



# Operation Manual

## eyc-tech FTM06D

# Thermal Mass Flow Transmitter



eyc-tech FTM06D



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## 1. Safety Precautions

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 any explosion-proof area.

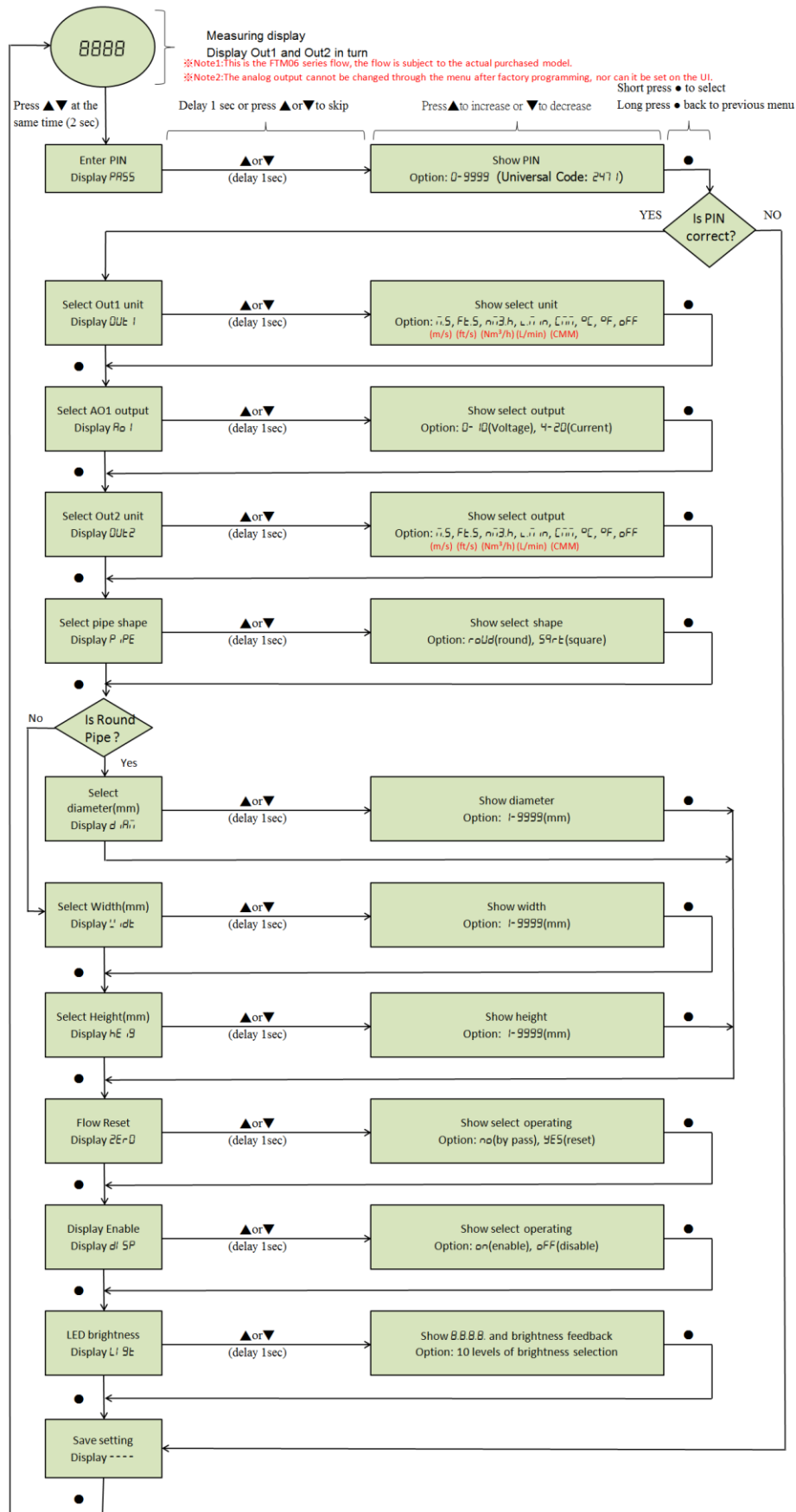
Do not use this product in a situation where human life may be affected.

eyc-tech will not bear any responsibility for the results produced by the operators !

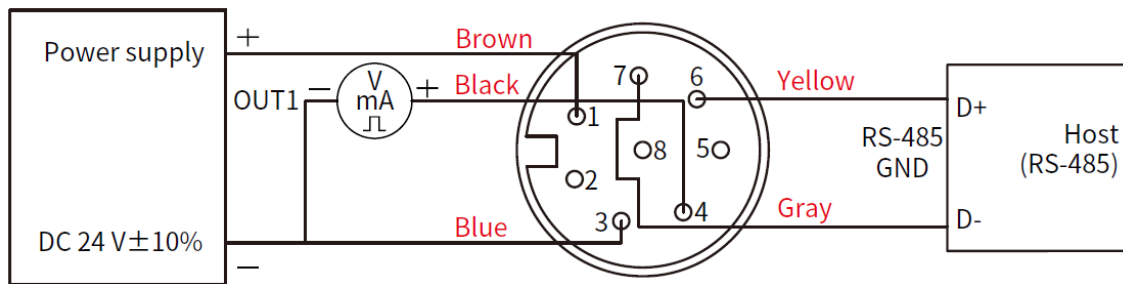
### Warning!

