

iBS03P Specification

iBS03P Waterproof Sensor Beacon

iBS03P is an IPx7 waterproof beacon with a wide range of temperature probe. It supports **Bluetooth® Low Energy (BLE)** in Bluetooth 5 and measures the temperature from -100°C to +250°C. It works with INGICS beacon gateway to monitor the temperature inside a refrigerator or freezer through a 2 or 5 meters probe. The typical battery life in default settings is over 3 years. There is also a food grade version of iBS03P which can work with the food.



Features

General

- ARM Cortex™-M3 32-bit processor
- Support BLE 4.2 and BLE 5 long range
- IP67 waterproof
- 1.5M of drop test verified
- Powered with 1XCR2450 battery
- Long battery life: over 3 year in typical beacon RF setting(30s)
- Android APP for configuration
- Power on/off switch(internal)
- Main unit Size: 43mmx43mmx14.8mm
- Cable length: 2 meters or 5 meters
- Probe size: 100mm*4mm or 200mm*4(food grade)
- Main unit Operating temperature: -20°C to 75°C
- Probe Operating temperature: -100°C to +250°C

Sensor

- Main unit temperature sensor for environment monitoring
- PT100 probe temperature sensor for freezer or cold chain monitoring
- Food Grade model available

RF

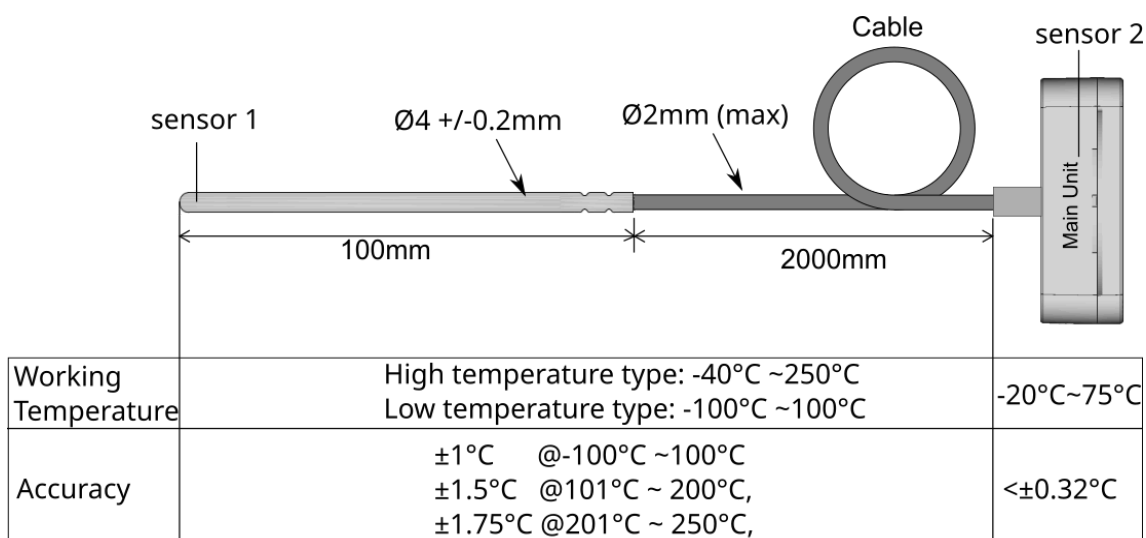
- 2.4GHz frequency band
- Maximum transmit power: +5dB
- On board PCB antenna
- >100M range in open space

