Advantech AE Technical Share Document

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Category	■FAQ □ SOP	Related OS	N/A						
Abstract	How to read temperature WISE-4051	ow to read temperature and humidity value by 96PD-THS16B sensor with /ISE-4051							
Keyword	WISE-4051, Modbus RT	TU, Temperature	and Humidity Sensor						
Related	WISE-4051, 96PD-THS	16B Sensor, WIS	E-S250, WISE-251, WISE-S617,						
Product	WISE-S672								

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:

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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.

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

No.	Register	Starting	Content	R/W	Data	Data Type	Value/
	Address	Address			Bytes		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

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2. Click Rule Setting of IO status on WISE UI.

WISE-4051												🛔 Ro
Information												
& Configuration	<u>III</u> 10 S	Status										
International I	DICO	M1 2			-							
Q [®] Advanced ▼		_	Status			Modbus/RTU Cor	nfiguration 3			Diagr	nostician	
	Modbu	Is/RTU Con	liguration									
			Common S	etting				E	Rul	e Setting 4		
	Rule	Slave ID	Туре	Start Address	Length	R/W	Scan Interval	Mapping Channel	Log	Deviation/COS	Deviation Value	Rule Status
	0	1	03 Holding register 🗸 🗸	1025	1	R v	1000	0	•		3276	0
	1	1	03 Holding register 🗸 🗸	1029	1	R v	1000	2		•	3276	•
	2	1	03 Holding register 🗸 🗸	81	1	R/W 🗸	1000	4		•	3276	•

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

		Common Settin	g				_		Rule Se	etting		
Rule	Slave ID	Туре	Start Address	Length	R/W		Scan Interval	Mapping Channel	Log	Deviation/COS	Deviation Value	Rule Status
0	1	03 Holding register 🗸	1025	2	R	~	1000	0			3276	0
1	1	03 Holding register 🗸	1029	2	R	~	1000	2			3276	•

Figure 5. Fill in the Temp. and RH information

(6) Mapping the address of 96PD-THS16B sensor to WISE-4051 channel 0 and 2.

			Common Settir	ng						Rule Se	etting		
Ru	le	Slave ID	Туре	Start Address	Length	R/W		Scan Interval	Mapping Channel	Log	Deviation/COS	Deviation Value	Rule Status
0		1	03 Holding register 🗸	1025	2	R	~	1000	0		2	3276	0
1		1	03 Holding register 🗸	1029	2	R	~	1000	2			3276	0

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)

NTECH	Enabling a	ın Intelli	gent Planet				
WISE-4051							🛔 Ro
Information	DI COM1						
✗ Configuration		Status	M	odbus/RTU Configuration		Diagnostician	
Late I/O Status	Status						
🕫 Advanced 👻		В	t Status			Word Status	
	Show 32	✓ entries					C Edit
	Channel ChO	Value	Status	Slave ID	Slave Address	Mapping Addre: s(4X)	
	0	16858			1025	1001	
	Ch2	51591	No error	1	1026	1002	
	2		No error			1003	
	3	22886	No error	1	1030	1004	

Figure 7. ch0 and ch2 are defined as 41001 and 41003 address

Mod	Scan32 - [M	odSca1]		
File	Connection	Setup View	Window	Help
0 🗳 日	• 😝 🖗 😡			
01 10 Io	× 12 14	3		
		Device	ld: 1	
Address	1001	MODBU	S Point Ty	рe
Length:	4	03: HOLDING	REGISTE	R 🔻
	,			

41001:	27.2326	Temperature Value
41002: 41003: 41004:	43.9876	Relative Humidity Value

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

2 11540	5 purume	lers					
No.	Register	Starting	Content	R/W	Data	Data Type	Value/
	Address	Address			Bytes		Unit
1	40081	0x50	Slave ID	R/W	1 byte	unsigned	1 247
						Integer	

6-2 RS485 parameters

Figure 9. Modbus table of Slave ID

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- 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

		Common Setti	ng					Rule Se	etting		
Rule	Slave ID	Туре	Start Address	Length	R/W	Scan Interval	Mapping Channel	Log	Deviation/COS	Deviation Value	Rule Status
0	1	Disable v	1025	2	R v	1000	0			3276	0
1	1	Disable ~	1029	2	R v	1000	2			3276	0
2	1	03 Holding register 🗸	81	1	R/W ~	1000	4			3276	0

Figure 10. Fill in the Slave ID information

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

		Common Se	etting	9						Rule Se	etting		
Rule	Slave ID	Туре		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	0
1	1	Disable	~	1029	2	R	~	1000	2			3276	0
2	1	03 Holding register	~	81	1	R/W	~	1000	4			3276	۲

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

DI COM1					
	Status		Modbus/RTU Configuration		Diagnostician
Status					
	E	Bit Status			Word Status
Show 32	✓ entries				(B)
Channel	Value	Status	Slave ID	Slave Address	Mapping Address(4X)
0		Unavailable	0	0	1001
1		Unavailable	0	0	1002
				0	1000
2		Unavailable	0	0	1003
² 3 Ch4		Unavailable	0	0	1003

Figure 12. WISE's ch4 has defined the 41005 address

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🚾 ModScan32 - [ModSca1]			
File Connection Setup View Window	Help		
Address: 1005 Device Id: 1 MODBUS Point Type		Number of Polls: 705 Valid Slave Responses: 705	
Length: 2 03: HOLDING REGISTE	R 🔻	Reset Ctrs	
	Write F	Register	×
41005: < 1> 👉 Slave ID 41006: < 0>		Node: 1	- 1
		Address: 1005	
		value.	
		Update Cancel	
	_		_

Figure 13. View WISE 41005 address and modify the slave ID value