Adeunis RF
Wireless M-Bus
Starter Kit

User Guide

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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 Wireless M-Bus module) and a Raisonance Open4 platfom.

Evaluate the Adeunis-RF products
The user can transfer data from one Starter Kit to another Starter Kit. 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

2. Kit content

In order to perform tests with the Wireless M-Bus extension board, you must use at least one Raisonance Open4 plateform (Sniffer test mode) or two plateforms with extension boards if you wish to run «Standard mode» and «TX/RX mode».

Each Extension board includes :

- 1 x Soldered Wireless M-Bus module (ARF7751BA).
- 1 x 869 MHz antenna (LINX)
- 1 x User's guide

Each Open4 platform includes :

- 1 x USB cable

Adeunis RF
Wireless M-Bus extension board

Adeunis RF
Wireless M-Bus extension board
&
Raisonance Open4 platform

3. Getting around the Wireless M-Bus 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 Wireless M-Bus module.

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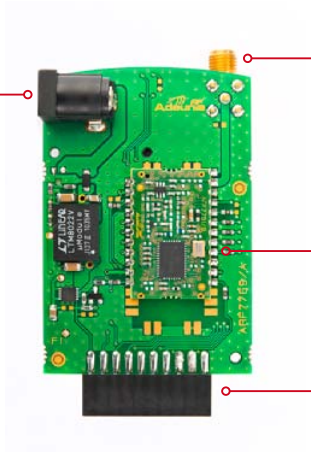
3.1. Extension board overview



3.2. Open4 platform overview

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

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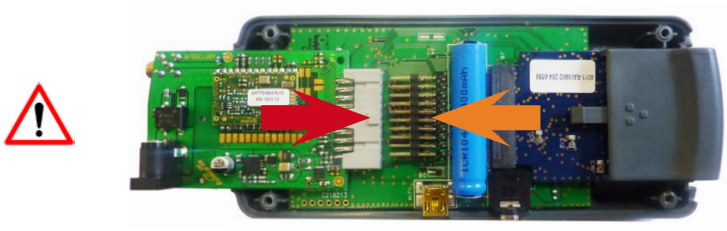
4. Before starting

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.

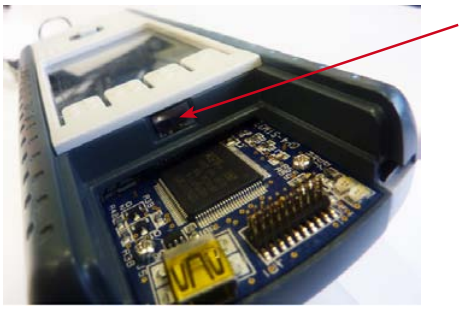
- Remove the bottom cover.
- Install the extension board as showed below. The module must faces you. Gently push on the extension (see red arrow) board to insure a proper connection. Be very careful when proceeding. The extension socket must be hold when inserting the extension board as showed with the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



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The Open4 platform must be charged before use. It can be charged on a PC through the USB cable supplied with the package.

Note concerning the power supply : in the case of evaluating an Adeunis RF module functionning 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 equiped 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

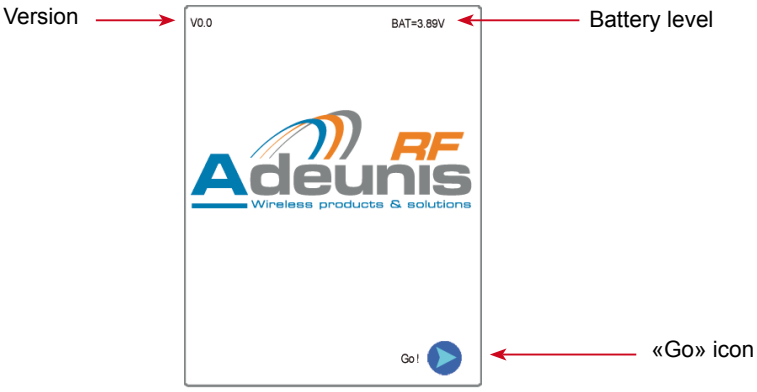
The evaluation can be ran on three different modes :
- Standard mode
- Sniffer mode
- TX/RX mode

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.



