Windows desktop application for wireless BLE sensors

General description

The windows desktop application designed by AMSYS GmbH & Co. KG, Germany, is used for the visualization and monitoring of wireless AMSYS Bluetooth sensors and can be used with a PC with windows operating system.

Hardware & System Requirements

- **PC with USB 2.0 interface**
- **USB Dongle: BT900-US (*Figure 1*)**
- **Operating Systems: Windows 10 and higher (x86 and x64)**
- **Microsoft .NET Framework 4.6.1 or higher (x86 and x64)**

***Figure 1*: USB Dongle BT900-US (Laird)**

Use of the desktop application

Using the AMSYS desktop application, AMS Bluetooth sensors can be displayed in numeric and graphical way. In addition, measurements such as pressure and temperature can be plotted (logged) over time.

Dongle Installation

Insert the Dongle into the USB drive of the PC. The PC should install the related USB drivers automatically. After installing the USB driver you can open the Device Manager to check if the USB dongle has been installed correctly. A serial USB connection (COMX) should now be displayed under the port tab. If not, the FTDI FT232 USB Serial Converter driver has to be installed manually. This link below may help you install the driver:
https://learn.sparkfun.com/tutorials/how-to-install-ftdi-drivers/windows---in-depth.

Verify COM port is assigned to the Dongle from the Device Manager before proceeding to the next steps.

Software Installation

Copy the AMSYS Windows client software "AMSYS Desktop App.zip" to the PC and unzip it. Double click the .exe file in folder \bin\Release to run the AMSYS desktop app. The software user interface should display as below (*Figure 2*). The default units for pressure are "mbar" and "°C" for temperature. The "Auto Range" checkbox is also enabled by default, whereby the Y-axes in the graph are automatically adjusted to the measurement data of the sensor. Some explanations can be found when moving the cursor over the labels, buttons and checkboxes. **Ensure the Port Name matches the COM port number from the Device Manager.**
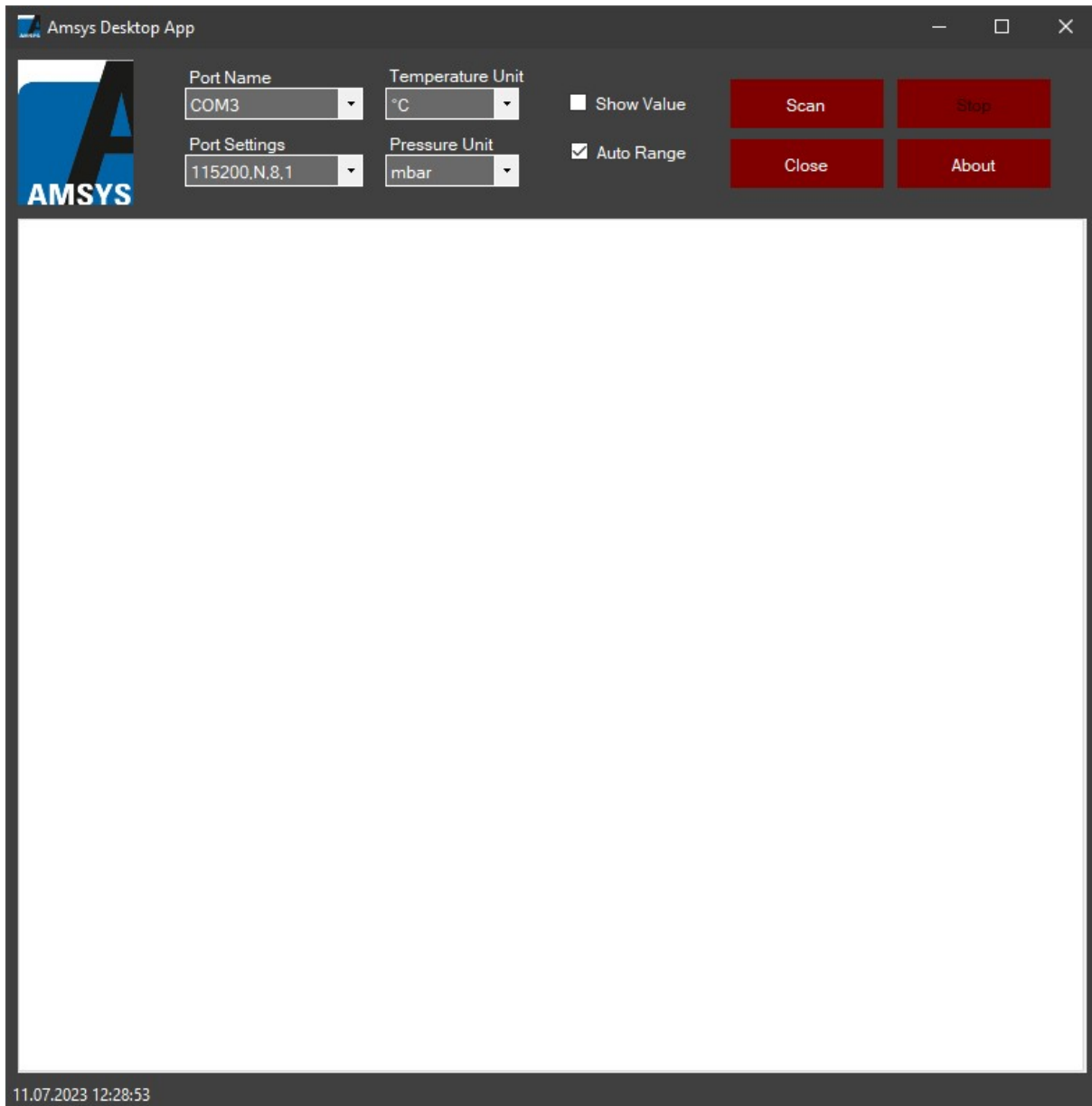
Figure 2: **Main Window**

