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Dragino S31B-LB

Dragino S31B-LB LoRaWAN Temperature & Humidity Sensor

User Instruction Manual

1. Introduction

The Dragino S31B-LB is a sophisticated LoRaWAN Temperature and Humidity Sensor designed for Internet of Things (IoT) solutions. This device accurately measures ambient temperature and relative air humidity, transmitting this data to an IoT server using the LoRaWAN wireless protocol. Its robust design and advanced features make it suitable for various environmental monitoring applications.

Figure 1: Front view of the S31B-LB sensor, showing the main unit and external antenna. This image illustrates the compact and durable design of the device.

2. Key Features

- **LoRaWAN 1.0.3 Class A:** Supports standard LoRaWAN protocol for wide compatibility.
- **Ultra-low Power Consumption:** Designed for extended battery life, up to 5 years with an 8500mAh Li-SOCI2 battery.
- **External SHT31 Probe:** Features a 3-meter external SHT31 sensor for precise temperature and humidity measurements.
- **Wide Measurement Range:** Capable of measuring temperatures from -55°C to 125°C.
- **Temperature & Humidity Alarm:** Allows users to set alarms for instant notifications on threshold breaches.
- **Datalog Feature:** Stores data when the LoRaWAN network is unavailable and uploads it once connectivity is restored.
- **BLE Configuration:** Enables easy configuration via Bluetooth Low Energy.
- **Wireless OTA Update:** Supports Over-The-Air firmware updates for convenient maintenance.
- **Pre-loaded Unique Keys:** Each unit comes with unique keys for seamless LoRaWAN network registration.

3. Package Contents

The S31B-LB package typically includes the following items:

- 1 x Dragino S31B-LB LoRaWAN Temperature & Humidity Sensor Unit
- 1 x External SHT31 Temperature & Humidity Probe (3 meters)

4. Setup Guide

Follow these steps to set up your S31B-LB sensor:

1. **Unpack the Device:** Carefully remove the S31B-LB sensor and its external probe from the packaging.
2. **Connect the Probe:** Insert the external SHT31 probe connector into the designated port on the S31B-LB unit. Ensure it is securely fastened.

Figure 2: Angled view of the S31B-LB sensor, highlighting the connection point for the external SHT31 probe. The probe is designed to be waterproof and anti-condensation for long-term outdoor use.

3. **LoRaWAN Registration:** Each S31B-LB unit is pre-loaded with unique keys (DevEUI, AppEUI, AppKey). Register these keys with your local LoRaWAN Network Server (LNS). Refer to your LNS documentation for specific registration procedures.

4. **Power On:** The device is powered by an internal 8500mAh Li-SOCI2 battery. Once the probe is connected and keys are registered, the device will automatically attempt to connect to the LoRaWAN network upon power-on.
5. **BLE Configuration (Optional):** For initial configuration or parameter adjustments, you can use a compatible mobile application to connect to the S31B-LB via Bluetooth Low Energy (BLE). This allows for easy setup without needing a direct physical connection.
6. **Placement:** Position the sensor and its external probe in the desired location for temperature and humidity monitoring. Ensure the probe is exposed to the environment you wish to measure, avoiding direct sunlight or heat sources that could skew readings.

5. Operating Instructions

Once set up and connected to the LoRaWAN network, the S31B-LB operates autonomously:

- **Data Measurement:** The SHT31 probe continuously measures temperature and relative humidity.
- **Data Transmission:** Measured data is periodically transmitted to your LoRaWAN network server. The transmission interval can typically be configured via BLE or the LoRaWAN network server.
- **Temperature & Humidity Alarm:** You can configure specific temperature and humidity thresholds. If the measured values exceed or fall below these thresholds, the sensor can trigger an alarm, sending an immediate notification to your IoT platform.
- **Datalog Function:** In instances where the LoRaWAN network connection is temporarily lost, the S31B-LB will store measurement data internally. Once the network connection is re-established, the stored data will be uploaded to ensure no data loss.

