

Calibrate the inertial navigation module

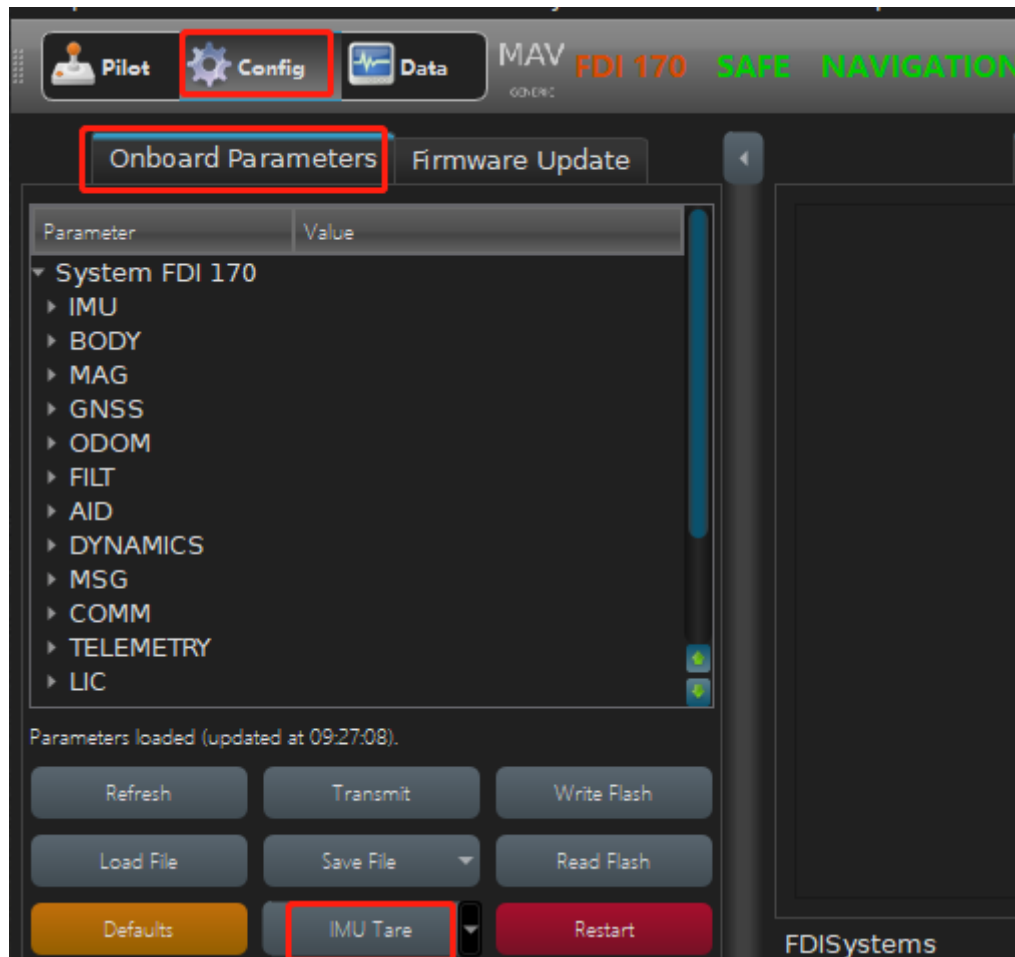
Before performing the following operations, please confirm that the inertial navigation module has been connected to the host computer.

1. Basic calibration

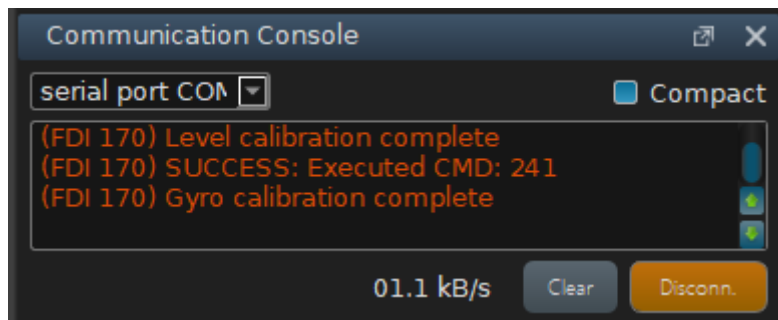
When the inertial navigation module is seen in the 3D model in a static state, but the 3D model is always moving, or the inertial navigation module is flat, but the 3D model is indeed crooked, etc., the following calibration content is required. The next priority is to perform calibration horizontal position calibration + gyroscope calibration.

