Advantech AE Technical Share Document

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Category	■FAQ □ SOP	Related OS	N/A
Abstract	How to read temperature and humidity value by 96PD-THS16B sensor with WISE-4051		
Keyword	WISE-4051, Modbus RTU, Temperature and Humidity Sensor		
Related Product	WISE-4051, 96PD-THS16B Sensor		

■ **Problem Description:**

This document shows how to configure 96PD-THS16B sensor on WISE-4051 Modbus/RTU

interface and read the temperature and humidity value.

There are 3 parts in this document:

1. Connection guide.

2. Read 96PD-THS16B sensor Modbus address.

3. Read/Write 96PD-THS16B sensor Modbus ID.
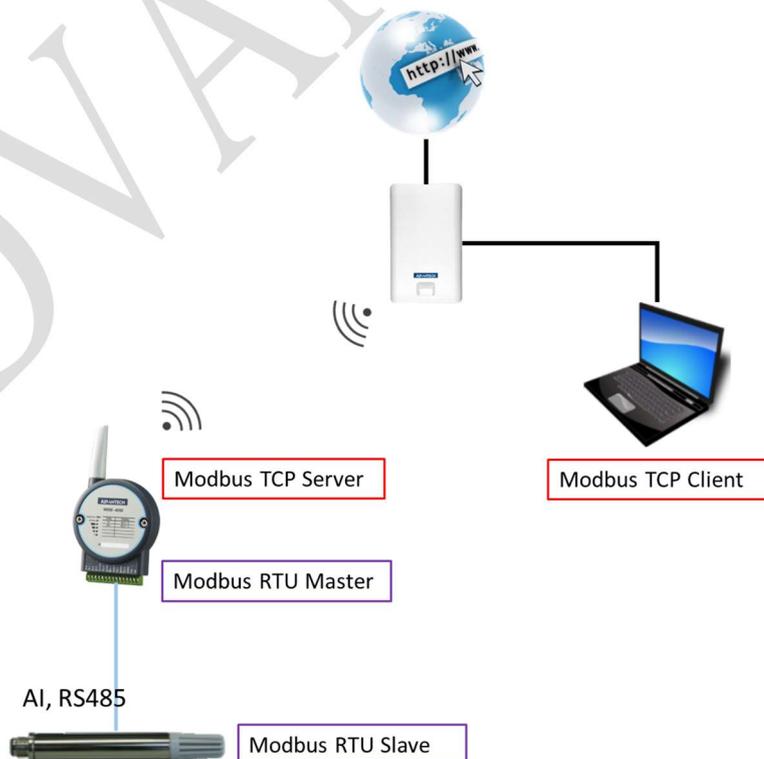
Figure 1. Topology of this document

■ **Solution:**

Part 1. Connection Guide:

WISE-4051(-Vs) => 96PD-THS16B(blue)

WISE-4051(+Vs) => 96PD-THS16B(brown)

WISE-4051(DATA-) => 96PD-THS16B(white)

WISE-4051(DATA+) => 96PD-THS16B(black)
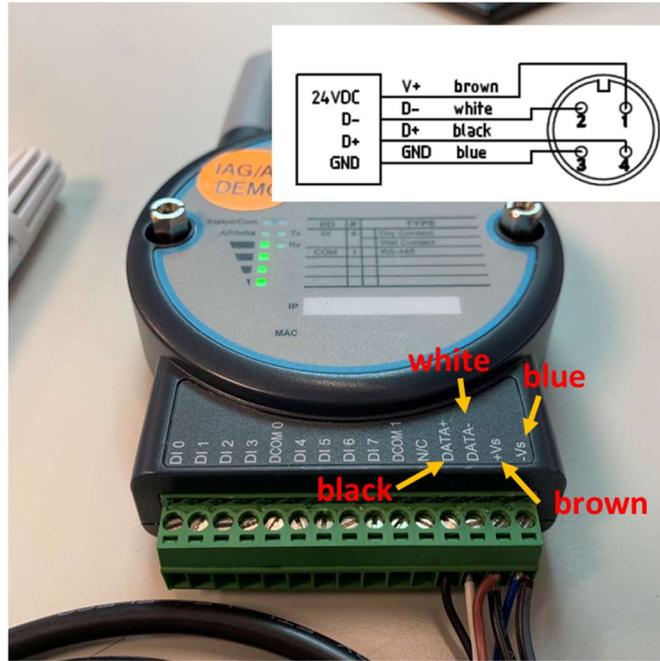
Figure 2. Connection Guide

About the definition of 96PD-THS16B sensor's cable, user can click the below link and download the datasheet.

https://www.advantech.tw/support/details/datasheet?id=66488e5b-bc9a-4bcd-b0d6-4e745c55c1be

Part2. Read 96PD-THS16B sensor Modbus address.

