AMS 4506 – barometric wireless pressure sensor via Bluetooth Low Energy 4.2

AMSYS (https://www.amsys-sensor.com) presents the barometric wireless pressure sensors of the AMS 4506 series in a small, compact and robust plastic housing (35 x 25 x 13.5 mm³). Power is supplied via a CR2032 battery button cell with battery holder located under the cover. The compressed air is measured via a small panel on the outer wall. Due to its small design, the sensor can be easily attached to smooth surfaces or in a device using double-sided adhesive tape. In addition, there is a borehole with a diameter of 3.2 mm on the left and right side for easy mounting.

Wireless pressure sensor AMS 4506

The AMS 4506 wireless pressure sensors are based on a piezoresistive silicon sensing element an integrated temperature sensor, an integrated signal conditioning circuit (ASIC) and a Bluetooth module. The ASIC enables the conversion of the piezoresistive effect into a direct voltage and digitizes the signal through an internal 24 bit ADC. The temperature is also recorded and digitized for temperature compensation. The Bluetooth module processes the digital 24 bit values for pressure and temperature and then sends them to the smartphone, tablet or the AMS Bluetooth Gateway with a default transmission interval. The gateway is based on a webpage application that can be displayed in the web browser. The app is available for download free of charge from the Google Play Store for common Android devices.

Each sensor is individually calibrated, temperature compensated and tested. As a result, the accuracy of typically ± 2 mbar in the measuring range of 300 - 1200 mbar @25 °C could be achieved. The temperature accuracy is ± 1 °C @ 25 °C. The sensor has a pressure range of 300 - 1200 mbar and can be used for an extended pressure range of 10 - 2000 mbar. The temperature range is between 0 and 85 °C. The height resolution at sea level is approx. 13 cm. The radio range is approx. 100 m in the free field.

The long term measuring drift of the sensor is approx. ± 1 mbar for the pressure per year. The typical current consumption with the factory settings is approx. 25 µA and is strongly dependent on the sampling rate and the signal transmission interval of the sensor. The default data sampling rate and the signal transmission interval are 5 seconds. The signal transmission interval is automatically adapted to the data sampling rate, but can also be set individually later using the smartphone app. In addition, further settings can be made via the app, like a critical pressure value can be set and an alarm function activated.

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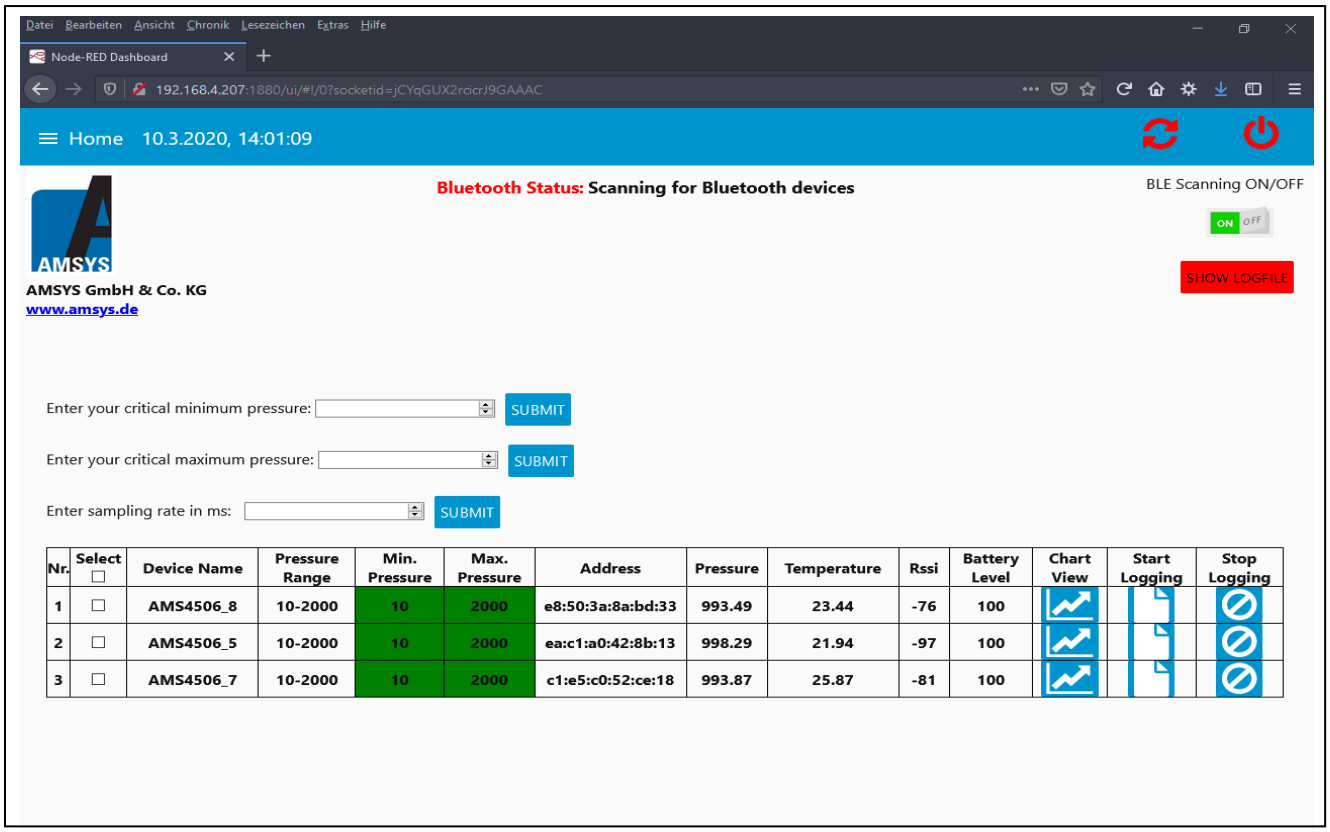

Figure 1: **Table view AMSYS Gateway**

Figure 2: **Graph view AMSYS App**

Applications

The wireless pressure sensor AMS 4506 is suitable for barometric pressure measurement and for monitoring the vacuum. The particular advantage of this wireless sensor is that it can be used to collect the measured data from a distance via Bluetooth in places that are difficult to access, e.g. Wind turbines, in applications that are unsuitable for laying cables, such as machines with an axis of rotation or in closed systems, containers and rooms.

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