

iBS08T Specification

Waterproof Sensor Beacon

iBS08T is an IP67 waterproof BLE beacon with temperature, humidity, and light sensor. iBS08T supports **Bluetooth® Low Energy(BLE)** in Bluetooth 5. It works with INGICS beacon gateway to locate the beacon location and to monitor the sensor status. The typical battery usage time is over 7 years in default settings(30sec).



Features

General

- Powered by one CR2450 battery or USB port(5V, type-C)
- Battery life: 7 year in typical beacon setting(30sec)
- Android and iOS APP for monitoring sensor data
- Power on/off by a single button
- Size: 75mmX46mmX14mm

Environment

- IP67
- Operating temperature: -30°C to 75°C
- Operating humidity: 0 to 100%RH

BLE

- 2.4GHz frequency band
- Support Bluetooth Low Energy in **Bluetooth 5** standard
- Maximum transmit power +8dBm
- Receiver sensitivity: -96.5 dBm @1Mbps, 0.1% BER
- On board PCB antenna
- >100M range in open space

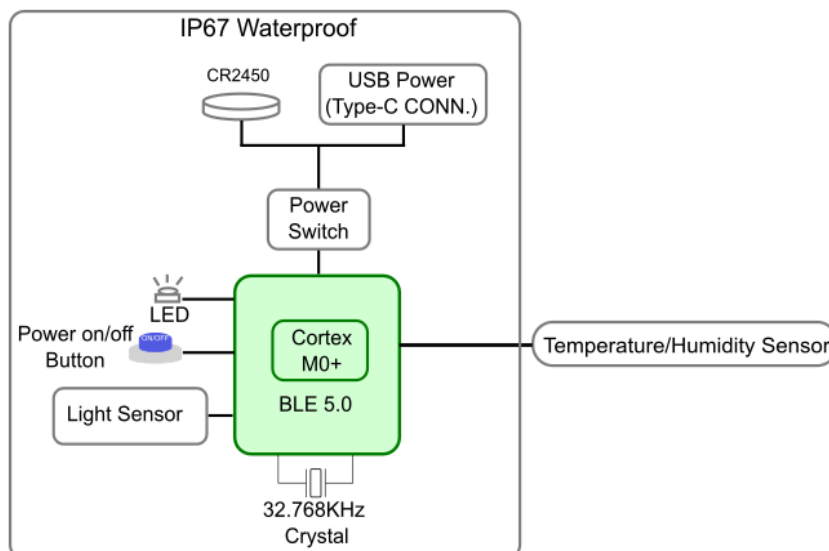
Sensors

- Temperature sensor
- Humidity sensor
- Light sensor

Applications

- Refrigerator/ Freezer monitoring
- Green House monitoring
- Cold chain management
- Cargo/ Truck transportation monitoring
- Treasure items monitoring

