FTM84/85 Operation Manual

Industry Degree High Accuracy Air Velocity Transmitter

V 0.1

Table of Contents

Oder Code：

Ordering Guide

Ordering code ----------> FTM 85 - 60 1 1 - 1 5 M

- Installation
- Range
- Output
- Modbus
- Cable (for remote type)
- Option

【Ordering Item】

Installation	code	Range	code	Output	code	Modbus	code	Cable	code	Option	code
duct	84	1 m/s	01	4~20mA	1	analogue	0	2 m cable	2	M12 metal connector	M
remote	85	2 m/s	02	0~20mA	2	RS-485	1	5 m cable	5	(with 2 m electrical cable)	
		5 m/s	05	0~10V	6	RS-485 & analogue	2	customize	W	metal cable gland	N
		10 m/s	10	0~5V	7	※ M type - M12 (8P)				display	D
		20 m/s	20	0~1V	8	metal connector or				other request	W
		40 m/s	40	RS-485	9	N type - M16 cable					
		60 m/s	60			gland					

1. Features

- IP67 protection degree, rugged aluminum case, fit in variety harsh environment
- Capable of temperature compensation
- Linear adjustment air velocity by computer, analogue output or option RS-485
- High-speed, high-precision measurement, fast response
- Thermo measurement sensor
- LCD display air velocity and temperature value
- Switch multifunction physical quantities：[m/s]、[ft/s]、[km/h]、[mph]、[kont]
- DIP SWITCH function and RS-485 function
- Calibration physical quantities, measuring range, analogue output, station, and zero-point OFF SET function
- Keyboard or RS-485 adjustment zero-point OFF SET function
- Free calibration software : data logger / record 65535 data / chart

Applications

- Monitor air velocity in supplying gas, consumption, and dry process in industry process
- Compressed air consumption measurement
- Building, factory, clean room, hospitals
- 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.

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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.

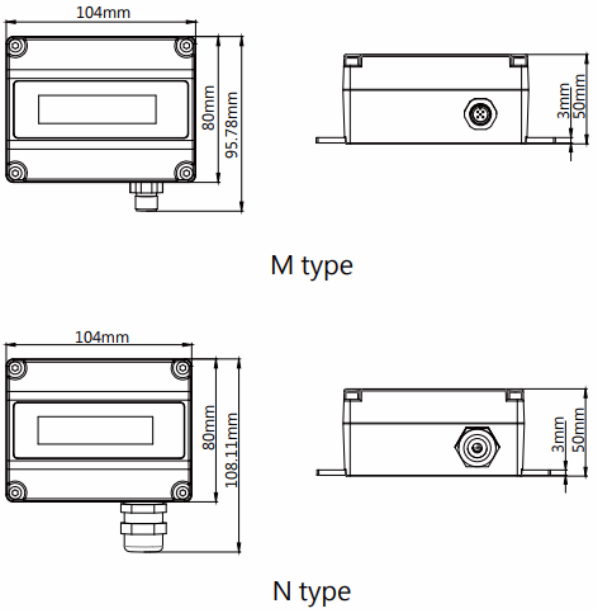
Warning!!

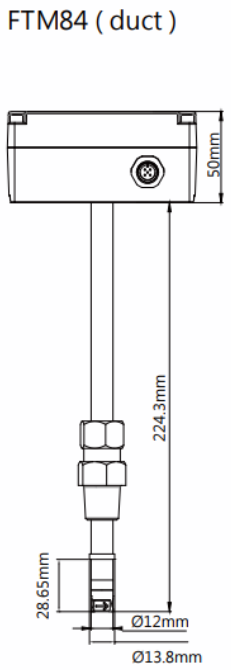
- Installation and wring must be performed by qualified personnel in accordance with all applicable safety standards.
- This product must be operated under the operating conditions specified in manual to prevent equipment damages.
- Please using the product under the ordinary pressure, or it will influence 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 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.

