

Anti-tamper Beacon Specification

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1. Overview

1.1. Product Introduction

The Anti-tamper Beacon is based on Texas Instruments' CC2340 chip, specifically designed for ultra-low power applications. The Anti-tamper Beacon is directly powered by a CR2032 button battery. It features a built-in spring-loaded tamper-proof mechanism. Under normal installation, the tamper-proof switch is in the closed position. If the device is forcibly removed, an alarm is immediately triggered, releasing a specific advertising data packet. This effectively prevents asset theft or accidental relocation.

This compact and lightweight module is designed for Low Energy Bluetooth applications in asset management. It can be flexibly installed on various assets, with wide-ranging application scenarios covering healthcare, factories, warehouses, and commercial sectors. Its core purpose is to use low-cost, easy-to-deploy Tag to enable real-time asset location, intelligent inventory, tamper and misappropriation warnings, and tracking, helping enterprises reduce costs, increase efficiency, and implement refined asset management.

1.2. Key Features

- Real-time tracking and anti-loss for valuable assets
- Anti-tamper alarm
- Supports multi-channel advertising
- Powered by a non-removable CR2032 coin cell battery, which lasts over 5 years (20s+ adv interval, trigger an alarm once a day)
- 200m communication distance
- BLE 5.3 protocol
- Support SW/HW customization
- iBeacon / Eddystone / Custom advertising protocol



Front: Product information
+ laser engraving content

Note: Laser engraving content can be customized according to customer requirements

2. Anti-tamper Beacon Specifications

2.1. Anti-tamper Beacon Parameters

Hardware	Product Name	SR-234026PA3N
	Chipset	CC2340R
	Battery	CR2032 (220mAh)
	Sensor	NA
Product Spec	Material	ABS+PC
	Dimensions (L*W*H)	48 x 28 x 8.5 mm
	Weight	10.7g
	Color	White/Black
	Service Life	5 years (+5dBm/20s+ adv interval)
	Protection Level	Not waterproof
	Operating Temp.	-20~60°C
	Storage Temp.	-10~45°C (Battery characteristics)
	Bluetooth Version	BLE 5.3
	TX Power	-20dBm ~+8dBm (+5dBm on default)
	Button	Tamper switch
	OTA	Support
	Configuration APP	TTC-BLE
	Mounting	3M double-sided tape

2.2. Advertising Parameters

TX Power	+5dBm
Advertising Format	Custom advertising protocol
Normal Adv Mode	Burst mode advertising at 30 min intervals (burst of 10 advertisements 3 sec apart, total Adv duration of 30 sec). Tamper Proof Status 0x00 is normal.
Tamper Alarm Adv Mode	Pressing the tamper switch for more than 2 seconds and then releasing it will trigger 10 advertisements, each 3 seconds apart, total Adv duration of 30 sec. Tamper Proof Status 0x01 is demolished .

The default Advertising data format is custom advertising protocol. If you need other Advertising data formats, please contact TTC team.

Index	Value / Sample	Size (bytes)	Type	Description
0	0x02	1		Data Length
1	0x01	1		Flag data type
2	0x06	1		Flag data
3	xx	1		Data Length
4	0xFF	1		Manufacturer Specific
5	0x16	1		Frame type
6	0x00	1		Packet/FW version number
7-8	0x0B3B	2	little-endian	Battery voltage (mv)
9	0xE2	1		Tx power
10	0x00	1		Trigger Status
				Trigger type set to integer value. 0 = normal, 1 = tamper, 2 = shock
11	0xE2	1		Packet Counter
				It starts at 0 after a reset and is incremented after an advertisement and rolls over to 0 on overflow (reaching 255).
12-13	0x007F	2	little-endian	Temperature (Deg Celsius)
				127 if sensor is not available
14	0x7F	1		Humidity (%)
				127 if sensor is not available
15-20	0x0000000000	6	x: 2 bytes signed	Accelerometer (x,y,z)
			y: 2 bytes signed	
			z: 2 bytes signed	
21-22	0x0000	2	little-endian	Timestamp
				Time in seconds since a trigger interrupt is registered. At reset, the counter is set to 0 and held until an interrupt is received. Reset to zero on overflow, reset, or closing the Tamper button.
23	0x06	1		Name data length
24	0x09	1		Name type
25-29	0x5454435449	5		Name

2.3. System Support

System Support	Device Support
iOS 12.0+	iPhone 6 and later Apple phones
Android 5.0+	Samsung, Google, Motorola, Xiaomi, Huawei, Oppo, Vivo...

2.4. Dimension and Photo

Product appearance photo



2.5. Anti-tamper Beacon Usage Instructions

Normal Advertising Mode

The product is pre-configured to advertise upon power-on. Burst mode advertising at 30 min intervals (burst of 10 advertisements 3 sec apart).

