Specification
Ver.01

iBS03P Specification

iBS03P Waterproof Sensor Beacon

iBS03P is an IP67 waterproof BLE beacon with a wide range of temperature probes. The measurement ranges started from -100°C to +200°C.
iBS03P is a rugged design for working in tough conditions with 3.2 year of typical battery life in default settings (30s). The probe temperature sensor is 2 meters 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
- 1.5M of drop test verified
- Powered with 1XCR2450 battery
- Long battery life: close to 3.12 year in typical beacon RF setting(30s)
- Android APP for configuration
- Power on/off switch(internal)
- Main unit Size: 43mmx43mmx14.8mm
- Probe size: Cable length 2M, Probe sensor 100mm*4mm
- Main unit Operating temperature: -20°C to 75°C
- Probe Operating temperature: -100°C to +200°C
- Certificate: FCC/IC/TELEC ready, CE: June

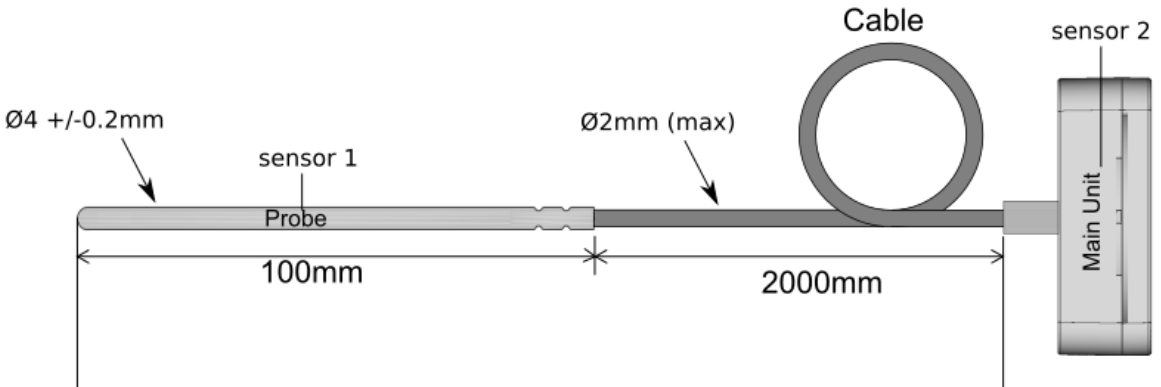
Sensor

- Main unit temperature sensor for environment monitoring
- PT100 probe temperature sensor for freezer or cold chain monitoring

