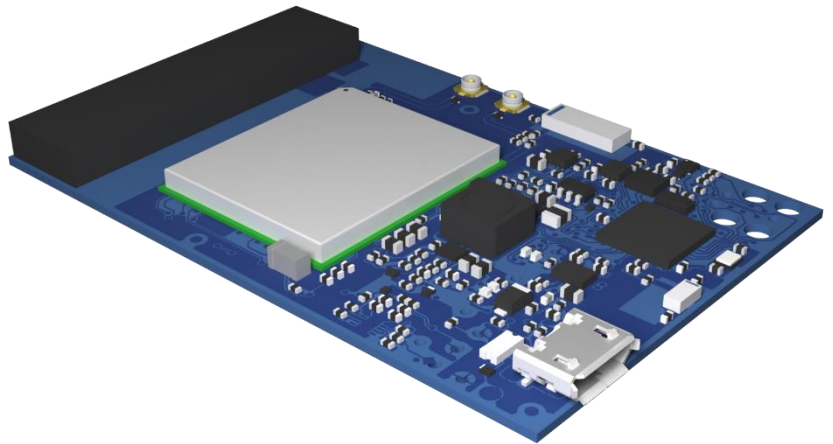


## Intrack R5 – Basic – IoT Platform

### 1. Overview

Intrack is a modular **Internet of Things** device that can be used for many purposes, generally and primarily as a tracking device for indoor and outdoor **positioning** but also for **environmental** and **inertial** measurements.

This ready-to-use module, focused on **battery-driven** applications, is based on the newest wireless technologies: **LPWA, GNSS, Bluetooth LE**.



### 2. Key features

- Battery and socket powered device
  - ◆ Ultra – Low Power Circuitry
  - ◆ Lifetime up to several years
- LPWA: NB – IoT/LTE Cat M1
  - ◆ PSM
  - ◆ eDRX
- BLE 5.2
  - ◆ BLE Indoor positioning
  - ◆ BLE Scanner and Advertiser
  - ◆ BLE Connections
- I2C/SPI/UART/USB/ADC available for external data for quicker PoC
- FOTA – Firmware Over The Air update
- Remote control over device behaviour
- Configurable working modes
- Rechargeable battery
- Movement/Activity detection
- Environmental measurements
- Variable message structure
- Cellular positioning
- GNSS outdoor positioning with improved fix times
- Remote and immediate access to the device

### 3. Applications

- Outdoor/Indoor tracking systems.
- Anti-theft and alarm systems.
- BLE IoT Gateway
- Environmental monitoring
- Indoor air quality measurements
- Smart city and buildings
- Movement detectors

## Intrack R5 Specification

### ELECTRICAL

Input Voltage		Power Consumption	
Typ.	3.0V	▪ Deep Sleep PSM	12[uA]* @ 3.3[V]
		▪ Deep Sleep eDRX NB-IoT	Typ. 600[uA] @ 3.3[V]
		▪ Deep Sleep eDRX CatM1	550[uA] @ 3.3[V]
Min.	1.7V	▪ Tx/Rx modes NB-IoT	178[mA] @ 3.3[V] & 21[dBm] & Band 20
		▪ Tx/Rx modes LTE CatM1	Mean 218[mA] @ 3.3[V] & 21[dBm] & Band 20
		▪ Rx mode GNSS	80[mA] @ 3.3[V]
Max.	3.6V	▪ Tx mode NB-IoT	Peak 457[mA] @ 3.3[V] & 21[dBm] & Band 20
		▪ Tx mode LTE CatM1	500[mA] @ 3.3[V] & 21[dBm] & Band 20

\*Depended on selected device configuration.

### GEOLOCATION

Constellation Support		Accuracy	Time To First Fix		
Out	Up to 2 concurrent GNSS constellations:		Cold start	Hot start	Assistance enabled
	▪ GPS	3.0m	35s	1.5s	1-10s
	▪ GLONASS				
	▪ Galileo				
	▪ BeiDou				

Technology		Range
In	BLE Beacons detection	0.1 ÷ 100 [m]
	Monitoring Inertial Sensor	Monitoring relative movements

### SENSORS

Environment			
Temperature	Accuracy	±0.2[°C]	@ Range: -40 to 125[°C]
Humidity	Accuracy	±2[%]	@ Range: 0 to 100[%]

Motion			
Accelerometer	Min sensitivity	187.5 [mg/digit]	@ Range: ±16 [g]
	Max sensitivity	15.6 [mg/digit]	@ Range: ±4 [g]
Magnetometer	Min sensitivity	0.85 [mg/digit]	@ Range: ±16 [g]
	Max sensitivity	0.15 [mg/digit]	@ Range: ±4 [g]
Gyroscope	Min sensitivity	0.06 [°/s /digit]	@ Range: 2000 [°/s]
	Max sensitivity	0.004 [°/s /digit]	@ Range: 125 [°/s]

### BATTERY

Capacity		Operating Temp.
Li-SOCl <sub>2</sub>	3500 [mAh] x num. of cells	-55 ÷ 80[°C]
	Device battery life extremely depends on the set use case.	<b>Example:</b> The 2-cell battery can survive up to 3 years with a device transmitting environmental data every 1 hours.
Li-Po	2000 [mAh]	-20 ÷ 60[°C]
		<b>Example:</b> The rechargeable battery can survive up to 1 year with a device transmitting environmental data every 1 hours.