Application Note

Bluetooth LOW ENERGY
WIRELESS TEMPERATURE SENSOR

DATALOGGER USE AND SPECIFICATIONS

1 INTRODUCTION

This document describes how to use the Blue PUCK **T** & Blue COIN **T** datalogger and provides precise information for setting up the device using the ELA Device Manager configuration application.

2 APPLICABLE PRODUCT

Blue PUCK **T**
IDF25241

Blue COIN **T**
IDF10241

It is important to note that the above product list is not exhaustive. It reflects our product line of Bluetooth Low Energy (BLE) sensors with datalogging features at the time this document was written. Nonetheless, all our wireless BLE-enabled sensor products offering datalogging are based on the same principles.

3 OPERATION

Blue PUCK **T** & Blue COIN **T** are designed to provide temperature information.
Temperature data is included in the **BLE advertising frame**:

Name: Temperature

Type: org.bluetooth.characteristic.temperature Download / View

Assigned Number: 0x2A6E

Value Fields

Names	Field Requirement	Format	Minimum Value	Maximum Value	Additional Information
Temperature	Mandatory	sint16	N/A	N/A	None
Information:					
Unit is in degrees Celsius with a resolution of 0.01 degrees Celsius					
Unit:					
org.bluetooth.unit.thermodynamic_temperature.degree_celsius					
Exponent: Decimal, -2					

The temperature information contained in the advertising frame is also stored on the device. Device memory holds up to 4,000 values.

You may configure the time period for recording temperature values.

