BMD-330

Bluetooth 5

Overview

Rigado's BMD-330 is a powerful, highly flexible, ultra-low power Bluetooth 5 module based on the nRF52810 SoC from Nordic Semiconductor. Featuring a common footprint, the BMD-330 completes Rigado's BMD-300 Series lineup with an optimized peripheral set that is attractive for a wide range of cost-sensitive applications.

The BMD-330 provides a complete RF solution allowing faster time-to-market with reduced development cost and provides full use of the nRF52810's capabilities and peripherals. With an internal DC-DC converter and intelligent power control the BMD-330 provides class-leading power efficiency, enabling ultra-low power sensitive applications. Carrying FCC, IC and CE certifications and Bluetooth qualification, the BMD-330 is ready to implement right away.

Bluetooth®

NORDIC SEMICONDUCTOR

Key Features

- Supports the key Bluetooth 5 features of high throughput and increased broadcast capacity
- Powerful & ultra-efficient 64MHz 32-bit ARM® Cortex™ M4 CPU and 192kB flash & 24kB RAM
- Highly flexible GPIO & a strong digital and analog peripheral set that can interact without the CPU
- Bluetooth qualified, FCC & IC certified, CE compliant

Quick Specifications

- Supply: 1.7V – 3.6V
- TX Power: +4dBm, 0 dBm @ 4.6mA
- Rx Sensitivity: -96 dBm @ 4.6mA
- Pins: 32 GPIO
- Interfaces: UART / I2C / SPI / PWM PDM / ADC
- Memory: 192kB Flash / 24kB RAM
- Dimensions: 14.0 x 9.8 x 1.9mm
- Operating Temp: -40°C to +85°C

Applications

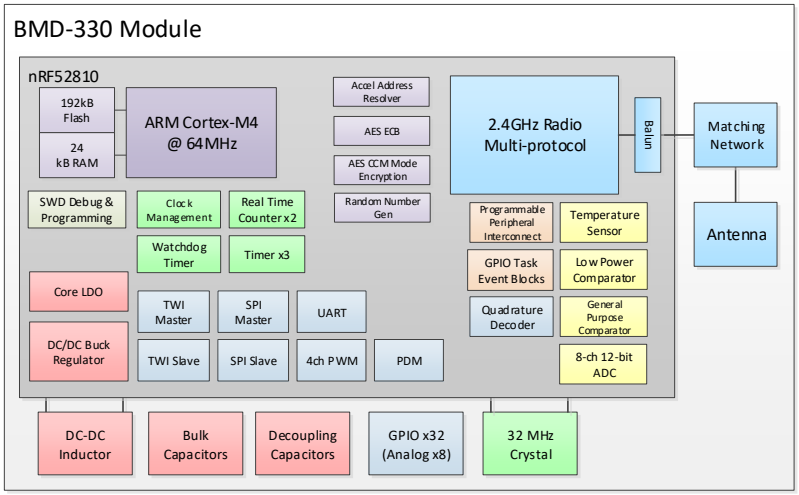
- Network Connectivity processor
- Smart RF Remotes
- App-cessories
- iBeacons™ / Proximity
- Fitness / Sports
- Smart Toys
- Connected Appliances
- Lighting Products
- Low-Power Sensor Networks
- Home & Building Automation
- Key Fobs/Wrist Watches
- Interactive Entertainment Devices
- Remote / Gaming Controls
- AirFuel Wireless Chargers

LEAD FREE RoHS COMPLIANT

RIGADO

www.rigado.com
3950 Fairview Industrial Dr SE Suite 100 Salem, Oregon 97302 USA
1.866.6RIGADO | +1 971.208.9870 | modules@rigado.com

Block Diagram



SoftDevices

The BMD-330 fully supports Nordic Semiconductor RF protocol stacks known as SoftDevices. They integrate a Bluetooth 5 LE controller and host, and provide a full and flexible API for building Bluetooth low energy technology System on Chip (SoC) solutions.

