

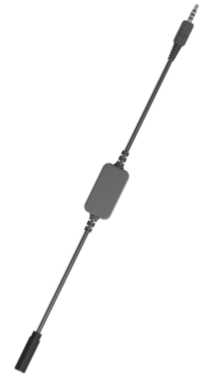
## User Guide

### Introduction

This product is a Temperature-RS485 converter specifically designed for digital temperature acquisition. It supports the DS18B20 digital temperature sensor and converts the collected temperature data into standard Modbus RTU protocol. Through the RS485 bus, the data can be communicated and transmitted efficiently, making it easy to integrate into industrial automation systems, environmental monitoring, building control, and other applications.

### Use Case Scenarios

It is widely used in industrial automation control systems, environmental temperature monitoring, cold chain logistics and storage temperature control, smart buildings and HVAC systems, agricultural greenhouses, and aquaculture applications.



### Features

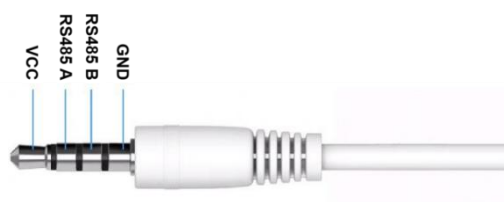
- Wide voltage power supply
- Plug-and-play, easy installation
- Compact structure, highly efficient integration
- Supports CRC verification, strong anti-interference capability

### Specification

Specification	
Model	UB-TRS-N1
Power Supply	DC 5V~12V
Enclosure Material	ABS Plastic
Net Weight	15 g
Cable Length	320 mm
Connector	1 × Audio Male Plug & 1 × Audio Female Socket
Input Signal	DS18B20
Communication Protocol	RS485 Modbus RTU Protocol
RS485 Address	0xC6
Baud Rate	4800 bit/s, 9600 bit/s (default), 19200 bit/s, 38400 bit/s, 57600 bit/s, 115200 bit/s

### Wiring Instruction

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



## 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	4800 bit/s, 9600 bit/s (default), 19200 bit/s, 38400 bit/s, 57600 bit/s, 115200 bit/s

### 2. Data Frame Format

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

- Initial structure  $\geq 4$  bytes in time.
- Address code: 1 byte, default 0xC6.
- 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  $\geq 4$  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 [°C]
0x0010	Address	1	03/06	1 ~ 255
0x0011	Baud Rate	2	03/06	12C0:4800, 2580:9600, 4B00:19200, 9600:38400, E100:57600, C200:115200

## Product Application

1. Please use high-quality DS18B20 sensors; a three-wire connection is recommended.
2. Do not install the device in environments with moisture, corrosive gases, or strong vibrations.
3. This converter is compatible with GS1 series and NR1 series devices. When connecting multiple units, please avoid address conflicts.