Operation Manual

eyc-tech DPM04

Flow Totalizer

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1. 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 any explosion-proof area.

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

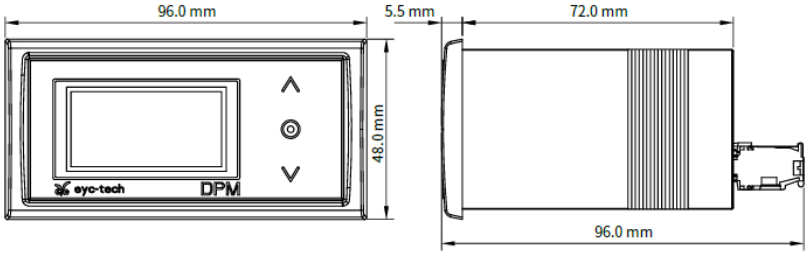
eyc-tech will not bear any responsibility for the results produced by the operators！

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.

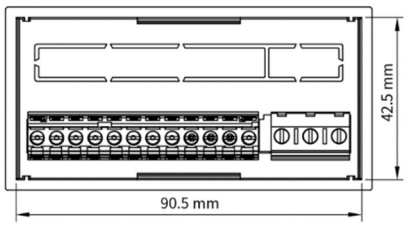
2. Dimension

■Dimension

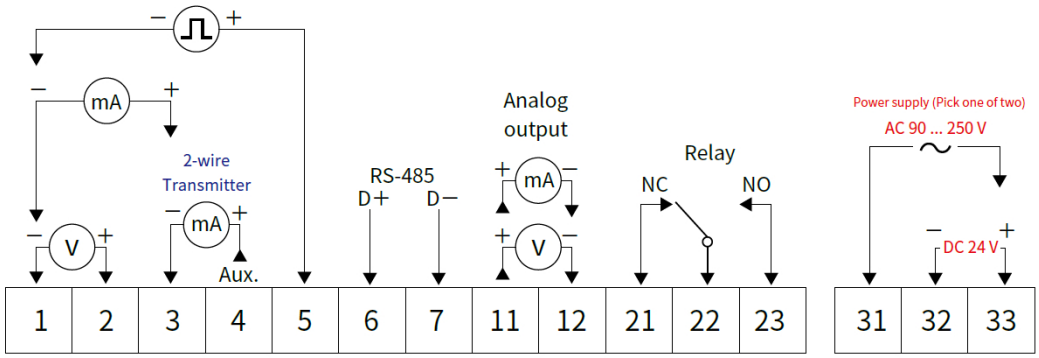


■

Installation Dimension



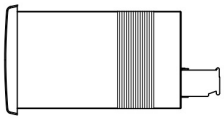
3. Connection



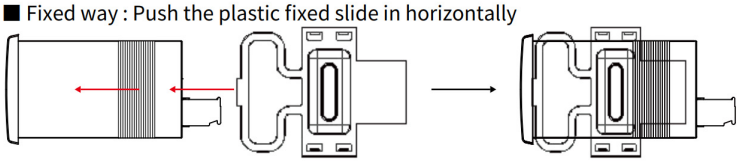
*Please make sure the product and the device which connect with RS-485 are on common ground, avoid damaged product.

4. Installation

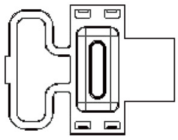
■ Side



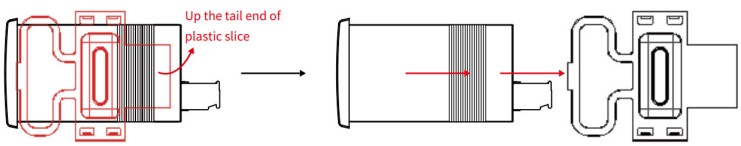
■ Fixed way : Push the plastic fixed slide in horizontally



■ Plastic fixed slice



■ Remove way : Up the tail end of plastic slice, then pull it out



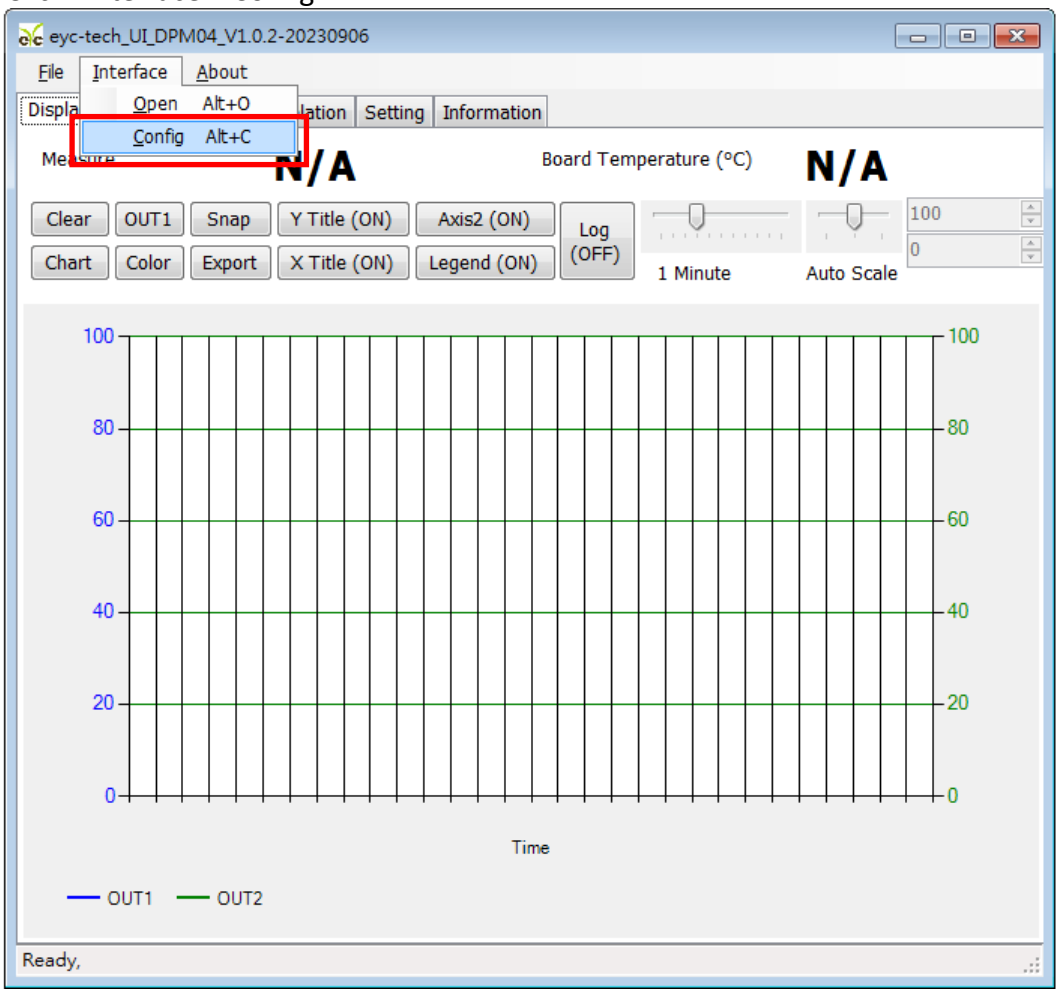
5. Configuration Software

5.1 Application Program Introduction

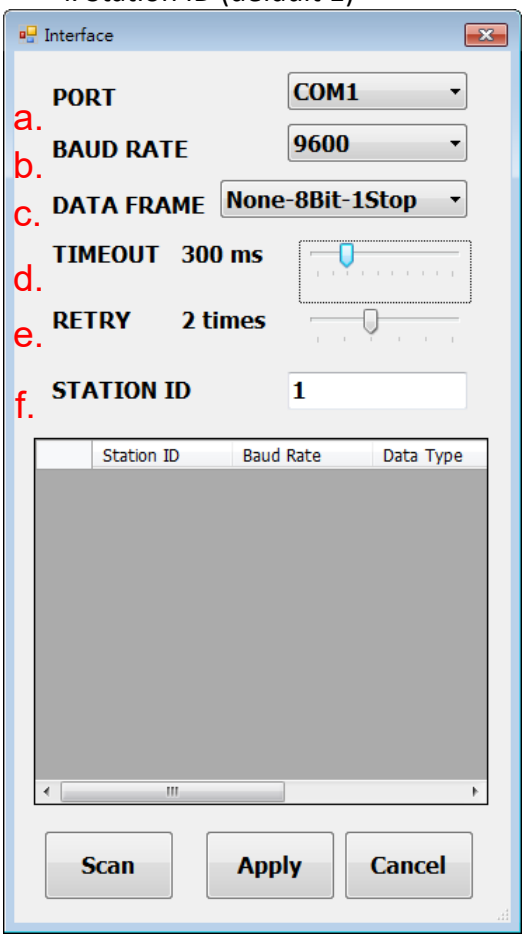
User may download the configuration software on eyc-tech web site. Please decompress the application prior to execute it. Operating System requirements: above Windows 7 SP1. Other application program requirements: above Microsoft Office 2003. Hardware requirements: USB to RS-485 converter.

