INGICS TECHNOLOGY

Guide
Ver. 01

iBS09 User Guide

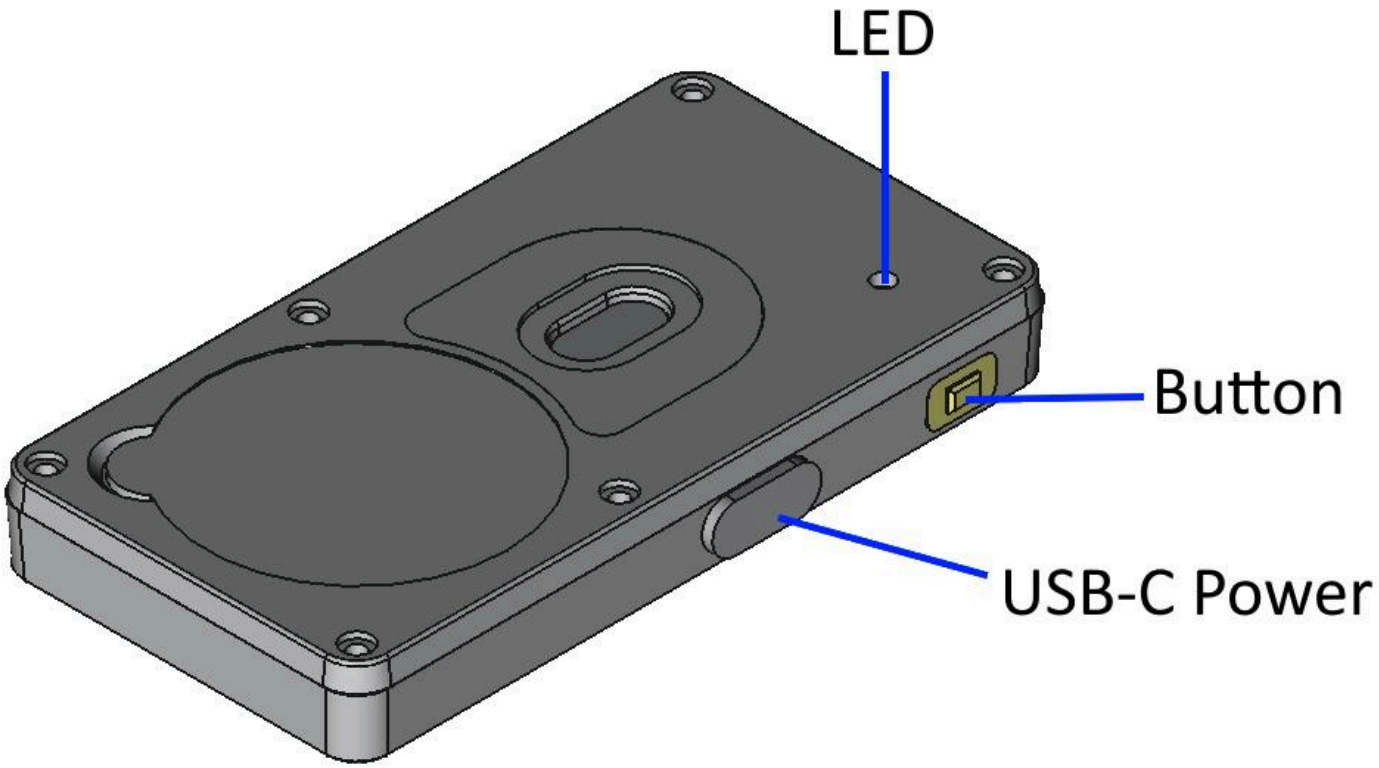
Contents

Introduction

The document is a guide for iBS09 series sensor tags.

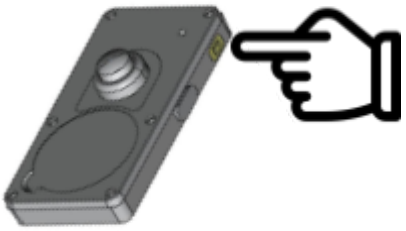
Overview

Appearance



Operations

Power On



From the off state, press and hold the button for about 1 second until the LED turns red.

Power Off

Press and hold the button while the LED is green until the LED turns off (approximately 6 seconds).

Trigger Button

After powering on, the button functions as a trigger button. When pressed, the LED lights up green and initiates an immediate BLE transmission with the button activation event.

