Android APP Configuration Introduction

PS. We make this ordinary document for a better update in the future. Please according to your sensor type to check the content. For example, WT901BLECL can modify the sensor's name, but BWT901CL/BAT61CL can't.

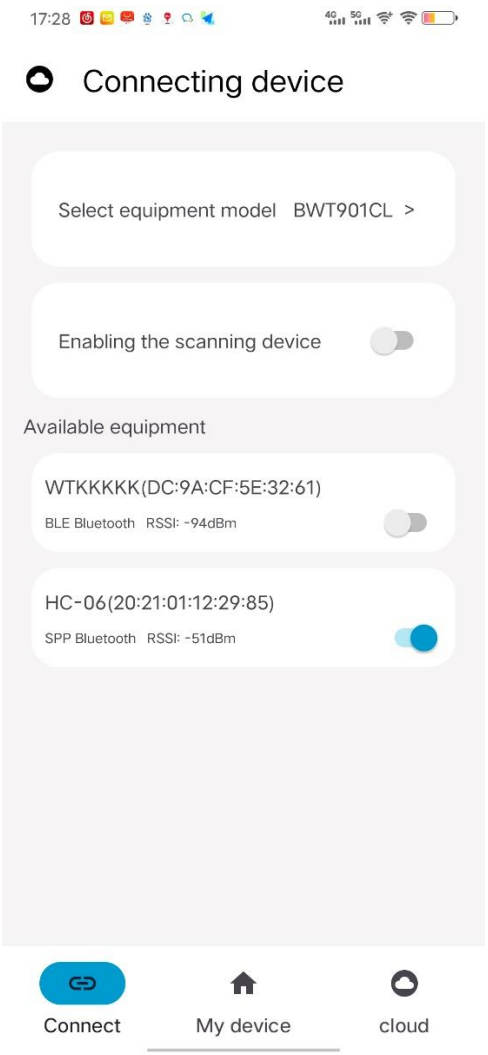
For APP tutorial, please check the below videos.
https://youtube.com/playlist?list=PL43tdDrVL_VBMU2CrEZfC0MxA0aRz-EY1&si=B0Cj49DbSIKyaNn9

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Connecting device



Select equipment model

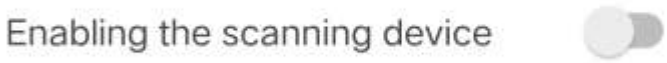
Please choose the corresponding sensor type.

(BWT901CL/WT901WIFI/BWT901BLECL5.0/WTVB01-BT50)



Enabling the scanning device

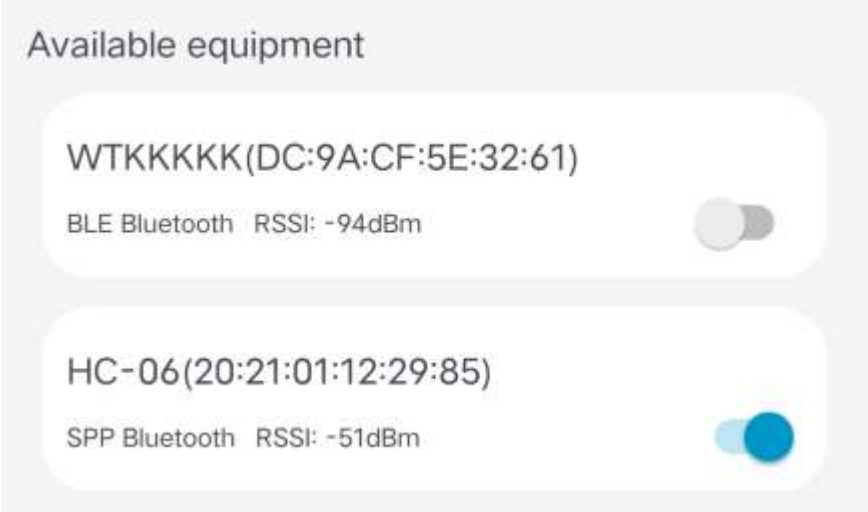
Start for searching.



Available equipment

Choose the responding type. If you’re using BWT901CL/BWT61CL, please choose HC-06.

