



# **WIMOTO – BLE SMART DEVICE RELEASE NOTE – VER 0.2.0**

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## 1 Overview

Wimoto is developing a smart device which integrates many sensors for BLE Climate profile (Temperature, Humidity, and Light), Grow profile (Light, Soil Temperature, and Soil Moisture) and Sentry profile (Light, Temperature, and Humidity), Thermo profile and Water profile on Nordic semiconductor nRF51822 based hardware platform. This device can be configured and managed by corresponding app on mobile devices like iPhone, Android and a proprietary gateway.

This release contains both the Climate profile and Grow profile and the driver codes for TMP102, TMP006, and ISL29023, HTU21D, MMA7660FC and Analogue Soil moisture sensors.

This is the release note for Wimoto BLE Release ver 0.2.0 which contains support for BLE Climate profile and Grow profile with alarm notification and Mode switch characteristic.

### 1.1 Audience

This release is intended for engineering/ testing team of Wimoto.

### 1.2 Scope

This release is the second release in the series of incremental releases planned. This is intended for Wimoto's profile implementing.

The features supported in this release are listed in section 2

## 2 Release content

The Code for Incremental Release 2 has been pushed to the folder WimotoBle with the tag “Wimoto Incremental Release 2”

This release includes the following features:

serial#	Feature Name	Sub-Feature description
1	Base I/O functions	Basic Read/ Write functions for I2C
2	Driver for TMP102	Driver with required feature level abstraction APIs for TMP102
3	Driver for TMP006	Driver with required feature level abstraction APIs for TMP006
4	Driver for ISL29023	Driver with required feature level abstraction APIs for ISL29023
5	Driver for MMA7660FC	Driver with required feature level abstraction APIs for MMA7660FC
6	Driver for HTU21D	Driver with required feature level abstraction APIs for HTU21D
7	Driver for soil moisture sensor	Driver with required feature level abstraction APIs for soil moisture sensor
8	BLE broadcast framework	Read data provided by climate and grow profiles from sensors and advertise the same data in broadcast mode using the nRF51822 evaluation board
9	BLE peripheral service profiles	Advertise the alarm service characteristics provided by climate and grow profiles. The user can set a low value and high value and set an alarm
10	BLE alarm notification framework	for receiving alarm notification if the parameters are out of the range

The state machine implemented in the Incremental Release 2 is slightly different from the Incremental Release 1 due to recommendation from Nordic for improved and efficient design. The new state machine state diagram starts with connectable mode and remains there until a mode switch characteristics has been triggered from the central device, once it is triggered and the device is disconnected from central device the code enters to broadcast mode

## 3 System Requirements

The System requirements for testing this release are given below:

- Hardware - nRF51822 Evaluation board (PCA10001), development dongle (PCA10000), TMP102 temperature sensor
- Software - Keil uVision, Nordic SDK, Nordic Master Control Panel and nRFgo Studio

## 4 Fixed issues

- No issues reported so no issues fixed.

## 5 Known Issues

- 1Mhz square wave generation is not implemented in this current release, As we tested and generated 1MHz wave without using soft device, but faced some issues when soft device was enabled. This issue will be addressed in next release.
- In broadcast mode, it is possible to advertise only 3 parameters at a time, possibly due to maximum limit of data that can be advertised. So battery level is now not advertised. This issue will be addressed in the next release.

## 6 Installation Guide

### 6.1 Steps for installing Release and making the Test environment

1. *Download the Keil uVision project from GitHub*
2. *Copy the folder ble\_wimoto\_temp\_app to the nrf51822\Board\pca10001\ble folder in the nrf51\_sdk directory*
3. *Open the project, Check any library files or include files are missing from the project. If yes add those files from the Nordic SDK library folders*
4. *Build the project and download the code to the nRF51822 evaluation board*

The functional testing for the features mentioned in section 2 has been completed using the Nordic master control panel and emulator.