- 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 using 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 electrical 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.

## 2. Operation Form

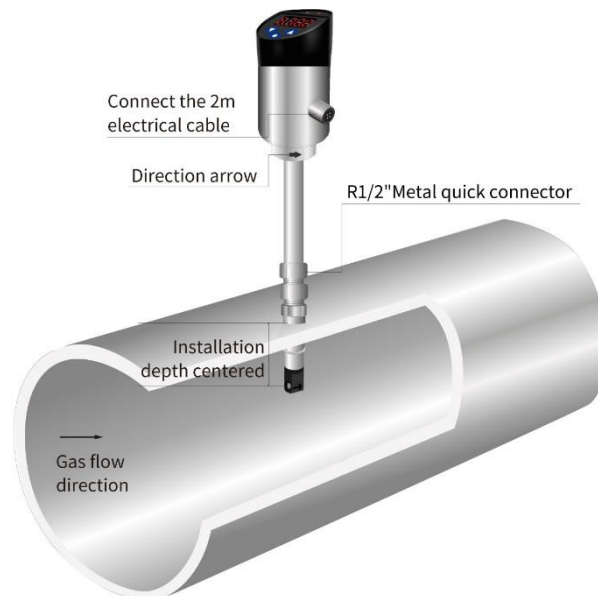


### 3. Connection Diagram



### 4. Installation

#### Ducy type



## 5. RS-485 and Modbus

FTM06 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 : 8 bit
- (7) Stop bit : 1 or 2 bit
- (8) Factory default Station address = 1, Data format= 9600, N81

## 6. Software and calibration operation step

User may download the configuration software on eyc-tech web site. Please

decompress the application prior to execute it. Operating System requirements :