When you’re using WT901BLCL/WT901BLE/WT9011DCL sensor, please choose WT901BLE68/ WT901BLE67.

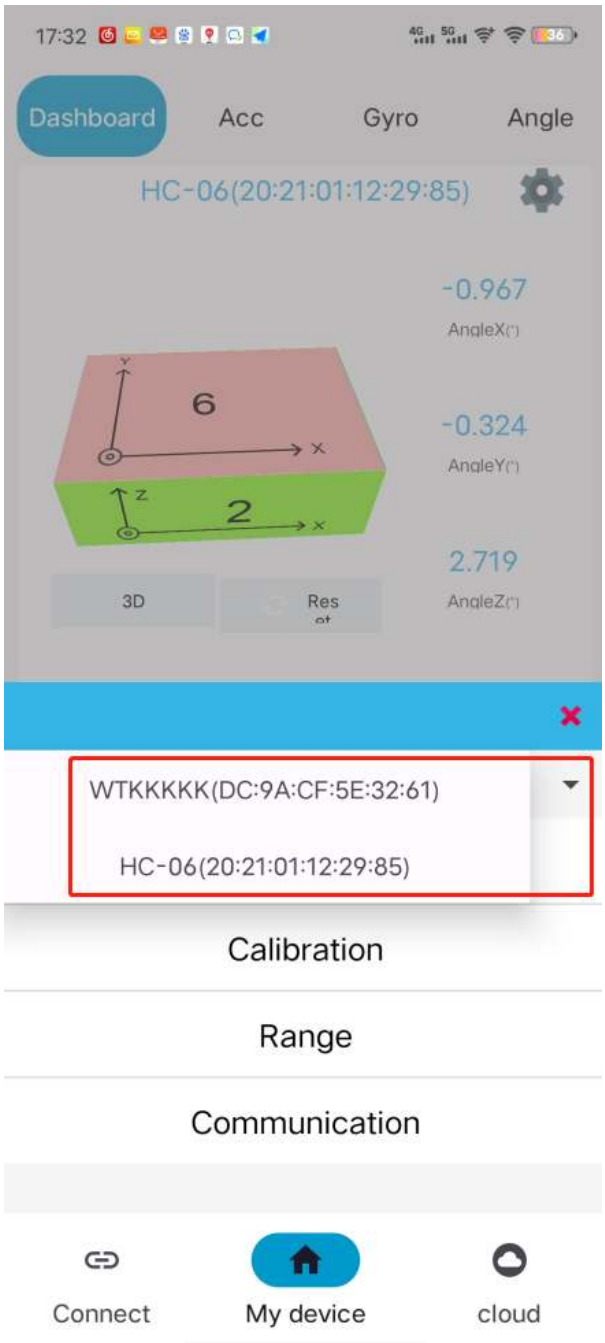


My device

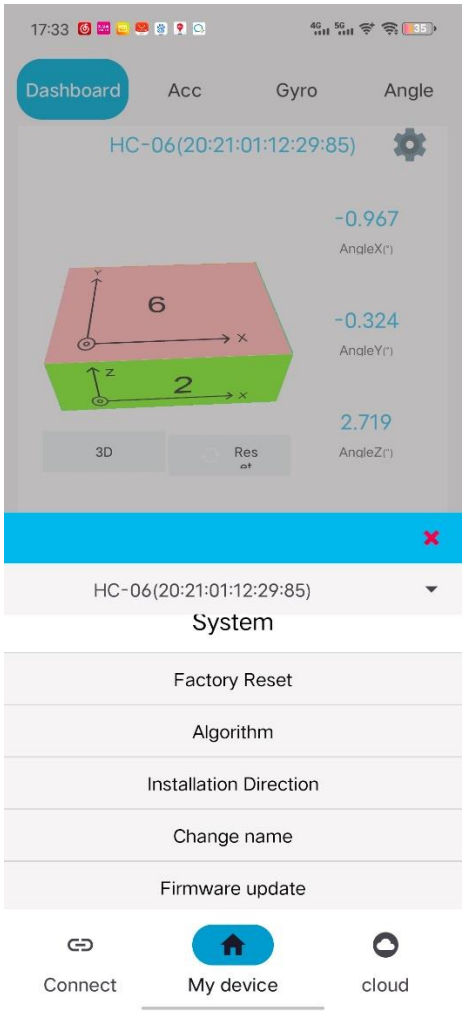
Choose the sensor’s type

Choose the responding type. If you’re using BWT901CL/BWT61CL, please choose HC-06.