(The device can be configured to be in a factory-off state. It can be activated by the tamper switch when in use. The default state is on. Please contact the TTC team if need this configuration.)

Tamper Alarm Advertising Mode

Pressing the tamper switch for more than 2 seconds and then releasing, it will trigger 10 advertisements, each 3 seconds apart, total Adv duration of 30 sec.

If the tamper button is not pressed again, the alarm will advertise at one-hour intervals.

OTA Upgrade

Please contact TTC team.

2.6. Deployment Instructions

3M double-sided tape installation

Materials	High	Aluminum, Stainless Steel, Copper, Zinc, Tin, Lead, Anodized Aluminum, Glass
Recommended for Installation	Middle	Polyimide, Phenolic Resin, Nylon, Polycarbonate, PVC, PPE, Acrylic, Polyester, Epoxy Paint, Polyurethane
Materials Not Recommended	Low	ABS, PVA, Ethylene-Vinyl Acetate Copolymer, Polyethylene, Polypropylene, Polystyrene, Acetal, PVDF Coatings, PVF, Silicone, PTFE

You can choose other high-performance double-sided tape (such as 3M VHB™, foam adhesive, etc.) or nail-free adhesive for installation. To ensure installation reliability

Application Requirements

Surface Cleaning:

Use isopropyl alcohol (IPA) to clean most substrates.

For heavily oily surfaces, clean with a degreaser or solvent first, then with IPA.

Porous surfaces (such as wood and concrete) should be sealed first.

Application Pressure:

Applying approximately 15 psi (100 kPa) of pressure is recommended to ensure adequate adhesion of the tape.

You can use a roller or flatbed to apply pressure; for rigid surfaces, multiple applications are recommended.

Application Temperature:

Ideal temperature: 21°C to 38°C (70°F to 100°F).

Minimum application temperature: 10°C (50°F). Below this temperature, the tape hardens, affecting initial adhesion.

Cure Time:

At room temperature:

20 minutes: Approximately 50% bond strength

24 hours: Approximately 90%

72 hours: 100%

Curing can be accelerated by heating to 66°C (150°F).

2.7. Precautions

1. The software of this Anti-tamper Beacon supports rich functions such as Bluetooth connection, Bluetooth scanning, Bluetooth advertising, data transparent transmission, serial port parameter configuration, and IO operation. If the finished product solution is used, only the Bluetooth advertising function needs to be focused on.

2. In actual use, product lifespan and transmission distance vary depending on the environment. Specific lifespans are subject to actual use.

3. To avoid degradation of keypad performance, it is recommended to minimize unnecessary disassembly and reassembly.

4. Do not operate the product beyond its specified operating temperature range, as this may cause product damage.

5. Do not disassemble the housing or attempt unauthorized repairs. The company shall not be held liable for any damage resulting from such actions.

2.8. Quality Assurance

International Standard Quality Management System

Our manufacturing facility is fully certified for ISO 9001 and IATF 16949 automotive quality management systems.

Fully Automated Production Line

Key processes utilize fully automated SMT placement and assembly technology to minimize human error and ensure product consistency and quality.

Multiple Quality Inspection Stages

Our production process includes three core stages: incoming material inspection (IQC), in-process inspection (IPQC), and final product inspection (FQC). Every Anti-Tamper Tag undergoes RF performance testing (transmit power, frequency deviation, sensitivity) and functional testing before shipment.

Specialized Reliability Testing

Samples are regularly taken from the production line for tests including, but not limited to, high and low temperature cycling, drop testing, and long-term continuous operation stress testing to verify durability under extreme operating conditions.

100% Factory Inspection

Every Anti-tamper Beacon undergoes a final comprehensive performance test before packaging to ensure that only 100% qualified products are delivered to customers.

International Standard Certification

The product can comply with certifications of relevant international standards, such as BQB, CE, FCC, RoHS, REACH, etc., to ensure that our products meet the requirements of the global market in terms of compliance, safety and environmental protection.

Warranty Policy: All Anti-tamper Beacon products offer a 12-month warranty from the date of shipment, excluding batteries and other accessories.

Quality Monitoring: We have established a product traceability system and continuously collect market feedback to drive continuous improvement and iteration of product quality.

Technical Support: Our professional technical support team provides comprehensive services, from device deployment and parameter configuration to troubleshooting, to ensure smooth project progress.

3. Version Description

3.1. Document Version

Document Version	Software Version	Document Revision Date	Document Revision Content
V1.0	V1.0	2025-10-25	Initial version
V1.1	V1.0	2026-02-25	Change the font

Note:

1. The document will be optimized and updated irregularly. Before using this document, please confirm it is the latest version;

4. Contact Us

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FCC Caution: 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. Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority

NOTE: 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. 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 or more 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. The device has been evaluated to meet general RF exposure