DESCARTES™

GTA003 User Manual

Specifications, device installation, compliance and safety information

Updated: 2025-09-15

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Revision History

Name	Date	Description	Version
MARIA	2025/09/15	Create document	1.0

Introduction

The Descartes GTA003 is a low-power, active Bluetooth Low Energy (BLE) beacon tag designed for real-time asset tracking and environmental monitoring in industrial and logistics environments. This user manual provides detailed instructions for deploying and operating the GTA003 in production settings.

The GTA003 utilizes the Nordic nRF52 series BLE module and transmits advertising packets every 6 seconds on BLE channels 37 (2402 MHz), 38 (2426 MHz), and 39 (2480 MHz). It is fully compatible with the Descartes IoT Reader network and the Descartes IoT mobile application, enabling seamless data collection and visualization.

Equipped with integrated sensors for temperature, humidity, atmospheric pressure, ambient light, and 3-axis acceleration, the GTA003 supports configurable periodic sampling (default: every 5 minutes) and internal data logging until offloaded. It also detects and records acceleration events that exceed a user-defined threshold, allowing for detailed monitoring of movement, rotation, drops, and impacts.

Estimated battery life is up to 3 years, depending on beaconing interval, sensor sampling frequency, and environmental conditions.

Specifications

Model: GTA003

Description: Bluetooth Low Energy (BLE) tag used to monitor movement of goods and equipment. Each tag is made up of an Nordic nRF52833 module and sensors encased in a housing with two lithium battery.

Battery:two ER14250 battery rated at 3.6V and 2400mAh.

Size: 76.2 mm x 53.6 mm 24.0 mm

Weight: < 40 Grams

Temperature Range: -40˚C to +125˚C

Power Consumption - Max: 37µA

Power Consumption - Sleep: ~TBD

Operational Life Running: Theoretical lifetime of >3 years. Managing various parameters via the Descartes IoT network can extend the life significantly.

Bluetooth Module

Bluetooth Module: Nordic nRF52833

Bluetooth Type:Bluetooth Low Energy 5.0

Bluetooth Sensitivity: -95dBm

Bluetooth Max Power Output: +4dBm (2.51mW)

Bluetooth Antenna: PCB antenna

Total Bluetooth EIMR: +6dBm (3.98mW)

Frequency Supported: 2.4GHz ISM, 40 BLE Channels & Adv. Ch. No. 37, 38, 39

Tag Sensors

Movement Sensor: Kionix KX134 is a tri-axis ±8g, ±16g, ±32g, ±64g accelerometer with digital output, selectable range motion detection, freefall detection, embedded engines for orientation and high-resolution threshold capability configurable down to 15.6mg.

Temperature/Humidity Sensor: TI SHT40 capacitive-based relative humidity and temperature digital sensor

Parameter	Test Condition	Accuracy	Unit
Humidity accuracy	10 to 80% rH	±2	% rH
	0 to 100% rH	±5	
Temperature accuracy	-10 to 95 °C	±0.5	°C
	-40 to 125 °C	±1	

Pressure Sensor: Bosch Sensortec BMP581 is a barometric pressure sensor which functions as a digital output barometer with a range 30kPa to 125 kPa absolute pressure range and an accuracy of ±0.05 kPa

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Transportation: Meets IATA Dangerous Goods Regulations 2015-2016 57th Edition (UN3091) Less than 4 lithium metal cells encased in equipment. No declaration required

Battery passed UN38.3 tests.

Transport: Descartes IoT BLE Tags transmit periodic Bluetooth advertisements. This is permissible whilst in transport in most situations including air freight.

Compliance

FCC Compliance Statement

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.

CAUTION: The grantee is not responsible for any changes or modifications not expressly approved by the party responsible for compliance. Such modifications could void the user's authority to operate the equipment.

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 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 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.

RF exposure statement

The device has been evaluated to meet general RF exposure requirement. The device can be used in portable exposure condition without restriction.

Manufacturer

Descartes Systems Group Inc.

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Website: www.descartes.com

Operating/Installation Instructions

1. Take a GTA003 and install inside a ULD or attached to cargo netting as shown in Fig2.

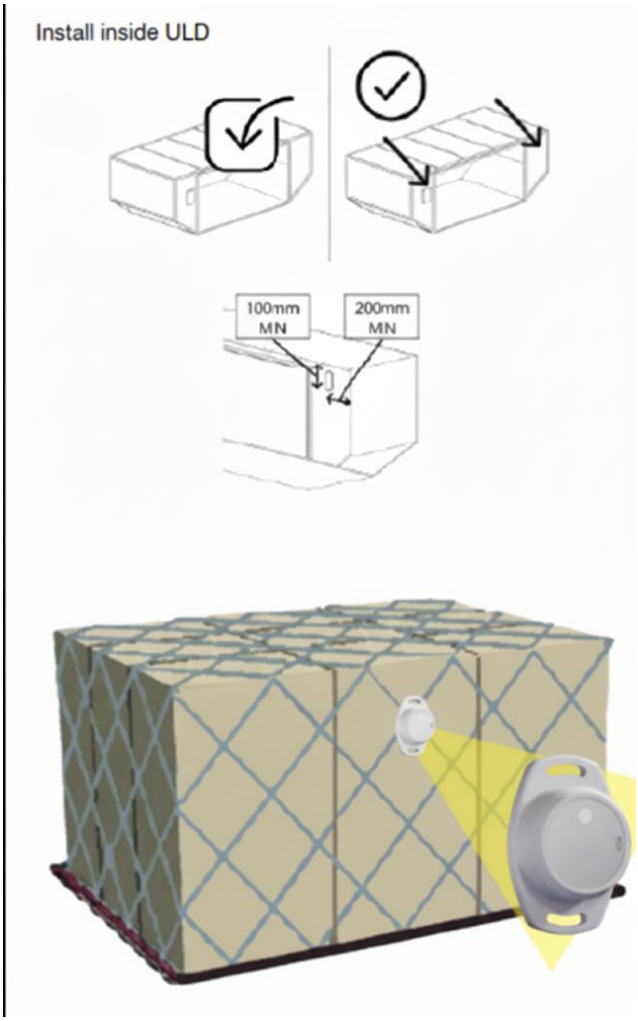
2. 

