

PDDAXLQUE LR02 433 475Mh

PDDAXLQUE LR02-A 433MHz LoRa Transceiver Wireless Module Instruction Manual

Model: LR02 433 475Mh

1. INTRODUCTION

This manual provides essential instructions for the setup, operation, and maintenance of the PDDAXLQUE LR02-A 433MHz LoRa Transceiver Wireless Module. The LR02-A is a low-power LoRa module designed for long-distance serial data transmission, featuring an ASR6601 SOC chip and UART interface. Please read this manual thoroughly before using the module to ensure proper functionality and safety.

2. KEY FEATURES

The PDDAXLQUE LR02-A module offers the following key features:

- ASR6601 SOC Chip for robust performance.
- 32-bit ARM STAR Core with a maximum frequency of 48MHz.
- UART Serial Communication for transparent data transmission.
- Abundant AT commands for flexible configuration.
- Supports a wide frequency band of 410MHz to 493MHz, ensuring global compatibility.
- High power PA with an output power of +22dBm.
- Maximum Receiver Sensitivity of -138dBm for extended range.
- Supports sleep mode and Wake on Air mode for power efficiency.
- Achieves a line-of-sight communication distance of up to 5km.
- Operating voltage range: 3.3V-5.5V (typical: 5V).
- Compact module size: 36(L) x 16.5(W) x 4(H) mm.
- Certified with CE, FCC, and RoHS standards.

Regarding serial port testing software for PC

-What is the "LoraSetting " software tool used for?

Support using AT commands to modify transmission mode, working channel, working power, working mode, baud rate, query device information, etc

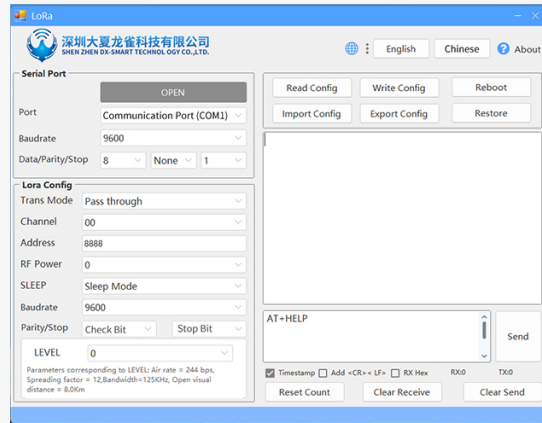
-AT Commands for Easy Use:

A rich set of AT commands can help you use the product more conveniently

-AT command set:

AT command	Function	Description
AT	Test Instruction	For testing serial ports
+++	Entering or exiting AT command mode	Power-up defaults to transmission mode
AT+BAUD	Setting/Querying Baud Rate	Default:4(9600)
AT+STOP	Setting/querying serial port stop bit	Default:0(0 stop bit)
AT+PARI	Set/query serial port parity bit	Default:0(no parity)
AT+MODE	Setting/querying working mode	Default:0(transparent transmission)
AT+MAC	Setting/Querying Device Address	Default:ffff

*For more AT commands, please consult the product information packages.



(Uart Assistant Tools Screenshot)

Image: Key features and physical dimensions of the LR02-A LoRa module, including a table of parameters and top/side views.

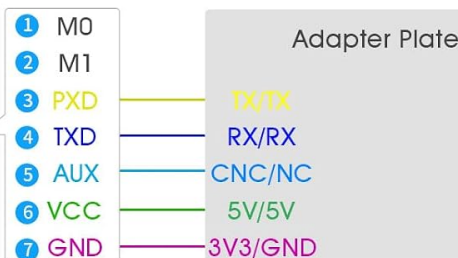
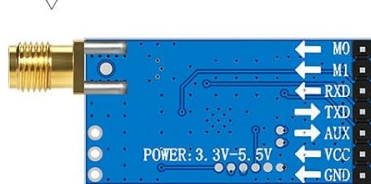
3. SETUP AND WIRING

To set up the LR02-A module, connect it to your host device (e.g., Arduino, Raspberry Pi, ESP32 MCU) using the UART interface. Ensure correct pin connections for power, ground, and data transmission (TX/RX).

LR01 & Adapter Board Wiring Diagrams

⚠ Note:The module and the adapter board should be inserted with positive and negative pins.

LR01 Backplane Pinout



Example wiring diagram

1 M0
(reserved, customizable IO port)

2 M1
(reserved, customizable IO port)

3 UART_RX

4 UART_TX

5 AUX (Refer to 2.3.4 for details)

6 VCC-Power Supply 3.3V-5.5v

7 GND



*Indicator status

Working status: Red light blinking

Hibernation mode: light off when hibernating, red light flashing when waking up

Image: Wiring diagram illustrating connections between the LR01 module and an adapter board, showing pin assignments for power, ground, and UART communication.