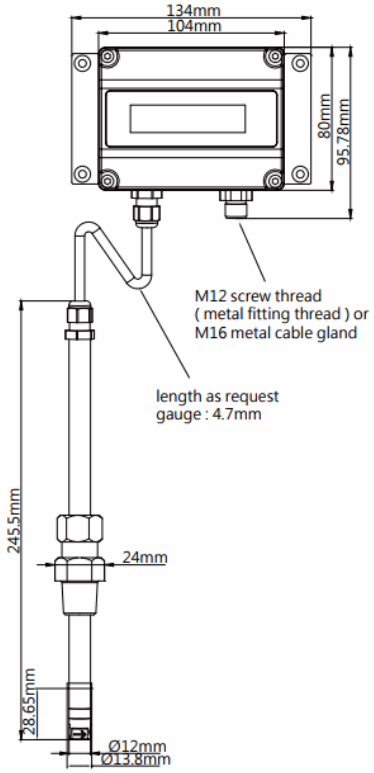
CE
Emissions
EN 61326-1:2006 EN55011:2009/A1:2010
Immunity
EN 61326-1:2006，EN 61000-4-2:2009 ,EN61000-4-3:2006/A2:2010,EN61000-4-8:2010

3. Installation

3.1 Dimension

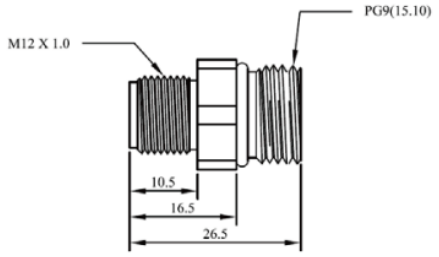




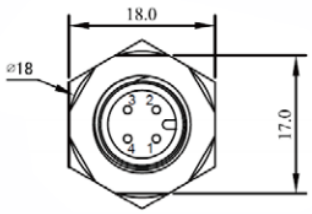


3.2 Electric Connector Dimension

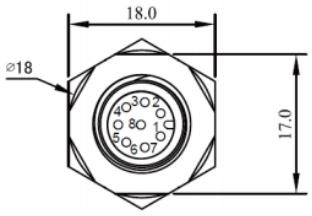
unit : mm



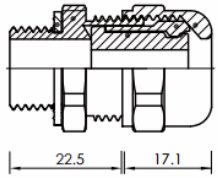
【M type (M12-4PIN metal connector】RS-485 or analogue

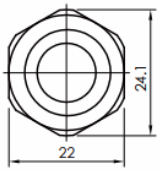


【M type (M12-8PIN metal connector)】RS-485+analogue



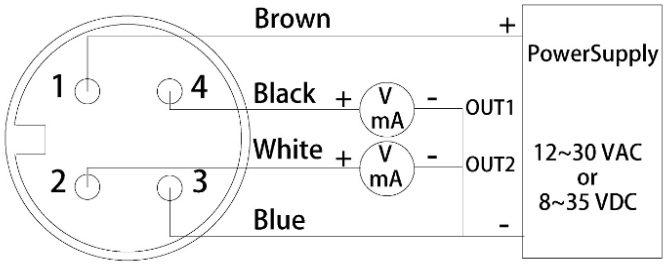
【N type (M16 cable gland)】RS-485+analogue



