

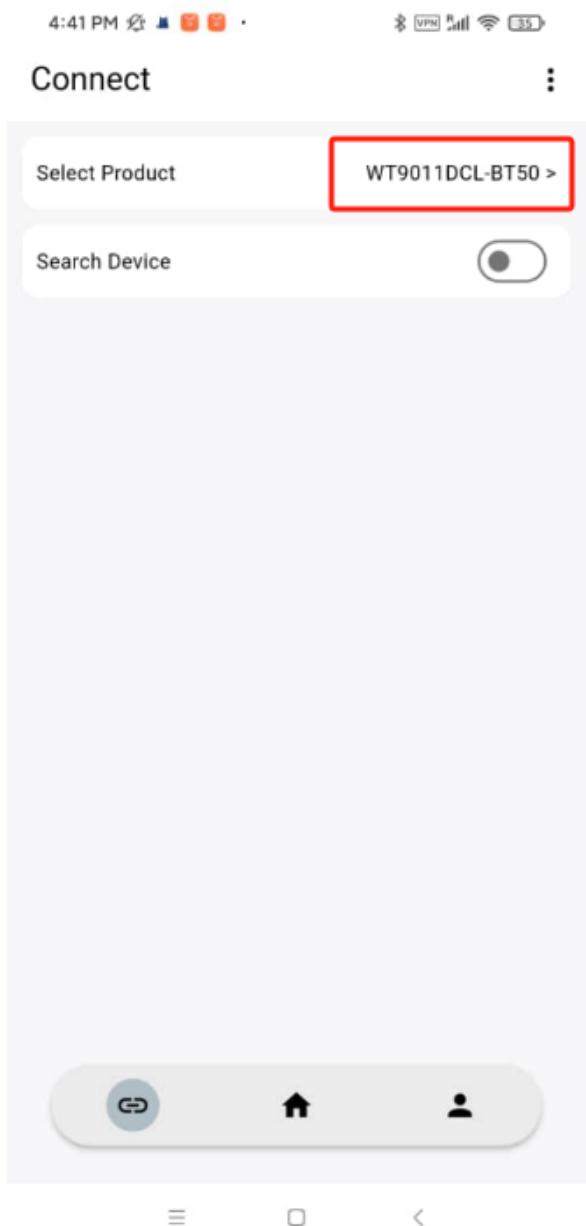


WT9011DCL-BT50 APP manual

description

Select device model

1. Open the APP and select the device model as **WT9011DCL-BT50**

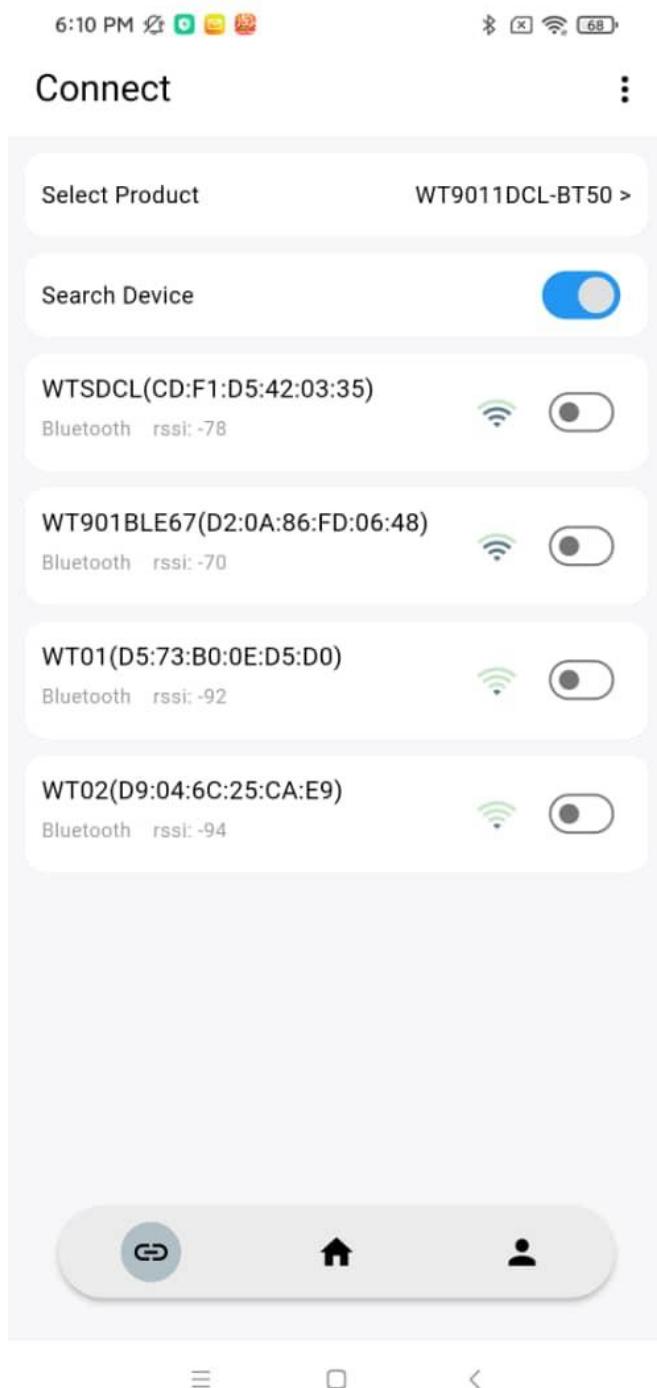




Connecting devices

Scan Devices

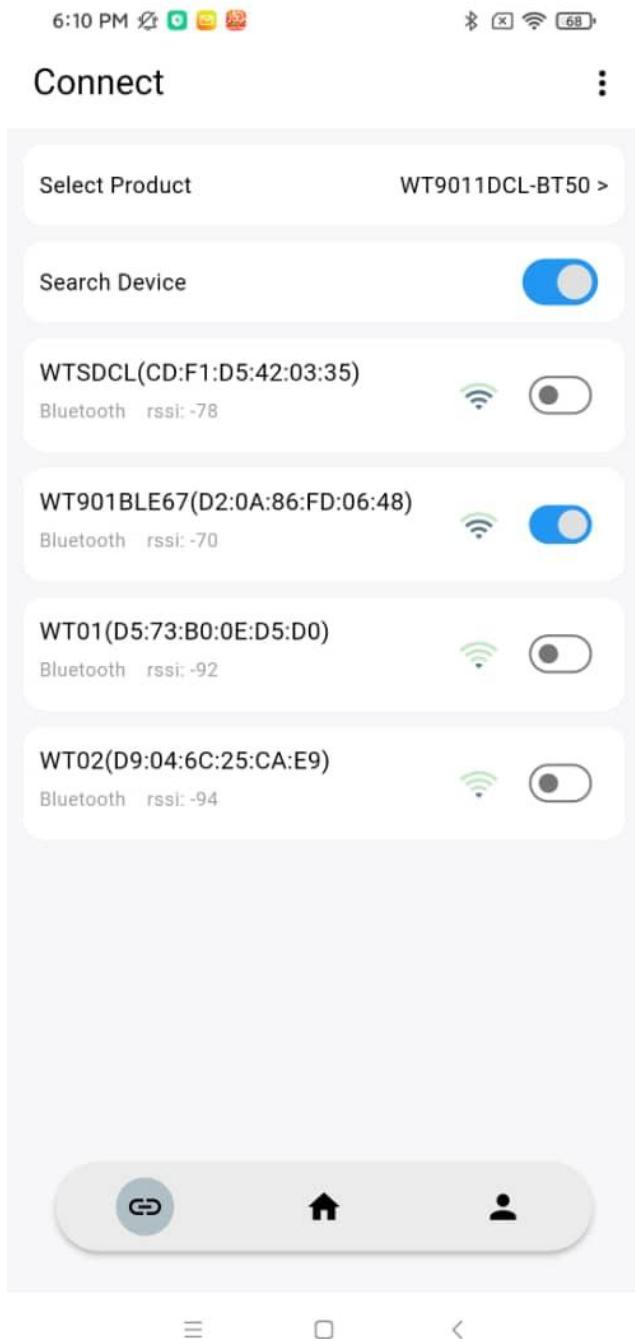
To start scanning devices, the phone needs to turn on Bluetooth and grant the APP Bluetooth permissions (Android phones also need to obtain location permissions)





