

PDDAXLQUE DX-LR20-433Mmz-SET

PDDAXLQUE DX-LR20-433Mmz-SET LoRa Development Kit User Manual

Model: DX-LR20-433Mmz-SET | Brand: PDDAXLQUE

1. INTRODUCTION

The PDDAXLQUE DX-LR20-433Mmz-SET is a development kit featuring the Semtech LLCC68 chip, designed for long-range, low-power wireless communication using LoRa spread spectrum technology. This kit operates in the 410-475MHz/433MHz frequency band and offers enhanced performance, extended transmission distance, faster data rates, and lower power consumption compared to previous generation solutions. It includes features such as wake-on-radio, carrier sensing, communication encryption keys, and adjustable packet length settings, making it suitable for a wide range of IoT and industrial applications.

2. PRODUCT OVERVIEW

2.1 Key Features

- **Chipset:** Integrates Semtech LLCC68 chip for advanced LoRa capabilities.
- **Frequency Band:** Supports 410-475MHz / 433MHz communication.
- **Transmission Distance:** Achieves up to 8 km in open environments.
- **Output Power:** Features 22 dBm output power for robust signal strength.
- **Interface:** Programmable via SPI interface; requires user-developed firmware.
- **Crystal Frequency:** 32 MHz.
- **IO Compatibility:** TTL level output compatible with 3.3V–5V IO port voltage.
- **Enhanced Protection:** Equipped with an RF shielding cover for strong interference resistance, enhanced electrostatic protection, and excellent EMC performance.
- **Advanced Functions:** Supports wake-on-radio, carrier sensing, communication encryption keys, and adjustable packet length settings.

2.2 What's in the Box

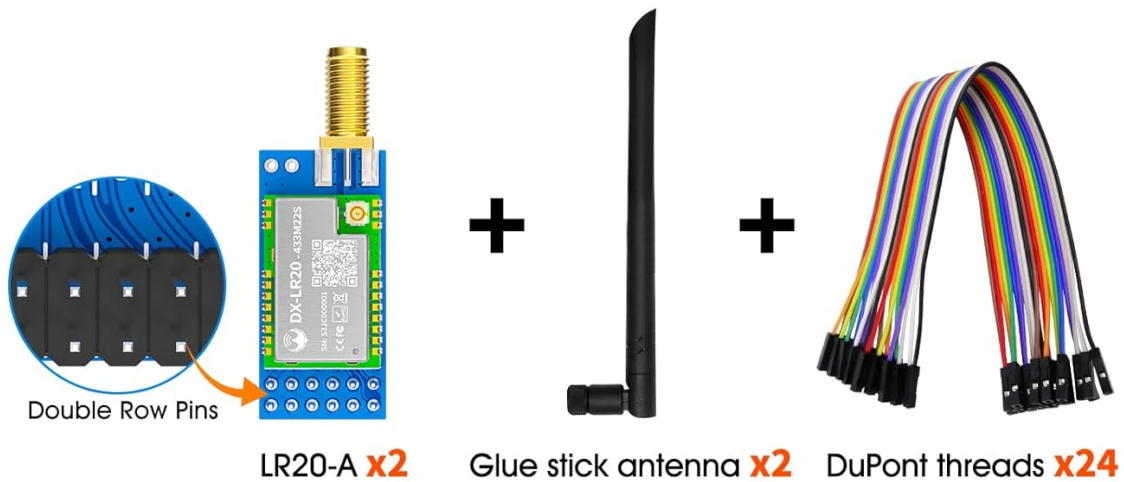
The DX-LR20-433Mmz-SET development kit typically includes the following components:

- 2 x DX-LR20-433 Modules
- 2 x Antennas
- 24 x Dupont Wires

DX-LR20-433M22SP(T0)

Suggestion: For first-time use, it is recommended that you purchase a developer toolkit, which can help you quickly test and validate your product.

The product package contains:



>>>

Frequency Band: 430~470MHz
Connection Communication Distance: 8KM

<<<

Image: Components included in the DX-LR20-433Mmz-SET development kit.

3. SETUP GUIDE

3.1 Safety Precaution: Antenna Connection

Before powering on the module, it is crucial to connect the antenna. Operating the module without an antenna can prevent the radio frequency power from being properly dissipated, which may cause damage to the internal circuitry.

