1. Product Overview

The WIN-SN-TNH-M Sensor Board is a high-precision environmental sensing solution designed for industrial, commercial, and residential applications. It enables accurate measurement of environmental parameters, including temperature, humidity.

Equipped with advanced sensor technology, the board ensures reliable and precise data acquisition, making it ideal for air quality monitoring, climate control systems, and environmental assessment applications.

The WIN-SN-TNH-M supports Modbus RTU (RS485) communication, allowing seamless integration with industrial automation systems, data loggers, and IoT platforms. Its low power consumption and wide operating temperature range make it suitable for deployment in both indoor and outdoor environments.

Table 1

Sensor Name	Temperature Measuring Range	Humidity Measuring range	Operating Temperature	Measuring Accuracy
AHT20	-40°C ~ 85°C.	0~80% RH.	-40°C ~ 85°C.	0.3°C, 2.0 %RH

2. Precautions

1. Read all instructions before using the sensor board.
2. Keep the sensor board away from water and moisture to prevent damage.
3. Do not disassemble or modify the sensor board.
4. Use only the specified power sources and mentioned.

3. Power Supply Connection

- **DC Connection**
  1. Use 12-24V@ 1A, Power supply.
  2. Don’t make loose connection.

4. Configuration Settings

- Communication Speed — 9600 – 115200 Kbps (Software setting)
- Data Bits — 8
- Parity — None
- CRC — Yes
- Slave ID — Software setting(1-247)
- Function Code — 0X03 (Read Holding Register)

5. Modbus RS485 Data Storage register

ID	Function Description	Register Description	Modbus Function Code	Protocol	Data Type
1	Temperature	40000	0x03	RS485	16-bit int
2	Humidity	40001	0x03	RS485	16-bit int
3	TVOC	40002	0x03	RS485	16-bit int
4	Barometric Pressure	40003	0x03	RS485	16-bit int
5	IAQ	40004	0x03	RS485	16-bit int
6	CO2	40005	0x03	Rs485	16-bit int

ID	Function Description	Register Description	Modbus Function Code	Protocol	Data Type
1	Display Baud Rate (Default: 960)	40010	0x03	RS485	16-bit int
2	Enter New Baud Rate	40011	0x03	RS485	16-bit int
3	Display Slave ID (Default: 1)	40012	0x03	RS485	16-bit int
4	Enter New Slave ID	40013	0x03	RS485	16-bit int
5	Display Parity (Default: None-3 And for Odd-1, Even-2)	40014	0x03	RS485	16-bit int
6	Enter New Parity	40015	0x03	RS485	16-bit int
7	Display Stop Bit (start-2/stop bit-1)	40016	0x03	RS485	16-bit int
8	Enter New Start/ Stop Bit	40017	0x03	RS485	16-bit int

Important Note:

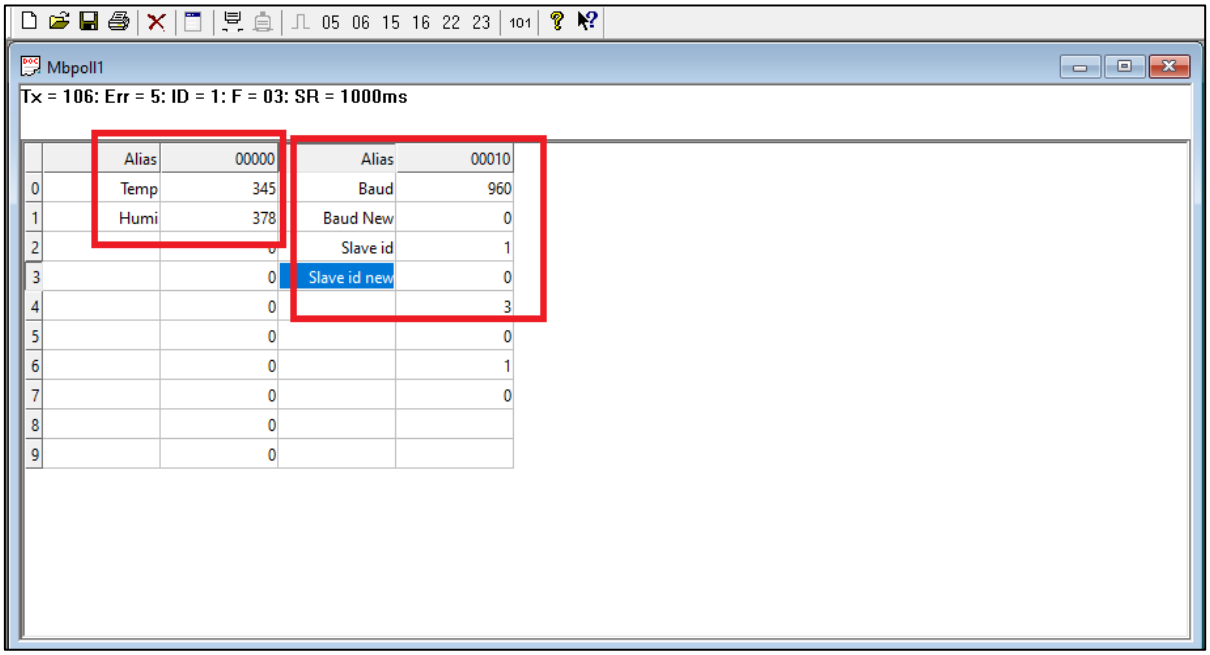
1. If you want to enter the baud rate 9600/19200/38400/57600/115200etc, enter it like this 960/1920/3840/5760/11520etc.
2. After that press the reset button or reboot the system.
3. Then you will get the present value of 11520 at 40010 baud rate (115200) and 2 at 40012 slave id.
4. **Temperature and Humidity Data are provided in the multiple of 10, for the sack of higher resolution, you need to divide it by 10 to obtain the actual reading. Example. Temperature 345/10 = 34.5 °C and Humidity 377/10 = 37.7%**