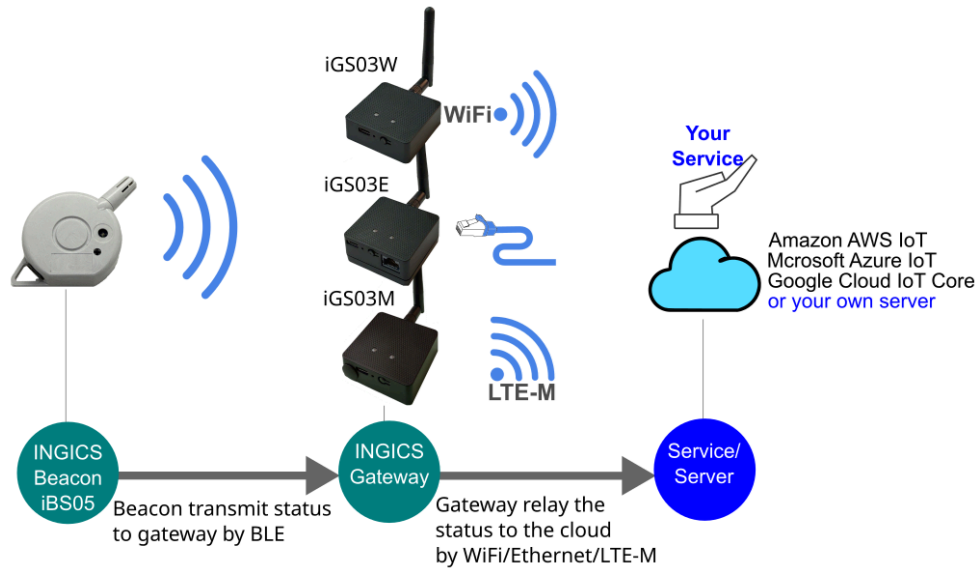
Block Diagram



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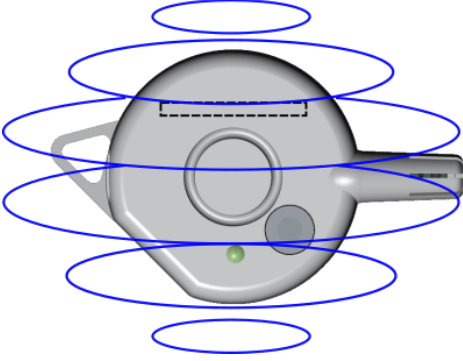
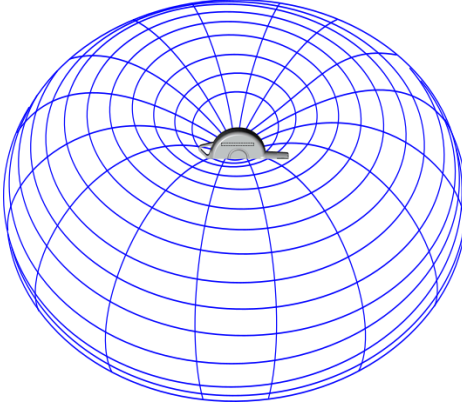
Typical Usage

Works with the latest iGS03W, iGS03E, or iGS03M beacon gateway(or iGS01S) to receive the beacon message and send it to the cloud server. Users can access and manage the data anytime, anywhere.



Note: iGS03W/E/M are the 3rd generation of beacon gateway in WiFi/Ethernet/LTE-M interface.

Antenna

Antenna Position	Radiation Direction	Radiation Pattern
		

BLE Payload Format

Prefix	MFG Code (2 bytes)	Beacon Code (2 bytes)	Tag Batt (2 bytes)	Event Status (1 bytes)	Temperature (2 bytes)	Humidity (2 bytes)	Illumination (2 bytes)	Reserved (8 bytes)	Sub Type (1 byte)	Reserved (3 bytes)
0201061AFF	2C08	88BC	XXXX	XX	XXXX	XXXX	XXXX	00000000 00000000	45	XXXXXX

* Endianness: Little endian

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Field	Description
MFG Code	Manufacturer vendor code, fixed to 0x082C
Beacon Code	Magic Code to identify packet format, fixed to 0xBC88
Tag Batt	Battery voltage of tag in 0.01v unit
Event Status (Bitmask)	8-bit bitmask -- 0x01: button pressed
Temperature	Temperature in 0.01 C unit (signed 16bit)
Humidity	Humidify in 0.1% unit
Illumination	Illumination in Lux unit (unsigned 16bit)
Sub Type	0x45: iBS08T

Specification

Absolute Maximum Rating

Supply power	CR2450 battery X1 USB Type-C , Max. +5.5 Volt
Storage temperature	-40° to 85° Celsius

Recommendable Operation Condition

Operating temperature	-30° to 75° Celsius
Humidity	Max. 100%
VDD	+3V by CR2450 battery or USB Type-C
IP67	30min.@1 Meter water

Average Current Consumption

iBS08T with temperature, humidity and light sensor	5.3uA*, in default 30sec transmit period@1Mbps.
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* Measured with Panasonic CR2450 battery.

Battery Life Simulation

iBS08T with temperature, humidity and light sensor	7 yr*, in default 30sec transmit period@1Mbps.
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* Calculated with one piece of CR2450 battery with 600mAH capacity. Considering the battery discharge characteristic, only 80% of capacity is used for calculation. This value is just for reference and may be varied with component tolerance and different environments.