above Windows XP. Other application program requirements : above Microsoft

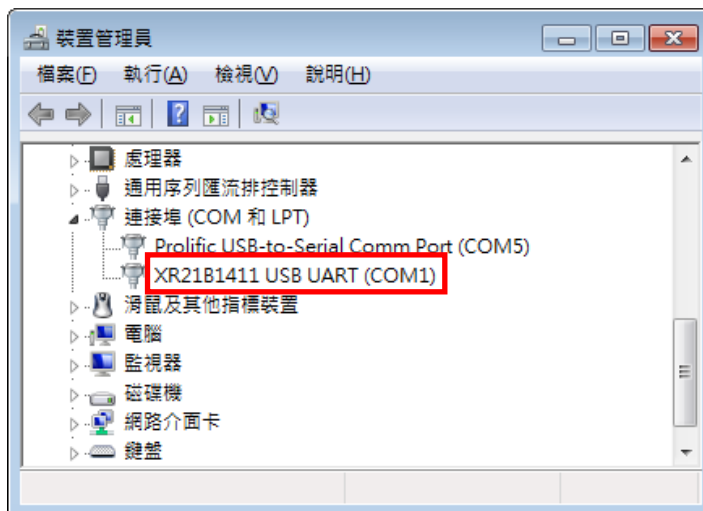
Office 2003

1. Hardware connection : Connect the FTM06D to PC through USB to RS-485 or RS-232

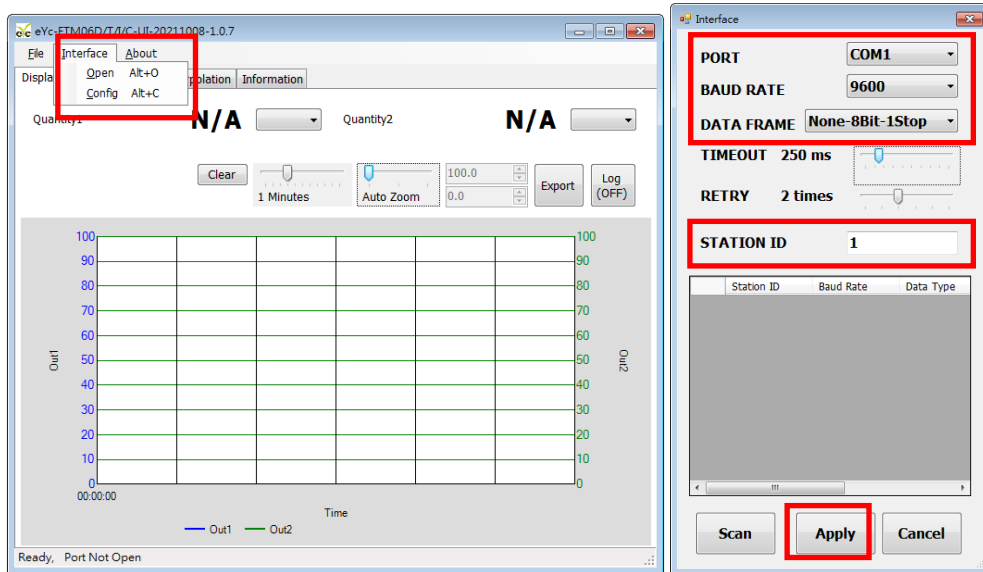
to RS-485 converter

2. Check the COM port number from Device Manager in Computer Management. e.g.

COM1 in illustration

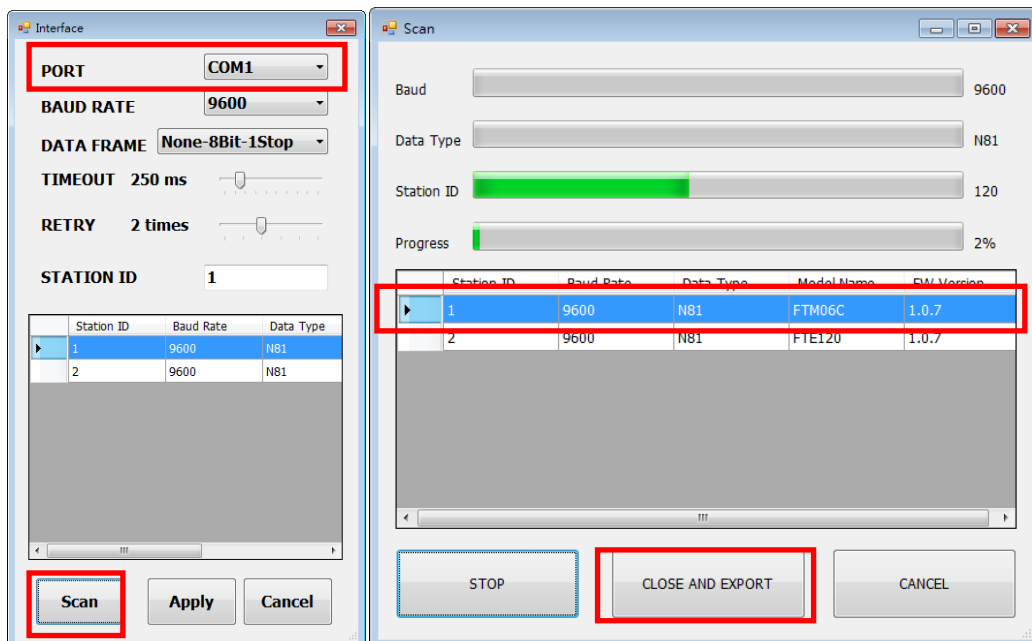


- Open the FTM06D UI, go to function "Interface", click item "Config" and then setting COM port, BAUD rate, data format and Station ID, pressed "Apply" for connection



- Scan RS-485 connection

Open the FTM06D UI, 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.



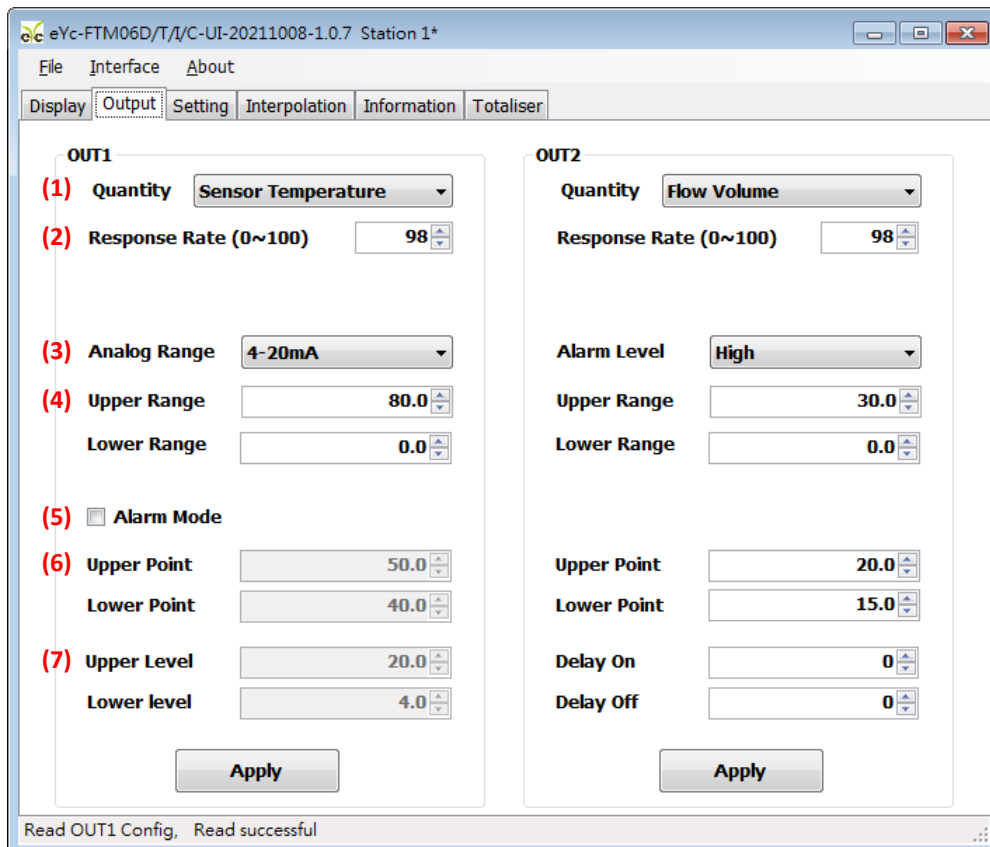
Pick up the device that you want to connect to and then press "Apply" to go.



