

# Temperature and Humidity Sensor

## OVERVIEW:

The Dragino S31/S31B series is a **Temperature and Humidity Sensor** designed for Internet of Things (IoT) applications. It accurately measures ambient temperature and relative humidity, and transmits the data to an IoT server via LoRaWAN, NB-IoT, LTE-M, or LTE CAT-1 networks.

The sensing element used in the S31/S31B is a fully calibrated, linearized, and temperature-compensated digital temperature and humidity sensor, providing excellent reliability and long-term stability. It is enclosed in a waterproof, anti-condensation housing to ensure consistent performance in long-term outdoor or industrial environments.

The device **supports configurable temperature and humidity alarms**, allowing users to receive instant notifications when readings exceed predefined thresholds.

With **built-in BLE configuration and wireless OTA firmware updates**, the S31/S31B is simple to set up and maintain.

To support various deployment scenarios, the S31/S31B offers multiple power options — including **8,500 mAh or 19,000 mAh high-capacity non-rechargeable battery**, **1,000 mAh rechargeable Li-ion battery**, as well as a **solar-powered version with a rechargeable Li-ion battery** for long-term, maintenance-free operation.



## Features:

- External 3 meters probe (For S31 series)
- Temperature Sensor Range: -40 ~ 80°C
- Temperature Sensor Accuracy: ±0.2 @ 0-90 °C
- Humidity Sensor Range: 0 ~ 99.9% RH
- Humidity Sensor Accuracy: < 4%RH (between 20% ~ 95%)
- Temperature & Humidity alarm

## Applications:



Green House



Smart Barn



Outdoor Snow Monitoring



Laboratory

# Wireless & Battery Selection

	LB	LB2	LS	NB	NB2	NS	CB	CB2	CS	KS	KN
Wireless	LoRaWAN	LoRaWAN	LoRaWAN	NB-IoT	NB-IoT	NB-IoT	NB-IoT & LTE-M	NB-IoT & LTE-M	NB-IoT & LTE-M	LTE CAT-1	LTE CAT-1
Module	LA66	LA66	LA66	BC660K-GL	BC660K-GL	BC660K-GL	BG95-M2	BG95-M2	BG95-M2	EG800xx	EG800xx
Frequency Band	EU433, CN470, EU868, IN865, KR920, MA869, AU915, US915, AS923-1, AS923-2, AS923-3, AS923-4	EU433, CN470, EU868, IN865, KR920, MA869, AU915, US915, AS923-1, AS923-2, AS923-3, AS923-4	EU433, CN470, EU868, IN865, KR920, MA869, AU915, US915, AS923-1, AS923-2, AS923-3, AS923-4	<b>CAT-NB2:</b> B1/B2/B3/B4/B5/B8/B12/B13/B17/B18/B19/B20/B25/B28/B66/B70/B85	<b>CAT-NB2:</b> B1/B2/B3/B4/B5/B8/B12/B13/B17/B18/B19/B20/B25/B28/B66/B70/B85	<b>CAT-NB2:</b> B1/B2/B3/B4/B5/B8/B12/B13/B17/B18/B19/B20/B25/B28/B66/B70/B85	<b>CAT-NB2:</b> B1/B2/B3/B4/B5/B8/B12/B13/B18/B19/B20/B25/B28/B66/B71/B85 <b>LTE-M:</b> B1/B2/B3/B4/B5/B8/B12/B13/B18/B19/B20/B25/B26/B27/B28/B66/B85	<b>CAT-NB2:</b> B1/B2/B3/B4/B5/B8/B12/B13/B18/B19/B20/B25/B28/B66/B71/B85 <b>LTE-M:</b> B1/B2/B3/B4/B5/B8/B12/B13/B18/B19/B20/B25/B26/B27/B28/B66/B85	<b>CAT-NB2:</b> B1/B2/B3/B4/B5/B8/B12/B13/B18/B19/B20/B25/B28/B66/B71/B85 <b>LTE-M:</b> B1/B2/B3/B4/B5/B8/B12/B13/B18/B19/B20/B25/B26/B27/B28/B66/B85	<b>EU:</b> For European, Asia, Australia, LTE-FDD: B1/3/5/7/8/20/28 <b>LA:</b> For Latin America, LTE-FDD: B2/3/4/5/7/8/28/66 <b>NA:</b> For North America, LTE-FDD: B2/4/5/12/13/66	<b>EU:</b> For European, Asia, Australia, LTE-FDD: B1/3/5/7/8/20/28 <b>LA:</b> For Latin America, LTE-FDD: B2/3/4/5/7/8/28/66 <b>NA:</b> For North America, LTE-FDD: B2/4/5/12/13/66
Uplink Method	LoRaWAN, OTAA, ABP	LoRaWAN, OTAA, ABP	LoRaWAN, OTAA, ABP	MQTT, MQTTs, TCP, UDP or CoAP	MQTT, MQTTs, TCP, UDP or CoAP	MQTT, MQTTs, TCP, UDP or CoAP	MQTT, MQTTs, TCP, UDP or CoAP	MQTT, MQTTs, TCP, UDP or CoAP	MQTT, MQTTs, TCP, UDP or CoAP	MQTT, MQTTs, TCP, UDP or CoAP	MQTT, MQTTs, TCP, UDP or CoAP
Enclosure	Type B	Type B2	Type S	Type B	Type B2	Type S	Type B	Type B2	Type S	Type S	Type N
Battery	8500mAh	19000mAh	3000mAh	8500mAh	19000mAh	3000mAh	8500mAh	19000mAh	3000mAh	3000mAh	1000mAh
Battery Type	Li-SOCI2	Li-SOCI2	Li-ion	Li-SOCI2	Li-SOCI2	Li-ion	Li-SOCI2	Li-SOCI2	Li-ion	Li-ion	Li-ion
Rechargeable	--	--	Yes	--	--	Yes	--	--	Yes	Yes	Yes
Solar Panel	--	--	Yes	--	--	Yes	--	--	Yes	Yes	--
Solar Panel Power	--	--	0.9W	--	--	0.9W	--	--	0.9W	0.9W	--
DC Connector	--	--	Optional	--	--	Optional	--	--	Optional	Optional	Provides 12V DC power
GNSS	--	--	--	--	--	--	Yes	Yes	Yes	--	--
BLE Config	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
IP Rate	IP66	IP66	IP66	IP66	IP66	IP66	IP66	IP66	IP66	IP66	IP54