Light Sensor Characteristic

Light level detect range	1-65528 lux
Measurement variation	+/- 15%
Percentage difference*	30%~40%@Lux 10~100, 35%~36%@Lux 100~1000, 20~36%@Lux 1000~10000

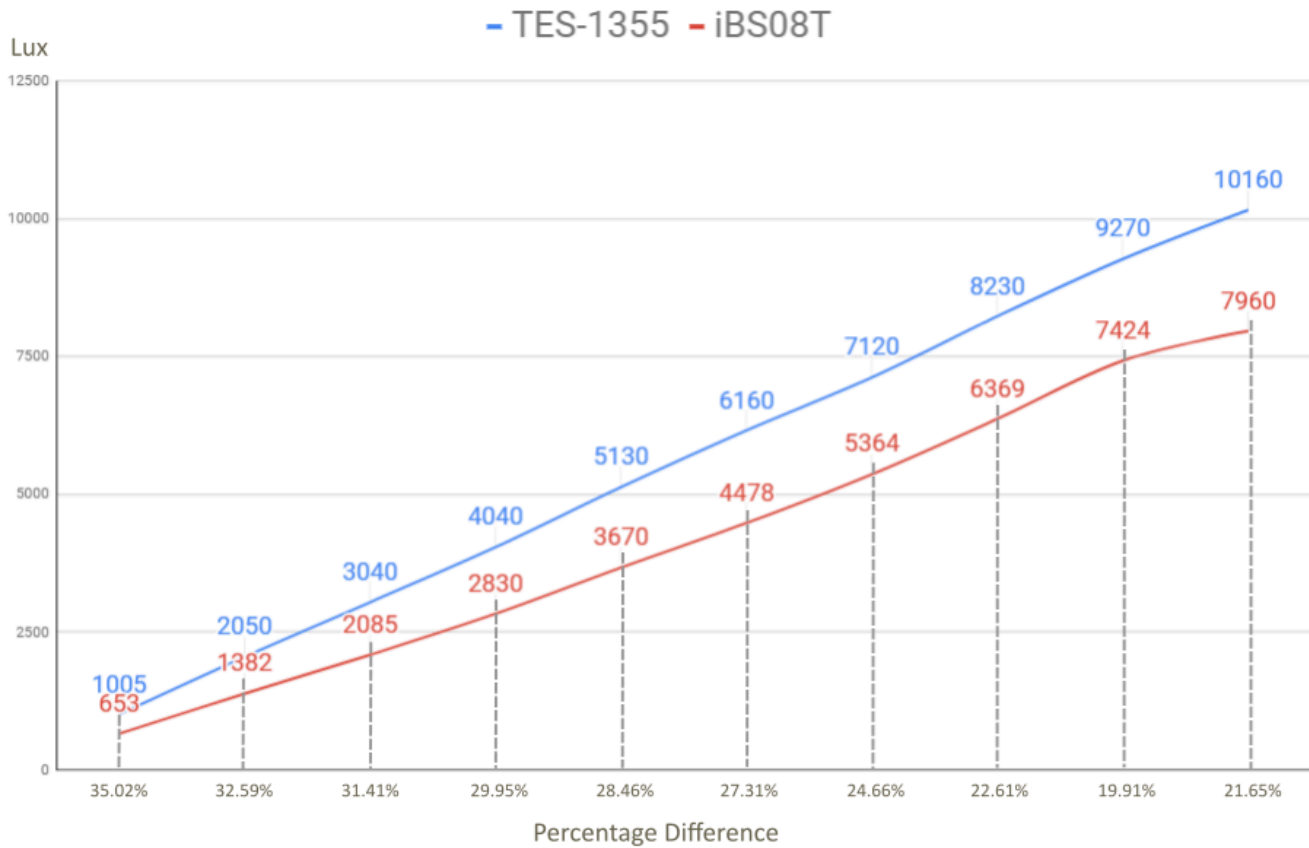
* Compared with the test results of commercially available products in direct light.