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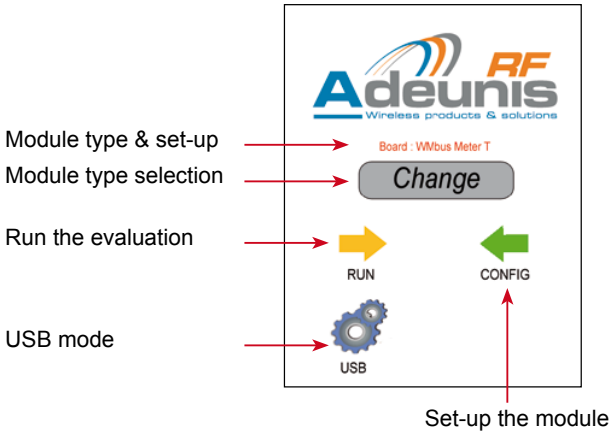
5.2. Home screen

The following screen allows to :

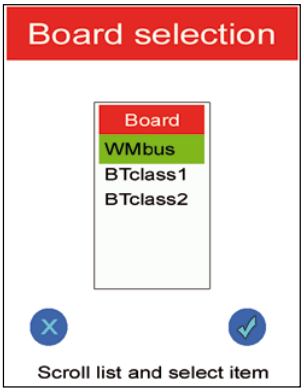
- select the type of module to be evaluated.
- modify the configuration.
- run the evaluation.
- switch to USB mode.



5.3. Select the type of module

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

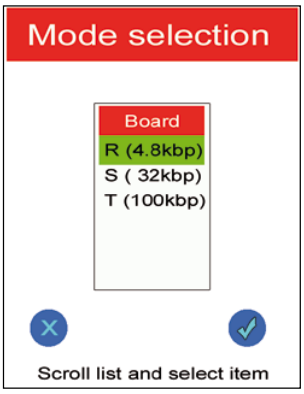
Select the proper board and press the «validate» icon.



5.4. Modify the configuration

5.4.1 Mode selection

Press the «Config» icon.
Choose the M-Bus mode : R (4.8kbps), S (32kbps) or T (100kbps)
Press the «validate» icon



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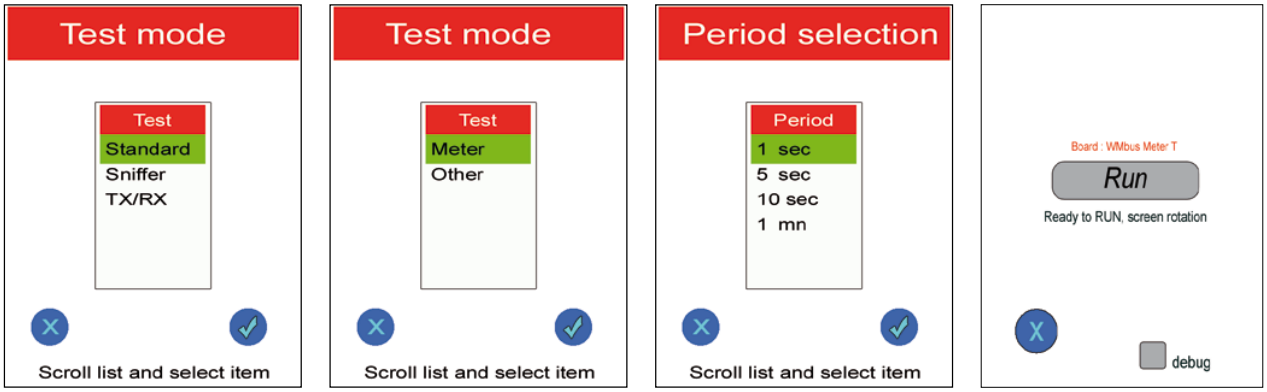
5.4.2 Test mode

The test mode allows to select how the module will operate. Three different modes can be ran :

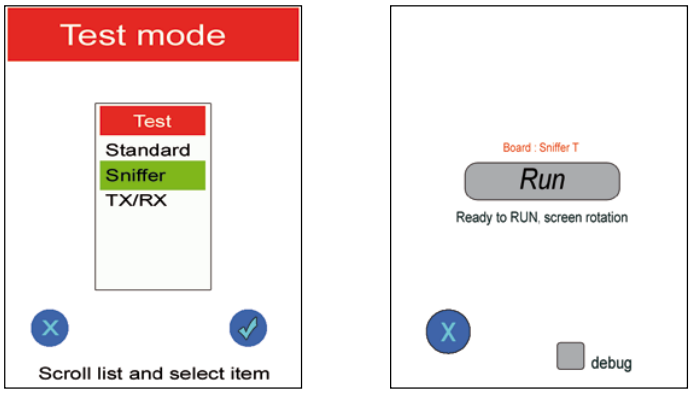
Standard mode : this mode allows to demonstrate the Adeunis RF module performance by affecting a role to each Starter Kit. One becomes a «meter» playing the role of a conventional meter (gas, water, electricity), the other one becomes an «other» (can be any kind of system which can receive the meter index).