5.2 Establish RS-485 connection

1. Connect product to PC via RS-485 converter
2. Execute configuration software
3. Click "Interface > Config"

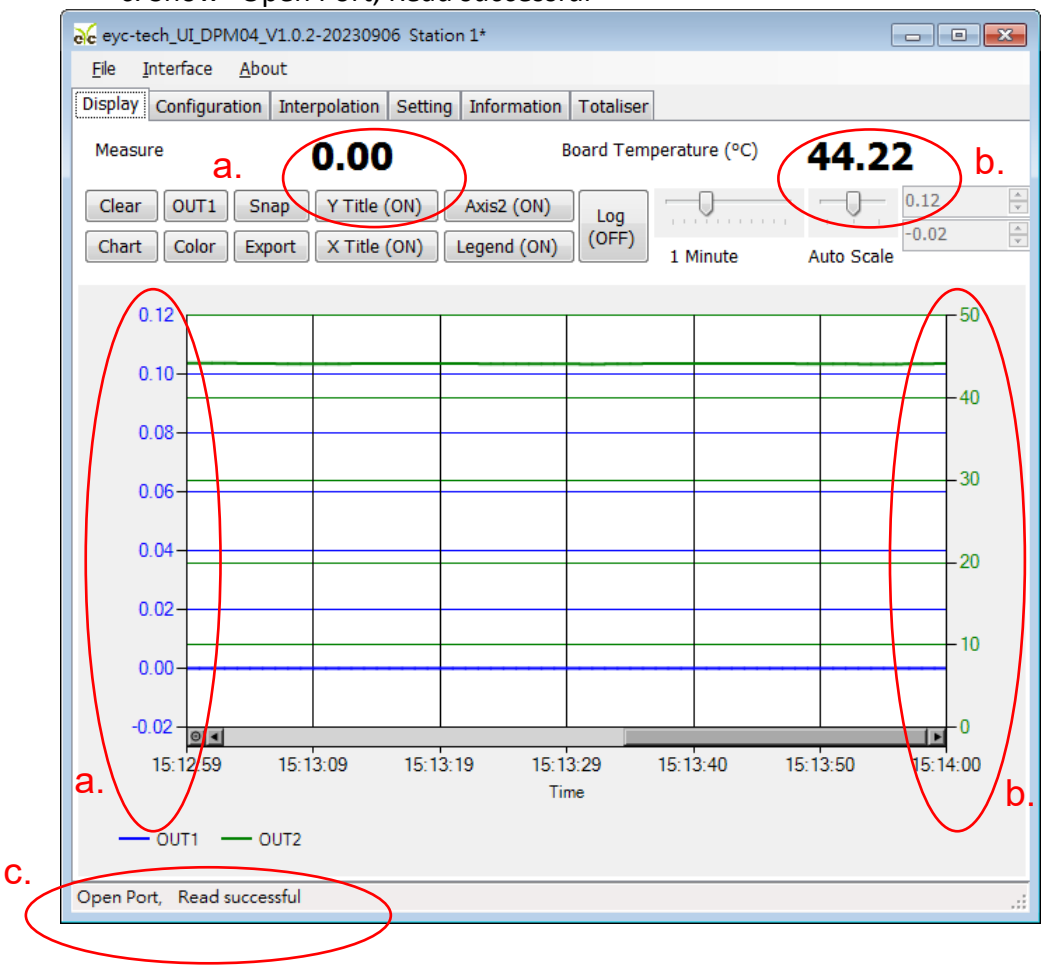


4. Select the corresponding values of com port as following :
    a. Port: Please confirm the connection com port first
    b. Baud Rate (DPM04 default 9600)
    c. Data Frame (device default None Parity Check, 8 data bits, 1 stop bit)
    d. Response Timeout (default 300ms)
    e. Retry, trial cycles if communication error (default 2 times)
    f. Station ID (default 1)



5. Click "Apply"

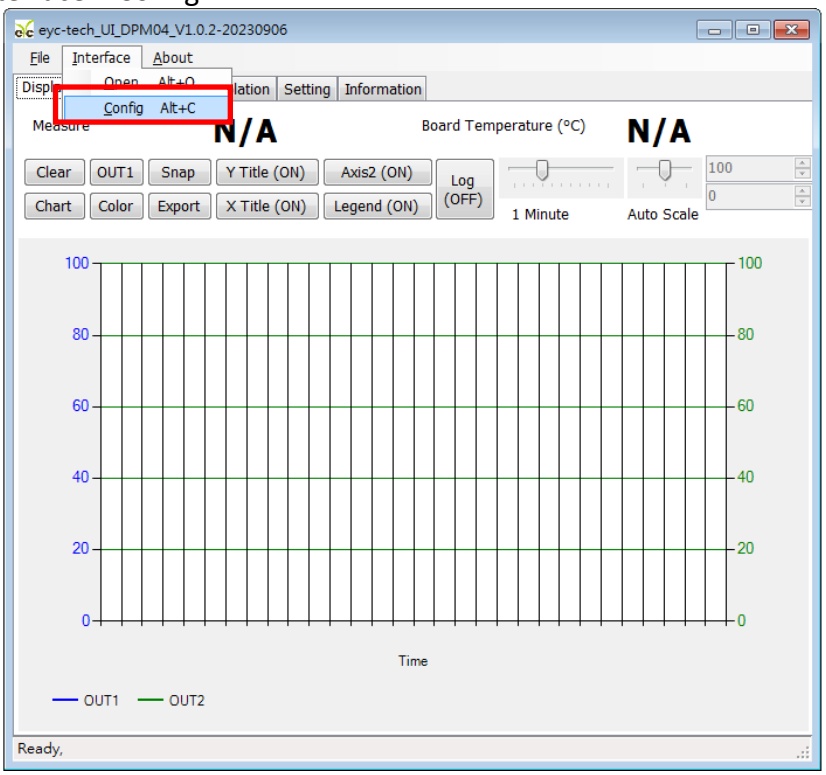
6. Connect successfully
    a. Show value and trend chart of the measurement
    b. Show value and tread chart of device mcu temperature
    c. Show "Open Port, Read successful"



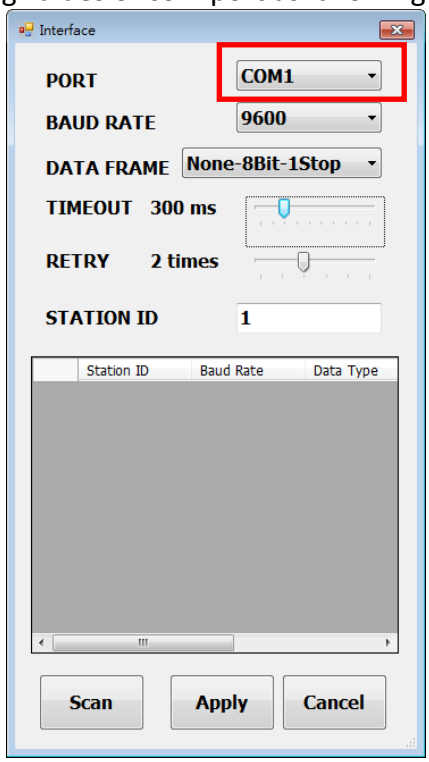
5.3 Scan RS-485 connection

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

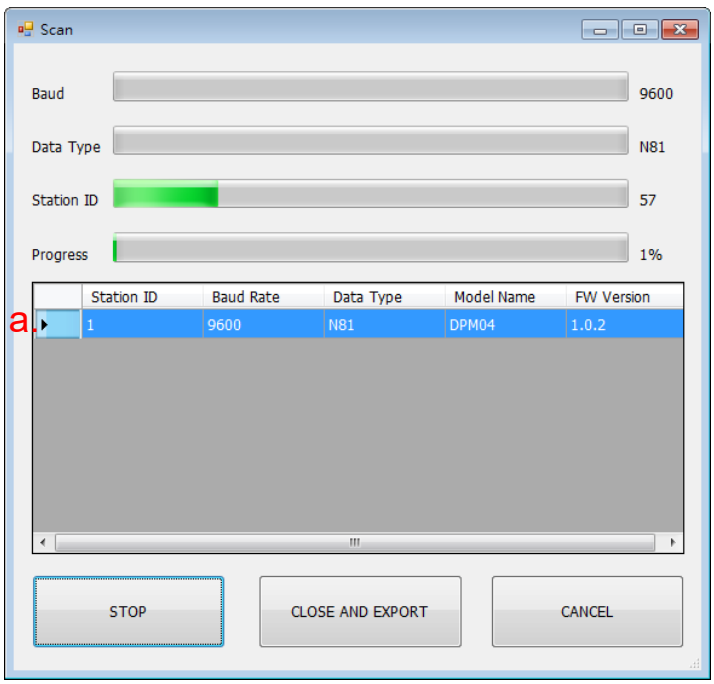
1. Connect the product to PC via RS-485 converter
2. Execute configuration software
3. Click "Interface > Config"