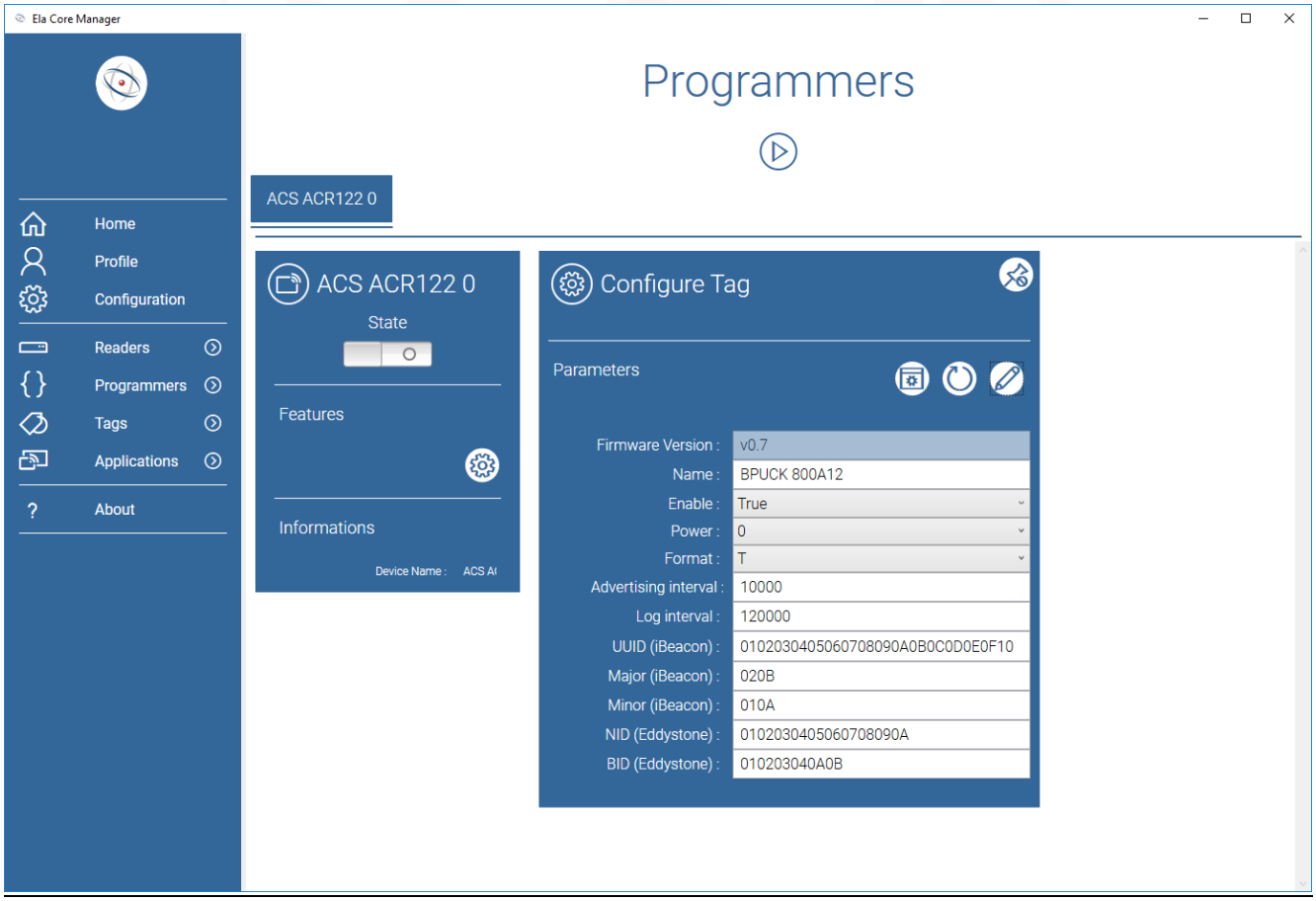
Note

Data storage is based on a **First-in First-Out** (FIFO) mechanism, with the most recent temperature value overwriting the oldest value when memory is full.

4 CONFIGURATION

4.1 Launch the **Device Manager** application

1. Click on **Programmers**
2. Select the NFC **reader connected to your PC** (the reader is detected automatically by the Windows Device Manager)
3. Place the **product on the reader**
4. **Read parameters** by clicking on
5. **Configure** settings as shown below, then click on



4.1.1 Information about temperature values

1. The value contained in the advertising frame at the interval configured in the field:

Intervale d'émission	10000

: 10000 ms corresponds to 10 seconds.

Value range in milliseconds: [100 ms ; 10000 ms] ; from 0.1s to 10s.

2. Temperature value recorded at the interval configured in the field:

Intervale de log :	120000

: 120000 ms corresponds to 120 seconds.

Value range in milliseconds: [10000 ms ; 86400000ms] ; from 10s to 24h.

⇨ **Summary**

- In the previous configuration example, the BLE frame is emitted once every 10 seconds and contains temperature information.
- That information is also recorded in device memory every 120 seconds.
- Recorded information is available at any time using the device in **Connected Mode**.

5 RETRIEVING STORED TEMPERATURE DATA

5.1 Connecting to an ELA Innovation BLE TAG

5.1.1 BLE Connected Mode to download data

- Using a BLE device that allows connections to other devices
- Using the NUS Service: Nordic UART Service (Tx and Rx characteristics)

