# Operation Manual

## eYc GM series CO monitoring transmitter / Indoor



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# 1. Summary

## 1.1 Features

(1). Electrochemical sensor: For detecting the CO Concentration.

(2). Remote monitor by RS-485 (Modbus RTU).

(3). Customized Monitoring System.

(4). Providing software can be set and read the records.

a. Set the analog output type and measuring range.

b. Response Rate

c. CO Concentration measurement, plot and logging.

d. RS-485 Port No.

e. Different Baud Rate for data transmission.

## 1.2 Applicable Fields

a. The ventilation system for various building.

b. The HVAC process as Heating, Ventilation and Air Condition.

c. Instrument testing equipment.

d. Environmental control and monitoring system.

e. Monitor CO for house and building.

# 2. Security considerations

### 2.1. Manual Guide

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.

**Solemn Statement:**

(1). This product is improperly to used in explosion-proof area.

(2). Do not use this product in dangerous situation where human health & life may be threaten & affected.

### 2.2. Improper Installation Environment

In additional, if the user install 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 EYC-TECH.

### 2.3. Illustration, Warning & Attention

If the improper & dangerous results which result from improper operator or improper environment, EYC-TECH will not bear any legal responsibility.

## Illustration

| | |
|---|---|
|  | This mark is to give advice & warning for the potential dangerous which result from obvious wrong/ improper operation steps. (The left mark means "Watch out for electric shock") |
|  | In order to avoid the dangerous situation,  this mark means some special operation/ action is forbidden to implement. (The left mark means "Forbidden to Disassemble") |
|  | In order to avoid the dangerous situation, this mark means Specified Action/ Operation is required to implement. (The left mark means "General Instruction") |

## Warning

| | |
|---|---|
|  | Please implement the wiring operation under power-off status; otherwise it will cause electric shock, or become the root cause of machinery breakdown. |
|  | 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. |
|  | Please install this product under normal pressure status. Otherwise it may cause the safety problems. |

## Attention

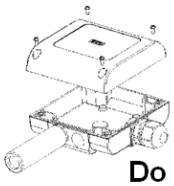
| | |
|---|---|
|  | In order to be in accordance with all applicable safety standards. The installation & wiring must be performed by qualified installer & professional instruments. |
|  | Please ensure the outlook/ outbox do not have any damage which result from improper transportation, or malfunction 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. |
|  | 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. |
|  | In order to prevent the product from short circuit, please install this product base on the wiring diagram on chapter 5, and please use the nonconductor material for wire end. |
|  | In order to prevent the reduced accuracy from other interferences, do not use the two-way wireless devices within 3 meters, |
|  | Do not disassemble this product, otherwise it may cause the malfunction. |
|  | During the product is breakdown, please take safety strategy. Because it may cause high humidity atmosphere or the output value |

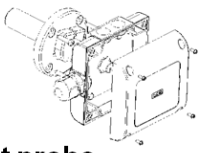
| | |
|---|---|
| | exceed maximum value as ruled. |
|  | Please recycle the partial or whole parts while discard this product. |
|  | While discard this product, the user must to comply with the related rules for industrial domestic wastes for different country/ location. |

# 3. Housing, Dimension & Installation

## 3.1 Housing & Dimension

Diagram

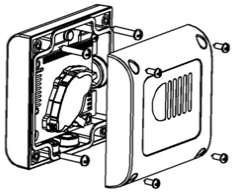


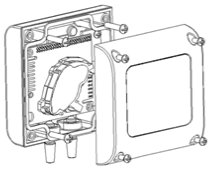


Do not twist probe

GM33 GM34

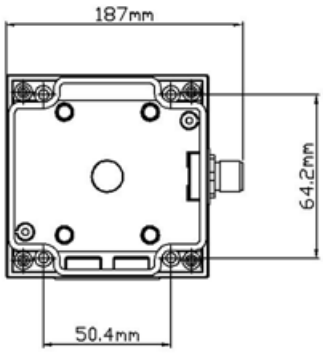
Diagram



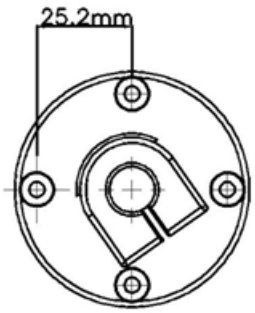


GS33 GS34

## 3.2 Installation




BASE



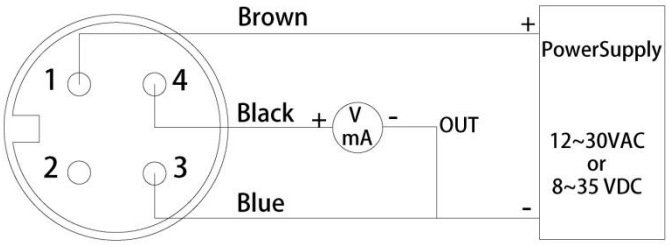

FLANGE

## 4. Hardware Feature

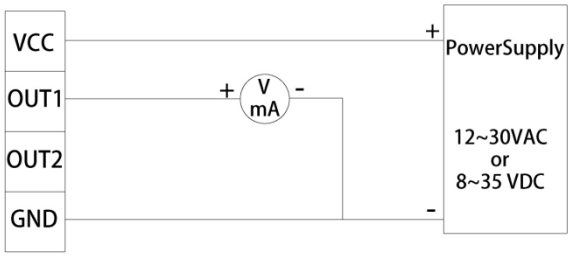
| | |
|---|---|
| Power： | DC 8~35V or AC 12~30V (under current consumption 300mA) |
| Analog output： | Two independent channel, Optional 0~1V, 0~5V, 0~10V, 1~5V, 0~20mA, 4~20mA |
| RS-485 output： | Baud Rate 9600, 19200, 38400, 57600, 115200 bps<br>Data Frame N81, none parity, 8 bit data, 1 bit stop<br>Station ID 1-247 |

## 5. Signal Connection

(1). Analog Output Connection Diagram

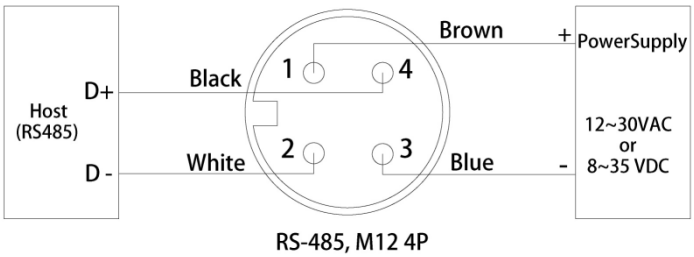



Analogue, M12 4P

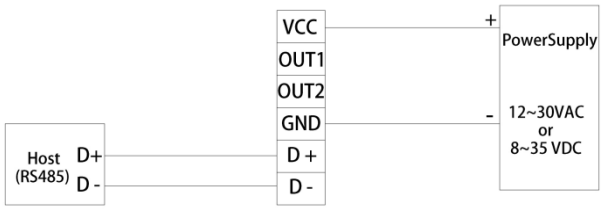



Analogue, 4P Terminal

(2). RS-485 Serial Port Connection Diagram

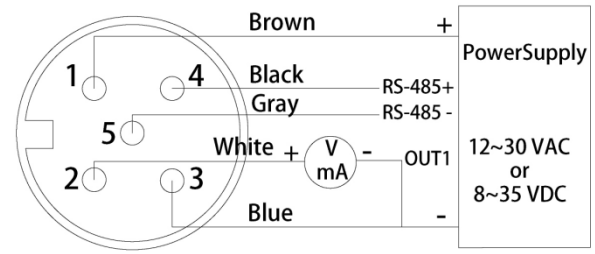



RS-485, M12 4P

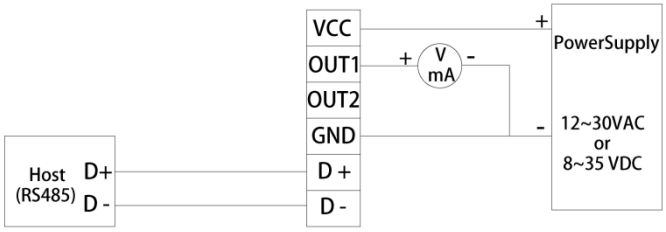



RS-485, 6P Terminal

(3). Analog Output and RS-485 Serial Port Connection Diagram




Analogue+RS-485, M12 5P




Analogue+RS-485, 6P Terminal

# 6. Software Feature & Using

## 6.1 Software Compatibility

Software features are compatible to Microsoft Windows System, and the PC System connects with GM product via COM PORT (Serial Port)。

