



## eyc-tech THR23 CO2 Temperature and Humidity Transmitter Instruction Manual

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## Safety Precautions

- Before using this product, the user must to read the details of this user's manual, then use this product with correct steps.
- This user's manual is for reference while using / Setting this product, and required to conserve properly.
- This product is improperly to use in explosion-proof area, do not use this product in dangerous situation where human health & life may be threaten & affected.
- If the user installs this product in special environments as Dust-Free Room, Breed Environment for Animals, etc., please initiate a specialized product consultation to our professional sales of our company.
- If the improper & dangerous results which result from improper operator or improper environment, our company will not bear any legal responsibility.

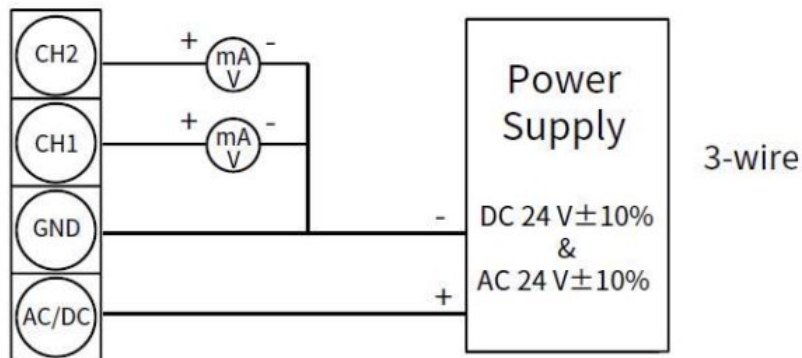
## Warning

- Please ensure the outlook / outbox do not have any damage which result from improper transportation, or malfunction which results from lost attachments.
- In order to prevent the GM from damages. This product must be used in the proper environment which specified in this user's manual.
- Please implement the wiring operation under power-off status; otherwise, it will cause electric shock, or become the root cause of machinery breakdown.
- For prevent equipment damage, disconnect the power supply from the product before performing any wiring and installation.
- This product must be operated under ruled power supplying value, and be operated under the ruled normal operation conditions which described in the user's manual ; otherwise, it may cause the disasters as fire accident or be the root cause of machinery breakdown.
- This product must be operated under the operating conditions specified in manual to prevent equipment damage.
- Installation and wiring must be performed by qualified personnel in accordance with all applicable safety standards, according to applicable safety standards all wiring must comply with local codes of indoor wiring and electric installation rules.
- All wiring must comply with the rule for indoor wiring and electrical installation rules. The screw must be tight for upper cover & lower base.
- In order to prevent the interferences from frequency converter, etc., and avoid error signal to result in the

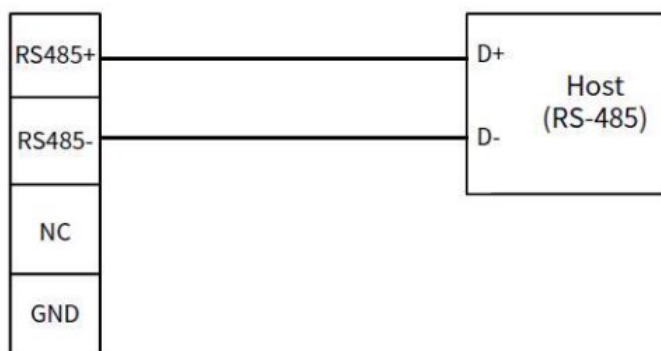
product damage, please use the isolated conducting wire.

- 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.
- While discard this product, the user must to comply with the related rules for industrial domestic wastes for different country / location.