5. Setting on Analog Output

In the group of OUT1, Output tab. The output1 related setting could be found.

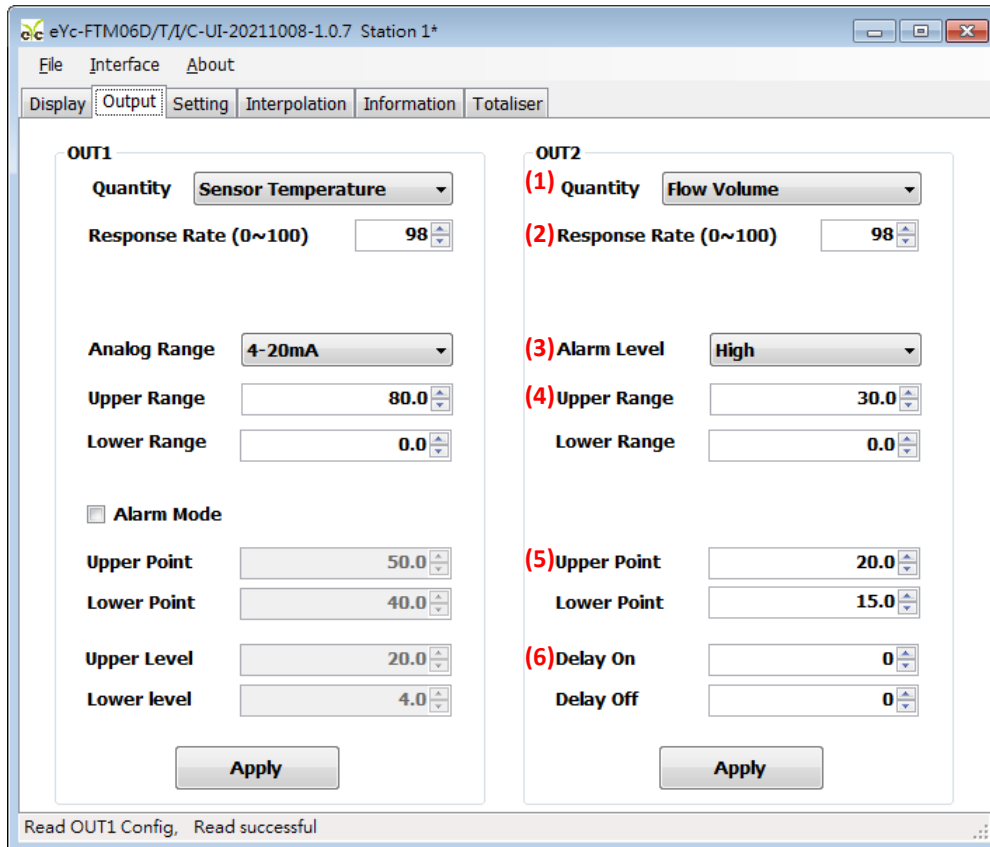
- (1) Quantity : Flow Velocity, Flow Volume and Sensor Temperature
- (2) Response rate : 0 ... 100 , 100 : filter off , 90 : filter = 60 second , 80 : filter = 120 second, etc.
- (3) Analog type : 0 ... 20 mA / 4 ... 20 mA (if output current) / 0 ... 10 V (if output voltage)
- (4) Range for Upper and Lower
- (5) Alarm Mode: Check the box if analog output pretend a alarm switch output
- (6) Alarm Trigger Point: Upper and Lower
- (7) Alarm Output Level: Upper and Lower



6. Setting on PNP/PNP Output (Optional, Only Available if Function Equipped)

In the group of OUT2, Output tab. The PNP/PNP switch output related setting could be found.

