



USER MANUAL

WE UART TERMINAL

PC TOOL FOR WE WIRELESS
MODULES

VERSION 2.0

SEPTEMBER 12, 2024

WÜRTH ELEKTRONIK MORE THAN YOU EXPECT

Revision history

Manual version	SW version	Notes	Date
1.0	1.0.0.0	<ul style="list-style-type: none">• First release.	August 2019
1.4	1.2.2.0	<ul style="list-style-type: none">• Updated Software history.• Added new chapter Transparent mode.	May 2021
1.5	1.3.0.0	<ul style="list-style-type: none">• Updated Software history.• Added note on radio module Setebos-I.• Updated chapter System requirements.	May 2022
1.6	1.3.0.0	<ul style="list-style-type: none">• New corporate design.	May 2023
1.7	1.3.3.0	<ul style="list-style-type: none">• Updated Software history.	February 2024
2.0	2.0.0.0	<ul style="list-style-type: none">• Renamed Smart Commander into WE UART Terminal.• Updated Software history.	September 2024

★ Please also check the chapter Software history.

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1 Overview

The WE UART Terminal [1] is an easy-to-use PC software for Windows that enables complete control of the Würth Elektronik eiSos wireless modules via the command interface. It replaces the well-known **Smart commander** PC tool.

The WE UART Terminal offers an intuitive graphical user interface that enables the user to interact with the wireless modules and understand the communication protocol between the module and a host device using the **command interface**.

Additionally, the WE UART Terminal allows to transfer payload data to the wireless modules in transparent mode.

The WE UART Terminal works out-of-the-box with the Würth Elektronik eiSos wireless module EV-Boards and USB sticks. This tool along with the EV-Boards allow quick prototyping and testing of various features of the radio modules.



WE UART Terminal is an evaluation tool that is intended for development purposes only. It is recommended to check regularly for available updates [1].

1.1 Supported devices

The WE UART Terminal establishes communication with the radio module by opening a virtual COM port on the PC. The Würth Elektronik eiSos radio evaluation platforms have a serial-to-USB converter on-board that enables such a connection via USB port to the PC. The WE UART Terminal has been developed and tested with these evaluation platforms. The tool implements the complete set of commands supported by the corresponding radio module.

1.2 System requirements

This tool is intended to run on a PC with the following requirements:

1.2.1 Supported operating systems

The following operating systems are supported:

- Windows 10, 64 bit

1.2.2 .NET

Version 6.0.2 or later of Microsoft .NET is required for using the WE UART Terminal. Install this software package in case you receive the corresponding error message when starting the program.

1.2.3 Internet connection

The tool works completely offline without the need for any sort of internet connection.

1.3 Installation

The WE UART Terminal itself is an executable and does not require installation. It will create folders and files on the hard drive e.g. for log file storing.

However, the serial-to-USB FTDI converter chip (i.e. **FT232R**) on the evaluation platform or USB dongles requires special drivers to be installed for proper operation.

To use USB dongles or EV-Boards of Würth Elektronik eiSos wireless connectivity modules, the Virtual COM Port (VCP) drivers have to be installed by following the "Installation Guides" of FTDI available under: <https://www.ftdichip.com/Drivers/VCP.htm>



It is recommended to restart the PC after the installation of drivers.

1.4 Connecting the EV-Board to the computer

The EV-Board of a Würth Elektronik eiSos wireless module has to be connected to the PC using the USB cable provided with the EV-Kit. On successful installation of the drivers (see section 1.3), the EV-Board appears as a USB serial port with a numbered COM port in the device manager.



Figure 1: Screenshot device manager

The same EV-Board will also install a second driver "USB serial converter" in the USB-controller section.

2 Operation

This chapter provides operational instructions for the WE UART Terminal.

2.1 Starting the program

Double-click "WEuartTerminal.exe" to start the program.

The WE UART Terminal can be used with wireless modules running in command or/and transparent mode. The steps required for establishing a connection to a wireless module and for communicating with it depend on the operation mode being used. At start-up, a window containing some quick start hints for the two operation modes is shown.