## Connection Diagram

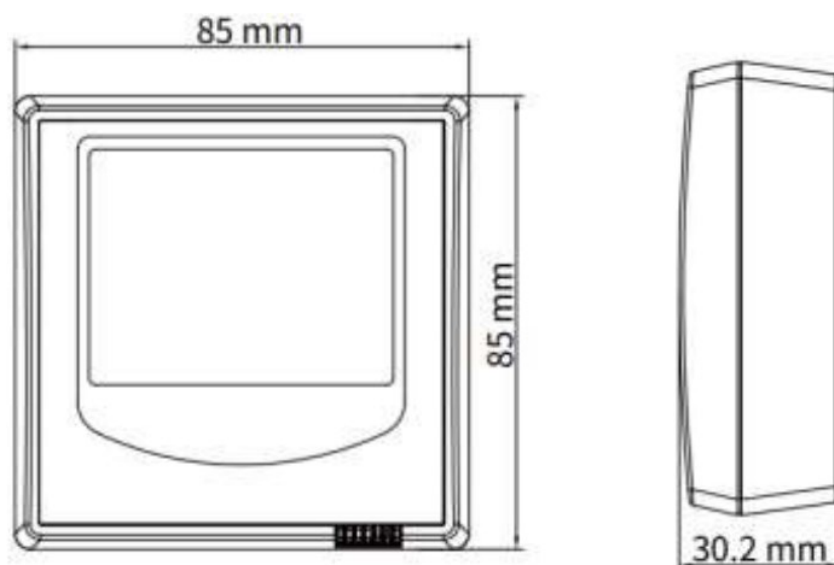


4P connection      Analog Output



4P connection      RS-485

## Dimension



## RS-485 and Modbus

THGO3, THR23, GS23 integrate a RS-485 interface for digital communication as an option feature. Based on Modbus protocol makes the general convenience on PLC, HMI and PC connection. For Modbus protocol information please download the file from website. Besides the PLC, HMI application, the user software provide the device setting and data logging function, it also can free download from website.

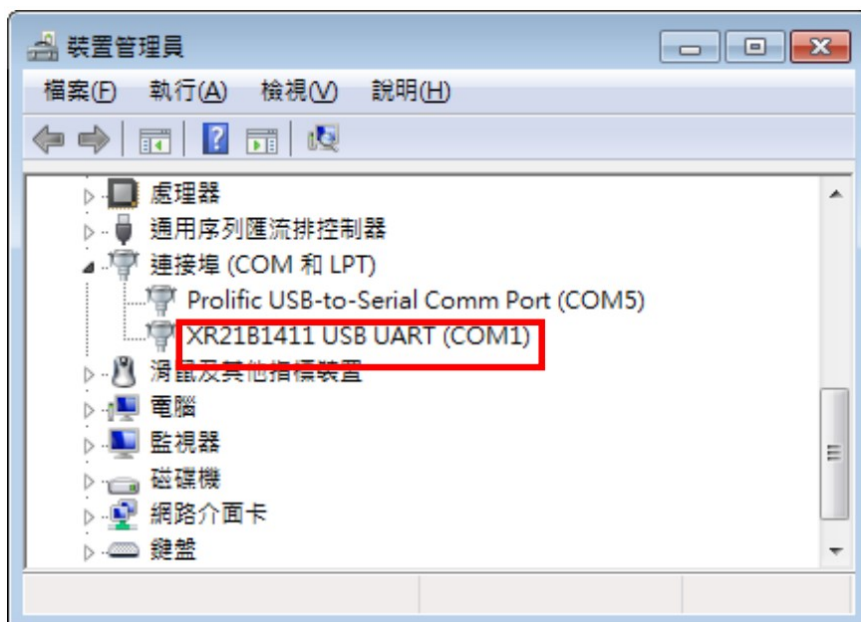
### Technical Data :

1. Max. network size : 32 transmitters
2. Communication : with COM-Port (serial interface) of PC
3. Max. network expansion : 1200m (3937ft) total length at 9600 baud
4. Transmission rate : 9600, 19200, 38400, 57600, 115200 Baud
5. Parity : None, Even, Odd
6. Data length : 8bit
7. Stopbit : 1or2 bit
8. Factory default Station address 1, Data format 9600, N81