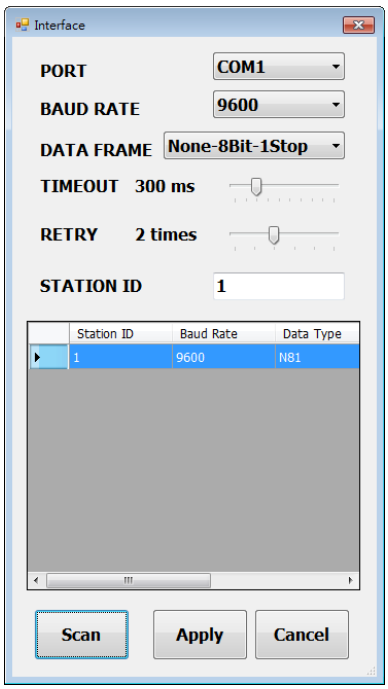


4. Select the corresponding values of com port as fallowing



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





7. Click "Apply"

8. Connect successfully

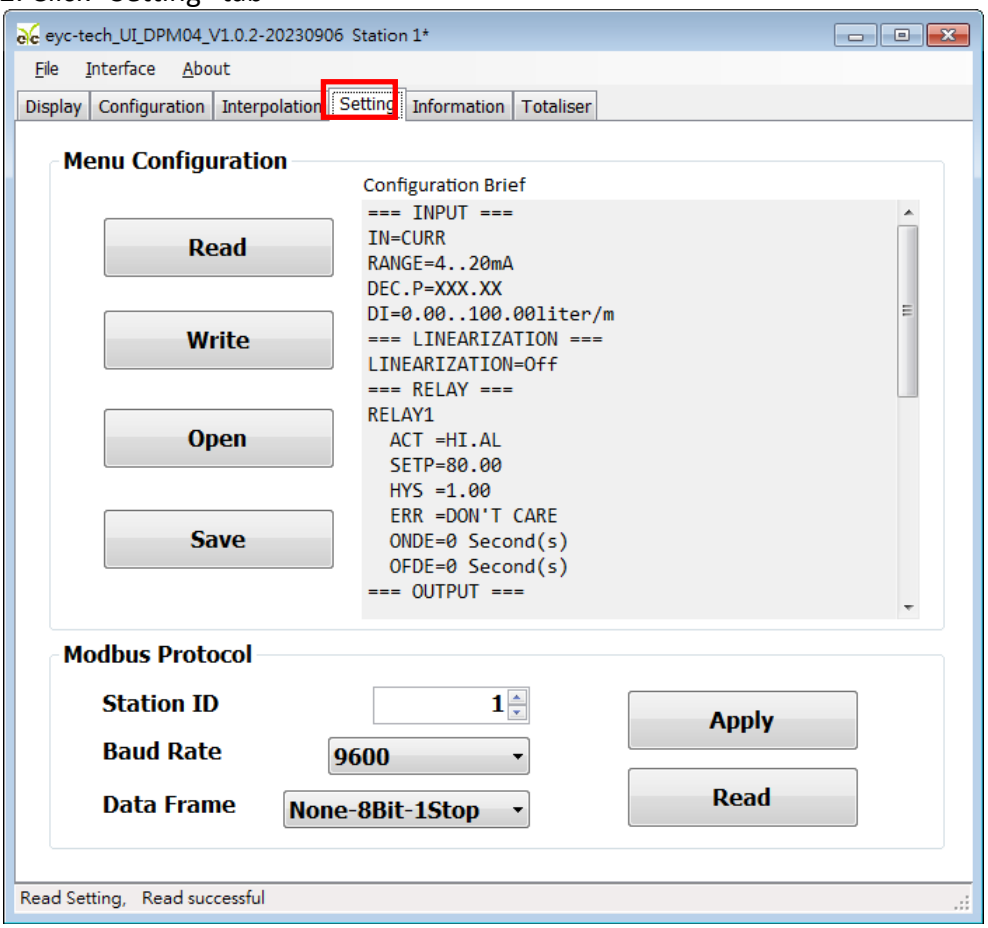
a. Show value and trend chart of the measurement

b. Show value and tread chart of device mcu temperature

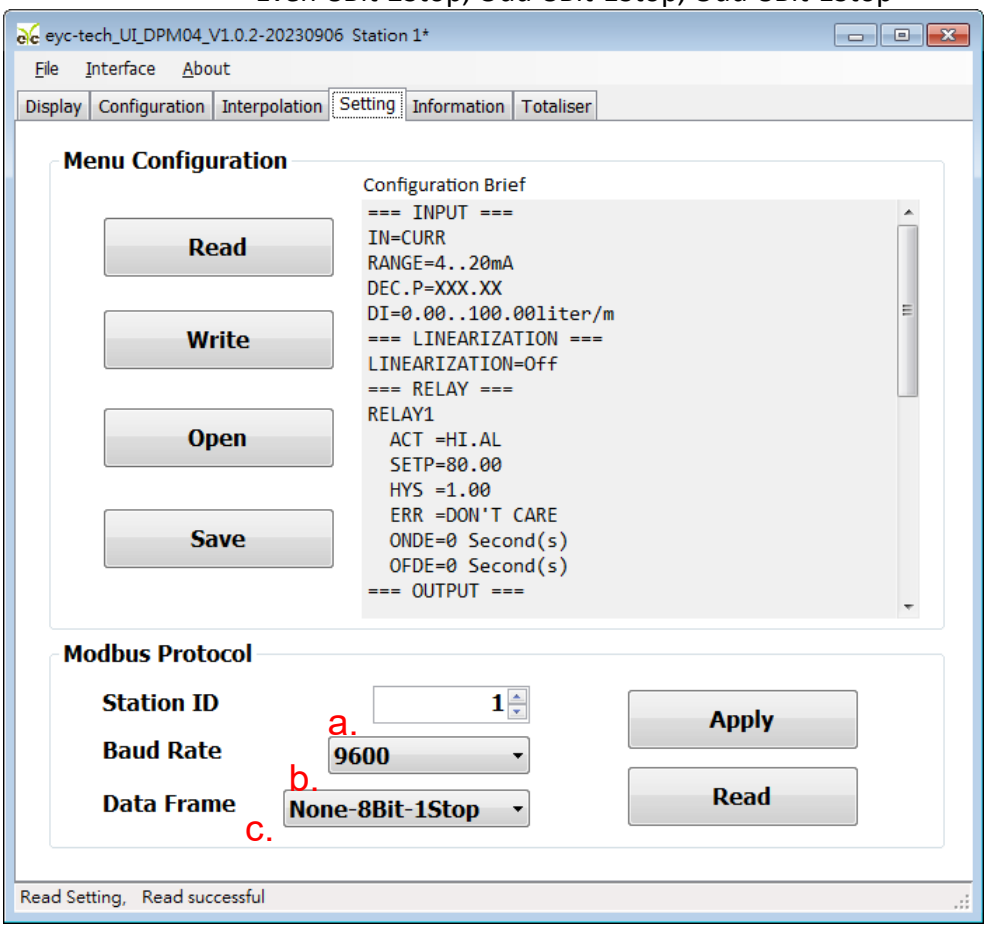
c. Show "Open Port, Read successful"