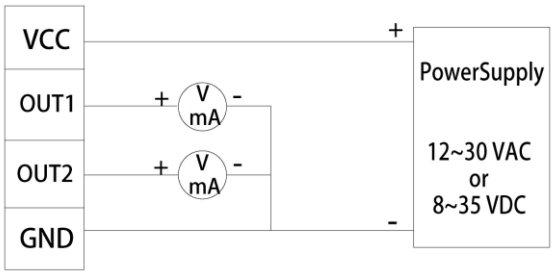


4. Connection

4.1 Analogue Diagram

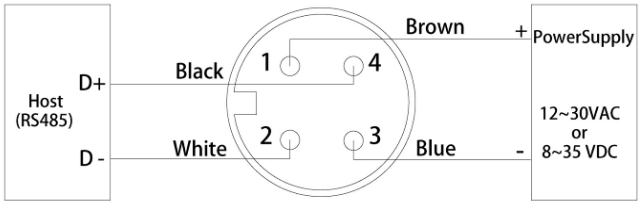


Analogue, M12 4P

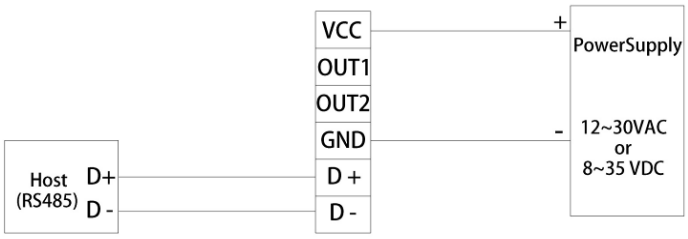


Analogue, 4P Terminal

4.2 RS-485 Diagram

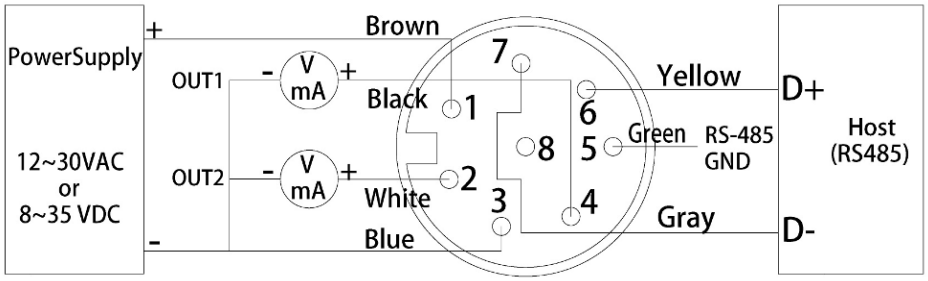


RS-485, M12 4P

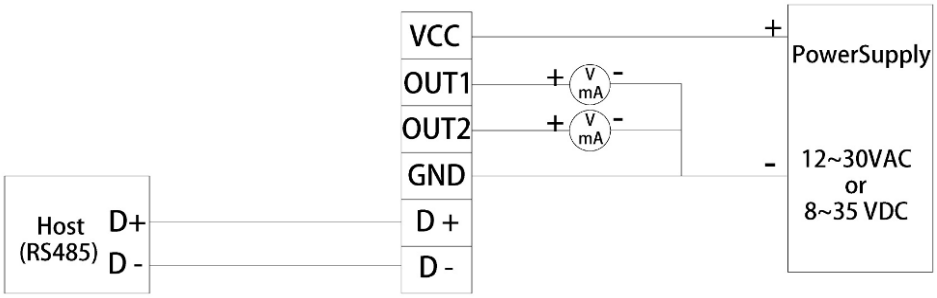


RS-485, 6P Terminal

4.3 Analogue + RS-485 Diagram



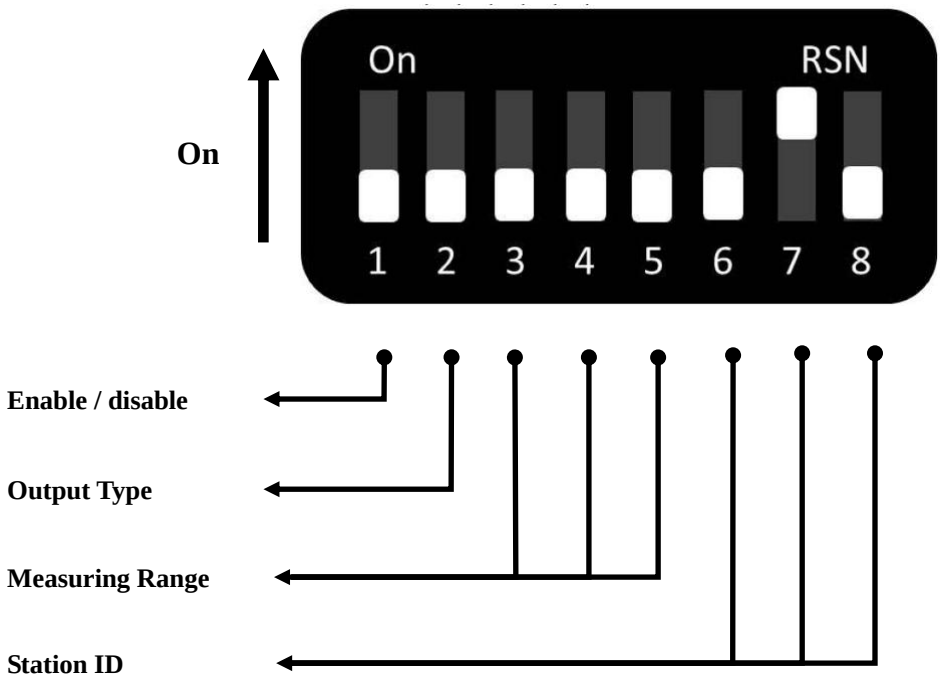
Analogue+ RS-48, M12 8P



Analogue+RS-485, 6P Terminal

5.DIP Switch

For FTM84/85 products, the setting status of DIP switch will be read by software while power on, and this reading action will not happen later on. Thus in order to read the DIP switch status again by software, the user must to reboot again if re-setting the DIP switch. The function of DIP Switch_2 ~ 8 only be effective while setting the DIP switch_1 as “On”.



(1). DIP Switch Active/ Deactivate: Set the DIP switch as On/ Off

STATUS	ON	OFF
DIP switch 1		

(2). The Type for Analog Output: Analog output type for Out1 & Out2

STATUS	0-10V	4-20mA
DIP Switch 2		