When you’re using WT901BLCL/WT901BLE/WT9011DCL sensor, please choose WT901BLE68.


17:32
Dashboard
Acc
Gyro
Angle
HC-06(20:21:01:12:29:85)
-0.967
AngleX(°)
-0.324
AngleY(°)
2.719
AngleZ(°)
3D
WTKKKKK(DC:9A:CF:5E:32:61)
HC-06(20:21:01:12:29:85)
Calibration
Range
Communication
Connect
My device
cloud

System



Factory Reset

When the sensor is online, click the "Configuration" , and click "Reset " in the sensor configuration interface. (This method needs to use the PC software to connect the sensor, and the configuration interface shows that it is online. If it shows that the offline command will not take effect, please try to use the short-circuit method to reset).

Algorithm

You can free to choose the sensor axis to 9-axis or 6-axis.
Six-axis sensors such as WT61P use a 6-axis algorithm, and the Z-axis angle is mainly calculated based on the angular velocity integral.

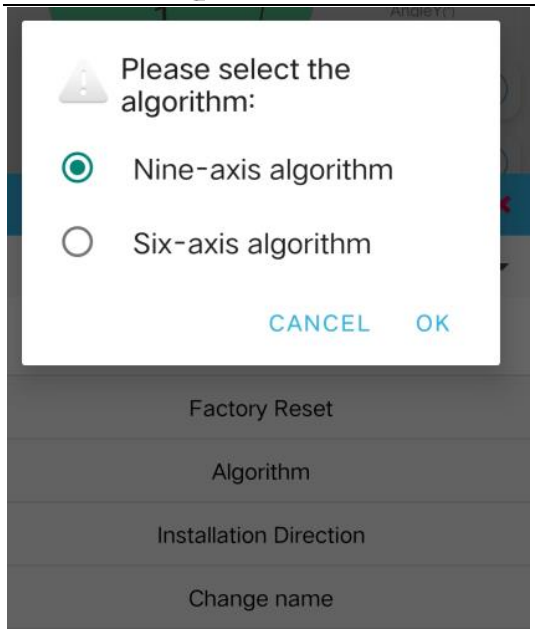
Nine-axis sensors such as WT901 use a 9-axis algorithm, and the Z-axis angle is mainly calculated based on the magnetic field, and there will be no drift. When the WT901 is used in the environment with magnetic field interference, it can try to use the 6-axis algorithm to detect the angle.

How to use the 9-axis algorithm to 6-axis algorithm: Change the algorithm to "six- axis" in the configuration column of the PC software, and then perform the addition calibration and Z-axis zero calibration. After the calibration is completed, it can be used normally.

Note: Only 9-axis sensors such as WT901 can convert the algorithm, and the system defaults to 9-axis algorithm. Six-axis sensors such as WT61P cannot perform conversion algorithms.

Note: Z-axis return to 0 is only valid for 6-axis algorithm. Switching nine-axis sensors such as WT901 to 6-axis algorithm can realize Z-axis return to 0.

The Z-axis angle of the nine-axis sensor such as WT901 under the 9-axis algorithm is an absolute angle, which takes the northeast sky as the coordinate system and cannot be returned to 0 relatively.