## 6.2 RS-485 Serial Communication

GM product uses RS-485 Serial Port Interface to connect with monitor PC, except the software, the hardware interface is also necessary, GM product provides 2 methods for hardware connection.

(1). If the PC equipped with COM Port. Use Converter (RS-232 to RS-485) to connect with GM product.

(2). In despite of the PC equipped with COM Port. Use Converter (USB to RS-485) to connect with GM product.

## 6.3 GM product Setting_Analog Output

(1). User can set the different output voltage or electric current range independently on each terminal as 0-1V, 0-5V, 1-5V,0-10V, 0-20mA or 4-20mA.

## 6.4 GM product Setting_Port No. & Transmission Rate

(1). RS-485 serial communication interface merged with Modbus Protocol, hese 2 features co-works to construct the digital communication format.
(2). Usable Port No. range: 1~247.
(3). On the same wiring, the Port No. must to be different.
(4). The maximum devices quantity which connected to RS-485 interface restricted on 31 devices.
(5). Three selectable transmissions Rate (Baud Rate): 9600 / 19200 / 38400 / 57600 / 115200 bps.

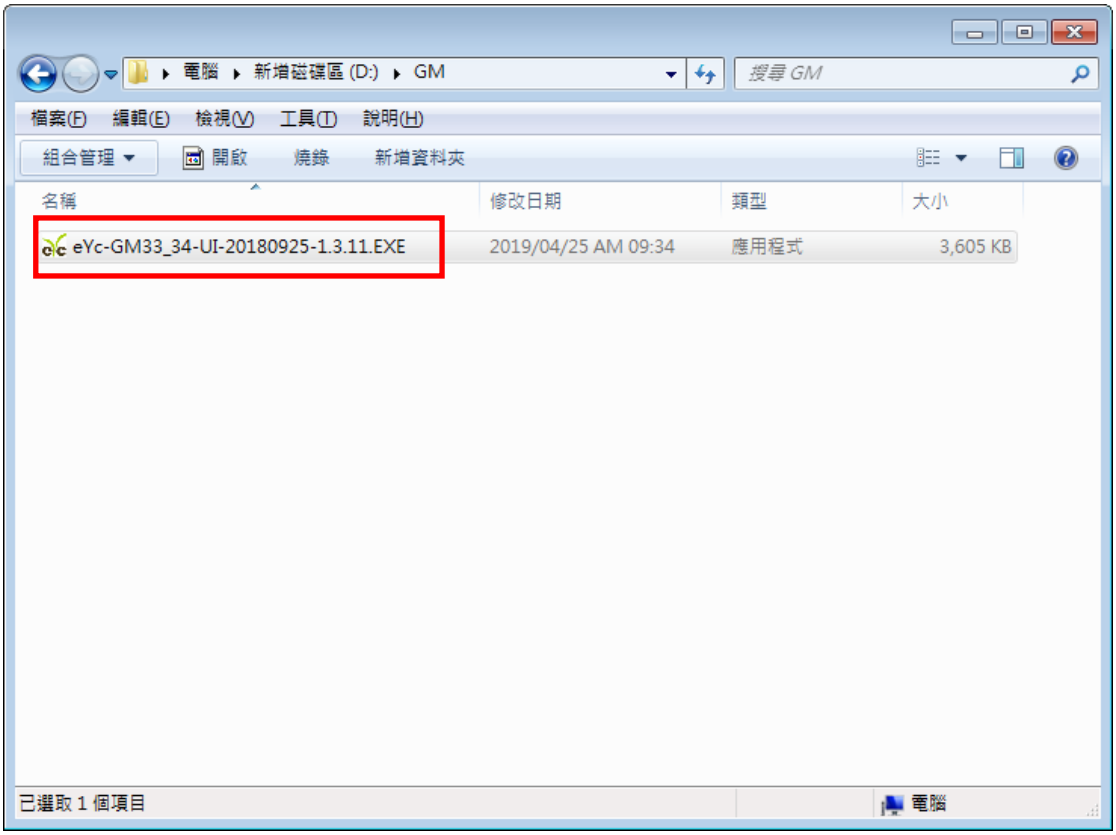
# 7. GM product UI operation step

## 7.1 Execute “GM UI”

(1). Free installation file：eYc-GM33_34-UI-20180925-1.3.11.EXE

a. O.S Requirement: Windows XP or above.

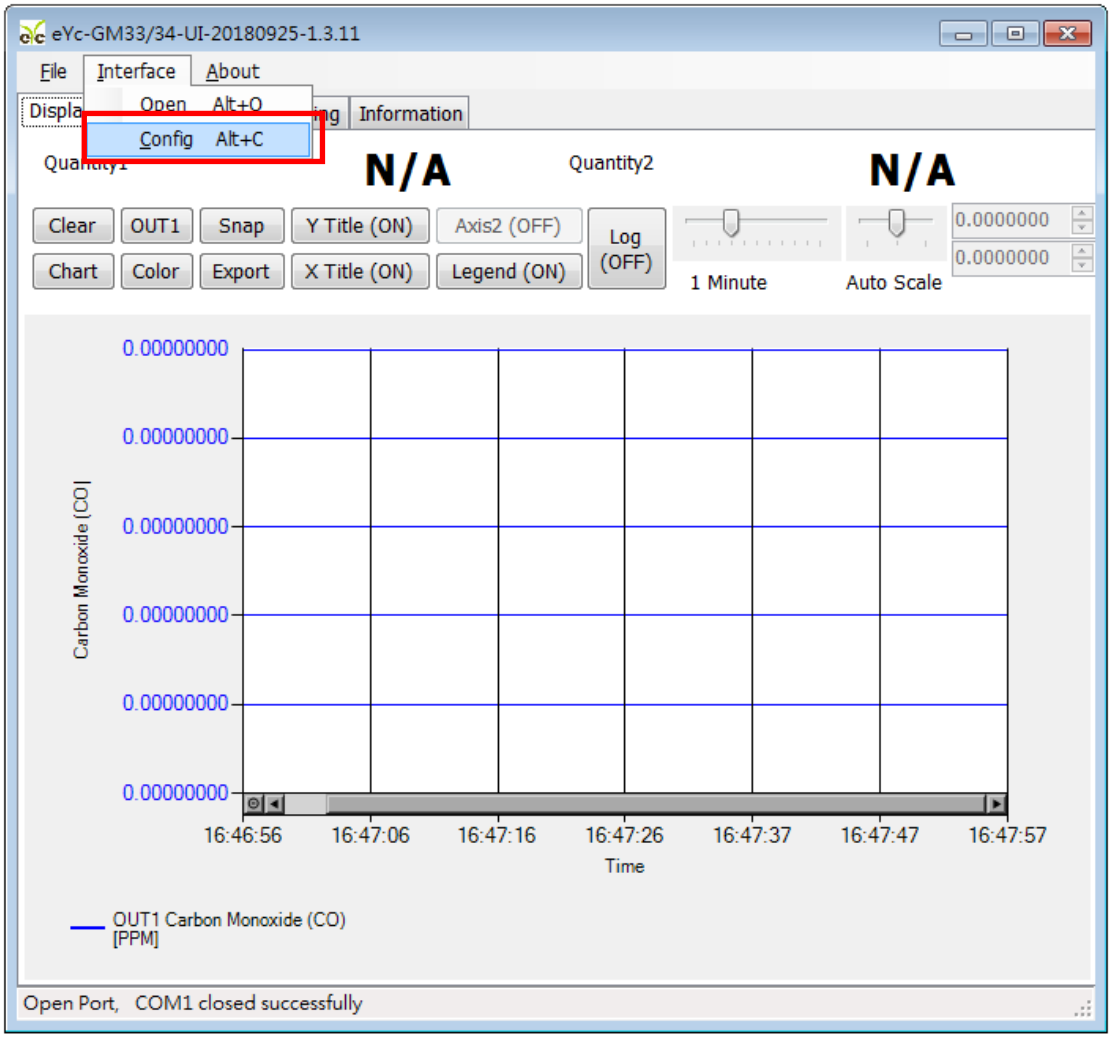
b. Click “eYc-GM33_34-UI-20180925-1.3.11.EXE” to open GM product UI.



