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› PDDAXLQUE DX-LR30 LoRa Development Kit Instruction Manual

PDDAXLQUE DX-LR30-433-SET-T1

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Model: DX-LR30-433-SET-T1

Brand: PDDAXLQUE

1. INTRODUCTION AND OVERVIEW

The PDDAXLQUE DX-LR30 is a high-performance LoRa development kit designed for long-range, low-power IoT applications. It features a Semtech SX1262 LoRa RF transceiver chip and an STM32F103C8T6 microcontroller, offering robust communication capabilities up to 8 kilometers. This module supports both LoRa and GFSK modulation, operating in the 430-470MHz frequency band (specifically 433MHz for this model). It is ideal for various applications including home security, industrial sensors, and remote control systems.

The DX-LR30 series is compatible with SX127X series communication but offers enhanced performance, longer transmission distance, faster speed, and lower power consumption due to its advanced SX1262 chip. It includes features such as air wake-up, carrier sense, communication key, and packet length setting. The module is equipped with an optional IPEX/Stamp hole dual-hole external antenna interface and an RF shielding cover for strong anti-interference, anti-static, and EMC electromagnetic compatibility.



Image: The DX-LR30 LoRa Development Kit module with an attached antenna.

2. WHAT'S IN THE BOX

The DX-LR30-433-SET-T1 Development Kit package typically includes the following components:

- 2 x PJ26 Microcontrollers
- 2 x DX-LR30-A Modules (433MHz)
- 2 x Glue Stick Antennas
- 2 x USB Cables
- 1 x Product Guide

Module Pin Definitions

LR30-SMD Pin Definition Diagram

Pin	Pin name	Function Description	Notes
1,2,3,4,10,11,12,20,22	GND	Power Ground	–
5	DIO3	Multi functional digital input/output - external TCXO power supply voltage	input/output
6	RX	Antenna switch	Used to switch between receiving and transmitting
7	TX	Antenna switch	Used to switch between receiving and transmitting
8	DIO2	Multi purpose digital input/output/ RF frequency band switch control	input/output
9	VCC	Power input pin	3.3V (typical value)
13	DIO1	Multi purpose digital input/output	input/output
14	BUSY	Used for status indication	–
15	RESET	Reset foot	–
16	MISO	SPI data output pin	–

*For more parameter details, please refer to the DX-LR30 technical manual.

Image: A visual representation of the components included in the DX-LR30-433-SET-T1 Development Kit, showing two PJ26 microcontrollers, two LR30-A modules, two glue stick antennas, and two USB cables.

3. SETUP INSTRUCTIONS

Follow these steps to set up your DX-LR30 LoRa Development Kit:

- 1. Connect the Antenna:** Before powering on the module, ensure that the antenna is securely connected to the module. Operating the module without an antenna can prevent radio frequency power from dissipating properly, potentially causing damage to the internal circuitry.
- 2. Install the Driver:**
 - Locate the CH340 Driver in the provided resources folder.
 - Run the driver installation executable (e.g., "CH341SER drive.EXE").
 - Follow the on-screen prompts to complete the installation. If the driver is already installed, you may skip this step.
- 3. Configure the Serial Tool:**
 - Run the serial debugging tool "UArtAssist" from the resource package.
 - In the UArtAssist application, select the corresponding serial port for each module (Module A and Module B).
 - Set the baud rate to 9600.
 - Click the "Open port" button for both modules.
 - Press the "Reset" button on both modules. The debugging tool should then receive raw information from the modules, indicating successful communication.

Your browser does not support the video tag.

Video: This video provides a quick verification tutorial for the DX-LR20/LR30 modules, demonstrating the unboxing, USB

to TTL wiring, serial tool testing, and initial communication setup. It highlights the two available frequency bands (430-470MHz and 850-930MHz) and the different core chips used in LR20 (Semtech LLCC68) and LR30 (Semtech SX1262) modules. The tutorial also shows how to connect the antenna, install the CH340 driver, and use the UArtAssist serial debugging tool to verify module functionality.

4. OPERATING INSTRUCTIONS

Once the setup is complete and communication is established via the serial tool, you can begin operating the DX-LR30 modules. The modules are designed for reliable long-range data transmission.

- **Data Transmission:** Use the UArtAssist tool or your custom firmware to send and receive data between connected modules. The modules will communicate once the serial ports are open and reset, as demonstrated in the setup video.
- **Range:** The DX-LR30 offers a transmission distance of up to 8KM in open areas, making it suitable for wide-area IoT deployments.
- **Power Management:** The Semtech SX1262 chip provides low power consumption, with a receive current of 4.2mA and a sleep current as low as 0.9µA, optimizing battery life for remote applications.
- **Programming:** The module supports programming via its SPI interface. Firmware development is required for custom applications.