Function Description

Click the "Scan" button to start scanning for advertising Bluetooth sensors. A "Scan" window will pop up and display the available Bluetooth sensors in table format (*Figure 3*). The window shows the name, address, pressure value, temperature value, signal strength (RSSI), the battery level and the logging state of the sensor.

To log the sensor data, a sensor must first be selected via the checkbox in the "Sensor Name" tab and then the "Start Log" button must be clicked, which causes the checkmarks to disappear and the logging of the sensor data to start. In addition, the text in the "Logging" tab changes to "Yes". The selected sensors data will be logged with a timestamp regarding, pressure, temperature and battery level. The data will be saved in the (default: \\Amsys Desktop App\\Scanned Data) as a .dat

file with timestamp, sensor name, address, battery level, temperature, and pressure (*Figure 4*).
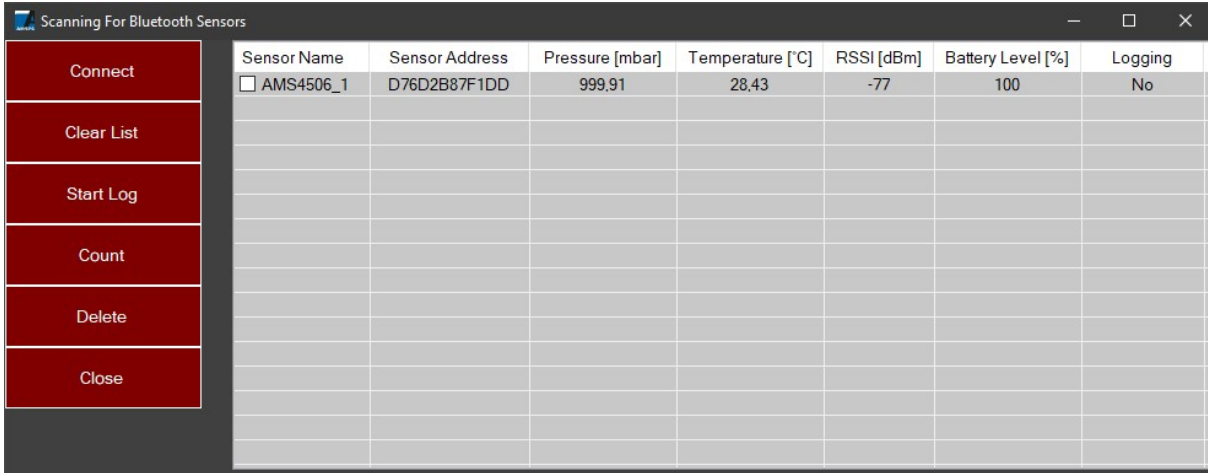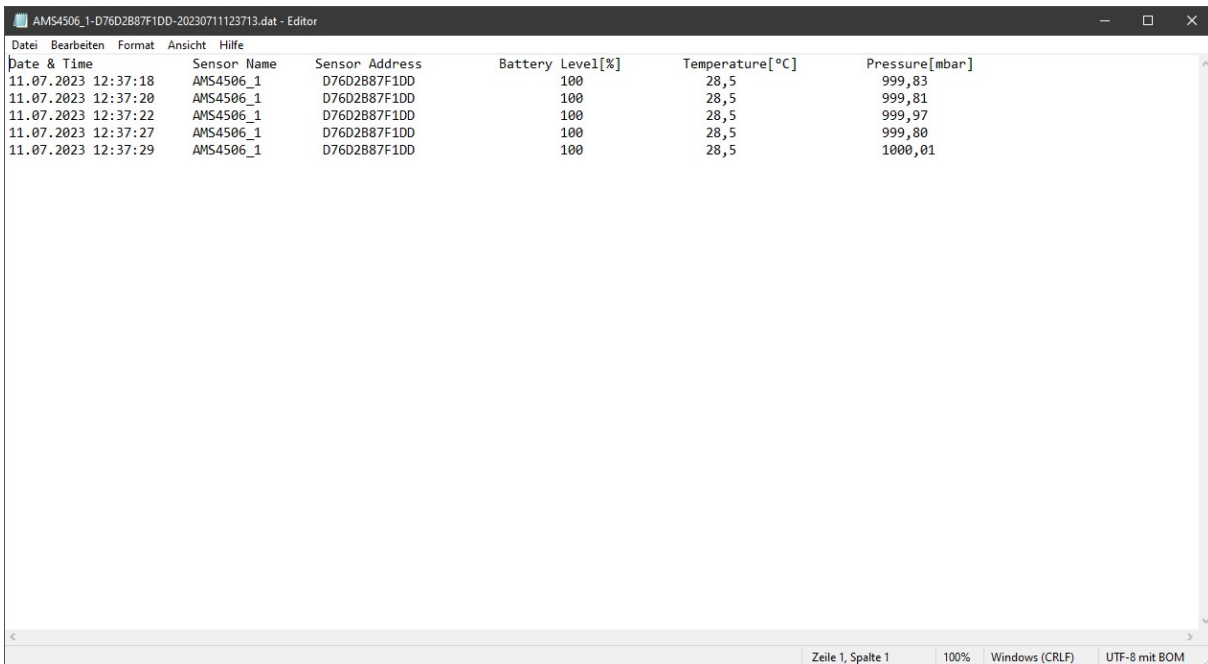