1. User can refer to Modbus Table from the document of 96PD-THS16B sensor. (Click the below link and download the Modbus Table of 96PD-THS16B)

   https://www.advantech.tw/support/details/manual?id=1-21XVOI7

No.	Register Address	Starting Address	Content	R/W	Data Bytes	Data Type	Value/ Unit
1	41025	0x400	Temperature	R	4 bytes	Floating Pt.	°C, °F
2	41029	0x404	Relative Humidity	R	4 bytes	Floating Pt.	%

Figure 3. Modbus table of Temp. and RH value

2. Click Rule Setting of IO status on WISE UI.
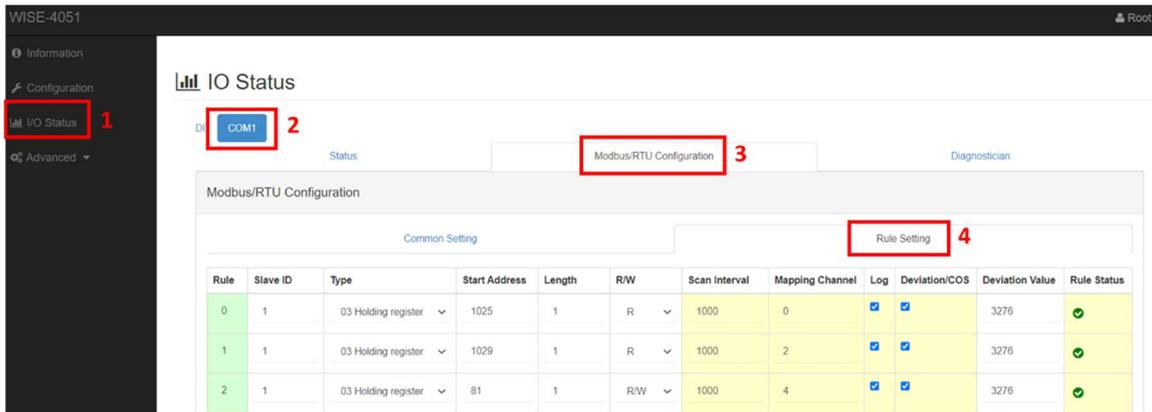
Figure 4. Rule setting on WISE UI

3. Fill in the information of 96PD-THS16B sensor on Rule 0 and Rule 1
   (1) Slave ID：1 (Default Setting of 96PD-THS16B Sensor)
   (2) Type：03 Holding register (Register address 4xxxx)
   (3) Start Address：1025 (41025) and 1029 (41029)
   (4) Length：2
   (5) R/W：R
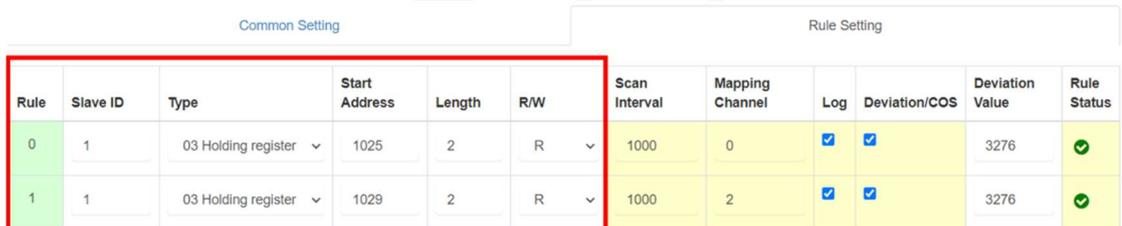
Figure 5. Fill in the Temp. and RH information