# Enclosure Type

## Enclosure Type B



- Battery: 8500 mAh
- None-rechargeable
- Dimension: 118 x 57 x 47 mm

## Enclosure Type B2



- Battery: 19000 mAh
- None-rechargeable
- Dimension: 145 x 105 x 45 mm

## Enclosure Type S



- Battery: 3000 mAh
- Rechargeable
- 0.9w Solar Panel
- Dimension: 108 x 102 x 40 mm

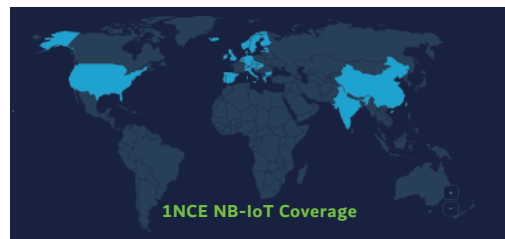
## Enclosure Type N



- Battery: 1000 mAh
- Rechargeable
- Provides 12V DC power
- Dimension: 118 x 57 x 47 mm

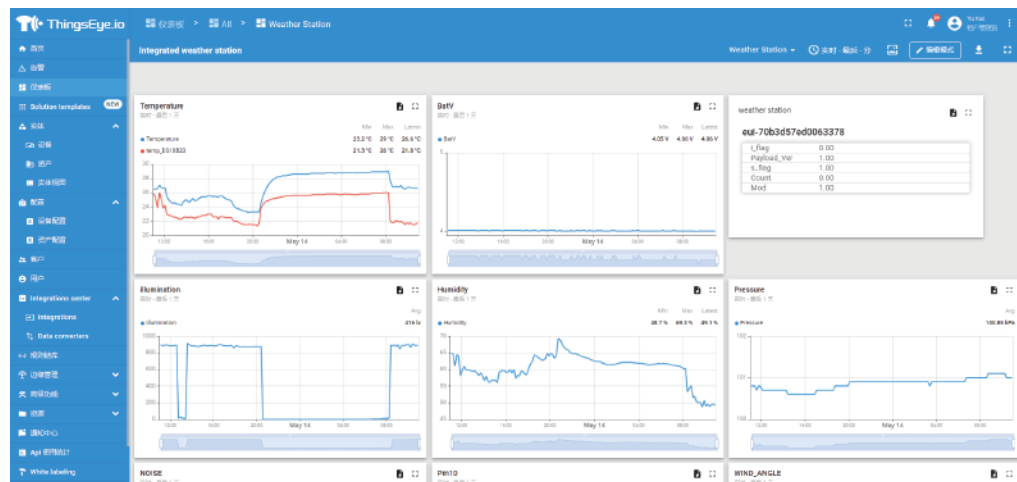
## What is 1T version for Cellular version?

The 1T version of NB-IoT/LTE-M/LTE CAT-1 Temperature & Humidity Sensor is with 1) 1NCE SIM Card & 2) ThingsEye Pre-configured. 1NCE SIM Card (10 Years Cellular service with 500MB Data Traffic, Enough for devices to uplink 10 years at 1hour interval).



## ThingsEye.io platform:

1T version with ThingsEye IoT service pre-installed. This save a lot of work from user side to configure IoT server. Below is Dash Board is the demo in ThingsEye.io.



# Ordering Information

## Example:

S31-LB-EU868

### Model Name:

**S31** (External 3 meters Temperature & Humidity Probe)  
**S31B** (Built in Temperature & Humidity Sensor)

### Wireless Tech:

**L:** LoRaWAN  
**N:** NB-IoT  
**C:** NB-IoT & LTE-M  
**K:** LTE CAT-1

### Battery Type:

**B:** 8500 mAh Li-SOIC2 Battery  
**B2:** 19000 mAh Li-SOIC2 Battery  
**S:** Solar Panel + 3000 mAh Li-ion Battery  
**N:** 1000 mAh Li-ion Battery

### Frequency Band or Cellular SIM:

#### Frequency Band:

**For LoRaWAN version:** EU433, CN470, EU868, IN865, KR920, MA869, AU915, US915, AS923-1, AS923-2, AS923-3, AS923-4  
**For CAT-1 version:** **EU:** For European, Asia, Australia  
**LA:** For Latin America  
**NA:** For North America

#### Cellular SIM option (For NB-IoT, LTE-M, CAT-1):

**GE** -- General version (Exclude SIM card)  
**1T** -- With 1NCE & ThingsEye Pre-configured