Figure 3: Scan Window

Figure 4: Scanned data log file

To establish a Bluetooth connection that will then display the sensor data graphically and numeri-cally, select maximum 3 sensors from the table and then click the "Connect" button. The application receives data of the battery level, real-time pressure and temperature (Figure 5). Maximum of 3 sensors can be read at the same time. The initial connection time of each sensor is approximately 10 seconds. The several sensors can be displayed by clicking on the corresponding tab page. Via the checkbox "Show Value" the values for pressure and temperature can be additionally displayed numerically in the chart.
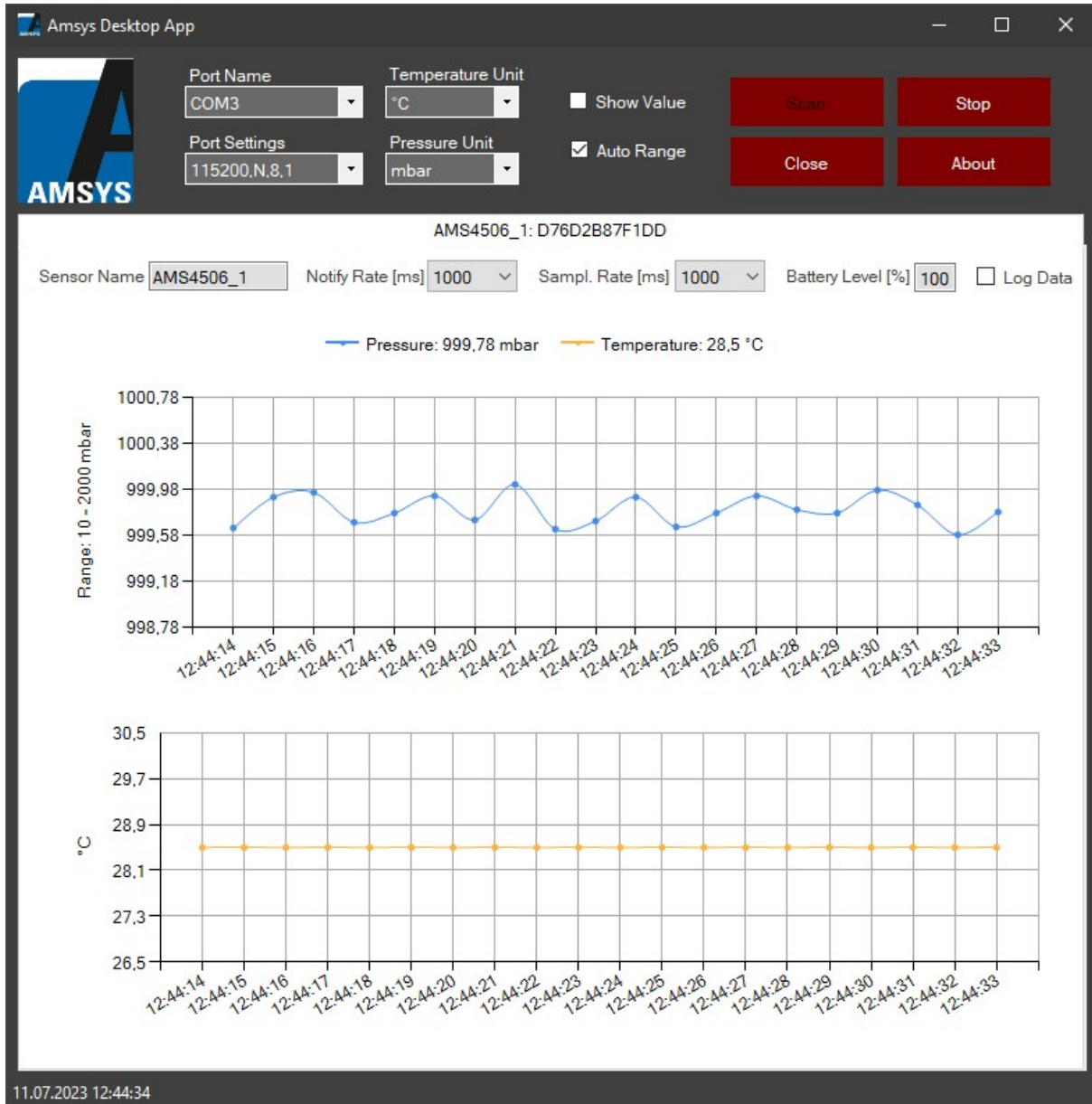
Figure 5: Bluetooth Connection Window

Clicking the "Stop" button stops the transmission of the sensor data and disconnects the Bluetooth connection. To change the name of the sensor, enter the new name in the text field of the current sensor name and confirm this with "Enter" key. By clicking on the "Notify Rate" dropdown box, the sampling rate for the Bluetooth connection can be adjusted (The default value is displayed after successful connection).

By clicking on the "Sampl. Rate" dropdown box, the sampling rate for advertising can be adjusted (The default value is displayed after successful connection).

When the "Data Log" Checkbox is enabled, the application starts to log the sensors data regarding pressure, temperature and battery level. A timestamp is also added by the operating system. The data will be saved in (default: \\Amsys Desktop App\\Bluetooth Notification Data) as a .xls file with sensor name, address and a timestamp (*Figure 6*).

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Figure 6: **Bluetooth Notification log file**

Summary

With the AMSYS desktop application, values measured by Bluetooth sensors can be saved, read out and displayed as a graphic. The AMSYS desktop app is an extension of the AMSYS mobile app; it establishes a connection to the customer's own network and enables fast processing of measurements made by the wireless sensors. Certain sensor configurations can also be individually set using the desktop app.

AMSYS can customize the software on request.

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