5.4 Setting RS-485 ModBus Protocol

1. Setting RS-485 connection as step 5.1
2. Click "Setting" tab



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-1Stop

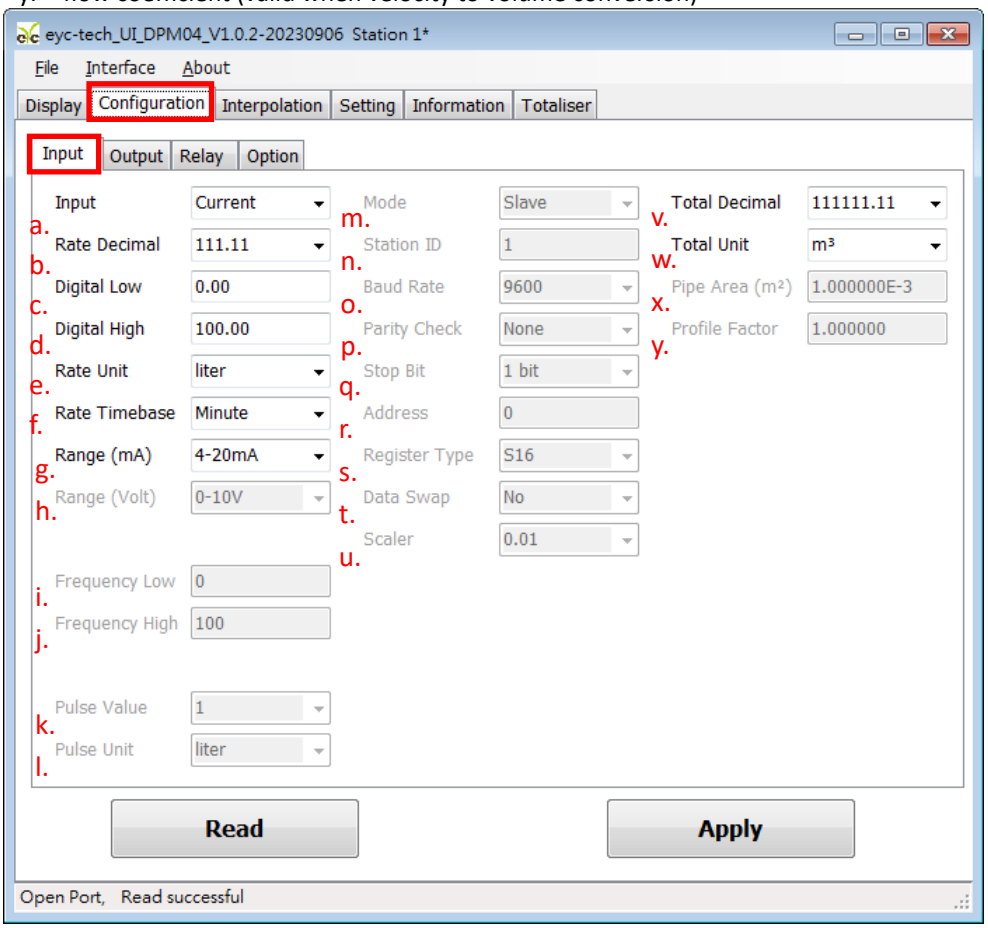


4. Click "Apply"
5. Execute connection as step 5.2 or 5.3 again

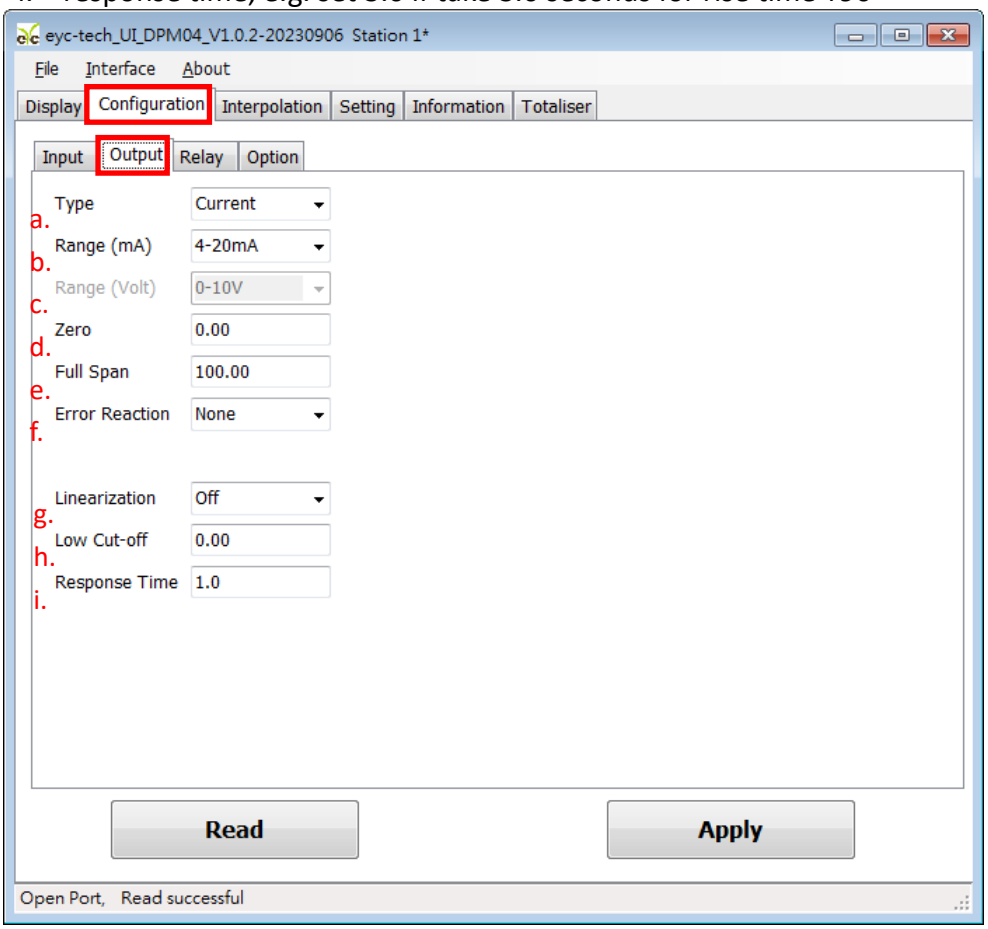
5.5 Measurement Programming

Click the "Configuration" tab, the configuration divide by 4 sub groups as following.

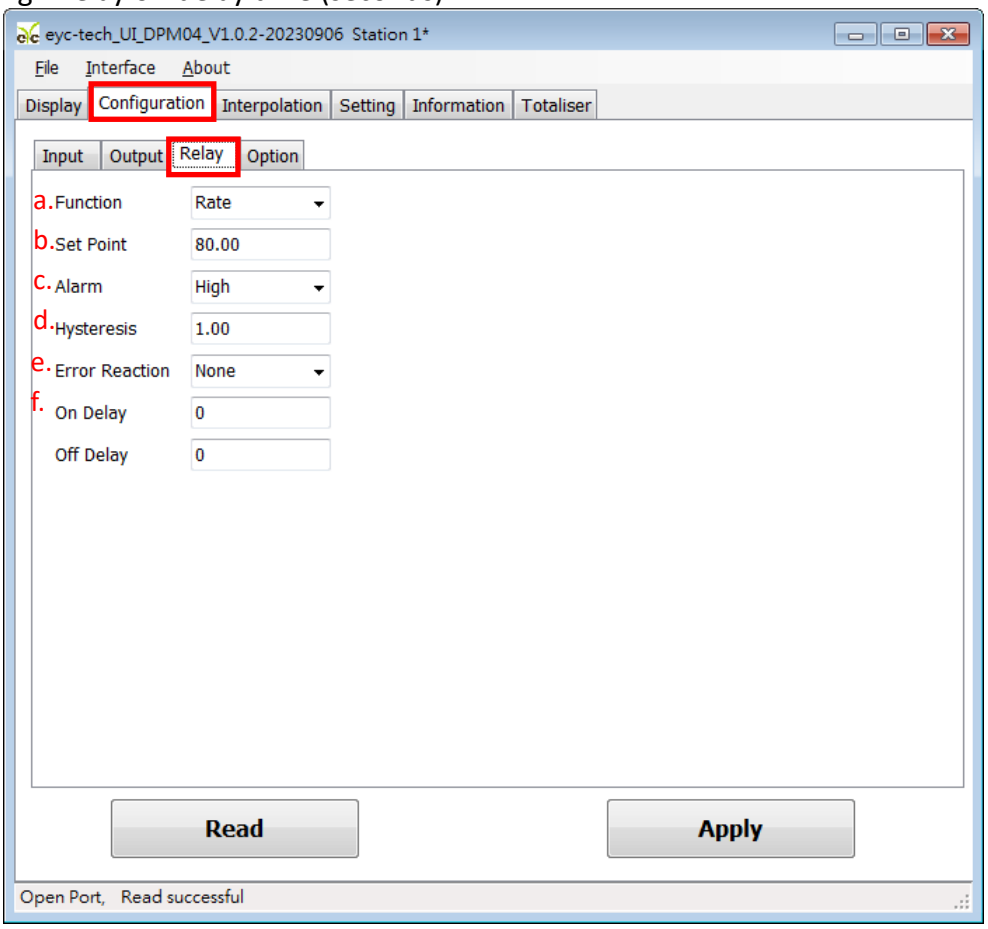
1. Input function, this function could be found in “Input” tab
   a. Input type, current, voltage, frequency, pulse or modbus
   b. Number of input rate decimal places, up to 4
   c. Low point of input span
   d. High point of input span
   e. volume unit of input rate
   f. period unit of input rate
   g. Analog input range (valid when the input selects current)
   h. Analog input range (valid when the input selects voltage)
   i. Low point of frequency input (valid when the input selects frequency)
   j. High point of frequency input (valid when the input selects frequency)
   k. value of pulse input (valid when the input selects pulse)
   l. unit of pulse input (valid when the input selects pulse)
   The following input is valid when 485 is selected
   m. Modbus protocol type, master or slaver
   n. station ID
   o. Baud rate (valid when the input selects the master node)
   p. Parity check
   q. Stop bit
   r. Register address
   s. Register data type
   t. Data format, data word high and low exchange
   u. Numerical magnification
   The flow totalizer setting items
   v. Number of decimal places
   w. volume unit
   x. duct profile area (valid when velocity to volume conversion)
   y. flow coefficient (valid when velocity to volume conversion)



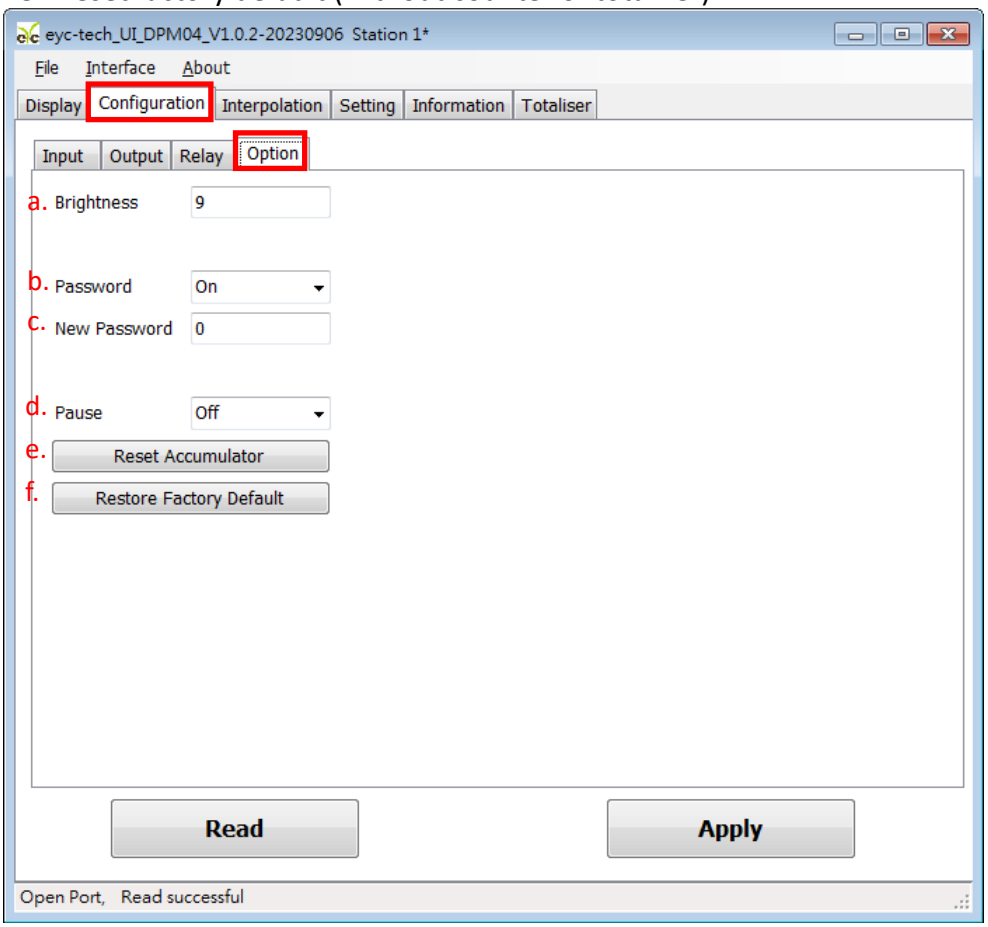
2. Output function, this function could be found in “Output” tab
   a. output type, current or voltage
   b. analog output range (valid when the output selects current)
   c. analog output range (valid when the output selects voltage)
   d. low point of output span
   e. high point of output span
   f. error reaction, force current output if error detected. Select None if function disable. (valid when the output selects current)
   g. linear correction, Off if disable, Interpolation if linear interpolation, Square Root if root extraction
   h. output cut-off, disable if set 0
   i. response time, e.g. set 3.0 if take 3.0 seconds for rise time T90



3. Relay function, this function could be found in “Relay” tab
   a. driven signal source, rate or totalizer
   b. set point
   c. action mode, HI.AL if upscale active, LO.AL if downscale active
   d. hysteresis
   e. alarm, NONE if disable, HOLD if memory and hold the first alarm until reboot, Action if active when alarm assert, Deaction if inactive when alarm assert
   f. relay on delay time (seconds)
   g. relay off delay time (seconds)



