

## PDDAXLQUE LR03-433/475Mhz

# PDDAXLQUE DX-LR03 LoRa Module (LR03-433/475Mhz) User Manual

Model: LR03-433/475Mhz

## 1. INTRODUCTION

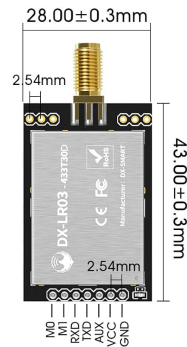
The PDDAXLQUE DX-LR03 is an ultra-long distance LoRa communication module designed for reliable wireless data transmission. This module supports the 433/475Mhz frequency band and integrates a PA amplifier, enabling a transmission power of up to 30dBm. It utilizes UART serial port communication, facilitating transparent data transfer between devices. The DX-LR03 module, particularly the LR03-SET configuration, can achieve communication distances of up to 10 kilometers in open environments.

### Key Features:

- **Chipset:** ASR6601 SOC Chip with PA Amplifier
- **Communication Range:** Up to 10 km (line of sight)
- **Processor:** 32-bit ARM STAR Core, Maximum Frequency 48MHz
- **Interface:** UART Serial Communication
- **Control:** Abundant AT commands for configuration
- **Frequency Support:** 410~493MHz, ensuring global compatibility
- **Output Power:** +30dBm
- **Receiver Sensitivity:** -142dBm (Maximum)
- **Power Modes:** Supports sleep mode and Wake on Air mode
- **Operating Voltage:** 4V-5.5V (typical: 5V)
- **Module Dimensions:** 43(L)mm x 28(W)mm x 3.2(H)mm
- **Certifications:** CE, FCC, RoHS compliant

## LR03-433T30D Key Features

- ASR6601 SOC Chip+PA Amplifier
- Long Range 10km
- 32-bit ARM STAR Core,  
Maximum Frequency 48MHz
- Uart Serial Communication  
Abundant AT commands
- Support 410~493MHz,  
Global Compatibility  
High power PA,
- Output power: +30dBm
- Maximum Receiver Sensitivity: -142dBm
- Supports sleep mode,Wake on Air mode
- Operating voltage: 4V-5.5V (typical: 5V)
- Module Size 43(L)mm x 28(W)mm x 3.2(H)mm
- CE, FCC,ROHS certification



| Parameter                     | Details             |
|-------------------------------|---------------------|
| Module Dimensions (L x W x H) | 43mm x 28mm x 3.2mm |

### 3. SETUP

#### 3.1 Module Pinout

The DX-LR03 module features several pins for power, data communication, and control. Proper connection is essential for functionality.

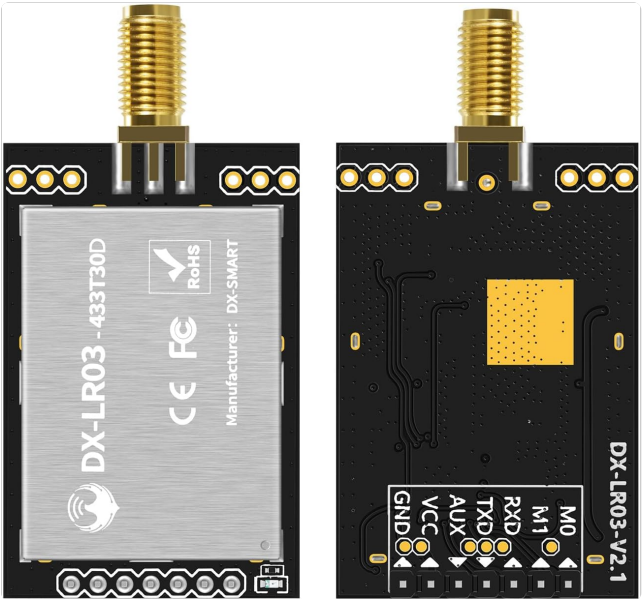


Figure 2: DX-LR03 Module Front and Back View with Pinout

The pin definitions are as follows:

- **GND:** Ground connection.
- **VCC:** Power supply input (4V-5.5V).
- **AUX:** Auxiliary pin, often used for status indication.
- **TXD:** Transmit Data pin (UART output).
- **RXD:** Receive Data pin (UART input).
- **M1:** Mode control pin 1.
- **M0:** Mode control pin 0.