### 7.2 Connect to PC via RS-485

(1). Connect GM product to PC via RS-485 cable

(2). Click “Interface > Config”



(3). Select the corresponding values of com port as following :

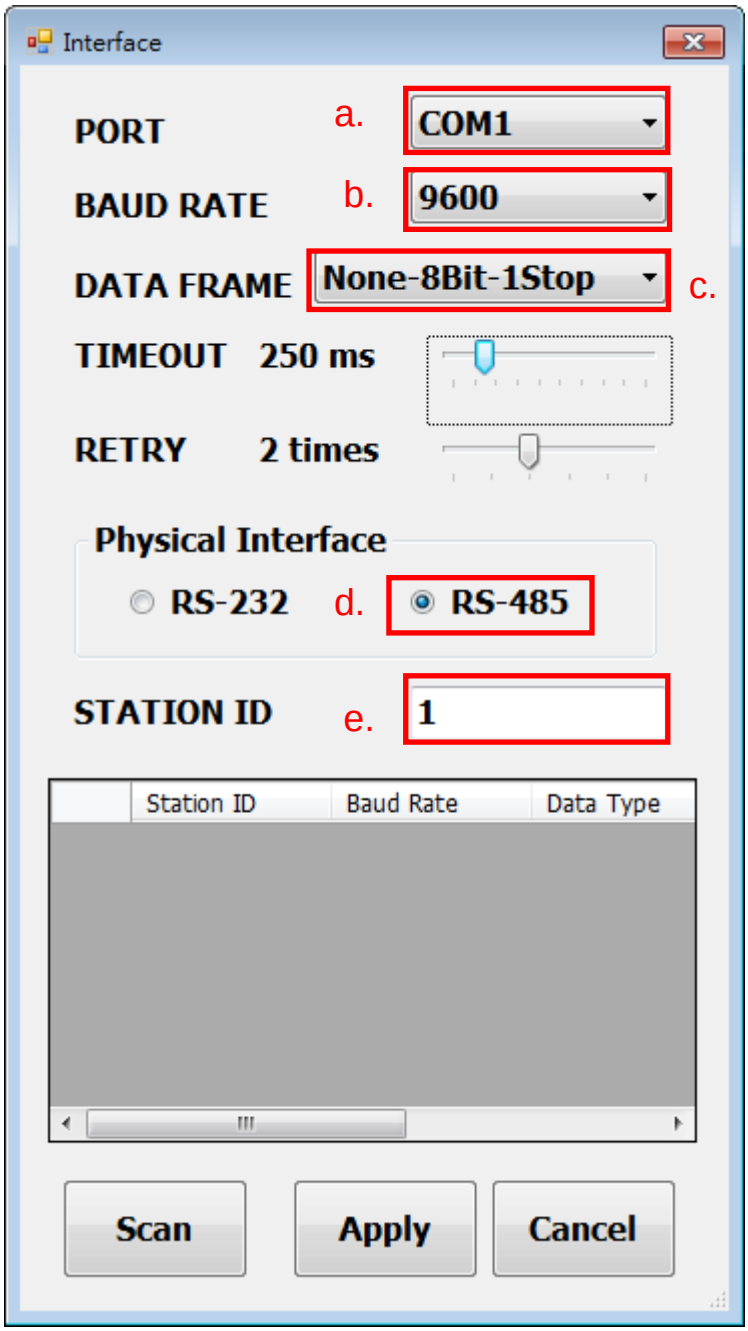
a. Port No

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

d. Physical Interface: RS-485

e. Station ID (The factory default 1)