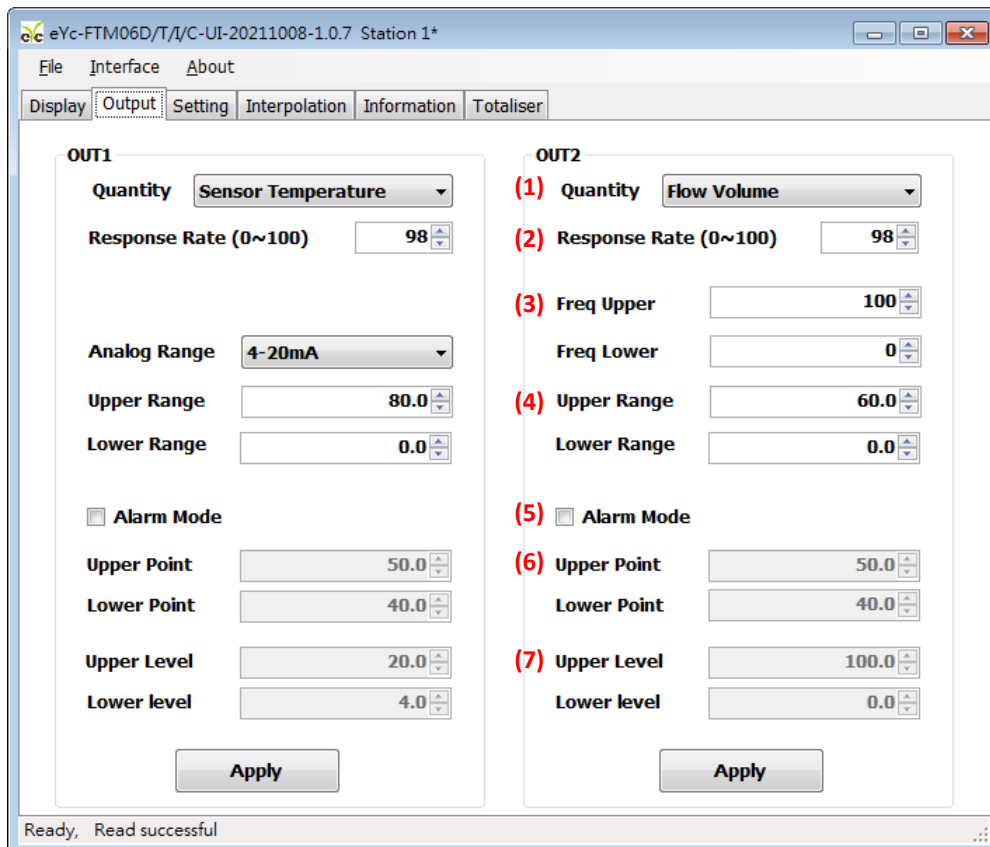
- (1) Quantity : Flow Velocity, Flow Volume and Sensor Temperature
- (2) Response rate : 0 ... 100 , 100 : filter off , 90 : filter = 60 second , 80 : filter = 120 second, etc.
- (3) Alarm Mode : High Activate or Low Activate
- (4) Range for Upper and Lower
- (5) Alarm Point : Upper and Lower
- (6) Delay Time : On Delay Time and Off Delay Time (seconds)



7. Setting on Frequency Output (Optional, Only Available if Function Equipped)

In the group of OUT2, Output tab. The Frequency output related setting could be found.

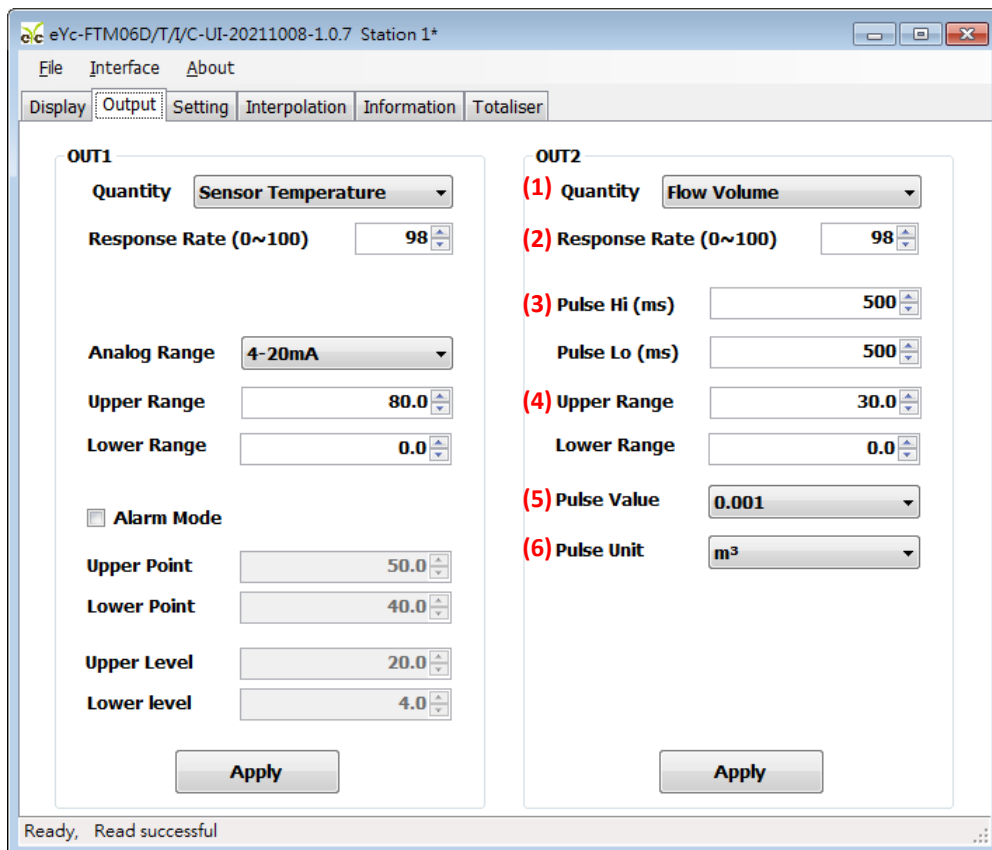
- (1) Quantity : Flow Velocity, Flow Volume and Sensor Temperature
- (2) Response rate : 0 ... 100 , 100 : filter off , 90 : filter = 60 second , 80 : filter = 120 second, etc.
- (3) Frequency : Upper and Lower
- (4) Measures : Upper and Lower
- (5) Alarm Mode : The output would be switch between upper and lower correspond to measures
- (6) Alarm Point : Upper and Lower
- (7) Alarm Output : Upper and Lower



8. Setting on Impulse Output (Optional, Only Available if Function Equipped)

In the group of OUT2, Output tab. The Impulse output related setting could be found.