- Choose and press the «validate» icon
- Chosse «meter» or «other»
- Choose the periodicity of the transmission : 1, 5, 10 sec or 1 mn
- Press the «Run» icon



Sniffer mode : this mode allows to demonstrate that the Adeunis RF W-MBus module can receive index from any type of meters. When the Sniffer mode has been chosen, the system scans the perimeter and detects MBus transmissions.

- Choose and press the «validate» icon
- Press the «Run» icon



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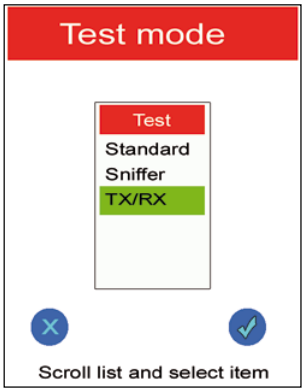
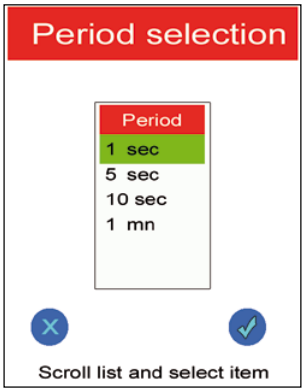
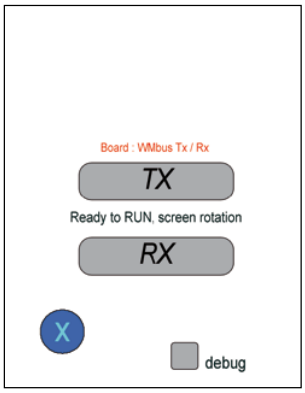
TX/RX mode : this mode allows a conventional «send/receive» function. The «TX» sends a frame and the «RX» receive it. Each «RX» and «TX» LCD show the frame structure, allowing to check the proper transmission. This mode is used to test the range covered by the Adeunis RF wireless M-Bus modules.

- Choose and press the «validate» icon
- Choose the periodicity of the transmission : 1, 5, 10 sec or 1 mn
- Press the «TX» or «RX» icon to run the transmission.

Note : this mode forces to select one Starter kit as «TX» and the other as «RX».



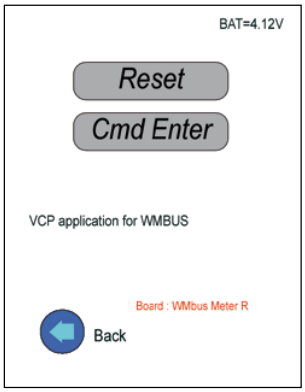




5.5. USB mode

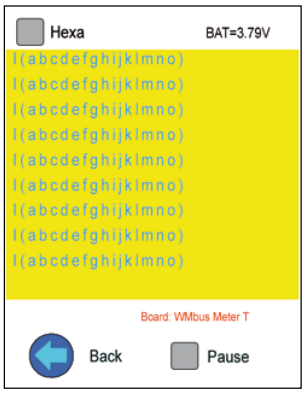
The USB mode allows to connect the Extension board to a PC. It's mainly used for Data Loggin.

- 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.
- Clic on «Reset» icon if you need to reset the module.
- Clic on «Cmd Enter» to enter command mode.
- The Open4 platform is now acting as a virtual port com (direct access to the Wireless M-Bus module at 115.2kbps) and any type of Terminal can be used.
- To exit the «USB» mode, press 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.



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5.7. General notes

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

Each of the three Test modes (Standard, Sniffer, TX/RX) 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 Wireless M-Bus Extension board
Reference(s) ARF7860BA (including ARF7751BA module)

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

- EN 300 220-2 (v2.3.1) (2010-02)
- EN 60950-1 (2001) + A11 (2004)
- EN 301 489-1 (v1.8.1) (2008-04)
- EN 301 489-3 (v1.4.1) (2002-08)
- EN 62311 (2008)

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

Crolles, January 6th, 2012 VINCENT Hervé - CEO

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