

# Adeunis RF Bluetooth® BTC1 & 2 Starter Kit



**User Guide**

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# English

## Preliminary information

### Precautions

Like most evaluation kits, this product is designed for use in office and laboratory environments.

The following practices will help ensure its proper operation.

This product uses low power CMOS circuits which can be damaged by electrostatic discharge. Partially damaged circuits can function erroneously, leading to misleading results.  
Observe ESD precautions at all times when handling this product.

### Documents

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## 1. Product overview

This Starter Kit is designed to help the user to achieve his objectives as quickly as possible. The new generation of Adeunis RF starter kit consists on the addition of an Adeunis extension board (embedding the Bluetooth® module) and a Raisonance Open4 platform.

### Evaluate the Adeunis-RF products

The user can transfer data from one Starter Kit to another Starter Kit (or another device). This enables the user to quickly find out how well the Adeunis-RF products fit the intended application.

### Perform RF measurements

Through the Adeunis RF application software, running into the Open4 platform, the user can configure the radio module with custom parameters that suit the intended application and easily measure sensitivity, output power and other RF parameters.

- The documentation can be downloaded on the Adeunis website : [www.adeunis-rf.com](http://www.adeunis-rf.com)

## 2. Kit content

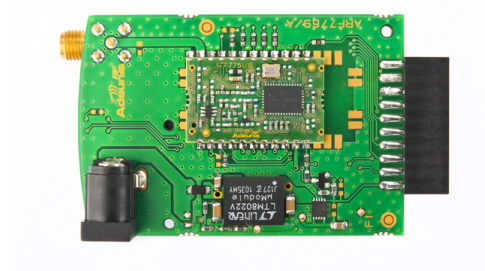
In order to perform tests with the Bluetooth® extension board, you must use at least one Raisonance Open4 platform (Sniffer test mode) or two platforms with extension boards if you wish to run a «TX/RX mode».

Each Extension board includes :

- 1 x Soldered Bluetooth® module (ARF7678BA or ARF7680BA).
- 1 x 2.4 GHz antenna
- 1 x User's guide

Each Open4 platform includes :