Image: A visual representation of the communication distance, showing the LR30 module transmitting data over 8KM in an open environment, as measured by a drone.

5. SPECIFICATIONS

The following table details the key specifications of the DX-LR30 LoRa Development Kit:

Feature	Detail
Chip Model	Semtech SX1262 (LoRa Module), STM32F103C8T6 (Development Board)
Module Size	35.6(L)mm x 18(W)mm x 3.2(H)mm
Transmission Power	Up to +22dBm
Frequency Band	430-470MHz (Global Sub-GHz band, 433MHz for this model)
Receiver Sensitivity	As low as -148dBm (LoRa mode)
Receive Current	4.2mA
Sleep Current	As low as 0.9µA
Hardware Interface	SPI
Working Voltage	3.3V (typical value) TTL level output, compatible with 3.3~5V IO port voltage
Transmission Distance	Up to 8KM (visible open distance)
Working Temperature	-40°C ~ +85°C
Crystal Oscillator Frequency	32MHz

Feature	Detail
Antenna Interface	Optional IPEX/Stamp hole dual-hole external antenna
Certifications	CE, FCC (complete certifications)

Hardware Specification

The STM32F103 development board offers a reprogrammable, ready-to-use solution with full support for user programming. It includes a complete package (code samples, setup guides, datasheets, etc.), allowing direct code integration to speed up development.

• Provide the full set of materials •

Development Environment IDE

Testing Tools

Development Board Technical Manual

Chip Technical Manual

Hardware Documentation

Reference Links

Technical Manual

Code Examples

... More

Image: A detailed table of hardware specifications for the LR30 module, including chip model, size, power, frequency, and interfaces, alongside a diagram of the module.

Module Pin Definitions

Understanding the pin definitions is crucial for integrating the DX-LR30 module into your projects. Refer to the diagram and table below for details.

Supports global license-free ISM bands

Our LoRa solutions are globally applicable across multiple countries:

*DX-LR30-433 Frequency Range: 430-470MHz (CF 433MHz)
 *DX-LR30-900 Frequency Range: 850-930MHz (CF 915MHz)

LoRa mainly uses the unlicensed ISM frequency band, and the available frequency bands and center frequencies vary by region, as shown in the table on the right.

(*User must verify local RF spectrum regulations prior to operation!)

AREA	FREQUENCY BAND	CENTER FREQUENCY
North America	902-928MHz	915MHz
South America	915-928MHz	915 MHz / 928 MHz
Europe	866-915/433MHz	433 MHz / 868 MHz / 915 MHz
Oceania	915-928MHz	915 MHz / 928 MHz
Asia Pacific	915-923MHz	920 MHz
South Asia	865-867MHz	866 MHz
Southeast Asia	920-925MHz	923 MHz

Image: A diagram showing the LR30-SMD pin layout and a corresponding table with pin names, function descriptions, and notes.

6. APPLICATION AREAS

The DX-LR30 LoRa Development Kit is versatile and can be applied in a wide range of scenarios requiring long-range, low-power wireless communication:

- Home security alarm and remote keyless entry systems

- Smart home and industrial sensor networks
- Wireless alarm security systems
- Building automation solutions
- Industrial wireless remote control
- Advanced Meter Reading Architecture (AMI)
- Automotive industry applications