Important: The module and adapter board should be inserted with positive and negative pins correctly aligned to prevent damage.

- **VCC:** Power Supply (3.3V-5.5V)
- **GND:** Ground
- **TXD:** Transmit Data (connect to RX of host)
- **RXD:** Receive Data (connect to TX of host)
- **M0, M1:** Mode selection pins (reserved, customizable IO port)
- **AUX:** Auxiliary pin (refer to detailed documentation for specific use)

4. OPERATING MODES

The LR02-A module supports various operating modes for data transmission:

- **Transparent Transmission:** Data is transmitted directly between modules on the same channel without addressing.
- **Fixed-Point Transmission:** Communicate with specific modules by including address and channel information in the data packet.
- **Broadcast Transmission:** Send data to all modules within range on a designated channel.

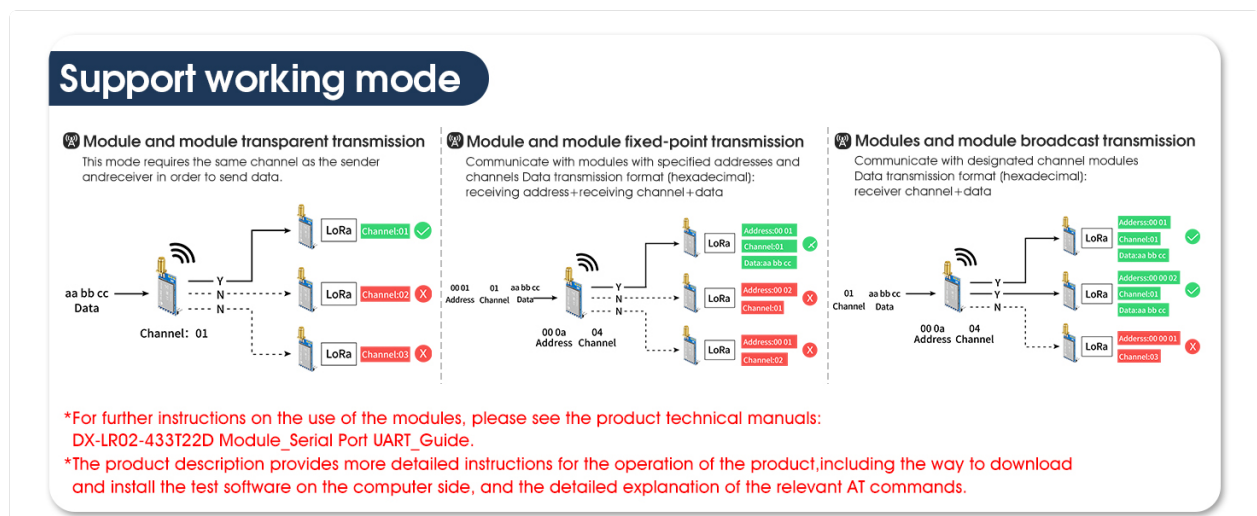


Image: Diagram illustrating transparent, fixed-point, and broadcast transmission modes for LoRa modules.

5. AT COMMAND CONFIGURATION

The module's parameters can be configured using AT commands via the UART interface. This allows for customization of settings such as operating mode, frequency, MAC address, bandwidth, spreading factor, and coding rate.

Measured distance of LORA module. Drone measured communication distance.

Visible distance up to 5km in the open.

Note: The test results come from the measured communication distance in an open area, and the specific values are subject to actual measurement.

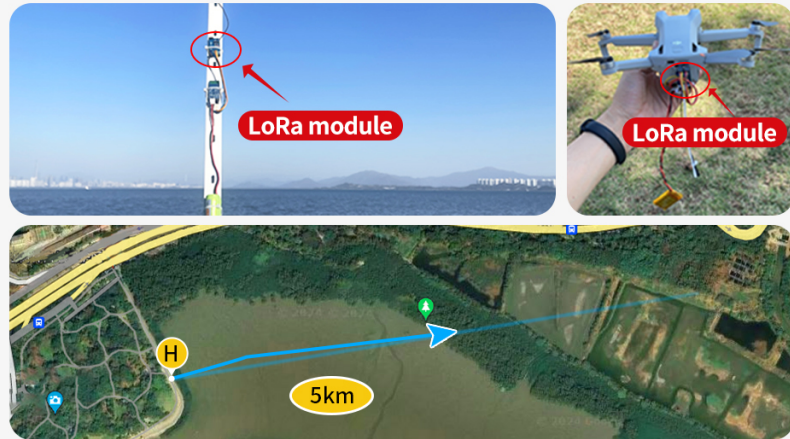


Image: Table of common AT commands and a screenshot of the UART Assistant Tools software for PC, used for module configuration and testing.