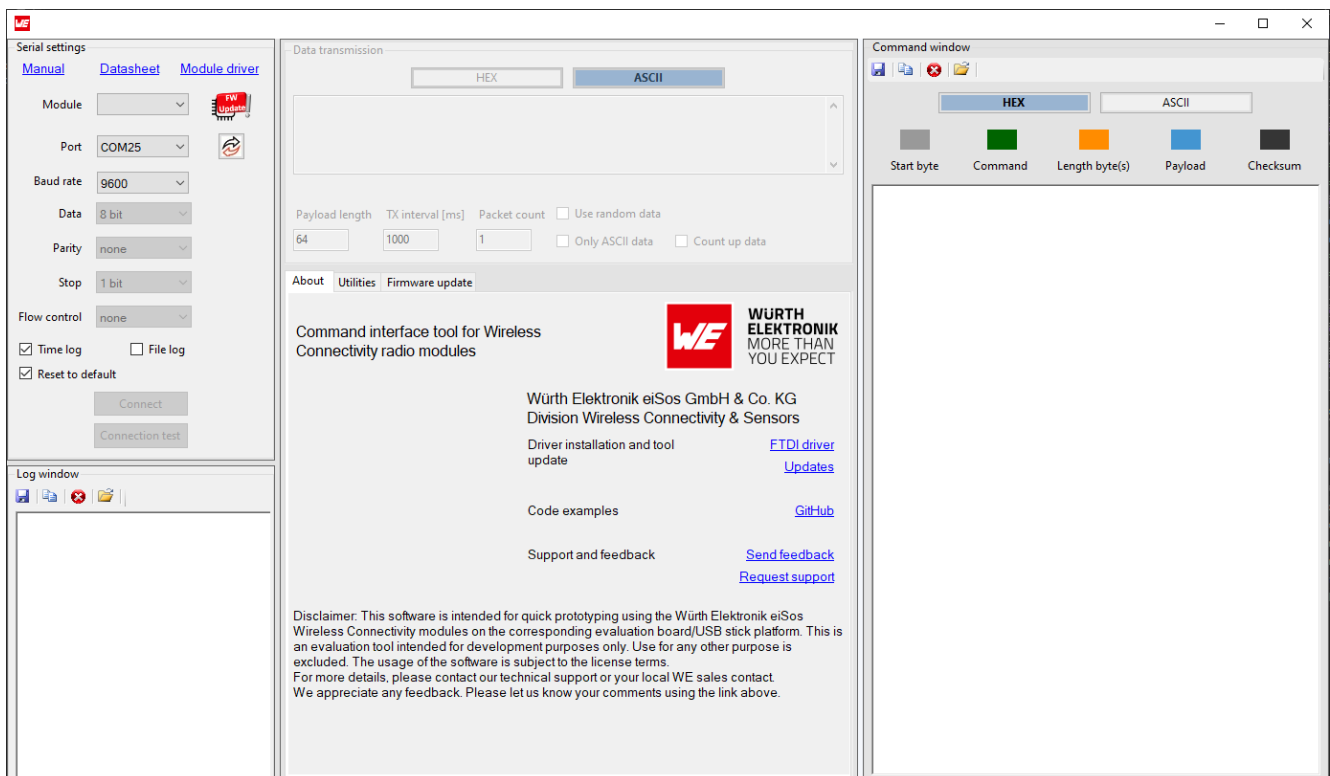
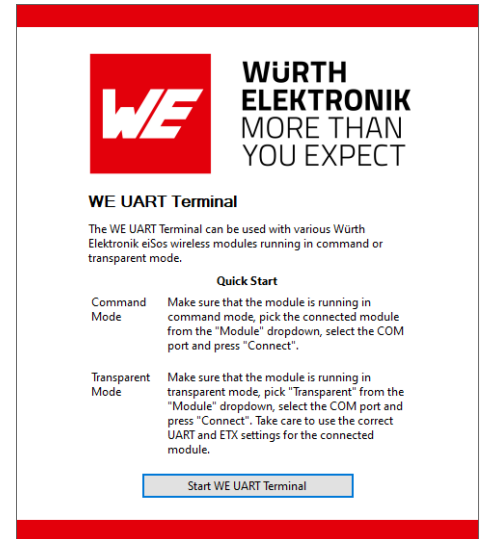


Figure 2: WE UART Terminal PC tool window

2.2 Radio module tabs

The WE UART Terminal supports a range of radio modules from Würth Elektronik eiSos. The desired module can be selected by scrolling down the "Module" drop-down menu and selecting the corresponding module. Selecting a module from the menu automatically makes the module tab available with a possibility to test all the related commands (see Figure 3).