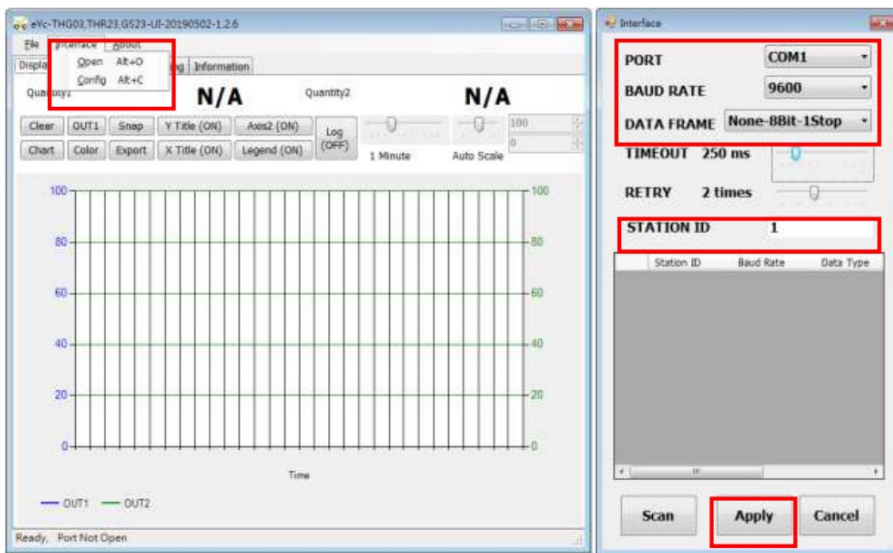
### Configuration

Download the software from eyc-tech official website, decompress it and execute it. Planning software operating system requirements: Windows XP SP2 or above.

1. Hardware connection: Connect the THG03 / THR23 / GS23 to PC through USB to RS-485 or RS 232 to RS-485 converter
2. Check the COM port number from Device Manager in Computer Management. e.g. COM1 in illustration



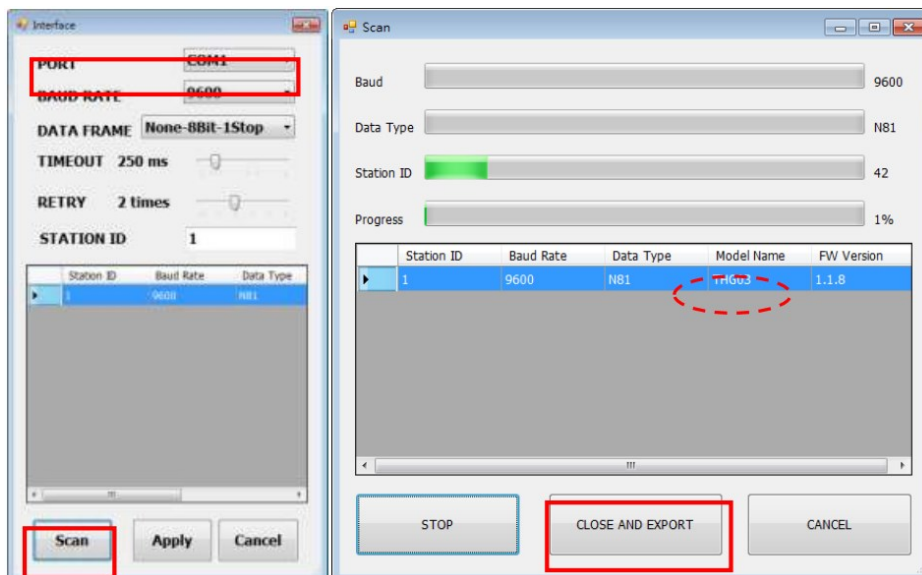
3. Open the UI, go to function "Interface" , clickitem " Config" and then setting COM port, BAUD rate, data format and Station ID, pressed " Apply" for connection



#### 4. Scan RS-485 connection

Open the U, go to function "Interface" , click item " Config" and then setting COM port, pressed " Scan" bottom for scan devices and pressed " Close and Export " when the interested devices found.