Connecting devices

Select the Bluetooth device starting with WT901BLE below to connect the sensor



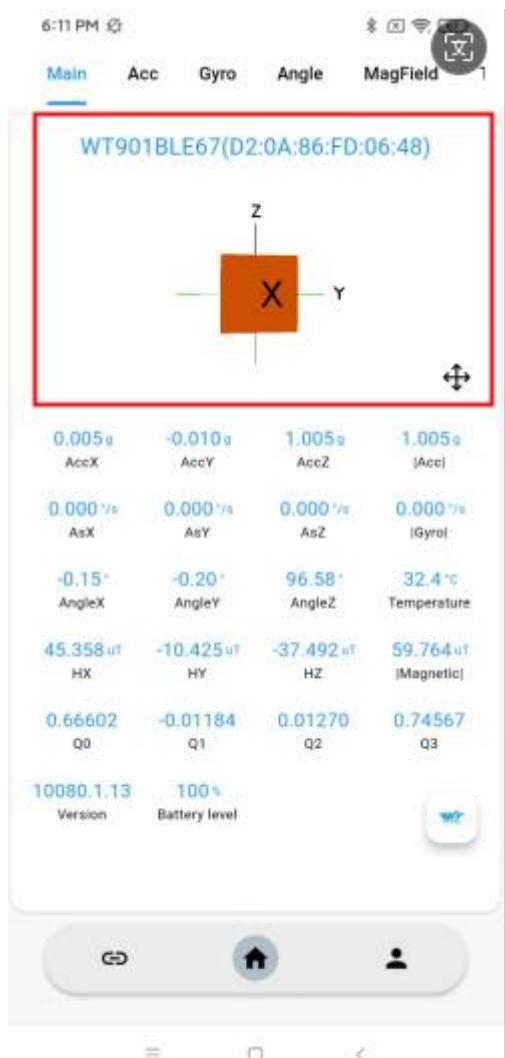
View data

Main Interface

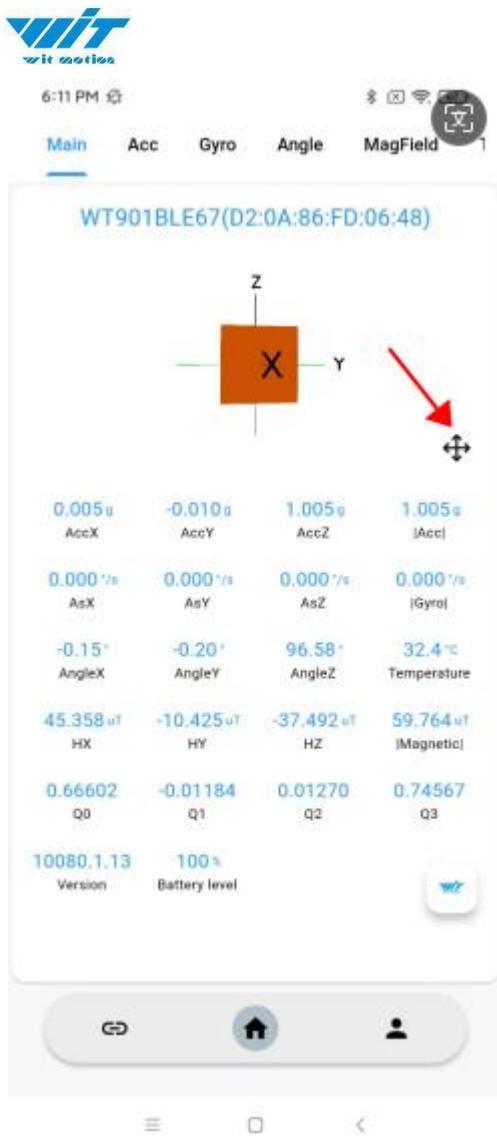
Display all data contents of the sensor

3D display instructions:

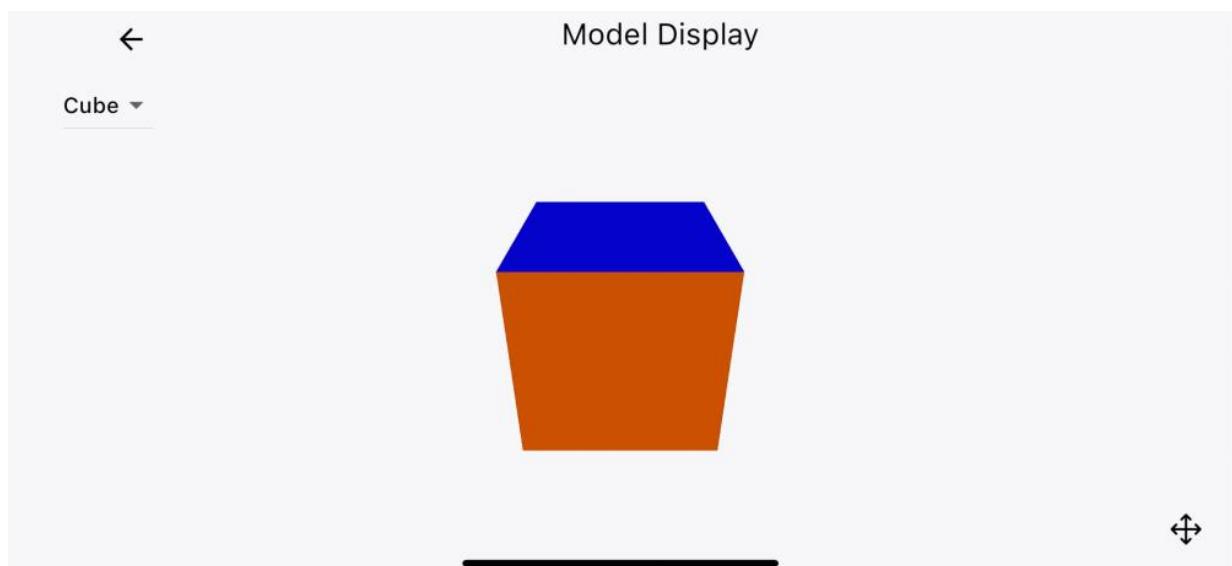
The new version of the 3D display interface is as follows. The default display model is a cube and the default display coordinate axis is



Click the icon button in the lower right corner to turn on/off the display of the coordinate axis

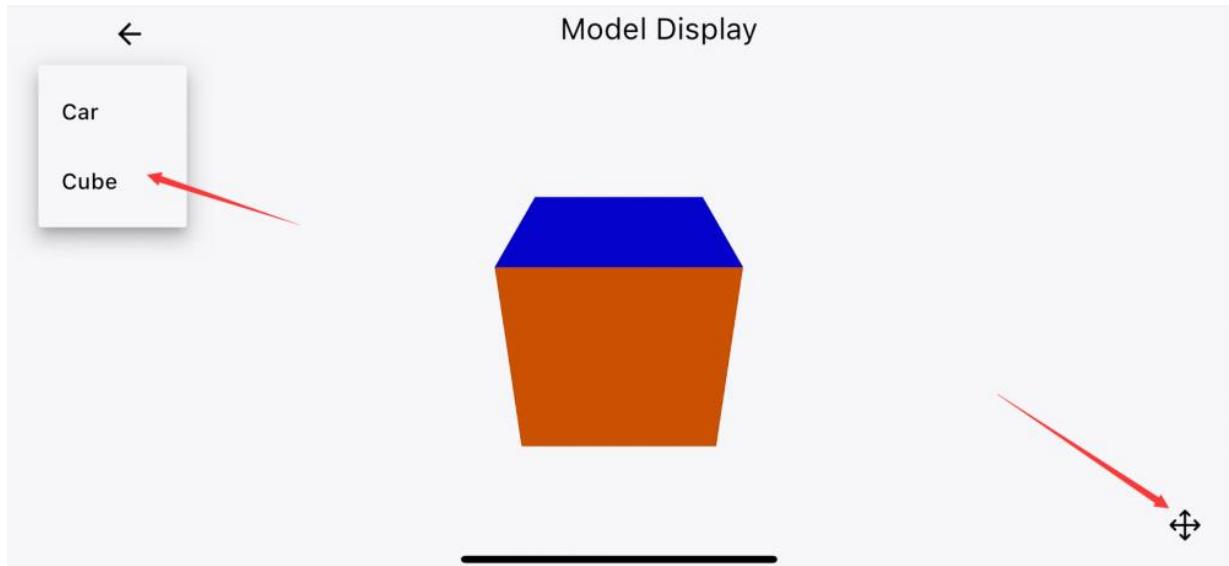


Double-click the model area on the homepage to enter the full-screen model display interface. The phone will be forced to turn horizontally.