- (1) Quantity : Flow Velocity, Flow Volume and Sensor Temperature
- (2) Response rate : 0 ... 100 , 100 : filter off , 90 : filter = 60 second , 80 : filter = 120 second, etc.
- (3) Impulse Duration : High and Low
- (4) Measures : Upper and Lower
- (5) Impulse Value : The valence of single impulse quantity
- (6) Impulse Unit : m<sup>3</sup>, Liter, mL, mm<sup>3</sup>, ft<sup>3</sup>, inch<sup>3</sup>, gal,us (Gallon, us), gal,uk (Gallon, uk)



#### 9. Setting on RS-485, Process Parameters and offset adjustment

There are 4 groups in setting tab. The description of each item as below.

※ Process Parameters :

- (1) Temperature of normal condition
- (2) Pressure of working condition
- (3) Relative Humidity of working condition

- (4) Profile factor of gas speed

※ Offset Adjustment :

- (5) velocity offset
- (6) temperature offset
- (7) velocity cut off

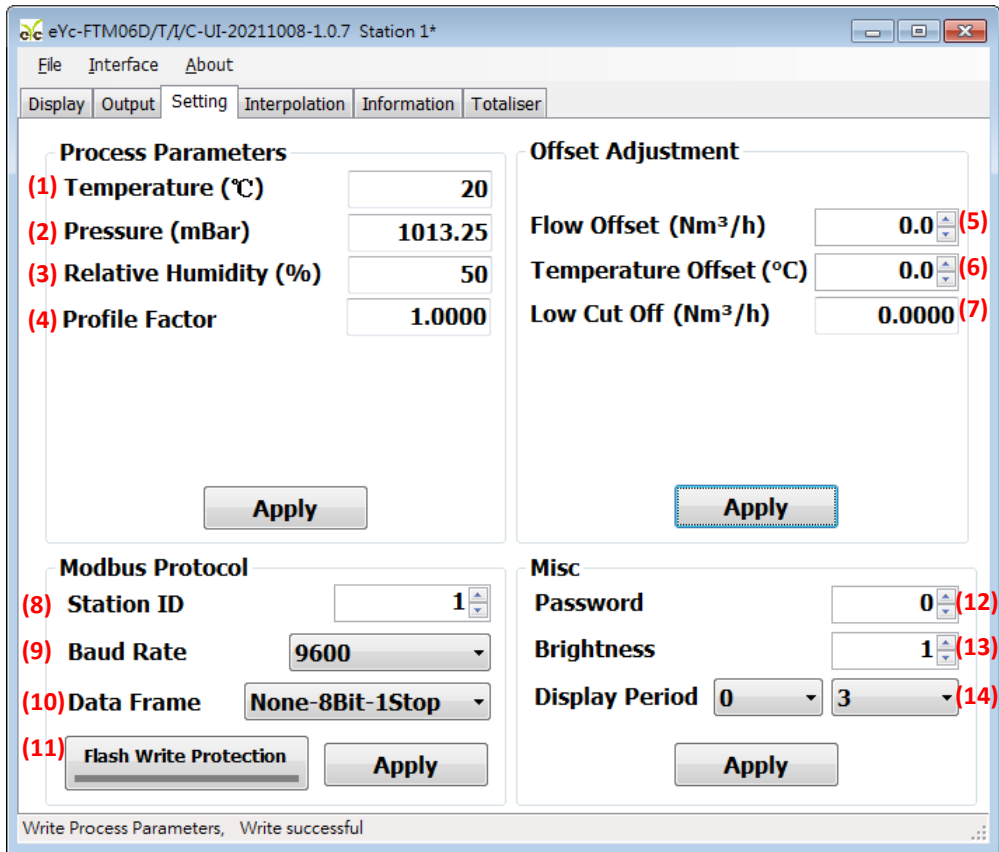
※ Modbus Protocol :

- (8) station ID
- (9) Baud Rate
- (10) Date Frame
- (11) Flash memory write protect

※ Miscellaneous :

- (12) Password of keypad menu
- (13) LED brightness
- (14) Display Alternate Period : the first field for quantity unit duration, the seconds

field for quantity measure duration (seconds)



