

## DSD TECH SH-B50L

# DSD TECH Lora Module SH-B50L RS485/232 to Lora Adapter Instruction Manual

Model: SH-B50L

## PRODUCT OVERVIEW

The DSD TECH SH-B50L is a Lora communication product designed for long-distance point-to-point data transmission without the need for an additional gateway. It facilitates the transfer of RS232 or RS485 interface data using Lora technology.

This module operates in the 850.125~930.125MHz frequency band and utilizes LoRa spread spectrum technology, making it suitable for long-distance and complex environment communication. It features a built-in Semtech LLCC68 Lora chip and supports a power supply voltage of 5V, with a DC input range of 5V to 24V.

The SH-B50L is compatible with other DSD TECH Lora products like the SH-L1A for communication, but it is not designed to communicate with third-party Lora products.

## KEY FEATURES

- **Lora to RS485/RS232:** Enables Lora communication for RS232 or RS485 interface data transfer.
- **Long-Range Communication:** Receiving sensitivity of -129dbm, operating in the 850.125~930.125MHz band. Transmission distance of 0.5KM - 1.5KM (depending on antenna).
- **Industrial Grade:** Built-in Semtech LLCC68 Lora chip. Supports 5V-24V DC input.
- **Free Configuration Software:** DSD TECH provides free software for configuring serial port and Lora parameters.
- **Compatibility:** Communicates with other DSD TECH Lora products (e.g., SH-L1A).

## SPECIFICATIONS

| Feature | Value   |
|---------|---------|
| Model   | SH-B50L |
| Chip    | LLCC68  |

|                       |                                      |
|-----------------------|--------------------------------------|
| Power Supply Voltage  | 5V                                   |
| Supported Protocols   | RS232/485 communication protocol     |
| Transmit Power        | 22dBm                                |
| Carrier Frequency     | 850.125~930.125MHz                   |
| Transmission Distance | 0.5KM - 1.5KM (depending on antenna) |
| Receiving Sensitivity | -129dbm                              |
| Air Rate              | 2.4k~62.5kbps                        |
| Transmitting Current  | 110mA                                |
| DC Input              | 5V to 24V                            |
| Operating Temperature | -40~+85°C                            |
| Item Weight           | 7 ounces                             |
| Package Dimensions    | 4.92 x 4.8 x 1.26 inches             |

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### PACKAGE CONTENTS

- 1 × SH-B50L RS485/232 to Lora Adapter
- 1 × USB DC Power Cable
- 1 × Glue stick antenna
- 1 × User manual (this document)

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### PHYSICAL OVERVIEW AND CONNECTIONS

The SH-B50L module features various ports and indicators for easy integration and operation.