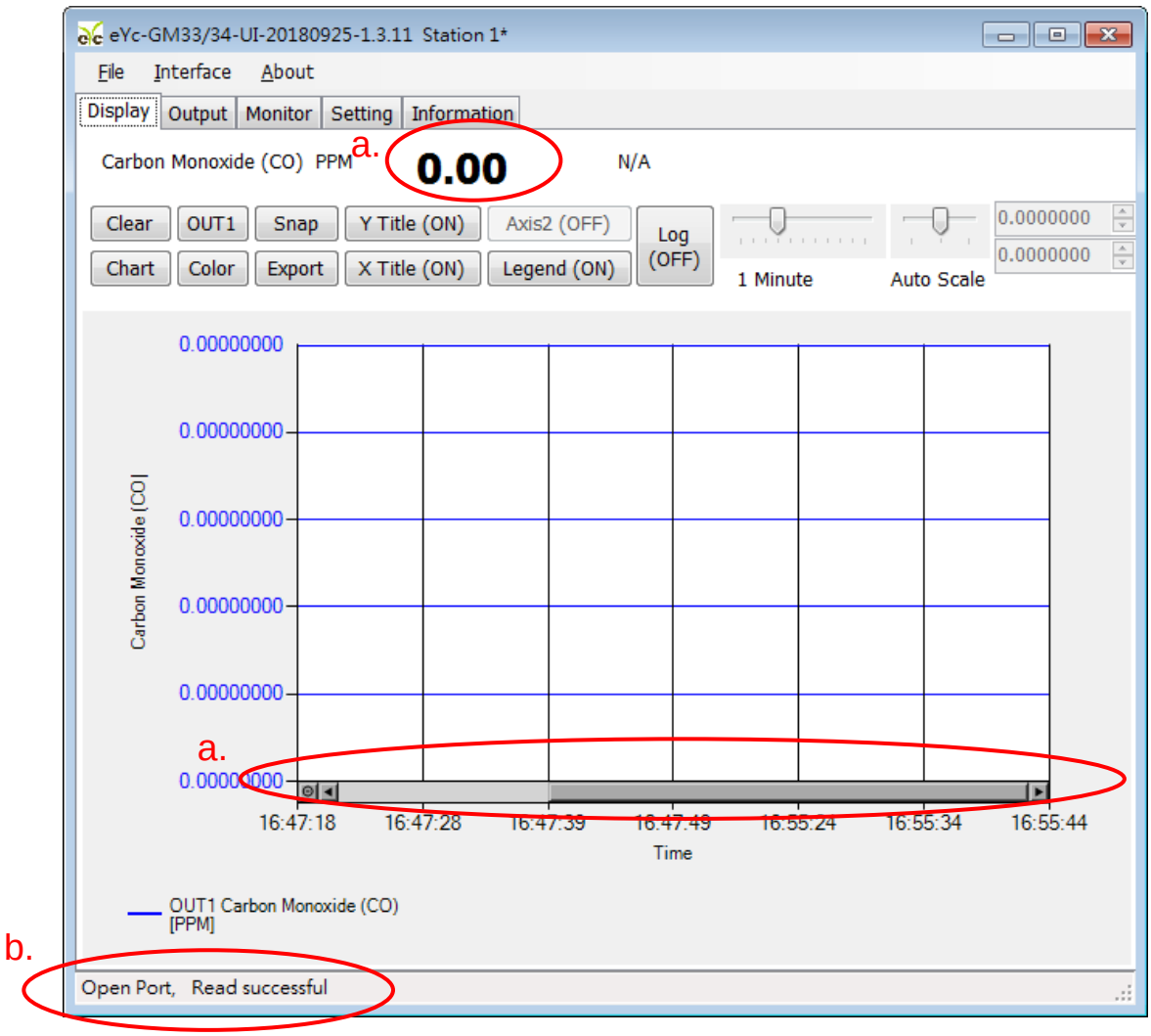



(4). Click Apply accomplish the setting

(5). Connect successful：

a. Shows the values of output

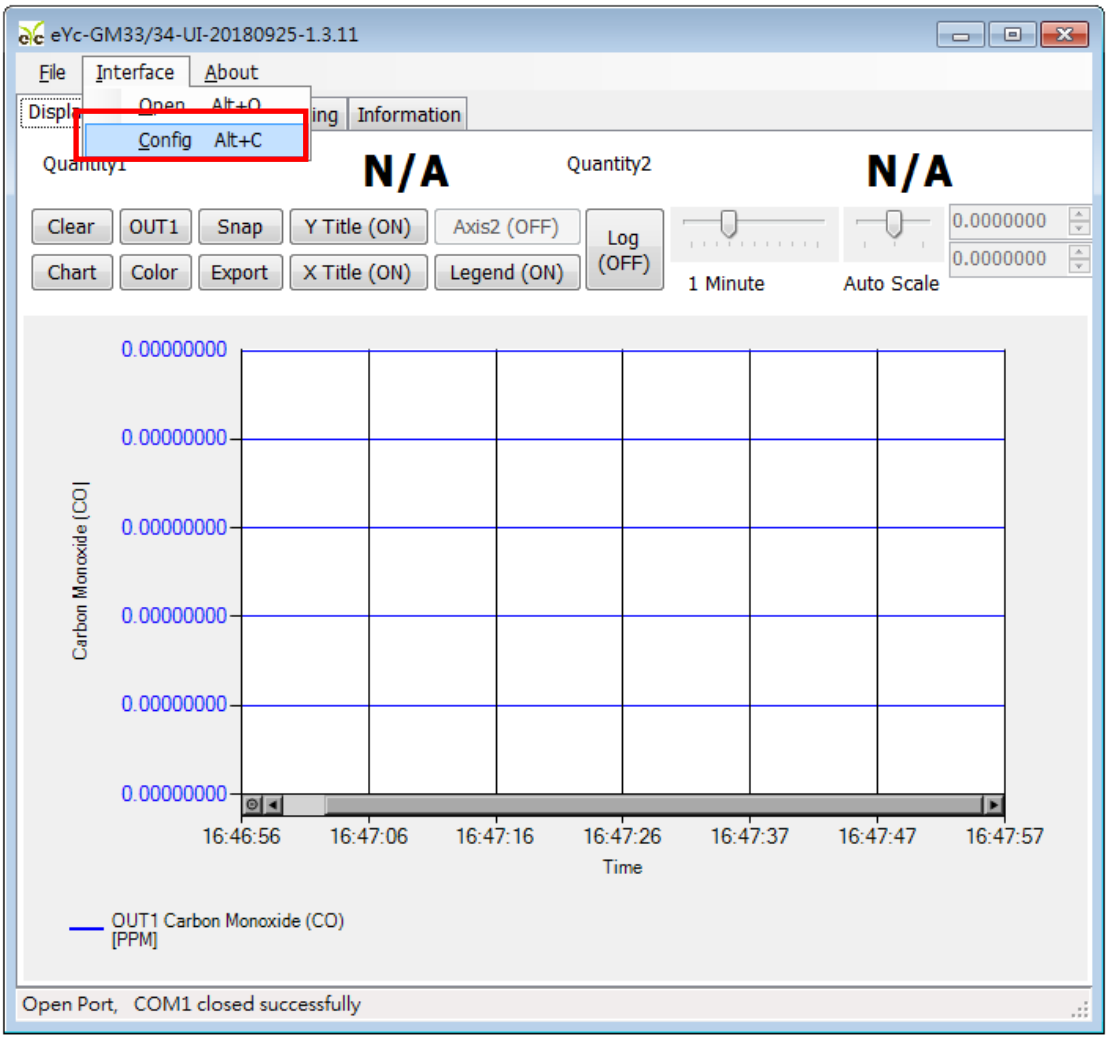
b. Shows “Open port, Read successful” in status bar



### 7.3 Scan RS-485 connection

(1). Connect product to PC via RS-485 cable

(2). Click “Interface > Config”