Connect the module to your host device (e.g., microcontroller, PC via USB-to-UART converter) using the VCC, GND, TXD, and RXD pins. Ensure the power supply is within the specified voltage range.

#### 3.2 Antenna Connection

The DX-LR03 module supports external antennas. Connect a suitable 433/475Mhz antenna to the module's SMA connector. Ensure the antenna is securely attached for optimal performance.

## 4. OPERATING INSTRUCTIONS

### 4.1 Serial Communication Parameters

The module communicates via a serial UART interface. The following baud rates are supported:

- 1200 bps
- 2400 bps
- 9600 bps (Default)
- 19200 bps
- 38400 bps
- 57600 bps
- 115200 bps
- 128000 bps

The default serial port settings are 9600bps, 8 data bits, no parity, 1 stop bit (9600/8/N/1).

### 4.2 AT Command Set

The DX-LR03 module is configured using AT commands. These commands allow you to set various parameters such as operating mode, frequency, MAC address, bandwidth, spreading factor, coding rate, and more. This eliminates the need to write complex LoRa programs directly.

| AT Command | Description                      | Default/Clarification                  |
|------------|----------------------------------|----------------------------------------|
| AT         | Test command                     | Response: OK (for serial port testing) |
| +++        | Enter/exit AT command mode       | Power-up defaults to transmission mode |
| AT+BAUD    | Set/query baud rate              | Default: 4 (9600)                      |
| AT+MODE    | Set/query operating mode         | Default: 0 (transparent transmission)  |
| AT+SLEEP   | Set/query power consumption mode | Default: 2 (high time mode)            |
| AT+CHANNEL | Set/query working channels       | Default: 00                            |
| AT+MAC     | Set/query device address         | Default: FF FF                         |
| AT+POWE    | Set/query transmit power         | Default: 22dB                          |

**Note:** For a complete list of AT commands and detailed usage, please consult the comprehensive product information packages and technical documentation.

### AT command set

| AT command | Command description              | Clarification                          |
|------------|----------------------------------|----------------------------------------|
| AT         | Test (Response OK)               | For testing the serial port            |
| +++        | Enter/exit AT command mode       | Power-up defaults to transmission mode |
| AT+BAUD    | Set/query baud rate              | Default:4 (9600)                       |
| AT+MODE    | Set/query operating mode         | Default:0 (transparent transmission)   |
| AT+SLEEP   | Set/query power consumption mode | Default:2 (high time mode)             |
| AT+CHANNEL | Set/query working channels       | Default:00                             |
| AT+MAC     | Set/query device address         | Default:ff ff                          |
| AT+POWE    | Set/query transmit power         | Default:22dB                           |

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

### Professional technical documentation

Professional documentation can help you use the module more easily and conveniently.  
If you need more details, please feel free to contact us!

Figure 3: Common AT Command Set

## 4.3 Communication Modes

The DX-LR03 module supports various communication modes:

- **Transparent Transmission:** Data is transmitted directly between modules on the same channel.
- **Fixed-Point Transmission:** Communication with modules having specified addresses and channels. Data format: receiver address + receiver channel + data.
- **Broadcast Transmission:** Communication with designated channel modules. Data format: receiver channel + data.