6. Modbus Configuration

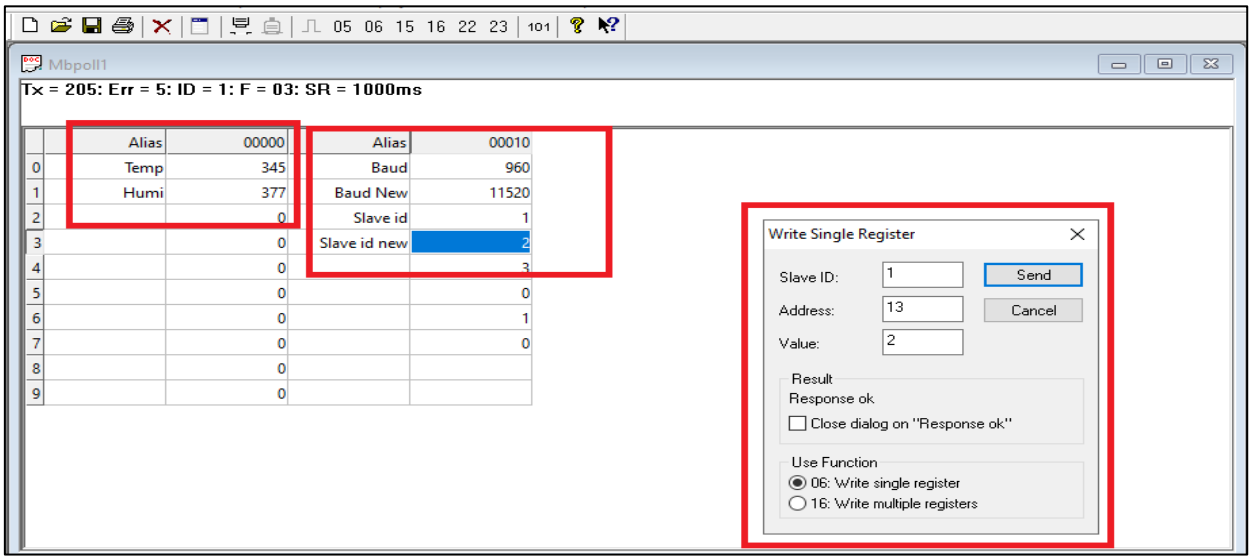
Here is an example of receiving data on Mb poll software.

