SmartTAG B200R Infosheet

Battery Operated IoT Sensor System with Bluetooth Low Energy.

Model	Wireless	Freq. / Power	Processor, Memory	Sensor Systems
SmartTAG B200R	Bluetooth LE 4.2	2.4GHz TX: +8dBm RX: +92dBm	32-bit ARM® Cortex®-M4, 40MHz, 32kB RAM, 256kB Flash	- Temperature - Acceleration/Motion

Scope of application

The conbee BLE **SmartTAG B200R** is ideally suited for IoT applications.

With its stable and ruggedized case and protection class IP69K it could be used for tracking scenarios in an industrial environment. At containers, load carriers, trailers, boxes and construction equipment it adds value to logistics and production processes.

It combines Bluetooth Low Energy with a set of sensors. The configurable TAG provides authentication features, is fraud-resistant and comes with a 3D-acceleration sensor, which can detect motion and orientation.

Regular advertisement packets are transmitted at a configurable interval and provide device status and sensor data. The data contains device identification, temperature and battery status.

Wireless

Bluetooth Low Energy (LE) 4.2 is a powerful radio interface. Live sensor data can be visualized on out smartphone/tablet app or can be forwarded to an IoT cloud platform. The **SmartTAG B200R** can also be parameterized through BLE and firmware updates can be performed over-the-air.

Operation

The **SmartTAG B200R** has no control elements and is being shipped fully functional. The default advertising is a unique ID and temperature at a 3 seconds interval.

Payload Structure

The SmartTAG B200R uses BLE advertising packets to send the following information at a default 3 second advertising rate and an RF output power of 8dBm.

- 6 byte serial number
- 2 byte temperature value
- 1 byte battery indicator

The payload data format is standardized among all conbee Smart TAGs. A detailed description is available on request.

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Technical Data

Electrical Characteristics

Symbol	Parameter	Condition	Min	Typ	Max	Unit
Vcc	Battery Voltage	2xCR2450	2.2	3.0		V
Icc	Power Consumption	Active Mode	0.05		5	mA
	(The power consumption strongly depends on CPU activity, as well as on active sensor systems, measurement and radio transmission intervals, etc. The values given are for reference only and can differ from practical application values.)	Sleep Mode		1.6		µA
T	Temperature Range	Standard Batteries	-20		+70	°C
		max. working range -40° to +85° C				

Sensor Parameters

Accelerometer	Range: Interval: Sensitivity:	+/-2g bis +/-16g 1Hz bis 5,3kHz up to 1mg
Temperature	Range: Accuracy:	-40°C bis +85°C ~ +/-3°C (+/-0.4°C opt.)

Note: The sensor parameters are data sheet values provided by the sensor manufacturer and might not be achieved in operation.

Mechanical Characteristics

Dimensions: 68mm(w) x 42mm(l) x 15mm(h)

Protection Class: IP69K

Battery Lifetime

The battery lifetime is strongly depending on the use case of the device. Measurement interval as well as BLE advertising rate and power output heavily influences internal battery current consumption. Environmental parameters like ambient temperature heavily influences available battery capacity.

The following estimation is based on a "standard" use case:

- advertising interval of 3 seconds
- power output of 8dBm
- temperature measurement interval of 60 seconds
- ambient room temperature

==> Battery lifetime is up to 3.5 years.

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