Certification

- Bluetooth
- CE/FCC/IC/TELEC

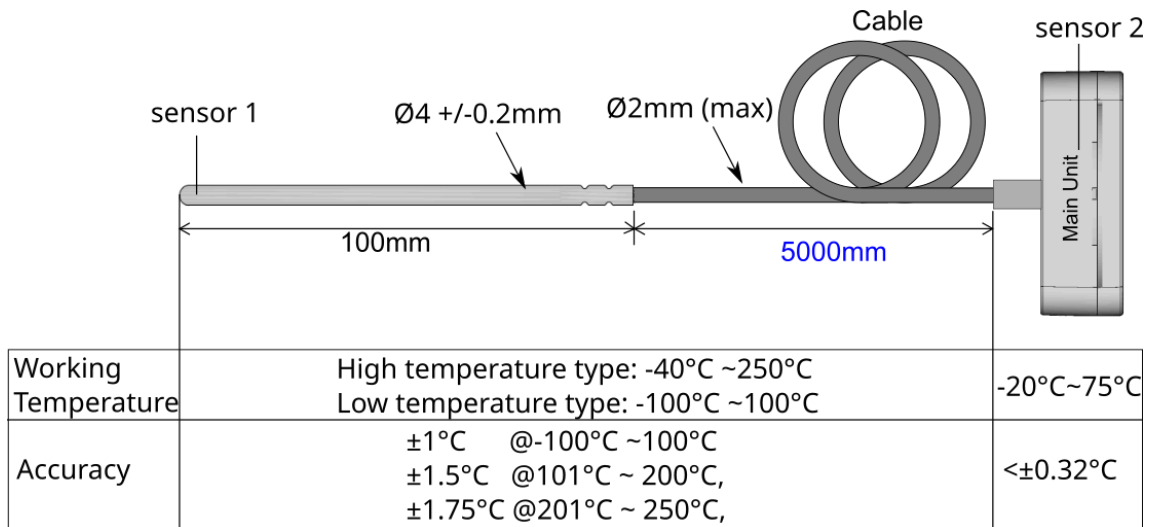
Models/Temperature Range/Accuracy

Standard Model

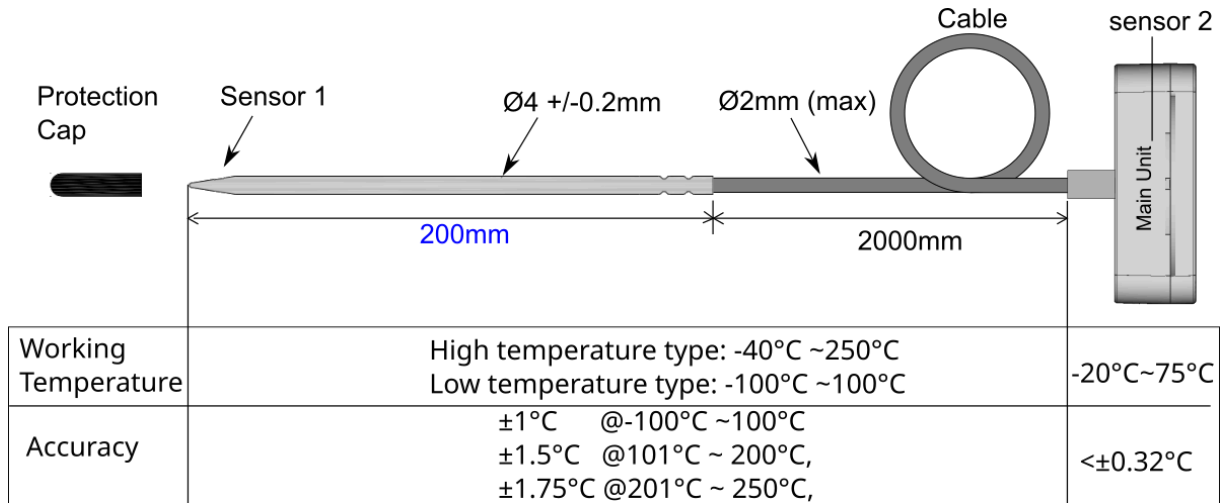


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5M Model



Food Grade Model



Summary

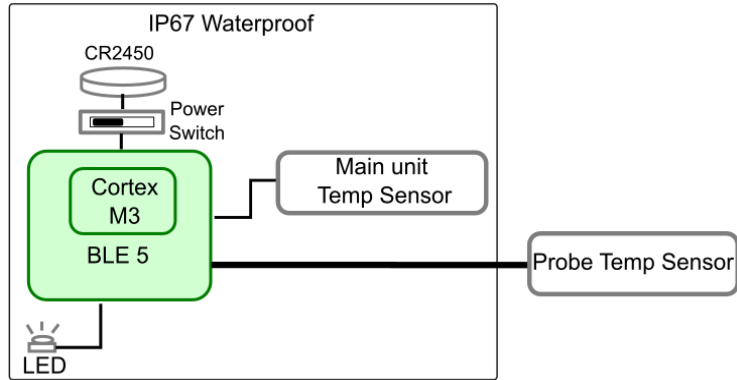
Model	Temperature Range	Accuracy
Standard Model- High Temperature	-40°C to +250°C	±1°C @-100°C ~100°C ±1.5°C @101°C ~ 200°C ±1.75°C @201°C ~ 250°C
Standard Model- Low Temperature	-100°C to +100°C	
5M Model- High Temperature	-40°C to +250°C	
5M Model- Low Temperature	-100°C to +100°C	
Food Grade Model- High Temperature	-40°C to +250°C	
Food Grade Model- Low Temperature	-100°C to +100°C	

