

iBS03F Specification

iBS03F Waterproof Flood Sensor

iBS03F is an IPx7 waterproof BLE beacon with flood sensor. The BLE is a very low power 2.4G radio that can transmit the beacon information efficiently. iBS03F supports **Bluetooth® Low Energy (BLE)** in Bluetooth 5. The typical beacon battery life is over 7 years in default settings. iBS03F is a rugged design for working in tough conditions. The flood sensor is 1M long and it is suitable to detect liquid leak or flood in the bathroom or kitchen.

Features

General

- ARM Cortex™-M3 32-bit processor
- Support BLE 4.2 and BLE 5 long range
- IPx7 waterproof
- 2M of drop protection
- Powered with 1XCR2450 battery
- Long battery life: over 7 year in typical beacon setting(30s)
- Android APP for configuration
- Power on/off switch(internal)
- Main unit Size: 43mmx43mmx14.8mm
- Probe size: Cable length 1M; Sensor head: 40mmx37mm x14mm
- Operating temperature: -20°C to 75°C

Sensor

- Flood/liquid leak sensor

RF

- 2.4GHz frequency band
- Maximum transmit power +5dB
- Receiver sensitivity: -97 dBm @1Mbps, 0.1% BER
- On board PCB antenna
- >100M range in open space

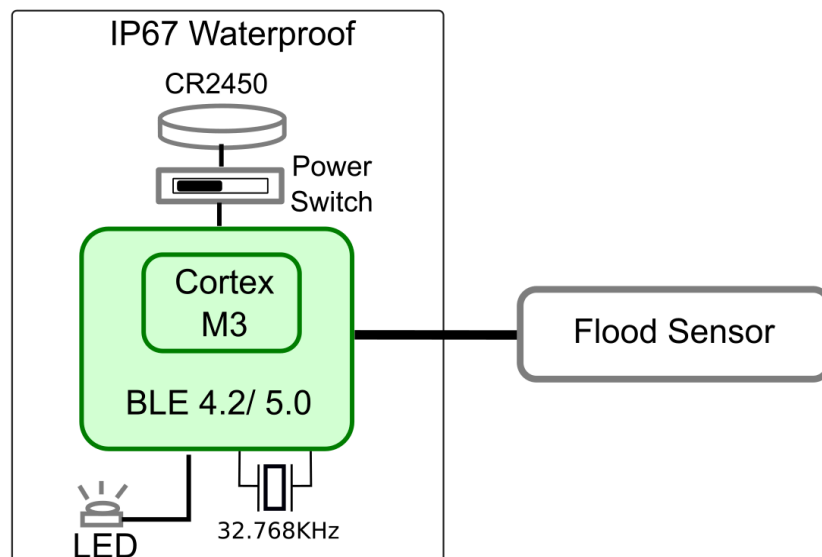
Certification

- Bluetooth
- FCC/IC/TELEC/CE/NCC

Applications

- Flood detection
- Liquid leak detection
- Pipe leak detection
- Liquid height detection (above or below a certain level)

Block Diagram



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Models

| Model Name | Description | Advertising interval | Note |
|------------|-------------------|---|------|
| iBS03F | Flood/leak sensor | Default: 30 s User configurable from 100ms~60 min. | |

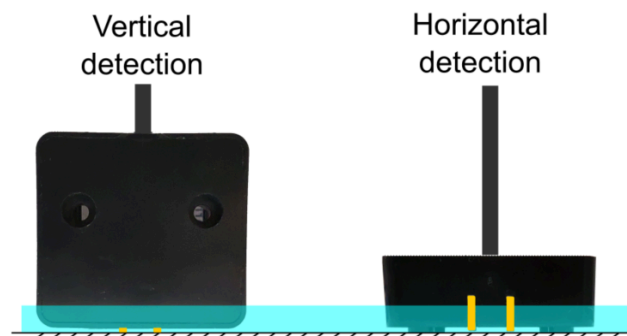
BLE Payload Format

| Prefix (5 Bytes) | MFG Code (2 Bytes) | Beacon Code/ Type (2 Bytes) | Tag Batt (2 Bytes) | Event Status (1 Byte) | Temperature (2 Bytes) | Triggered Count (2 Bytes) | User (2 Bytes) | Sub Type (1 Byte) | Reserved (3 Bytes) |
|------------------|--------------------|-----------------------------|--------------------|-----------------------|-----------------------|---------------------------|----------------|-------------------|--------------------|
| 02010612FF | 0D00 | 83BC | XXXX | XX | FFFF | FFFF | 00XX | XX | 000000 |

