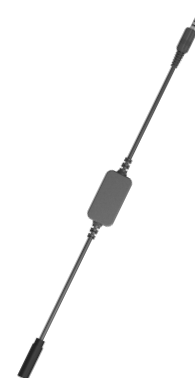


User Guide

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 ≥ 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 ≥ 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 (hex) | Content | Register Length | Function Code | Description of definitions |
| 0x0000 | Temperature | 1 | 03 | Signed integer data, divided by 10, in [°C] |
| 0x0064 | Address | 1 | 03/06 | 1 ~ 255 |

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.