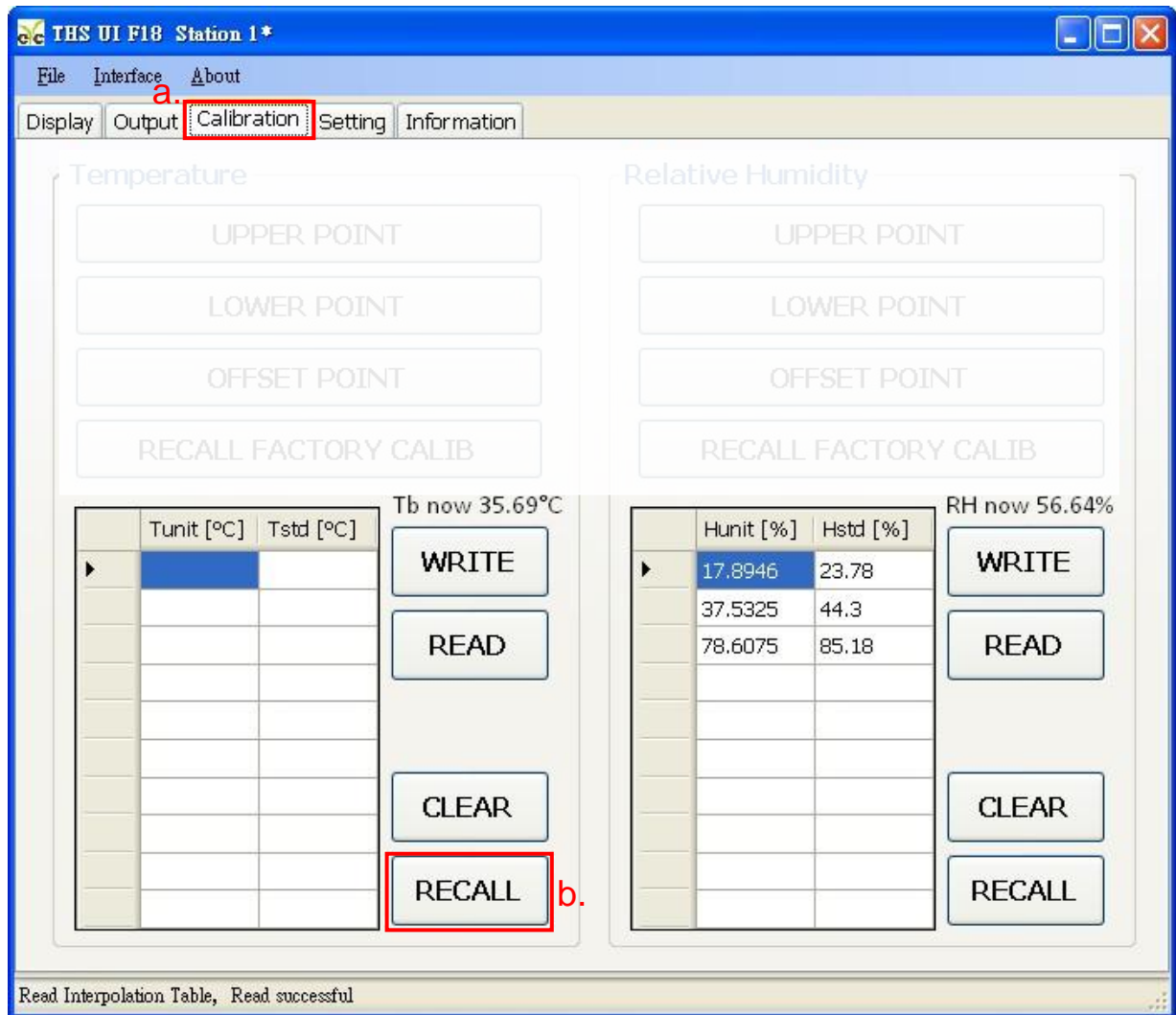
Read Interpolation Table, Read successful