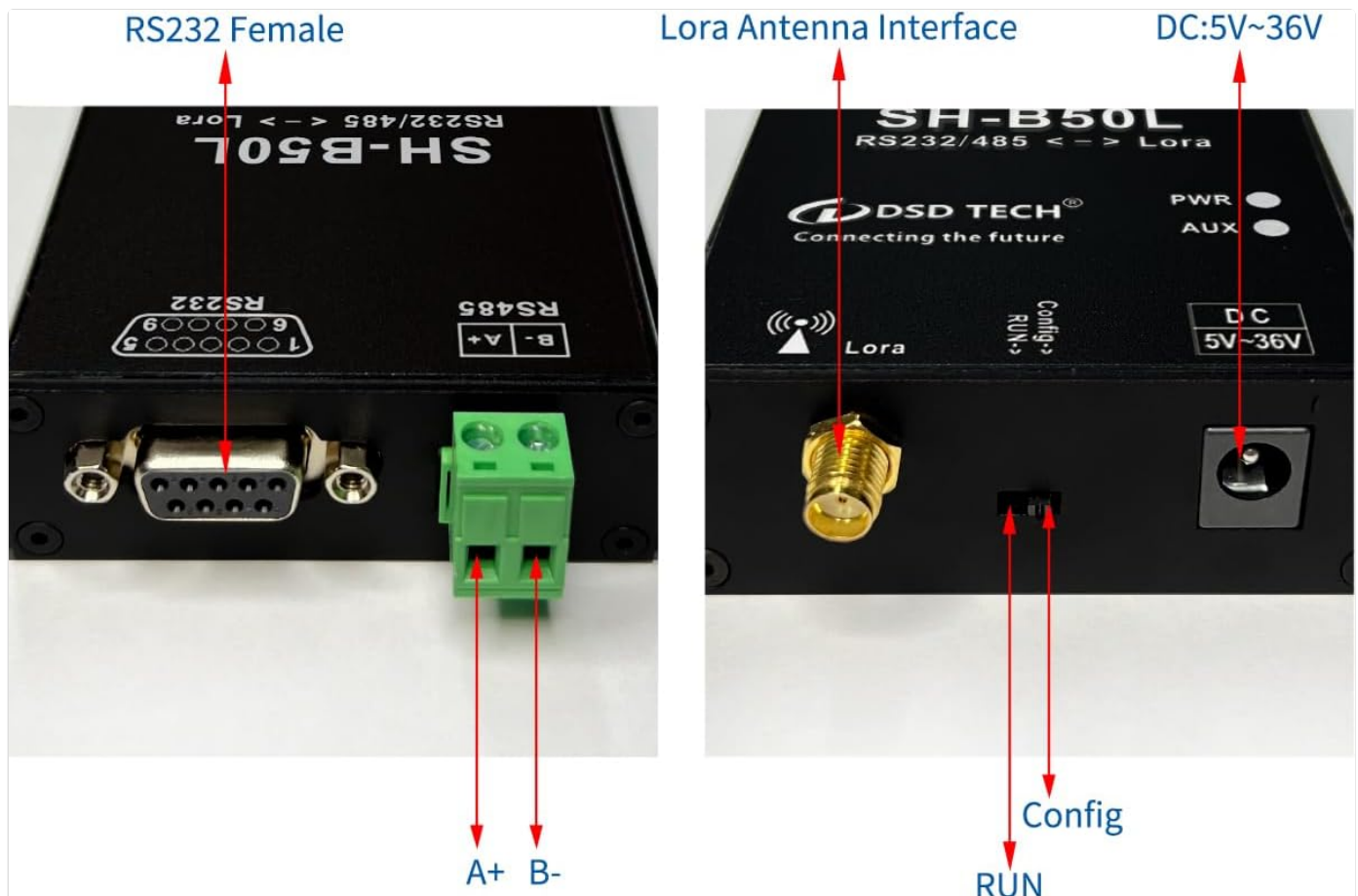


**Image Description:** A top-down view of the DSD TECH SH-B50L Lora Module. Key ports are labeled: RS232 Female connector, A+ B- terminals for RS485, Lora Antenna Interface, DC: 5V~36V power input, and a Config/RUN switch.

- **RS232 Female:** Standard DB9 connector for RS232 serial communication.
- **RS485 (A+, B-):** Screw terminals for RS485 differential serial communication.
- **Lora Antenna Interface:** SMA connector for attaching the included glue stick antenna.
- **DC Power Input (5V-36V):** Barrel jack for power supply.
- **Config/RUN Switch:** A slide switch to toggle between configuration mode (for software setup) and run mode (for normal operation).
- **PWR LED:** Power indicator.
- **AUX LED:** Auxiliary indicator, often used for data transmission/reception status.

## SETUP AND CONFIGURATION

### 1. Hardware Connection

- **Attach Antenna:** Screw the provided glue stick antenna onto the Lora Antenna Interface. Ensure it is securely fastened.
- **Power Supply:** Connect the USB DC Power Cable to the DC Power Input port. Connect the other end to a 5V-24V power source. The PWR LED should light up.
- **Serial Connection:** Connect your device (e.g., computer, microcontroller) to the SH-B50L using either the RS232 or RS485 interface as required by your application.

### 2. Software Configuration

The SH-B50L requires initial configuration using DSD TECH's free configuration software. This software allows you to set

parameters for both serial communication and Lora operation.

