Calibrating the Mercury V1 sensors

Altimeter Cloud

Gyroscope calibration

The gyroscope is a 3-axis sensor that detects how fast the altimeter is spinning in each direction. As the Mercury does not have a magnetic compass, it's important to calibrate the gyroscope. These values are then used to calculate the altimeter's orientation in flight. It's not perfect, but it remains accurate for a short period of time and is satisfactory for altimeters.

It's really easy to calibrate the gyroscope. Simply place your device completely stable in the orientation you are planning to fly it in. Then click the Calibrate Gyro tick box and save your settings on the Altimeter Cloud. Don't move about or knock the sensor while it calibrates. Even loud music could cause your calibration to be slightly out. Your altimeter will flash a red status on the LED for about 25 seconds while it takes readings.

Where to find the settings

Altimeter Cloud:
My Devices → Click on Settings on chosen device → General settings box
Direct on Mercury's Webserver:
Settings → Click on Calibrate Sensors → Scroll to bottom of the page → Calibrate Gyroscope

Accelerometer calibration

The accelerometer measures the altimeter's acceleration in each axis. One great thing about accelerometers is that while not moving, they can show you which way up the altimeter is in regards to gravity as they detect the 1G of gravity at rest. Your accelerometer will be very slightly out due to manufacturing tolerances, and calibrating it will correct this.

The accelerometer calibration requires a little bit more work than the gyroscope. You need to hold the device steady in all 6 orientations as shown in the image below, and in the order shown below.

The status LED will be red when you have not oriented the device correctly. Ensure once it goes turquoise/cyan in colour that you hold the altimeter as steady as possible. You want to try and get the axis perfectly aligned vertically each time. After 3.5 seconds, the status LED will flash green before going red and waiting for you to align the next axis in the sequence. The process only takes around 30 seconds, but you need steady hands for best results.

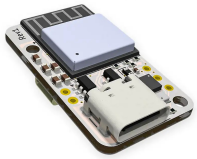
If you choose not to complete calibration, you can turn the device off and back on at any time. If you select both gyroscope and accelerometer calibration tick boxes at the same time, the device will do the gyroscope calibration first. Remember not to move or knock the device while it calibrates the gyroscope before you perform the accelerometer calibration.

Where to find the settings

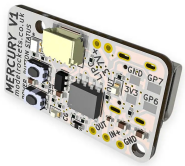
Altimeter Cloud:
My Devices → Click on Settings on chosen device → General settings box
Direct on Mercury's Webserver:
Settings → Click on Calibrate Sensors → Scroll to bottom of the page → Calibrate Accelerometer

1: Place the altimeter on it’s back

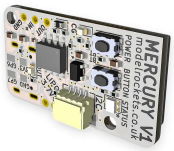
2: Place the altimeter on it’s front



3: On it’s side with the I2C port upwards



4: On it’s side with the I2C port downards



5: Upright with the USB port downwards

6: Upright with the USB port upwards