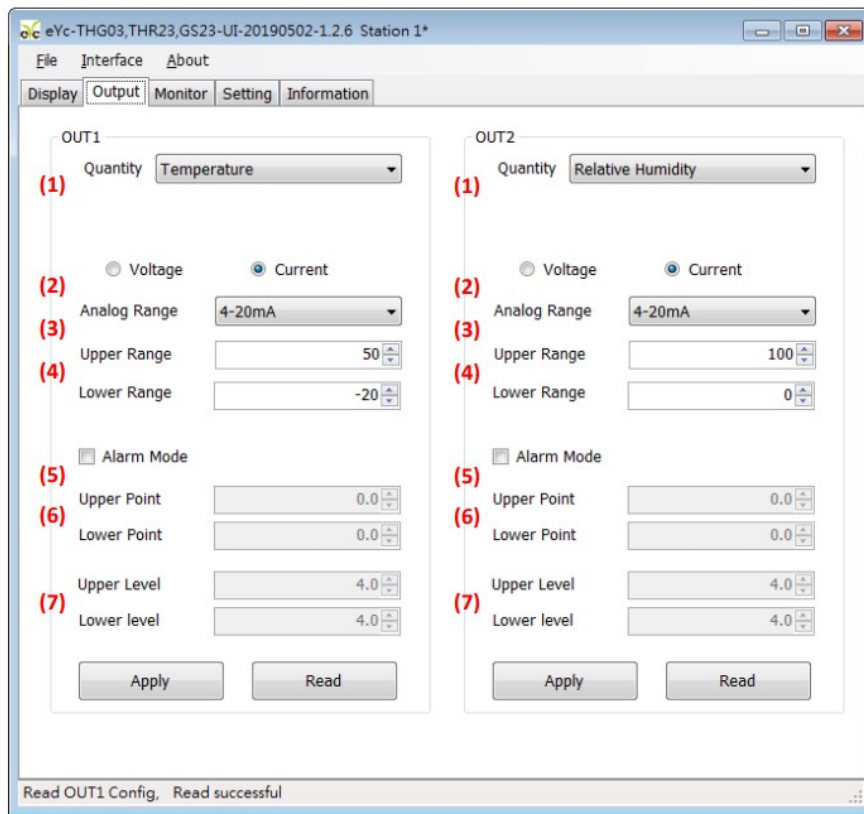
Pick up the device that you want to connect to and then press "Apply" to go.



#### 5. Setting on Analog Output

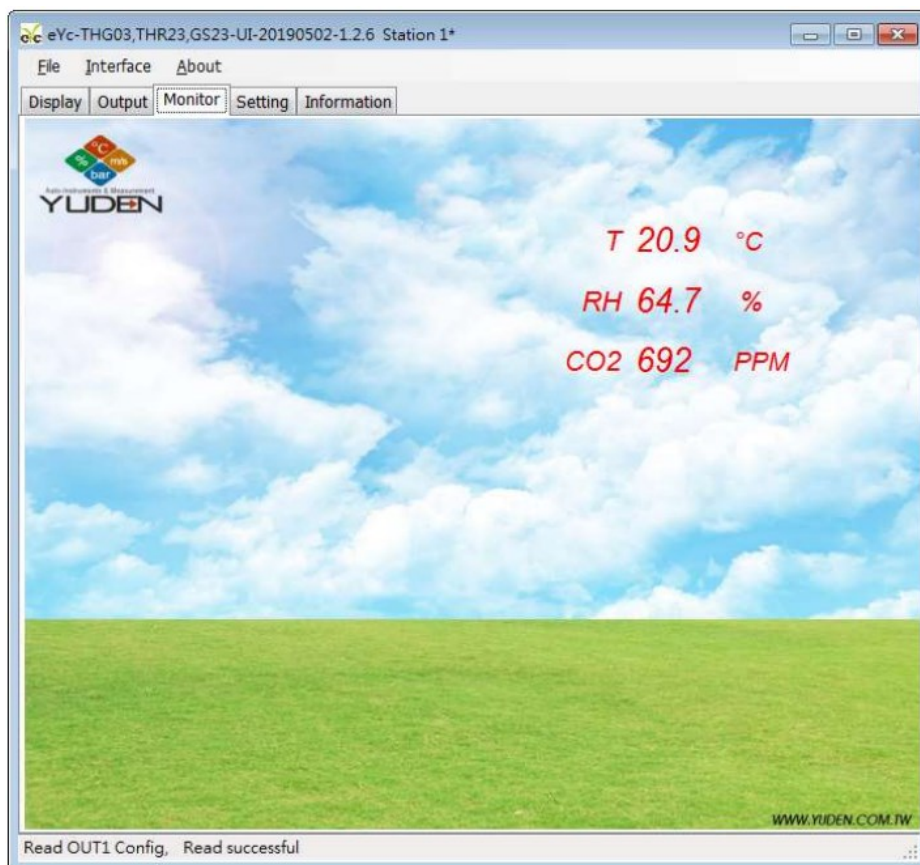
In the group of OUT1(OUT2), Output tab. Both output1 and output2 related setting could be found