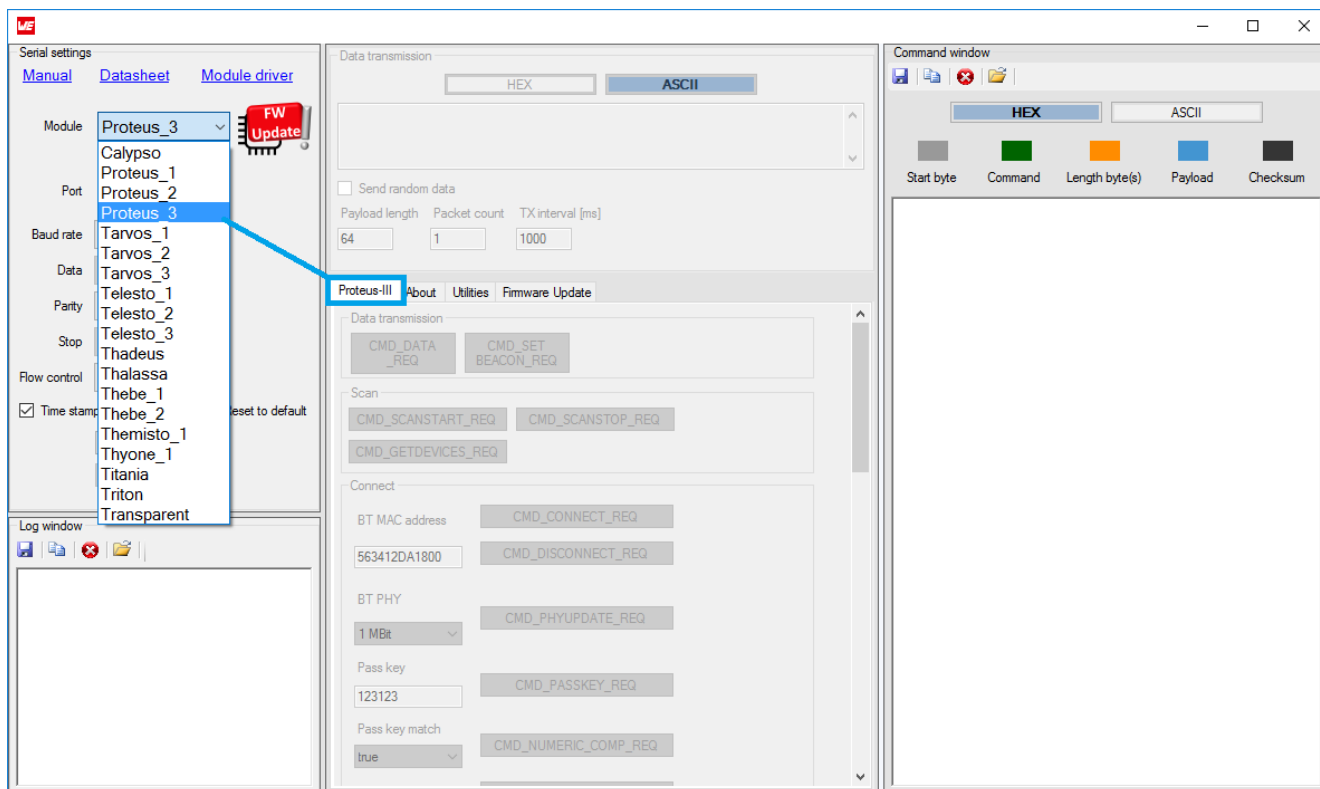


Figure 3: Radio module selection



When taking the Setebos-I module into operation with the WE UART Terminal, either the Proteus-III or the Thyone-I module has to be selected on the graphical interface, depending on the mode defined through the logic level of the *RPS* pin. For Setebos-I the pin *B1* has no GPIO function.

