Manual AMB2561

Version 1.1

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1 Startup „Step-by-step"

1. Driver Installation

   The first step of the startup procedure of the USB Stick is to install the driver for the virtual COM Port.

   Therefor the installation zip archive for the USB IC, namely the FT231XQ, first has to be downloaded from the manufacturer website (FTDI [5]). Afterwards the extraction and installation according to the displayed guidelines takes place until the installation has successfully finished.

2. Plug in the USB-stick

   Now the USB stick can be connected to a free USB slot on the pc, the red power LED lights up. Windows automatically identifies the connected device. A Windows routine for the allocation of the driver starts automatically.

3. Serial Port

   The driver now creates a virtual serial port on your system with the following default port settings:

   - 38400 Baud, 8 data bits, no parity and 1 stop bit.

4. Using the stick

   Now the USB-Stick can be accessed via serial port as described in the AMB2520 manual [1].

5. Demo program [2]

   By the use two USB Sticks with the same RF settings (e.g. in default channel 79 / 2440,0MHz) and the demo program, it is possible to conduct a range measurement.

   The Demo program uses the default settings of 38400 baud 8n1 on the COM interface.

   For the range measurement the demo program has to be started for each USB stick respectively (e.g. the first stick on a PC and the second Stick on a Laptop). The corresponding COM-Port has to be opened.

   If the sticks are operated in close proximity of each other it may occur that the receiver amplifiers are overdriven which could result in failure of communication.

   By clicking on the button "Toggle Mode" both modules are set into "Command Mode". To start the signal strength measurement click on "Start RSSI test" on one of the demo programs.

   If the progress bar under the button "Start RSSI test" makes no further progress you can restart the measurement by a renewed click on "Start RSSI test".

   The stick has an internal LED to signal incoming data.

The detailed description of the configuration possibilities, operating modes, commands, etc. can be found in the manual [1].

A "high" level on the DTR line holds the module in reset state.

Some terminal programs automatically set the DTR line to "high" when opening the COM port, which prevents normal operation of the stick.

The signal level on the DTR line has to be set to "low".

2 Using the USB-Stick with a terminal program

Since not all terminal programs offer the possibility to configure the DTR line, it has to be mentioned that "Terminal.exe" is a program which does offer this necessary functionality. It can be downloaded free of charge from [3].

2.1 Example Terminal.exe

The program can be started directly after haven been downloaded and extracted onto your PC, without any further installation. In the upper left corner you can select the COM port (between COM1 and COM20). If the stick is assigned to a higher port number by Windows, you may follow the instructions under [4] to release COM ports that are not in use. Thereafter the remaining settings can be selected (38400 Baud, 8n1, no handshaking), and the COM port may be opened by clicking the "Connect" button. By clicking on the DTR LED (see red arrow) it is possible to switch the DTR line to "high" or to "low" (LED is gray). With DTR set to "low" the stick is now able to transmit the data which is entered in the "send" field at the bottom. The received data is displayed in the "Receive" field above.
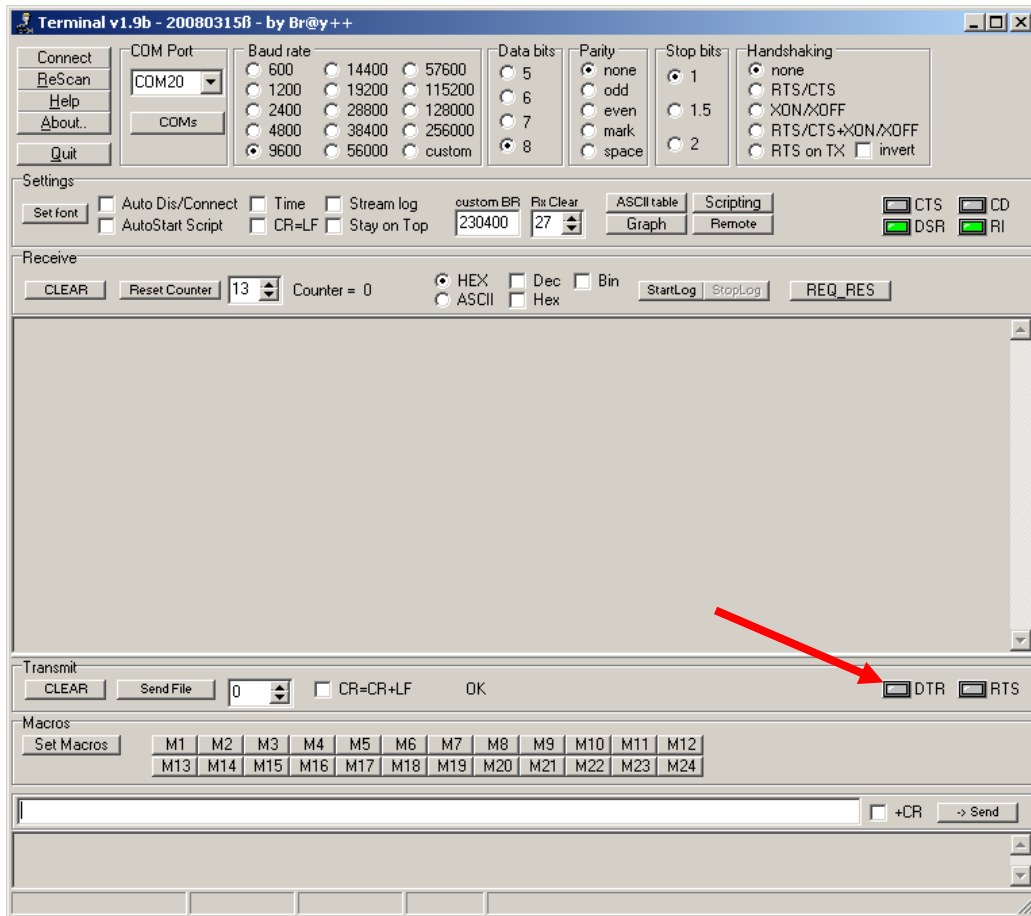
Terminal program