LED

Power ON	RED on, then blinking twice
Enter Config Mode	RED blinking twice
Button Pressed	GREEN on
Enter Normal Mode	GREEN blinking twice
BLE Connected	Keep GREEN on during connection

Battery

The iBS09 is powered by a CR2032 coin cell battery. It features low power consumption, allowing for long-term operation. The table below provides a suggested mapping of battery voltage to remaining capacity at room temperature.

Capacity Level	Voltage
High	> 2.9V
Middle	> 2.8V
Low	> 2.7V
Critical (*Replace battery)	≤ 2.6V

External Power Source

In addition to battery power, the device also supports external power sources via a USB-C connector, compatible with a 5V adapter.

Sensors

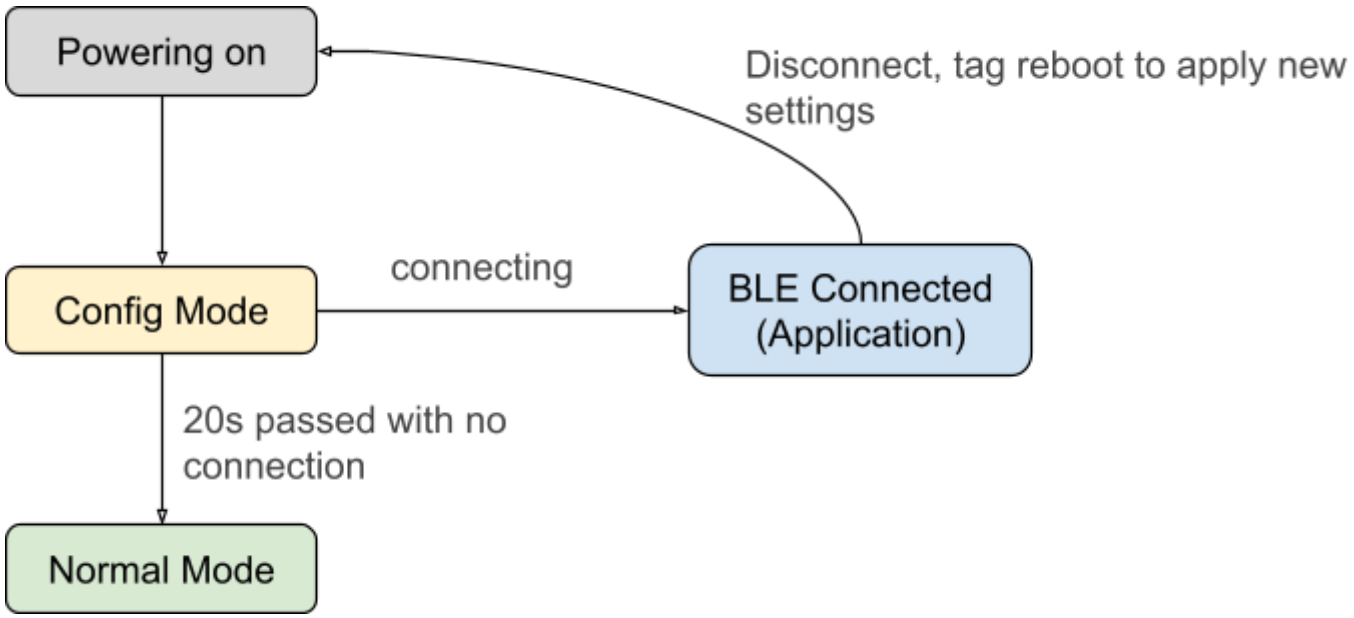
The sensor (ToF for iBS09R, PIR for iBS09PIR, or IR Proximity for iBS09IR) is positioned on the front of the tag. Please consider the device orientation during installation to ensure accurate sensing.

Reminding:
A protective film is applied to the lens of the IR Proximity sensor (iBS09IR) prior to shipment. Please remove this film before using the device, as failure to do so may impact the accuracy of the sensor.

Working Modes

There are two working modes of iBS08T tags.

- Normal Mode:
  The tag performs BLE advertising periodically based on the configured settings.
- Config Mode:
  The tag performs fast BLE advertising with the 'connectable' flag enabled. Wait for the mobile application to connect for configuration. If no connection is attempted within 20 seconds, the tag will enter Normal Mode automatically.