The WE UART Terminal additionally supports communication with a radio device in transparent mode, which only supports transmission and reception of pure payload data. Please refer to chapter Transparent mode for more information.

2.3 COM Interface

On connecting the EV-Board to the PC, the device appears as a USB serial COM port. All the COM ports on the PC are made available for connection under the "Port" drop-down menu. The list of available COM ports can be updated by pressing the refresh button (see Figure 4). Select the COM port corresponding to the connected EV-Board.

Additional drop-down menus allow the selection of serial port parameters such as baud rate, flow control and parity. The values are set to the default configuration of the selected module.

Press the "Connect" button to connect to the device. Messages in the log window appear indicating connect/disconnect events or errors.

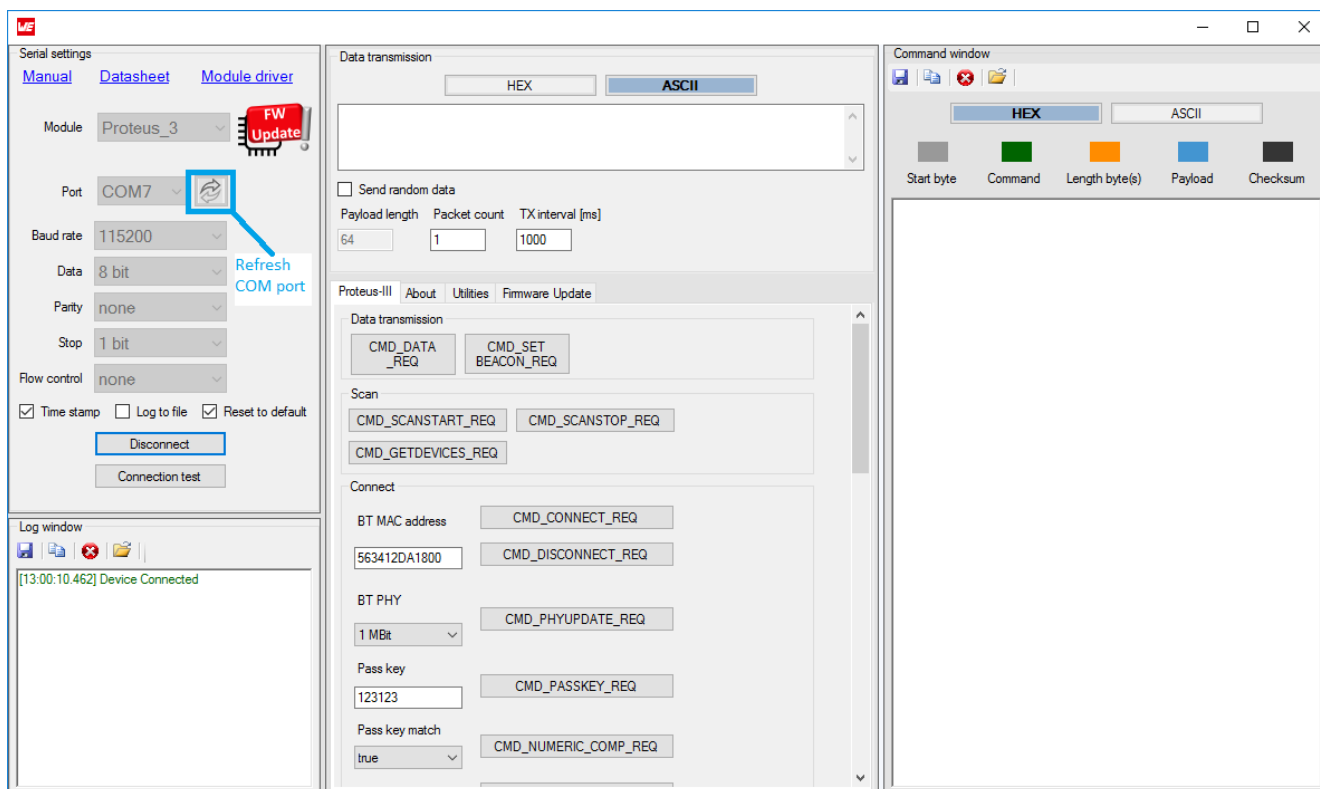


Figure 4: Open COM port

2.4 Data logging

2.4.1 Log window

All messages from the WE UART Terminal are printed in the log window. The messages are color coded to easily distinguish warnings and errors from information messages.