- 1 x USB cable



Adeunis RF  
Bluetooth® extension board

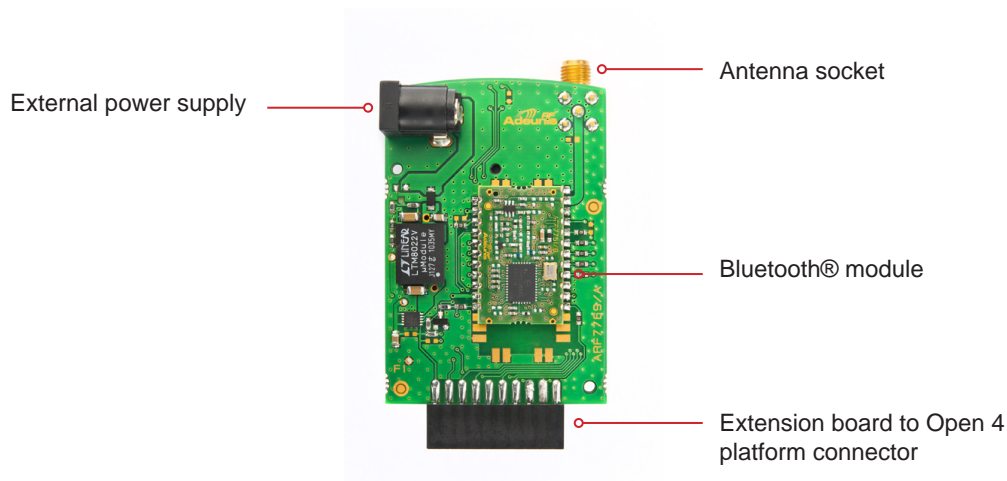


Adeunis RF  
Bluetooth® extension board  
&  
Raisonance Open4 platform

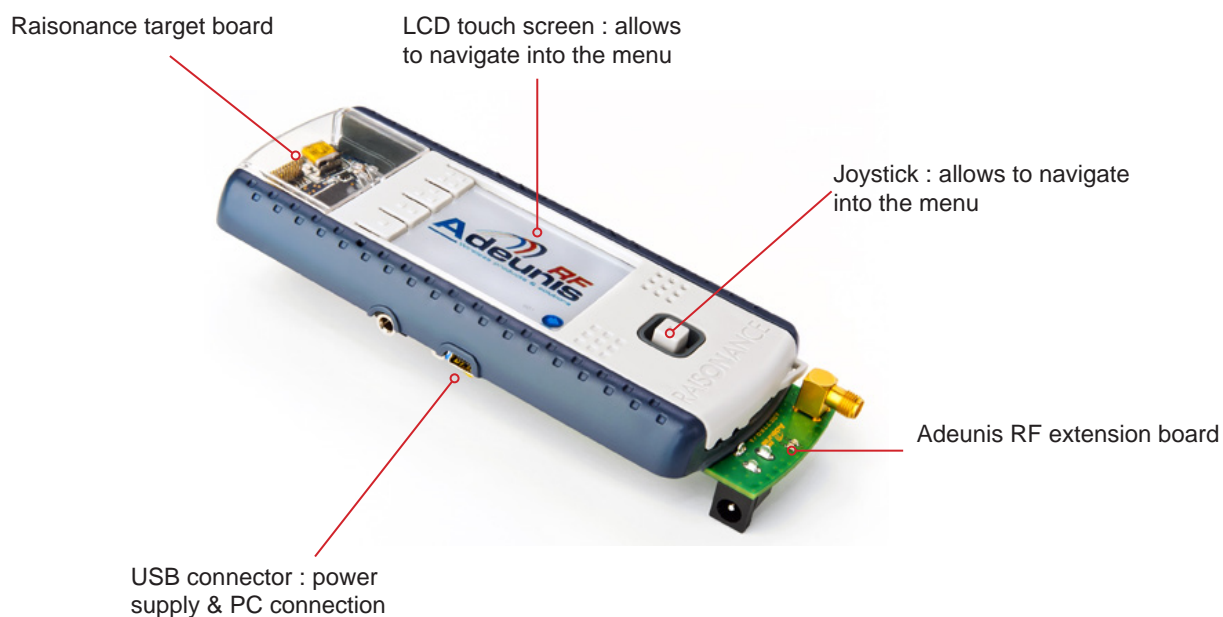
## 3. Getting around the Bluetooth® Starter Kit

The Adeunis RF extension board must be combined to the Raisonance Open4 platform to run the evaluation. The Open 4 platform embeds the Adeunis RF application software, the user's interface (LCD screen) and the battery, all mandatory to implement the Bluetooth® module.

### 3.1. Extension board overview



### 3.2. Open4 platform overview



All needed and usefull information can be found on the Raisonance website ([www.raisonance.com](http://www.raisonance.com)). User manual of the OPEN4 platform can be found here : [Open4 manual](#)

## 4. Before starting

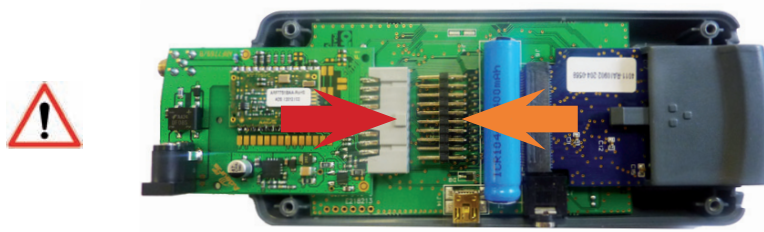
### 4.1. Connect the extension board to the Open4 platform

The extension board must be connected to the Open4 platform. Procedure :

- Unscrew the bottom case of the Open 4 by removing the four screws.