1. Quantity : Temperature, Relative Humidity, Carbon Dioxide (CO3)
2. Analog type : Voltage or Current
3. Analog Range : 0...20 mA /4 ... 20 mA (if output current) / 0 ... 10 V (if output voltage)
4. Range for Upper and Lower
5. Alarm Mode: Check the box if analog output pretends an alarm switch output
6. Alarm Trigger Point: Upper and Lower
7. Alarm Output Level: Upper and Lower



## 6. Display Panel

In the Monitor tab. There is a large display of available measurements.



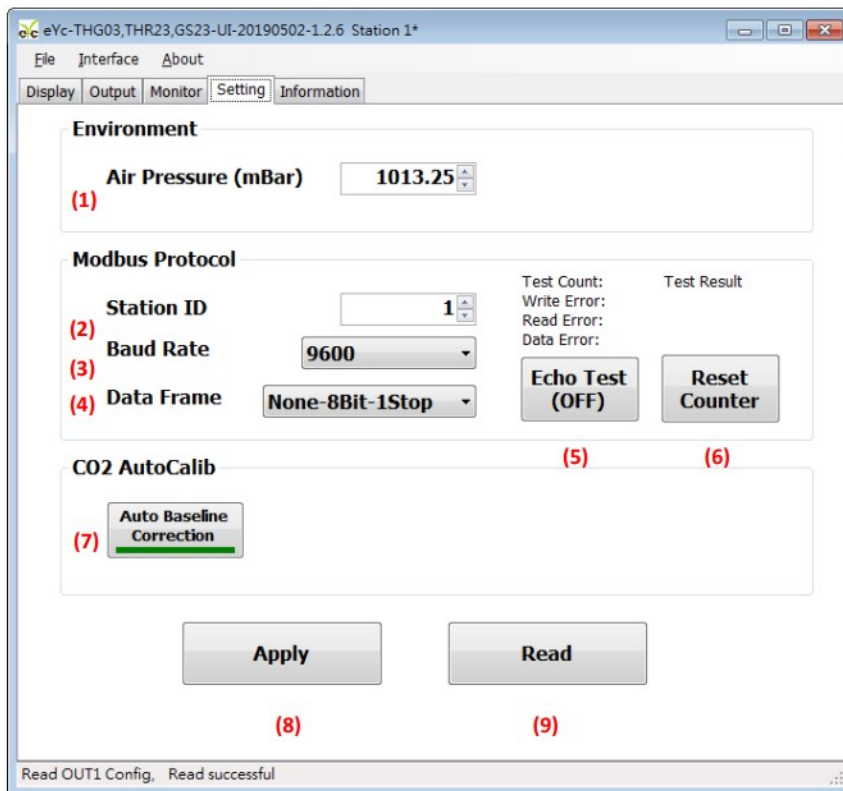
7. Setting on RS-485, Data Transmission Test and environment parameters There are 3 groups in setting tab. The description of each item as below.

