Acceleration, Gyroscope, Magnetometer, Quaternion and Euler Angles Bluetooth Data Presentation and Logger

* Bluetooth 5.0 technology and Nordic nRF52 chip.

* Mobile app support Android and IOS.

* Small size, light weight and low power consumption.

* Extremely fast upload speeds of up to 250Hz.

* Large data storage capacity.

* Intuitive Line Graph Presentation.

* Motion Presentation of the 3D model.

Features

* High accuracy and stability

* Bluetooth 5.0

* Long distance radio transfer

* On-board highly sensitive acceleration, gyroscope and magnetometer sensor

* Real-time display acceleration, gyroscope, magnetometer, quaternion and Euler angle data

* Real-time display of 3D model movement

* It can store acceleration, gyroscope, magnetometer, quaternion and Euler angle data and each time stamp

* It can export the recorded data to an Excel file

* LED light indicates the working status

* It can set parameters such as data upload intervals

* Repeatable in-line magnetic calibration for data accuracy in different environments

* Type-C port, Li-ion battery charging

Specifications

* 2.4GHz radio frequency band.

* Bluetooth 5.0 protocol standard.

* Configurable data upload rate of 4-1000 ms, Default is 8ms.

* Operating voltage is 3.0-4.2V.

* The content of the recorded data is acceleration, gyroscope, magnetometer, quaternion and Euler angle data of each time stamp.

* Operating temperature range of -20 to +60°C.

* Transmission distances of more than 20 meters in open spaces.

* Acceleration range ±2g for more accurate movement data.

* Magnetometer range is ±800uT.

* Gyroscope range ±2000°/s.

Power Consumption

* Average standby current is about 8uA.

* No Bluetooth connection established and continuous Bluetooth advertising, average current is about 51uA

* Bluetooth connection is established with the host and all 9-axis sensors are fully operational with an average current of about 9.8mA (8ms data upload rate).

1. Standby

2. Bluetooth advertising
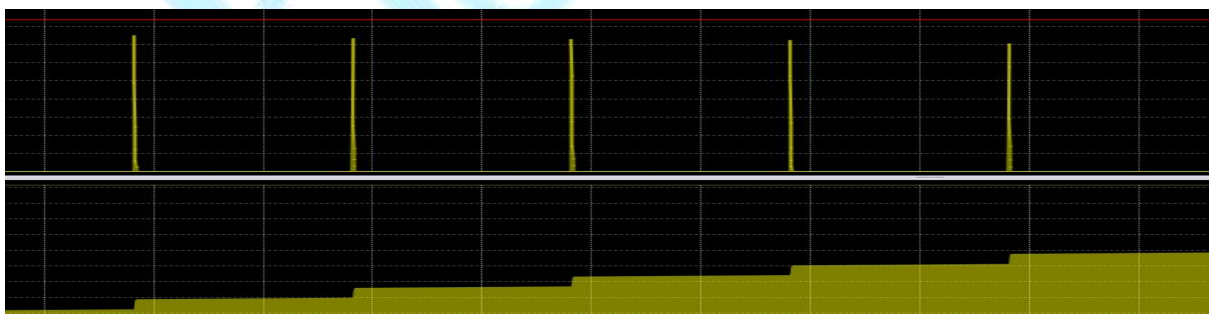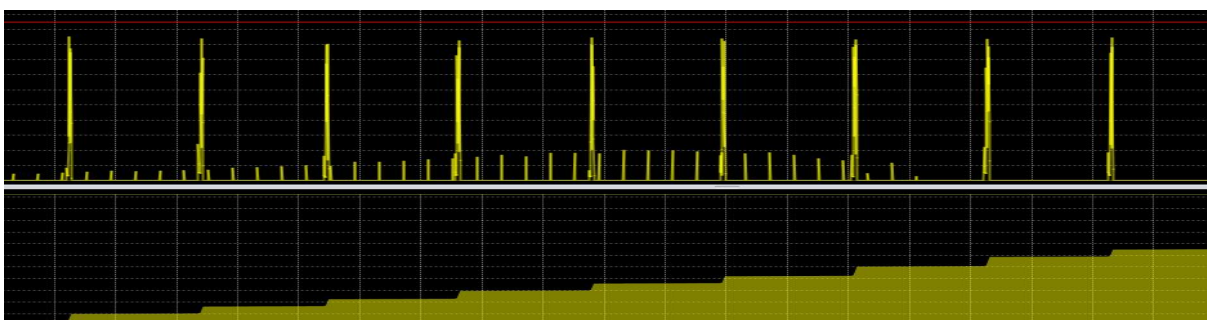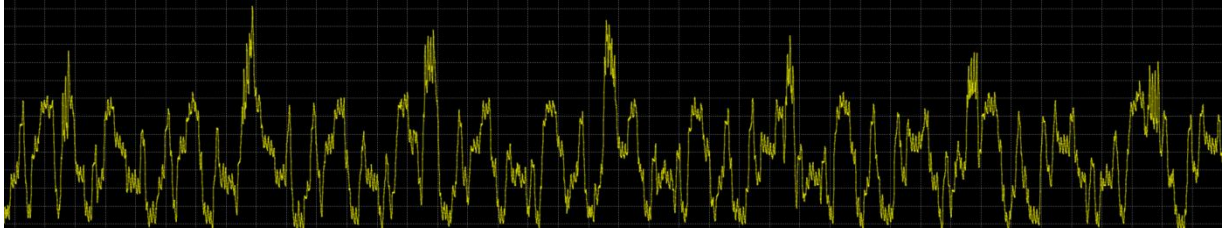
3. Bluetooth connection, all sensors are fully operational

Use the duration calculation formula:

Use time (days) = battery capacity (mA h) / static average current (mA) / 24H;

For example, a 250mAh battery can work for more than 20 hours at full power.

Features of mobile App

* Target devices can be filtered out by setting the bluetooth advertising name or signal strength.

* You can check the MAC of the device and whether it is equipped with acceleration, gyroscope and magnetometer sensors.

* Once a Bluetooth connection is established with the host, you can immediately see all valid data uploaded and movement of the 3D model.

* In a Bluetooth connection, part of parameters can be configured, such as Bluetooth advertising name and data upload rate.

* Clicking on each data column takes you to a line graph of the data changes.

* Users can view all previous history data.

* Users can choose to export data to an Excel file.

Guidance on the use of the APP the Mobile App

1. You can scan the QR code or search "Holyiot-sensor" in the app market to get the latest mobile app for Android or IOS version.

2. Before you start, please make sure that the device is powered, usually we can press the button and observe that an indicator light is on means that it is powered.

3. Open the App, click "Search" to search for available devices in the surrounding space, and then we can see the device's Bluetooth advertising name, radio signal strength, the device's Mac and whether the acceleration, gyroscope and magnetometer sensors are available.

4. Click to select a device, you can see all valid data uploading and you can see how the 3D model changes as a result of the movement of the device.

5. We can click on the settings icon in the top right corner to set some of the parameters, including the Bluetooth advertising name, the sports mode and the upload interval.

6. Clicking on each data column takes you to a line graph of the data changes.

7. Click on "Record" to start recording all valid data, then click on "Stop" to stop recording data and pack and store the data. Click on the icon in the lower right corner to view all historical data. Optionally, you can export the data to an Excel file.

8. For better inertial navigation results, repeatable in-line magnetic calibration can be performed to ensure the accuracy of magnetic data in different environments.

Mobile App Screenshot example