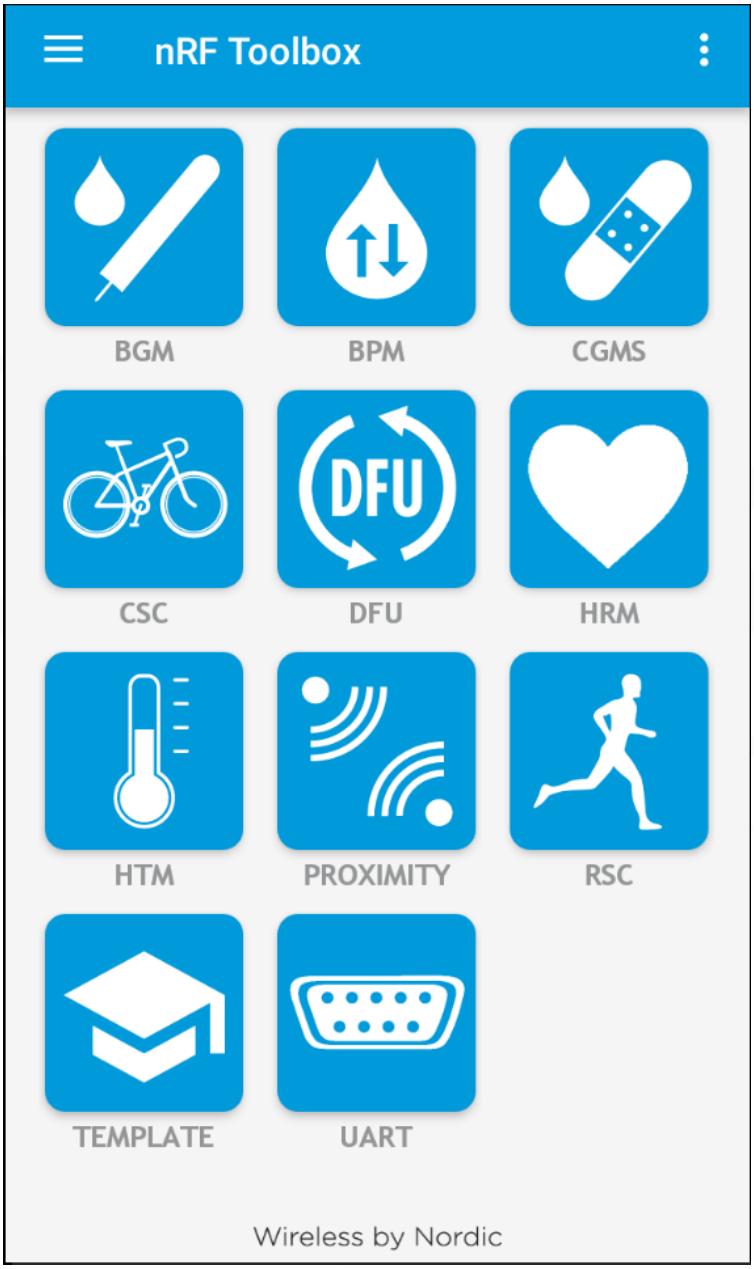
5.1.2 Tools

Here is an example of using an application to view stored temperature data.
Using the **nRF Toolbox application** on a smartphone.

Available on the Google Play Store.

5.1.3 Installation and use

1. Use the Play Store to **install** the **nRF Toolbox** application on your Android® smartphone
2. **Activate Bluetooth** on your smartphone
3. **Launch** the application