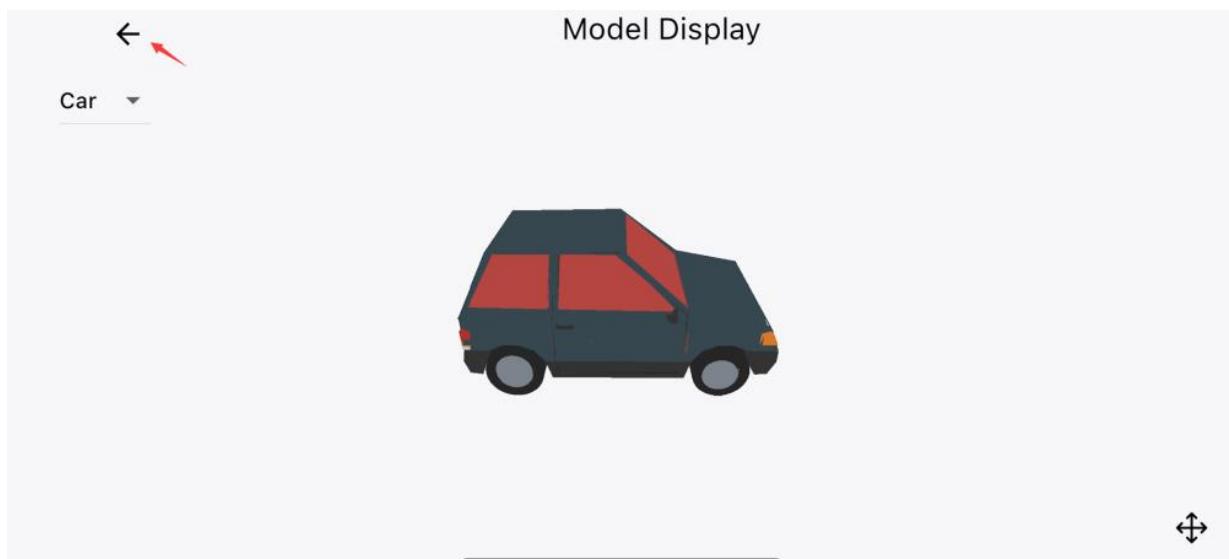




Click the upper left corner to switch the built-in model for 3D display. Similarly, the icon in the lower right corner can turn on/off the display of the coordinate axis.



Click Back to return to the dashboard interface



Dashboard:



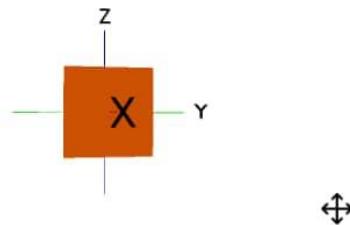
6:11 PM



67%

[Main](#) [Acc](#) [Gyro](#) [Angle](#) [MagField](#) [1](#)

WT901BLE67(D2:0A:86:FD:06:48)



| | | | |
|---------|----------|---------|---------|
| 0.005 g | -0.010 g | 1.005 g | 1.005 g |
| AccX | AccY | AccZ | Acc |

| | | | |
|-----------|-----------|-----------|-----------|
| 0.000 °/s | 0.000 °/s | 0.000 °/s | 0.000 °/s |
| AsX | AsY | AsZ | Gyro |

| | | | |
|---------|---------|---------|-------------|
| -0.15 ° | -0.20 ° | 96.58 ° | 32.4 °C |
| AngleX | AngleY | AngleZ | Temperature |

| | | | |
|-----------|---|---------------------|-----------|
| 45.358 uT | -10.425 uT | -37.492 uT | 59.764 uT |
| HX | <td hz<="" td=""><td> Magnetic </td></td> | <td> Magnetic </td> | Magnetic |

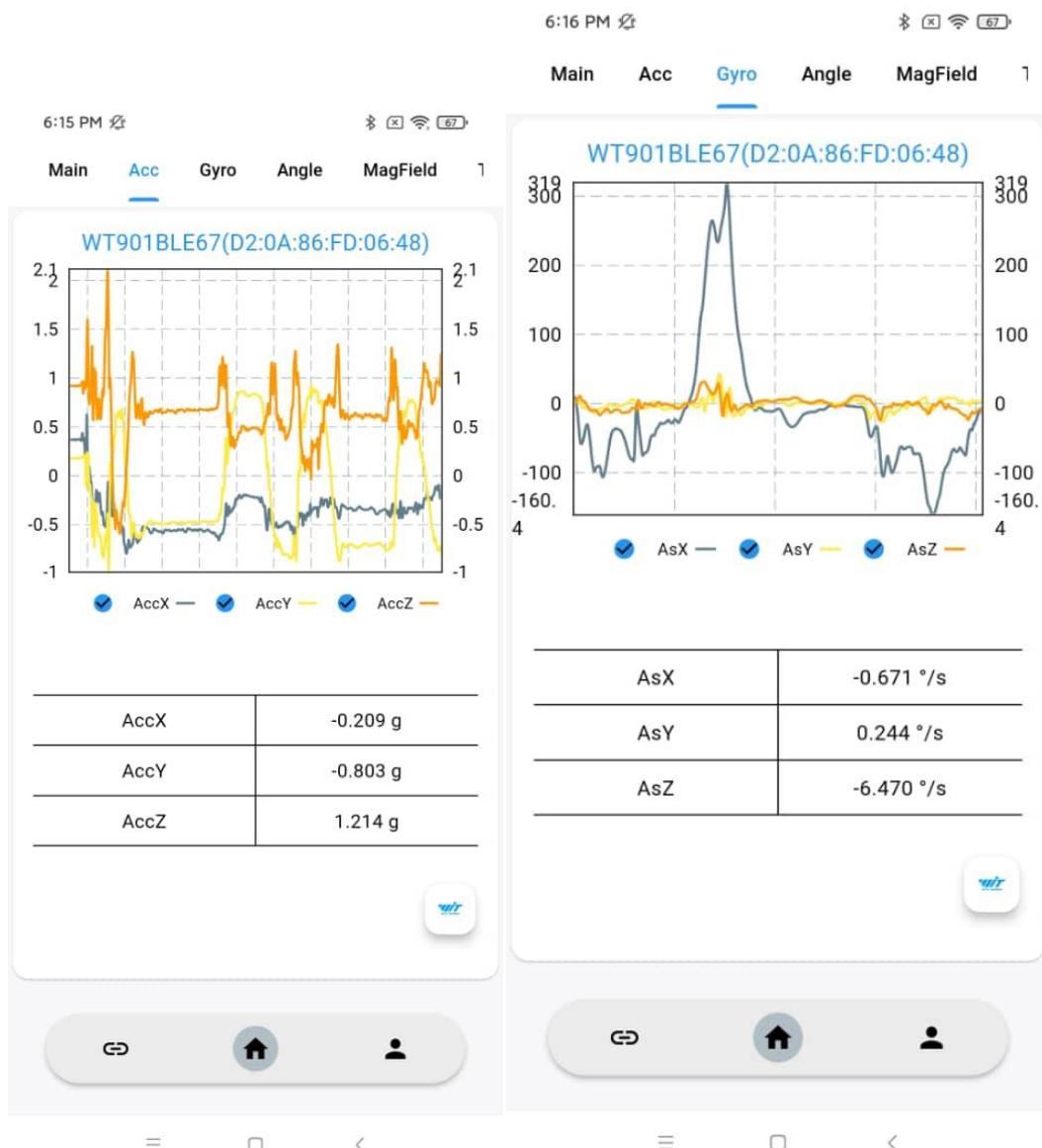
| | | | |
|---------|----------|---------|---------|
| 0.66602 | -0.01184 | 0.01270 | 0.74567 |
| Q0 | Q1 | Q2 | Q3 |

| | |
|------------|---------------|
| 10080.1.13 | 100 % |
| Version | Battery level |