- **Time stamp:** The messages can be prefixed with a time stamp by checking the time stamp check box.
- **Log to file:** On checking the save to file check box, all the logs are automatically stored in a file under the path ".\log".

The integrated tool bar provides additional actions such as copy to clipboard, save, clear and open log path.

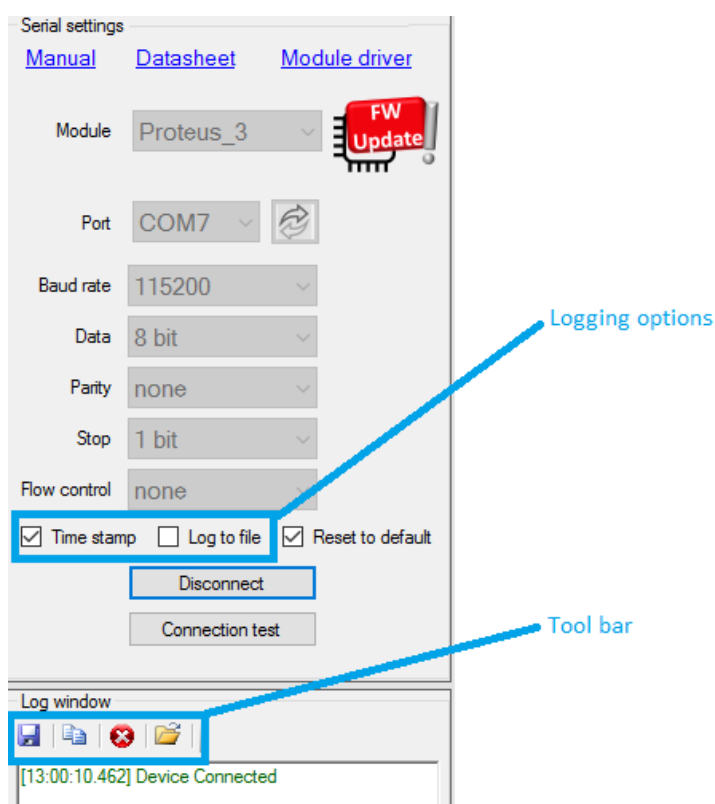


Figure 5: Log window and logging options

2.4.2 Command window

The WE UART Terminal configures and controls the connected wireless module by sending the corresponding commands over the serial interface. These command packets and the resulting responses from the module are displayed in the command window. The packet structure used for communication with the module is color coded for better readability. The packets (requests) sent from the tool to the module are left-aligned. The packets (confirmations, events) sent from the module to the tool are right-aligned. For each command packet a brief packet description is shown.