6. Maintenance

The S31B-LB is designed for low maintenance:

- **Battery Life:** The internal 8500mAh Li-SOCI2 battery provides an estimated operational life of up to 5 years under typical usage conditions. Battery replacement should be performed by qualified personnel if necessary.
- **Firmware Updates:** The device supports wireless Over-The-Air (OTA) firmware updates. Check the Dragino official website or your LoRaWAN network provider for available updates to ensure optimal performance and access to new features.
- **Probe Cleaning:** While the SHT31 probe is housed in a waterproof, anti-condensation casing, occasional gentle cleaning of the probe's exterior may be necessary to remove dust or debris that could accumulate over time. Use a soft, damp cloth and avoid abrasive materials.

7. Troubleshooting

If you encounter issues with your S31B-LB sensor, consider the following:

- **No Data Transmission:**
    - Verify that the device's unique keys (DevEUI, AppEUI, AppKey) are correctly registered on your LoRaWAN Network Server.
    - Ensure the sensor is within range of a LoRaWAN gateway. Obstructions or distance can affect signal strength.
    - Check the battery status. Although designed for long life, extreme conditions or prolonged high-frequency transmissions can reduce battery life.
- **Inaccurate Readings:**
    - Ensure the external probe is securely connected to the main unit.

- Verify the probe's placement. Avoid direct sunlight, heat sources, or areas with poor air circulation that could affect readings.
- Clean the probe gently to remove any accumulated dust or debris.

- **BLE Connection Issues:**
  - Ensure Bluetooth is enabled on your mobile device.
  - Make sure you are using the correct mobile application for Dragino devices.
  - Ensure the sensor is powered on and within close proximity to your mobile device.

For further assistance, refer to the official Dragino documentation or contact their technical support.

8. Specifications

Attribute	Value
Model	S31B-LB
Sensor Type	External SHT31 (3 meters)
Temperature Measurement Range	-55°C to 125°C
Humidity Measurement Range	0% to 100% RH (Relative Humidity)
LoRaWAN Protocol	1.0.3 Class A
Battery Type	8500mAh Li-SOCI2 (Non-rechargeable)
Estimated Battery Life	Up to 5 years
Dimensions	5.91 x 3.15 x 1.97 inches (150 x 80 x 50 mm)
Item Weight	7.41 ounces (210 Grams)
Material	Plastic
Color	Black
Manufacturer	Dragino

9. Warranty and Support

For information regarding product warranty, please refer to the warranty policy provided at the time of purchase or visit the official Dragino website. For technical support, troubleshooting assistance, or further inquiries, please contact your vendor or Dragino's customer support channels. Ensure you have your product model number (S31B-LB) and purchase details ready when seeking support.

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Related Documents

	[Dragino D2x-LB/LS LoRaWAN Temperature Sensor User Manual] Comprehensive user manual for the Dragino D2x-LB/LS series LoRaWAN temperature sensors, detailing features, specifications, LoRaWAN network configuration, data uplink formats, datalogging, alarm functions, and AT command configurations.
	[Dragino LHT52 LoRaWAN Temperature & Humidity Sensor] The Dragino LHT52 is a Long Range LoRaWAN Sensor for monitoring temperature and humidity. It features a built-in sensor, USB Type-C connector for external sensors, and supports LoRaWAN v1.0.3 protocol. The device includes a datalogging feature and temperature alarm functionality.
	[Dragino T68DL LoRaWAN Temperature Sensor Manual] This manual provides detailed instructions for the Dragino T68DL LoRaWAN Temperature Sensor, covering its features, specifications, connection to IoT servers, configuration via AT commands or LoRaWAN downlink, battery information, firmware updates, FAQs, and support.
	[Dragino LSN50v2-D2x LoRaWAN Temperature Sensor User Manual] Comprehensive user manual for the Dragino LSN50v2-D2x series of LoRaWAN waterproof outdoor temperature sensors. This guide covers device specifications, hardware variants, pin definitions, setup procedures for LoRaWAN networks (OTAA), payload analysis, temperature alarm features, configuration via AT commands, battery information, and support details.