Acceleration, angular velocity

Display acceleration and angular velocity change curves (check to view a single curve)



angle

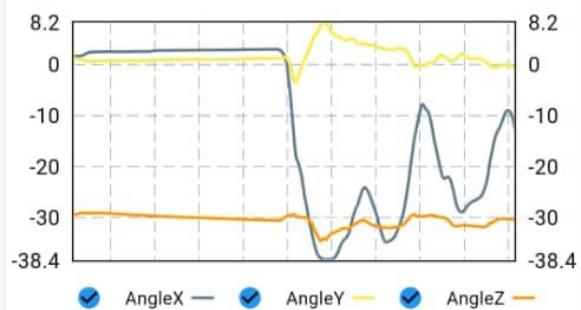
Display angle level and angle change curve data



6:16 PM



in Acc Gyro Angle MagField Trajec



| | |
|--------|----------|
| AngleX | -12.35 ° |
| AngleY | -0.74 ° |
| AngleZ | -30.40 ° |



magnetic field

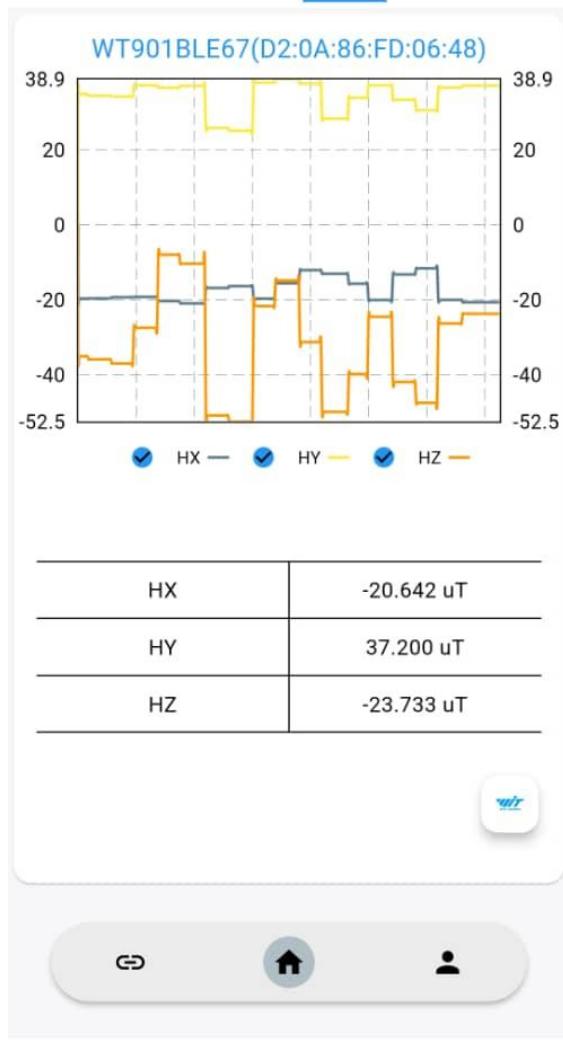
Display magnetic field change curve



6:16 PM



Acc Gyro Angle MagField Trajectory



Displacement

Displacement demonstration mode: You can turn on/off the displacement display mode through the card on this interface

(Note: If the displacement display mode is turned on, the sensor will not output acceleration and angular velocity. Only the new version of WT9011DCL-BT50 program supports displacement mode)



6:17 PM

Bluetooth

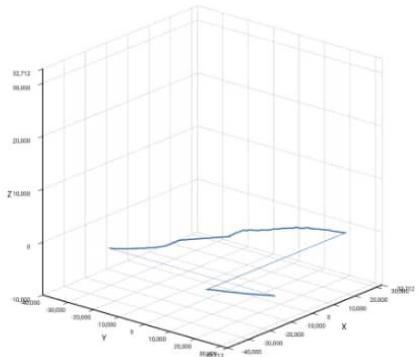
Wi-Fi

66%

Acc Gyro Angle MagField Trajectory

WT901BLE67(D2:0A:86:FD:06:48)

Displacement mode

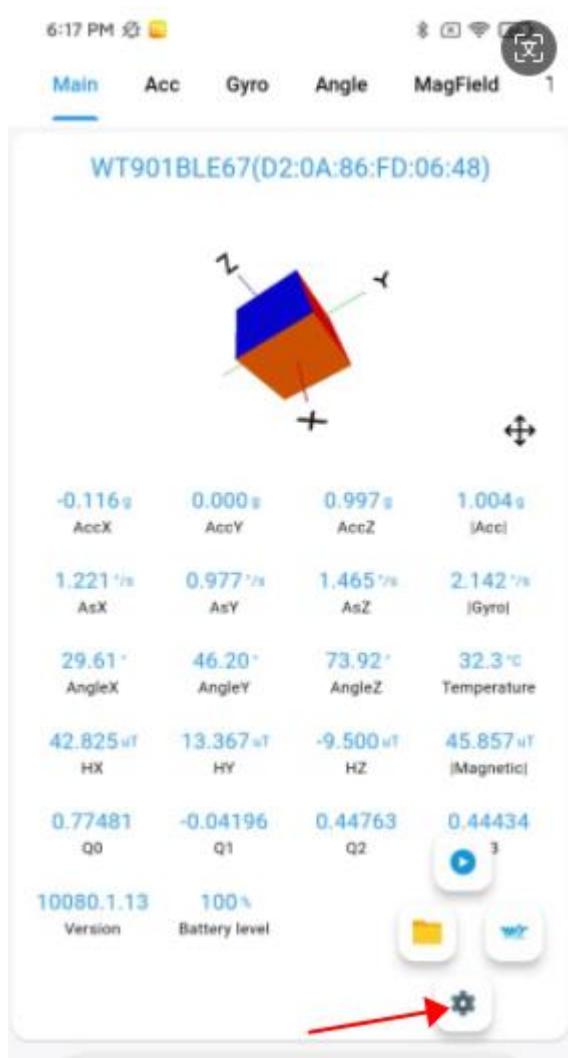


| | | |
|---|-------|---------|
| X | 23 mm | 52 mm/s |
| Y | 18 mm | 44 mm/s |
| Z | 25 mm | 51 mm/s |

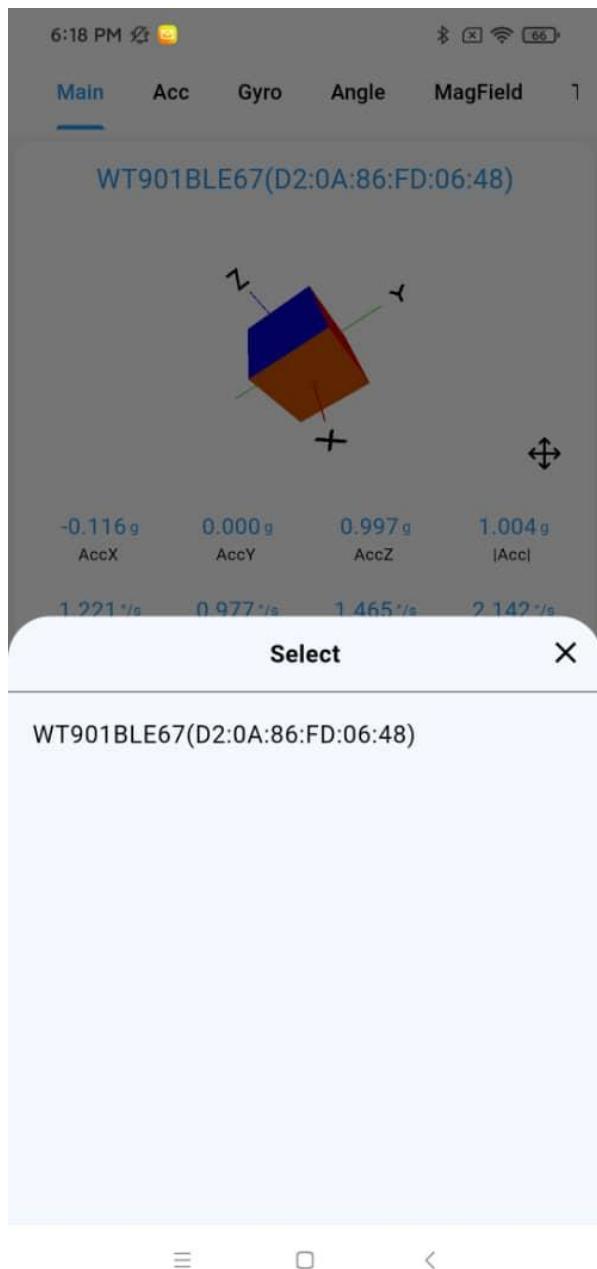


Setting up the sensor

Click " WIT " on the left and click the small gear to enter the configuration interface



