

RENO ZB

Zigbee + NFC-A Embedded Module

Description

RENO ZB is a highly integrated **ultra-low-power** certified wireless radio module supporting Zigbee protocol. RENO ZB 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 RF and certified 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 SPI and UART host interfaces for easy integration of the wireless connectivity in various Internet of Things verticals like Wearables, Home automation, Industrial IoT and Smart medical.

Features

- ❖ Zigbee SDK with industry proven ZBOSS 3.1 stack from DSR company
- ❖ Secured by 128 bit symmetric encryption keys.
- ❖ 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
 - Secure boot enabled
 - OTA FW update support
- ❖ Support for UART and SPI to interface with host MCU. AT commands support over UART and Binary APIs support over UART and SPI interfaces
- ❖ ARM® Crypto Cell 310 cryptographic accelerator and AES 128 bit encryption
- ❖ Over the air device firmware upgrade (OTA DFU)
- ❖ Maximum number of end children nodes which can be sleepy or non sleepy under a parent router which is always turned ON are 32

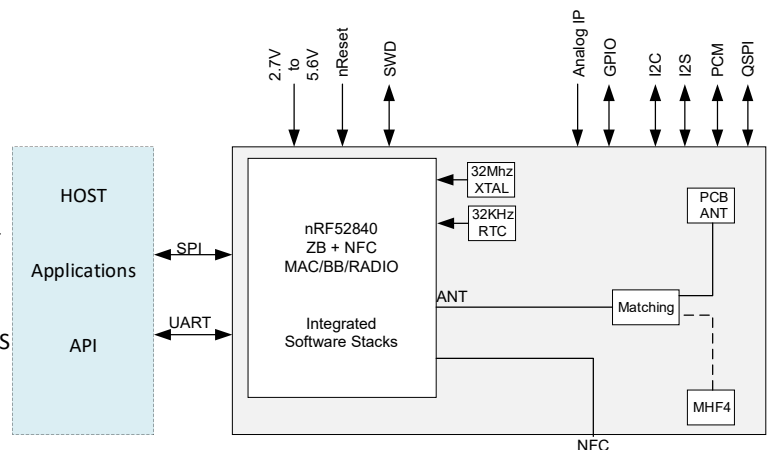


Footprint: 10 mm x 15 mm x 1.5 mm

Applications

- ❖ Light switches, home energy monitors, traffic management systems, consumer and industrial equipment
- ❖ Personal fitness devices
- ❖ Wearables for wireless payment
- ❖ Connected health
- ❖ Smart home sensors and controllers
- ❖ Industrial IoT sensors and controllers
- ❖ Asset trackers and Locating devices

Block Diagram



Specifications

Wireless Protocols	Zigbee
Frequency	2.402 – 2.480 GHz
On-air Data rates	802.15.4 - 250kbps
Zigbee Throughput	80kbps
Security Features	ARM CryptoCell 310, 128-bit AES HW accelerator, Secure boot
Antenna options	PCB Trace Antenna or MHF4 connector
Programmable output power	-20dBm to +8dBm
Receive Sensitivity	802.15.4: -100dBm at 250kbps
Current consumption	450nA – Deep sleep mode 1.3µA – System standby mode
GPIO	48 configurable
Range	10 - 100 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 1.5 mm (including shield), 0.5mm pitch
ZigBee 3.0 ZBOSS PRO stack	Supports coordinator, router, and end device roles

Interfaces and peripherals

- ❖ 2 x UART
- ❖ Up-to 4 x SPI master/ 3x SPI slave
- ❖ 2 x I2C master, 1 x I2C slave
- ❖ 1 x I2S
- ❖ 1 x PWM
- ❖ 1 x Quadrature decoder
- ❖ 1 x PDM
- ❖ 12bit, 8 x ADC channels
- ❖ 32-bit timers x 5, RTC x 3
- ❖ 20 channel programmable peripheral interface
- ❖ 1x USB

Certifications and approvals

- ❖ Module certifications - FCC, IC, CE
- ❖ Zigbee certified

Part Ordering

RENO ZB module	I540E0L8-I2LT (PCB Antenna, Tray packing)
	I540E0L8-I2LR (PCB Antenna, tape/Reel packing)
	I540E0L8-I3LT (MHF4 connector, Tray packing)
	I540E0L8-I3LR (MHF4 connector, Tape/Reel packing)
RENO ZB DVK	I540E0L8-2DVK (PCB Antenna)
	I540E0L8-3DVK (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

Additional Information

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