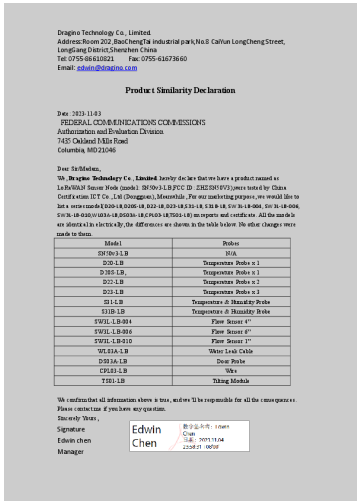
Documents - Dragino – S31B-LB

[pdf] Datasheet

Datasheet S31B LB LoRaWAN Temperature Humidity Sensor choovio 2023 05 |||

LoRaWAN Temperature Humidity Sensor **S31B-LB** OVERVIEW: The Dragino **S31B-LB** is a LoRaWAN Temperature and Humidity Sensor for Internet of Things solution. It is used to measure the surrounding environment temperature and relative air humidity precisely, and then upload to IoT server via LoRaWAN wire...

lang:en score:36 filesize: 2.25 M page_count: 2 document date: 2023-05-19



Dragino Technology Co., Limited
Address:Room 202,BaoChengTai industrial park,No.8 CaiYun LongCheng Street,
LongGang District,Shenzhen China
Tel:0755-86610821 Fax:0755-61673660
Email: edwin@dragino.com

Product Similarity Declaration

Date: 2023-11-03
FEDERAL COMMUNICATIONS COMMISSIONS
Authorization and Evaluation Division
7435 Oakland Mills Road
Columbia, MD 21046

Dear Sir/Madam,

We, **Dragino Technology Co., Limited** hereby declare that we have a product named as LoRaWAN Sensor Node (model: SN50v3-LB,FCC ID: 2AEJSSN50V3),were tested by China Certification ICT Co.,Ltd (Dongguan), Meanwhile ,For our marketing purpose, we would like to list a series model D20-LB,D20S-LB,D22-LB,D23-LB,S31-LB, **S31B-LB**, SW3L-LB-004, SW3L-LB-006, SW3L-LB-010,WL03A-LB,DS03A-LB,CPL03-LB,TS01-LB on reports and certificate. All the models are identical in electrically, the differences are shown in the table below. No other changes were made to them.

Model	Probes
SN50v3-LB	N/A
D20-LB	Temperature Probe x 1
D20S-LB	Temperature Probe x 1
D22-LB	Temperature Probe x 2
D23-LB	Temperature Probe x 2
S31-LB	Temperature & Humidity Probe
S31B-LB	Temperature & Humidity Probe
SW3L-LB-004	Flow Sensor 4"
SW3L-LB-006	Flow Sensor 6"
SW3L-LB-010	Flow Sensor 10"
WL03A-LB	Water Leak Cable
DS03A-LB	Door Probe
CPL03-LB	Wire
TS01-LB	Tilting Module

We confirm that all information above is true, and we'll be responsible for all the consequences.
Please contact me if you have any question.
Sincerely Yours,
Signature
Edwin chen
Manager

Edwin Chen

[pdf] Decleration of Conformity

Microsoft Word 5 Declaration of Similarity ok susan huang Dragino Technology Co Limited SN50V3 ZHZSN50V3 sn50v3

Dragino Technology Co., Limited. Address:Room 202,BaoChengTai industrial park,No.8 CaiYun LongCheng ... r our marketing purpose, we would like to list a series model D20-LB,D20S-LB,D22-LB,D23-LB,S31-LB, **S31B-LB**, SW3L-LB-004, SW3L-LB-006, SW3L-LB-010,WL03A-LB,DS03A-LB,CPL03-LB,TS01-LB on reports and ce...

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Dragino社 &ELSPINA社 LoRaWAN対応各種センサー

[pdf]

LoRaWAN †ýÁê¹È Tamai Yohei Dragino ELSPINA LoRaWAN 24 nov 2024 — LoRa 2 x high lot ADS Dragino ELSPINA Compatible Sensors MOD AJPERES CVID pexyckF srsltid AfmBOooVIVyTJy 5advvUQCyDIcmLfSWPUW9RB9vHE avnet wps wcm connect onesite 62bfe47d ec9d 434e aa0e 78f98a72134f 5advvUQCyDIcmLfSWPUW9RB9vHEU2YpY9IWqjeEiE |||

DraginoELSPINALoRaWAN to LoRa Dragino Dragino LoRa RS485 to LoRa RS485 to LoRa SDI12 to ... -12-LB SDI-12-LS SN50v3-LB SN50v3-LS PS-LB-LB PS-LB-LS LT-22222-L AIS01-LB LCC01-LB LDS02 EM-ELHT01 **S31B-LB** S31B-LS AQS01-L-JP EM-ELAQ01 WL03A-LB WL03A-LS LWL04 CS01-LB SW3L-LB SW3L-LS LA66 V2 LA66 ...