Please select the algorithm:
Nine-axis algorithm
Six-axis algorithm
CANCEL
OK
Factory Reset
Algorithm
Installation Direction
Change name

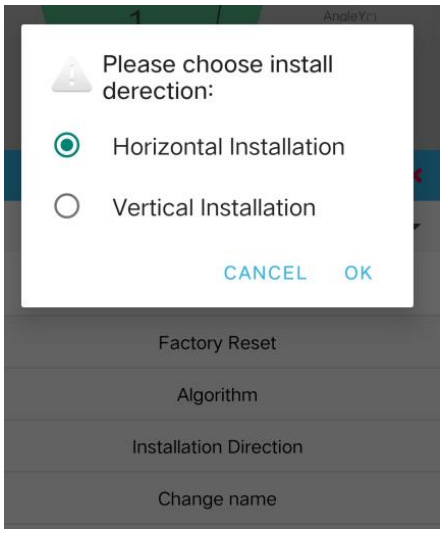
Installation Direction

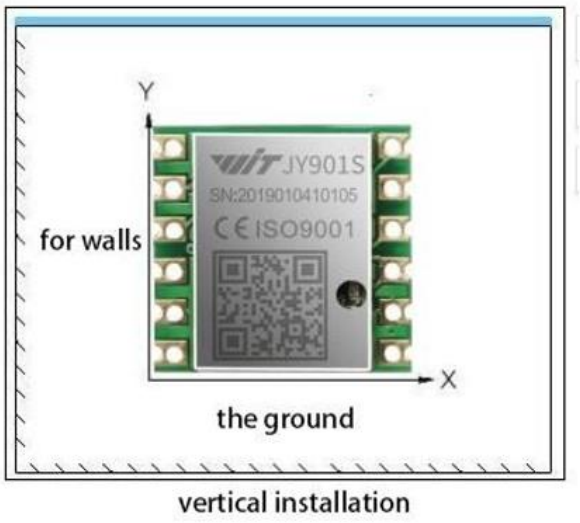
The default installation direction of the module is horizontal installation. When the module needs to be placed vertically, vertical installation can be used.

Vertical installation method: When installing vertically, rotate the module 90° around the X axis and place it vertically upward, and select "Vertical" in the "Installation Direction" option in the configuration column of the host computer. After the setting is completed, it needs to be calibrated before it can be used.

The module is installed horizontally by default. When the module needs to be installed vertically, the vertical installation setting can be used.

Vertical installation:





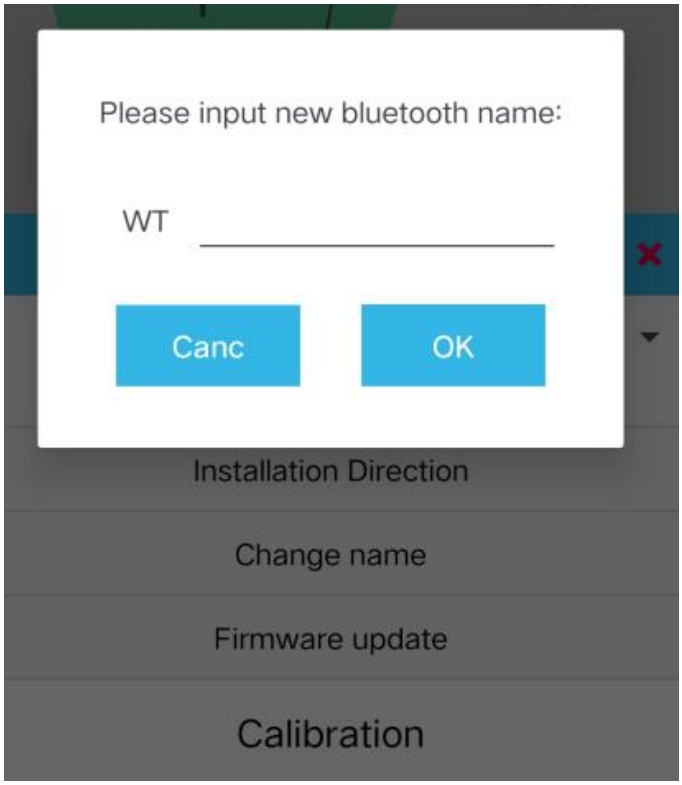
vertical installation

Change name

Step 1. Modify your device name.

Due to the integrated WitMotion algorithm and settings, the device name will always start with “WT”.

Step 2. Input the name you prefer. Then click the “OK”.