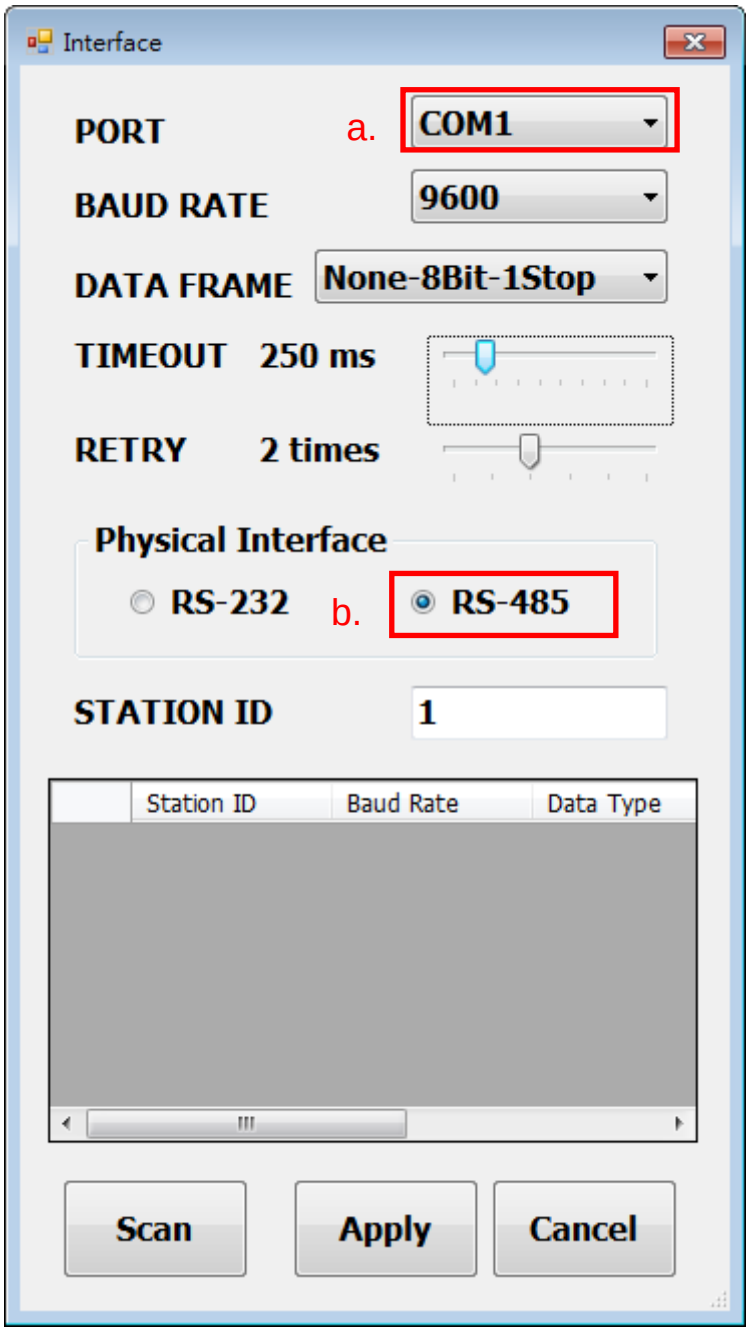


(3). Select the corresponding values of com port as following

a. Port

b. Physical Interface: RS-485

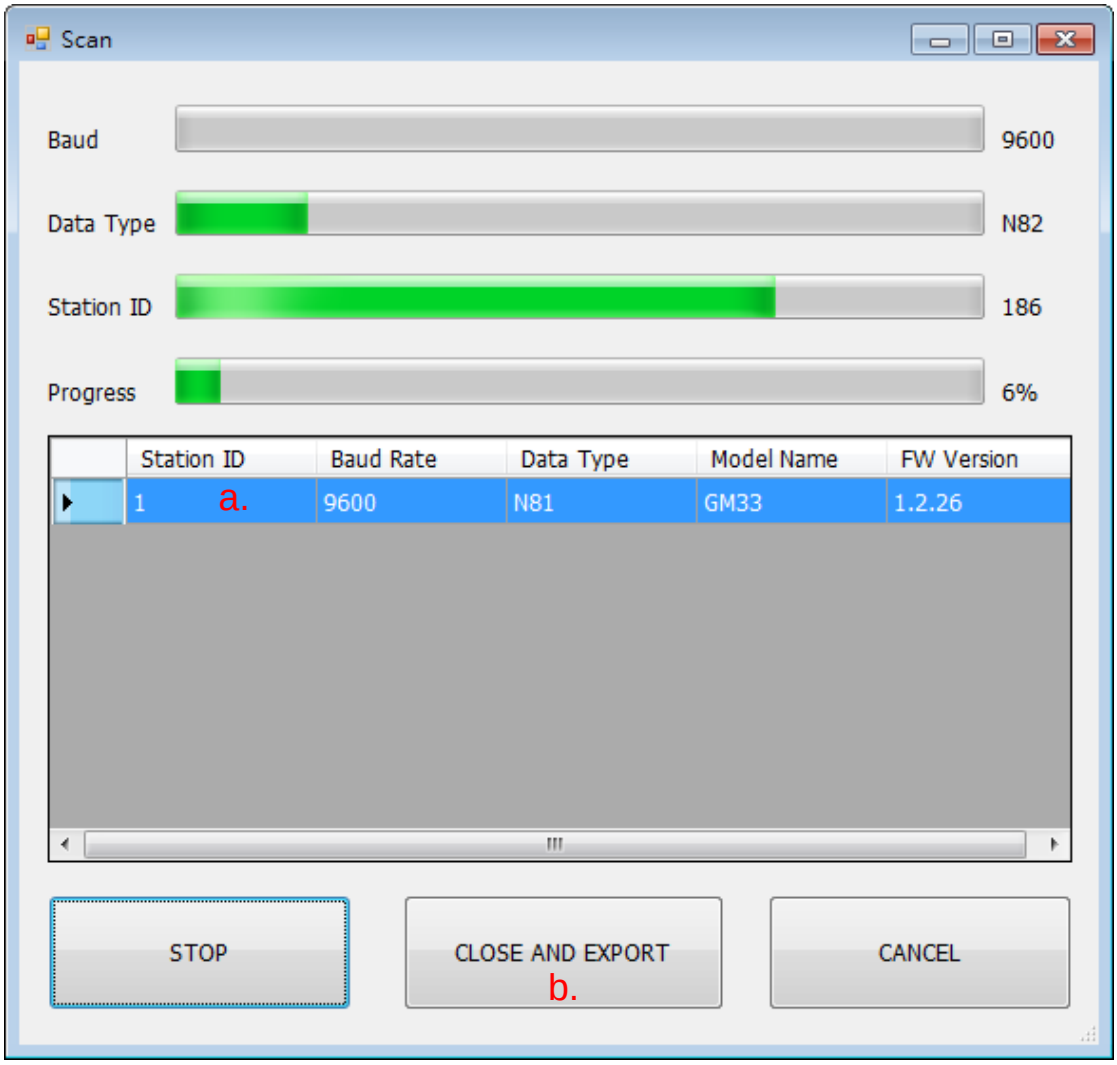
Click Scan to start connection device scans