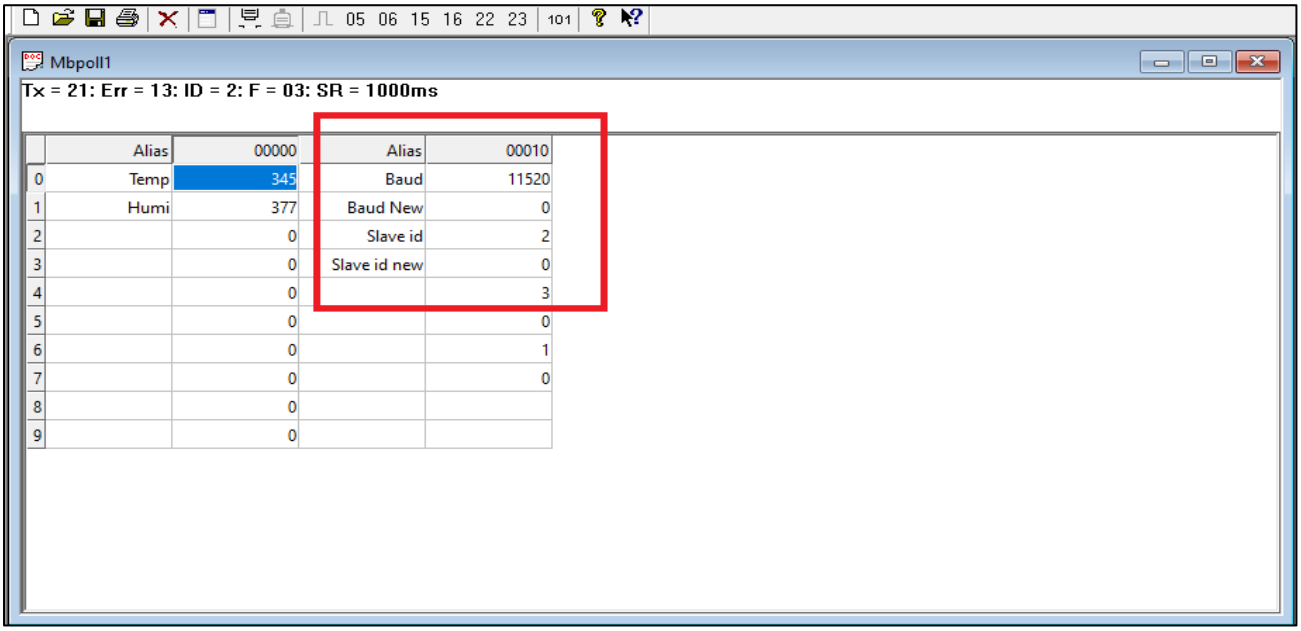
- Open Mb-poll software connect using configuration setting (Default baud rate is 9600 and slave id is 1).

- After connecting you will get data as shown below



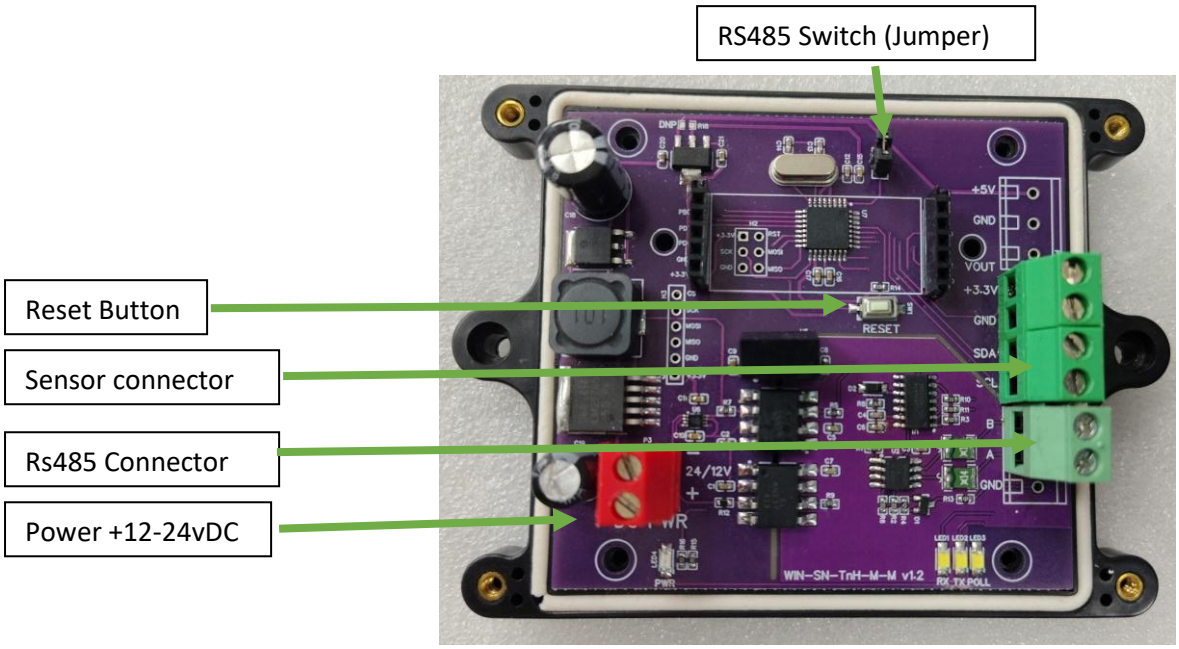
- As you can see in the image above, the resistor 40010 – 960 represents the present bund rate (9600) of the board and 40012 – 1 represents the present slave id of the board.
- To change the baud rate and slave id you must enter a value on the 40011 resistors for the baud rate and 40013 for the slave id as shown in the image below.
- Now you can see data. In below image set 115200 baud rate and slave ID 2.





Hard reset Setting

Somehow you forgot the baud rate or slave id of the board then remove the jumper (as shown in the image) from the board reboot the system or press the reset button (given on the board). Then you will get the default baud rate of 9600 and slave id 1.



Contact Information

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