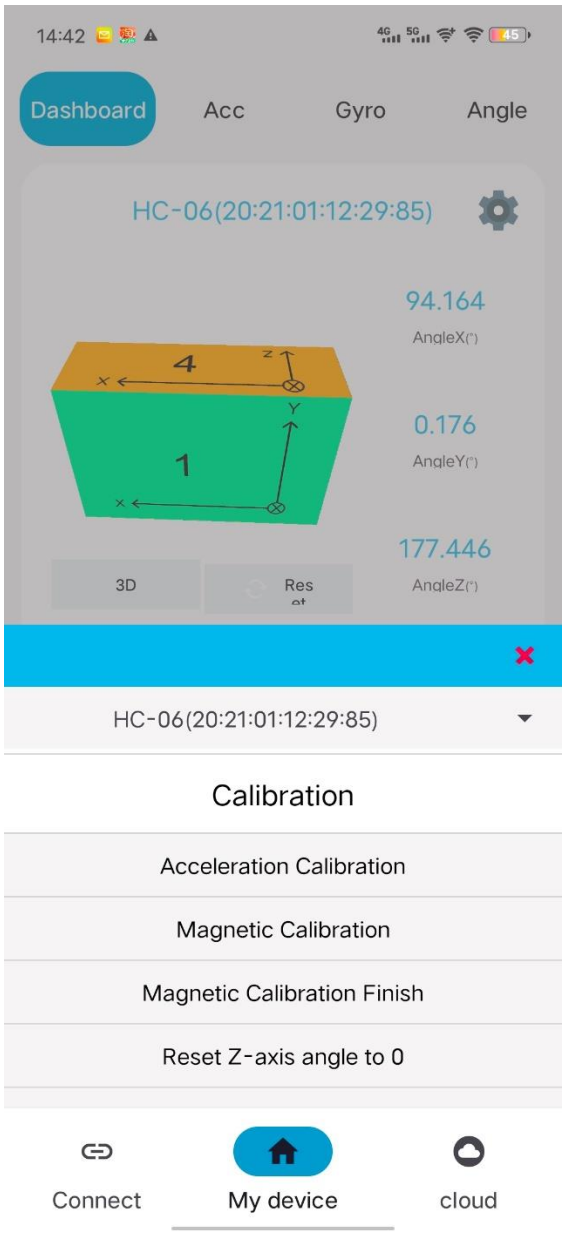


Firmware update

Firmware update need to obtain corresponding firmware version number. Then we will arrange the cosrresponding firmware.

PS: If the sensor can normal work, we are not recommend to update the firmware.

Calibration



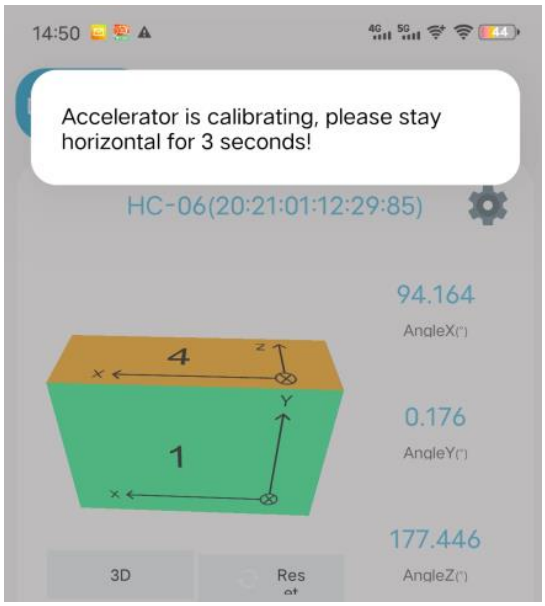
Acceleration Calibration

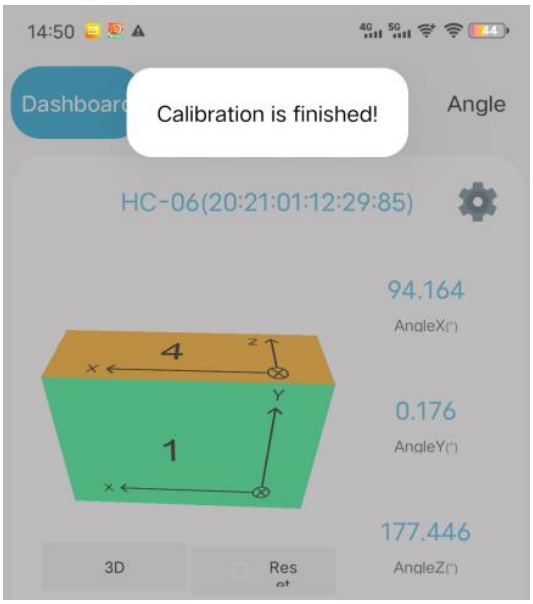
Acceleration Calibration: Used to remove the zero offset of the accelerometer. The sensor will have different degrees of zero offset error when it leaves the factory, and the measurement will be accurate only after manual calibration.