(3). Setting the Output Measuring Range：Set the maximum value for analog output (The output physical type must be “Air Flow Velocity”)

DIP Switch 3	DIP Switch 4	DIP Switch 5	RANGE (m/s)
▮□	▮□	▮□	1
□▮	□▮	□▮	2
▮□	□▮	▮□	5
□▮	□▮	▮□	10
▮□	▮□	□▮	15
□▮	□▮	□▮	20
▮□	□▮	□▮	40
□▮	□▮	□▮	60

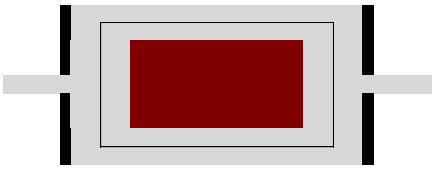
(4). Setting the Station ID：Set the slave Station ID for Modbus RTU.

DIP Switch 6	DIP Switch 7	DIP Switch 8	Device ID
▬□	▬□	▬□	1
□▬	□▬	□▬	2
▬□	□▬	▬□	3
□▬	□▬	▬□	4
▬□	▬□	□▬	5
□▬	□▬	□▬	6
▬□	□▬	□▬	7
□▬	□▬	□▬	8

While setting the DIP switch_1 as “On”, some of the “Setting” & “Output” features will be disabled on UI. In other word, these features are controlled by DIP switch. Otherwise, the features on UI can be configured if set the DIP switch_1 as “Off”.

Zero Button

This button allows user to set the current air velocity to “Zero”, it is required to press the button for 3~5 seconds, and the air velocity adjusted to “Zero” after release this button. The user will observe the LED flashed for few seconds for reminding the user.



