

Descartes IoT BLE Standard Tag STD003

Hardware Specification

Descartes IoT Bluetooth Low Energy (BLE) tags are not active advertising tags, they are passive until in range (approx. 60 to 100 meters) of a Descartes IoT Reader or Relay. The Descartes IoT Standard Tag is a BLE tag that listens for the presence of a Reader before transmitting its payload. Once a tag has communicated with a Reader it goes into a long sleep mode (neither listens nor transmits) for a period set by the Reader's instruction. In the absence of a Reader (i.e. in an aircraft) and once the long sleep duration has elapsed the tag will revert to short sleep mode, where it listens every few seconds for a Reader and will only connect if/once one is in range.

The Descartes IoT Standard tag includes sensors to further its capabilities. A movement sensor, to dynamically adjust sleep times and detect abnormal movement. Also, temperature/humidity and pressure sensors for when more accurate environmental data collection is needed.



Images are indicative only, actual product may vary

Tag Features

Name of the Product:	Descartes IoT Standard Tag
Model:	STD003
Description:	Bluetooth Low Energy (BLE) tag used to monitor movement of goods and equipment. Each tag is made up of an Ublox NINA-B112 module and sensors encased in a housing with one lithium thionyl chloride metal battery.
Battery:	One ER14505 battery rated at 3.6V and 2700mAh.
Size:	4.9" x 2" x 1" (124mm x 51mm x 26mm)
Weight:	< 3.5 oz (100 Grams)
Temperature Range:	-40°C to +80°C
Power Consumption - Max:	TBA

Power Consumption - Sleep: ~3.6 uA

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

Bluetooth Module

Bluetooth Module: Ublox NINA-B112

Bluetooth Type: Bluetooth Low Energy 5.0

Bluetooth Sensitivity: -95dBm

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

Bluetooth Antenna: +2dBi (1.58mW) SMD on Module ProAnt Antenna, Omni Directional

Total Bluetooth EIMR: +6dBm (3.98mW)

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

NFC: NFC Type4 - Used to read Tag ID for identification

Tag Sensors

Light Sensor: TI OPT3004 Ambient Light Sensor with IR Rejection

Movement Sensor: STMicroelectronics LIS2DH12 3-axis digital output motion sensor with selectable range motion detection, freefall detection and 4D/6D orientation detection

Temperature/Humidity Sensor: TI HDC2080 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: STMicroelectronics LPS22HBTR is a piezoresistive absolute pressure sensor which functions as a digital output barometer with a 260 to 1260 hPa absolute pressure range and an accuracy of ±1 hPa

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 do not transmit until connecting to a Core Reader. Since a Reader is not present during air or sea shipments, the tag is in a dormant state.

FAA: Meets turn on/turn off requirements, like personal electronic devices (PED).

Certifications:

Core Standard Tag (STD003)	Bluetooth	TBA
	FCC	Inherits NINA-B112 certification below
	IC	Inherits NINA-B112 certification below
	CE	Inherits NINA-B112 certification below
	RTCA/DO-160G	Remains below section 21 Category H levels
NINA-B112	FCC	XPYNINAB1
	IC	8595A-NINAB1
	CE / RoHS	See NINA-B1 Declaration of Conformity
	Japan Radio EC	Complies
	NCC Taiwan	CCAJ16LP6460T0
	KCC South Korea	MSIP-CRM-ULX-NINA-B112
	Anatel Brazil	MSIP-CRM-ULX-NINA-B112
	AS/NZS	Complies with AS/NZS 4268:2012/AMDT 1:2013
	ICASA	TA-2016/2760 APPROVED
	Bluetooth	D032220 (85618)