Select the sensor you want to configure (multiple devices will be displayed)



system

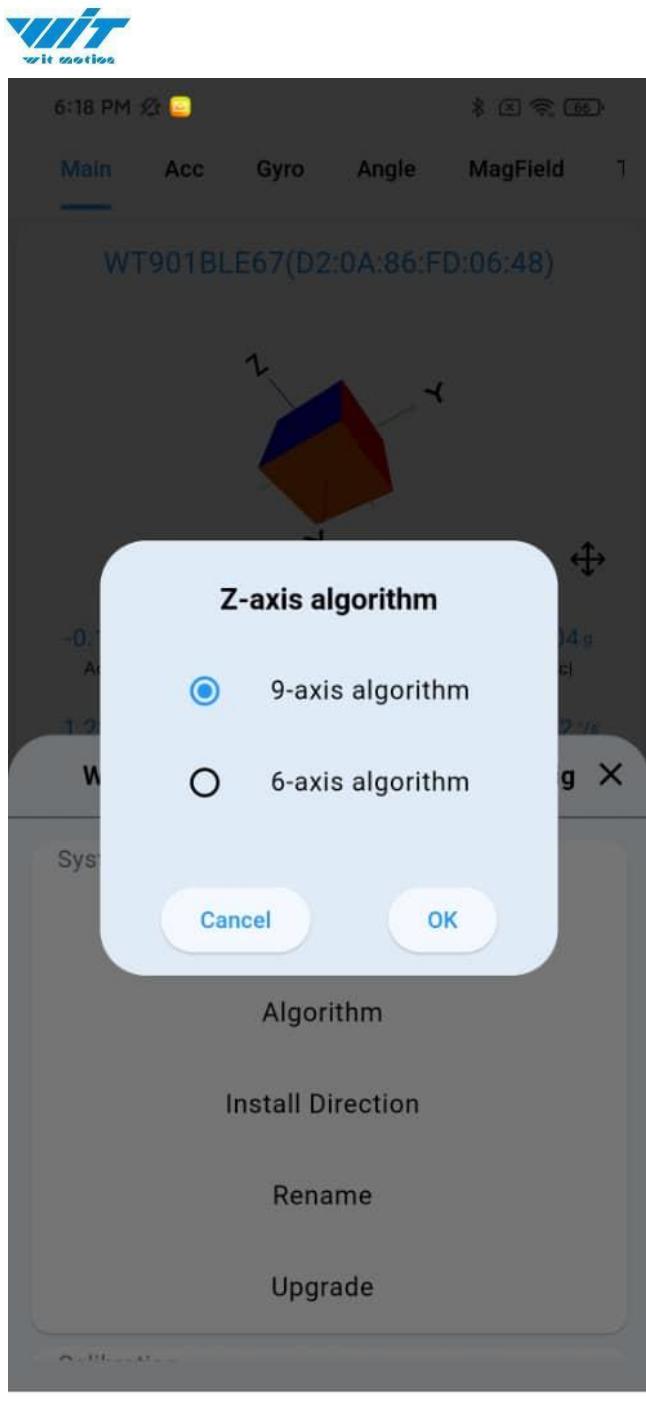
Factory Reset

Restoring the factory settings will reset the sensor configuration. After the restoration is complete, you need to search and connect the device again.



algorithm

| | |
|---------------|--|
| Optional | 6-axis algorithm 9-axis algorithm |
| default value | 9-axis algorithm |
| illustrate | <p>9-axis algorithm: The Z-axis angle is an absolute angle, which is affected by the magnetic field and is based on the northeast sky as the coordinate system. It cannot be relatively zeroed.</p> <p>6-axis algorithm: The Z-axis angle is a relative angle, obtained by integrating the angular velocity. There is drift, and a zeroing operation can be performed.</p> |

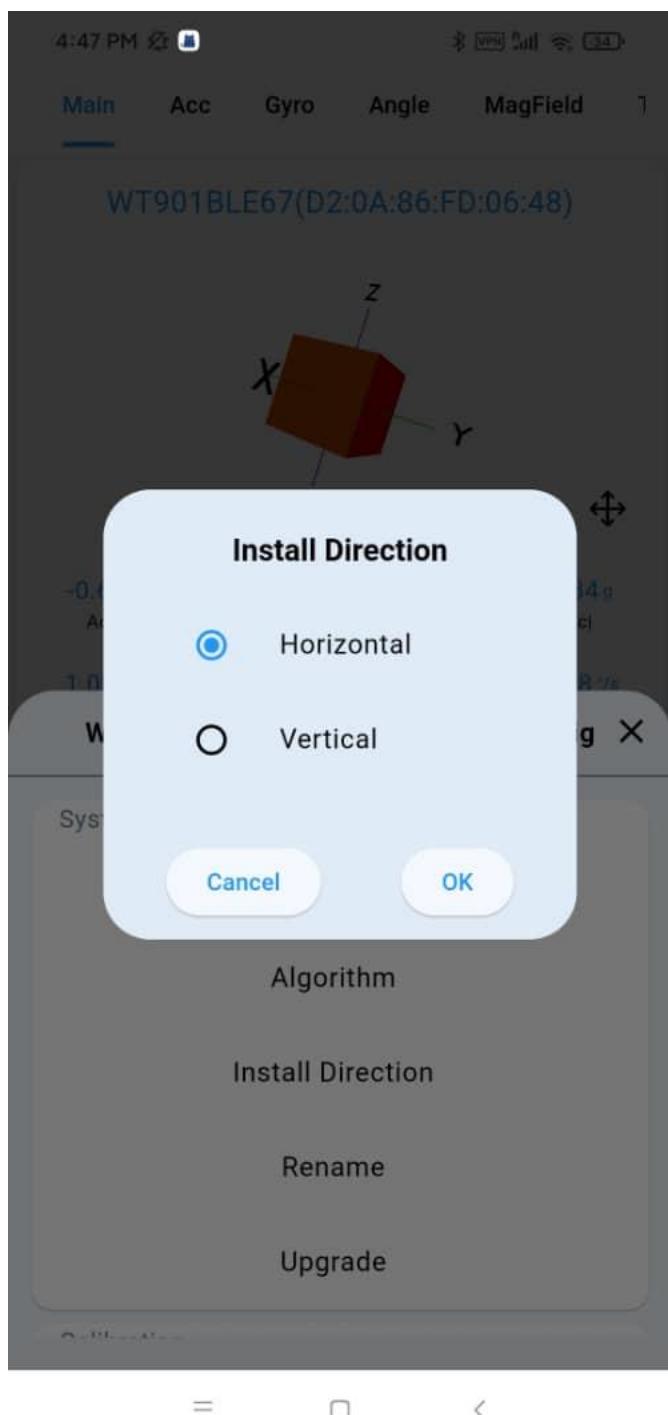


Installation direction

| | |
|---------------|--|
| Optional | Vertical installation Horizontal installation |
| default value | Horizontal installation |
| illustrate | Horizontal installation: Factory default installation direction, |