RS-485 and Modbus

FTS84 / 85 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:

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

6. Software and calibration operation step

●Free installation program：FTS85_ UI_1.2.4.exe

（※Please use installation program when free program doesn’t execute）

●Installation program：FTS85_UI_XXXXXXXX(date)_1.2.4(EXE).rar

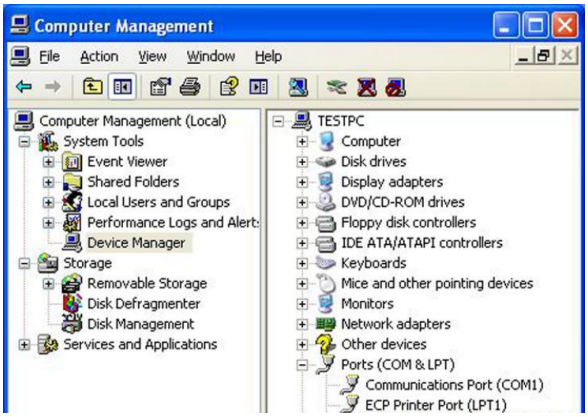
a. Operating System requirements：above Windows XP

b. Click Setup to install

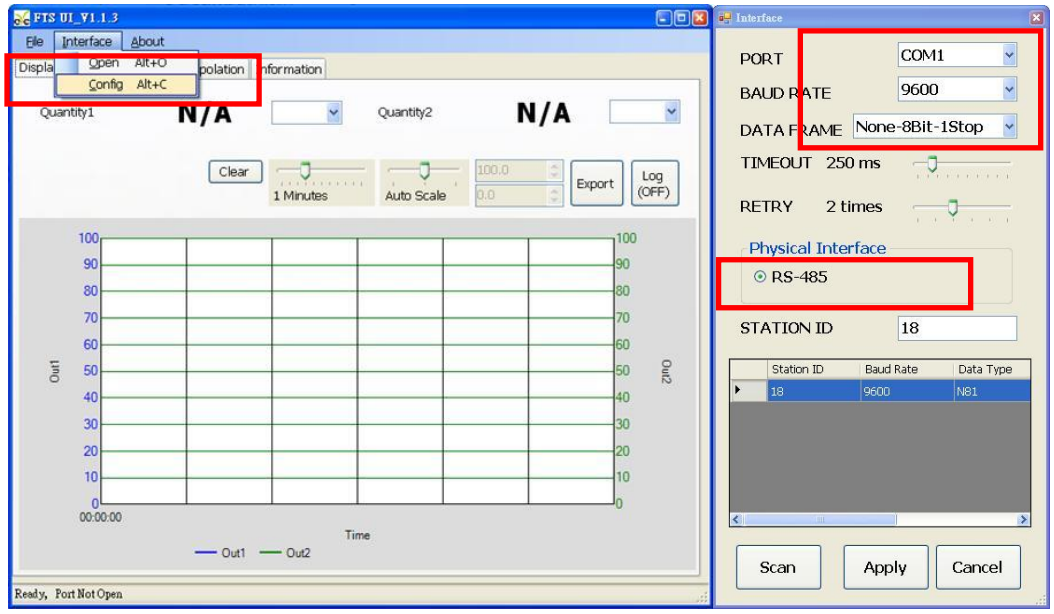
名稱	修改日期	類型	大小
FTS85_UI_1.2.4	2017/11/7 下午 0...	應用程式	2,295 KB

(1). Hardware connection: Connect the FTM84 / 85 to PC by USB to RS-485 or RS-232 to RS-485 converter.