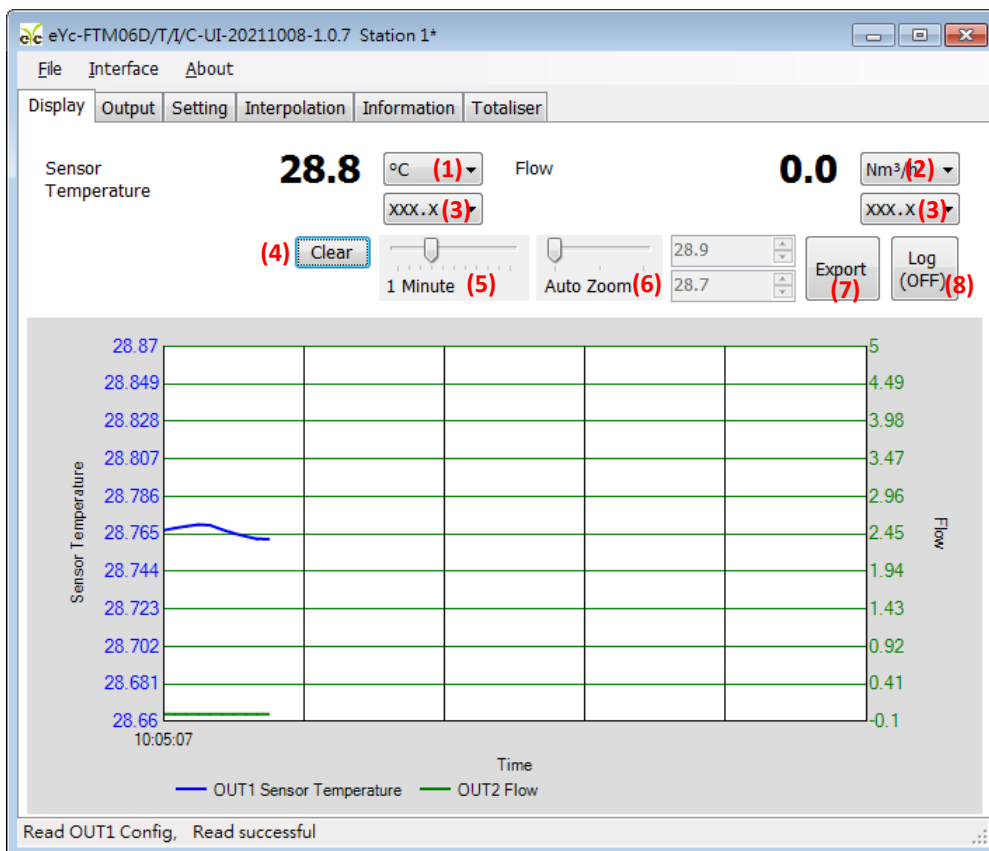
The screenshot shows the configuration interface for the eYc-FTM06D/T/I/C-UI-20211008-1.0.7 Station 1\*. The interface is divided into several sections:

- Process Parameters:**
  - (1) Temperature (°C): 20
  - (2) Pressure (mBar): 1013.25
  - (3) Relative Humidity (%): 50
  - (4) Profile Factor: 1.0000
- Offset Adjustment:**
  - Flow Offset (Nm<sup>3</sup>/h): 0.0 (5)
  - Temperature Offset (°C): 0.0 (6)
  - Low Cut Off (Nm<sup>3</sup>/h): 0.0000 (7)
- Modbus Protocol:**
  - (8) Station ID: 1
  - (9) Baud Rate: 9600
  - (10) Data Frame: None-8Bit-1Stop
  - (11) Flash Write Protection:  (checked)
- Misc:**
  - Password: 0 (12)
  - Brightness: 1 (13)
  - Display Period: 0 (14)

Buttons labeled "Apply" are present at the bottom of the Process Parameters, Offset Adjustment, and Modbus Protocol sections. A status bar at the bottom indicates "Write Process Parameters, Write successful".