% Environment Parameters :

1. Air Pressure Modbus Protocol :
2. station ID
3. Baud Rate

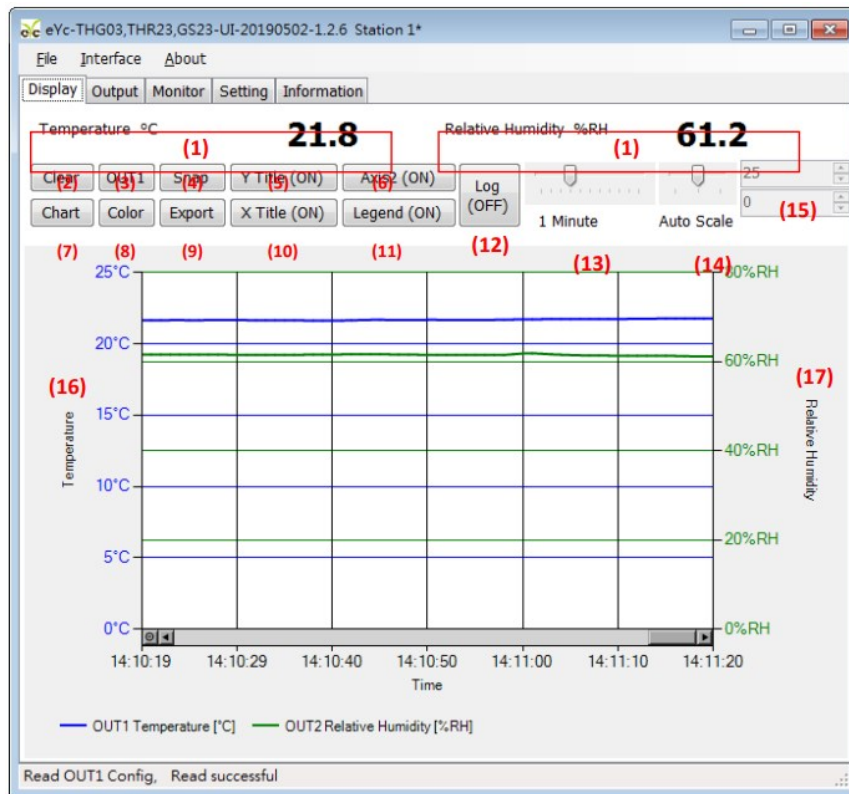


4. Date Frame
5. Modbus Echo Test Enable/Disable
6. Modbus Echo Test Result Reset
7. CO<sub>2</sub> Auto Calibration W/ CO<sub>2</sub> Auto Calibration : Function is enabled if the bar color green, otherwise function is disabled. In the general environment, the CO<sub>2</sub> concentration usually measured as 400ppm. The environments as From Room/ Office with the condition as midnight period & nobody status, the CO<sub>2</sub> concentration usually measured as 400ppm. Thus, eyc-tech use the average statistics values for 7 days to implement Self-Correcting feature. This feature is not adaptive to use in special environment as Factory/ Plant Greenroom where the CO<sub>2</sub> concentration may keep on high value & keep for long period.  
Others
8. Write Setting
9. Read Setting



8. Data display and logging
  1. The measurement of OUT1 and OUT2 will be display here
  2. Clear plot chart
  3. Toggle the selection channel of color function, refer to item (8)
  4. Snap the current plot chart
  5. Display title of vertical axis (ON or OFF toggle in turn once click)
  6. Enable secondary axis (right axis)
  7. Change chart linestyle in turn
  8. Select the color of plot channel
  9. Export the records in plot buffer
  10. Enable horizontal axis
  11. Enable the legend of plot channel
  12. Enable the log function, the data in cvs format with comma delimiter
  13. The scale of horizontal scale