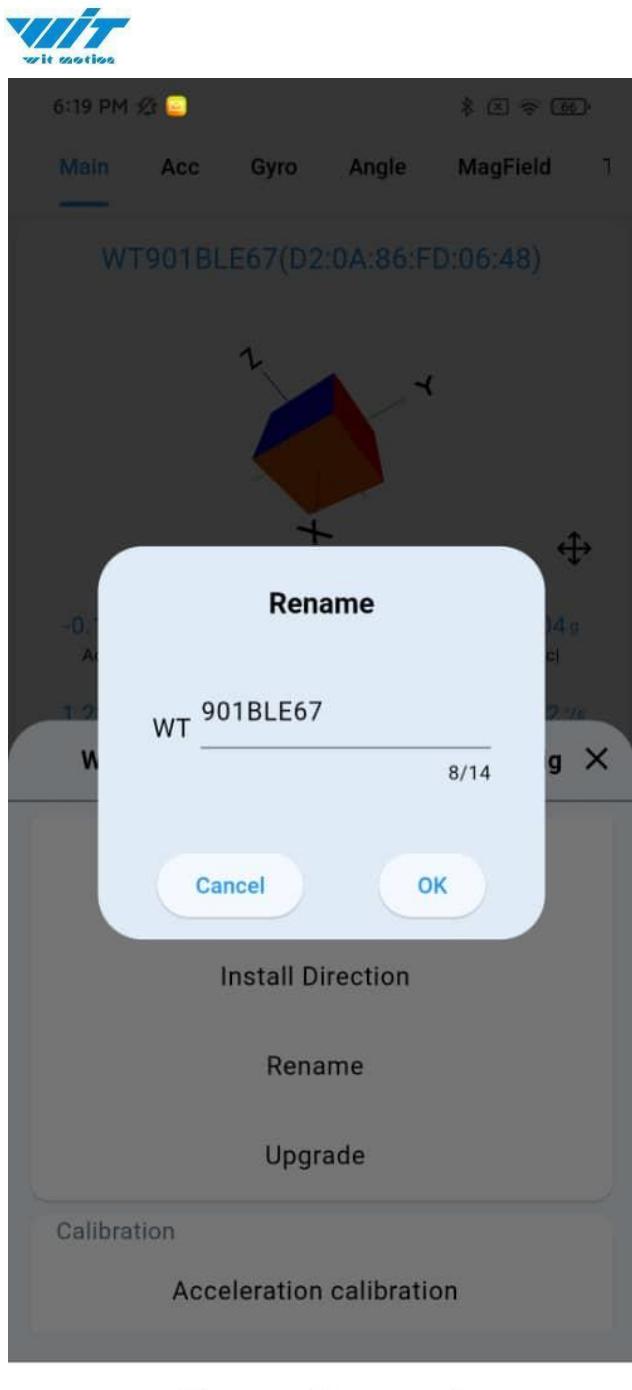
the axial direction is consistent with the sensor silk screen

Vertical installation: When the sensor needs to be placed vertically, it can be set to vertical installation. When it is installed vertically, rotate the module 90° around the X axis and place it vertically upward (that is, the Y axis is facing upward), and then set it to vertical installation. After the setting is completed, calibration is required before use.



Change Name

The sensor Bluetooth name can be changed according to the needs of different user scenarios (after the change is successful, you need to search and connect the device again)



Firmware Upgrade

This function only supports nordic nrf51 and nrf52 chips. Make sure the upgrade firmware is available and get help from our company before upgrading. The upgrade operation cannot be undone.



4:48 PM

VPN

R

34

< DFU firmware upgrade

Please select device

Not Selected

DfuTarg D2:0A:86:FD:06:49

Please select file

Not Selected

Select file

FilePath

Prepare for upgrade

Start update

≡ □ <

Select device: After entering the upgrade mode, the sensor will send a DfuTarg Bluetooth connection. Please select the device to be upgraded based on the MAC address.

Select file: Select the dfu firmware upgrade file in ZIP format. Please download it to your local computer in advance.



Start upgrading: Wait for the progress bar to complete

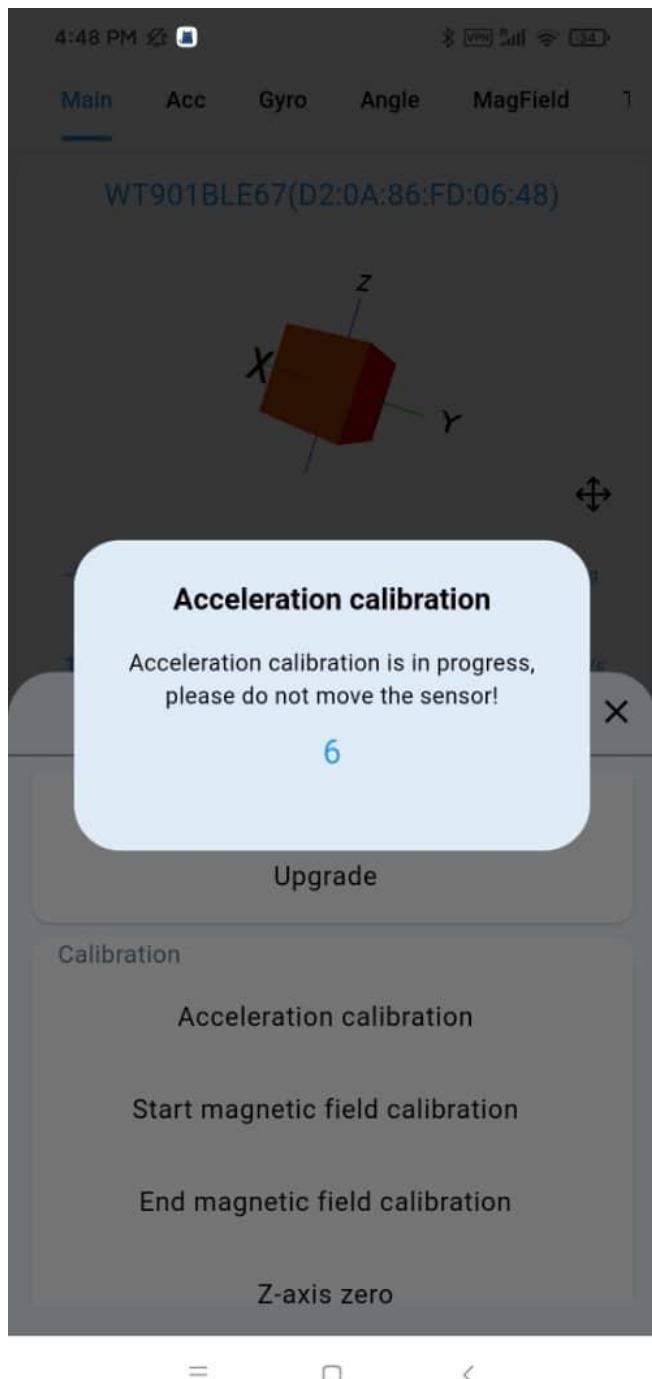
calibration

It can perform acceleration calibration, magnetic field calibration, Z-axis zeroing (6 axes), angle reference and other operations.

Acceleration Calibration

Note: The device has been professionally calibrated for acceleration when it is produced, so users do not need to recalibrate it. If you want to calibrate, please place the device on a horizontal surface for acceleration calibration.

Acceleration calibration can calibrate the three-axis acceleration of the sensor's current position to a static state of 0, 0, 1



