UBIBOT

Introduction

Dry and wet bulb temperature sensor adopts original imported sensor. It has stable measurement data, high precision, strong anti-interference ability and long service life. It can accurately measure the dry bulb temperature, humidity and atmospheric pressure value, and also can calculate the wet bulb temperature, dew point temperature, relative humidity and other data.

Applications

It is suitable for environmental monitoring, agrometeorology and other monitoring environments.

Features

● Multi-parameter in one, including dry bulb temperature, wet bulb temperature, humidity, atmospheric pressure and more.

● With mounting bracket, easy to install and use.

● Supporting Modbus-RTU protocol

● DC 5-12V wide voltage supply

Specification

Specification		
Product Model		UB-DWT-N1
Power Supply		DC 5~12V
Measuring Data	Dry Bulb Temperature	Measuring Range: -40~80℃, Accuracy: ±0.2℃ (@0~65℃)
	Wet Bulb Temperature	Measuring Range: -40~80℃, Accuracy: ±0.3℃
	Atmospheric Humidity	Measuring Range: 0~100%, Accuracy: ±2%RH (@10~90%RH)
	Atmospheric Pressure	Measuring Range: 26~126kPa, Accuracy: ±50Pa
	Dew Point Temperature	Measuring Range: -50~80℃, Accuracy: ±0.3℃
Max Current		192mA (@5V), 87mA (@12V)
Working Environment		-40~60℃，0~80%RH
Response Time		≤1s
Communication Protocol		RS485 Modbus RTU Protocol
RS485 Address		0xC3
Baud Rate		1200 bit/s,2400 bit/s, 4800 bit/s, 9600 bit/s (default), 19200 bit/s

Wiring Instruction

VCC
RS485 A
RS485 B
GND

Communication protocols

1. Communication basic parameters

Communication Basic Parameter	
Coding System	8–bit binary
Data Bit	8 bits
Parity Checking Bit	none
Stop Bit	1 bit
Error Checking	CRC Check
Baud Rate	1200 bit/s,2400 bit/s, 4800 bit/s, 9600 bit/s (default), 19200 bit/s

2. Data Frame Format

The Modbus-RTU communication protocol is used in the following format:

- Initial structure ≥ 4 bytes in time.

- Address code: 1 byte, default 0xC3.

- Function code: 1 byte, support function code 0x03 (read only) and 0x06 (read/write).

- Data area: N bytes, 16-bit data, high byte comes first.

- Error check: 16-bit CRC code.

- End structure ≥ 4 bytes of time.

Request					
Slave Address	Function Code	Register Address	No. of Registers	CRC LSB	CRC MSB
1 byte	1 byte	2 bytes	2 bytes	1 byte	1 byte

Response							
Slave Address	Function Code	No. of Bytes	Content 1	Content 1	...	Content n	CRC
1 byte	1 byte	1 byte	2 bytes	2 bytes	...	2 bytes	2 bytes

3. Register Address

Register Address				
Address	Content	Register Length	Function Code	Description of definitions
0x0000	Wet Bulb Temperature	1	03	Signed integer data, divided by 10, unit [℃]
0x0001	Dew Point Temperature	1	03	Signed integer data, divided by 10, unit [℃]
0x0002	Dry Bulb Temperature	1	03	Signed integer data, divided by 10, unit [℃]
0x0003	Air Pressure	1	03	Unsigned integer data, divided by 100, unit [kPa]
0x0004	Relative Humidity	1	03	Unsigned integer data, divided by 10, unit [0~100%]
0x0005	Absolute Humidity	1	03	Unsigned integer data, divided by 100, unit [gwater/kgAIR]
0x0006	Vapor Pressure	1	03	Unsigned integer data, actual value, unit [kPa]
0x0007	Saturation	1	03	Unsigned integer data, divided by 100, unit [-]
0x0008	Specific Volume	1	03	Unsigned integer data, divided by 1000, unit [m3/kg]
0x0009	Specific Enthalpy	2	03	IEEE75 standard floating point number, unit [J/kg]
0x0064	Address	1	06	1 ~ 255
0x0065	Baud Rate	1	06	1:4800, 2:9600, 3:14400, 4:19200, 5:38400, 6:115200