Acceleration Calibration method:

First, keep the module horizontally still, and click the acceleration in the calibration bar under the sensor configuration window. After 1 to 2 seconds, the acceleration values of the three axes of the module will be around 0 0 1, and the angles of the X and Y axes will be around 0°. The XY axis angle is more accurate after calibration.

Note: When the Z axis is horizontally stationary, there is a gravitational acceleration of 1 G.





Magnetic Field Calibration

A video for Magnetic Field Calibration:

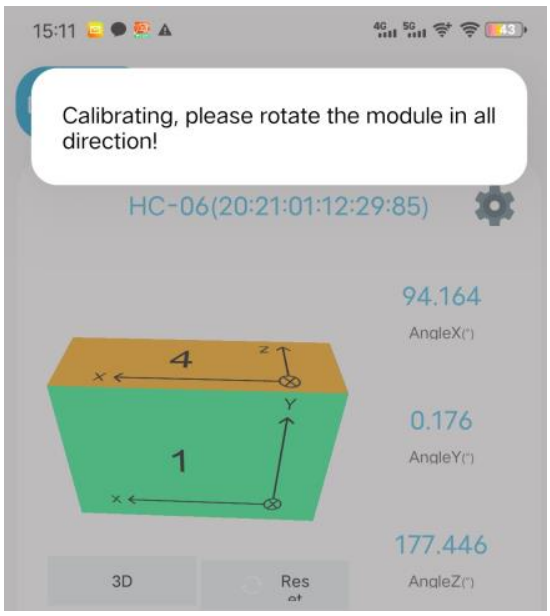
https://drive.google.com/drive/folders/1Dlu5Rhs7uqkigJeU7tIfYGzCbLwP-Ebq?usp=share_link

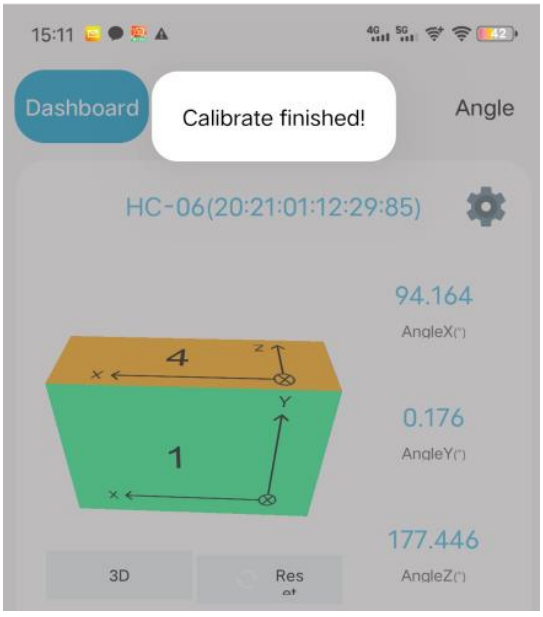
Note:

1. Only 9-axis sensor needs to calibrate the magnetic field, 6 axis hasn't magnetic field.
2. The earth's magnetic field is weak and easily disturbed, especially metal materials such as iron, cobalt, nickel, or magnets, which will cause locally.
3. Calibration needs to be far away from the sources of interference. Common sources of interference include computer speakers, iron beam support under the desk, steel mesh in the middle of the floor, etc.

The magnetic field calibration method is as follows:

1. Connect the sensor to the Android first, place the module away from the interference magnetic field (50cm away), and then open the WITMOTION APP.
2. Click the "Magnetic Calibration" button. Rotate the XZ, YZ, and XY planes 1-3 circles in the numerical plane in the north-south direction respectively, and stop the calibration after drawing a relatively regular ellipse. After calibration is complete, click "Magnetic Calibration Finish".


