

IOT5058-2W
LoRa Wireless
Serial Transceiver

Please read the product manual carefully before using the product.

I. Product Overview

This product is a long-range wireless data transceiver that uses internationally recognized LoRa spread-spectrum modulation technology. It provides high-performance, reliable, stable, and low-power wireless data transmission, offering a cost-effective solution for complex environments where conventional cabling is difficult or impractical. Its key advantages are long communication range and low power consumption. By eliminating the need for on-site cabling, the product simplifies deployment and meets communication requirements in locations where wired installation is inconvenient or impossible. It is widely used in Internet of Things (IoT) applications. The product supports point-to-point, point-to-multipoint, and multipoint-to-multipoint data transmission without requiring separate transmitter and receiver configurations.

Application Scenarios:

1. Wireless Meter Reading: Smart electricity, water, gas, and heat meters.
2. Ultra-Low Power Sensors: Monitoring slowly changing physical variables (e.g., temperature, water pressure, PM2.5, and geomagnetic sensors).
3. Wireless Alarm Systems: Smoke detectors and passive infrared (PIR) sensors.
4. Remote I/O Controllers: Lighting and HVAC/air conditioning control.
5. Industrial Applications: Connectivity for industrial PCs (IPCs), automated instrumentation, long-range irrigation systems, access control, smart building automation, security control systems, and highway weighbridge data transmission.

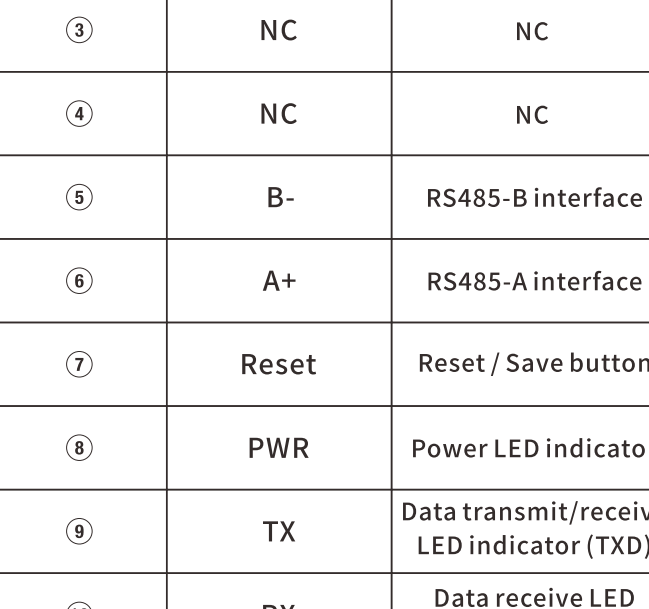
II. Functional Parameters

1. Supports relay function.
2. Supports user-configurable encryption keys — only receiving radios with the same key can receive data, and the key cannot be read, ensuring security and reliability.
3. Supports one-to-one, one-to-many, or many-to-many data transmission without distinguishing between transmitter and receiver.
4. Please configure the product via the Type-C port connected to a computer (configuration tool supports Windows systems only).
5. Operating frequency: 470.11~510.11MHz (default: 470.11MHz).
6. Default wireless transmission power: 17dBm (configurable).
7. Data packet length: 1024 bytes.
8. Over-the-air data rate: Supports 1.2/2.4/4.8/9.6/19.2/31.25/230.4kbps (default: 9.6kbps).
9. Serial baud rate: 2400/4800/9600/19200/38400/57600/115200/230400bps (default: 9600bps).
10. Data bits: 7, 8; Stop bits: 1, 1.5, 2; Parity: None, Even, Odd.
11. Voltage: DC9~38V; Current: 100mA (peak current 1A); Operating temperature: -20~85°C; Humidity: 5%~95% RH.

