

# Pebble Tracker

## Product Overview

Pebble Tracker is a secure, battery-operated, cellular-IoT platform designed for blockchain-based applications. Built around Nordic Semiconductor's latest



low-power nRF9160 System-in-Package (SiP) and driven by open-source firmware, Pebble Tracker is equipped with GPS support, a variety of rich sensors, NB-IoT/LTE-M connectivity, and advanced security features that make it ideal for sophisticated logistical applications where trust is paramount. In combination with the IoTeX blockchain, its on-board capabilities allow developers to design and build innovative, decentralized IoT solutions that go well beyond conventional asset tracking. Don't trust, verify!

Pebble Tracker is equipped with an expansive array of sensors – *internal/external GPS, climate (temperature, humidity, air pressure, air quality), motion (acceleration, angular velocity), and light intensity* – that deliver verifiably trustworthy insights about an asset's environment and movement. All data is cryptographically signed, making it verifiable and tamper-proof right from the source, and then transmitted in real-time to the IoTeX blockchain or MQTT endpoint of your choice. Pebble Tracker does the work of converting real-world phenomena into verifiable digital data so that you can focus on building innovative asset tracking, remote monitoring, and automation solutions! Whether you are interested in utilizing verifiable data, experimenting with secure hardware and IoT protocols, or diving into the world of blockchain + IoT, Pebble Tracker is the ideal platform for your next big idea.

# Product Specification

<b>Processing</b>	SiP	Nordic nRF9160
	CPU	ARM Cortex-M33 @ 64MHz
	RAM	256 KB
	Flash	1 MB
	Operating System	Zephyr OS
<b>Connectivity</b>	Modem	LTE-M/NB-IoT support in bands from 700 MHz to 2.2 GHz
	Cellular Band	FCC: B2, B4, B26, B66
	Coverage	Worldwide operation
<b>Security</b>	OS Boot	Secure boot
	Software Isolation	ARM TrustZone
	Application Security	ARM CryptoCell 310
	Firmware Update	Secure firmware over-the-air (FOTA) for application and modem
<b>Interface</b>	USB	MicroUSB (via FTDI UART Bridge)
	General Interface	12-bit, 200ksps ADC, SPI master/slave, I2C master/slave, UART, I2S, pulse width modulator (PWM)
<b>Sensors and Peripherals</b>	External GPS	AG3331/MT3333
	Environmental Sensor	Bosch BME680
	Motion Sensor	TDK InvenSense ICM-42605
	Ambient Light Sensor	AMS TSL2572
	Peripherals	Button, LED, Battery voltage reading
<b>Power Supply</b>	Battery	800 mAh rechargeable Li-Ion battery
<b>Physical Characteristics</b>	Size	65 x 45 x 17 mm
	Weight	55 g

## FCC Statement

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.

Caution: Any changes or modifications to this device not explicitly approved by manufacturer could void your authority to operate this equipment.

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.

### RF Exposure Information

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 25cm between the radiator and your body.

# Conformity Statements

Hyperconnect Lab Inc. hereby declares that this device is in compliance with Directive 2014/53/EU. The full text of the EU declaration of conformity is available at [pebble.iotex.io/compliance](http://pebble.iotex.io/compliance).

The Disposal of Electric & Electronic Equipment symbol indicates that this device should not be treated as household waste. Instead hand it over to the appropriate collection point for recycling of electrical and electronic equipment which will conserve natural resources.



Designed and Engineered in California by

Hyperconnect Lab Inc.

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