RF

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

Temperature sensor position

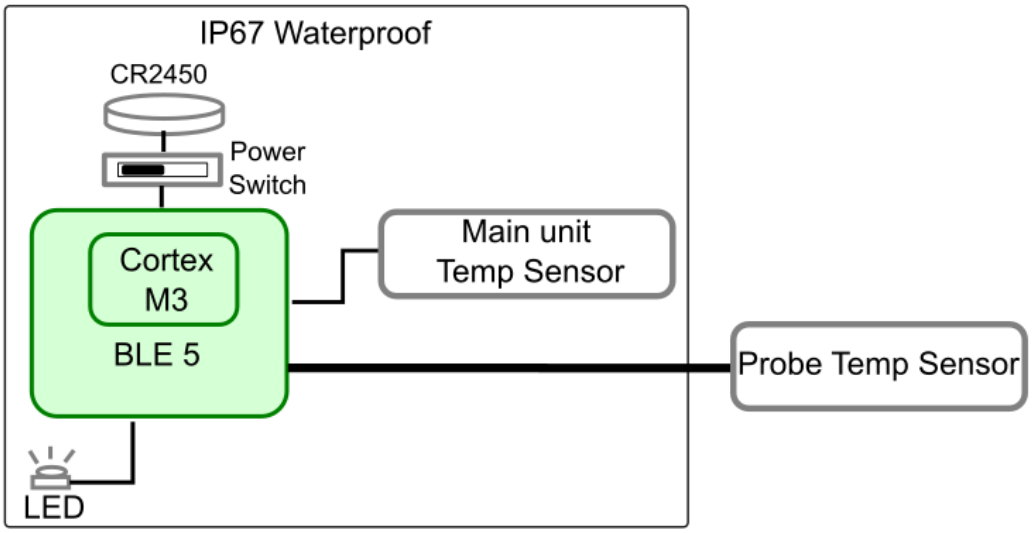


Working Temperature	-100°C ~200°C	-20°C~75°C
Accuracy	<±1°C,	<±0.32°C

Applications

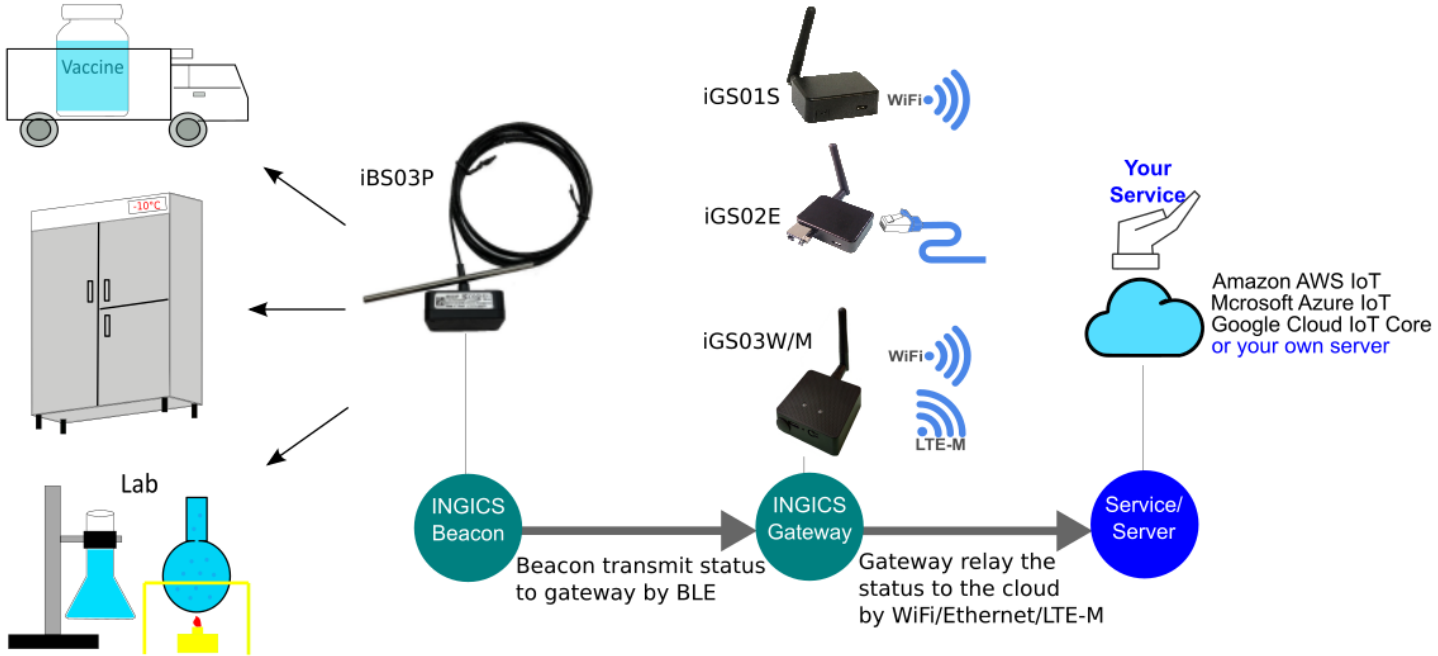
- Storage room temperature monitoring
- Refrigerator temperature monitoring
- Factory temperature monitoring
- Cold chain
- Laboratory
- Medical

Block Diagram



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), iGS02E(Ethernet), iGS03W(Wifi), iGS03M(LTE-M) that can be used as a receiver.



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 +200°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. 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 Whole unit: TBC
Response time	Typ. : TBC
Long term stability	Typ. : <=0.01 °C/yr

Probe Temperature Sensor Characteristic

Measurement Range	-100° to +200°Celsius
Temperature accuracy	+/-1 °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

Dimensions L x W x H (mm)	43 x 43 x 14.8 with 2M long external probe
Weight(g)	75

Packaging

TBD

Certification

Japan MIC Regulatory
211-180707

FCC Regulatory
2AH2IIBM40R2

IC Regulatory
21379-IBM40R2

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.

Revision History

DATE	REVISION	CHANGES
Jan 22, 2020	v0a	Initial release
Jun 3, 2021	v01	Update the content of the certification chapter