

## SENSOR Types Heading LECTURES 2022

### 1. ACCELEROMETER

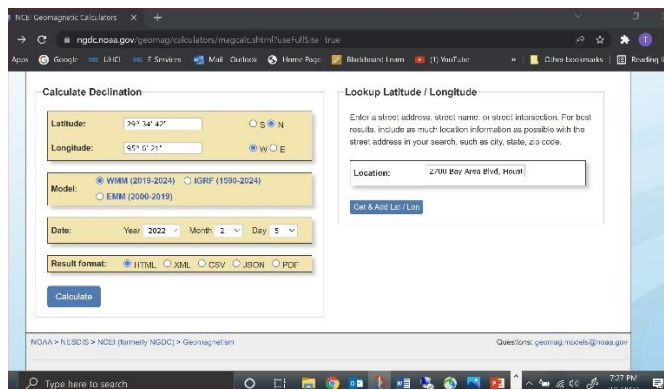
Accelerometer Specifications: Deciphering an Accelerometer's Datasheet

Posted by *Steve Hanly* on Mar 18, 2016 12:02:52 PM

<http://blog.mide.com/accelerometer-specifications-decoding-a-datasheet>

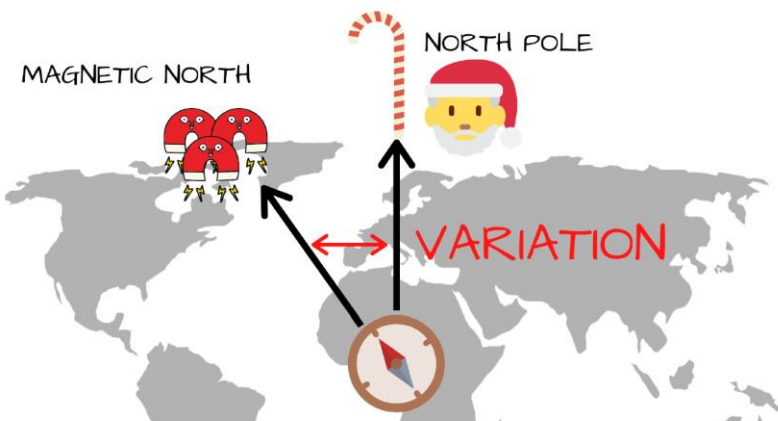
### 2. COMPASS

Look up Lat and Long. <https://www.ngdc.noaa.gov/geomag-web/?useFullSite=true>



## Compass Variation and Deviation - Correct Compass Readings

<https://www.getlostpowerboattraining.com/compass-variation-and-deviation-how-to-calculate-them/>



The angle of variation can change according to where we are in the world. Look at this image that was sourced from Wikipedia:

## Compass Deviation

Compass deviation is another magnetic error affecting the steering compass. Variation is a magnetic interference common to all vessels. Deviation is a magnetic interference unique to the vessel itself.

We use the term 'deviation' use to describe the effect of interference from magnetic fields created by the vessel's own equipment. This can be from things such as batteries, large metal objects like the engine, speakers, VHF radios etc.

Can Dead Men Vote Twice?



CDMVT

C = Compass Heading	291°
D = Deviation	+1
M = Magnetic Heading/Course	290°
V = Variation	5E
T = True Heading/Course	295°

**Calibrate your phone's compass.**

## The REAL iPhone Compass Calibration Tutorial

120,350 views Jun 8, 2010 4:13

<https://www.youtube.com/watch?v=86yUpUt8U6s>

Another Reference – How does your electronic compass work 17:47

<https://www.youtube.com/watch?app=desktop&v=qWARLkZgNel>

### MAGNETOMETER

<https://robotacademy.net.au/lesson/using-magnetometers/>

### Professor Peter Corke

Professor of Robotic Vision at QUT and Director of the [Australian Centre for Robotic Vision \(ACRV\)](#). Peter is also a Fellow of the [IEEE](#), a senior Fellow of the [Higher Education Academy](#), and on the editorial board of several robotics research journals.

Simple and Effective Magnetometer | Gyroscopic Instruments - U.S. Navy Aviation | Using magnetometers | Robot Academy

## Electronic compass

- Single chip
- 3 Hall effect sensors to measure 3 magnetic field components (3-axis magnetometer)
- accelerometers to determine the *down* direction
- Determine the magnetic field component in the *horizontal* plane

8:24 PM 2/5/2022

### GYRO

**What gyro sensors can do**

- Sense rotational motion
- Sense changes in orientation

[http://www5.epsondevice.com/en/information/technical\\_info/gyro/](http://www5.epsondevice.com/en/information/technical_info/gyro/)

[https://www.sparkfun.com/datasheets/Sensors/IMU/lpy503a1.pdf?\\_ga=1.12870455.1008988961.1448668020](https://www.sparkfun.com/datasheets/Sensors/IMU/lpy503a1.pdf?_ga=1.12870455.1008988961.1448668020)

Gyroscopic Instruments - U.S. Navy Aviation  
 Training Film 20 minutes  
**Gyroscopic Instruments - U.S. Navy Aviation Training Film (1960)**

200,518 views Nov 29, 2012

<https://www.youtube.com/watch?v=JnKloSdUJLo>

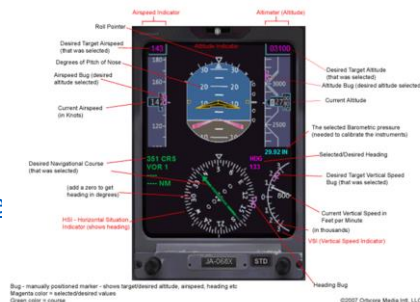


<https://www.mcico.com/resources/flight-instruments/six-pack-aircraft-instruments-explained>

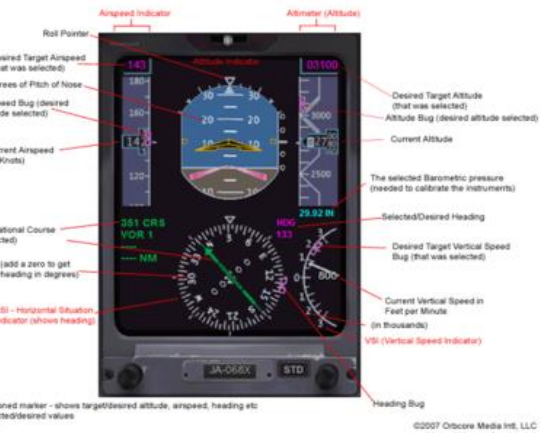
### Simple and Effective Magnetometer Calibration

Kris Winer edited this page on Mar 10 2016 · 15 revisions

<https://github.com/kriswiner/MPU-6050/wiki/Simple-and-Effective-Magnetometer-Calibration>



You can learn to fly here.



<https://skybrary.aero/articles/electronic-flight-instrument-system>