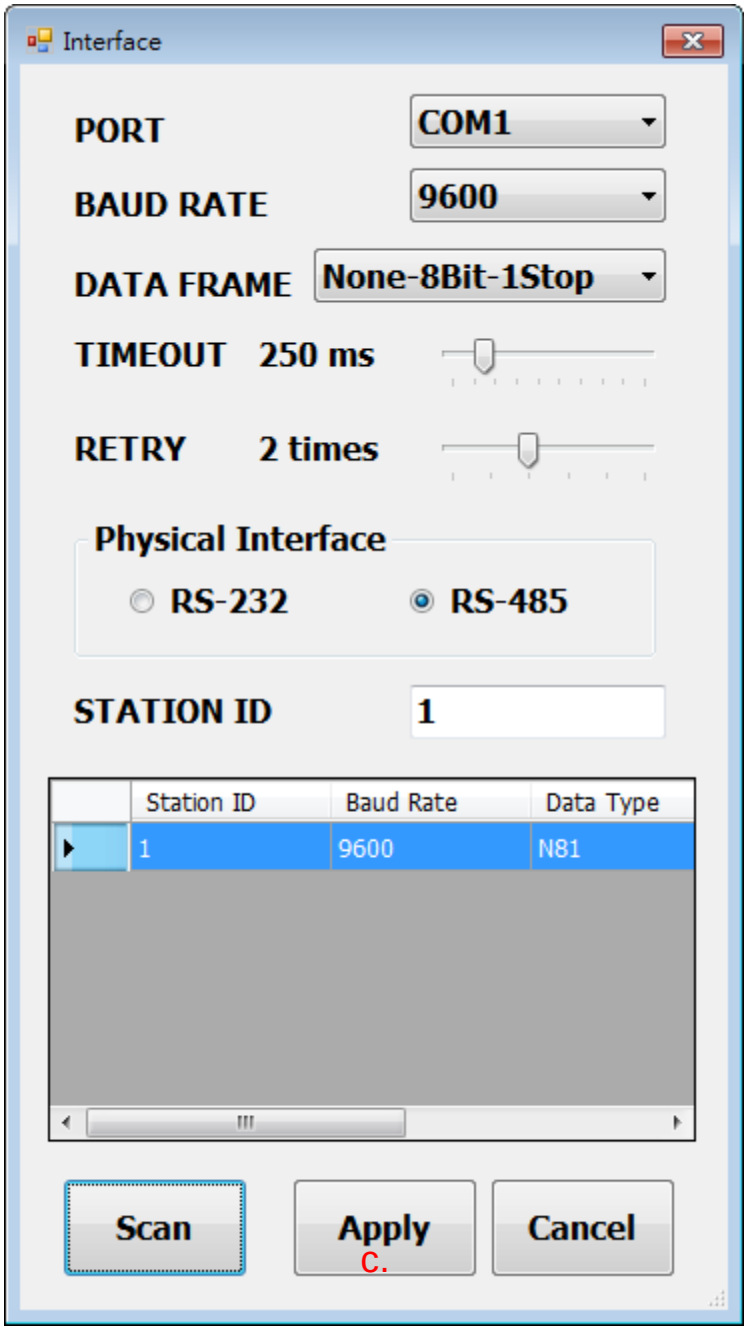
Scanning device and setting state

a. Choose Station ID

b. Click CLOSE AND EXPORT



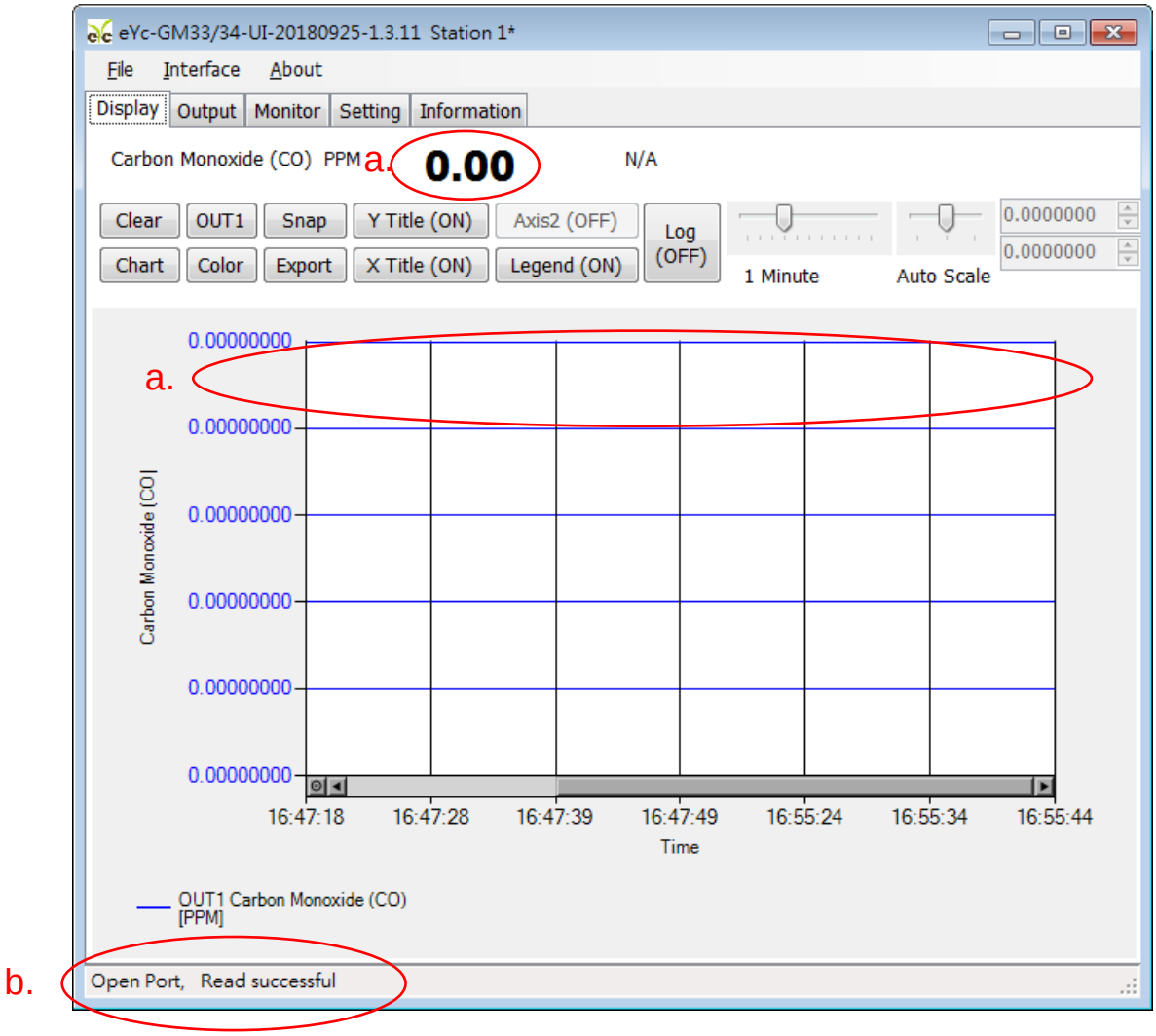
c. Click Apply accomplish the setting



Connect successful

a. Shows the values of output

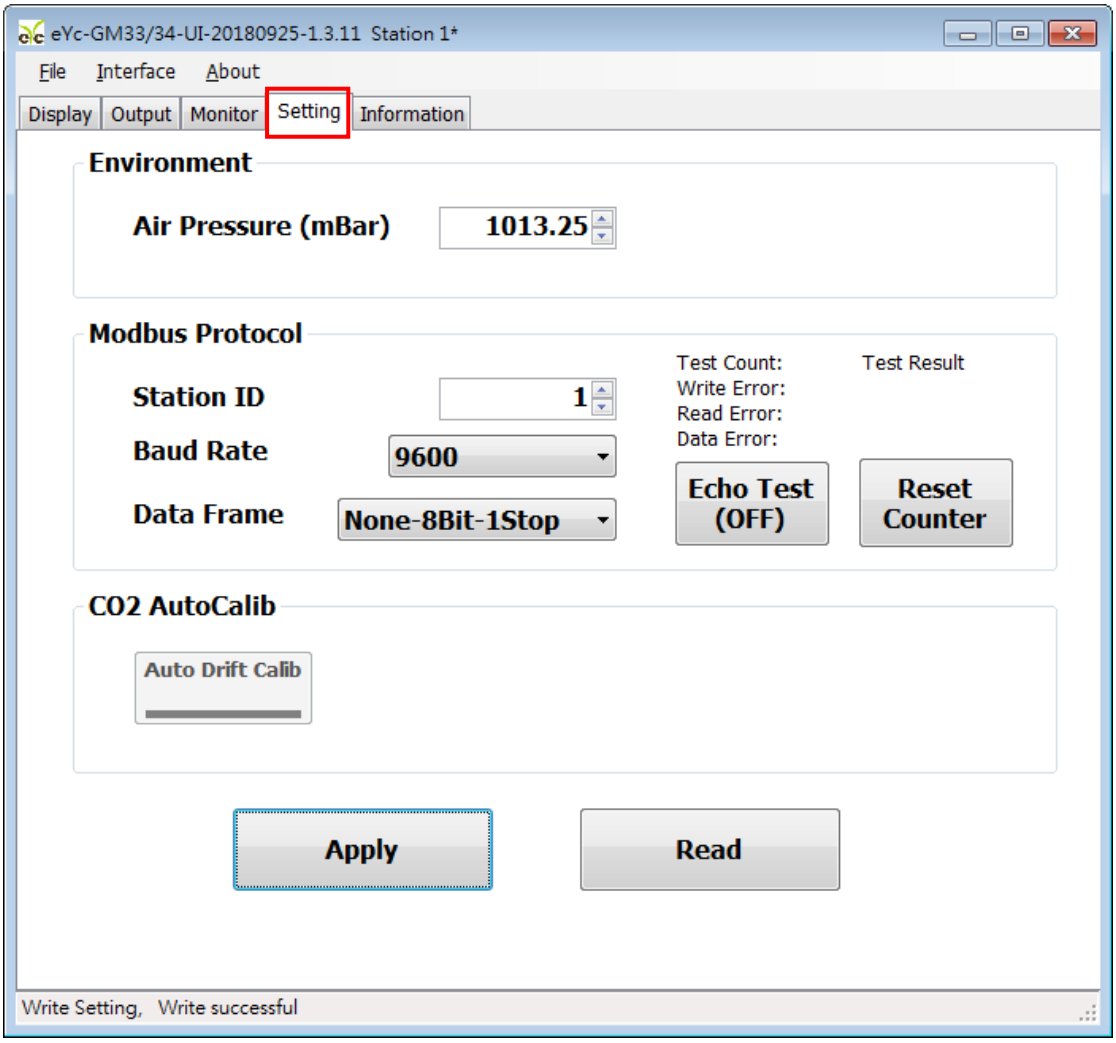
b. Shows “Read OUT1 Config, Read successful” in status bar