Figure 2- Installation of tags on ULD/Cargo Net

2. Tag placement in order to ensure that each GTA003 BLE Tag can be read in all working conditions, follow the placement and orientation instructions below. The aerial on the tag is located at the top of the device. When GTA003 tags are mounted, they should be mounted in the upright (vertical) position as shown in Fig 3.

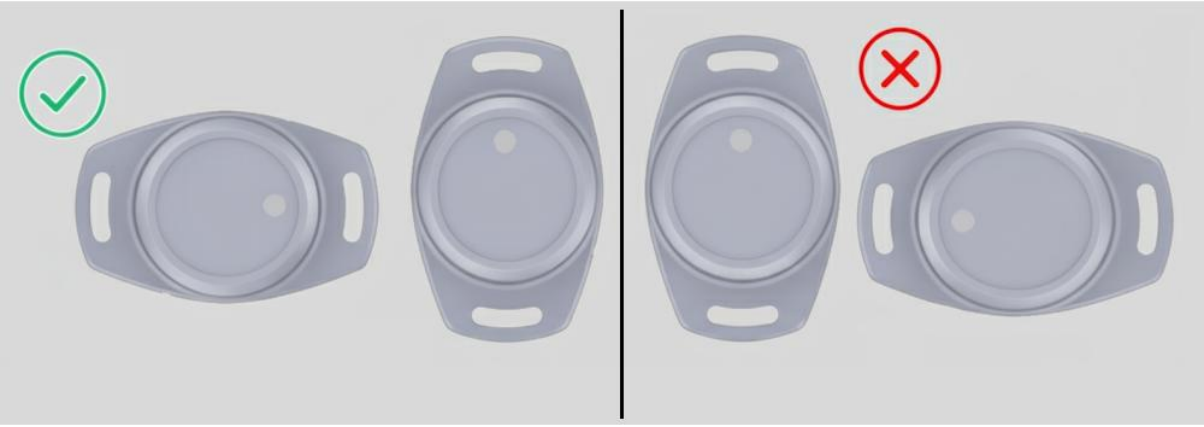


Figure 3-Tag Mounting Placement

3. When mounting the device can be mounted using rivets, bolts, self-tapping screws, very high bond (VHB) tape or

zip ties.

Please Note: BE SURE TO DOCUMENT THE SERIAL NUMBER

OF THE TAG AND EQUIPMENT NUMBER PRIOR TO INSTALLATION

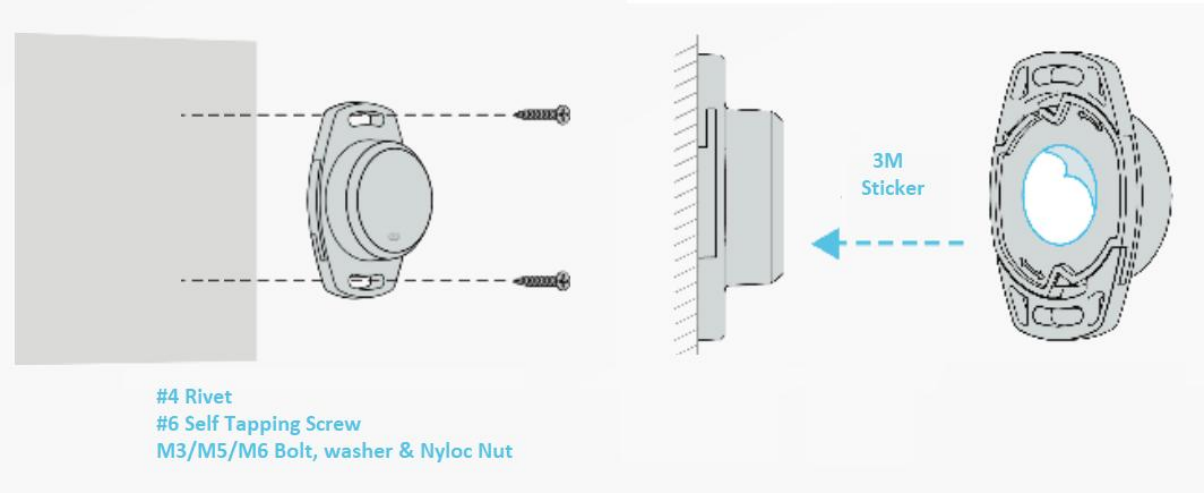


Figure 3-Mounting Options

4. GTA003 Tag Association/assignment: The GTA003 tag now must be associated with the equipment on which it is installed. This is done through the assignment process Via the Descartes IoT App which can be found on the Playstore or Via our website https://iot.descartes.com/