Light sensor actual measurement result

Test conditions

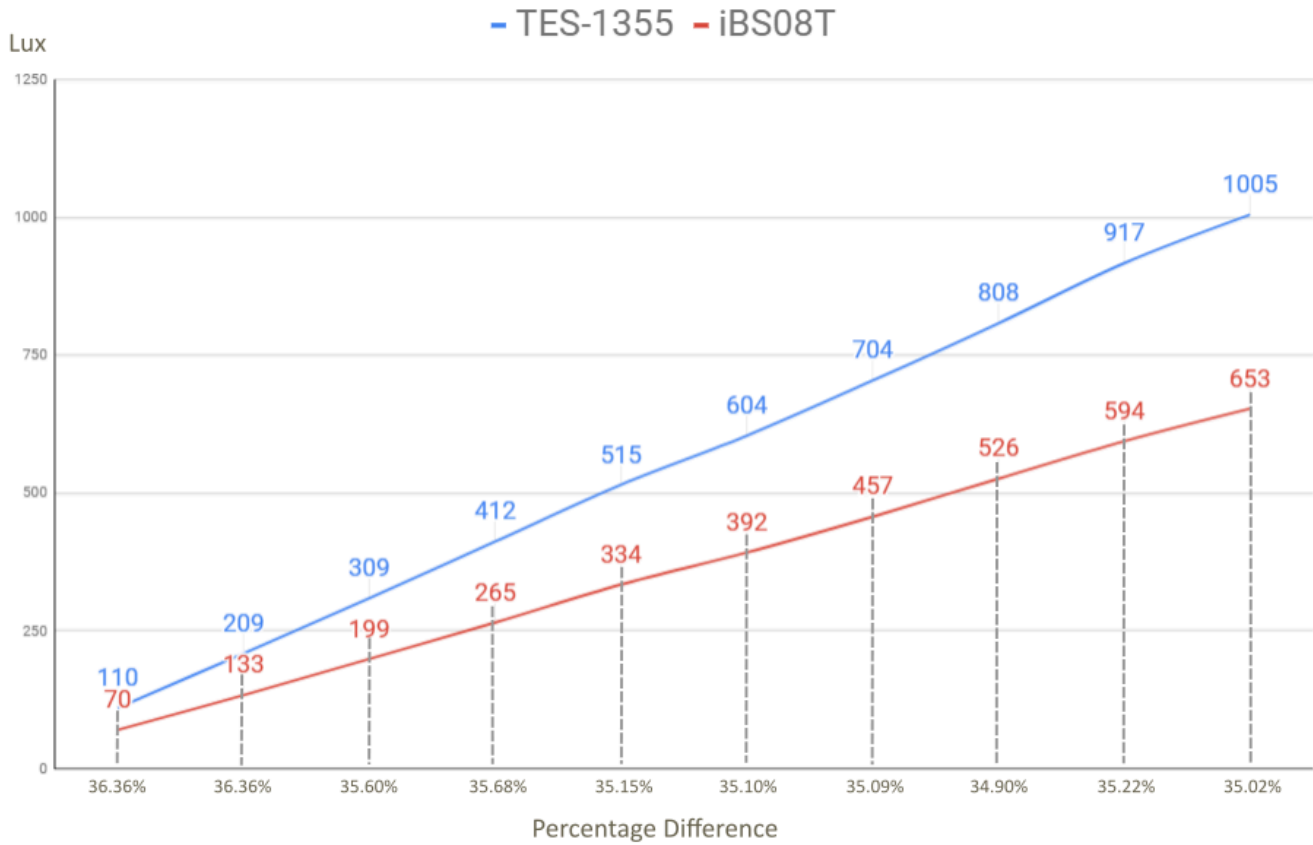
1. 1 unit of iBS08T is used for the test.
2. TES-1355 was used as a control group.
3. Use a DC light source with adjustable brightness.
4. The light source shines directly on the sensor.
5. Test in an black chamber with zero lux value.
6. The test range : 10 lux~10000 lux