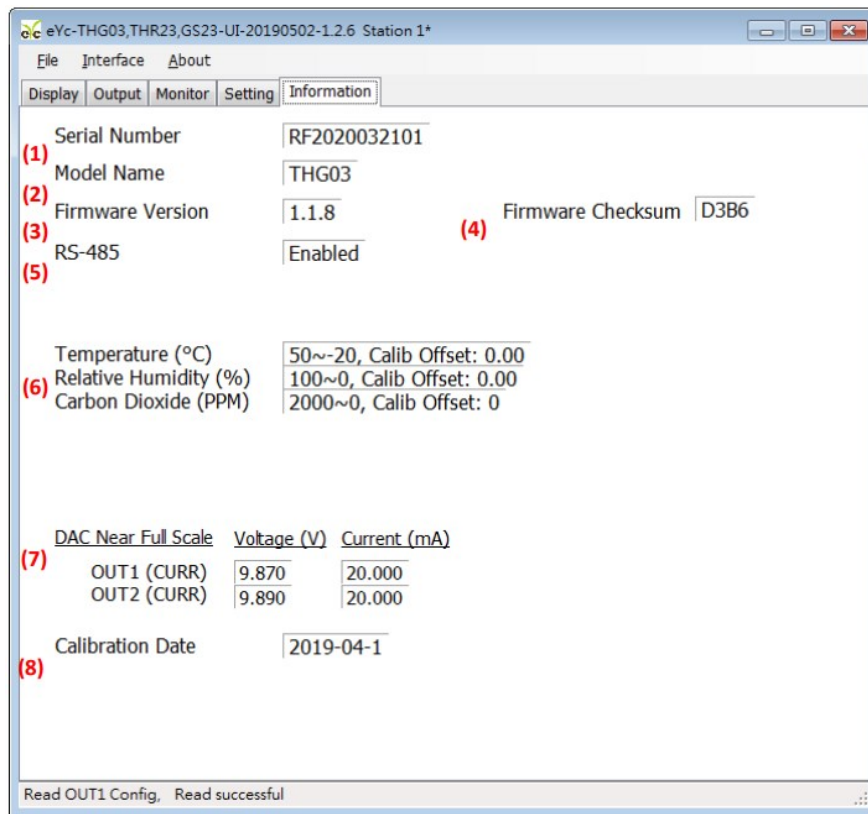
14. Select the scale method of vertical axis
15. Select the range of vertical axis
16. The vertical axis, label of OUT1
17. The vertical axis, label of OUT2



#### 9. Device Information

1. Serial Number
2. Model Name
3. Firmware Version
4. Firmware Checksum
5. The activation of RS-485 function
6. Programming range of measurements and offset values
7. Analog Output Calibration Data
8. Calibration Date





## 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 :

#### (a) 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 CO<sub>2</sub>, Temperature and Humidity Transmitter (Indoor) installation environment.

#### (b) Sensor maintenance

Do not damage sensor surface during maintenance process

#### (c) Troubleshooting



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

### 2. Troubleshooting :

Problem	Cleek items	Soluations
No output ⓂUnstable output	isconnected wiring Ⓜ Loose wiring Ⓜpower supply voltage ⓂSensor damages	Re-perform wiring Ⓜ Crew on terminal tightly or replace wires ⓂReplace the sensor
Slow response to output ⓂError in output	Moisture / Condensation on the product Ⓜ Check installed location Ⓜ Check installed angle Ⓜ Check dust and contamination on the sensor	Remove the sensor and filter dry power-off state sensor in clean air seasoning Ⓜ Refer to the section Ⓜ Cleaning the filter of THGO3 Ⓜ Calibrate Ⓜ Replace the sensor

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Web : [www.eyc-tech.com](http://www.eyc-tech.com)  
e-mail : [info@eyc-tech.com](mailto:info@eyc-tech.com)

## Documents / Resources

 Operation-Manual eyc-THG03, THR23, GS23 CO <sub>2</sub> Temperature & Humidity Transmitter (Indoor) 	<a href="#">eyc-tech THR23 CO2 Temperature and Humidity Transmitter</a> [pdf] Instruction Manual EYC-THG03, THR23, GS23, THR23 CO2 Temperature and Humidity Transmitter, CO2 Temperature and Humidity Transmitter, Temperature and Humidity Transmitter, Humidity Transmitter, Transmitter
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## References

-  [eyc-tech](#) Taiwan measurement specialist, sensor manufacturer