- Remove the bottom cover.
- Install the extension board as showed below. The module must faces you. Gently push on the extension (see red arrow) board to insure a proper connection. **Be very careful when proceeding. The extension socket must be held when inserting the extension board as showed with the orange arrow !!**

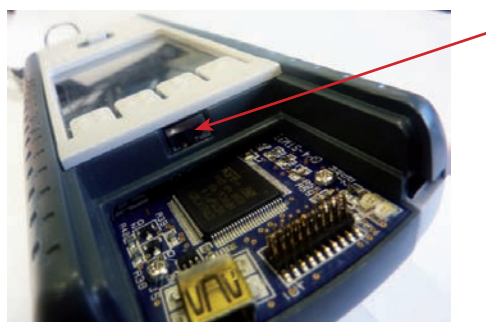


- Re-install the bottom cover and screws.
- Install the antenna on the extension board antenna socket.



### 4.2. Turn on the system

To turn on the system, you must activate the On/Off switch located above the target board. See picture below.



The Open4 platform must be charged before use. It can be charged on a PC through the USB cable supplied with the package. Note : the On/Off switch must be ON to allow the charge.

**Note concerning the power supply** : in the case of evaluating an Adeunis RF module functioning at 500mW, you may have to use an external power supply to run the maximum module power for more than an hour. The extension board is equipped with an external power supply socket (Jack 3.5). Please contact us for details and power supply specifications.

- When switching on the Starter kit, the system will first ask you to calibrate the screen, proceed.
- When the screen calibration has been done, press the «one dot» button to launch the Adeunis RF application.



## 5. Running the evaluation

The evaluation can be ran on two different roles :

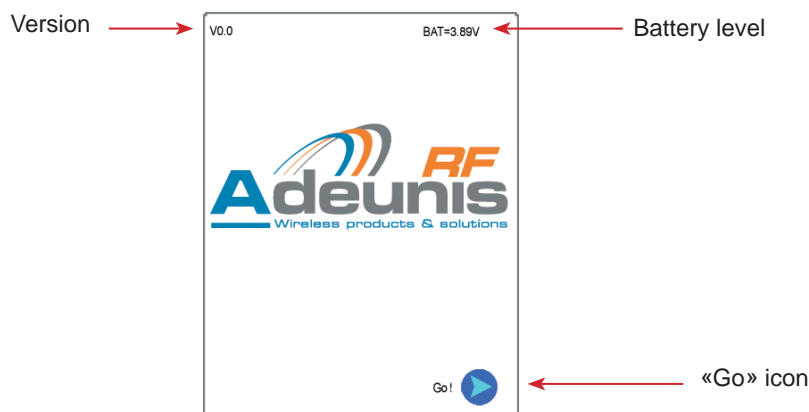
- Slave
- Master

### Set-up the Starter Kit

When the Adeunis RF application has been launched, the following screens will assist you in the set-up procedure.

#### 5.1. Start-up screen

The home screen shows the application software version and the battery level. Press «Go» to access the menu.





## 5.2. Home screen

The following screen allows to :

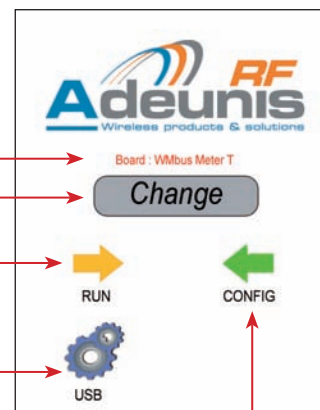
- select the type of module to be evaluated.
- modify the configuration.
- run the evaluation.
- switch to USB mode.

Module type & set-up

Module type selection

Run the evaluation

USB mode

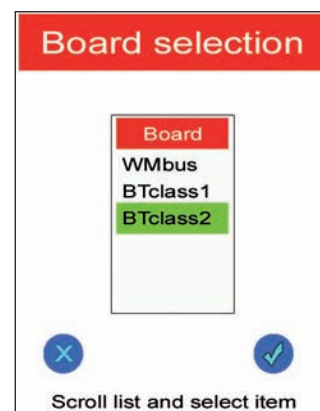


Set-up the module

## 5.3. Select the type of module

Press the «change» icon. A list of the available Adeunis RF extension board appears.