Applications

- Storage room temperature monitoring
- Refrigerator temperature monitoring
- Factory temperature monitoring
- Food temperature monitoring
- Cold chain
- Laboratory
- Medical

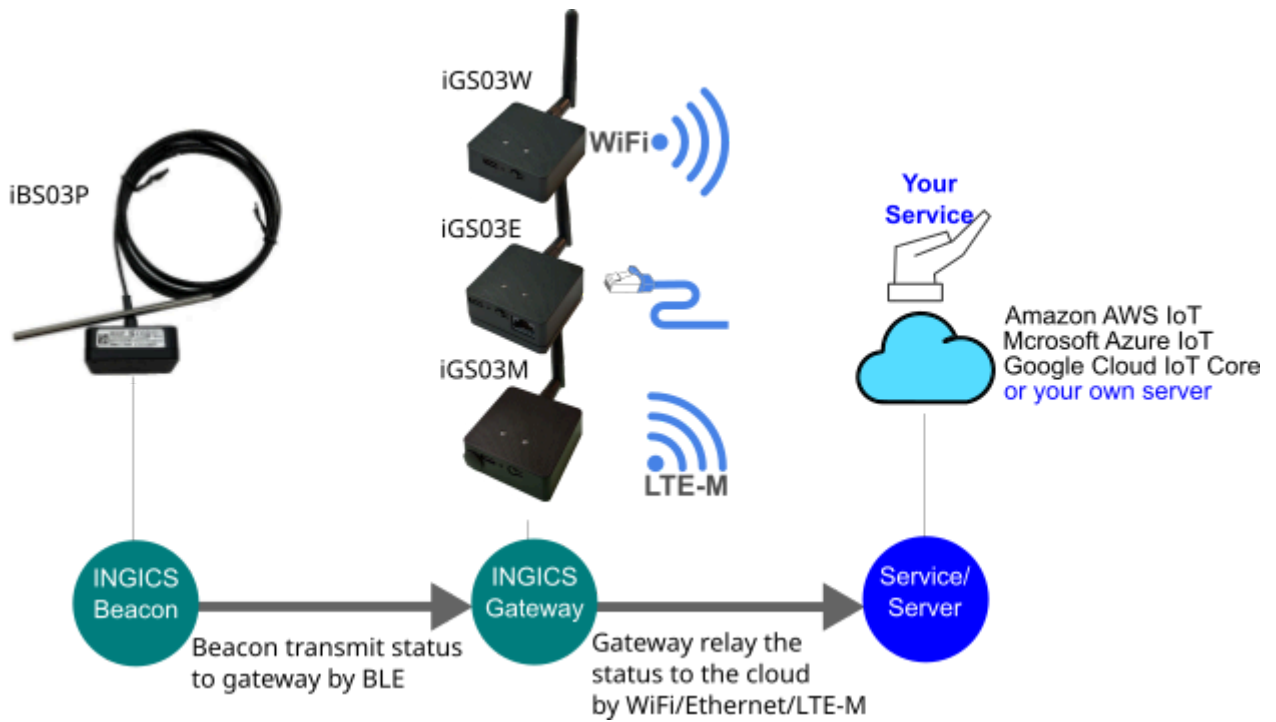
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Block Diagram

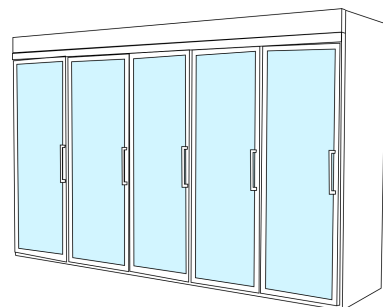
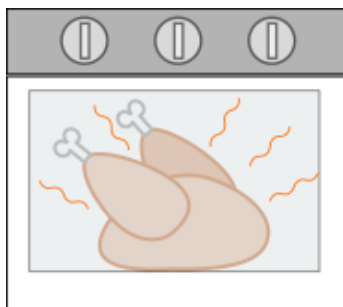