1. Horizontal position calibration + gyroscope calibration

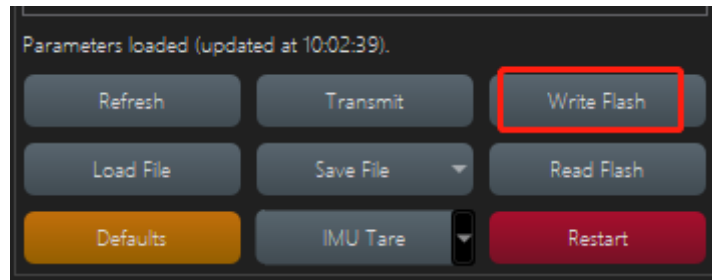
Place the inertial navigation module horizontally, then click Config->Onboard Parameters->IMU Tare



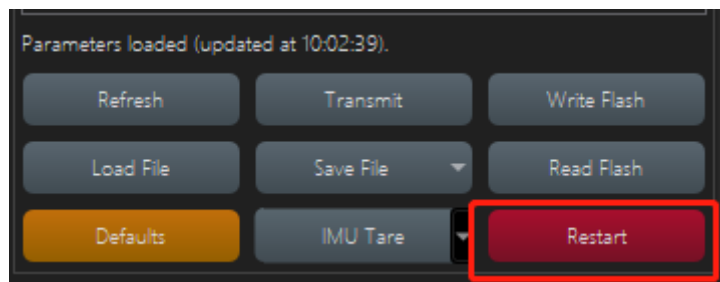
When the console on the right prompts Level calibration complete and Gyro calibration complete, the calibration is complete.



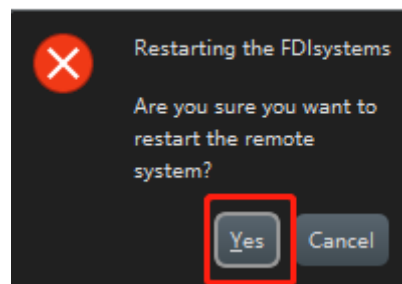
After the calibration is completed, the data is only saved to the cache. At this time, we need to click Write Flash to save the data to the Flash of the inertial navigation module, so that the next time the power is turned on, there is no need to calibrate again.



At this point, restart the inertial navigation module for the configuration to take effect. Before clicking Restart to restart the inertial navigation module, please confirm that you have clicked Write Flash in the previous step to save the data to Flash.

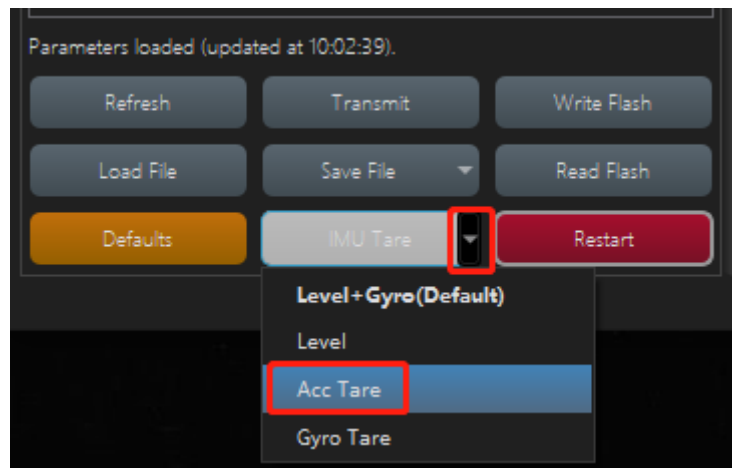


FDISystems Ground C...

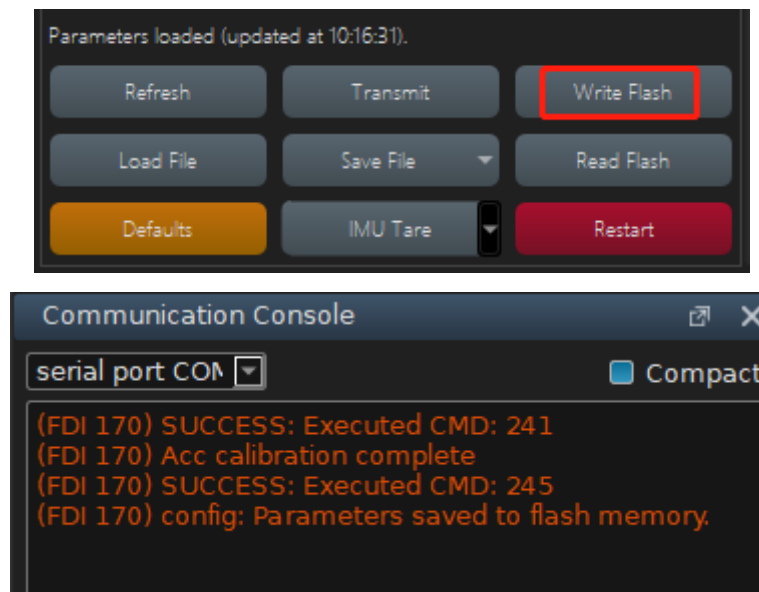


2. Accelerometer calibration

Click the triangle drop-down menu to the right of IMU Tare and select Acc Tare to start accelerometer calibration.



It is also necessary to save the calibrated data to the Write Flash of the inertial navigation module.