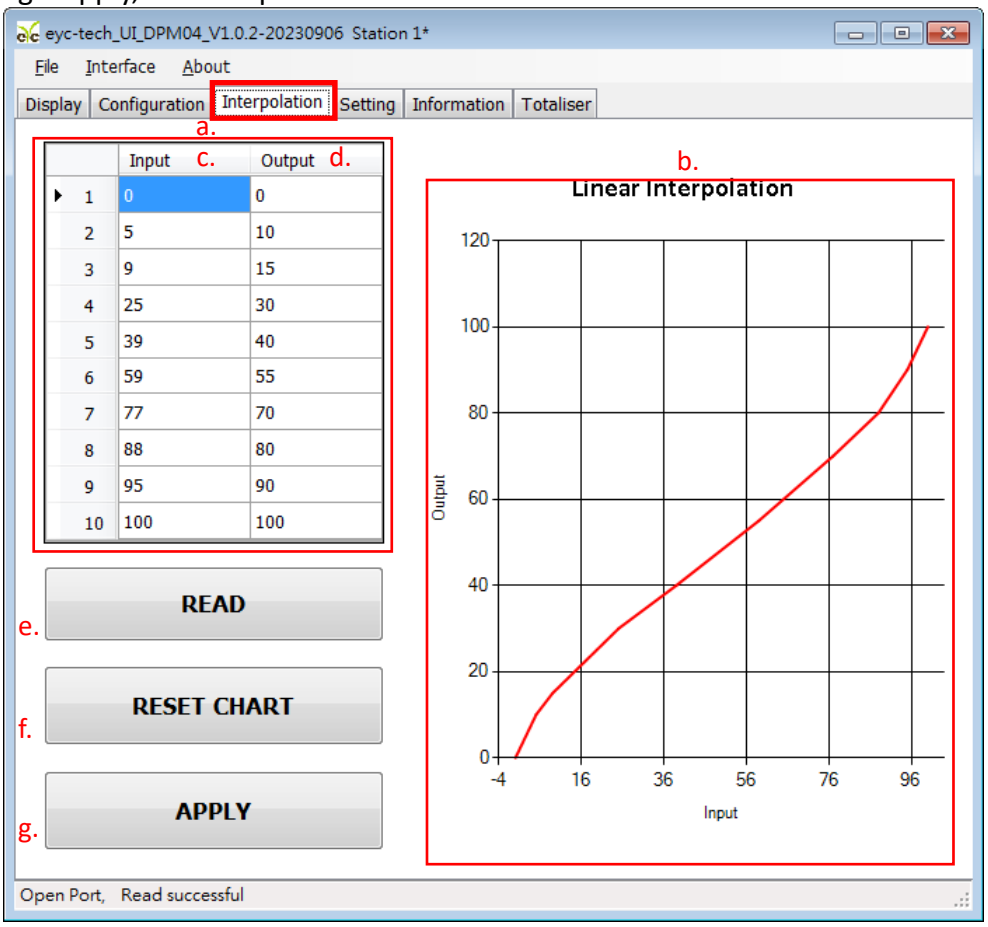
4. The other items could be found in “Option” tab
   a. LED brightness, 0 darkest, 9 brightest
   b. password validation, NO if disable, YES is enable
   c. new password
   d. pause counter of volume accumulation
   e. reset factory default (without counter of totalizer)



5.6 Linearity Computation

Click the Interpolation tab to specify the linear interpolation points

a. interpolation table
b. interpolation curve
c. Interpolate input column, device measured value (raw value)
d. Interpolate output column, device output value (standard value or correction value)
e. Read the interpolation table of the device
f. Clear the interpolation table on configuration software. Note: this action will not modify the interpolation table of the device
g. apply, the interpolation would be written in device

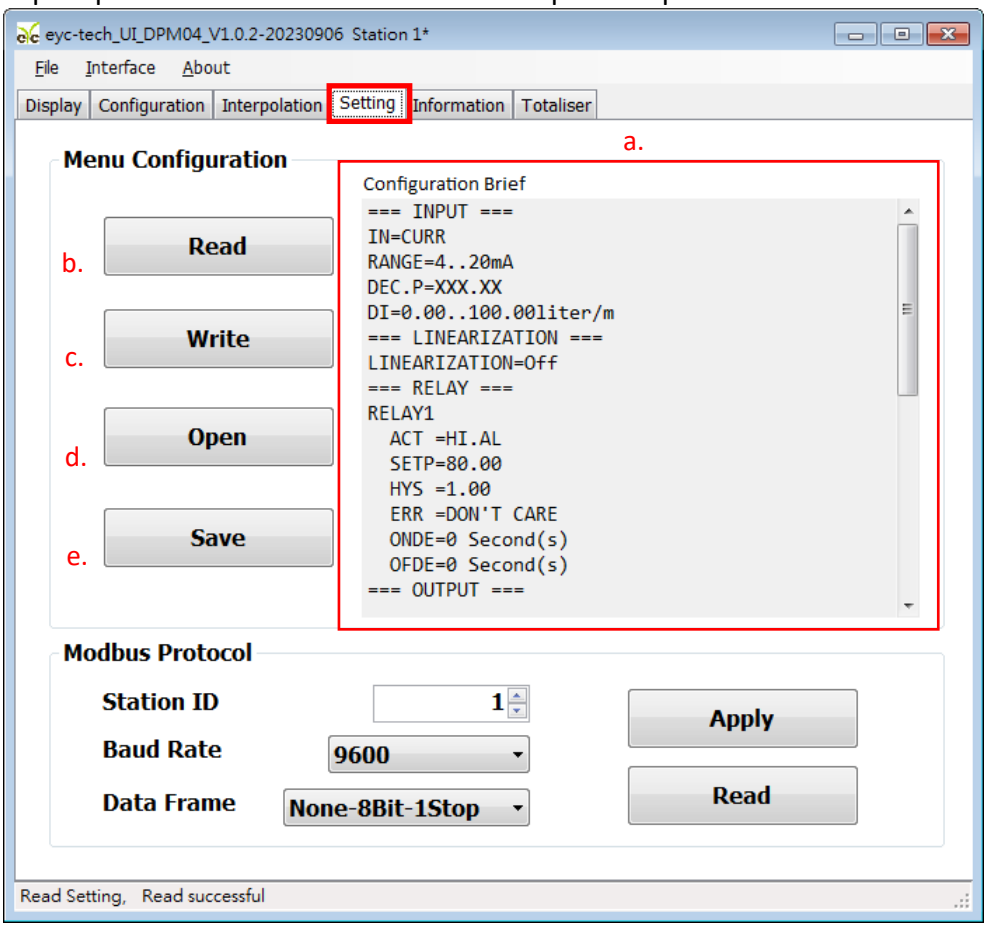


5.7 Export and Import Configuration

Click the Setting tab to export and import device configuration

a. summary text of device configuration
b. read device configuration
c. write device configuration
d. load device configuration
e. save device configuration

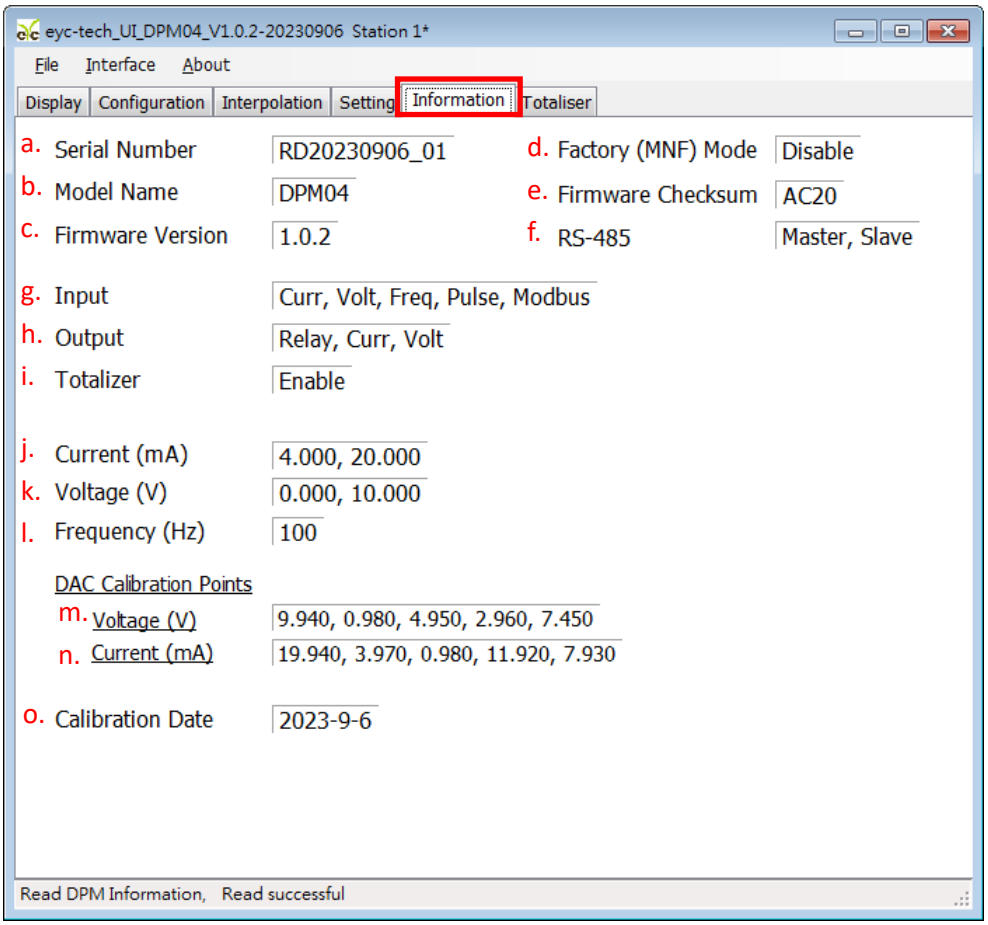
export procedure: device connection→step b→step e
import procedure: device connection→step d→step c