   (6) Mapping the address of 96PD-THS16B sensor to WISE-4051 channel 0 and 2.
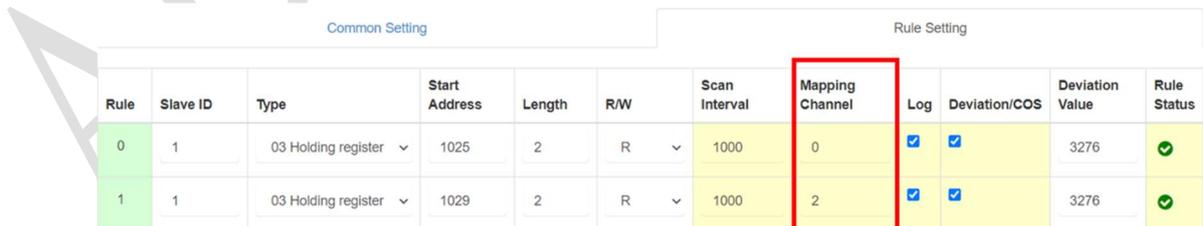
Figure 6. Mapping Sensor Temp. and RH address to WISE's channel

   (7) Channel 0 and 2 of WISE-4051 COM port are defined as address 41001 and 41003, so user has to query address 41001 and 41003 to read Temp. and RH value (such as below figure)
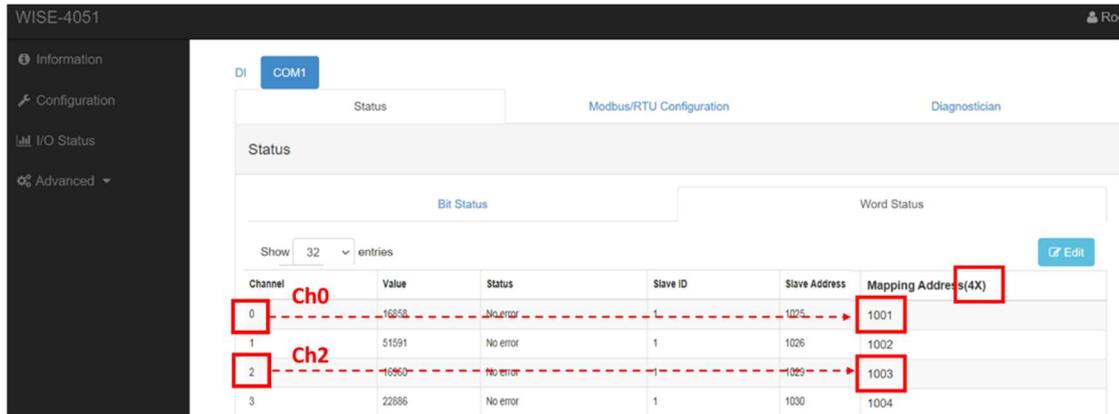
*Figure 7. ch0 and ch2 are defined as 41001 and 41003 address*
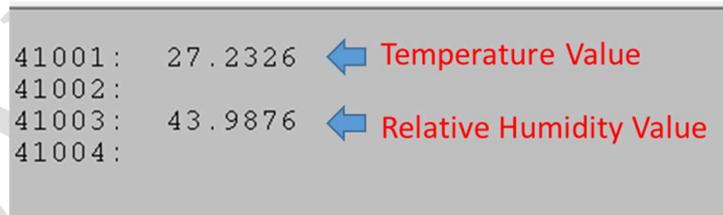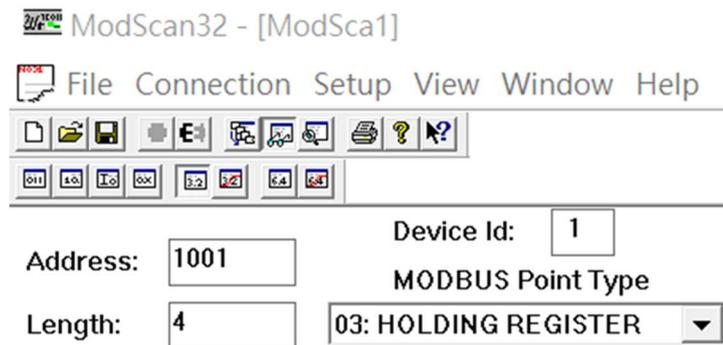
Figure 8. View 41001/41003 address and check Temp. and RH value

Part 3. Read/Write 96PD-THS16B sensor Modbus ID.