### 7.4 Setting RS-485 communication format

(1). RS485 connection establishment according to 7.2

(2). Click on Setting

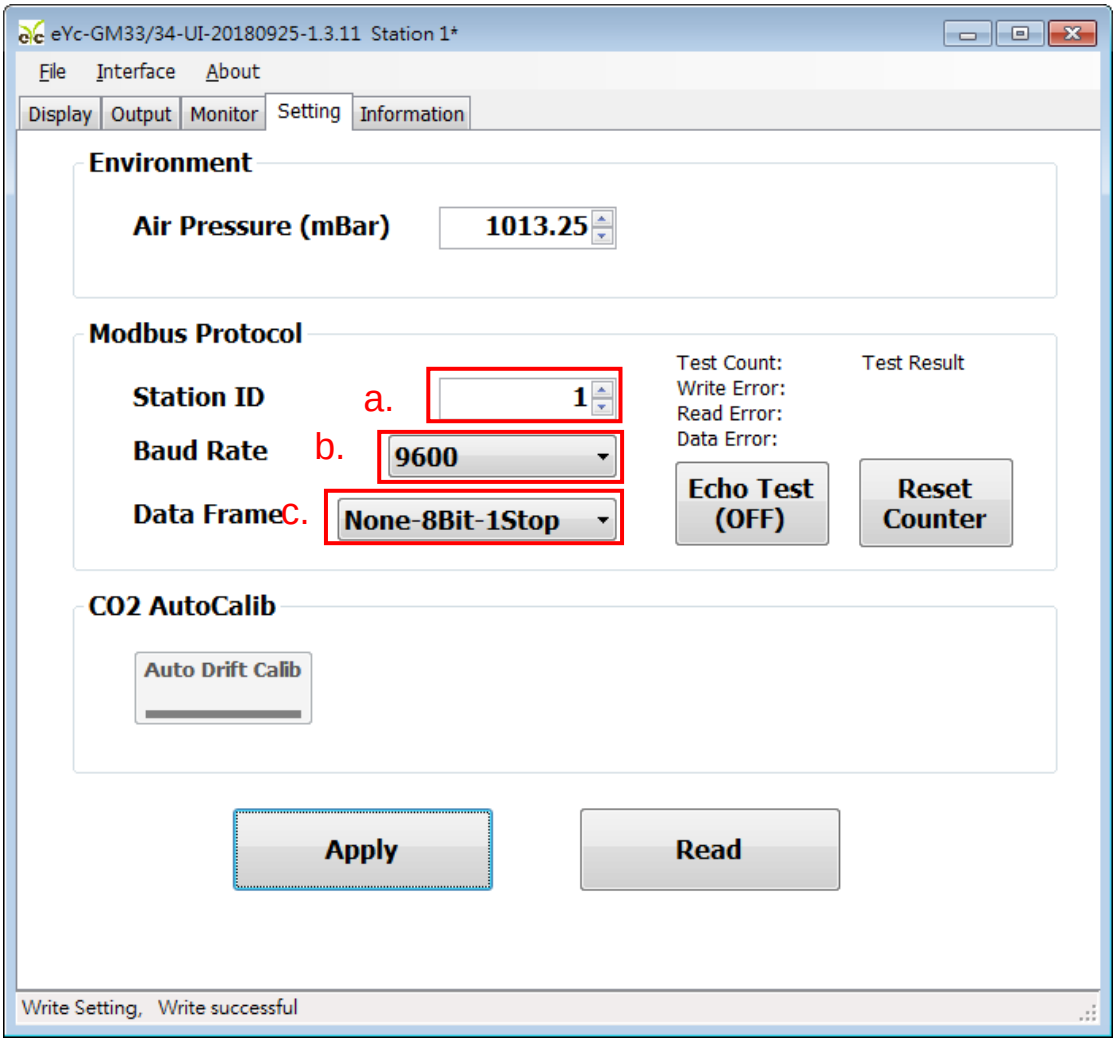


(3). To select Modbus Protocol parameter

a. Station ID：1~247

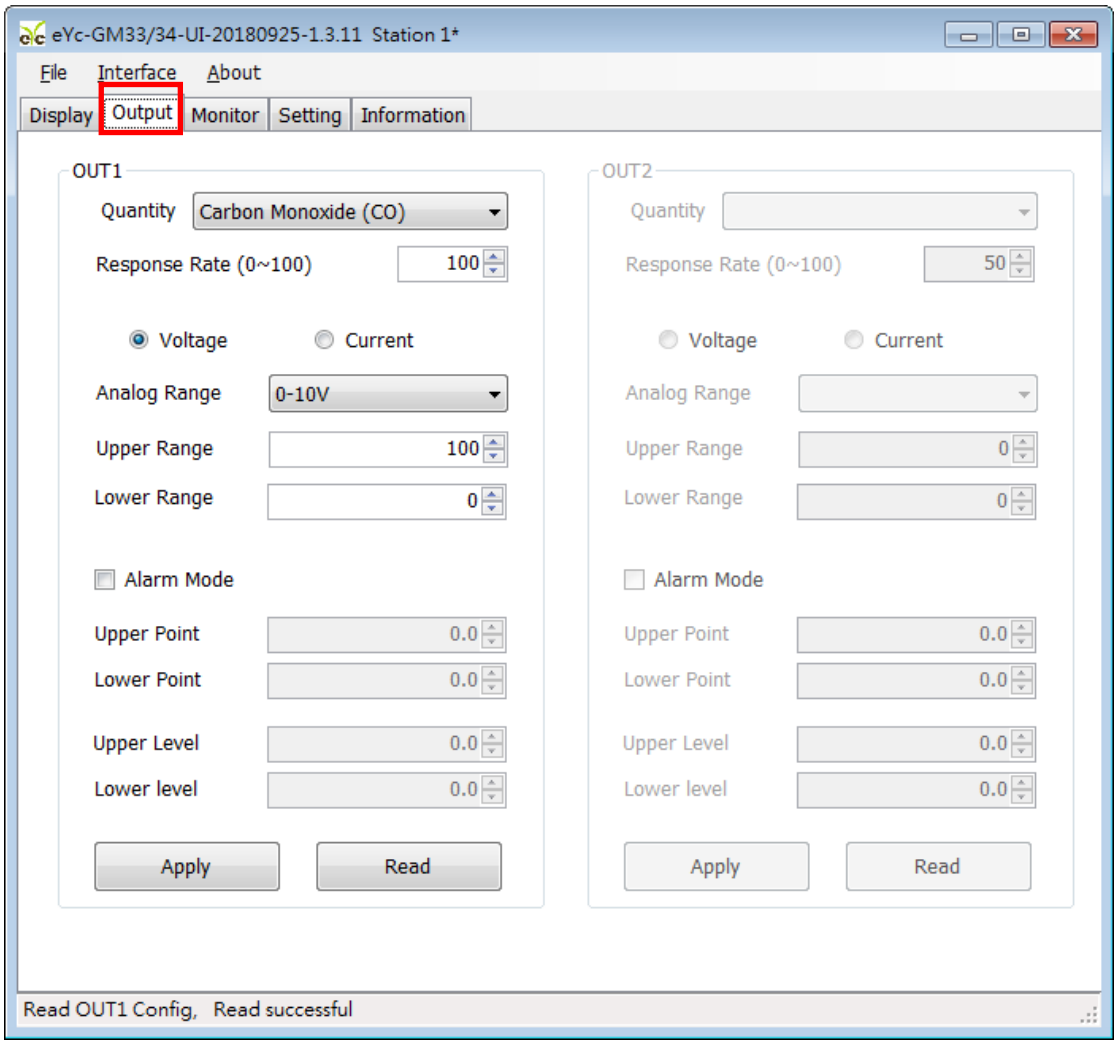
b. Baud Rate：9600, 19200, 38400, 57600, 115200

