

iBS03TP Specification

Specification
Ver.01a

iBS03TP Waterproof Sensor Beacon

iBS03TP is an IP67 waterproof BLE beacon with main unit temperature sensor and probe temperature sensor. The BLE is a very low power 2.4G radio that can transmit the beacon information efficiently. The typical beacon battery life is 3.2 year in default settings. iBS03TP is a rugged design for working in tough conditions. The probe temperature sensor is 2M long and it is suitable to be used in a RF shielded location(ex:refrigerator,freezer) or monitor temperature in 2 different locations.



Features

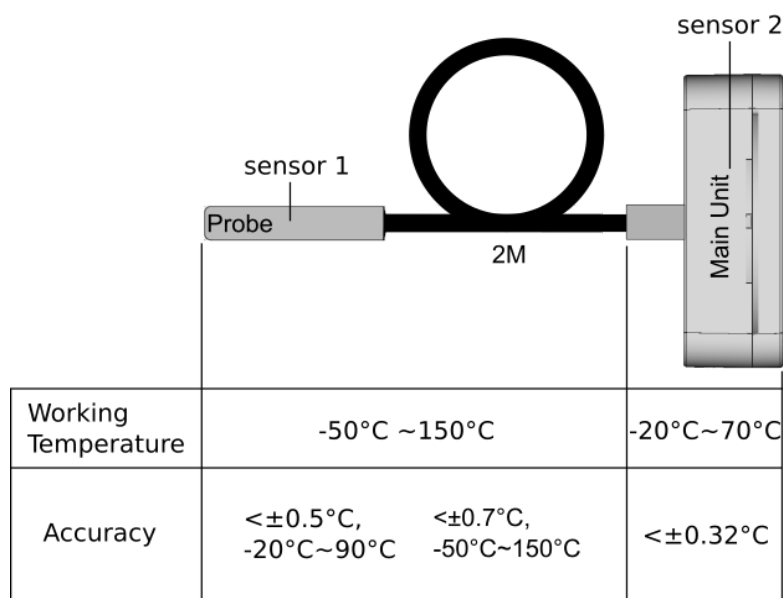
General

- ARM Cortex™-M3 32-bit processor
- Support BLE 4.2 and BLE 5 long range
- IP67 waterproof
- 2M of drop protection
- Powered with 1XCR2450 battery
- Long battery life: close to 3.2 year in typical beacon setting(30s)
- Android APP for configuration
- Power on/off switch(internal)
- Main unit Size: 43mmx43mmx14.8mm
- Probe size: Cable length 2M,Probe sensor 30mm*6mm
- Main unit Operating temperature: -20°C to 75°C
- Probe Operating temperature: -50°C to 150°C
- Certificate:FCC/IC/TELEC /CE

Sensor

- Main unit temperature sensor for environment monitoring
- Probe temperature sensor for environment monitoring
- 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

Temperature sensor position

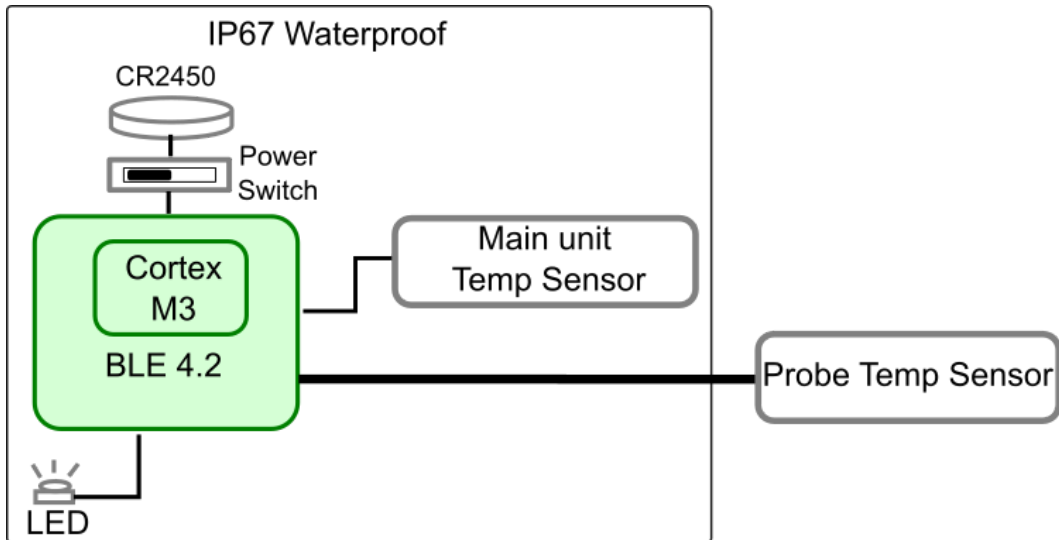


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Applications

- Storage room temperature monitoring
- Refrigerator temperature monitoring
- freezer temperature monitoring
- Factory temperature monitoring
- Sensor network
- Industrial automation
- Medical