Lux range 1000 lux ~ 10000 lux measurement result

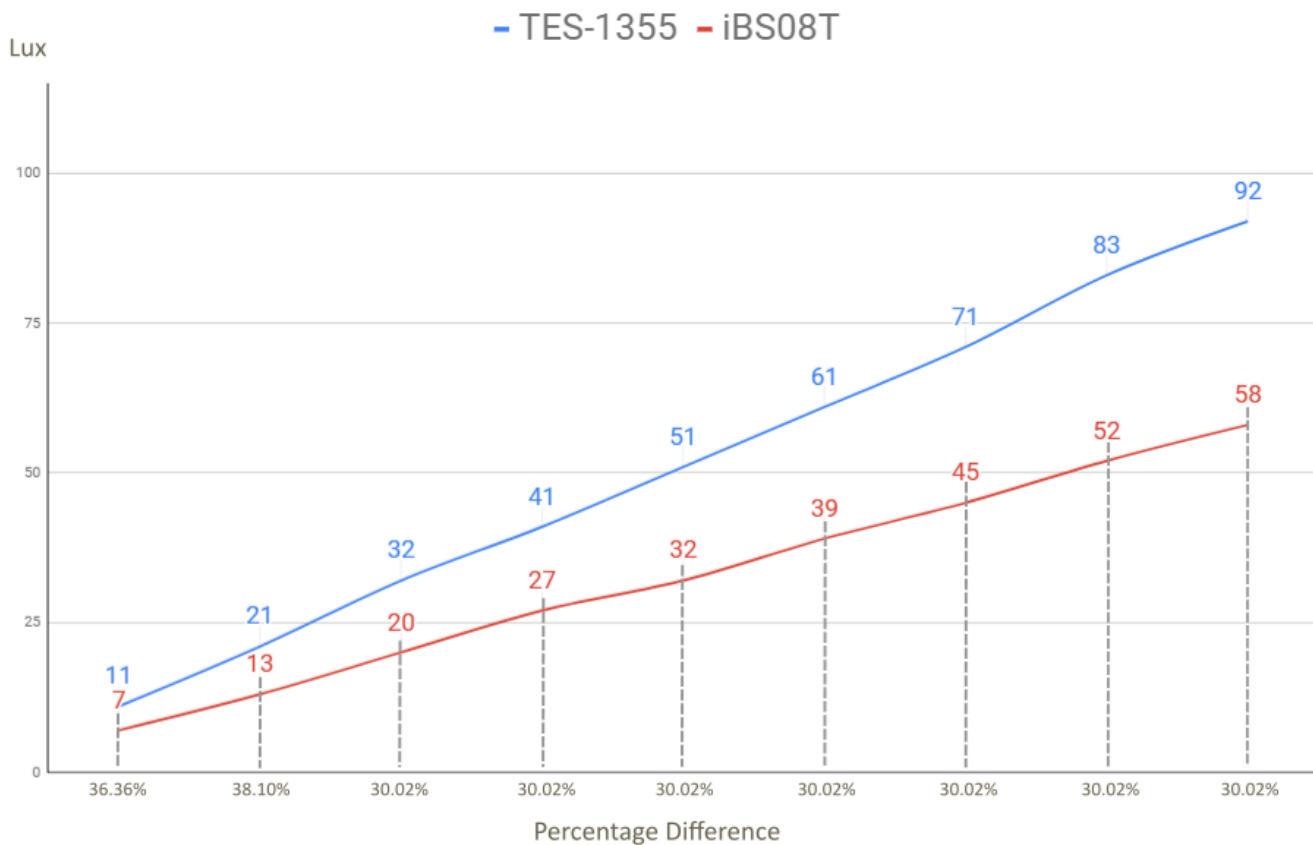


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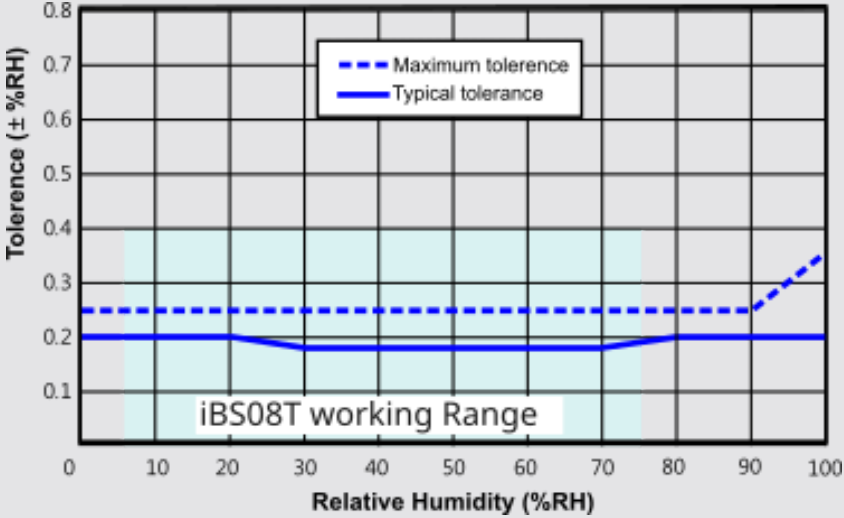
Lux range 100 lux ~ 1000 lux measurement result