Magnetic field calibration

Note: Only 9-axis sensors have magnetic field calibration function

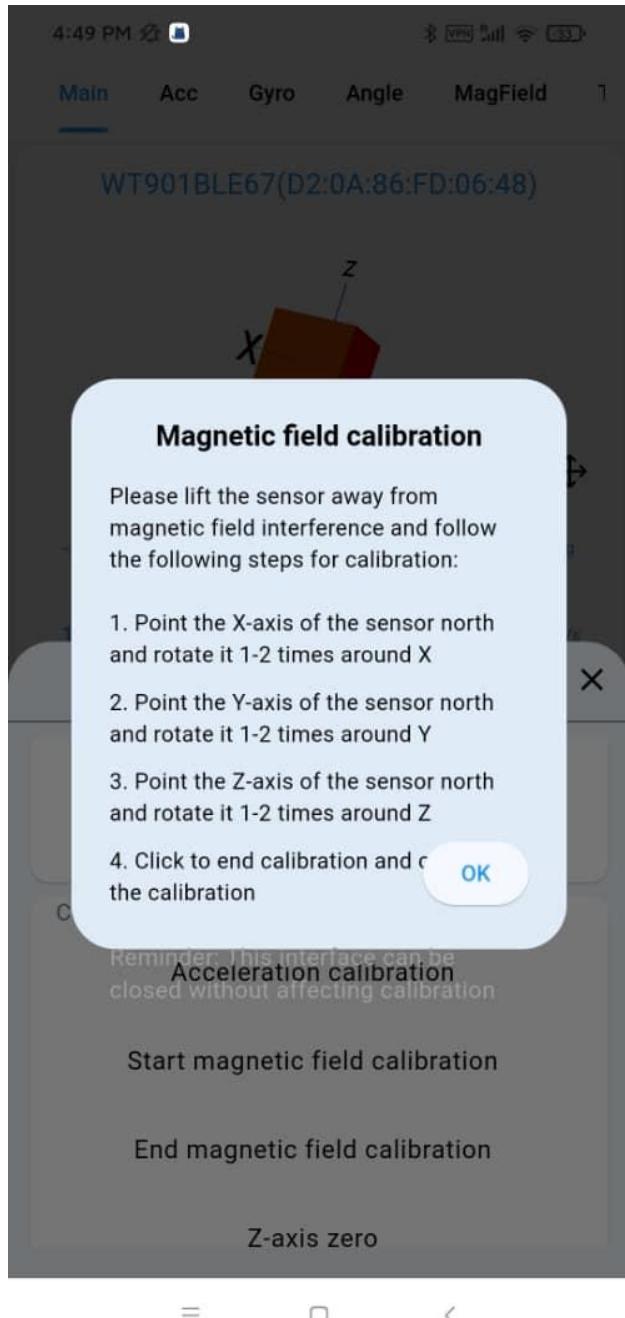
The magnetic field calibration uses the spherical fitting method, which requires the sensor to be rotated 1 to 2 times around the X, Y, and Z axes respectively.

1. Click on the calibration interface to start magnetic field calibration.



2. Point the three axes of the sensor to the east and rotate it around the axis 1 to 2 times (for details, please refer to the video below)

3. Click on the calibration interface to complete the magnetic field calibration.



If the calibration result is not satisfactory, you can choose to use a PC to calibrate. The process is as follows:

Spherical fitting method magnetic field host computer calibration video:

<https://www.bilibili.com/video/BV1PG4y1K7SV/>



Z axis angle zero

Note: The Z-axis angle zeroing function is only available under the 6-axis algorithm.

Clear the Z-axis angle value of the sensor at this time

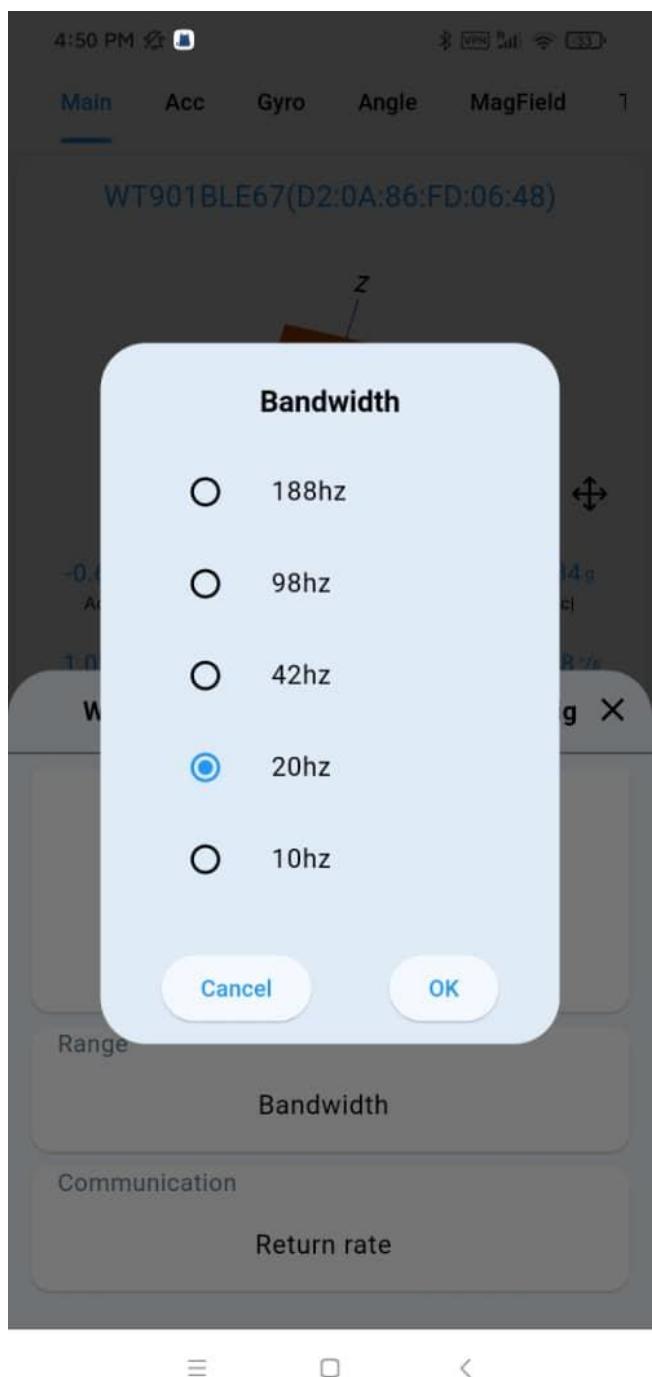
Set Angle Reference

Configuring the angle reference can set the current position of the sensor to the reference horizontal plane, and the phenomenon is that the XY axis angle returns to zero

scope

Modify bandwidth

| | |
|---------------|---|
| scope | 5 - 256 Hz |
| default value | 20hz |
| illustrate | <p>1. If the movement of the object being measured changes very quickly, a high bandwidth is required, otherwise the bandwidth can be reduced. A high bandwidth can make the data respond faster and more timely, but it will bring greater measurement noise. A low bandwidth can make the measurement data smoother and filter out most of the high-frequency noise, but the problem is that the response will be delayed. It is suitable for situations where the object being measured moves slowly and does not need to respond quickly to changes.</p> <p>2. If the data output rate is higher than the bandwidth, resampling may occur, that is, two or more adjacent data are exactly the same.</p> |



Communications

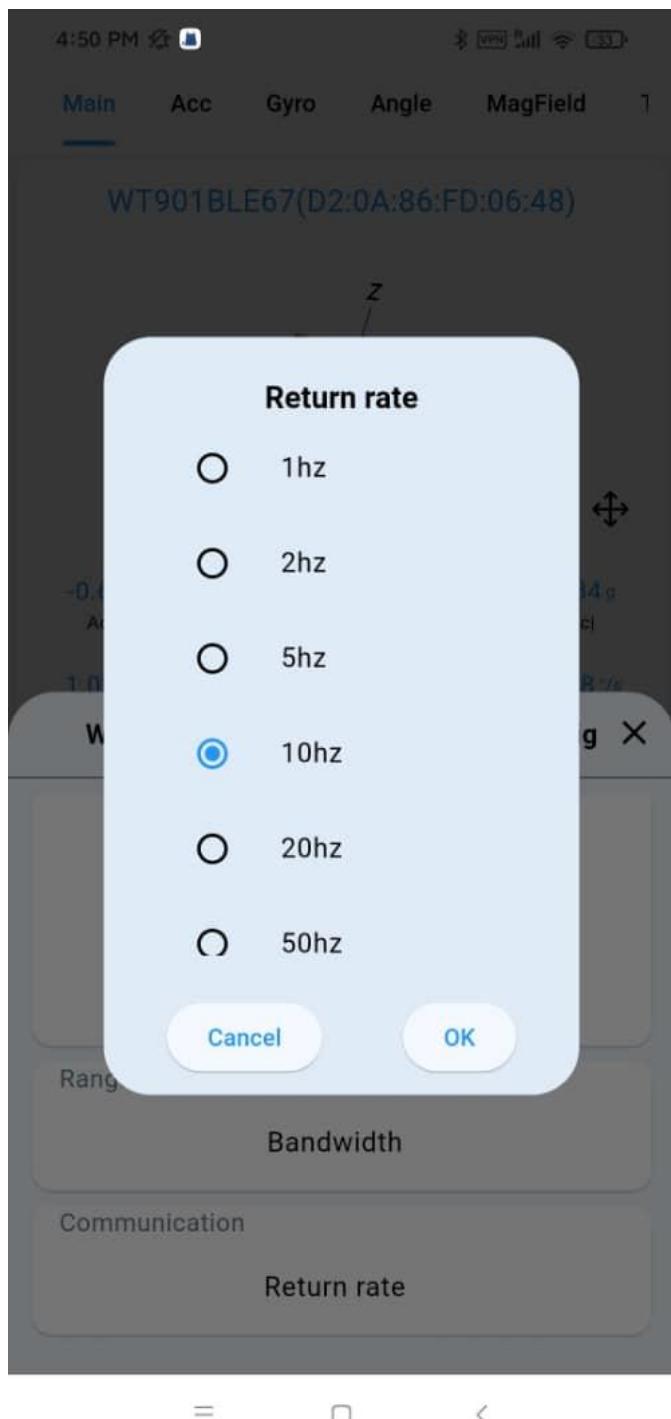
Sensor return rate and baud rate can be configured