* **Endianness: little endian**

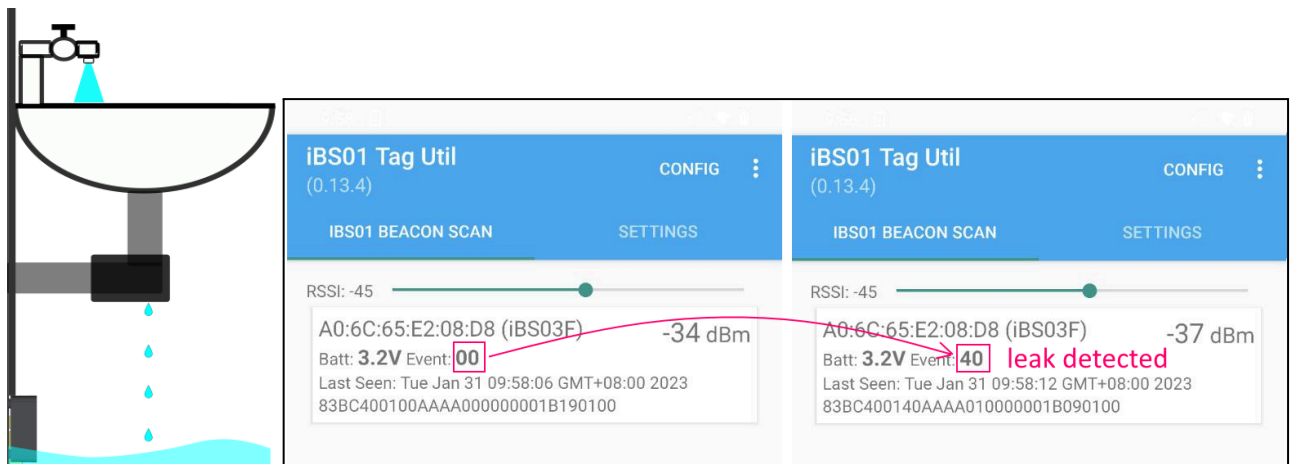
| Field | Description |
|----------------------|--|
| MFG Code | Manufacturer vendor code, fixed to 0x000D |
| Beacon Code and Type | Magic Code to identify packet format, fixed to 0xBC83 |
| Tag Batt | batt voltage of tag in 0.01v unit |
| Event Status Bitmask | 8-bit bitmask -- 0x40: Flood |
| Temperature | Not applicable |
| Triggered Count | Flood sensor triggered count, 16-bit rounding |
| User | 16-bit user configurable content |
| Subtype | 0x1B: iBS03F |