Some common AT commands include:

- **AT:** Test command (responds with "OK").
- **+++:** Enter/Exit AT command mode.
- **AT+BAUD:** Set/query baud rate.
- **AT+MODE:** Set/query operating mode.
- **AT+MAC:** Set/query device address.
- **AT+POWE:** Set/query transmit power.
- **AT+IQ:** Set IQ signal flip-flop.

For a comprehensive list of AT commands and detailed usage, please refer to the product's technical documentation or datasheet.

6. APPLICATION SCENARIOS

The LR02-A module is suitable for various long-distance serial data transmission applications, including:

- Smart Home automation (e.g., controlling devices across different rooms).
- Smart Farm monitoring (e.g., data acquisition from sensors in agricultural fields).
- Industrial Manufacturing (e.g., remote control and data collection in industrial parks).
- DIY projects with microcontrollers like Arduino, Raspberry Pi, or ESP32 for long-distance motor control and data acquisition.

Drone measured communication distance

- ASR6601 Chip
- Visible distance up to 5km in the open



Image: Collage depicting various application scenarios for the LoRa module, including smart home, smart farm, and industrial manufacturing.

Application Scenarios



Own Factory (Supports OEM, ODM)



We are not ordinary retail stores, we are source factories. We can provide you with high-quality products, one-on-one technical support, after-sales service, complete product development materials, etc. We can help you solve the problems you encounter. Please trust our ability and technology. We have a strong supply chain and technical team to provide OEM and ODM services for you. Please contact us if you need any assistance.

Image: Visual representation of drone-measured communication distance for the LoRa module, showing a visible range of up to 5km in open areas.

7. SPECIFICATIONS

Parameter	Detail
Brand	PDDAXLQUE
Model Number	LR02 433 475Mh
Wireless Type	Radio Frequency
Communication Interface	UART
Chip Model	ASR6601
Frequency Band	410-493MHz
Output Power	0 to +22dBm
Receiver Sensitivity	-138dBm

Parameter	Detail
Communication Distance	Up to 5km (line-of-sight in open areas)
Operating Voltage	3.3V-5.5V (Typical 5V)
Operating Temperature	-40°C to +85°C
Modulation Method	Spread Spectrum Modulation
RF Input Impedance	50Ω
Compatible Devices	PC, Laptop, Arduino, Raspberry Pi, ESP32 MCUs
Certifications	CE, FCC, RoHS

8. TROUBLESHOOTING

If you encounter issues with your LR02-A module, consider the following troubleshooting steps:

- **No Communication:**
 - Verify all wiring connections (VCC, GND, TXD, RXD) are correct and secure.
 - Ensure the power supply voltage is within the specified range (3.3V-5.5V).
 - Check if the baud rate settings on both the module (via AT commands) and the host device match.
 - Confirm that the module is in the correct operating mode for your application (e.g., transparent, fixed-point).
- **Poor Range/Signal:**
 - Ensure the antenna is properly connected and positioned.
 - Minimize obstacles between transmitting and receiving modules.
 - Check for local interference sources.
 - Verify transmit power settings using AT commands.
- **Module Not Responding to AT Commands:**
 - Ensure the module is in AT command mode (e.g., by sending "+++").
 - Check the serial port settings (baud rate, parity, stop bits) on your terminal software.
 - Confirm correct TX/RX connections.

9. MAINTENANCE

To ensure the longevity and optimal performance of your LR02-A module, follow these maintenance guidelines:

- Keep the module clean and free from dust and debris.
- Avoid exposing the module to extreme temperatures, humidity, or corrosive environments.
- Handle the module with care to prevent physical damage to components or connectors.
- Ensure proper ventilation if enclosed in a casing to prevent overheating.

10. WARRANTY INFORMATION

The PDDAXLQUE LR02-A LoRa Transceiver Wireless Module is covered by a standard manufacturer's warranty. Please retain your proof of purchase for any warranty claims. For specific warranty terms and conditions, refer to the documentation provided at the time of purchase or contact customer support.

11. TECHNICAL SUPPORT

For technical assistance, inquiries, or if you encounter any problems not covered in this manual, please contact PDDAXLQUE customer support. We are committed to providing comprehensive support for our products.

You can typically find support contact information through the "User Guide" or "Product Information" sections on the product's purchase page or the manufacturer's official website.