Quick Start

Mobile Application

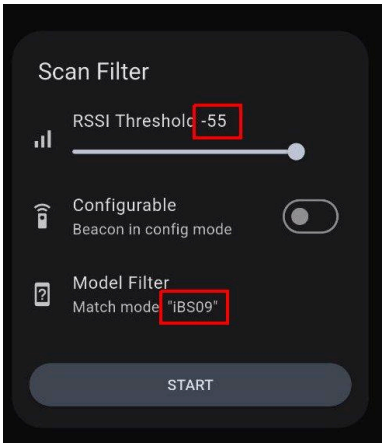
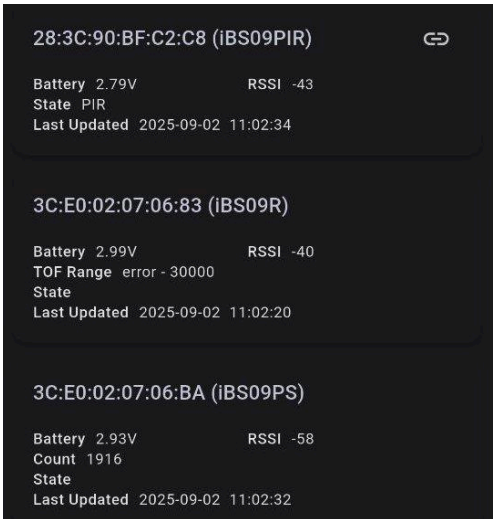
INGICS provides a mobile application called Beacon Util for BLE sensor tag verification and configuration, available on both Android and iOS platforms.

iOS
https://apps.apple.com/us/app/ingics-beacon-util/id1574283003

Android
https://play.google.com/store/apps/details?id=com.ingics.beaconutil

Below are some quick start steps. For more detailed instructions, please refer to the application's user manual.

Tag Scan and Sensor Readings

1. Power on the tag, then open the application and start scanning. Use the scan filter to help locate the tag more easily.	2. After the application receives BLE advertisements from the tags, it will display tag information, including battery voltage and sensor readings.
	

Configuration

There are common parameters you can adjust for the iBS09 tag.

Common

TX Power Mode	Transmission power of the BLE advertisement. • Low: -4dBm • Mid: 4dBm • High: 8dBm
Adv Interval	Broadcasting interval, 100 ms ~ 1 hour is available
PHY Mode	BLE PHY for advertising. • Legacy (1M legacy PHY) • Long Range S8 (Coded PHY) • Legacy + Long Range S8 (Use both) • 1M AE (1M legacy PHY with Extended Advertising feature) □ To use Coded PHY, BLE observer (gateway) support is required. And note that power consumption will increase because it involves longer RF transmission time. □ Note: iPhone, iPad, and certain Android devices do not support scanning on Coded PHY. Consequently, the application can only detect tags in Config Mode after switching to Coded PHY.
User Data	A 16-bit identifier that is included in the BLE advertisement. This can be used to define tag identity, grouping, or any other user-defined data field.

Model specific configuration

iBS09R allows configuration of the Time-of-Flight (ToF) ranging mode.

ToF Mode	Time-of-Flight Ranging Mode: • Low • Mid • High • ULP (Ultra Low Power) • Proximity Different ranging modes have different detection ranges and power consumption (please ref detail in spec). The Proximity mode uses ULP with a trigger 0x20 event flag when detected range < 500mm.

iBS09IR allows tuning of the Infrared (IR) sensor's sensitivity and reporting frequency.

IR Threshold	Proximity/Presence threshold value. Range: 0x0001 (1) to 0xFFFF (65535).
IR Sampling Rate	IR sensor measurement sampling rate: • 500ms • 1s • 2s • 5s

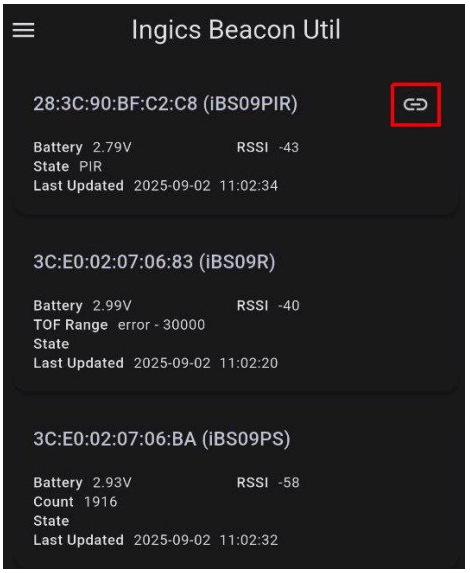
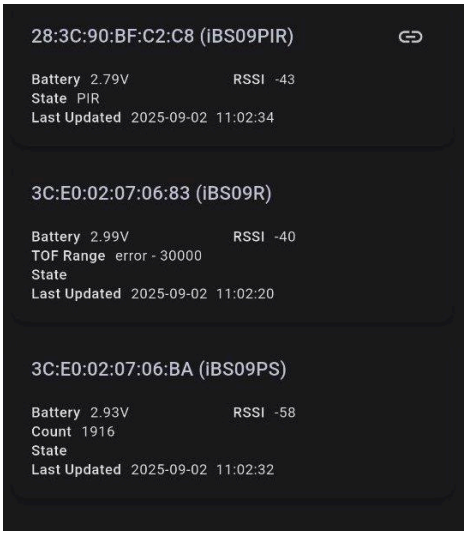
The following characteristics allow the iBS09 to work in iBeacon mode, and define the parameters of the iBeacon payload.