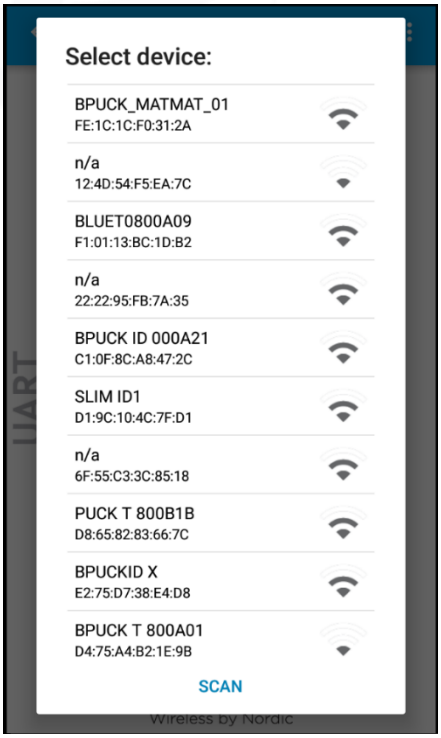


4. Launch the **UART widget**, which is the NUS service used to download data

5. The connection window is displayed

6. **Click** on **CONNECT**

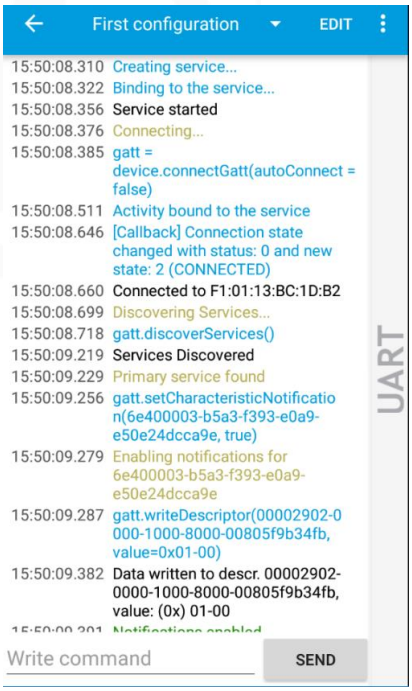
   - A list of **Bluetooth devices** appears



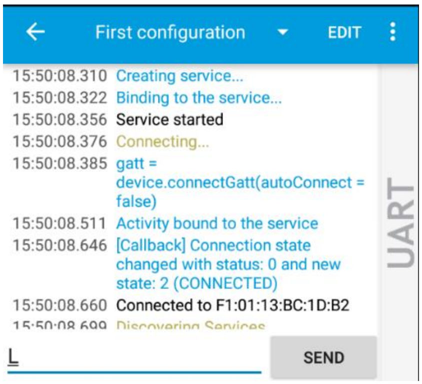
7. **Select** the **Bluetooth device** to which you want to connect, such as the above: BLUET0800A09

8. Once the smartphone is connected to the selected device, that device is shown as being **Connected**.

9. **Swipe** the screen **from left to right** with your finger to see the **UART** service terminal



10. Enter an "**L**" character in the **Write command** zone and tap on **SEND**

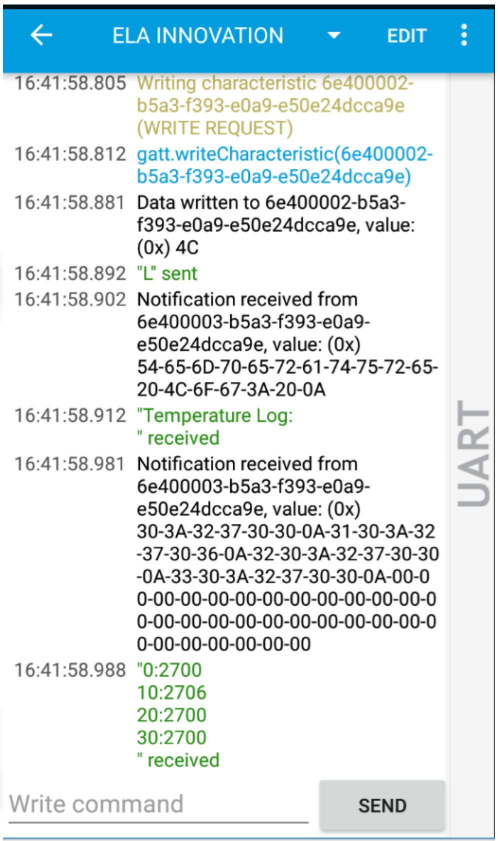


11. Temperature values are listed on the screen

- The following information is displayed in green:
"Interval Log": "Temperature"
"0:2700"
"10:2706"
"20:2700"
"30:2700"

- The log interval here is set to 10 seconds:

- **Scroll** through the terminal page by **swiping upwards** (bottom to top) with your finger to see all **recorded values**



Important: Remember to disconnect the device after transferring data
After all values have been retrieved, disconnect from the BLE device so that the device switches back to advertising mode and continues to record subsequent temperature values.

Note

- Recorded **values** are **automatically erased** following transmission after receiving the **"L"** command.
- **Values are not time-stamped**. We recommend using the time on the receiving system as T0.