

BLE to LoRaWAN Hub

OVERVIEW:

Dragino BH01-LB/LS **BLE to LoRaWAN Hub** is an edge communication node device designed for IoT applications. It uses the BLE Bluetooth module to periodically scan and collect data from surrounding Bluetooth temperature and humidity sensors (such as BCN02, iBeacons or third-party BLE sensors), and then uses the LoRaWAN protocol to transmit the data over long distances to the cloud platform, achieving seamless connection between Bluetooth devices and low-power wide area networks.

BH01-LB/LS is a BLE to LoRaWAN Hub which can turn BLE devices to LoRaWAN devices. This feature can help system integrator has widely choice in sensor selection and simplify the network structure.

It is suitable for cold chain warehouse monitoring, smart agricultural environment monitoring, asset tracking and urban infrastructure health management. It combines the flexibility of Bluetooth and the wide coverage of LoRaWAN. Compared with wifi connection, it can significantly reduce the deployment cost of the Internet of Things.

BH01-LB/LS has a **built-in BLE module**, user can configure the sensor remotely via Mobile Phone. It also supports **wireless OTA upgrade** for easy maintenance.

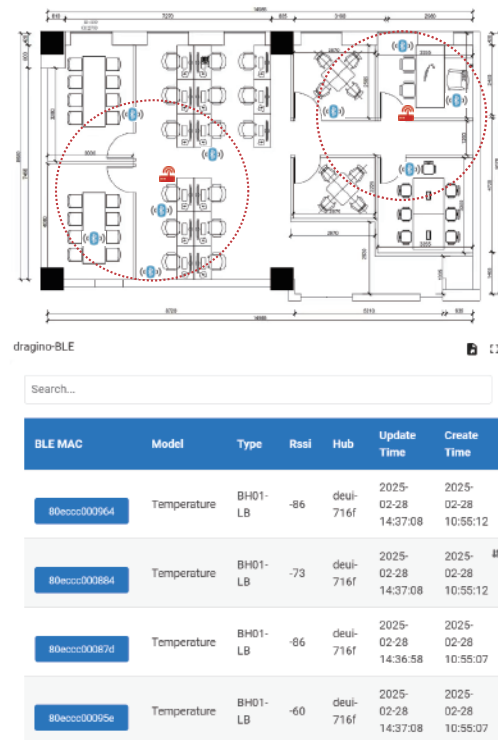
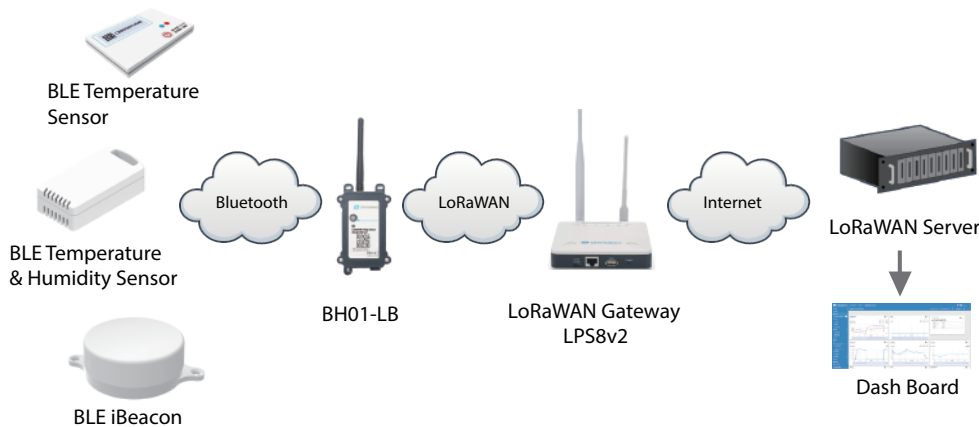
BH01-LB/LS is powered by **8500mA Li/SOCI2 battery** or **solar panel with Li-ion battery** for long term use.



Model BH01-LB/LS doesn't include Bluetooth Tags. Bluetooth Tags are purchased separately.