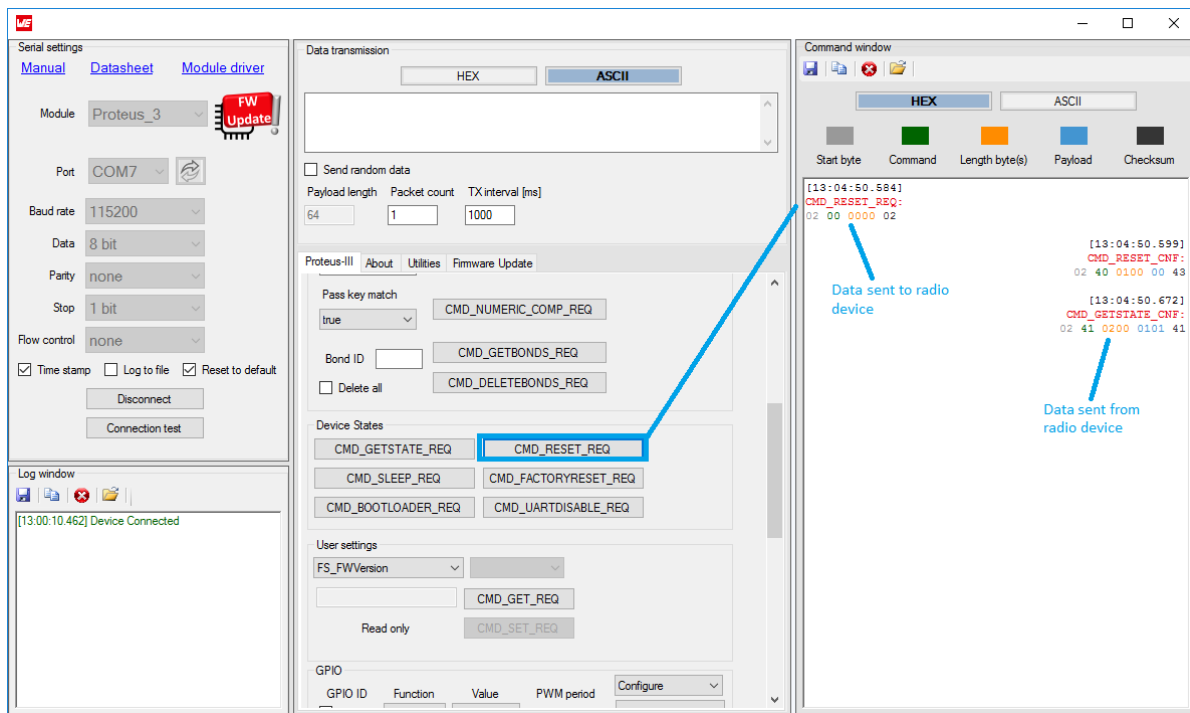


Figure 6: Command window

The messages can be prefixed with a time stamp by checking the time stamp check box. On checking the "Log to file" check box, all the messages are automatically stored in a file under the path ".\log". The integrated tool bar provides additional actions such as copy to clipboard, save, clear and open the log path.

2.5 Radio module tab

The main task of the WE UART Terminal is to create and send command packets to the radio module and receive the corresponding responses as well as spontaneous event messages. In order to achieve this, each command supported by the module has a dedicated button within the corresponding tab. The user can input the parameters of the command by either typing in the value in the corresponding text field or by selecting it from a drop-down menu. On pressing the command button, the tool reads the user parameters, creates a command packet and sends it out on the serial port to the connected radio module. Both the commands sent and the responses from the module are then displayed in the command window.



The user is required to input only valid values / options to ensure proper behaviour of radio module. Please refer to the corresponding user manual for valid parameters and options.

Figure 6 shows an example of sending a `CMD_RESET_REQ` command to the Proteus-III module. When pressing the button, a command packet is sent to the module and the module sends a confirmation of the same.

For a detailed description of the individual commands, please refer to the user manual of the corresponding radio module.

2.6 Transparent mode

In case the transparent mode is used instead of the command mode, the "Transparent" entry can be selected in the "Module" dropdown box. In this case, only the transmission and reception of payload data is supported.

The format, ASCII or HEX, of the data to be transmitted can be defined using the buttons placed above the "Data transmission" textbox.

Furthermore, if necessary, ETX characters may be added by selecting the corresponding entry in the drop down menu.