15:11
Calibrating, please rotate the module in all direction!
HC-06(20:21:01:12:29:85)
94.164
AngleX(°)
0.176
AngleY(°)
177.446
AngleZ(°)
3D
Res
et


15:11
Dashboard
Calibrate finished!
Angle
HC-06(20:21:01:12:29:85)
94.164
AngleX(°)
0.176
AngleY(°)
177.446
AngleZ(°)
3D
Res
et

Reset Z axis angle to zero

The Z-axis return to 0 is only valid for the 6-axis algorithm. Switching the nine-axis sensor such as WT901 to the 6-axis algorithm can realize the Z-axis return to 0.

The Z-axis angle of the 9-axis sensor such as WT901 under the 9-axis algorithm is an absolute angle, which takes the northeast sky as the coordinate system and cannot be returned to 0 relatively.

Returning the Z-axis to 0 is to make the initial state of the Z-axis angle of the module to be a re.ative 0 degree angle. Before the module is used and the Z-axis.

Set Angle Reference

Set the current angle and attitude of the module to the horizontal plane

Note: There is a problem with the simultaneous use of angle reference and acceleration calibration, which may cause abnormal acceleration and abnormal angle. If you need to use it at the same time, please contact relevant technical support for assistance.

Ranges

Bandwidth



Change the bandwidth as you want.

Bandwidth refers to the maximum change speed of the measured object, the unit is Hz, that is, the number of changes in 1 second.

If the motion of the measured object changes rapidly, high bandwidth is required, otherwise, the bandwidth can be reduced.

High bandwidth can make data response faster and more timely, but it will bring greater measurement noise.

Low bandwidth can make measurement data smoother and filter out most of the high-frequency noise, but the problem is that the response will be

somewhat delayed, suitable for the situation where the measured object moves slowly and does not need to respond quickly to changes.

If the data output rate is higher than the bandwidth, resampling may occur, that is, the data is exactly the same two or several times adjacent to each other.

Communication

Retrieval Rate

Setting method: Click the configuration option, and select the return rate from 0.1 to 200HZ in the configuration column.

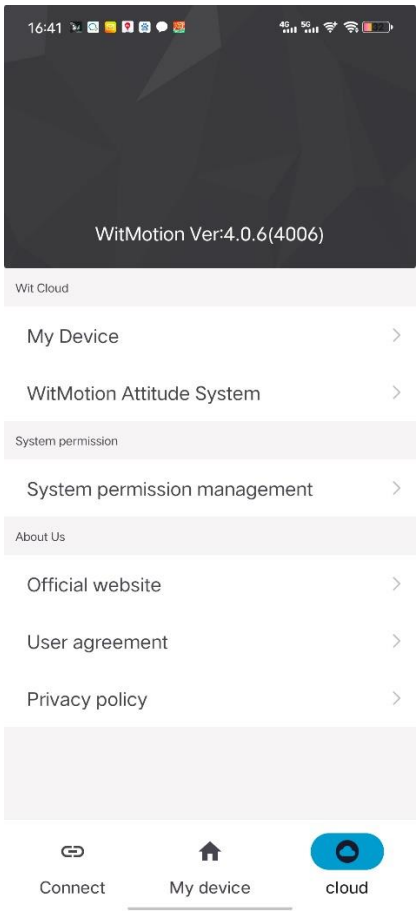
The default return rate of the module is 10Hz, and the maximum return rate supports 200Hz.

10HZ refers to 10 data packets sent back in 1 second, and 1 data packet sent back by default is 11 bytes.

Note: If there is a lot of returned content and the baud rate is low at the same time, it may not be able to transmit so much data. At this time, the module will automatically reduce the frequency and output at the maximum allowable output rate. Simply put, if the return rate is high, the baud rate should also be higher, generally 115200.

Note: If you need a return rate of 200HZ, please only check three quantities, such as "acceleration", "angular velocity", and "angle".

Cloud



Wit Cloud

My Device