Transmission Range Details

Test Environment	Tested Range	Product Feature Description / Notes
Open environment, line-of-sight (LOS)	20Km	Straight line, open terrain conditions
Urban roads, line-of-sight propagation	8Km	Subject to actual operating environment

III. Interface Description



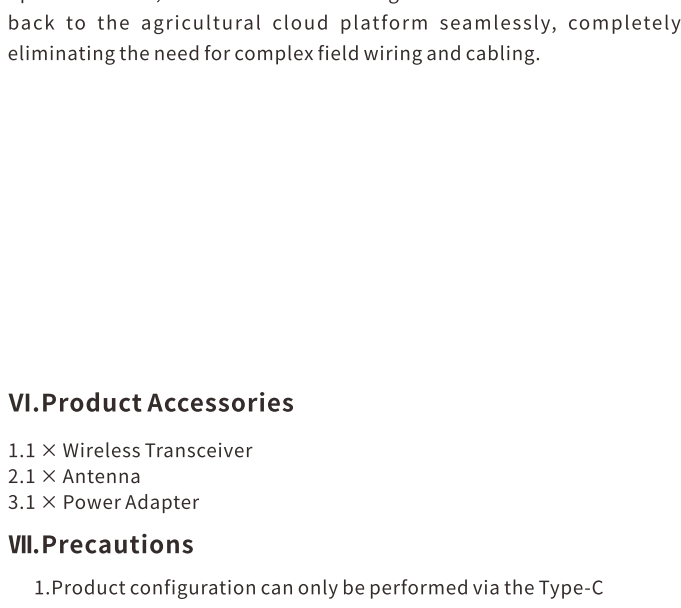
Pin	Name	Description
①	DC+	Positive power supply interface

②	GND	Negative power supply interface (Ground)
③	NC	NC
④	NC	NC
⑤	B-	RS485-B interface
⑥	A+	RS485-A interface
⑦	Reset	Reset / Save button
⑧	PWR	Power LED indicator
⑨	TX	Data transmit/receive LED indicator (TXD)
⑩	RX	Data receive LED indicator (RXD)
⑪	Link	Connection/Link LED indicator
⑫	ANT	Antenna interface (RF Input/Output)

⑬	DC 9-36V	DC power supply input interface
⑭	Type-C Interface	For configuring product parameters

⑮	Pin No	Signal	Pin No	Signal
	1	NC	7	NC
	2	TXD	8	NC
	3	RXD	9	NC
	4	NC		
	5	GND		
	6	NC		

IV. Product Connection Diagram



V. Application Scenarios

Greenhouse Environment Monitoring & Automation: Inside greenhouses, soil moisture sensors, CO₂ sensors, and irrigation controllers (equipped with RS485 interfaces) utilize RS485-to-LoRa transceivers to establish wireless communication. This setup enables remote tracking of environmental metrics and automates the control of irrigation and ventilation equipment. Cable-Free Farmland Telemetry: In open farmlands, soil moisture monitoring stations transmit critical data back to the agricultural cloud platform seamlessly, completely eliminating the need for complex field wiring and cabling.

VI. Product Accessories

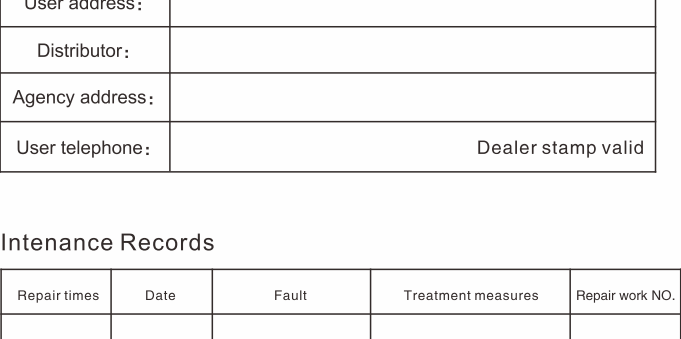
- 1.1 × Wireless Transceiver
- 2.1 × Antenna
- 3.1 × Power Adapter