- **Download Software:** Obtain the latest configuration software from the DSD TECH official website.
- **Enter Configuration Mode:** Before connecting to your computer for configuration, ensure the Config/RUN switch on the SH-B50L module is set to the "Config" position.
- **Connect to PC:** Connect the SH-B50L module to your computer via a USB-to-serial converter (if using RS232/485 directly) or through the USB DC power cable if it supports data passthrough.
- **Launch Software:** Open the DSD TECH Lora configuration software on your computer.
- **Set Parameters:** Within the software, you can configure various parameters including:
  - Baud Rate (e.g., 9600bps)
  - Transmission Mode (e.g., Normal)
  - Channel (e.g., 23)
  - Air Rate (e.g., 2.4kbps)
  - Transmit Power (e.g., 22dBm)
  - Work Mode (e.g., Normal)
  - Packet Size (e.g., 200 Bytes)
  - Parity, Address, Key, etc.
- **Apply Settings:** After adjusting parameters, click "Set Param" to apply them to the module. You can click "Get Param" to verify the changes.
- **Exit Configuration Mode:** Once configured, switch the Config/RUN switch back to the "RUN" position for normal operation.

# Free configuration software

DSD TECH provides free configuration software for Lora adapters through which you can configure the relevant parameters of serial port or Lora.

The screenshot shows the 'DSD TECH Lora' configuration window. At the top, there's a header with the DSD TECH logo and the tagline 'Connecting the future'. Below the header, on the left, is a text box displaying device information: Model: SH\_LR10A, Version: 7259-11-23, FrequencyStr: 873.125MHz, and Parameter: 0xc0 0x00 0x08 0x00 0x00 0x60 0x00 0x17 0x03 0x00 0x00. To the right of this box are buttons for 'COM22', 'Close', 'Modules', 'Get', 'Set Param', 'Param Reset', 'ParaSave', 'FileSet', and 'Select File'. Below the device info box is a 'Config' tab. Under this tab, there are several settings arranged in a grid: Baud Rate (9600bps), Tran Mode (Normal), Channel RSSI (Disable), Address (0), Parity (8N1), Wor Cycle (2000ms), LBT (Disable), Channel (23), Air Rate (2.4Kbps), Power (22dBm), Packet RSSI (Disable), and Key (0). At the bottom of the window, there is a 'Support' email address 'dsdtech@163.com' and a 'Website' link 'http://www.deshide.com'.

DSD TECH Lora

DSD TECH<sup>®</sup>  
Connecting the future

Since 2009, Focusing on USB/Serial/Wireless

Model: SH\_LR10A  
Version: 7259-11-23  
FrequencyStr: 873.125MHz  
Parameter: 0xc0 0x00 0x08 0x00 0x00 0x60 0x00 0x17 0x03 0x00 0x00

COM22 Close Modules

Get Set Param Param Reset

ParaSave FileSet Select File

Config

Baud Rate 9600bps Tran Mode Normal Channel RSSI Disable Address 0

Parity 8N1 Wor Cycle 2000ms LBT Disable Channel 23

Air Rate 2.4Kbps Power 22dBm Packet RSSI Disable Key 0

Packet Size 200 Bytes WorkMode Normal

Support: dsdtech@163.com Website: <http://www.deshide.com>

**Image Description:** A screenshot of the DSD TECH Lora configuration software interface. It shows various settings for Baud Rate, Tran Mode, Channel, Air Rate, Power, WorkMode, Packet Size, Parity, Address, Key, and options to Get, Set, and Reset parameters.

## OPERATING THE LORA MODULE

Once configured, the SH-B50L module can be used for wireless data transmission between compatible Lora devices.

### Point-to-Point Communication

The SH-B50L can establish a direct Lora network connection with another compatible DSD TECH Lora module (e.g., SH-L1A) to transmit data from one serial device to another.