Select the proper board and press the «validate» icon.



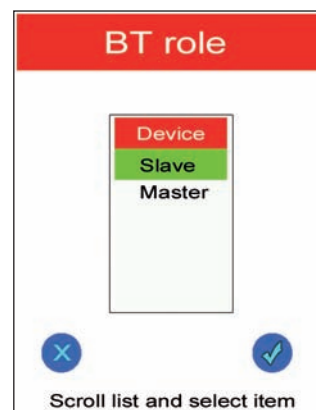
## 5.4. Modify the configuration

### 5.4.1 Bluetooth Role

Press the «Config» icon.

Choose the Bluetooth role : Slave or Master

Press the «validate» icon

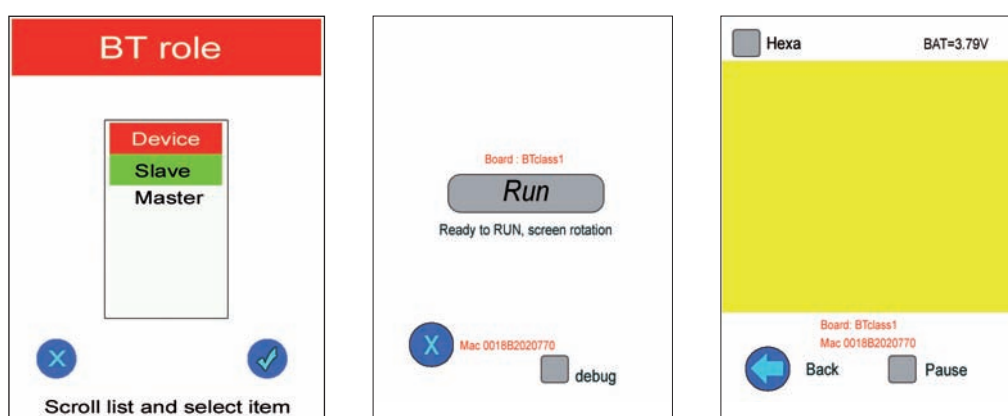


### 5.4.2 Slave role

The «Slave role» mode allows to adjust the Starter Kit so that it operates to receive an inquiry from another Bluetooth device :

When pressing the «Run» icon, the running screen appears and the frames sent by the master device are displayed. These frames are then sent back by the slave («echo» mode).

Note : When the evaluation is launched the Starter kit is showing a screen which displays the received frames. The frames can be display as Ascii or hexadecimal.

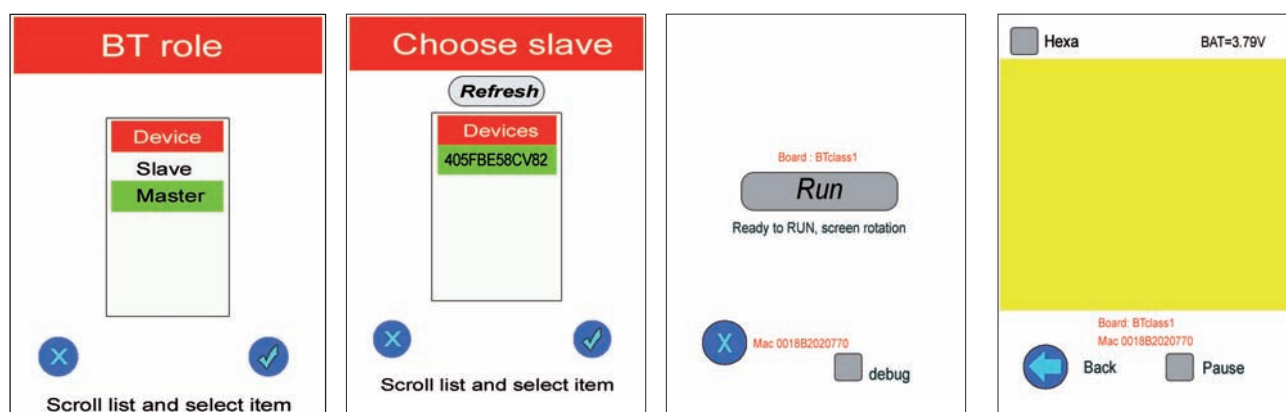


### 5.4.3 Master role

The «Master role» mode allows to adjust the Starter Kit so that it operates to send an inquiry to another Bluetooth device (slave). When the pairing has been done, the Bluetooth Starter kit sends frames which are received by the «other» device :