Indoor positioning map:

BH01-LB in LoRaWAN Network



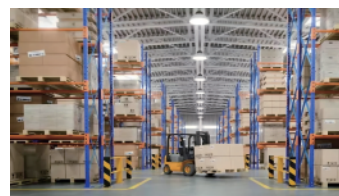
Application:



Cold Chain Logistics



Smart Factory Monitoring



Warehouse Monitoring







Greenhouse Monitoring

Dragino Technology Co., Limited

Room 202, Block B, BCT Incubation Bases (BaoChengTai), No.8 CaiYunRoad
LongCheng Street, LongGang District ; Shenzhen 518116, China
Direct: +86 755 86610829 | Fax: +86 755 86647123

WWW.DRAGINO.COM
sales@dragino.com

Model Variants

Variants	BH01-LB	BH01-LS
Connectivity		
Configure Method	TTL, BLE, LoRaWAN	TTL, BLE, LoRaWAN
Upgrade Method	TTL, BLE, LoRa	TTL, BLE, LoRa
Hardware	MCU: 48Mhz ARM Flash: 256KB RAM: 64KB	MCU: 48Mhz ARM Flash: 256KB RAM: 64KB
Features	General Features: * Ultra-low power consumption * Data collection: Bluetooth tags monitor environmental parameters in real time and upload data to the Hub via BLE protocol * Combines BLE's short-range precision with LoRaWAN's Long range transmission * Support Bluetooth v5.1 remote configure and OTA update firmware * Uplink on periodically * Downlink to change configure	
Battery & Power	 * 8500 mAh Li/SOCI2 Battery	 * Solar + 3000 mAh Li-ion Battery
Power Consumption	* Sleep Mode: 5uA @ 3.3v * LoRa Transmit Mode: 125mA @ 20dBm, 82mA @ 14dBm	* Sleep mode: 74uA@3.8V * LoRa Transmit Mode: 206mA@14dBm, 236mA@20dBm
Supply Voltage	2.5v ~ 3.6v	3.7v ~ 4.2v
Operating Temperature	-40 ~ 85°C	-40 ~ 85°C

Battery & Enclosure Option:



Li-SOCI2 Battery & Enclosure:

- Li/SOCI2 un-chargeable battery
- Capacity: 8500mAh
- Self-Discharge: <1% / Year @ 25°C
- Max continuously current: 130mA
- Max boost current: 2A, 1 second



Solar Version & Enclosure:

- 3000mAh Re-chargeable battery
- 0.9W on board solar pannel Suitable to used in the place where sun is sufficient

Order Info:

Part Number: BH01-LB-XX

XX: The default frequency band

- XX: Frequency Bands, options: EU433,CN470, EU868,IN865,KR920,AS923,AU915,US915

Bluetooth Tags Option: DR-TAH02 , DR-ES01

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Bluetooth Tags Option: DR-TAH02 , DR-ES01

Bluetooth Sensor Tag Specification

DR-TAH02:

- Bluetooth version: Bluetooth LE 5.1 protocol
- Working temperature: $-40^{\circ}\text{C} \sim +60^{\circ}\text{C}$
- Shell material: PET composite plastic bag (heat sealed)
- Waterproof level: IP67
- Battery capacity: 600mAh
- Battery specification: CR2450
- Temperature range: $-40^{\circ}\text{C} \sim +85^{\circ}\text{C}$, $\pm 0.3^{\circ}\text{C}$
- Sampling frequency: 5min/time (configurable)
- Data storage: 512 records
- Transmit power: $-19.5\text{dBm} \sim +2.5\text{dBm}$ (configurable)
- Broadcast frequency: 500ms (configurable)
- Broadcast power consumption: 22uA (varies with the transmission power and broadcast frequency settings)
- Battery life: 3 years (varies with the transmission power and broadcast frequency settings)
- Broadcast mode: Custom Sensor broadcast
- Broadcast distance Distance: 100m (varies with the transmission power setting)
- Configuration APP: nRF connect (Android / IOS)
- Supported system: Android 4.3 / IOS 7.0 and above



DR-ES01:

- Bluetooth version: Bluetooth LE 5.3 protocol
- Working temperature: $0^{\circ}\text{C} \sim +85^{\circ}\text{C}$
- Casing material: PC material
- Waterproof level: IP65
- Battery capacity: 1100mAh
- Battery specification: AAA LR03 x2
- Temperature range: $0^{\circ}\text{C} \sim +85^{\circ}\text{C}$, $\pm 0.2^{\circ}\text{C}$
- Humidity range: 0~100%RH, $\pm 2\% \text{RH}$
- Transmit power: $-20\text{dBm} \sim +4\text{dBm}$ (configurable)
- Broadcast frequency: 1000ms (configurable)
- Broadcast power consumption: 34uA (varies with the transmission power and broadcast frequency settings)
- Battery life: 3 years (varies with the transmission power and broadcast frequency settings)
- Broadcast mode: Custom Sensor broadcast
- Broadcast distance Distance: 100m (varies with the transmission power setting)
- Configuration APP: nRF connect (Android / IOS)
- Supported system: Android 4.3 / IOS 7.0 and above