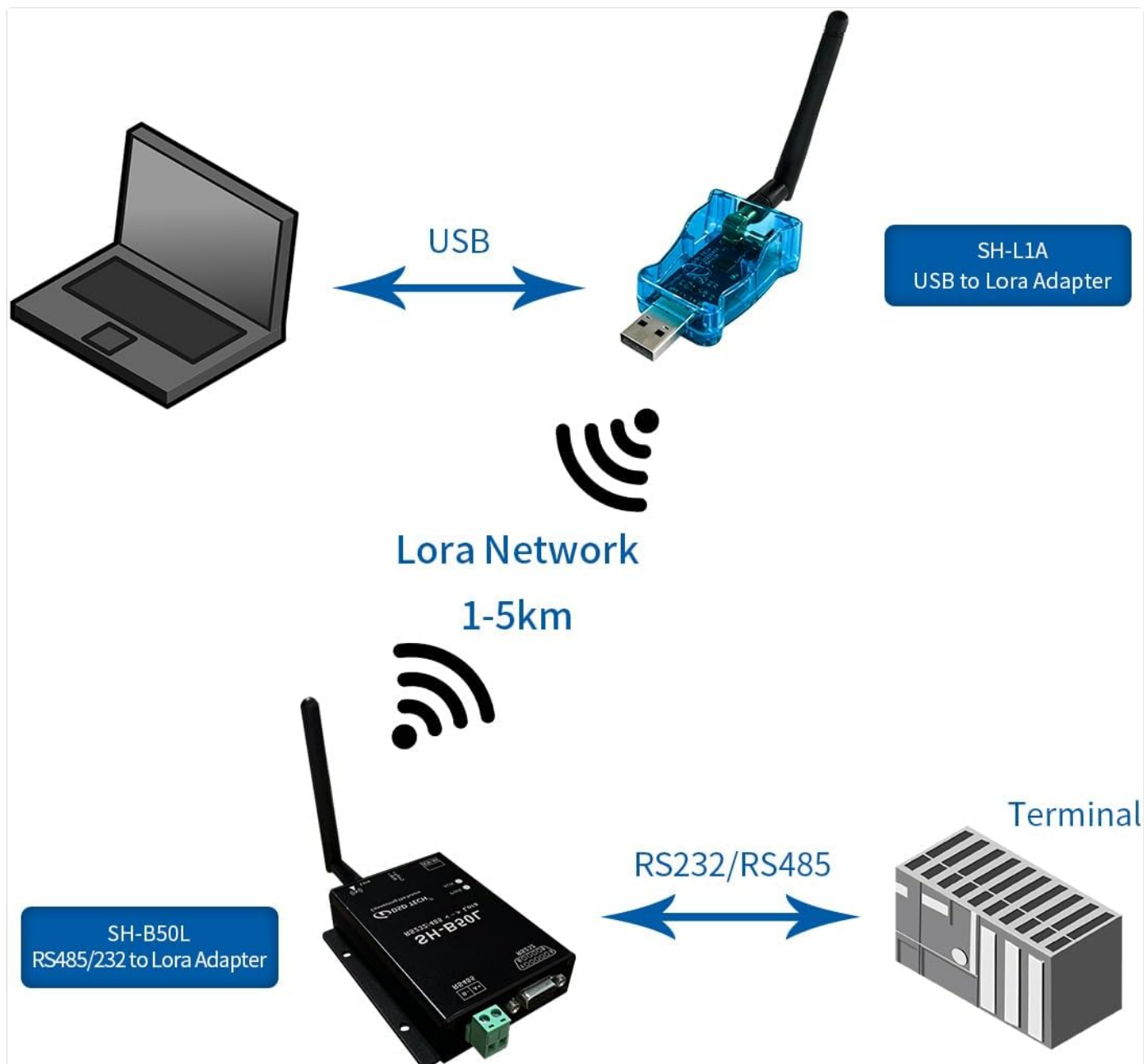


**Image Description:** A diagram illustrating a Lora network setup. A laptop is connected via USB to an SH-L1A USB to Lora Adapter. This adapter communicates wirelessly over a Lora Network (1-5km range) with an SH-B50L RS485/232 to Lora Adapter, which is then connected via RS232/RS485 to a terminal device.

- Ensure both transmitting and receiving Lora modules are powered on and in "RUN" mode.
- Verify that both modules are configured with matching Lora parameters (e.g., frequency, channel, spreading factor).
- Data sent through the serial port of one module will be transmitted wirelessly via Lora and received by the serial port of the other module.