5.8 Device Information

Click the Information tab to get device information

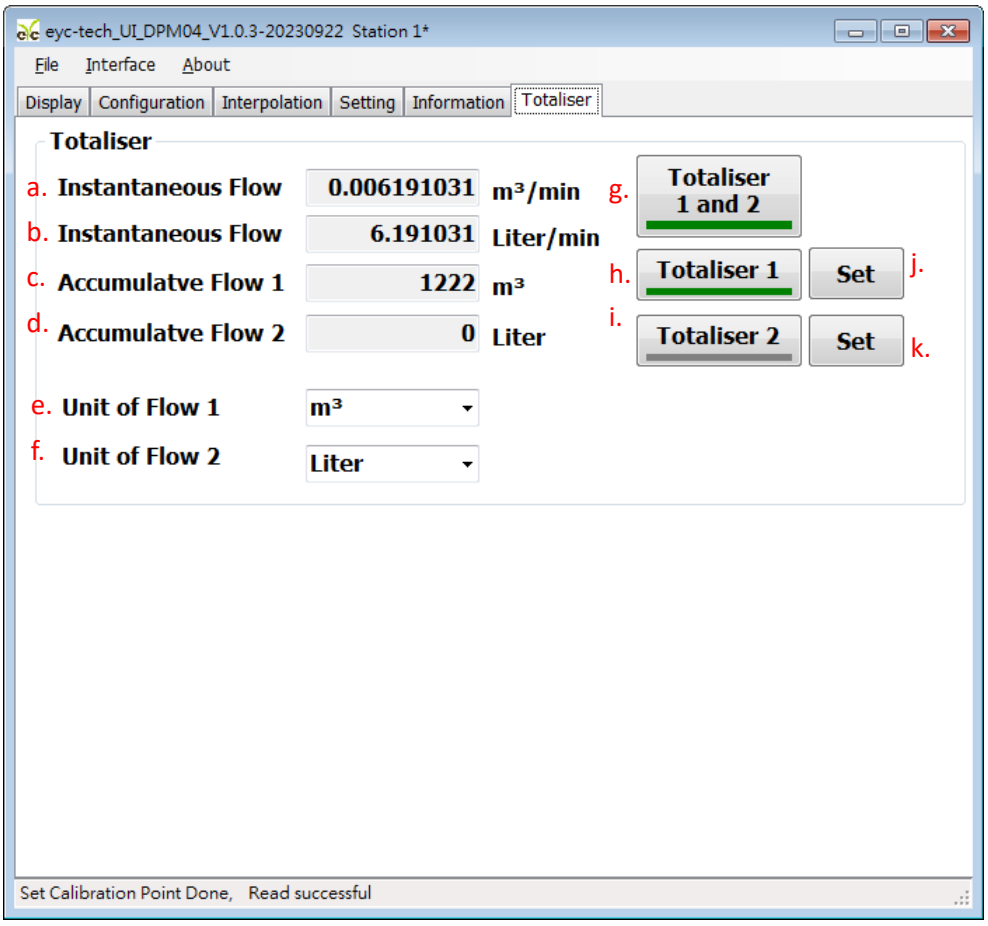
a. device serial number
b. device model name
c. firmware version
d. factory mode enabled state
e. firmware checksum
f. RS-485 enabled state
g. input function enabled state
h. output function enabled state
i. totalizer enabled state
input calibration information
j. analog current input calibration points
k. analog voltage input calibration points
l. frequency input calibration points
Output calibration information
m. analog voltage output calibration points
n. analog current output calibration points
o. Calibration date



5.9 Totalizer

Click the Totalizer tab to display the volumetric accumulation and related function

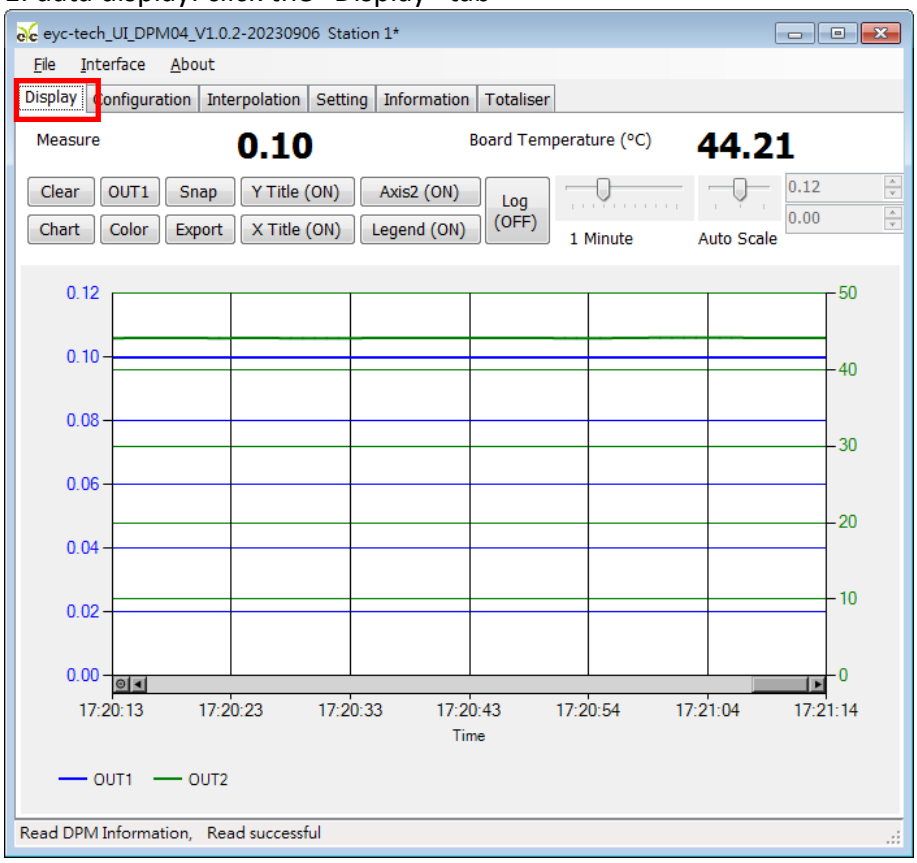
a. instantaneous flow rate, programmable unit
b. instantaneous flow rate, unit of Liter/min
c. accumulative flow, unit conversion 1, default m3
d. accumulative flow, unit conversion 2, default Liter
e. unit of accumulative flow 1
f. unit of accumulative flow 2
g. master enable of volumetric accumulation
h. enable of accumulation 1
i. enable of accumulation 2
j. reset button of accumulation 1
k. reset button of accumulation 2



5.10 Display and Data Log

Click the Display tab to display the measurement data and start data log function

1. data display: click the “Display” tab



2. button description

Clear clear the plot chart

Chart toggle chart plotting line style

OUT1 select the OUTPUT channel you want to set

Color set the line color of the selected OUTPUT channel

Snap snap the currently chart plot

Export export data log since device is connected

Y Title (ON) axis Y main coordinate, ON or OFF

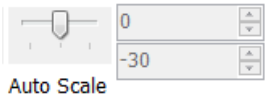
X Title (ON) axis X coordinate, ON or OFF

AxisY2 (ON) axis Y secondary coordinate, ON or OFF

Legend (ON) legend, ON or OFF

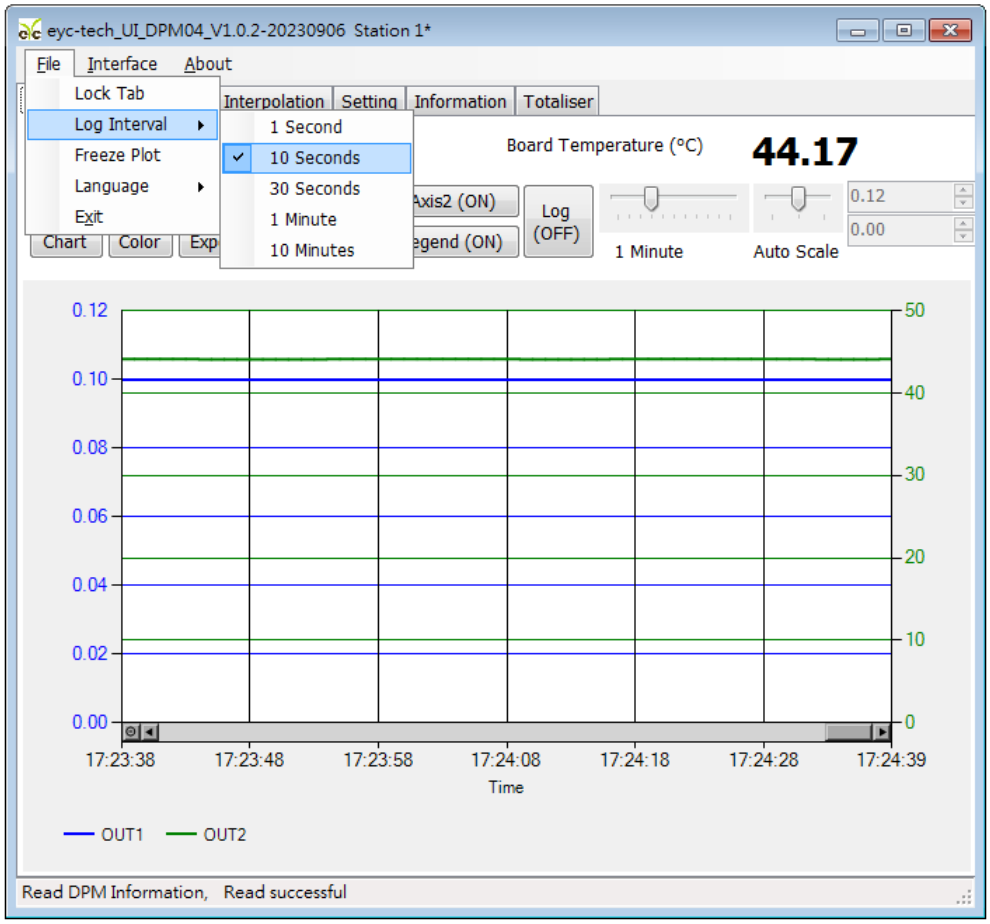
Log (OFF) measurement data logging, ON or OFF