e. Click Relative Humidity > WRITE

## 5.14 Restore factory setting of more points

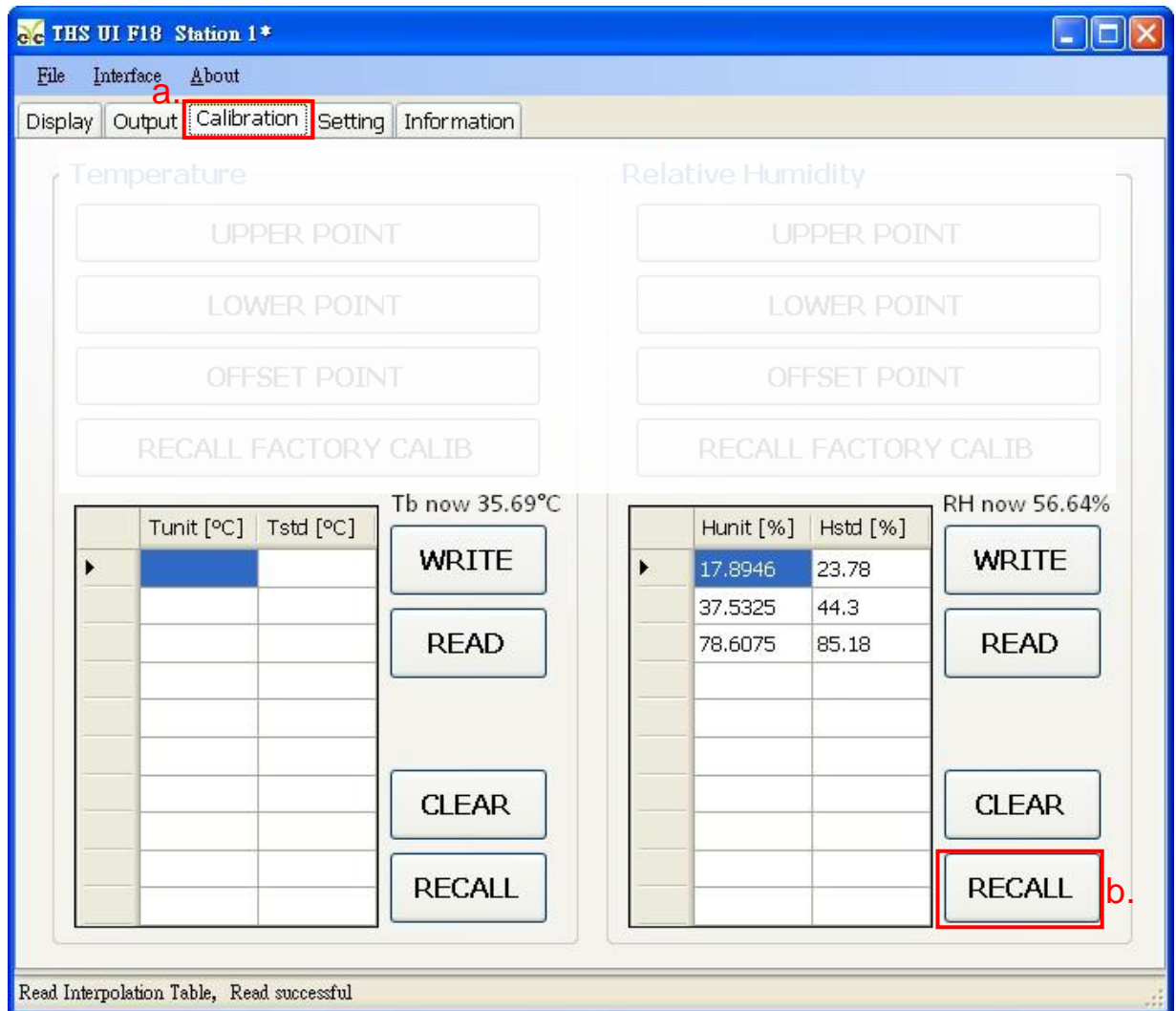
### 1. Recall temperature of factory setting

- a. Click "Calibration"
- b. Click Temperature > RECALL



- d. That restore more points temperature of factory setting is done.

2. Recall the factory setting of more points of humidity
  - a. Click “Calibration”
  - b. Click “Relative Humidity > RECALL



- e. That restore humidity of factory setting is done.



## 6. Inspection and maintenance

### 1. Maintenance

Since this product is inspected and calibrated for high accuracy at the factory before shipment, no calibration on the installation site is necessary when this product is installed. For inspection and maintenance follow the instructions below :

#### 1) Periodic inspection

Periodically inspect this product for its sensing accuracy, and clean the cover.

Set the period between inspections based on atmospheric dust and other contaminants in the installation environment.

#### 2) Sensor maintenance

Do not damage sensor surface during maintenance process.

#### 3) Troubleshooting

If any problem occurs during operation, refer to the table below for appropriate solutions.

### 2. Troubleshooting :

Problem	Cleck items	Solutions
<ul style="list-style-type: none"> <li>●No output</li> <li>●Unstable output</li> </ul>	<ul style="list-style-type: none"> <li>●Disconnected wiring</li> <li>●Loose wiring</li> <li>●Power supply voltage</li> <li>●Sensor damages</li> </ul>	<ul style="list-style-type: none"> <li>●Re-perform wiring</li> <li>●crew on terminal tightly or replace wires</li> <li>●Replace the sensor</li> </ul>
<ul style="list-style-type: none"> <li>●Slow response to output</li> <li>●Error in output</li> </ul>	<ul style="list-style-type: none"> <li>●Moisture/ condensation on the product</li> <li>●Check installed location</li> <li>●Check dust and contamination on the sensor</li> </ul>	<ul style="list-style-type: none"> <li>●Remove the sensor and filter. Dry power-off state sensor in clean air seasoning</li> <li>●Refer to the section</li> <li>●Cleaning the filter</li> <li>●Changing the filter</li> <li>●Calibrate</li> <li>●Replace the sensor</li> </ul>