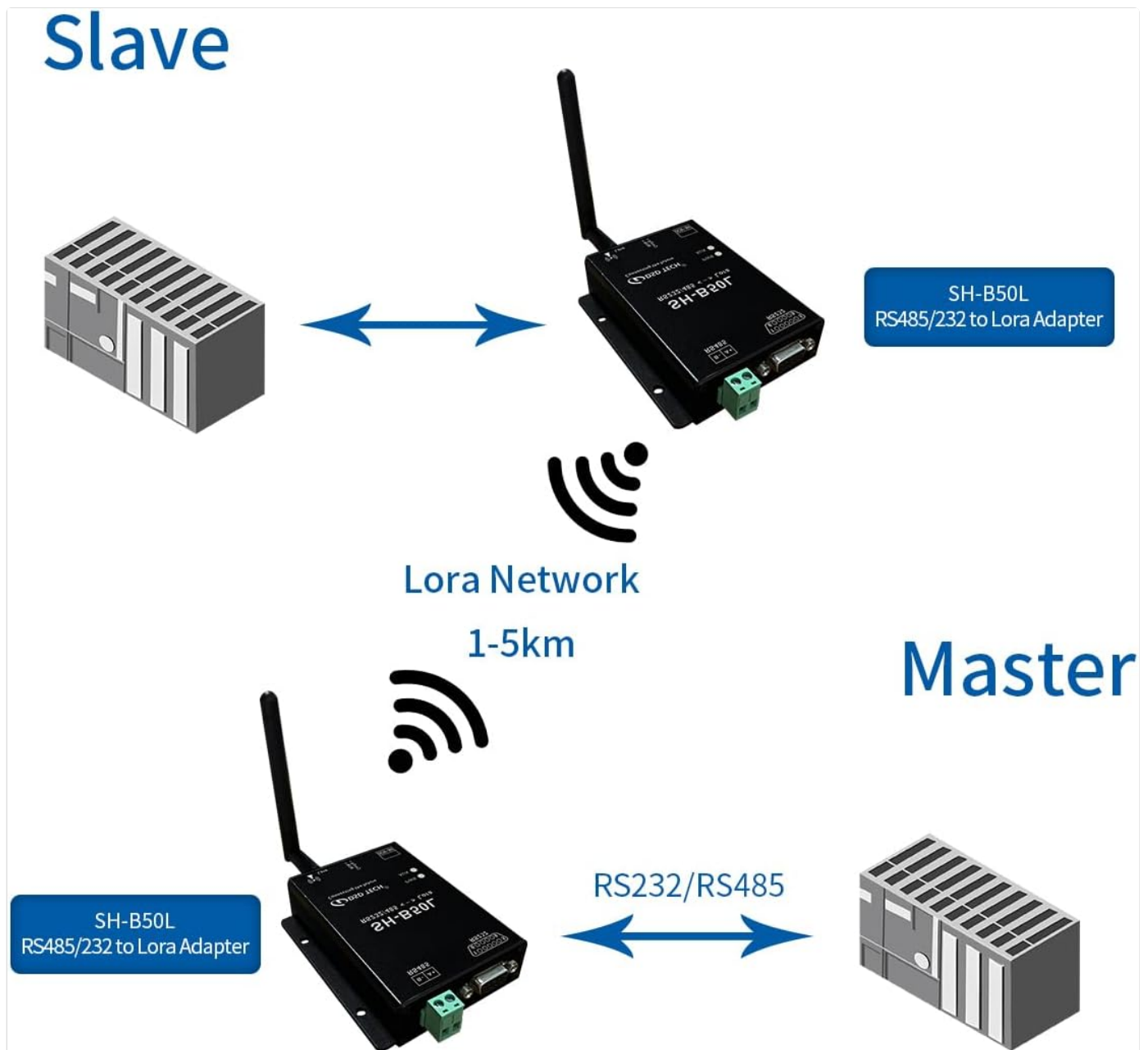


**Image Description:** A diagram depicting a Master-Slave Lora network. A Master device is connected via RS232/RS485 to an SH-B50L module. This module communicates over a Lora Network (1-5km range) with another SH-B50L module, which is connected via RS232/RS485 to a Slave device.