Typical Usage

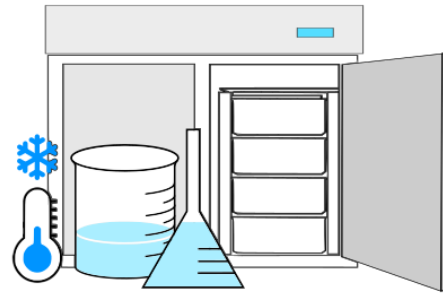
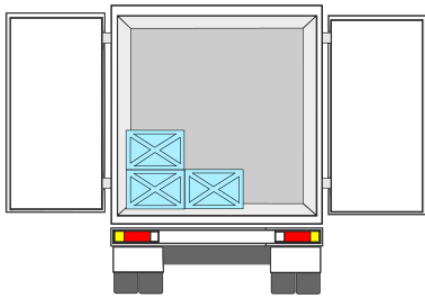
1. Works with the latest iGS03W, iGS03E, or iGS03M beacon gateway to receive the beacon message and send it to the cloud server. Users can access and manage the data anytime, anywhere.



2. Food temperature monitoring



3. Cold Chain Management



Specification

Absolute Maximum Rating

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

Recommendable Operation Condition

Main unit Operating Temperature	-20° to +75° Celsius
Probe Operating Temperature	-100° to +250° Celsius
VDD	+3V by CR2450 battery
IP67	30min.@1 Meter water

Update Interval

BLE advertising	100ms~60 min. (default: 30 sec)
Internal Temperature Sensor	0.5X (BLE advertising interval) but the minimum is 10 sec
Probe	0.5X (BLE advertising interval) but the minimum is 10 sec

Current Consumption

iBS03P-30s	Average: 17.56uA*, in the 30s transmit period. (default)
iBS03P-60s	Average: 10.37uA*, in the 60s transmit period.
iBS03P-300s	Average: 4.61uA*, in the 300s transmit period.

* Measured with Panasonic CR2450 battery.

Battery Life Simulation

iBS03P-30s	3.12 yr*, in the 30s transmit period. (default)
iBS03P-60s	5.28 yr*, in the 60s transmit period.
iBS03P-300s	11.88 yr*, in the 300s transmit period.

* Calculated with one CR2450 battery with 600mAh capacity. Considering the battery discharge characteristic, only 80% of capacity is used for calculation.

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This value is just for reference and may be varied with component tolerance and different environments.

Main unit Temperature Sensor Characteristic

Measurement Range	-20° to +75° Celsius (limited by the working temperature of main unit)
Temperature accuracy	Sensor: Typ. : +/-0.22 °C, Max: +/-0.32 °C
Long term stability	Typ. : <=0.01 °C/yr

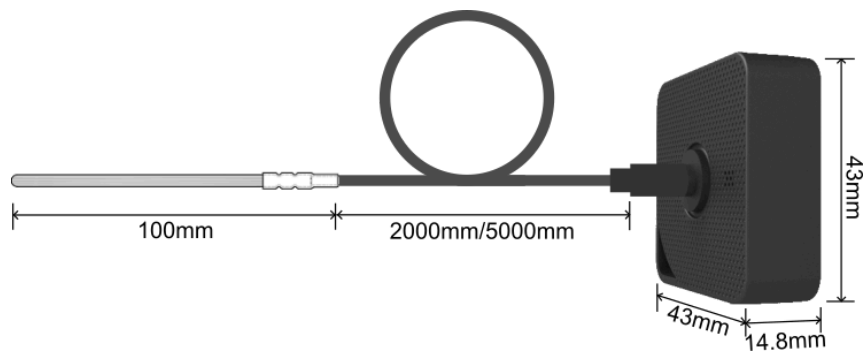
Probe Temperature Sensor Characteristic

Measurement Range	-40° to +250°Celsius for High temperature model -100° to +100°Celsius for Low temperature model
Temperature accuracy	+/-1°C (-100°C~+100°C) +/-1.5°C (+101°C~+200°C) +/-1.75°C (+201°C~+250°C)

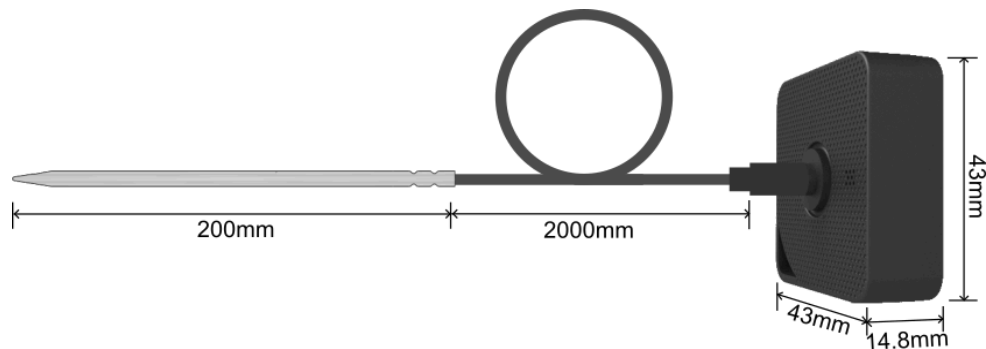
BLE RF Specification

Transmit Power	Max.: +5dBm
Frequency band	2.400 – 2.483 GHz
Frequency Deviation	+350 kHz @1Mbps
Antenna	on board PCB antenna
Range	>100M in open space