Deployment

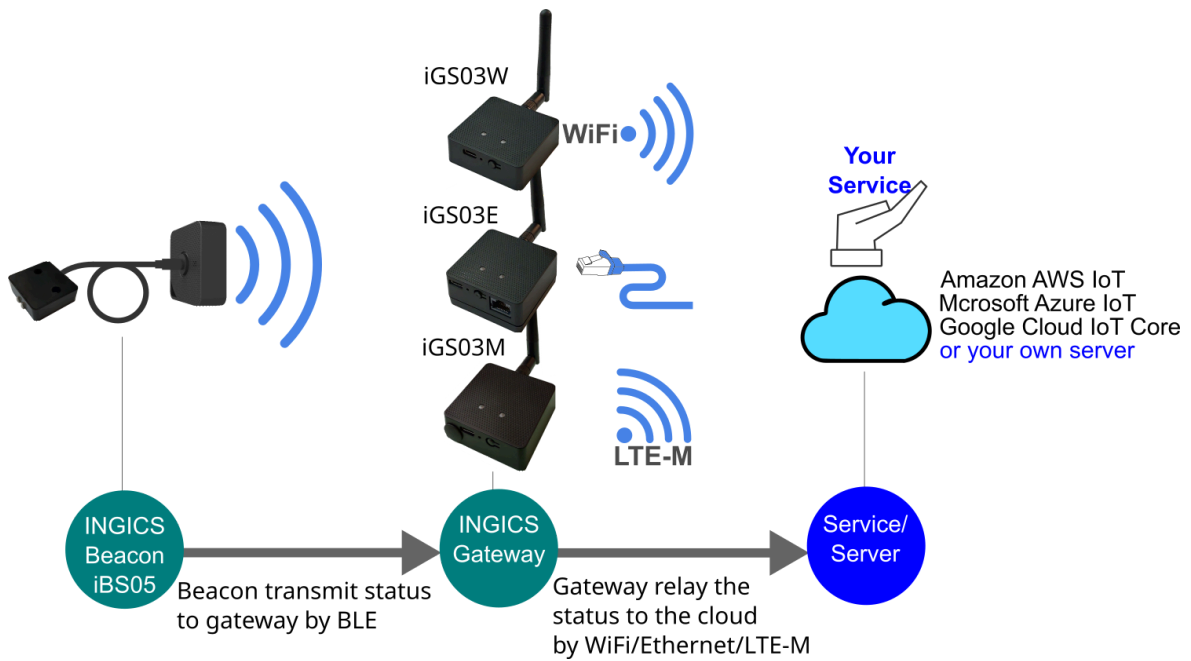


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Typical Application



Works with the latest iGS03W, iGS03E, or iGS03M beacon gateway(or iGS01S/iGS02E) to receive the beacon message and send it to the cloud server. Users can access and manage the data anytime, anywhere.



Specification

Absolute Maximum Rating

| | |
|---------------------|---------------------|
| Supply Power | CR2450 battery |
| Storage Temperature | -40° to 85° Celsius |

Recommendable Operation Condition

| | |
|-----------------------|-----------------------|
| Operating Temperature | -20° to 75° Celsius |
| VDD | +3V by CR2450 battery |

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| | |
|------|----------------------|
| IPx7 | 30min.@1 Meter water |
|------|----------------------|

Current Consumption

| | |
|------------|---|
| iBS03F-30s | Average: 5.96uA*, in default 30s transmit period. |
|------------|---|

* Measured with Panasonic CR2450 battery.

Battery Life Simulation

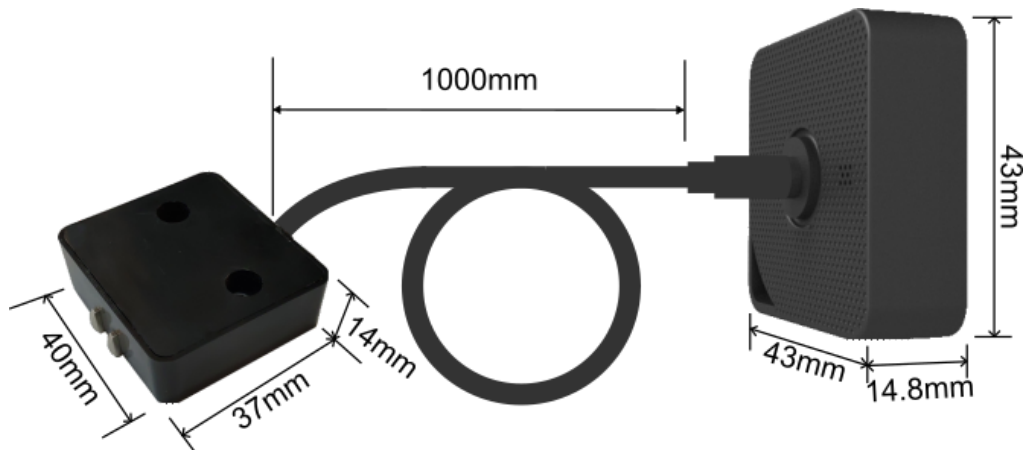
| | |
|------------|---|
| iBS03F-30s | >7 yr*, in default 30s transmit period. |
|------------|---|

* Calculated with one 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.