### Lora Network Capabilities

The Lora technology employed by the SH-B50L supports features beneficial for robust wireless communication:



**Image Description:** A diagram showing an SH-B50L Lora Module connected to a Lora Network (0.5KM-2KM range). Surrounding the network are icons representing features: Wake On Radio, Carrier Listening, and Communication Key.

- **Wake On Radio:** Allows the module to enter a low-power sleep state and wake up upon receiving a radio signal, conserving energy.
- **Carrier Listening:** Enables the module to detect if the channel is busy before transmitting, reducing collisions and improving network efficiency.
- **Communication Key:** Provides a security layer for data transmission, ensuring only authorized devices can communicate.

## MAINTENANCE

- Keep the module in a dry environment to prevent moisture damage.
- Ensure proper ventilation to avoid overheating, especially during continuous operation.

- Regularly check antenna connections for tightness to maintain optimal signal strength.
  - Update configuration software from the official DSD TECH website as new versions become available.
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## TROUBLESHOOTING

- **No Power (PWR LED off):**
    - Check power cable connection.
    - Verify power source is supplying 5V-24V DC.
    - Ensure the power adapter is functional.
  - **No Communication:**
    - Confirm both modules are powered on and in "RUN" mode.
    - Verify that Lora parameters (frequency, channel, spreading factor, etc.) are identical on both modules using the configuration software.
    - Check serial port connections (RS232/RS485) and ensure correct wiring.
    - Ensure antennas are securely attached and not obstructed.
    - Confirm modules are within transmission range.
    - Remember that SH-B50L only communicates with other DSD TECH Lora products.
  - **Configuration Software Issues:**
    - Ensure the Config/RUN switch is in the "Config" position before connecting to the software.
    - Verify correct USB-to-serial driver installation on your PC.
    - Try a different USB port or cable.
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## WARRANTY AND SUPPORT

DSD TECH offers a 1-year warranty and lifetime technical support for the SH-B50L RS232/485 to Lora Adapter. For any questions or issues, please contact DSD TECH customer support. Issues will typically be addressed within 24 hours.

DSD TECH focuses on the development of communication connection devices such as USB/Serial/Wireless and has served over 100,000 customers globally.

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## RELATED PRODUCTS AND USAGE SCENARIOS

The DSD TECH SH-B50L is part of a Lora series designed for various long-range wireless communication needs. It can be paired with other DSD TECH Lora adapters for comprehensive solutions.

# Lora Series



USB to Lora Adapter  
Model:SH-L1A



RS485/232 to Lora Adapter  
Model:SH-B50L

**Image Description:** Two Lora modules side-by-side. On the left is a blue transparent USB to Lora Adapter (Model: SH-L1A). On the right is the black SH-B50L RS485/232 to Lora Adapter. Both have antennas attached.

The SH-B50L is ideal for applications requiring reliable long-distance data transfer where traditional wireless technologies like Wi-Fi or Bluetooth fall short. This includes industrial monitoring, remote sensor networks, and other scenarios needing robust, low-power wide-area communication.

## PRODUCT DIMENSIONS



**Image Description:** Two views of the SH-B50L module with dimensions. A top-down view shows a width of 1.38 inches and a length of 8.27 inches (including antenna). A side view shows a height of 3.46 inches (including antenna) and a thickness of 0.94 inches.

## OFFICIAL PRODUCT VIDEOS

### Why I Bought This Wireless Lora to RS232 from DSD Tech

Your browser does not support the video tag.

**Video Description:** This video provides a user's perspective on why they purchased the DSD TECH Wireless Lora to RS232 module. It highlights the benefits and potential applications from a practical user standpoint.

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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**

Anonymous

**Email**

you@example.com

After a successful submission, we securely hash the supplied account or form email before sending it to Microsoft Advertising for conversion attribution. [Privacy details](#).

**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**