

RENO

BT 5.4 + NFC-A Embedded Module

Description

RENO is a highly integrated **ultra-low-power** certified multi-protocol wireless radio module supporting full featured Bluetooth 5.4 (Bluetooth Low Energy) and NFC-A. RENO module is based on Nordic nRF52840 SoC. By integrating complete wireless hardware and software in a small form factor, this module enables users to add wireless with minimal host load and reduces the total system cost.

These fine-tuned certified RF modules deliver **high performance** for user devices. This globally certified module reduces user's time to market with integrated wireless stacks, network stack, and all the **advanced security features** (ARM Trust Zone Cryptocell-310). This module supports UART host interfaces for easy integration of the wireless connectivity in various Internet of Things verticals like Wearable's, Home automation, Industrial IoT and Smart medical.

Features

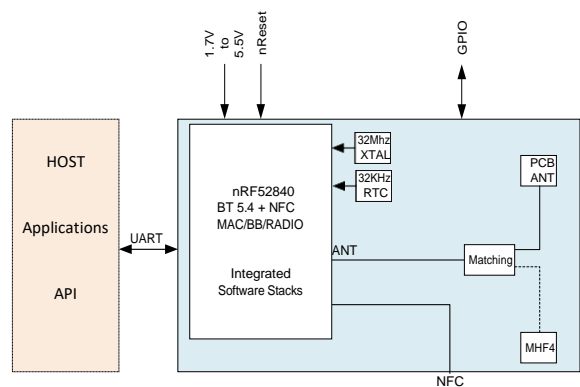
- ❖ Full featured Bluetooth Low Energy 5.4 (BLE)
- ❖ Support for UART to interface with host MCU.
- ❖ Easy to use AT commands set and Binary APIs to develop applications on host MCU with zero or negligible porting effort
- ❖ Support for AT commands for easy evaluation and Binary APIs for production
- ❖ Highlights of iVativ APIs and AT commands
 - Ready to use on all popular MCUs with zero or negligible porting effort
 - Seamless integration for RTOS or bare-metal based user application
 - Agnostic to underlying SoC / Chipset and it's respective SDKs / firmware
- ❖ Highly optimized hardware for ultra-low power consumption with excellent performance
- ❖ BLE secure connections and privacy
- ❖ ARM® Crypto Cell 310 cryptographic accelerator and AES 128 bit encryption
- ❖ Over the air device firmware upgrade (OTA DFU)
- ❖ NFC Tag A support



Footprint: 10 mm x 15 mm x 1.6 mm

- ❖ Personal fitness devices
- ❖ Wearable's for wireless payment
- ❖ Connected health
- ❖ Virtual/Augmented reality applications
- ❖ Smart home sensors and controllers
- ❖ Industrial IoT sensors and controllers
- ❖ Gaming controllers
- ❖ Asset trackers and Locating devices

Block Diagram



Specifications

Wireless Protocols	Bluetooth 5.4, NFC-A
Frequency	2.402 – 2.480 GHz
On-air Data rates	Bluetooth 5.4 - 2Mbps, 1Mbps, 500kbps, 125kbps NFC - 106kbps
Security Features	ARM Crypto Cell 310, 128-bit AES HW accelerator, Secure boot and all security features of BLE spec
Antenna options	PCB Trace Antenna or MHF4 connector
Operating modes	BLE, NFC
Programmable output power	-20dBm to +8dBm
Receive Sensitivity	Bluetooth 5.4: -103dBm at 125kbps -99dBm at 500kbps -96dBm at 1Mbps -92dBm at 2Mbps
Current consumption	450nA – Deep sleep mode 1.3µA – System standby mode 4.8mA – TX at 0dBm output power
NFC	NFC-A (Type 2) Tag with wake-on field - “Touch to pair” support
GPIO	33 configurable
Range	> 1400 meters
Power supply and operating voltage range	Integrated DC-DC, 1.7v to 5.5v
Temperature	-40°C to 85°C
Humidity	5-90% non-condensing
Package	10 mm x 15 mm x 1.6 mm (including shield), 0.5mm pitch

Interfaces and peripherals

- ❖ 1 x UART
- ❖ 33 GPIOs

Certifications and approvals

- ❖ Module certifications - FCC, IC, CE, TELEC
- ❖ Bluetooth qualification - v5.4 (Low Energy)

Part Ordering

RENO module	I540E0L0-I2LT (PCB Antenna, Tray packing) I540E0L0-I2LR (PCB Antenna, Tape/Reel packing) I540E0L0-I3LT (MHF4 connector, Tray packing) I540E0L0-I3LR (MHF4 connector, Tape/Reel packing)
RENO DVK	I540E0L0-2DVK (PCB Antenna) I540E0L0-3DVK (MHF4 connector)

Development Kit

DVK comes with the following major features:

- ❖ On board Segger Jlink interface
- ❖ Arduino Uno Revision 3 shield compatible connector
- ❖ Access to all I/O and interfaces via edge connectors and user programmable Buttons and LEDs
- ❖ NFC tag-A interface

Additional Information

For the latest collaterals, please visit <https://ivativ.com>