

1. Block Diagram

This module is based on nRF52840 Nordic Semiconductor 2.4GHz wireless System on Chip (SoC) integrating a 2.4 GHz transceiver, an ARM®Cortex® -M4 32-bit processor with 64 MHz FPU, a 1 MB flash memory, a 256 kB RAM and analog and digital peripherals.

It can support BLE, ANT/ANT+ and a range of proprietary 2.4 GHz protocols, such as Gazell from Nordic Semiconductor.

Fully qualified BLE stacks for nRF52840 are implemented in the S140 SoftDevices which can be freely downloaded. ISP1807 can then be used in Bluetooth Central, Peripheral, Observer or Broadcaster role with up to 20 connections and for both ends of other proprietary protocols. nRF52840 platform also provides extensive software support for ANT, ZIGBEE and THREAD applications.

Ultra-low power consumption and advanced power management enables battery lifetimes up to several years on a coin cell battery. Even though its very small size 8 x 8 x 1.0 mm, the module integrates decoupling capacitors, 32 MHz and 32.768 kHz crystals, load capacitors, DC-DC converter, RF matching circuit and antenna in addition to the wireless SoC.

Only the addition of a suitable DC power source is necessary for BLE / ANT / ZIGBEE / THREAD connectivity. Sensor applications require the further addition of appropriate sensors. The antenna was designed to be optimized with several standard ground plane sizes. The NFC tag antenna can be connected externally.