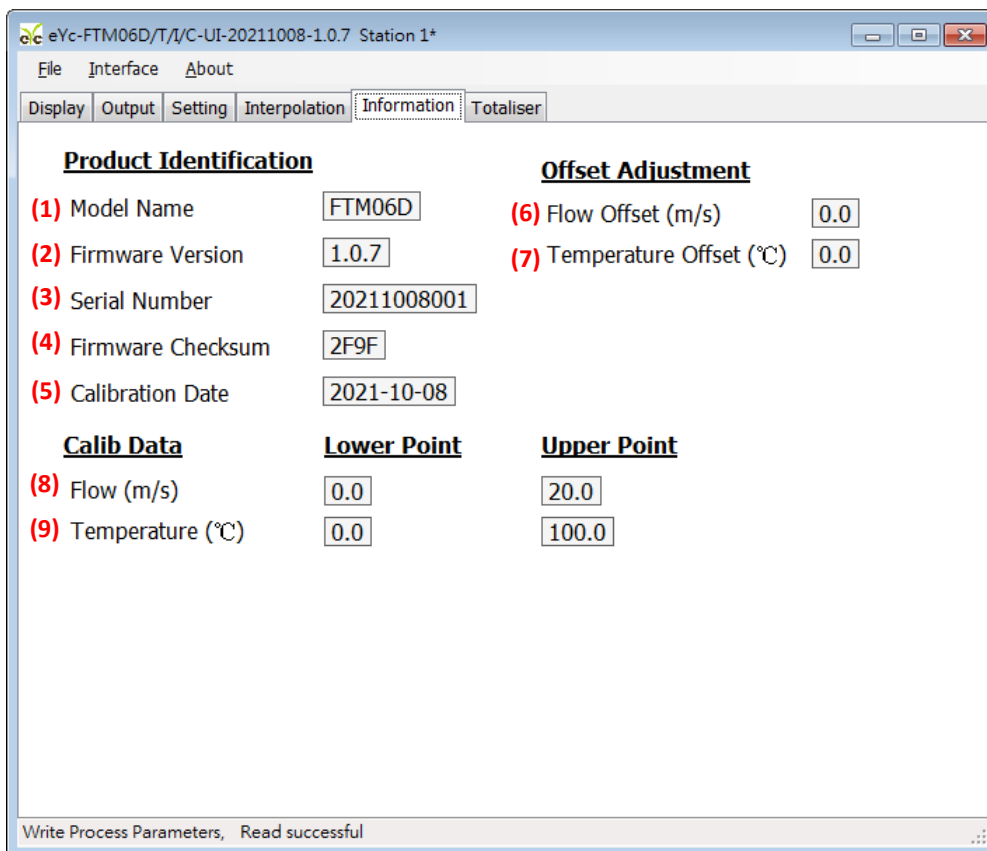
10. Data display and logging

- (1) Assign Temperature Unit : °C / °F
- (2) Assign Flow Velocity Unit : m/s 、ft/s , Flow Volume Unit : Nm<sup>3</sup>/h, Nm/s, L/min
- (3) Display Decimals
- (4) Clear Measure Plot Chart
- (5) Time scale of plot
- (6) Vertical scale of plot
- (7) Export all logging data since device is connected
- (8) Start/Stop data logging



11. Device Information

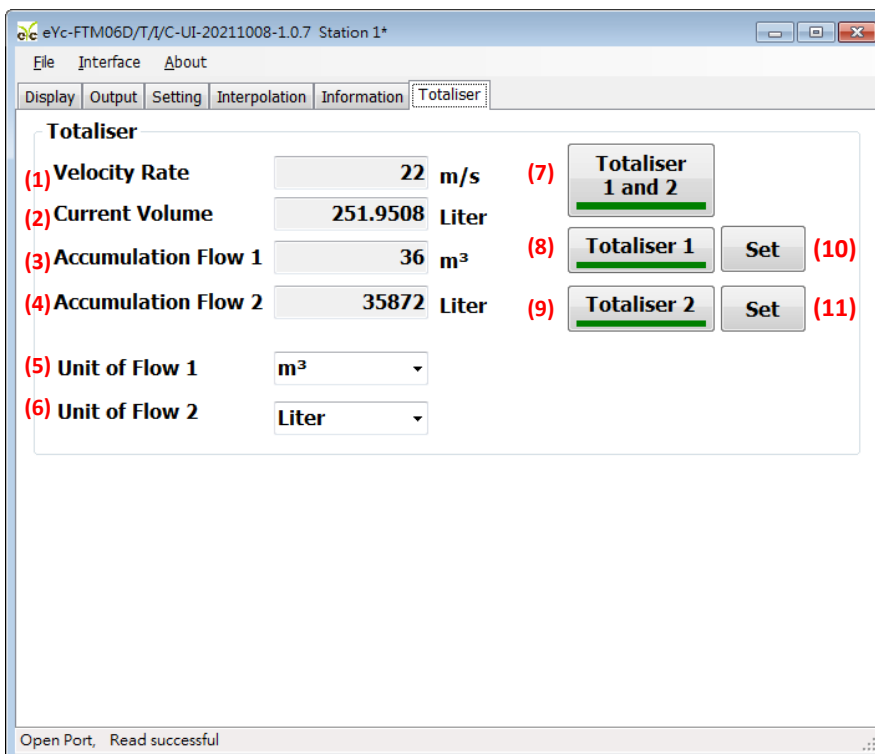
- (1) Model Name of Device
- (2) Firmware Version of Device
- (3) Serial Number of Device
- (4) Firmware Checksum
- (5) Calibration Date
- (6) Flow Offset
- (7) Temperature Offset
- (8) Flow Calibration Range
- (9) Temperature Calibration Points





12. Totalizer

- (1) Flow Velocity
- (2) Flow Volume Rate
- (3) Volume Accumulation Totalizer 1
- (4) Volume Accumulation Totalizer 2
- (5) unit of counter 1
- (6) unit of counter 2
- (7) Main switch of totalizer
- (8) Function switch of totalizer 1
- (9) Function switch of totalizer 2
- (10) Ser/Reset Totalizer 1
- (11) Set/Reset Totalizer 2



## 7. 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 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	Cleck items	Soluations
<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 installed angle</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>● Align measurement head with flow direction</li> <li>● Cleaning the filter</li> <li>● Changing the filter</li> <li>● Calibrate</li> <li>● Replace the sensor</li> </ul>

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