3   Using the configuration software "ACC"

The configuration software AMBER Config Center, ACC, is available for registered users [6]. The connection process is shown below:

1. Connect the USB-Stick to a free slot on your PC.

2. Determine the associated COM-Port in the device manager.

3. Start the ACC software and enter the correct COM-Port.

4. Click on "Connect".

…

5. Push "reset" button.

6. Now the module settings may be read and edited.

4 Disconnecting the DTR-Signal

If the reset functionality via the virtual COM port is not required or it causes problems with certain applications, then this connection can quite easily be removed.

For this the housing of the USB-stick has to be opened first. Now the DTR signal can be removed by desoldering one resistor (see picture below: package 0402). The reset button on the stick is not affected by this procedure. Finally the housing may be closed again.

5 References

[1] Download "AMB8420_AMB2520_MA" on http://amber-wireless.de/files/amb8420_2520_ma.pdf (Stand 29.01.14)

[2] Download "AMB8460 + AMB2560 Tools" http://amber-wireless.de/files/amb2560_amb8460_tools.zip (Stand 29.01.14)

[3] https://sites.google.com/site/terminalbpp/

[4] Download "AN02_COM-PORT_loeschen" on http://amber-wireless.de/files/an02_com-port_loeschen.pdf (Stand 29.01.14)

[5] Download on http://www.ftdichip.com/Drivers/VCP.htm (Date: 29.01.14)

[6] Download "ACC Software" on http://amber-wireless.de/files/acc.zip (Date: 29.01.14)

6   Regulatory compliance information

6.1 Important notice

The use of RF frequencies is limited by national regulations. The AMB2561(-1) has been designed to comply with the R&TTE directive 1999/5/EC of the European Union (EU).

The AMB2561(-1) can be operated without notification and free of charge in the area of the European Union. However, according to the R&TTE directive, restrictions (e.g. in terms of duty cycle or maximum allowed RF power) may apply.

AMB2561(-1) **Exemption clause**

Relevant regulation requirements are subject to change. AMBER wireless GmbH does not guarantee the accuracy of the before mentioned information. Directives, technical standards, procedural descriptions and the like may be interpreted differently by the national authorities. Equally, the national laws and restrictions may vary with the country. In case of doubt or uncertainty, we recommend that you consult with the authorities or official certification organizations of the relevant countries. AMBER wireless GmbH is exempt from any responsibilities or liabilities related to regulatory compliance.

6.2 FCC statement

FCC ID: R7TAMB2561

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation. (FCC 15.19)

Radio Frequency Interference (FCC 15.105)

This equipment has been tested and found to comply with the limits for Class B digital devices pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turnin the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.

- Increase the separation between the equipment and receiver.

- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

- Consult the dealer or an experienced radio/TV technician for help.

Modifications (FCC 15.21)

Caution: Changes or modifications for this equipment not expressly approved by AMBER wireless may void the user's authority to operate this equipment.

6.3 Declaration of Conformity

AMBER WIRELESS

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DECLARATION OF CONFORMITY
Directive 1999/5/EG (R&TTE)

The manufacturer: AMBER wireless GmbH
Rudi-Schillings-Straße 31
54296 Trier
Phone: +49.651.993.55-0

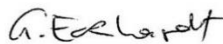declares on its sole responsibility, that the following product:

Type-designation: **AMB2561(-1)**

Intended purpose: 2.4 GHz USB-RF-Adapter

satisfies all the technical regulations applicable to the product within the scope of council directives 2006/95/EC, 2004/108/EC and 99/5/EC if used for its intended purpose and that the following norms, standards or documents have been applied:

EN 300 440 V1.6.1 (2010-08)
EN 301 489-1 V1.9.2 (2011-09)
EN 301 489-3 V1.6.1 (2013-08)
EN 62479 : 2010
EN 60950-1 : 2006 + A11 : 2009 + A1 : 2010

Trier, 16th of March
place and date of issue

Manufacturer/Authorized representative
Gudrun Eckhardt

7 Important Information

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