



DJI Phantom 3 IMU (Inertial Measurement Unit) Calibration Procedure

[Overview](#)

[What is an IMU and how does the work](#)

[When to perform an IMU Calibration](#)

[Calibration Procedures](#)

[What to do if IMU Calibration fails](#)

[IMU Videos](#)

Overview

This document reviews the process to calibrate the Inertial Measurement Unit IMU of the DJI Phantom UAV.

In this lesson, you will learn:

- What is an IMU and how does it work
- What affects IMU Accuracy
- When to perform an IMU calibration
- How to perform an IMU calibration
- What to do if IMU calibration fails

What is an IMU and how does the work

The IMU in the Phantom 3 works by detecting the current rate of acceleration using micro accelerometers, and detects changes in rotational attributes like pitch, roll and yaw using micro gyroscopes. The compass (magnetometer) assists to counter orientation drift.

For the aircraft to be able to stay level, it needs to know what level looks like - and needs to be reset occasionally for it to shed any accumulated error. Inputs from the IMU also allow the camera to hold steady on the horizon, which is a very difficult task, give the constant aircraft adjustments and vibrations. If you would like more info on the IMU, [READ MORE HERE](#)

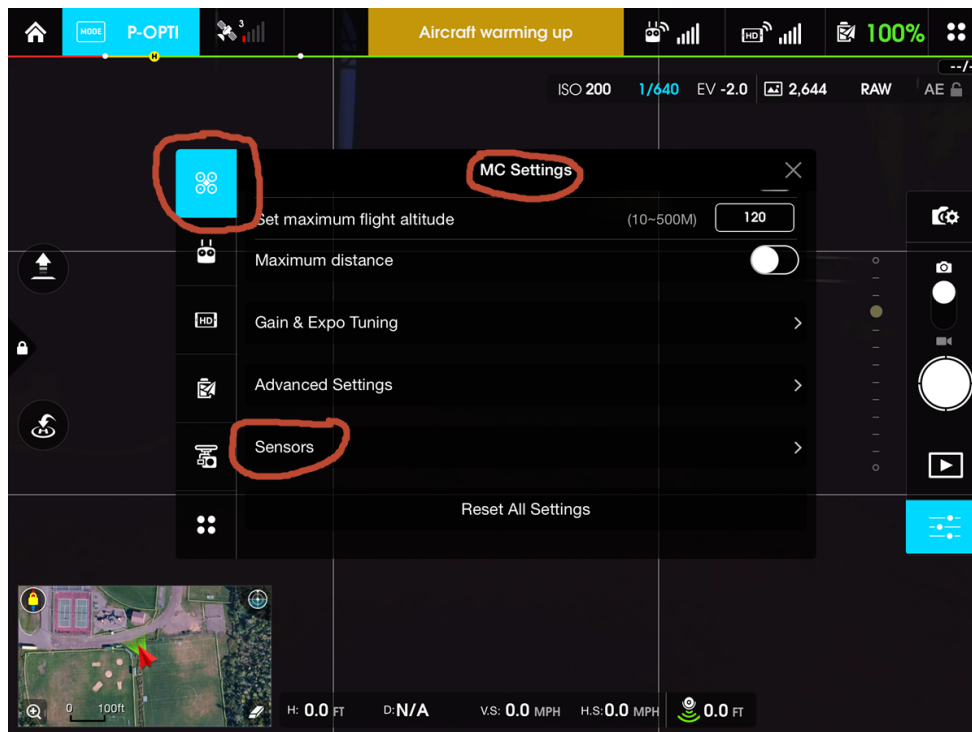
When to perform an IMU Calibration

While IMU calibration is not performed that often, it should be one of the first things you look at when troubleshooting a problem or when performing routine maintenance. The IMU accumulates small errors as time goes on and need to be occasionally reset to perfect level.

- When drifting and instability becomes apparent
- After Firmware Updates
- Camera horizon is not level
- Receive an alert notice from the P3 MC that calibration is needed.