axis X time scale



axis Y amplitude scale

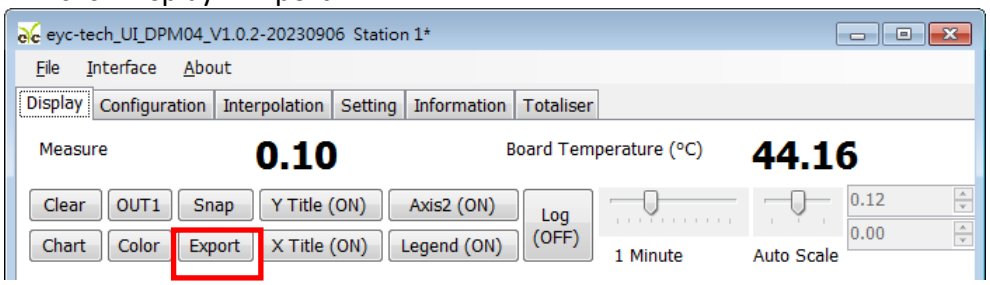
3. Set the logging time interval
   a. Click File > Log Interval
   b. select the logging interval



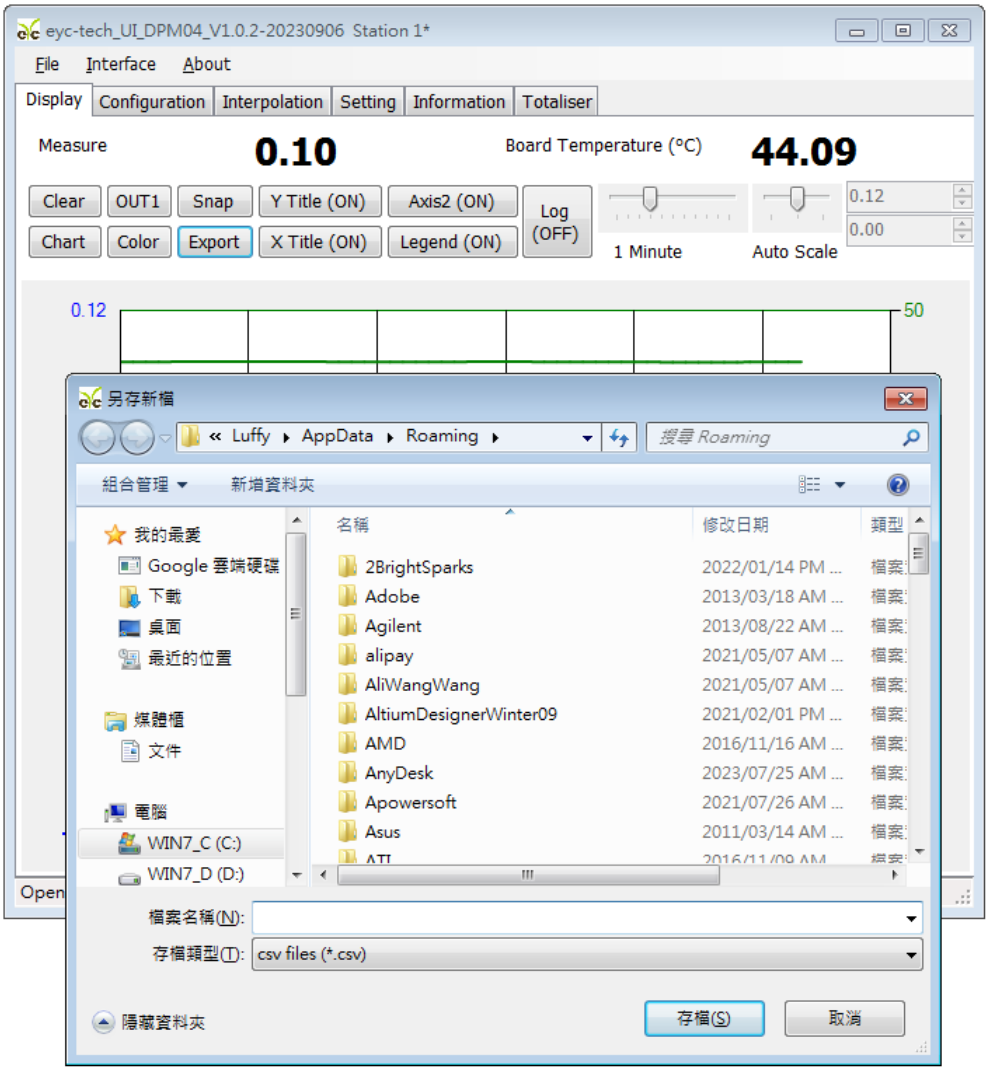
4. Store/log measurement data

1. store measurement data: save the logging data since device is connected

1-1. click Display > Export



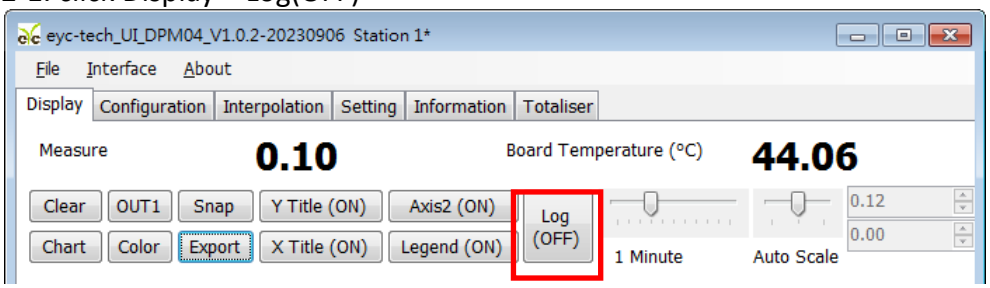
1-2. specify the path and filename > Save



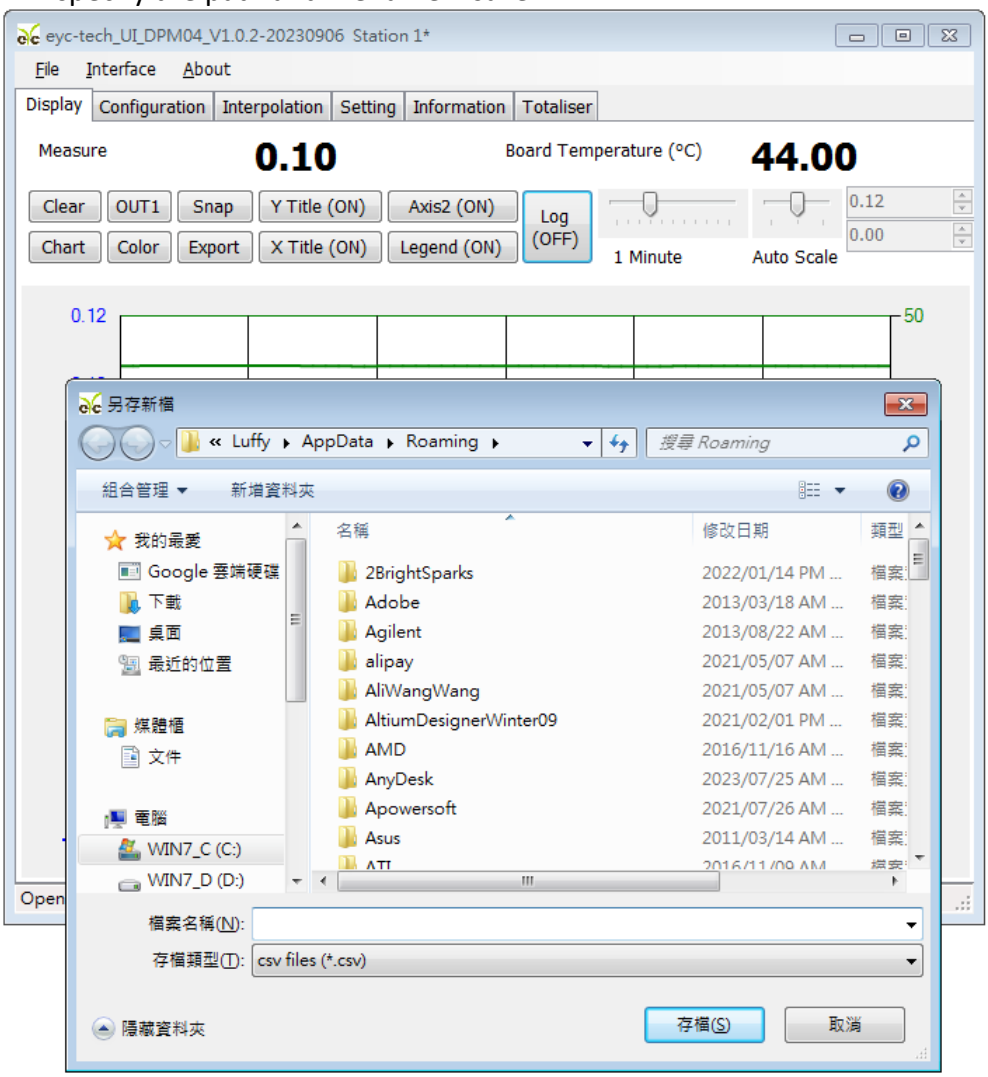
Note: If the specified path and file name are the same, the original file data will be over written

2. log measurement data: start data logging

2-1. click Display > Log(OFF)