Dimension



Standard Model/ 5M Model



Food Grade Model

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Dimensions L x W x H (mm)	Main Unit: 43 x 43 x 14.8mm Cable Length: 2 meters/5 meters(5M Model only) Probe: 100mm/ 200mm(Food Grade Model only)
Weight(g)	Standard Model: 48 5M Model: 72 Food Grade Model: 50

Packaging

Box size: 176X130X58mm

For standard Model, 5 pieces are contained in one box.

For 5M and Food Grade Model, 2 pieces are contained in one box.



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: iBS03P

Declaration ID: D053258

Description: iBS sensor beacon

FCC Regulatory

2AH2IIBM40R2

Japan MIC Regulatory

211-180707

IC Regulatory

21379-IBM40R2

CE Regulatory

iBS03P has been tested and complies with the essential requirements of the DIRECTIVE 2014/53/EU, DIRECTIVE 2014/35/EU and DIRECTIVE 2014/30/EU. Below is the copy of the CE Conformity of Declaration.

UKCA Regulatory

iBS03P has 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.

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

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conjonction avec autreatenne 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.

DECLARATION OF CONFORMITY

**EU RED - DIRECTIVE 2014/53/EU -
EU-LOW VOLTAGE DIRECTIVE 2014/35/EU -**

This Declaration that the following designated product

Sensor Beacon
Model No.: iBS03P
Brand Name: INGICS

.....
(Product identification)

complies with the essential requirements of the **EU RED - DIRECTIVE 2014/53/EU, EU-LOW VOLTAGE DIRECTIVE 2014/35/EU**, on the approximation of the laws of the Member States relating to *Radio Spectrum Matters/RF Exposure*.

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	Radio Spectrum	Safety
EN 301 489-1: V 2.2.3 (2019-11)	EN 300 328 (V2.2.2, 2019-07)	EN 62368-1:2014/COR1:2015
EN 301 489-17: V 3.2.4 (2020-09)		and EN 62368-1:2014/A11:2017
		Health
		EN 62479 : 2010

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

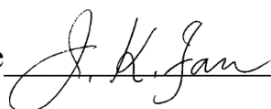
This declaration is issued for
INGICS TECHNOLOGY.
2F., No.15-2, Changshou St.,
Shulin Dist., New Taipei City 238,, Taiwan, R.O.C.

.....
(Name / Address)

Furthermore we declare that our product will be produced in correspondence with all requirements according to the Directive 2014/53/EU, LOW VOLTAGE DIRECTIVE 2014/35/EU and Council Directive 2014/30/EU.

Name: J.K.Fan

Title: President

Signature 

Date: 2021. 7. 5

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): iBS03P
Trademark: INGICS
Batch / Serial Number: After 2106xx000001



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 3.2.4(2020-09)

EN 300 328(V 2.2.2, 2019-07)

IEC 62368-1:2014/COR1:2015 and EC 62368-1:2014/A11:2017

EN 62479(2010)

Signed for and on behalf of:

2024. 06.11
Date of issue

JK Fan, President
Name, Function, Signature



Revision History

DATE	REVISION	CHANGES
Jan 22, 2020	v0a	Initial release
Jun 3, 2021	v01	Update the content of the certification chapter
Jul 5, 2021	v02	Update Certification section for iBS03P
Apr 21, 2023	v03	Update probe temperature accuracy range
Jul 3, 2023	V04	<ol style="list-style-type: none">1. Add food grade model and specification2. Add 5 meters model and specification3. Update Feature section4. Add more application figures5. Update certification information6. Add dimension figure.7. Add Packaging information
Sep. 5, 2023	V05	<ol style="list-style-type: none">1. Extend the probe temperature from 200°C to 250°C2. Separate standard and 5M model to high/low temperature type as the Food Grade Model.
Jun 11, 2024	V06	Add UK DOC