(2). Check the COM port number from Device Manager in Computer Management

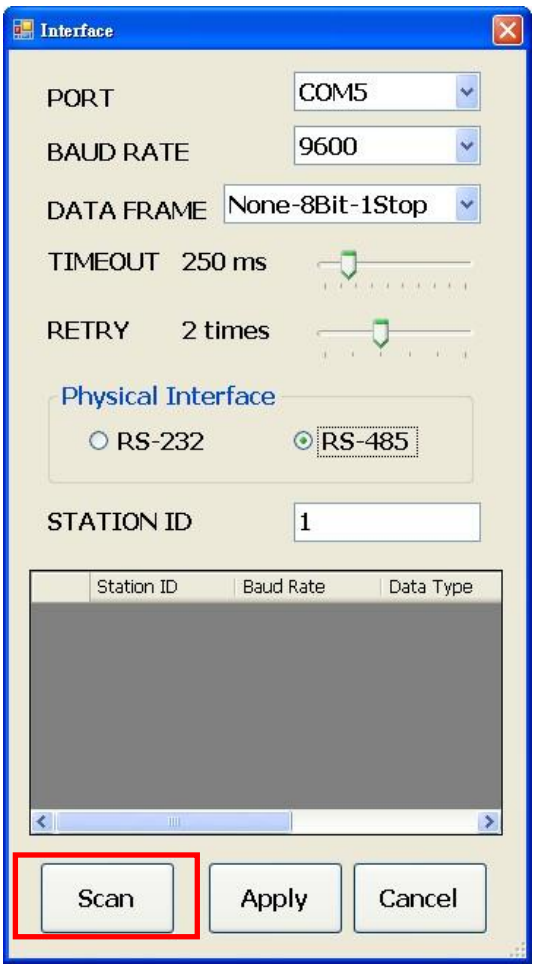


(3). Open the FTS UI, go to function "Interface", click item "Config" and then setting COM port, BAUD rate and data format, pressed "Scan" bottom for scan devices and "Apply" for connection.