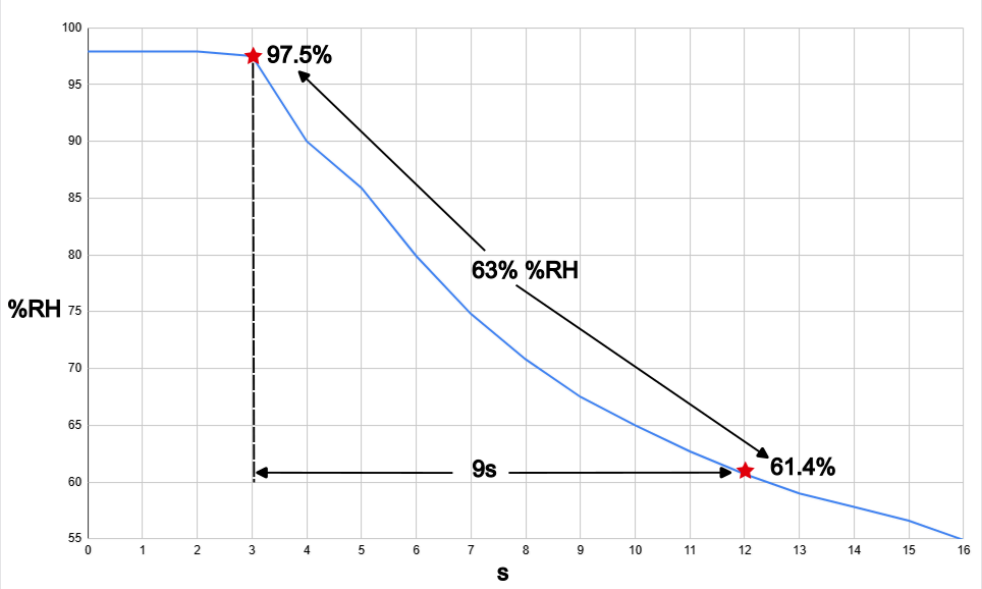


Lux range 10 lux ~ 100 lux measurement result



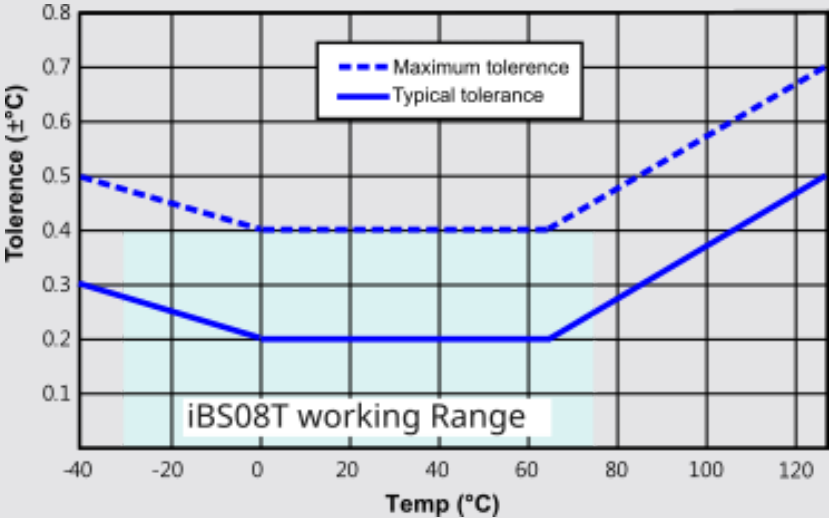
Humidity Sensor Characteristic

Humidity accuracy	
Maximum %RH sensing value	max.100 %RH
Long term drift	typ.<0.2 %RH/yr
Response time	9s, Test condition(%RH): 97.5%~40%



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Temperature Sensor Characteristic

Temperature accuracy	
Long term drift	typ.<0.03 °C/yr
Response time	TBD

Data Logger

Records	6000
Log Interval	10 sec ~ 1 hour, configurable

BLE RF Specification

Transmit Power	High: +8dBm Mid: +4 dBm(default) Low: -4dBm
Frequency band	2.360 – 2.510 GHz
Antenna	on board PCB antenna
Range	>100M in open space

Marking



Serial Number: 2508720007

25: 2025

08: Aug

72: iBS08T product code