Your browser does not support the video tag.

Video: DX-LR20/30 Product Quick Verification Tutorial. This video demonstrates the initial setup and verification process, including connecting the antenna and powering on the modules.

3.2 Driver Installation (Windows)

This feature has been verified on Windows 7 through Windows 11 systems. If you are using another operating system (such as macOS or Linux), please seek alternative tools or methods.

1. Download the CH340 Driver from the official DX-SMART Google Drive or website (links provided in Section 6).
2. Run the installer (e.g., CH341SER_drive.EXE) and follow the on-screen instructions to complete the installation. If the driver is already installed, you may skip this step.

3.3 Serial Tool Configuration

1. Download and run the serial debugging tool, "UArtAssist", from the provided resource package (available on the official DX-SMART Google Drive or website).
2. Connect both DX-LR20 modules to your computer via USB.
3. In UArtAssist, select the corresponding serial port (COM port) for each module.
4. Set the baud rate to **9600** for both modules.
5. Click the "Open" port button for both modules.
6. Press the "Reset" button on each module. The debugging tool should then receive raw information from the modules, indicating successful communication.

4. OPERATION

The DX-LR20 module utilizes an SPI interface for communication and requires custom firmware development by the user. Detailed technical documentation, sample programs, and reference design schematics are available to assist with development.

4.1 Frequency Band Selection

The DX-LR20-433Mmz-SET operates in the 410-475MHz frequency range. LoRa solutions primarily use unlicensed ISM frequency bands, and available frequency bands and center frequencies vary by region. Users must verify local RF spectrum regulations prior to operation.

Supports global license-free ISM bands

Our LoRa solutions are globally applicable across multiple countries:

*DX-LR20-433 Frequency Range: 430-470MHz (CF 433MHz)
*DX-LR20-900 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!)

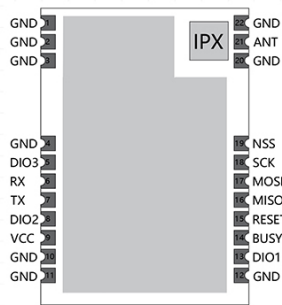
AREA	FREQUENCY BAND	CENTER FREQUENCY
North America	902-928MHz	915MHz
South America	915-928MHz	915 MHz / 928 MHz
Europe	866-915/433MHz	433 MHz / 868 MHz / 915 MHz
Oceania	915-928MHz	915 MHz / 928 MHz
Asia Pacific	915-923MHz	920 MHz
South Asia	865-867MHz	866 MHz
Southeast Asia	920-925MHz	923 MHz

Image: Global license-free ISM bands and regional frequency allocations.

4.2 Pin Definitions

Refer to the detailed pin definitions for proper integration with your microcontroller unit (MCU). The module provides TTL level output compatible with 3.3V-5V IO port voltage.

Module Pin Definitions



LR20-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-LR20 technical manual.

Image: LR20-SMD Pin Definition Diagram.

5. SPECIFICATIONS

Attribute	Value
Brand	PDDAXLQUE
Model Number	DX-LR20-433Mmz-SET
Chip	Semtech LLCC68
Frequency Band	410-475MHz / 433MHz
Output Power	22 dBm
Transmission Distance	Up to 8 km (open environment)
Interface	SPI
Crystal Frequency	32 MHz
IO Port Voltage	3.3V–5V compatible
Operating Temperature	-40°C to +85°C
Module Size	35.6mm (L) x 18mm (W) x 3.2mm (H)

LR20-433M22SP Key Features

- Semtech LLCC68 chip
- Supports LoRa® and (G)FSK modulation
- Frequency range covers 430~470MHz global Sub-GHz band
- Maximum transmit power up to +22dBm
- Receiver sensitivity as low as -148dBm (LoRa® mode)
- Receive current only 4.6mA, sleep current as low as 0.7μA
- Supports SPI communication interface.
- Supports multiple antenna interfaces: stamp hole, round hole & detachable RF connectors (e.g., U.FL).
- Visible open distance up to 8KM
- Working temperature: -40°C ~ +85 °C
- Complete developer profile
- Module Size 35.6(L)mm*18(W)mm*3.2(H)mm
- Shield Protection Antistatic & Dustproof