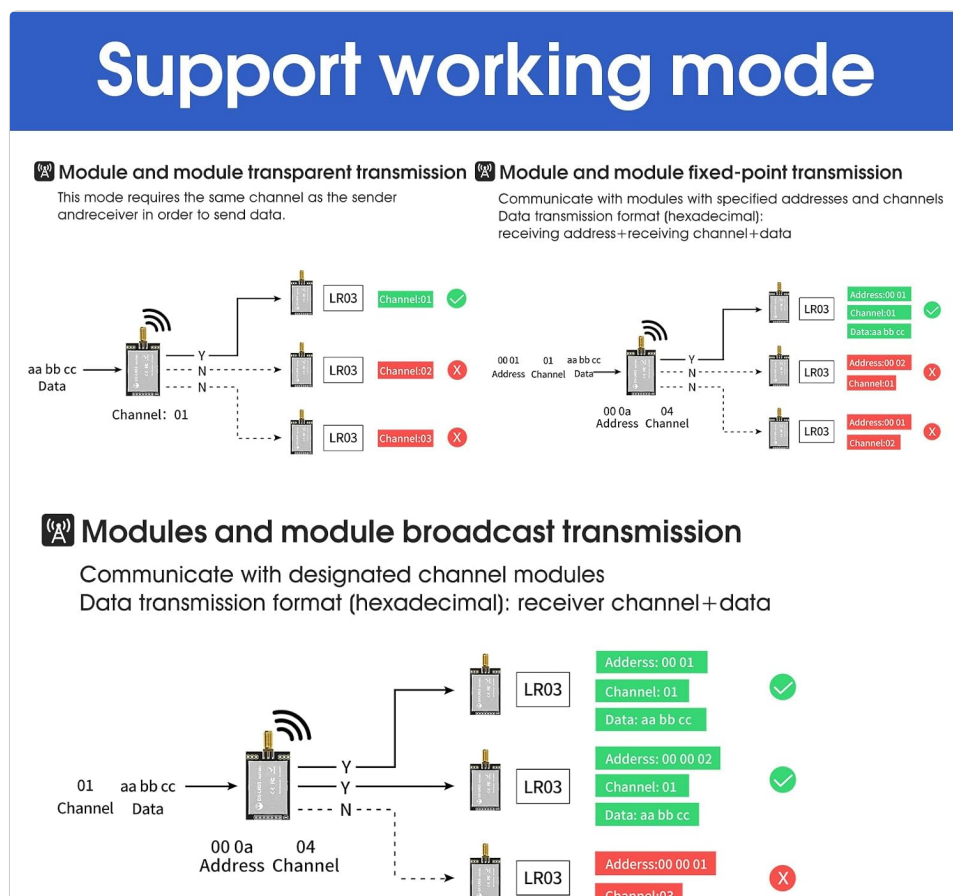


Figure 4: Supported Working Modes

## 4.4 PC Serial Port Testing Software

A dedicated PC software tool, often referred to as "LoraSetting" or a similar Uart Assistant, is available to facilitate testing and configuration of the module. This software allows users to easily modify transmission mode, working channel, power, baud rate, and query device information without manual AT command input.

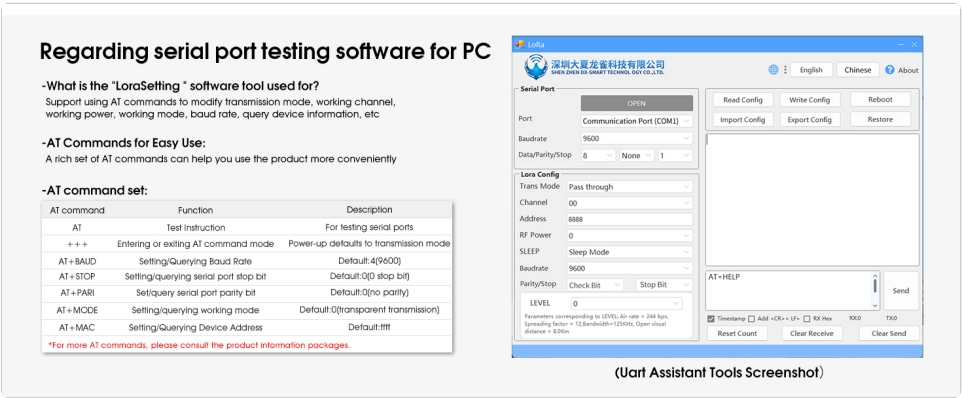


Figure 5: Example of PC Serial Port Testing Software Interface

## 5. MAINTENANCE

To ensure the longevity and optimal performance of your DX-LR03 LoRa module, observe the following maintenance guidelines:

- **Environmental Conditions:** Operate the module within the specified temperature range of -40°C to +85°C. Avoid exposure to extreme humidity, dust, or corrosive environments.
- **Power Supply:** Always use a stable power supply within the 4V-5.5V range. Incorrect voltage can damage the module.
- **Physical Handling:** Handle the module with care to prevent physical damage to components or connectors. Avoid static discharge by using appropriate ESD precautions.
- **Certifications:** The DX-LR03 module holds CE, FCC, and RoHS certifications, indicating compliance with relevant safety and environmental standards.

## 6. TROUBLESHOOTING

If you encounter issues with your DX-LR03 LoRa module, consider the following troubleshooting steps:

- **No Power:** Verify that the VCC and GND connections are correct and that the power supply is providing the correct voltage (4V-5.5V).
- **No Communication:**
  - Check UART connections (TXD to RXD, RXD to TXD).
  - Ensure the baud rate and other serial port parameters (data bits, parity, stop bits) match between the module and your host device.
  - Confirm the module is in AT command mode if you are attempting to configure it.

- **Poor Range/Signal:**

- Ensure the antenna is securely connected and is appropriate for the 433/475Mhz frequency band.
- Check for obstructions between transmitting and receiving modules. LoRa performance is best with line-of-sight.
- Verify the transmit power setting using AT commands.

- **Module Not Responding to AT Commands:** Ensure you are correctly entering AT command mode (e.g., by sending "+++" if required) and that the serial port settings are correct.

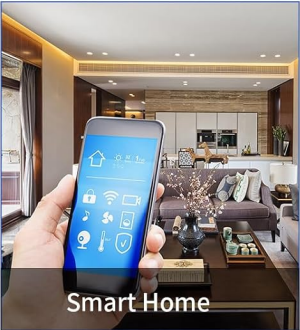
For further assistance, refer to the technical support section below.

## 7. APPLICATION SCENARIOS

The DX-LR03 LoRa module is suitable for a wide range of applications requiring long-range, low-power wireless communication. Common application areas include:

- **Smart Home:** Remote control and monitoring of home devices.
- **Smart Farm:** Agricultural sensor networks for environmental monitoring and irrigation control.
- **Industrial Manufacturing:** Industrial automation, asset tracking, and remote equipment monitoring.
- **IoT Devices:** Various Internet of Things applications requiring extended range.

### Application Scenarios



Smart Home



Smart Farm



Industrial Manufacturing

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**大夏龙雀科技**  
DX-SMART TECHNOLOGY

[Technical Support & Customized Service]  
We are a manufacturer, Not a trader. This is a product we developed and designed ourselves. Please believe in our ability and technology.  
We can help you solve the problems you meet, and also support OEM and ODM services (Including customized logo, customized program, customized appearance, etc.).

Figure 6: Typical Application Scenarios

## 8. TECHNICAL SUPPORT AND WARRANTY

PDDAXLQUE provides comprehensive technical support for the DX-LR03 LoRa module. This includes:

- Technical documentation
- Detailed AT command sets
- Module footprints and reference design schematics
- Development and test tools

We recommend purchasing a development kit with your initial order to facilitate quick verification of module functionality and accelerate product development. Additional user guides, complete product information, and product tutorials are available through the provided documentation links.

As a manufacturer, we support OEM and ODM services. If you encounter any problems or require assistance, please contact our service support team. We are committed to resolving any issues you may experience.

For support, please refer to the contact information provided in the product packaging or on the official product page under 'User Guide → Product Information → Service Support'.

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### ASK A QUESTION ABOUT THIS MANUAL

Ask about setup, troubleshooting, compatibility, parts, safety, or missing instructions. Manuals+ will review the question and use this page’s manual context to help answer it.

Name

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Question

Example: How do I reset this device or fix this error?

Details

Model number, symptoms, what you tried, or the section of the manual you are using.

Submit question

