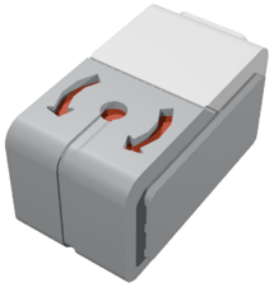
MYTHS & TRUTHS ABOUT THE GYRO

By Droids Robotics, 2015

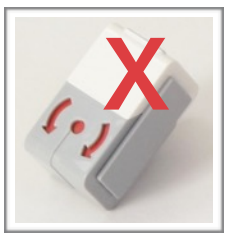
"We used to fear the gyro but we did your @EV3Lessons today at practice and now we love it!" - FLL Team

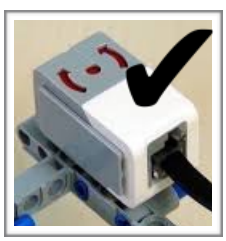


There are numerous myths about the Gyro sensor that we would like to discuss. These myths make teams afraid of trying out the sensor.

The gyro sensor is an extremely useful sensor, but does take a bit of work to use correctly. That is why we have the Gyro lessons in **Advanced** on EV3Lessons.com.

MYTH	TRUTH
The gyro is unreliable for turns.	• The biggest problem with the gyro is drift and lag. Both can be fixed.
You cannot use software to correct for the gyro's drift. All you can do is unplug and replug the sensor.	• There are software solutions you can try. There are several examples of solutions on EV3Lessons.com.
Placement matters: The gyro needs to be low to the ground and at the center of the robot	• See images below. • Where it is on the robot and the height off the ground makes no difference in the readings for FLL. • If the application is for a Gyro Boy or another type of robot that is balancing or has a twisting motion, other installs will work too.
Using two gyros will cancel out the drift.	• Unfortunately, this does not work.
The gyro measures angles	• The gyro measures angular velocity (rate) and computes angle from this.
The gyro cannot be used in FLL reliably	• The gyro can be successfully used in FLL if you correct for lag and drift.
It takes 30secs or more to correct for drift	• Gyro drift takes as little as 0.1 secs and at most 3 secs and is easily done during table set up time in FLL.
Gyro accuracy is an issue	• While the gyro might be a couple of degrees off, other techniques (odometry) can produce similiar or worse errors. Build a robot to tolerate these errors.





Gyro Sensor mounting guide for an FLL robot

1: Angular installs
2: Sideways installs
3: Straight up or down
4: Parallel to ground
5: Upside down, but parallel to ground