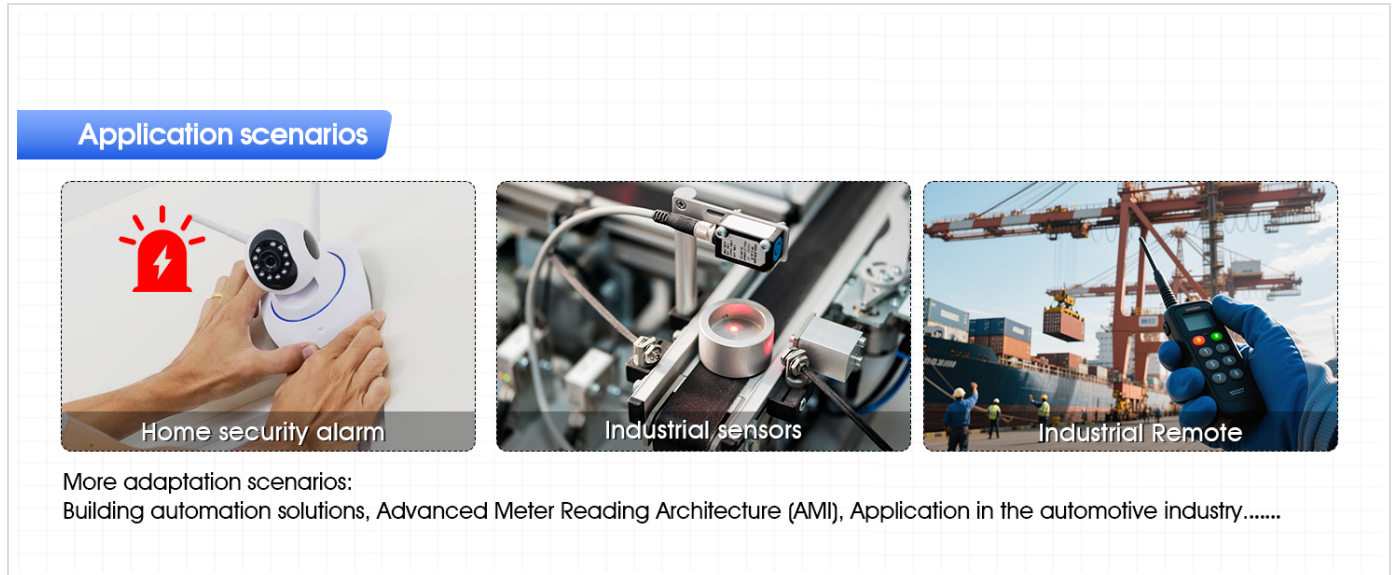


Image: Visual examples of application scenarios including home security alarms, industrial sensors, and industrial remote control.

7. MAINTENANCE

To ensure the longevity and optimal performance of your DX-LR30 LoRa Development Kit, consider the following maintenance guidelines:

- **Environmental Conditions:** Store and operate the modules within the specified working temperature range of -40°C to +85°C. Avoid exposure to extreme humidity, dust, or corrosive environments.
- **Cleaning:** Keep the modules clean and free from dust and debris. Use a soft, dry cloth for cleaning. Avoid using liquids or harsh chemicals.
- **Handling:** Handle the modules with care to prevent physical damage. The modules are equipped with shield protection, antistatic, and dustproof features, but proper handling is still recommended.
- **Antenna Connection:** Regularly check that the antenna connections are secure. Loose connections can degrade performance.

8. TROUBLESHOOTING

If you encounter issues with your DX-LR30 LoRa Development Kit, consider the following troubleshooting steps:

- **No Power Indication:** If the power indicators do not light up when connected, ensure the USB cables are properly connected to both the module and the power source (e.g., computer USB port).
- **No Serial Communication:**
 - Verify that the CH340 driver is correctly installed on your computer.
 - Check that the correct serial port (COM port) is selected in the UArtAssist tool.
 - Ensure the baud rate is set to 9600.

- Confirm that the "Open port" button is clicked and the modules are reset.
- **Module Damage:** Always ensure the antenna is connected before powering on the module. Operating without an antenna can lead to damage from improper radio frequency power dissipation.
- **Interference Issues:** While the module has strong anti-interference capabilities, ensure it is not placed near strong electromagnetic sources that could disrupt communication.
- **Refer to Documentation:** For more in-depth troubleshooting and technical details, consult the comprehensive technical documents, AT command set, and reference design schematics available from the manufacturer.

9. SUPPORT

PDDAXLQUE provides extensive technical support for the DX-LR30 LoRa Development Kit. As a manufacturer, they offer direct assistance to help resolve any issues you may encounter.

- **Technical Documents:** Access complete technical documents, including the AT command set, module package diagrams, reference design schematics, and development/testing tools.
- **Official Website:** For the latest information and resources, visit the DX-SMART official website: en.szdx-smart.com
- **Google Drive Resources:** Detailed product documentation and tools can also be found on their Google Drive: [Google Drive Link](#)
- **OEM/ODM Services:** The manufacturer also supports OEM and ODM services for customized solutions.

10. WARRANTY INFORMATION

Specific warranty details for the PDDAXLQUE DX-LR30 LoRa Development Kit are typically provided with your purchase documentation or can be found on the official manufacturer's website. Please refer to these resources for comprehensive information regarding warranty coverage, terms, and conditions.

ASK A QUESTION ABOUT THIS MANUAL

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Question

Details

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