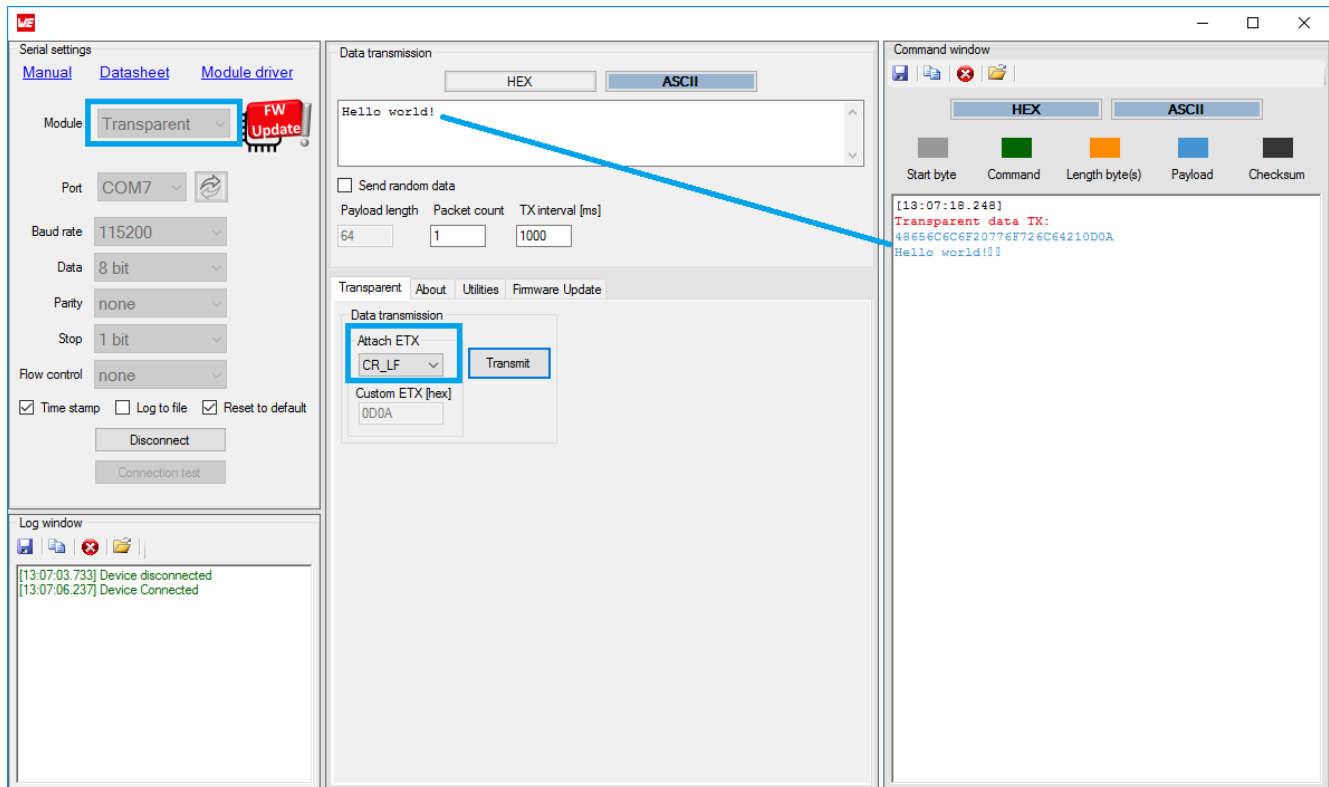


Figure 7: Transparent UART interface

2.7 Utilities

In addition to the control of the radio module, the WE UART Terminal provides additional tools. An ASCII to HEX converter and a checksum calculator are available in the utilities tab.