Set the return rate

scope 0.2 - 200 Hz



| | |
|---------------|-----------------------------|
| default value | 10hz |
| illustrate | Sensor data rate per second |





Recording Data

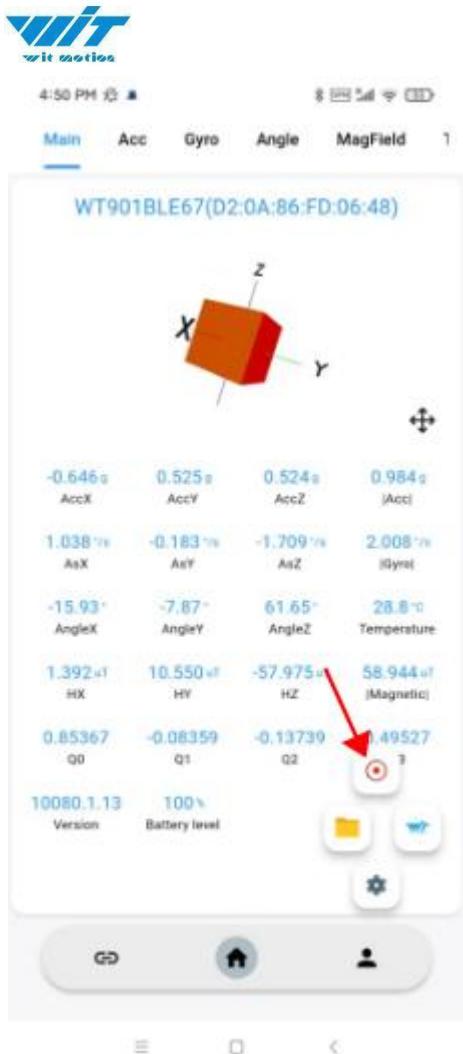
1. Start recording

Click the Wit buoy and click the Start Recording button above to start recording.



2. End the recording

Click the Wit buoy and click the End Recording button above to end the recording.

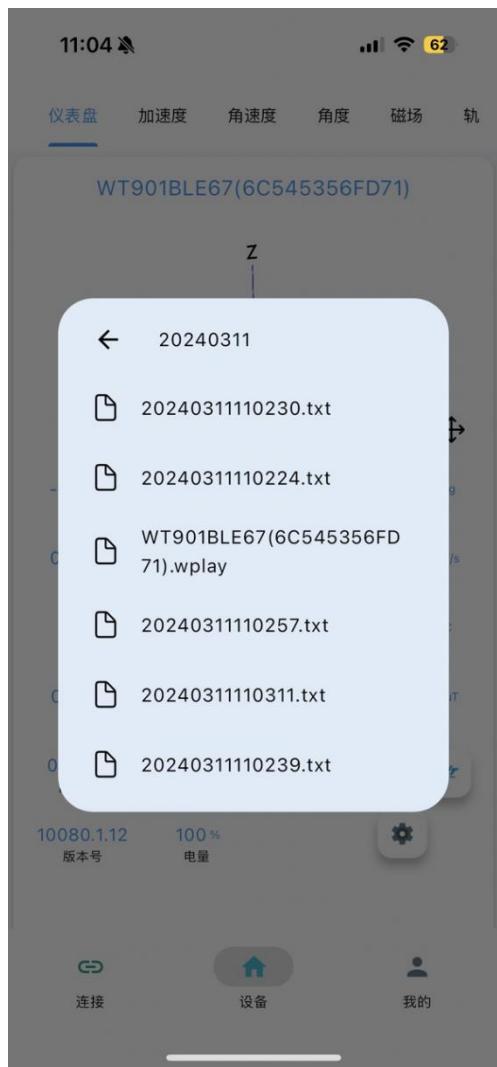


3. View files

Click the Wit buoy and click the folder button in the middle to view the local record files.



It will be displayed in folders according to the recording date, and will record .wplay playback files and .txt data charts at the same time



Click the corresponding record file to preview the corresponding record content.

(Note: The .wplay format records the file in hexadecimal format and cannot be directly opened and viewed with Notepad)



4:51 PM ⓘ 🔍

← 20240913164226.txt ↗

```
time DeviceName AccX(g) AccY(g) AccZ(g) AsX(/s)
AsY(/s) AsZ(/s) AngleX(°) AngleY(°) AngleZ(°) HX(uT)
HY(uT) HZ(uT) Q0() Q1() Q2() Q3() Temperature(°C)
Version() Battery level(%)
2024-9-13 16:42:26.599 WT901BLE99(F5:1A:5F:A8:7C:1A)
0.111 0.934 -0.250 -4.517 -3.052 17.944
100.16 -11.80 -122.18 -69.580 2.744
71.736 -0.37613 -0.30313 0.70413 0.52032 29.0 13112 75
2024-9-13 16:42:26.656 WT901BLE99(F5:1A:5F:A8:7C:1A)
0.204 0.928 -0.190 -3.052 -9.583 9.216
100.71 -12.12 -124.63 -69.580 2.744
71.736 -0.37613 -0.30313 0.70413 0.52032 29.0 13112 75
2024-9-13 16:42:26.831 WT901BLE99(F5:1A:5F:A8:7C:1A)
0.221 0.964 -0.256 8.301 -9.521 -1.587
101.30 -11.83 -126.05 -67.522 3.920
72.422 -0.37613 -0.30313 0.70413 0.52032 29.0 13112 75
2024-9-13 16:42:26.834 WT901BLE99(F5:1A:5F:A8:7C:1A)
0.171 0.920 -0.215 2.991 -9.888 0.305
101.82 -11.85 -126.71 -67.522 3.920
72.422 -0.37613 -0.30313 0.70413 0.52032 29.0 13112 75
2024-9-13 16:42:27.19 WT901BLE99(F5:1A:5F:A8:7C:1A)
0.223 0.939 -0.299 11.047 -0.305 -0.671
102.87 -11.81 -127.95 -67.522 3.920
72.422 -0.34335 -0.28360 0.72809 0.52103 29.0 13112 75
2024-9-13 16:42:27.83 WT901BLE99(F5:1A:5F:A8:7C:1A)
0.206 0.930 -0.264 6.653 -0.916 -3.357
103.46 -12.08 -128.06 -67.522 3.920
72.422 -0.34335 -0.28360 0.72809 0.52103 29.0 13112 75
2024-9-13 16:42:27.263 WT901BLE99(F5:1A:5F:A8:7C:1A)
0.205 0.931 -0.278 -0.488 -1.404 1.343
103.99 -12.02 -128.71 -67.522 5.096
72.618 -0.34335 -0.28360 0.72809 0.52103 29.0 13112 75
2024-9-13 16:42:27.265 WT901BLE99(F5:1A:5F:A8:7C:1A)
0.204 0.920 -0.279 3.418 -6.348 -0.610
104.35 -12.12 -129.46 -67.522 5.096
72.618 -0.34335 -0.28360 0.72809 0.52103 29.0 13112 75
```

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4. Delete files

Swipe right on the corresponding file list to display the delete button



5. Export files

Due to the limitations of different mobile phone system platforms, the file storage location and export method are different