User Guide

Introduction

The temperature and humidity sensor is our self-developed product. It is produced and assembled in our own factory. It has exquisite appearance and high measurement accuracy. This product adopts MODBUS-RTU protocol, with UbiBot device can achieve the function of remote measurement and online monitoring on the computer platform or mobile phone APP.

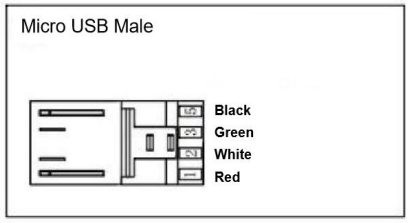
Specification

Specification			
Model	UB-ATH-N1 (1st generation)	UB-ATH-N1 (2nd generation)	UB-ATH-P1
Measuring Range	Temperature: -40 ~ 80℃ Humidity: 0 ~ 100%RH	Temperature: -40 ~ 80℃ Humidity: 0 ~ 100%RH	Temperature: -40 ~ 80℃ Humidity: 0 ~ 100%RH
Accuracy	Temperature: ±0.3C (0 ~ 65℃) Humidity: ±3%RH (10 ~ 90%RH)	Temperature: ±0.2℃ (0 ~ 65℃) Humidity: ±2%RH (10 ~ 90%RH)	Temperature: ±0.15℃ (20 ~ 60℃) Humidity: ±1.5%RH (0 ~ 80%RH)
Materials	PE+Stainless steel		
Cable Length	3m (Audio) / 5m (Micro USB)		
Power Supply	DC 5 ~ 12V		
Max Current	144mA (@5V)		
Connector	Micro USB / Audio		
Communication Protocol	RS485 Modbus RTU Protocol		
RS485 Address	0xC1		
Baud Rate	1200 bit/s, 2400 bit/s, 4800 bit/s, 9600 bit/s (default), 19200 bit/s		

Wiring Instruction

Wiring Instruction				
RS485	VCC	B	A	GND
Micro USB	Red	White	Green	Black
Audio	Red	Green	White	Black

Micro USB



Audio

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 0xC1.
- 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	Temperature	1	03	Signed integer data, divided by 10, in [℃]
0x0001	Humidity	1	03	Unsigned integer data, divided by 10, in [0 ~ 100%]
0x0064	Address	1	03/06	1 ~ 255
0x0065	Baud Rate	1	03/06	0:1200, 1:2400, 2:4800, 3:9600, 4:19200