Calibration Procedures

1. Turn on the Remote Controller, Phantom and tablet/phone. Connect the remote controller to the tablet/smartphone with the appropriate cable.
2. Enter the Pilot App and navigate to the IMU calibration page by going to: DJI Pilot app > Camera > MC Settings > Sensors > IMU calibration.
3. Start the IMU Calibration, click through the message and warning screens. The IMU Calibration will take 3-10 minutes - Notification messages will pop up as calibration proceeds. Ensure you get an IMU Calibration complete message.





Operating Note: IMU calibration should be considered routine maintenance and accomplished when it needs it and at scheduled intervals, much like a tire rotation on your car.

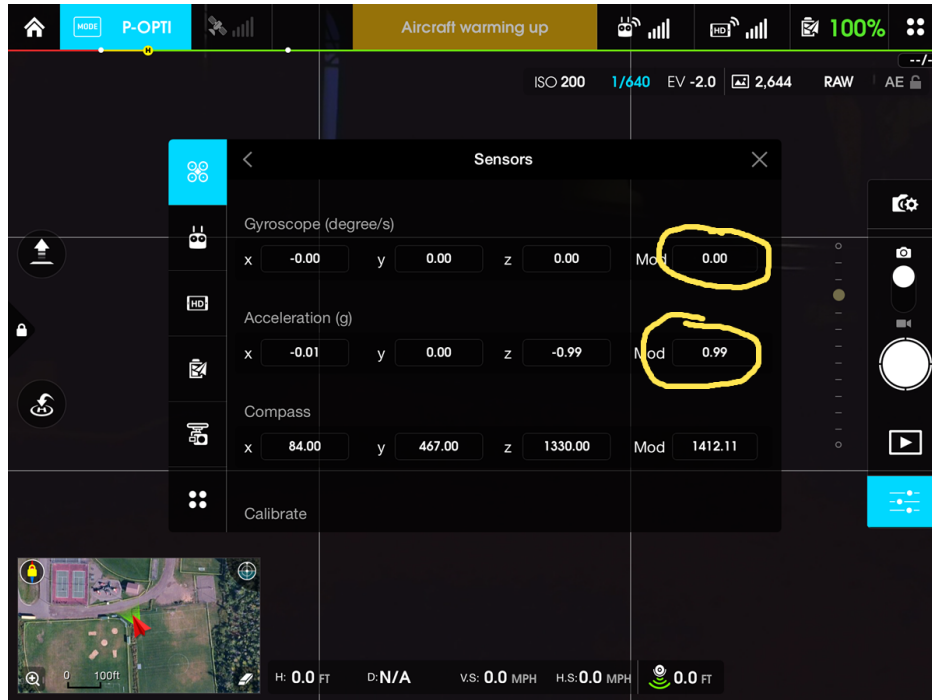
Caution:

- Before starting the IMU Calibration, the P3 should be as cool as possible. not cold but cool and not recently flown (give it an hour to cool off). Remove the battery and let it sit in a cool room if possible, removing the battery will help it cool down quicker, of course you will need to reinstall the battery before you start. Remember, this procedure isn't done that often, but, needs to be done right. The P3 must be sitting on a firm, perfectly level surface with no vibrations and no other electronics, magnets or metal nearby.
- You must not touch, bump or move the P3 during the IMU calibration process and you should minimize/avoid any floor vibrations (people walking nearby, doors slamming, dogs kids running through the room etc.).

Operating Note: After a successful IMU calibration, while the P2 is still sitting on the level surface, is a perfect time to proceed and do a Gimbal Auto Calibration.

Going outside and performing a compass calibration is also recommended.

The image below shows the sensor readings after a good calibration. the Gyroscope MOD reading should be near 0, and the Acceleration MOD reading should be right around 1.0.



What to do if IMU Calibration fails

If IMU calibration fails, power down the P3, let it cool off and start over

IMU Videos

https://youtu.be/1YP7imr_-xk

<https://youtu.be/SvSYqxl1sKk>

Please send corrections, additions, comments to:

Rev 0	5/15/2015	Dennis O'Hara
-------	-----------	-------------------------------