c. Data Frame：None-8Bit-1Stop, None-8Bit-2Stop, Even-8Bit-1Stop, Even-8Bit-2Stop, Odd-8Bit-1Stop, Odd-8Bit-1Stop



### 7.5 Select Parameter of Output

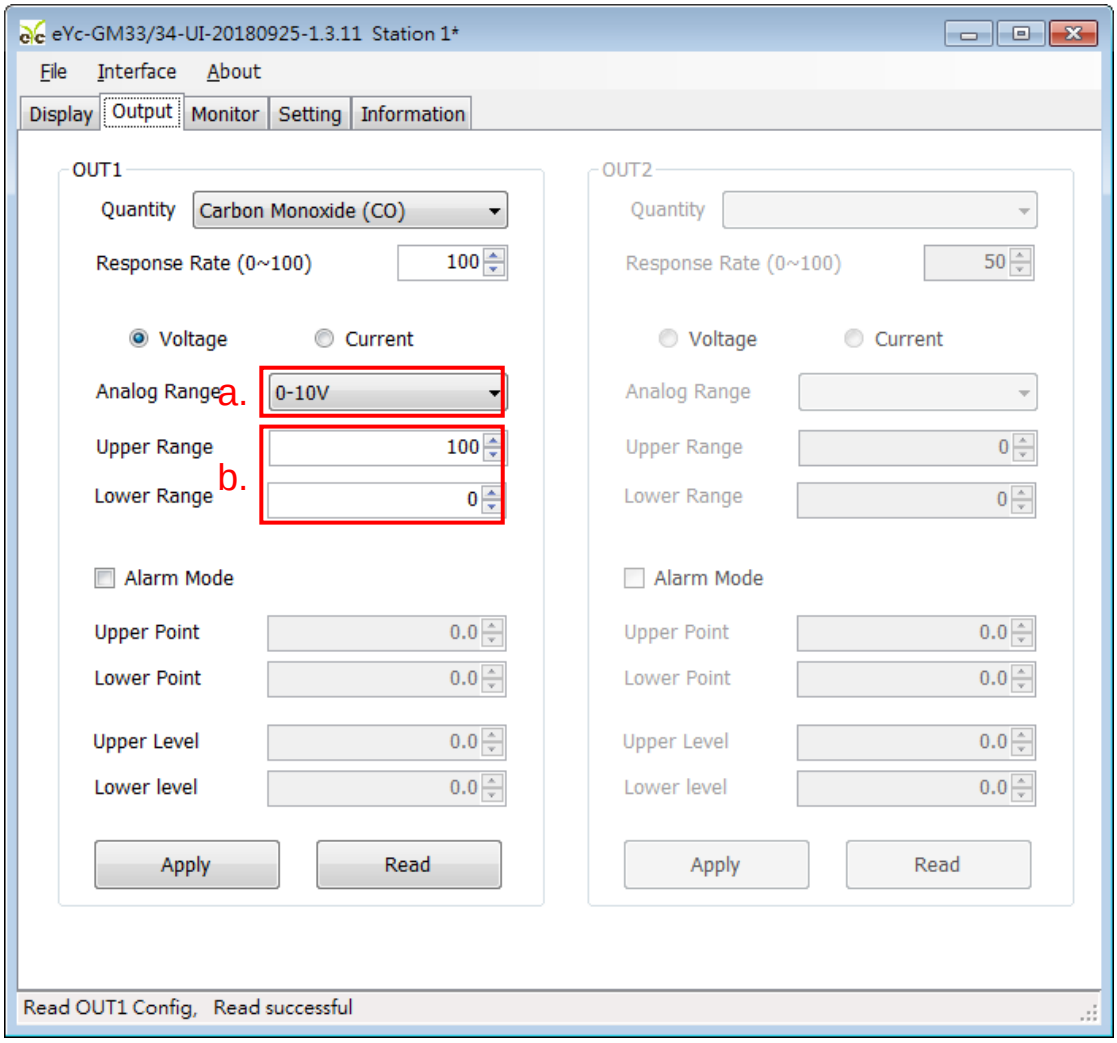
(1). Click on Output



(2). Select the parameters of Output1

a. Analog Range

b. Upper Point and Lower Range



# 8. Protocol

**8.1 User can use GM UI to read data, and another option as Modbus Protocol is provided.**

**8.2 Modbus is a standard protocol in industry field, a common protocol between electrical equipments.**

**8.3 For getting more information, please refer to the protocol of GM product.**

**8.4 Wiring Rule:**

(1). The Port No. must be different.

(2). The maximum devices which connected to RS-485 interface restricted to 32 devices.

(3). Transmission Rate (Baud Rate) must be the same.

# 9. Factory Default Setting

## 9.1 Suggested Setting

Please refer to following setting details if user does not assign any feature,

(1). ID Setting : 01

(2). Modbus Baud Rate : 9600

(3). Analog Output : 4-20mA

(4). CO Range : 0-100 PPM

## 10. Cautions

**10.1 In order to prevent the internal PCB & Electric Components from damages, the user must be careful while opening the cover.**

**10.2 In order to avoid damage or measuring error, for anybody, do not touch or knock the High-Sensitivity Sensors.**

**10.3 In order to maintain accurate measuring values. Please install product at well ventilation location.**

## 11. Inspection and Maintenance

*Maintenance & Trouble Shooting*

The user is unnecessary to calibrate the product while installation. The GM product has already accomplish the inspection/ calibration before shipment. The user just to follow the steps for maintenance.
Periodical Inspection --- According to the contamination status & density of air dust, to implement the inspection/ maintenance periodically for sensing accuracy, and clean the filter of GM.
Protection for High-Sensitivity Sensor --- In order to protect the surface of sensor, any scratch/ damage is forbidden during the maintenance.
Trouble Shooting --- Please follow the instructions for appropriate solution,

| Unusual Status | Inspection | Shooting Procedure |
|---|---|---|
| No Output<br>Output Unstable | Disconnected Wiring.<br>Wiring Loosen or Disconnected.<br>Confirm the voltage of power supply.<br>The damage of sensors. | Re-Perform the wiring<br>Crew on terminal tightly or re-place wires.<br>Replace the sensor. |
| Slow Response<br>Output<br>Inaccuracy | Moisture/ Condensation on sensor.<br>Check the installed location.<br>Check the dust & Contamination of GM Housing. | Remove the housing.<br>Place the sensor in the Clean/ Nature Air for drying.<br>Refer to the Chapter 5 for installation.<br>Clean the filter of GM |

# Accurate | Professional | Stable

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