User Guide

Introduction

The temperature and humidity probe is our self-developed product. It’ s 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.

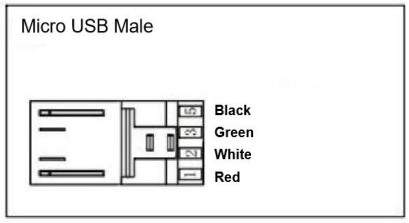
Specification

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