iBeacon Mode	Enable iBeacon mode
Proximity UUID	A unique identifier
Major value	Identifies a sub-group
Minor value	Identifies a specific individual beacon
Measured Power	A signed integer representing RSSI at 1 meter.

Due to iOS limitations regarding iBeacon usage, the application cannot retrieve proprietary tag information (such as battery voltage and button events) during scan windows on iPhone or iPad. However, this data remains fully accessible via Android devices or BLE gateways, such as the INGICS IGS03 series.

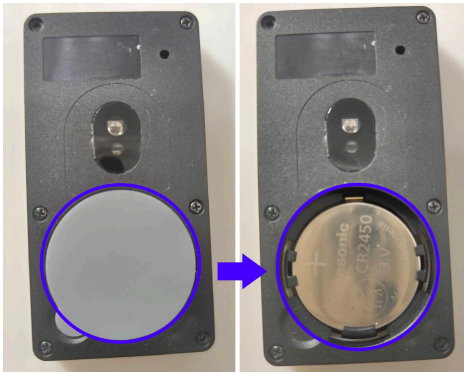
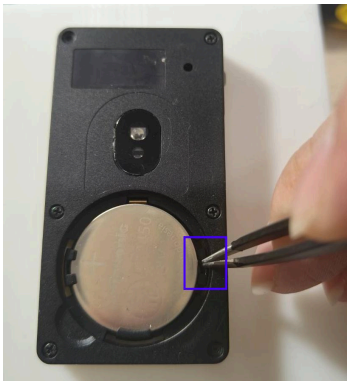
Config Process

Please follow the steps below to modify the settings as desired.

1. Start scanning in the application first. Then, power on the tag to enter Config Mode.	2. The scan result for the tag will display a connect icon in the top-right corner.	3. Tap the tag panel to initiate a connection. Once connected, the configuration settings will be displayed. You can modify and save the settings.
		

Battery Replacement

If you need to replace the battery, please follow the steps below.

1. Remove the battery cap	2. Replace with a new battery (Use tweezers or a flathead screwdriver.)	3. Replace the battery cap
		

The internal of iBS09 is sensitive to electrostatics. Before opening the bottom cover, please make sure the proper procedure is executed to avoid any electrostatic damage to iBS09

Appendix

Waste Electrical and Electronic Equipment Recycling

Our product is compliant with the WEEE directive for re-use/recovery/recycling. This cross-out wheeled-bin symbol is a reminder that this product should not be treated as household waste. Instead, hand it over to the appropriate collection point for the recycling of electrical and electronic equipment in accordance with local environmental regulations for waste disposal.

Since our product is not sold directly to the end user and generally it is a part of our customer's solution, our customer is recognized as a professional seller. Our customer has the responsibility to comply with the requirement of the directive too. To help our customers, when necessary, we will provide a WEEE compliant assessment report for registering and communicating with the local authorities and recycling agency.

Certification

Bluetooth® SIG Qualification
Model number: iBS09
Declaration ID: Q364006

FCC Regulatory
contains
FCC ID:2AEQ404

NCC Regulatory
iBS09:CCAH26LP1843T6
iBS09R:CCAH26LP1840T0
iBS09IR:CCAH26LP1841T2
iBS09PIR:CCAH26LP1842T4

Japan Giteki(MIC) Regulatory
201-250934

Statement

Federal Communication Commission Interference Statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures: . Reorient or relocate the receiving antenna. . Increase the separation between the equipment and receiver. . Connect the equipment into an outlet on a circuit different from that to which the receiver is connected. . Consult the dealer or an experienced radio/TV technician for help.

FCC Caution: To assure continued compliance, any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment. (Example - use only shielded interface cables when connecting to computer or peripheral devices).

