DTECH

RS232 485 to LORA wireless serial data transmission transceiver

USER MANUAL

I. Overview

This product is a LORA wireless data transmission transceiver. It uses LORA spread spectrum modulation for transmission. It is a high-performance, high-reliability, high-stable and low-power wireless data transmission method. It provides high performance and high performance for complex environments such as on-site wiring that cannot be installed. Low cost solution. LORA is a long-distance wireless communication solution. The most prominent features are long distance and low power consumption. It breaks through the coverage scenarios that previously required relays. This product uses the wireless 433MHz frequency band for wireless data transmission by default. Supported wireless frequency bands,the range is 410MHz-441MHz, and the transmission distance is up to 1 km. Compared with GPRS and 4G solutions, LORA does not require monthly network access fees (no application for frequency bands), and the distance is longer than WIFI and ZIGBEE. Therefore, LORA is becoming more and more widely used in small data and long-distance industrial serial communication. LORA has excellent performance in coverage and power consumption, and its application scenarios in the Internet of Things are becoming more and more extensive. This product can also achieve one-to-one, Data transmission is carried out in one-to-many or many-to-many modes without distinguishing between the transmitting end and the receiving end.

This product provides a standard signal interface and can be used in the following application scenarios directly through the LORA wireless function.

①Wireless meter reading, such as: smart electricity meters, smart water meters, smart gas meters, heat meters, etc.;

②Slowly changing physical quantities (temperature, water pressure, PM2.5, electromagnetic sensor) ultra-low power consumption sensor;

③Wireless alarm (smoke detector, thermal infrared);

④Remote I/O controller (lighting control, air conditioning control);

⑤Industrial application industrial control machine tools, industrial automation instruments, long-distance irrigation equipment, access control, security control systems, highway scale data transmission, commercial cash registers and other equipment connections;

| Test Environment	Test Distance	Product function description
Uncensored communication	About 1Km	Straight line communication in open areas
Urban road straight transmission	About 800m	Depends on actual usage environment
The city has buildings blocking the environment	About 500m	Depends on actual usage environment
Inside building	Go through about 5 floors	Depends on actual usage environment

3. Equipment parameters

Functional indicators	
Business mode:	two-way transparent transmission, single transmit mode, single receive mode, configuration mode
Wireless performance indicators	
Working frequency:	470MHz~ 510MHz
Working bandwidth:	≤200kHz(Single carrier)
Symbol rate	2.4kbps / 19.2kbps / 76.8kbps
Maximum transmit power	25 ± 1dBm
Number of channels	1
Receiving sensitivity	–115dbm@19.2kbps 470MHz
Wired performance indicators	
Data bit	8bit
Stop bits	1,2
Check bit	None，Even，Odd
Baud rate	1200/2400/4800/9600/19200/38400/57600/115200
Electrical indicators	
Interface	1)Power interface: DC input terminal port x1 2)RS485 interface x1 3)RS232 interface x1 4)TPUNB antenna SMA female × 1 5)Magnetic mode switch×1
Supply voltage	Typical value DC 12V (supports wide voltage power supply 5-28V)
Installation scenario	Outdoor
Machine power consumption	≤ 1W
Size	116mm×85mm×41mm
Weight	< 0.25kg
Environmental Adaptability	Operating temperature：-40℃ ~ 70℃ Storage temperature：-40℃ ~ 85℃
Protection level	IP65
Electrostatic discharge immunity	Air discharge: ±15kV Contact discharge: ±8kV
Installation method	Screw fixing, DN35 guide rail installation (additional accessories required)

4.Equipment interface and instruction interface

No :	Interface		Remark
1	USB communication interface		SMA母头底座
2	485 communication interface	485 B	默认波特率9600
3		485 A	
4	232communication interface	TX	默认波特率9600
5		RX	
6		GND	
7	Power input interface	12V DC-	支持5-28V宽压供电
8		12V DC+	
9	Mode switching button	磁吸按键	
10	Instruction interface	指示灯RUN	绿色单色
11		指示灯PWR	绿色单色

