

# n-Core<sup>®</sup> Sirius Quantum 2.0

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

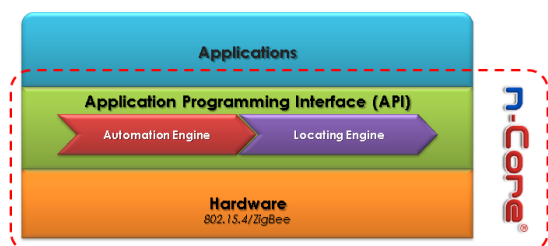
## Overview

The all-new **Sirius Quantum 2.0** is a radio-frequency device that offers a complete solution for deploying **wireless sensor networks and real-time locating systems** based on the IEEE 802.15.4/ZigBee™ international standard in a simple and fast way.

Its tiny design provides an extraordinary versatility to suit a wide range of applications, especially those where **mobility and miniaturization** are key factors. It includes **IP65 case** to protect the device against dust and water, a **tri-axial accelerometer** to detect lack of movement or falls, **Qi inductive charge**, as well as a **buzzer** to alert the user.



The new **Sirius Quantum 2.0** device is part of the **n-Core platform**, developed by Nebusens. The n-Core platform offers a complete set of hardware and software tools to fit all your necessities when developing and deploying wireless networks based on the international standard IEEE 802.15.4/ZigBee™.



## Main Features

- High scalability thanks to the implementation of the IEEE 802.15.4/ZigBee™ international standard.
- Very small form factor.
- Software selectable U.FL and ceramic antennas.
- Read range up to 500 meters.
- Sensitivity up to -100dBm.
- Maximum output power up to +22dBm.
- High precision **3-axis accelerometer**.
  - Detection of absence of movement.
  - Detection of possible falls.
- **Qi inductive charge**.
  - No cable required!
- **Button** to send alerts to the system.
- **Buzzer** to receive alerts from remote apps.
- Fully compatible with the n-Core Sirius family.
- Programming and updating interfaces:
  - JTAG and OTA (**Over The Air**).

## Benefits & Applications

The all-new **Sirius Quantum 2.0** is a full-featured wireless device that facilitates the development of different types of custom applications. It is a multipurpose solution with **an outstanding potential to create almost any kind of application**, especially where mobility of users and objects is a key factor. The **Sirius Quantum 2.0** is ideal for use in a multiple variety of applications, for example:

- Healthcare at hospitals or home retirements.
- In-home telecare.
- Safety of workers in industry.
- Location of guards and children in mall centers.
- Security and surveillance applications.
- Logistics and asset tracking.
- Access control systems.
- Real-time locating.

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

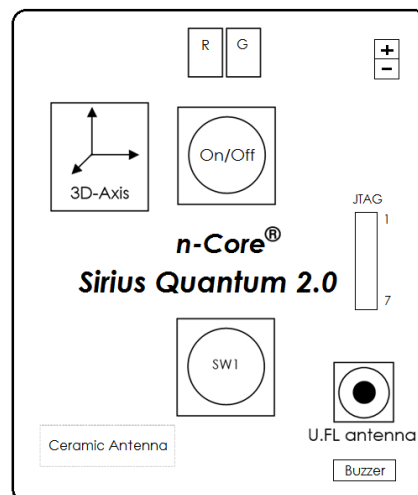
# n-Core<sup>®</sup> Sirius Quantum 2.0

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

## Technical Features

| Electrical features                   |  |
|---------------------------------------|--|
| Batteries Power Supply                | 3.7V   |
| External Power Supply                 | 3.2V - 5 V   |
| Power Switch                          | On / Off Button  |
| Physical characteristics              |  |
| Dimensions (mm) without enclosure     | 38 x 33 x 8  |
| Dimensions (mm) with enclosure        | 47.5 x 37.4 x 15.0   |
| Micro-controller                      |  |
| Model                                 | ATMEGA256RFR2  |
| Frequency                             | 16MHz  |
| Flash                                 | 256KB  |
| RAM                                   | 32KB   |
| EEPROM                                | 8KB  |
| Radio                                 |  |
| Frequency Band                        | 2405 to 2480MHz  |
| Number of Channels                    | 16   |
| Channel Spacing                       | 5MHz   |
| Tx Output Power (Software-controlled) | -11 to +22 dBm   |
| Rx Sensitivity                        | -100dBm  |
| Data Transmission Rate                | 250Kbps  |
| Connectivity                          |  |
| On Board Connectivity                 | <ul style="list-style-type: none"> <li>• JTAG</li> <li>• Power supply</li> </ul>                     |
| Programming Port                      | <ul style="list-style-type: none"> <li>• JTAG</li> <li>• OTA (Over The Air)</li> </ul>               |
| Buttons (x2)                          | <ul style="list-style-type: none"> <li>• Button connected to IRQ</li> <li>• On/Off Button</li> </ul> |
| LEDs (x2)                             | <ul style="list-style-type: none"> <li>• Red</li> <li>• Green</li> </ul>                             |

## Reference Schematics



## Development Tools

n-Core offers a complete Application Programming Interface (accessible from different platforms like C/C++, .Net or Java, under Windows and Linux) to easily create end-user applications from any compatible Integrated Development Environment. 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



info@nebusens.com  
[www.nebusens.com](http://www.nebusens.com)