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DRAGINO

Temperature & Humidity Sensor

OVERVIEW:

Application:

Green House

Smart Barn

Outdoor Snow Monitoring

Laboratory

Dragino Technology Co., Limited

WWW.DRAGINO.COM

[pdf] Datasheet

Datasheet S31 S31B xB xS Temperature Humidity Sensor shopiot Dragino NB IoT Outdoor and v 1727365523 cdn shopify s files 1 0418 3749 4423 |||

Temperature Humidity Sensor OVERVIEW: The Dragino S31/S31B series is Temperature and Humidity Sens ... confgure IoT server. Below is Dash Board is the demo in ThingsEye.io. Order Info: Part Number: S31/**S31B-LB**-XX XX: The default frequency band XX: Frequency Bands, options: EU433,CN470, EU868,IN865,KR9...

lang:en score:24 filesize: 2.6 M page_count: 3 document date: 2024-05-15

TEST REPORT

Applicant: Dragino Technology Co., Limited.

Address: Room 202,BaoChengTai industrial park,No 8 CaiYun LongCheng Street,LongGang District,Shenzhen China

FCC ID: ZHZSN50V3

Product Name: LoRaWAN Sensor Node

Standard(s): 47 CFR Part 15, Subpart C(15.247)
ANSI C63.10-2013
KDB 558074 D01 15.247 Meas Guidance v05r02

The above device has been tested and found compliant with the requirement of the relative standards by China Certification ICT Co., Ltd (Dongguan)

Report Number: CR230844803-00A

Date Of Issue: 2023/10/13

Reviewed By: Calvin Chen
Title: RF Engineer

Approved By: Sun Zhong
Title: Manager

Test Laboratory: China Certification ICT Co., Ltd (Dongguan)
No. 113, Pinghang Road, Dalang Town, Dongguan, Guangdong, China
Tel: +86-769-83016888

[pdf] Test Report

Microsoft Word CR230844803 00A BLE Report winnie xiao Test 1 Dragino Technology Co Limited SN50V3 ZHZSN50V3 sn50v3

TEST REPORT Applicant: Dragino Technology Co., Limited. Address: Room 202,BaoChengTai industrial par ... RaWAN Sensor Node Trade Name: DRAGINO EUT Model: SN50v3-LB D20-LB, D20S-LB, D22-LB,D23-LB,S31-LB,**S31B-LB**,SW3L-LB-004, Multiple Model s : SW3L-LB-006,SW3L-LB-010,WL03A-LB,DS03A-LB,CPL03-LB, TS01-LB ...

lang:en score:16 filesize: 658.87 K page_count: 42 document date: 2023-11-06

TEST REPORT

Applicant: Dragino Technology Co., Limited.

Address: Room 202,BaoChengTai industrial park,No 8 CaiYun LongCheng Street,LongGang District,Shenzhen China

FCC ID: ZHZSN50V3

Product Name: LoRaWAN Sensor Node

Standard(s): 47 CFR Part 15, Subpart C(15.247)
ANSI C63.10-2013
KDB 558074 D01 15.247 Meas Guidance v05r02

The above device has been tested and found compliant with the requirement of the relative standards by China Certification ICT Co., Ltd (Dongguan)

Report Number: CR230844803-00C

Date Of Issue: 2023/9/22

Reviewed By: Calvin Chen
Title: RF Engineer

Approved By: Sun Zhong
Title: Manager

Test Laboratory: China Certification ICT Co., Ltd (Dongguan)
No. 113, Pinghang Road, Dalang Town, Dongguan, Guangdong, China
Tel: +86-769-83016888

[pdf] Test Report DTS Report

Microsoft Word CR230844803 00C LoRa DTS Report Part15 247 winnie xiao Test 2 Dragino Technology Co Limited SN50V3 ZHZSN50V3 sn50v3

TEST REPORT Applicant: Dragino Technology Co., Limited. Address: Room 202,BaoChengTai industrial p ... RaWAN Sensor Node Trade Name: DRAGINO EUT Model: SN50v3-LB D20-LB, D20S-LB, D22-LB,D23-LB,S31-LB,**S31B-LB**,SW3L-LB-004, Multiple Model s : SW3L-LB-006,SW3L-LB-010,WL03A-LB,DS03A-LB,CPL03-LB,TS01- LB ...