5.Product connection diagram
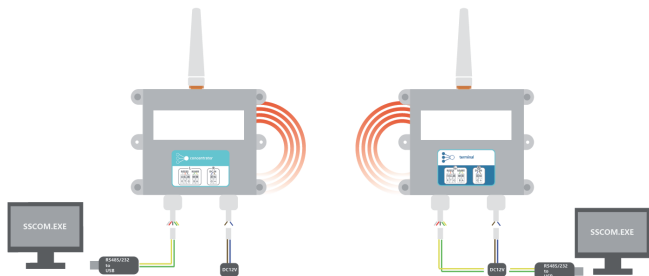
6.Product accessories

(1) Product 1 unit

(2) Glue stick antenna 1 pc

(3) 1 magnet

5. Precautions

(1) Do not provide power to the device before the antenna is installed on the product.

(2) When installing the equipment, please do not power the equipment.

(3) Please place the device in a ventilated place.

(4) Avoid placing the equipment in a high temperature environment exceeding the requirements.

(5) The equipment installation location must be away from high-voltage cables.

(6) The equipment needs to be kept away from strong thunderstorms and strong electric field environments.

(7) Please install the equipment firmly.

(8) After installation, the antenna end should be kept away from metal and walls.

Contents
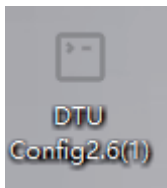
1.DTU device connection configuration tool

1.1.Power on the device and connect to serial port

After powering on, both the master and slave devices enter the configuration mode (the 4th mode) through the magnetic buttons, and the two lights flash quickly at the same time.
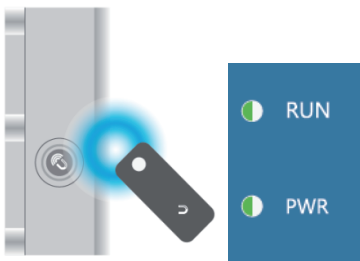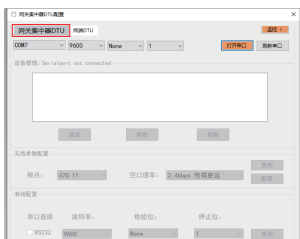
1.2.Open the DTU configuration software

1.3.Select device model

Each time a device is added, one more DTU config.exe file needs to be run.

1.4. Connect serial port

Select the serial port number corresponding to the device, confirm the serial port configuration (baud rate, etc.) and click to open the serial port.((Open the serial port and successfully connect the device, the ESN number corresponding to the device will appear))

2.Gateway DTU configuration

2.1.Device Management

2.1.1.Add terminal

2.1.2.Delete terminal
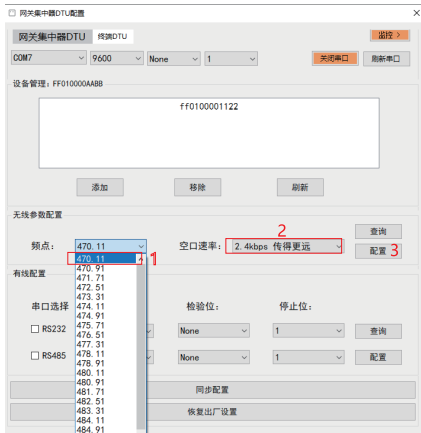
2.1.3.Query terminal

2.2.Wireless parameter configuration
2.2.1.Query the current wireless parameter configuration

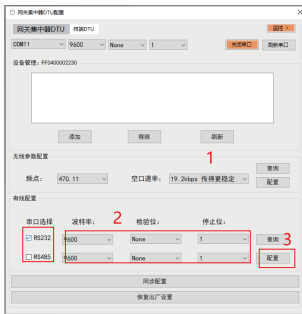2.2.2.Configure communication frequency and air interface rate (uplink)