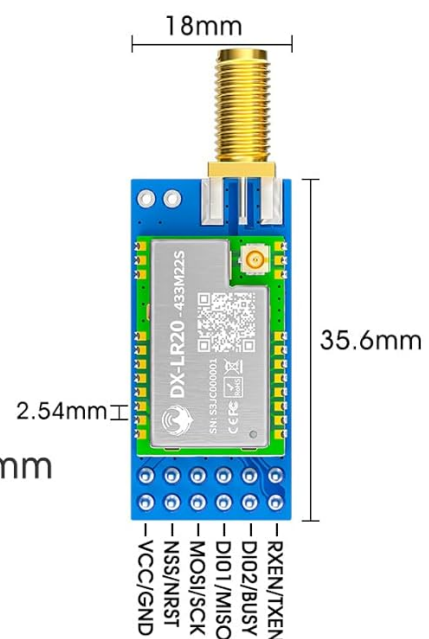


Image: LR20-433M22SP Key Features and Specifications.

6. TECHNICAL SUPPORT & RESOURCES

PDDAXLQUE provides comprehensive technical support and resources to assist users with the DX-LR20 development kit. As a manufacturer, we are committed to helping you solve any problems you encounter.

6.1 Available Resources

We offer a complete information package, including:

- Technical documentation
- Sample programs
- Module package drawings
- Reference design schematics
- Development and testing tools

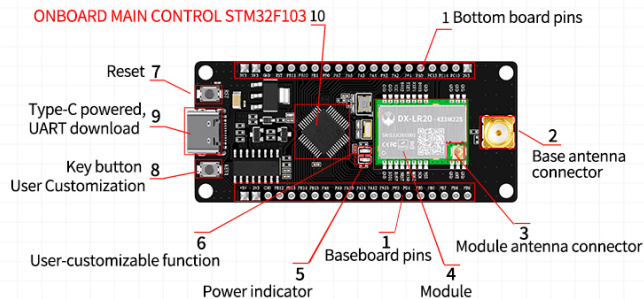
These resources are available on our official website and Google Drive:

• **Official Website:** en.szdx-smart.com

• **Google Drive:** <https://drive.google.com/drive/u/0/folders/1ThDbees2KQ4oRbOyQuTkcjaJWZ9tdry7>

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 •

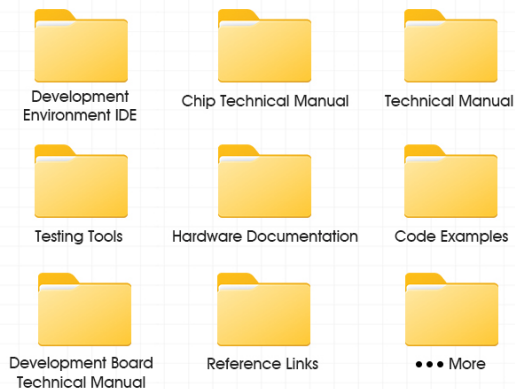


Image: Overview of available technical documentation and tools.

6.2 Contacting Support

If you have any questions or require assistance, please contact us directly. We also offer OEM and ODM services for customized solutions.

7. MAINTENANCE

To ensure the longevity and optimal performance of your DX-LR20 modules, keep them in a clean, dry environment. Avoid exposure to extreme temperatures, humidity, or corrosive substances. Handle the modules with care to prevent physical damage.

8. TROUBLESHOOTING

If you encounter issues with your DX-LR20 development kit, consider the following:

- **No Power Indicator:** Ensure the USB cable is securely connected and the power source is active.
- **Communication Failure:** Verify that the antenna is correctly attached before powering on. Check that the CH340 driver is installed and the serial port settings (COM port, baud rate) in UArtAssist are correct. Ensure the modules are properly reset after opening the serial port.
- **No Data Transmission:** Confirm your custom firmware is correctly loaded and configured for the desired communication protocol. Refer to the technical documentation for sample programs and debugging guides.
- **Interference Issues:** The module features an RF shielding cover for interference resistance. Ensure proper grounding and avoid placing the module near strong electromagnetic sources.

For persistent issues, please consult the detailed technical documentation available on our official website or Google Drive, or contact our technical support team.