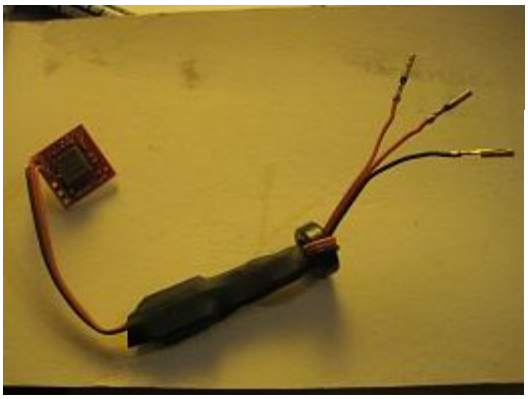
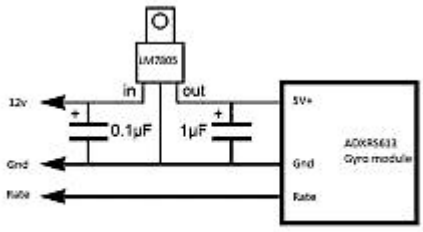
Re: Raymarine Gyro Sensor Upgrade for $25

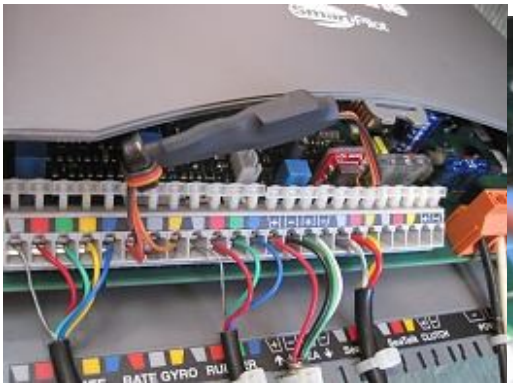
This is my progress so far. I ordered gyro and voltage regulator from Sparkfun and soldered all the things together. Added two caps and ferrule to lower the noise (probably overkill but no bother since I had em laying around anyway). I measured rate output and it reads 3v changing as I turn module in my hands. So far so good. Just waiting for warmer days to test the thing.
Attached Thumbnails





Re: Raymarine Gyro Sensor Upgrade for $25

Well, responding to my own thread. The home brewed gyro works like a charm. After powering up the Autolearn function became available and I went through sea calibration process as needed for 1G version. Upon calibration zigzaging was done I went to catch some swells on open water to see what happens. I did surprisingly well, steering looks more like invisible helmsman caching up as boat rolls over the waves. Response Level menu added some extra sensitivity options, it used to be 1 to 4 now it increased all the way to level 9. Anything after level 4 is pretty much useless unless you have a rocket boat doing 60 knots in a gale force conditions.
The things I didn't like. It seems like autopilot became more responsive. At cruising speed it does excellent job BUT if the wind drops you slow down to 1 to 2 knots and yawl stability decreases it starts doing unnecessary small adjustments trying keep you on precise course. All that equals to eating battery banks. Also with a sudden gust the boat gets overpowered and start turning in to the wind autopilot would correct that almost instantly creating hill that a little beyond my comfort level.
This is how final setup looks like on the pictures. Wires from the module connected to RATE GYRO taps the following way: +12V=RED TAP, Ground=GRAY TAP, Rate=YELLOW TAP. Note that gyro module has to be positioned upside down in order to provide correct output. I made a small bracket out of 90 degrees plastic angle. It attached with 3M double sticking tape to the circuit board on one side and the gyro module on the other. In order to work correctly the whole computer has to be installed vertically within 10 degrees limit.
There a little 3pin socket on the circuit board specially designed for factory upgrade gyro. I never bothered with it but I suspect it might supply +5.5V skipping the need for soldering voltage regulator.
Attached Thumbnails



Re: Raymarine Gyro Sensor Upgrade for $25

I was confused myself with 30 seconds “stabilization period” written on the website. According to data sheet for gyro chip turn-on time is only 50millisecconds. It worked right up as soon as I turned power on and pushed AUTO. As the installation goes I never found any strict requirements for thing to be on the center line just looked up at the manual for computers with built in gyro. Mine was installed a while ago and sits about 6 feet aft and 3 feet off the center on the 30 feet boat.
Thank you for your response. I checked the manual as well, and there seems to be no need for a centerline installation.

Just to make sure I understand... You buy the gyro and the regulator, wire them together in a pack that has three wires sticking out, attach the wires to the little gyro inputs, mount the gyro nearby upside down (love your location, by the way), and you're done. Why wouldn't anybody do this! I'm seriously psyched.

I have figured out the problems I had with the S1 and just need to implement the fix. Once it's working for a while and I can establish a bit of a baseline, I'll do this as well and report back.

Please let us know if anything goes a bit pear shaped or if you come up with any more improvements.

Many thanks to you for reporting here and also the creative French sailor who tried this first.

Earlier, I wrote about removing the rate of turn engine from a RM Gyroplus II, and adding it to an S1 Autopilotto bring it up to S1G specs. One of these ROT engines is currently listed on Ebay, and you may at least find the picture interesting: Raymarine GYRO UPGRADE S1, S2, S3 Smartpilots & 150/400 (item number 110726466119)