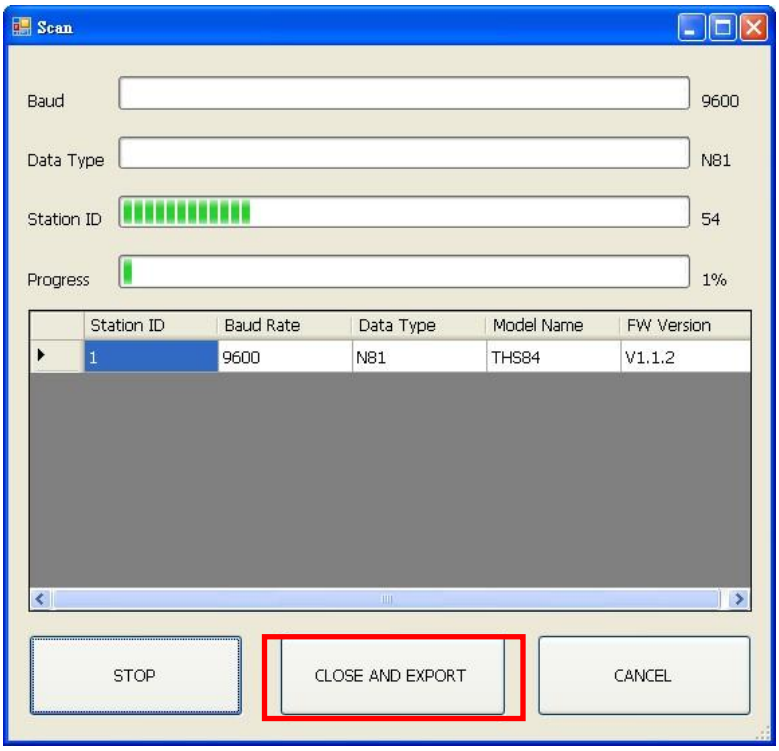


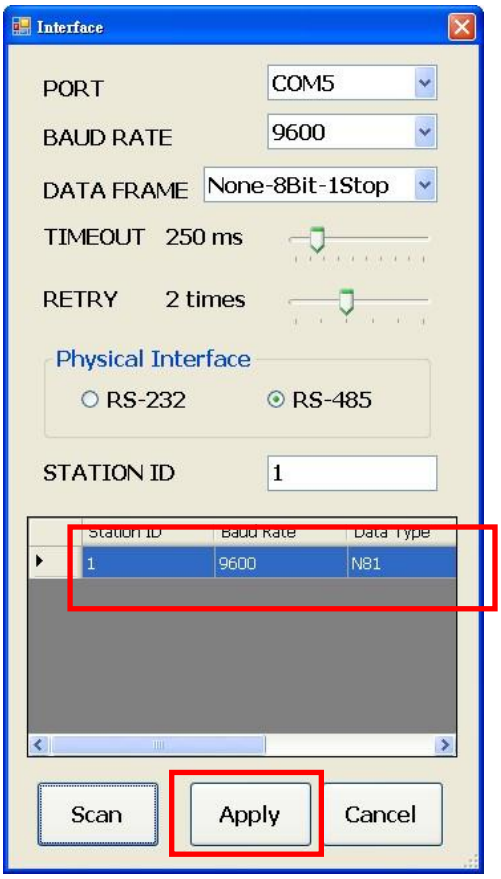
(4). Scan RS-485 connection

Open the FTS UI, go to function “Interface”, click item “Config” and then setting COM port, BAUD rate and data format, pressed “Scan” bottom for scan devices and “Scan” for connection.



Select Station ID and Click "CLOSE AND EXPORT"





Click Apply

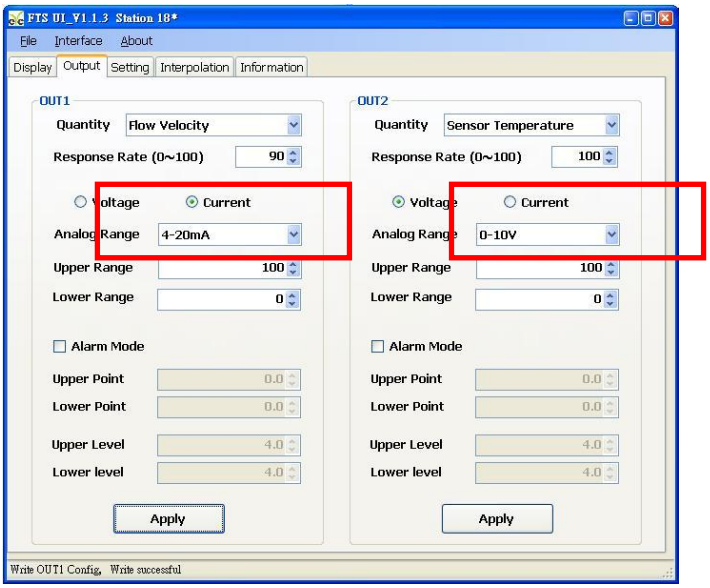
(5). Setting on Analog Output

i. Quantity: Flow Velocity, Temperature

ii. Response rate: 0~100, 100: filter off, 90: filter = 60 second, 80: filter = 120 second, etc …

iii. Analog type: 0-20mA / 4-20mA / 0-1V / 0-5V / 1-5V / 0-10V / 2-10V

iv. Range for Upper and Lower



(6). Setting on RS-485 and offset adjustment

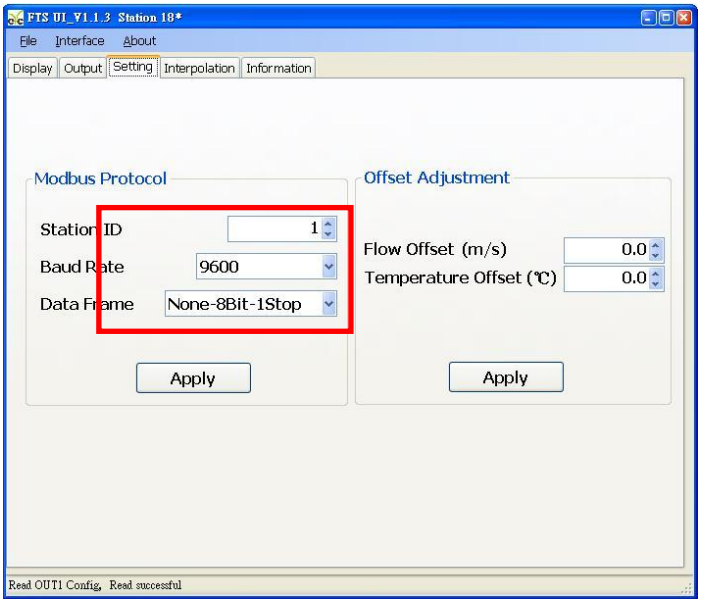
i. Station ID: 1~247

ii. Baud Rate: 9600 / 19200 / 38400 / 57600 / 115200

iii. Data Frame: None-8Bit-1Stop / None-8Bit-2Stop / Even-8Bit-1Stop / Even-8Bit-2Stop / Odd-8Bit-1Stop / Odd-8Bit-2Stop /