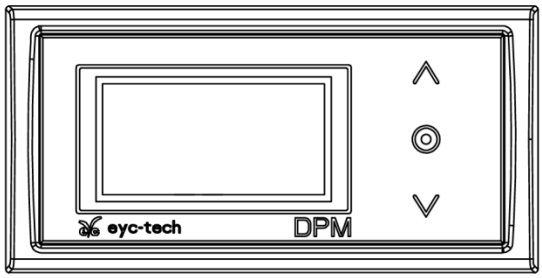
2-2. specify the path and filename > save



Note: If the specified path and file name are the same, the original file data will be over written

6. Menu Operation

Button name and location



UP button

OK button

DOWN button

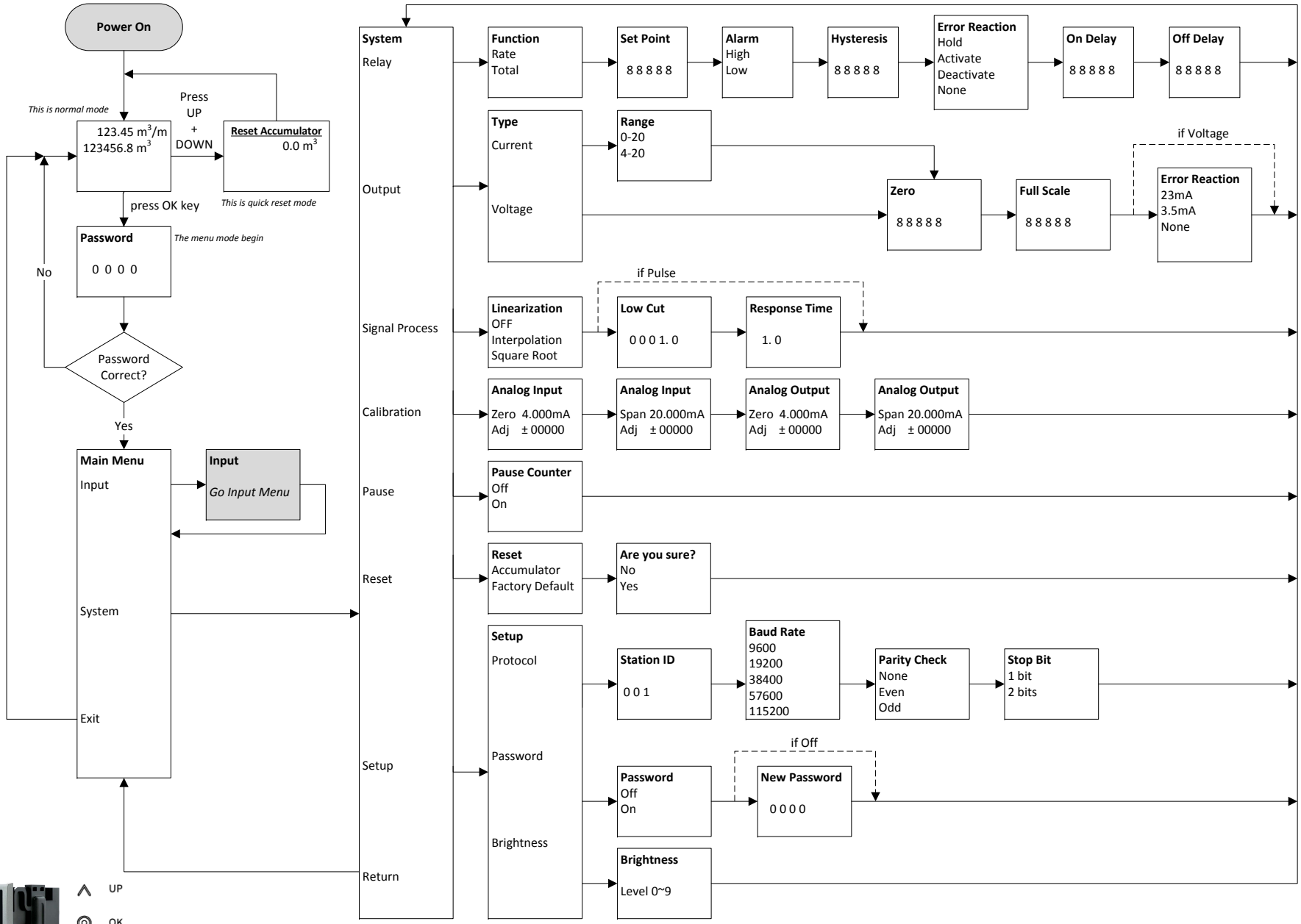
DPM status and button function

Button Instruction	DPM Mode	
	Normal Mode	Menu Mode
Press UP once	Reserved	increase number or option once
Press OK once	Go Menu Mode	Submit the selection, go on next menu or complete the setting and then return to the normal mode
Press DOWN once	Reserved	decrease number or option once, shift cursot if numerical menu
Hold UP	Reserved	increase number or option faster
Hold OK 1.5 seconds	Reserved	Return to previous menu, or leave menu mode
Hold DOWN	Reserved	decrease number or option faster
Press UP and DOWN simultaneously	Reset Counter	Not Available

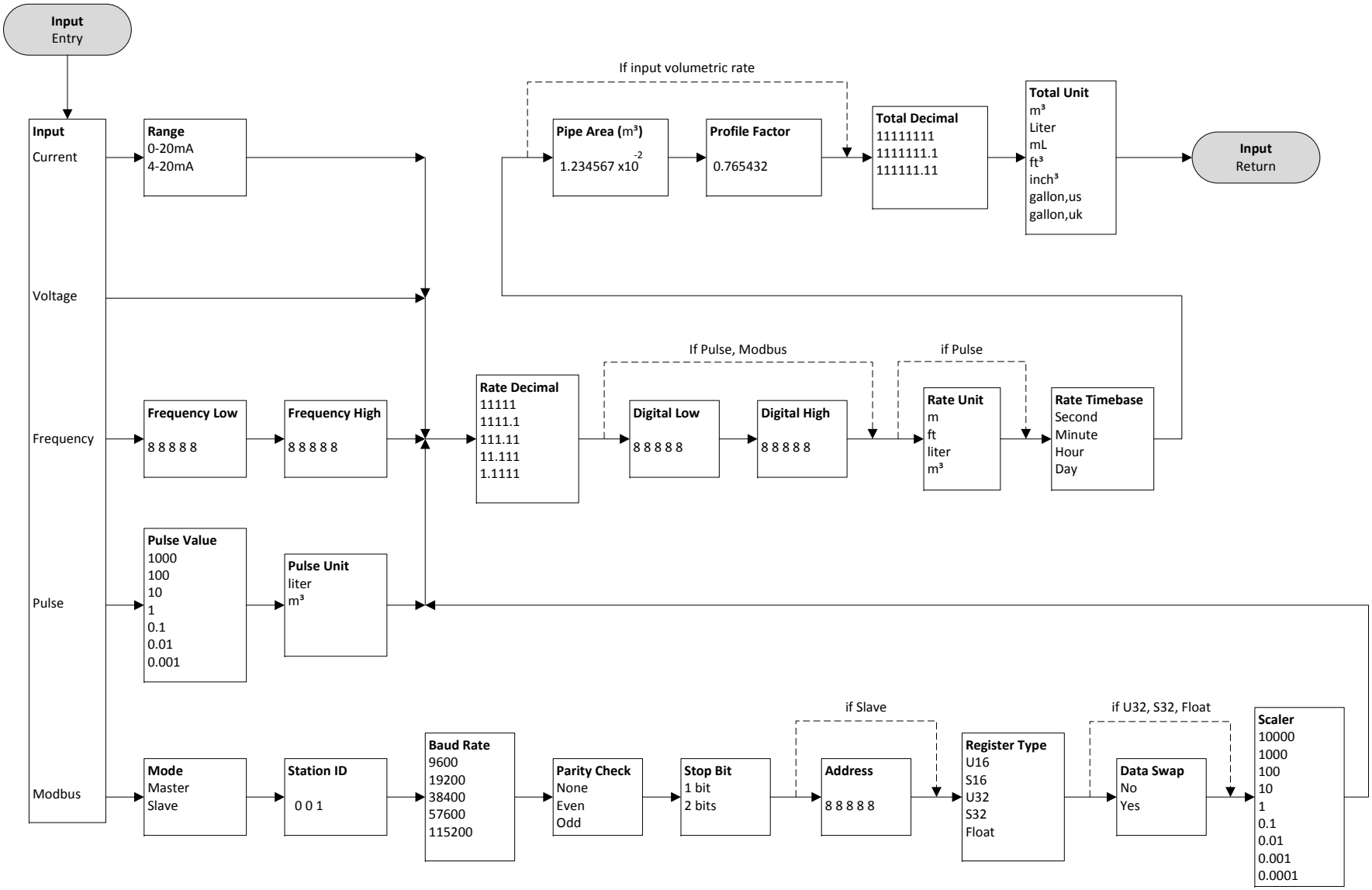
6.1 Menu Flowchart

eyc-tech DPM04 Menu Flowchart

Flow Totalizer



eyc-tech DPM04 Menu Flowchart



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:

Periodically inspect this product for its sensing accuracy. Set the period between inspections based on operating temperature, dust content and dirt condition of the place of installation, and regular calibration is carried out to guarantee the accuracy.

2. Troubleshooting
If abnormality occurs during operation, please check and repair according to the following table and take necessary handling.

Problem	Check Items	Solutions
●No Output ●Unstable Output	●Incorrect Wiring ●Loose or disconnected wiring ●Power supply voltage and quality	●Correct wiring ●Crew on terminal tightly or replace wires ●Replace the device
●Unable to connect device thru. 485	●Incorrect Wiring ●Loose or disconnected wiring ●Protocol mismatch ●Wiring length and terminator	●Correct wiring ●Crew on terminal tightly or replace wires ●Correct protocol setting or refer “5.3 Scan RS-485 connection” ●shorter wiring length, replace terminator
●precision	●Range setting error ●offset (Adj) value ●Linear correction	●Correct range setting ●Correct or disable offset ●Correct or disable linear correction

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