When choosing the «Master role», a screen allows to select a Bluetooth device (choose slave)

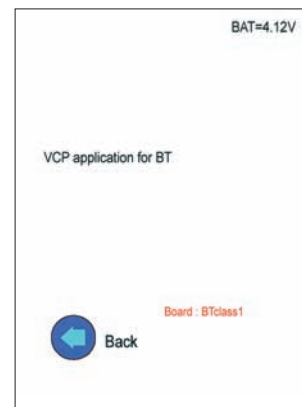
- «Refresh» icon : erases previous memorized devices and performs an inquiry (search for all available Bluetooth devices).



## 5.5. USB mode

The USB mode allows to connect the Extension board to a PC. It's mainly used for Data Logging.

- From the Home Screen, clic on the «USB» icon
- Connect the USB socket located on the target board (don't use the one from the Open4 platform) to a PC
- Check that the correct drivers are installed.
- The Open4 platform is now acting as a virtual port com (direct access to the Bluetooth® module at 9600 bps / Hardware flow control) and any type of Terminal can be used.
- To exit the «USB» mode, clic on the «Back» icon.



## 5.6. Running screen

When the evaluation is launched the Starter kit is showing a screen which displays the received frames. The frames can be display as Ascii or hexadecimal.

## 5.7. General notes

When the evaluation is launched, the LCD screen automatically turns 180°, meaning that the Starter kit must be handled with the antenna facing the top to maximize the performances.

Both «Slave & Master» modes are offering a «debug» function located on the «Run» screen. Select this function to check the configuration exchange through the UART.

## 6. Products references

Plateform	Part number
Open4 Plateform	ARF7868AA
Extension board + antenna + user's guide	Part number
Wireless M-Bus Extension Pack	ARF7863AA
BTC1-Bluetooth® Class 1 Extension Pack	ARF7861AA
BTC2-Bluetooth® Class 2 Extension Pack	ARF7862AA
TWIMO HP868 Extension Pack	ARF7864AA
TWIMO MP868 Extension Pack	ARF7865AA
NB169 Extension Pack	ARF7889AA
NB458 Extension Pack	ARF7890AA
NB868 Extension Pack	ARF7891AA

## 7. Declaration of conformity

**We** ADEUNIS RF,  
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**declare under our own responsibility that the products**

Name Bluetooth® Extension board  
Reference(s) ARF7861AA (including ARF7680BA module)  
ARF7862AA (including ARF7678BA module)

**to which this declaration refers conform with the relevant standards or other standardising documents**

- EN 301 489.
- EN 60950-1/2001
- EN 300-328

**According to** the RTTE Directive 99/5/EC

### Notes:

- Conformity has been evaluated according to the procedure described in Annex III of the RTTE directive
- Receiver class (if applicable): 3
- According to the 1999/519/EC "RF signals" recommendations, a minimum distance between the product and the body is required.

### Warnings :

- CE marking applies only to End Products . Because this equipment is only a subassembly, conformity testing has been reduced (equipment has been design in accordance to standards but full testing is impossible). Manufacturer of End Products, based on such a solution, has to insure full conformity to be able to CE label marking.
- As the integration of a radio module requires wireless technological knowledge, ADEUNIS RF proposes its technical proficiency to its customers for a pre-compliance qualification of end products. In case of no-conformity, ADEUNIS RF will not be held back responsible if this stage has not been realised.

Crolles, January 6th, 2012

VINCENT Hervé - CEO