Block Diagram



Models

Model Name	Description	Advertising interval	Note
iBS03TP	1. Main unit temperature sensor for environment monitoring 2. Probe temperature sensor for environment monitoring	User configurable from 100ms~1 min. Default: 30 s Sensor updated at 0.5X (advertising interval), min.10s	

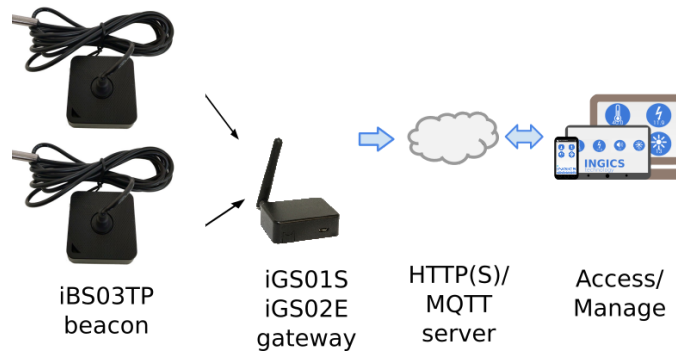
Typical Usage

1. Beacon is always broadcasting messages including status and sensor data. Users can use APP to receive the message. We also have the beacon gateway iGS01S(WiFi) or iGS02E(Ethernet) that can be used as a receiver.



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2. Use iGS01S or iGS02E beacon gateway to receive the beacon message and send it to 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

Main unit Operating Temperature	-20° to 75° Celsius
Probe Operating Temperature	-50° to 150°Celsius
VDD	+3V by CR2450 battery
IP67	30min.@1 Meter water

Current Consumption

iBS03TP-5s	Average: 31.83uA*, in 5s transmit period.
iBS03TP-30s	Average: 17.02uA*, in default 30s transmit period.
iBS03TP-60s	Average: 10.25uA*, in 60s transmit period.

* Measured with Panasonic CR2450 battery.

Battery Life Simulation

iBS03TP-5s	1.7 yr*, in 5s transmit period.
iBS03TP-30s	3.2 yr*, in default 30s transmit period.
iBS03TP-60s	5.3 yr*, in 60s 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.

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Main unit Temperature Sensor Characteristic

Temperature accuracy	Sensor: Typ. : ± 0.22 °C, Max: ± 0.32 °C Whole unit: TBC
Response time	Typ. : TBC
Long term stability	Typ. : ≤ 0.01 °C/yr

Probe Temperature Sensor Characteristic

Temperature accuracy	± 0.5 °C, -20 °C~ 90 °C ± 0.7 °C, -50 °C~ -20 °C, 90 °C~ 150 °C
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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 2M long external probe
Weight(g)	43

Packaging

One box contains 5 units of iBS03TP. Each unit has a main unit, a double sided tape, and 2 pc of stainless screws .



Revision History

DATE	REVISION	CHANGES
Dec 10, 2019	0a	Initial release
Aug 18, 2020	01	1. Add CE conformity declaration 2. Change packaging
Sep 11, 2020	01a	Enhanced main unit operation temperature from 70°C to 75°C

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 autre antenne 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.

DECLARATION OF CONFORMITY

EU RED - DIRECTIVE 2014/53/EU -
EU-LOW VOLTAGE DIRECTIVE 2014/35/EU -
EU EMC-DIRECTIVE 2014/30/EU -

This Declaration that the following designated product

Sensor Beacon
Model No.: iBS03TP
Brand Name: INGICS

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(Product identification)

complies with the essential requirements of the **EU RED - DIRECTIVE 2014/53/EU, EU-LOW VOLTAGE DIRECTIVE 2014/35/EU, EU EMC-DIRECTIVE 2014/30/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 2.2.1 (2019-03)	EN 300 328 (V 2.1.1, 2016-11)	EN 62368-1:2014+A11:2017
EN 301 489-17: V 3.2.0 (2017-03)	EN 62479 : 2010	
	EN 50663 : 2017	

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(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: 2020. 5.4