

# n-Core<sup>®</sup> Sirius B

Device for the development and deployment of IEEE 802.15.4/ZigBee networks

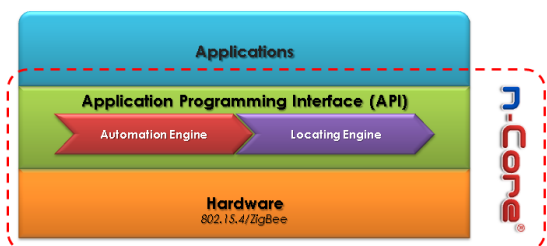
## Overview

The *Sirius B* is a radio-frequency device that offers a complete solution for deploying wireless networks based on the IEEE 802.15.4/ZigBee international standard in a simple and fast way.

Its slim design provides an extraordinary versatility to suit a wide range of applications, especially those where mobility and miniaturization are key factors. It offers several communication ports and I/O interfaces that allow integrating a great number of external devices, such as sensors, actuators or even computers, among many others.



The *Sirius B* device is part of the n-Core platform, developed by Nebusens. n-Core offers a complete set of hardware and software tools that can fit all your necessities when developing and deploying wireless networks based on the IEEE 802.15.4/ZigBee international standard.



## Main Features

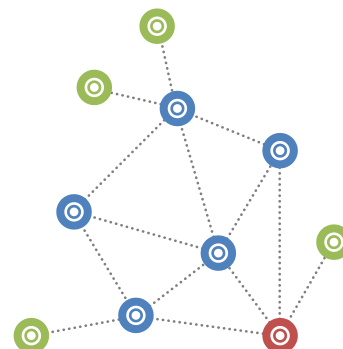
- High scalability thanks to the implementation of the IEEE 802.15.4/ZigBee™ international standard.
- Available in 900MHz and 2.4GHz bands.
- Sensitivity up to -110dBm\*
- Maximum output power up to +15dBm\*
- Long battery life (1300mAh)
- Input & Output interfaces:
  - Digital I/O ports.
  - General purpose IRQ push buttons.
  - SPI, I<sup>2</sup>C, ADC.
  - USB (Virtual Com Port), RS-232.
- Programming and debugging interfaces:
  - JTAG and USB.

## Benefits & Applications

The *Sirius B* is a completely wireless device that facilitates the development of different types of custom applications. It is a multipurpose solution with outstanding potential to create applications where mobility of users and objects is a key factor. The *Sirius B* is ideal for use in a multiple variety of applications, for example:

- Home automation.
- Industrial automation.
- Telemonitoring and telemetry.
- HVAC.
- Environmental monitoring and control.
- Security and surveillance applications.
- Logistics and asset tracking.
- Real-time locating.

These and other applications can be quickly deployed by using the dynamic and scalable mesh topology of the ZigBee™ international standard.



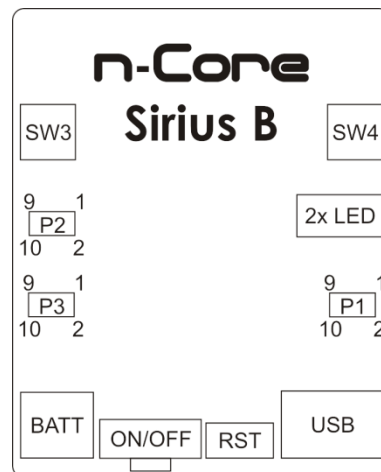
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## Technical Features

Electrical features	
Batteries power supply	3.7V (Incl. 1300mAh)
Mini-USB power supply	5V
Power switch	ON/OFF
Physical characteristics	
Dimensions	65 x 53 x 23 mm
Micro-controller	
Model	ATMEGA1281
Frequency	8MHz
Flash	128KB
RAM	8KB
EEPROM	4KB
External EEPROM	256KB (AT25F2048)
Radio	
900MHz	
Transceiver	AT86RF212
Frequency bands	868 to 868.6MHz (Europe) 902 to 928MHz (USA)
Number of channels	1 (Europe), 10 (USA)
Channel spacing (USA)	2 MHz
Maximum power transmission (software-controlled)	Up to +5dBm
Sensitivity	-110dBm
Data transmission rate	20 – 100Kbps (Europe) 40 – 250Kbps (USA)
2.4GHz	
Transceiver	AT86RF231
Frequency band	2405 to 2480MHz
Number of channels	16
Channel spacing	5MHz
Maximum power transmission (software-controlled)	+15dBm
Sensitivity	-101dBm
Data transmission rate	250Kbps
Connectivity	
UART through USB	Virtual Com Port
SPI	10-pin connector
I <sup>2</sup> C Master (pull-up)	
Programming port	Mini-JTAG
General purpose I/O (x8)	TTL compatible 0 – 3.5V, 50mA
Buttons (x2)	Connected to IRQs
LEDs (x2)	Red/Green

## Reference Schematics



## Development Tools

n-Core offers a complete C/C++ Application Programming Interface (API) to easily create end-user applications from any compatible Integrated Development Environment (IDE). n-Core also offers through this API **two powerful engines** that highly facilitates the development of specific applications:

- **Locating engine.** It offers additional functionalities for developing **Real-Time Locating Systems**. Includes powerful algorithms that calculate the position of any n-Core device with an exceptional accuracy, both indoors and outdoors.
- **Automation engine.** Control and monitoring of any sensor or actuator connected to the system. Consists of a set of dynamic link libraries (DLLs) with basic functions ranging from networking to automatic data collection.

## Contact Information



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