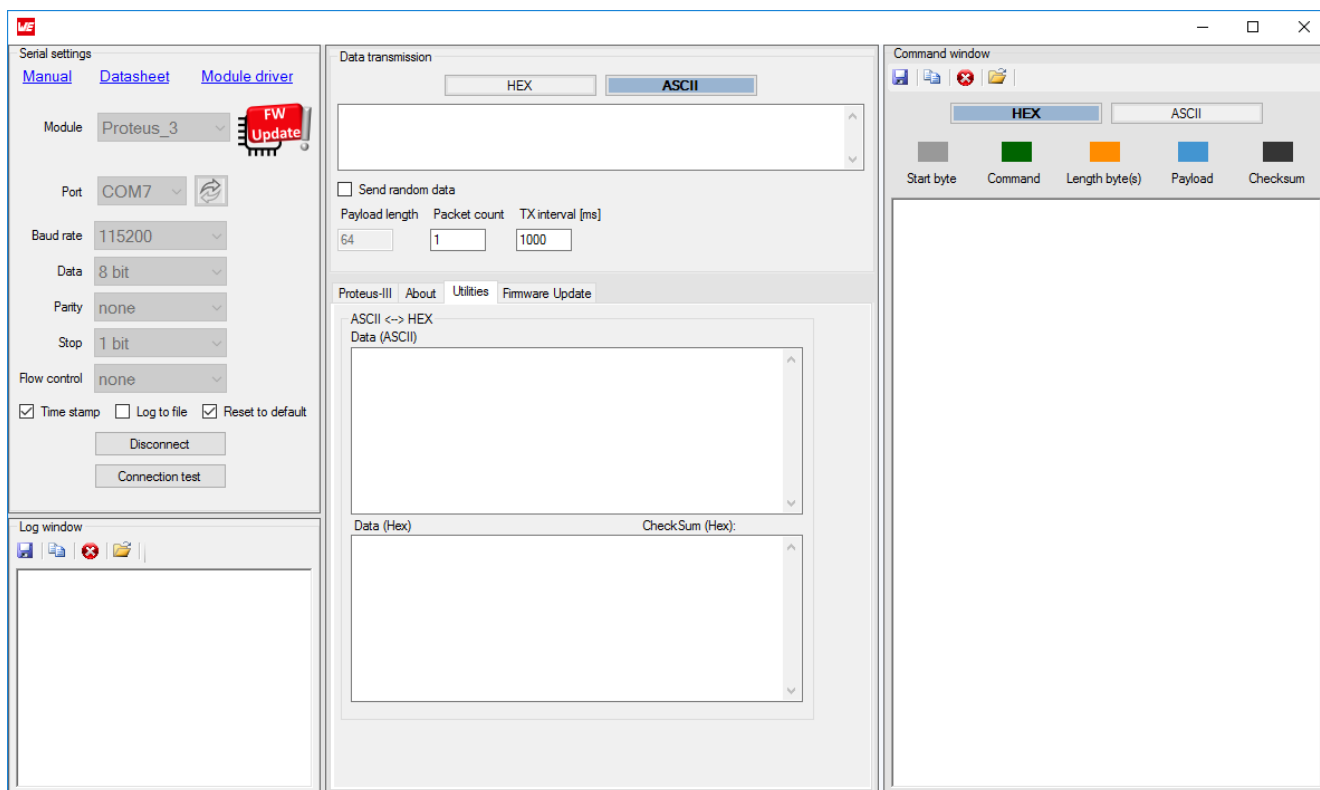


Figure 8: Utilities

3 Software history

Version 1.0.0.0 "Release"

- First released version of the WE UART Terminal tool.

Version 1.0.0.6 "Release"

- Added support for new radio modules, Proteus-III and Thyone-I.

Version 1.0.1.0 "Release"

- Added GPIO function to Proteus-III.

Version 1.1.0.0 "Release"

- New function to check whether the connected module responds to requests or not.
- Improved internal data handling.

Version 1.2.2.0 "Release"

- Improved internal data handling.
- Added links to device manual and data sheet.
- Added "Transparent" mode tab for communication in transparent mode.
- Added "Firmware Update" for hints concerning device firmware update.
- Added PWM function of the Thyone-I (version 1.5.0) and Proteus-III (version 1.3.0).
- Improved input capabilities of ASCII and HEX data for data transmission.
- Improved logging of UART packets in HEX and ASCII format.
- Optimized placement of graphic objects in the GUI.

Version 1.3.0.0 "Release"

- Added support for radio module Proteus-e.
- Improved option to send transparent data (with/without ETX).
- Improved generation of random data for radio transmission test.
- Improved core for internal data handling.
- Switched to .NET 6.0.2 .

Version 1.3.3.0 "Release"

- Added support for radio module Daphnis-I.
- Added support for radio module Stephano-I.

Version 2.0.0.0 "Release"

- Renamed Smart Commander into WE UART Terminal PC tool.
- Added support for radio modules Thyone-e, Metis-e and Skoll-I.

4 References

- [1] Würth Elektronik. WE UART Terminal PC tool (Smart Commander). <https://www.we-online.de/wcs-software>.

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