BLE RF Specification

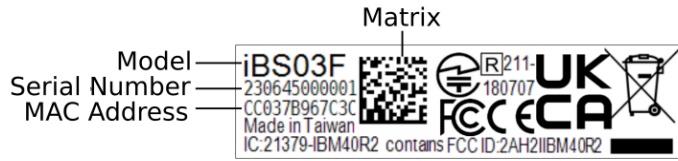
| | |
|---|--------------------------|
| Transmit Power | Max.: +5dBm |
| Receiver Sensibility | -97 dBm @1Mbps, 0.1 %BER |
| Maximum Received Signal Strength at <0.1% PER | +4dBm @1Mbps, 0.1 %BER |
| Frequency band | 2.400 – 2.483 GHz |
| Frequency Deviation | +/-350 kHz @1Mbps |
| Antenna | on board PCB antenna |
| Range | >100M in open space |

Dimension



| | |
|---------------------------|--|
| Dimensions L x W x H (mm) | 43 x 43 x 14.8 with 1M long sensor probe |
| Weight(g) | 58 |

Marking



Model : iBS03F

Serial Number : <Y><M><PC><SN>

<Y> Year code; 23:2023, 24:2024, ...

<M> Month code; 01:Jan, 02:Feb, ..., 11:Nov, 12:Dec

<PC> Product code; 45:iBS03F

<SN> Sequence number

MAC Address : There are 12 numbers in total

Matrix : Matrix contains serial number and MAC address

Example

iBS03F

SN:000001, manufactured in Jun, 2023.

The full MAC is CC037B967C3C

Packaging

One box contains 2 units of iBS03F. Each unit has a main unit, a double sided tape .



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: iBS03F

Declaration ID: D053258

Description: iBS sensor beacon

Japan MIC Regulatory

211-180707

FCC Regulatory

2AH2IIBM40R2

NCC Regulatory

CCAH23LP7071T1

IC Regulatory

21379-IBM40R2

CE Regulatory

iBS03F have been tested and comply with the essential requirements of the DIRECTIVE 2014/53/EU.

Below is the copy of the CE Declaration of Conformity.

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 être installé et utilisé avec une distance minimale de 20 centimètres entre le radiateur et votre corps. Cet émetteur ne doit pas être co-localisées ou opérant en conjonction avec autreatenne ou émetteur. Les antennes utilisées pour cet émetteur doivent être installés et fournir 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。」

DECLARATION OF CONFORMITY

Under EU RED - DIRECTIVE 2014/53/EU -

This Declaration that the following designated product

Sensor Beacon
Model No.: iBS03TP
Multi-listing Model No.: iBS03AD, iBS03F, iBS03Q, iBS03QY
Brand Name: INGICS

.....
(Product identification)

complies with the essential requirements of the **EU RED - DIRECTIVE 2014/53/EU** on the approximation of the laws of the Member States relating to **Radio Spectrum Matters**.

Assessment of compliance of the product with the requirements relating to radio spectrum matters was based on Annex IV of the Directive **2014/53/EU** and the following standard:

EMC
EN 301 489-1: V2.2.3 (2019-11)
EN 301 489-17:V3.2.4 (2020-09)

Radio Spectrum
EN 300 328 :V 2.2.2(2019-07)

Health
EN 62479(2010)
Safety
IEC 62368-1:2018 and
EN IEC 62368-1:2020+A11:2020

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


This declaration is issued from
INGICS TECHNOLOGY.
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 produce in correspondence with all requirements according to the Directive 2014/53/EU.

Name: JK Fan

Title: President

Signature 

Date: 2023.08.22

Revision History

| DATE | REVISION | CHANGES |
|--------------|----------|---|
| Jan 31, 2023 | 0a | Initial release |
| Jul 23, 2023 | 0b | 1. Modify the waterproof and dustproof level 2. Update certification information |
| Aug 22, 2023 | 01 | Update CE and NCC Certification information |
| Feb 05, 2024 | 02 | Updated packaging section |