VII. Precautions

1. Product configuration can only be performed via the Type-C interface.
2. The product comes with a free warranty during the warranty period, provided that the damage is caused by inherent product quality defects and not by human error or natural disasters such as lightning strikes. Users are strictly prohibited from attempting to repair the product themselves. If any issues arise, please contact us immediately. Detech (蒂特) provides premium, first-class after-sales support.
3. DO NOT operate this wireless device in flammable or explosive environments, including but not limited to coal mines, areas containing volatile hazardous gases/materials, or during active lightning and thunderstorms.
4. A reliable DC regulated power supply must be used. The power source should feature strong anti-high-frequency interference capability, low ripple, and sufficient load capacity. It is highly recommended to use a power supply equipped with over-current protection, over-voltage protection, and lightning surge protection to ensure stable operation. When selecting a power supply, besides reserving a 50% current margin as recommended, ensure that the output voltage ripple does not exceed 100 mV.
5. DO NOT operate the device in conditions that exceed its specified environmental ratings, such as extreme high or low temperatures, high humidity, strong electromagnetic fields, or heavy dust environments.
6. Avoid continuous, uninterrupted transmission at full load/maximum power, as this poses a serious risk of overheating and burning out the RF transmitter.
7. During bench testing, a matched antenna or a 50 Ω dummy load must be securely connected before powering on the device. Furthermore, the physical distance between the transmitter and the receiver must exceed 3 meters, otherwise, the receiver/transmitter hardware may sustain permanent burn-out damage.
8. When the device is transmitting at its maximum power, personnel should maintain a distance of at least 2 meters from the antenna to prevent RF radiation injury. NEVER touch the antenna while the device is actively transmitting.
9. The communication range of wireless products varies significantly across different environments and is heavily influenced by factors such as temperature, humidity, obstacle density, obstacle volume, and the local RF/electromagnetic environment. To ensure stable and robust communication links, it is highly recommended to reserve a range margin of 40% or greater.
10. If the measured communication distance is less than ideal in your specific environment, it is recommended to lower the Air Data Rate in the configuration settings to achieve a longer wireless transmission range.

VIII. Operating Instructions

1. Please ensure the following items are prepared before installation and configuration:
 - 1 × LoRa wireless transceiver.
 - 1 × Type-C to USB data cable.
 - 1 × 12V power adapter (or 1 × 12V power supply).
 - 1 × Antenna.



2. Connect the transceiver to the computer using the Type-C to USB data cable.



3. Launch the configuration software.

4. Select the corresponding COM port for the device within the configuration software, and then open the serial port.

5. Default Product Configuration

Baud Rate	9600	Module Power	33dBm
Data Bits	8 bits	Module Address	61172
Parity	None	Frequency(KHz)	433125
Stop Bits	1 bit	Network ID	808464433
Air Rate	9.6Kbps	Key	123456

6. Network ID: The device group identifier used to distinguish between different LoRa wireless networks. Only devices with the same Network ID can communicate with one another. It determines the logical network to which the device belongs.

Encryption Key: The authentication key used to encrypt transmitted data. Even if devices use the same Network ID, they cannot decode one another's data unless their encryption keys match. The encryption key cannot be read from the device, ensuring secure and reliable communication.

Module Address: A unique identifier assigned to each device within the network. Within the same network—defined by the same Network ID and encryption key—each device must have a unique module address.

To communicate with another LoRa transceiver, the two devices must use different module addresses while sharing the same Network ID and encryption key.

7. Relay Mode Configuration: Relay mode supports only point-to-point communication. Set the relay device's transmission mode to Forwarding Mode and configure the devices at both ends to operate in Transparent Transmission Mode. The module addresses of the two end devices must correspond to the relay's Upstream ID and Downstream ID, respectively.

8. Saving and Restarting: After completing the configuration, click Save Data and Restart, or press the restart button on the device. After the device restarts, disconnect and reconnect the communication cable before performing any further configuration.

9. After completing the product configuration, connect the power supply and antenna to begin communication.

Product Warranty Card

Customer Information

Model:	
Date of purchase:	
User telephone:	
User address:	
Distributor:	
Agency address:	
User telephone:	Dealer stamp valid

Intenance Records

Repair times	Date	Fault	Treatment measures	Repair work No.

Electronic products are guaranteed for one year, and other products are guaranteed for two years. Damage caused by human factors or product burnout caused by improper operation is not included in the scope of warranty.