iv. Flow Offset adjustment

v. Temperature Offset adjustment

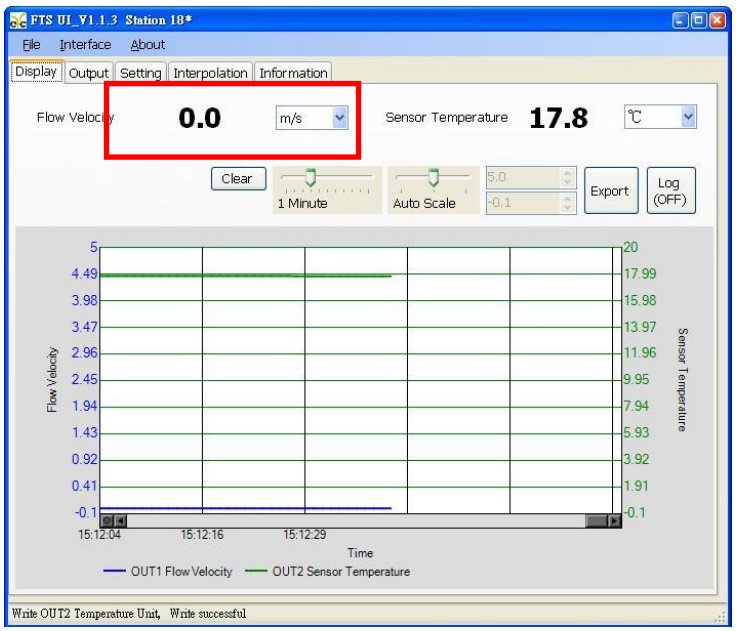


(7). Data display and logging

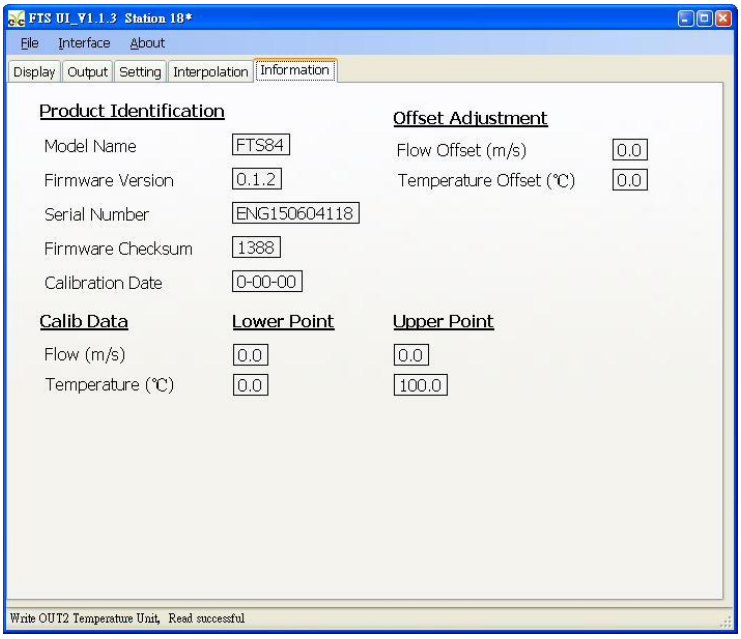
i. Flow velocity unit: [m/s]、[ft/s]、[km/h]、[mph]、[knot]

ii. Temperature unit: ℃ / ℉

iii. Export file: *.CSV



(8). Device information



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
●No output ●Unstable output	●Disconnected 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 ●Errow 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 ●Align measurement head with flow direction ●Cleaning the filter ●Changing the filter ●Calibrate ●Replace the sensor