FCC Radiation Exposure Statement This equipment complies with FCC RF radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 20 centimeters between the radiator and your body.

This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter. The antennas used for this transmitter must be installed to provide a separation distance of at least 20 cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) This device must accept any interference received, including interference that may cause undesired operation.

Industry Canada Statement

This device complies with Industry Canada licence-exempt RSS standard. Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.
Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes : (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

IC Radiation Exposure Statement

This equipment complies with IC RSS-102 radiation exposure limit set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator and your body.
Cet équipement est conforme aux CNR-102 d'Industrie Canada. Cet équipement doit êtreinstallé et utilisé avec une distance minimale de 20 centimètres entre le radiateur et votrecorps. Cet émetteur ne doit pas être co-localisées ou opérant en conjonction avec autreantenne ou émetteur. Les antennes utilisées pour cet émetteur doivent être installés etfournir une distance de séparation d'au moins 20 centimètre de toute personne et doit pas être co-située ni fonctionner en conjonction avec une autre antenne ou émetteur.

NCC 警語

「取得審驗證明之低功率射頻器材，非經核准，公司、商號或使用者均不得擅自變更頻率、加大功率或變更原設計之特性及功能。低功率射頻器材之使用不得影響飛航安全及干擾合法通信；經發現有干擾現象時，應立即停用，並改善至無干擾時方得繼續使用。前述合法通信，指依電信管理法規定作業之無線電通信。低功率射頻器材須忍受合法通信或工業、科學及醫療用電波輻射性電機設備之干擾。」

CE Regulatory

iBS09 series have been tested and complies with the essential requirements of the DIRECTIVE 2014/53/EU. The copy of the CE Conformity of Declaration is listed in the following page.

DECLARATION OF CONFORMITY

UNDER EU RED - DIRECTIVE 2014/53/EU -

This declare that the following designated product

Sensor Beacon
Model No.: iBS09, iBS09R, iBS09IR, iBS09PIR
Brand Name: INGICS

.....
(Product identification)

complies with the essential requirements of the RED - DIRECTIVE 2014/53/EU and meet the limitation of the relevant test standard(s) listed below:

EMC	Radio Spectrum	Safety
EN 301 489-1: V 2.2.3 (2019-11) EN 301 489-17: V 3.3.1 (2024-09)	EN 300 328 : V 2.2.2 (2019-07)	EN IEC 62368-1-2024+A11:2024 used in conjunction with IEC 62368-1(Edition 4.0):2023 **Health** EN 62479(2010)

.....
(Identification of regulations / standards)

This declaration is issued for

INGICS TECHNOLOGY CO., LTD.
2F., No.15-2, Changshou St.,
Shulin Dist., New Taipei City 238,, Taiwan, R.O.C.

.....
(Name / Address)

Furthermore we declare that our product will be produced in correspondence with all requirements according to the Directive 2014/53/EU and LOW VOLTAGE DIRECTIVE 2014/35/EU

Name: JK Fan Title: President

Signature:  Date: Feb 22, 2026

UKCA Regulatory

iBS09 series have been tested and complies with the essential requirements of the Radio Equipment Regulation 2017 with reference to the Standards applied listed in the following page.

UK DECLARATION OF CONFORMITY (DoC)

Hereby we,

Name of Manufacturer:	**INGICS TECHNOLOGY CO.,LTD.**
Address:	**2F.,No.15-2, Changshou St., Shulin Dist.**
Post Code & City:	**New Taipei City 238**
Country:	**Taiwan(R.O.C)**
Telephone Number:	**+886-2-26868632**

Declare that this DoC is issued under our sole responsibility and that this product:

Product Description:	**Sensor Beacon**
Type Designation(s):	**iBS09, iBS09R, iBS09IR, iBS09PIR**
Trademark:	**INGICS**
Batch / Serial Number:	**2602750001 and after**

Is in conformity with the Radio Equipment Regulation 2017 with reference to the following Standards applied:

Radio Equipment Regulations 2017

EN 301 489-1: V 2.2.3 (2019-11)

EN 301 489-17: V 3.3.1 (2024-09)

EN 300 328 : V 2.2.2 (2019-07)

EN IEC 62368-1-2024+A11:2024 used in conjunction with IEC 62368-1(Edition 4.0) :2023

EN 62479(2010)

Signed for and on behalf of:

Feb 22, 2026
Date of issue

J.K.Fan, President
Name, Function, Signature

Revision History

REVISION	DATE	CHANGE DESCRIPTION
01	Jan 1, 2026	First official release