0007: SN

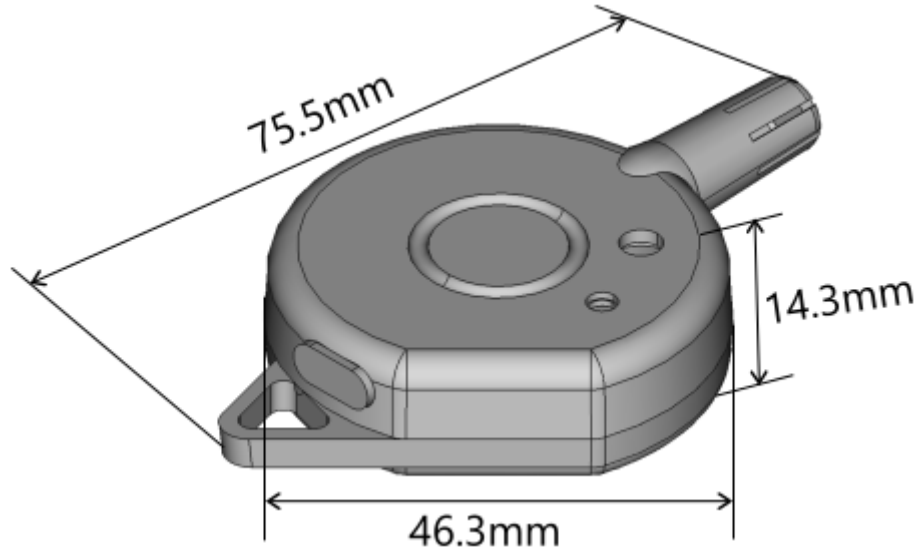
MAC: BFC2D7, the last 6 digits of MAC address

QR code: full MAC address

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Dimension

Dimensions L x W x H	75.5 mm x 46.3 mm x 14.3 mm (with sensing column)
Weight	23.3 g



Packaging

One package box(size: 125mmx60mmx70mm) contains 10 units of iBS08T with 10 pcs of double side tape.

10X



Certification

Bluetooth SIG Qualification

Model number: iBS08T
Declaration ID: Q364006
Description: Beacon

EN12830

Finished in Nov.

FCC Regulatory

Finished in Sep.

NCC Regulatory

Finished in Sep.

CE Regulatory

Finished in Sep.

UKCA Regulatory

Finished in Sep.

Statement

TBD

Revision History

DATE	REVISION	CHANGES
Aug 15, 2025	0a	Initial release
Aug 25, 2025	0b	1. Update packaging