1. User can refer to Modbus Table from the document of 96PD-THS16B sensor.
   https://www.advantech.tw/support/details/manual?id=1-21XVOI7

6-2 RS485 parameters

No.	Register Address	Starting Address	Content	R/W	Data Bytes	Data Type	Value/ Unit
1	40081	0x50	Slave ID	R/W	1 byte	unsigned Integer	1 ... 247

Figure 9. Modbus table of Slave ID

4

2. Fill in the Slave ID information of 96PD-THS16B sensor on Rule 2
    (1) Slave ID：1 (Default Setting of 96PD-THS16B Sensor)
    (2) Type：03 Holding register (Register address 4xxxx)
    (3) Start Address：81 (40081)
    (4) Length：1
    (5) R/W：R/W

Rule	Slave ID	Type	Start Address	Length	R/W	Scan Interval	Mapping Channel	Log	Deviation/COS	Deviation Value	Rule Status
0	1	Disable	1025	2	R	1000	0	☑	☑	3276	❌
1	1	Disable	1029	2	R	1000	2	☑	☑	3276	❌
2	1	03 Holding register	81	1	R/W	1000	4	☑	☑	3276	✅

Figure 10. Fill in the Slave ID information

(6) Mapping the address of 96PD-THS16B-THS16B sensor to WISE-4051 channel 4.

Rule	Slave ID	Type	Start Address	Length	R/W	Scan Interval	Mapping Channel	Log	Deviation/COS	Deviation Value	Rule Status
0	1	Disable	1025	2	R	1000	0	☑	☑	3276	❌
1	1	Disable	1029	2	R	1000	2	☑	☑	3276	❌
2	1	03 Holding register	81	1	R/W	1000	4	☑	☑	3276	✅

Figure 11. Mapping Slave ID address to WISE's channel

(7) Since the WISE-4051 channel 4 has defined the 41005 address, user have to query 41005 to read slave ID and double click to modify the value

*Figure 12. WISE's ch4 has defined the 41005 address*
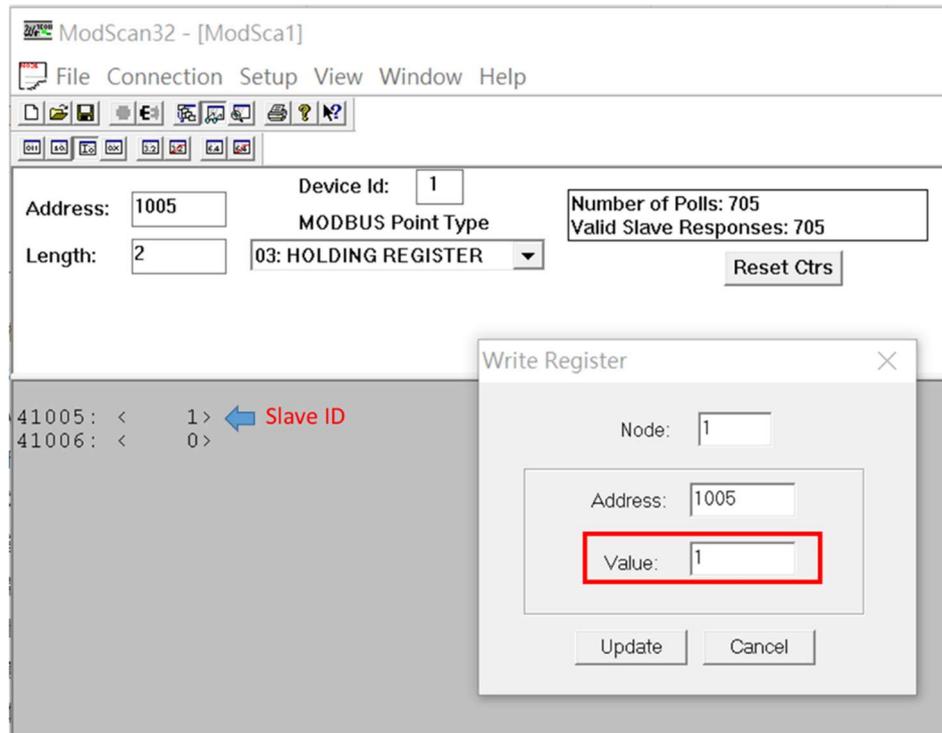
Figure 13. View WISE 41005 address and modify the slave ID value