1. Select the network frequency point (470mHz-510mHz);

2. Select the network uplink air interface rate (2.4k\19.2k\76.8k, bps);

3. Click Configure;

2.3.Wired serial port parameter configuration

2.3.1.Query current wired parameters

2.3.2.Configure the corresponding wired serial port parameters

1. Select the wired serial port to be configured;
2. Configure wired serial port parameters (baud rate, check bit, stop bit);
3. Click Configure;If the device is configured with wired parameters other than the default configuration, all devices need to be configured individually. (Wired parameters cannot be synchronized to all terminal sides through the gateway side like wireless communication parameters)
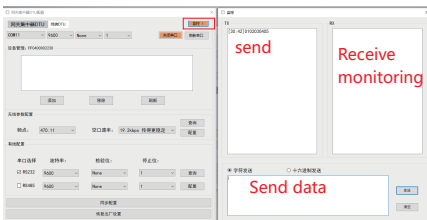
1. Complete the configuration of all device parameters (device management, wireless communication parameters, wired communication parameters);
2. Click Configure;

2.5.Factory reset

After completing the factory reset, it is recommended to power on the device and restart it.

2.6.Data monitoring

3.Terminal DTU configuration

3.1.Wireless parameter configuration

3.1.1.Query current wireless parameters

3.1.2.Configure terminal DTU search frequency point

Generally, the gateway DTU is added to the terminal whitelist, and the terminal can access the network normally.

If the gateway is configured with a non-470.11 frequency due to network planning or other reasons, it is recommended to configure the frequency of the terminal DTU to the same frequency as the gateway to shorten the network search time.

The downlink network air interface rate is currently 19.2k (fixed value) on the terminal DTU side, and the uplink rate can be configured on the gateway side.

3.2.Wired serial port configuration

3.2.1.Query the current wired configuration

1. Select the wired serial port to be configured;

2. Configure wired serial port parameters (baud rate, check bit, stop bit);

3. Click Configure;

If the device is configured with wired parameters other than the default configuration, all devices need to be configured individually. (Wired parameters cannot be compared to wireless communication parameters.

It can also be synchronized to all terminal sides through the gateway side)
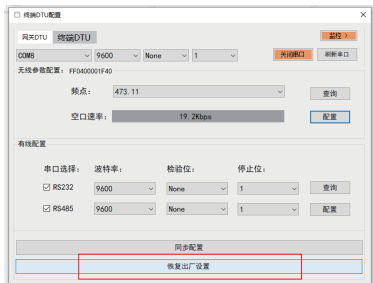
3.3. Synchronize global configuration

After completing the configuration of all device parameters, you can synchronize all configurations to the device at one time through the [Synchronize Configuration] button.
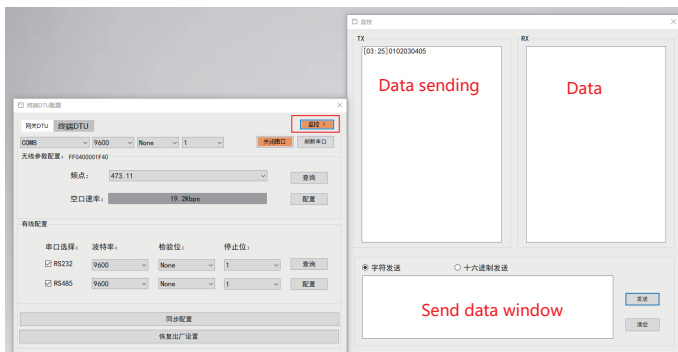

1. Select the wired serial port to be configured;

2. Configure wired serial port parameters (baud rate, check bit, stop bit);

3.4.Restore factory settings

After completing the factory reset, it is recommended to power on the device and restart it.

3.5.Data monitoring

Warranty card

customer information

model	
date of purchase	
customer phone number	
customer address	
dealer	
dealer address	
dealer phone number	dealer stamp valid

Warranty record

repair frequency	date	failure	treatment measures	maintenance number