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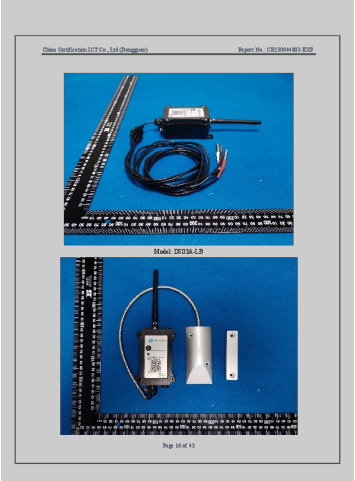

China Certification ICT Co., Ltd (Dongguan) Report No.: CR230844803-EXP

Model: DS03A-LB

Page 16 of 43

[pdf] Product Photos

Microsoft Word External photos—— D20S LB winnie xiao Photos 2 Dragino Technology Co Limited SN50V3 ZHZSN50V3 sn50v3

China Certification ICT Co., Ltd Dongguan Report No.: CR230844803-EXP Model: DS03A-LB Page 16 of ... P Page 18 of 43 China Certification ICT Co., Ltd Dongguan Report No.: CR230844803-EXP Model: **S31B-LB** Page 19 of 43 China Certification ICT Co., Ltd Dongguan Report No.: CR230844803-EXP Pa...

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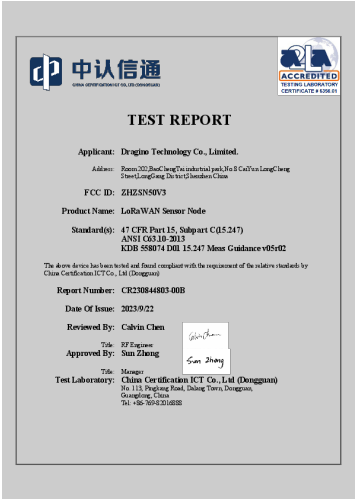

中认信通

ACCREDITED
TESTING LABORATORY
CERTIFICATE # 4304.01

TEST REPORT

Applicant:	Dragino Technology Co., Limited.
Address:	Room 202,BaoChengTai industrial park,No 8 CaiYun LongCheng Street,LongGang District,Shenzhen,China
FCC ID:	ZHZSN50V3
Product Name:	LoRaWAN Sensor Node
Standard(s):	47 CFR Part 15, Subpart C(15.247) ANSI C63.10-2013 KDB 558074 D01 15.247 Meas Guidance v05r02

The above device has been tested and found compliant with the requirement of the relative standards by China Certification ICT Co., Ltd (Dongguan)

Report Number:	CR230844803-00B
Date Of Issue:	2023/9/22
Reviewed By:	Calvin Chen
Title:	RF Engineer
Approved By:	Sun Zhong
Title:	Manager
Test Laboratory:	China Certification ICT Co., Ltd (Dongguan) No.113, Pingkang Road, Dalang Town, Dongguan, Guangdong, China Tel: +86-769-82016888

[pdf] Test Report

Microsoft Word CR230844803 00B Hybrid Report Part15 247 winnie xiao Test Dragino Technology Co Limited SN50V3 ZHZSN50V3 sn50v3

TEST REPORT Applicant: Dragino Technology Co., Limited. Address: Room 202,BaoChengTai industrial p ... RaWAN Sensor Node Trade Name: DRAGINO EUT Model: SN50v3-LB D20-LB, D20S-LB, D22-LB,D23-LB,S31-LB,**S31B-LB**,SW3L-LB-004, Multiple Model s : SW3L-LB-006,SW3L-LB-010,WL03A-LB,DS03A-LB,CPL03-LB, TS01-LB ...

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