Evaluation Kit

The BMD-330 evaluation kit provides a great starting point for Bluetooth 5 Low Energy projects. It is designed for ease of use while still providing full access to the features of the BMD-330. The built-in USB programmer allows for easy programming and configuration. All the I/O are accessible and Arduino R3 form factor connectors support plug-and-play accessory shields.

Specifications

General	
Operating Temperature	-40°C to +85°C
Storage Temperature	-40°C to +125°C
Physical Dimensions	14.0 x 9.8 x 1.9mm
Operating Supply	1.7V to 3.6V
Material	RoHS compliant
MAC Address	Unique MAC address provided (in flash & on label)
2.4 GHz Transceiver	
SoftDevices	Bluetooth 5 LE Concurrent Peripheral / Central (S132)
	Bluetooth 5 LE Peripheral (112)
Frequency	2.360GHz to 2.500GHz
Modulations	GFSK at 1 Mbps (LE mode), 2 Mbps data rates
Transmit power	+4 dBm to -20 dBm (4 dB steps), -40 dBm whisper mode
Receiver sensitivity	-96 dBm (LE mode)
RSSI	1 dB resolution
Antenna	Integrated antenna
Approvals	
FCC	FCC part 15 modular qualification – FCC ID: 2AA9B09
IC	Industry Canada RSS-210 modular qualification – IC: 12208A-09
CE	EN 301 489-1 V2.1.1
	EN 301 489-17 V3.1.1
	EN 300 328 V2.1.1
Australia, New Zealand	AS/NZS 4268 :2012+AMDT 1:2013, Short range devices
Bluetooth	BT5 RF-PHY Component (Tested) – DID: D037298 QDID: 101625

Power Consumption	
Radio - Tx	7.0mA @ +4dBm, 4.6mA @ 0dBm
Radio - Rx	4.6mA @ 1Mbps (Bluetooth low energy technology mode)
CPU - running	37.5µA/MHz running from flash, 2.4mA @ 64MHz
	32.8µA/MHz running from RAM, 2.1mA @ 64MHz
CPU - off/idle	1.3µA in ON mode, with RTC
	0.8µA in ON mode, all blocks IDLE
	0.5µA in OFF mode, full 24kB RAM retention

Peripherals	
UART	1 block. 1200 baud to 1M baud, parity, CTS & RTS support
SPI Master	1 blocks. 125kHz to 8Mhz clock rates
SPI Slave	1 blocks. 125kHz to 8Mhz clock rates
TWI (I2C) Master	1 blocks. 100kHz to 400kHz clock rates
TWI (I2C) Slave	1 blocks. 100kHz to 400kHz clock rates
PDM	1 block. 2 microphones (left/right) 16kHz sample rate, 16-bit
ADC	8-ch, 12-bit @ 200ksps
PWM	1 block, 4 channels each.
GP Comparator	8-ch, VDD & internal ref, 64 levels
Temp. Sensor	Internal, -40°C to 85°C, +/- 4°C, 0.25°C resolution
GPIO	Input High: 0.7 x VDD, Input Low: 0.3 x VDD, 13kΩ pull-up/pull-down
Timers	3 x 32-bit timers and 2x 24-bit RTC with 12-bit prescaler, watchdog timer

Ordering Information

- Order a Development Kit
- Contact Us for pricing and ordering info

Part Number	*Description*
BMD-330-A-R	BMD-330 module, nRF52840-QIAA, integrated antenna
BMD-330-A-EVAL	BMD-330 Evaluation Kit with Segger programmer

Availability Information

- Status: Production
- Modules will be available through Digi-Key, Arrow, Future, and Mouser

Design Services

Rigado has an experienced team of software, electrical, and mechanical engineers that provide solutions to today's technological challenges. Whether you need a network of industrial sensors, or a complete product ready for mass production; Rigado can turn your ideas into reality.

DeviceOps™

Rigado DeviceOps is a cloud-based platform for device monitoring and secure firmware updates at scale

- Easily track active devices & firmware versions
- Identify & define groups of devices as targets for updates
- Upload new firmware and create rules for distribution
- Rollout updates with configurable tiers & fail-safe controls
- Leverage secure connections that scale to support millions of end-node devices