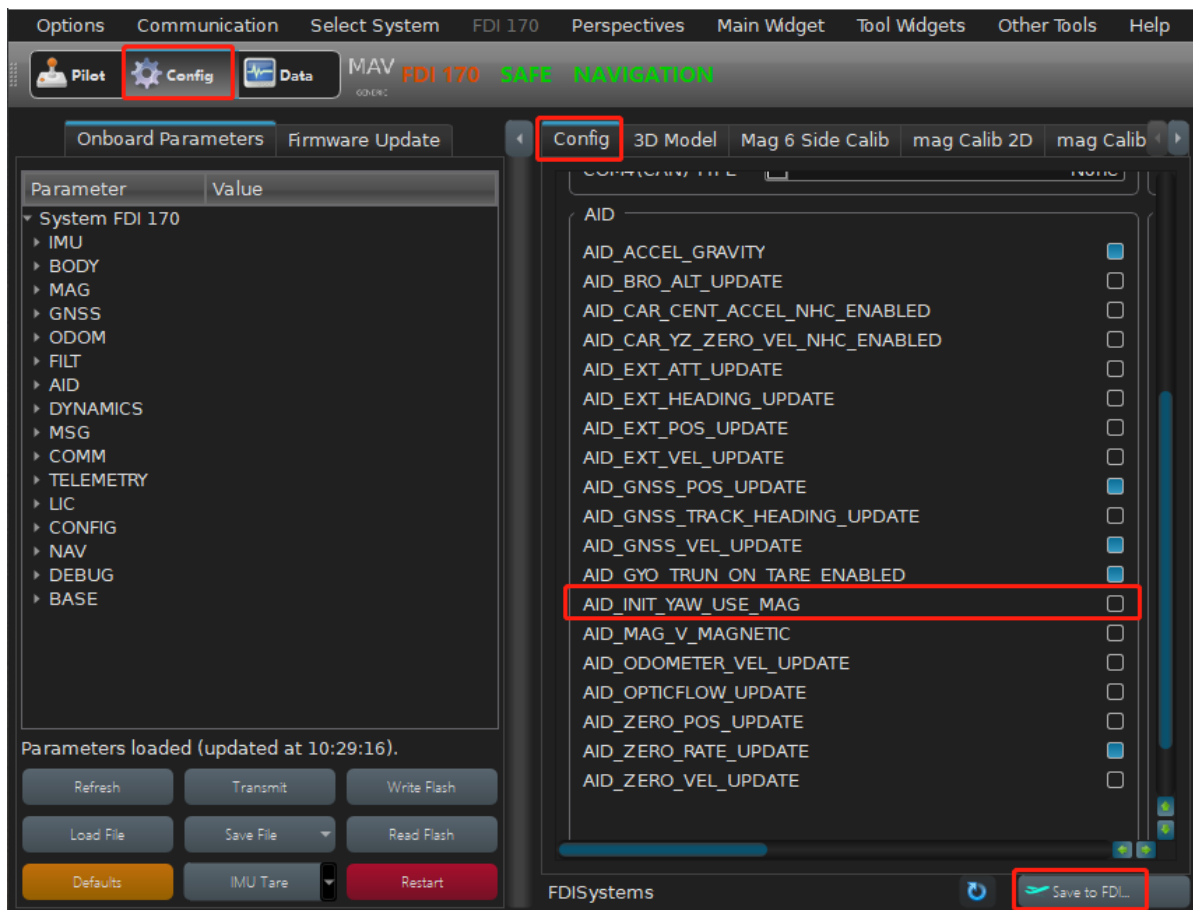
Then click to restart the inertial navigation module.

2. magnetometer calibration

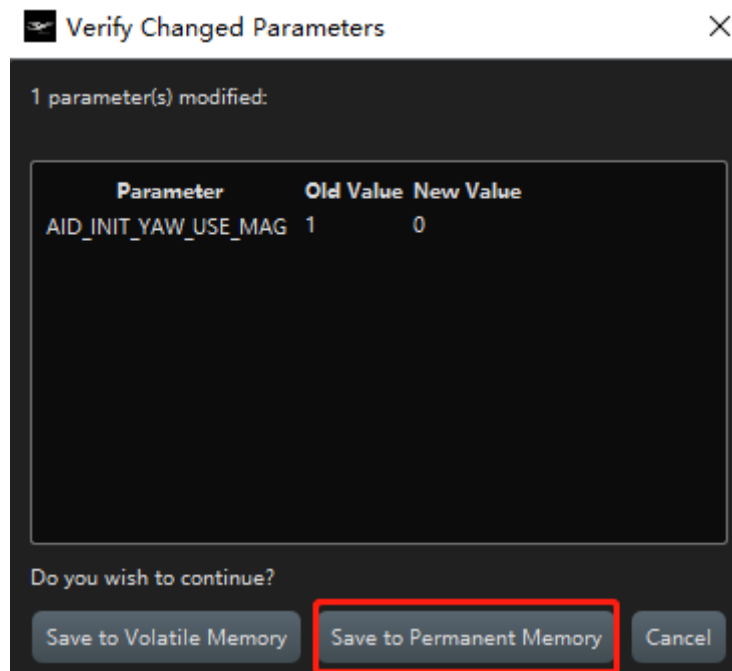
1. Turn off the magnetometer fusion function

Before calibrating the magnetometer, you need to turn off the function of magnetometer fusion before calibrating.

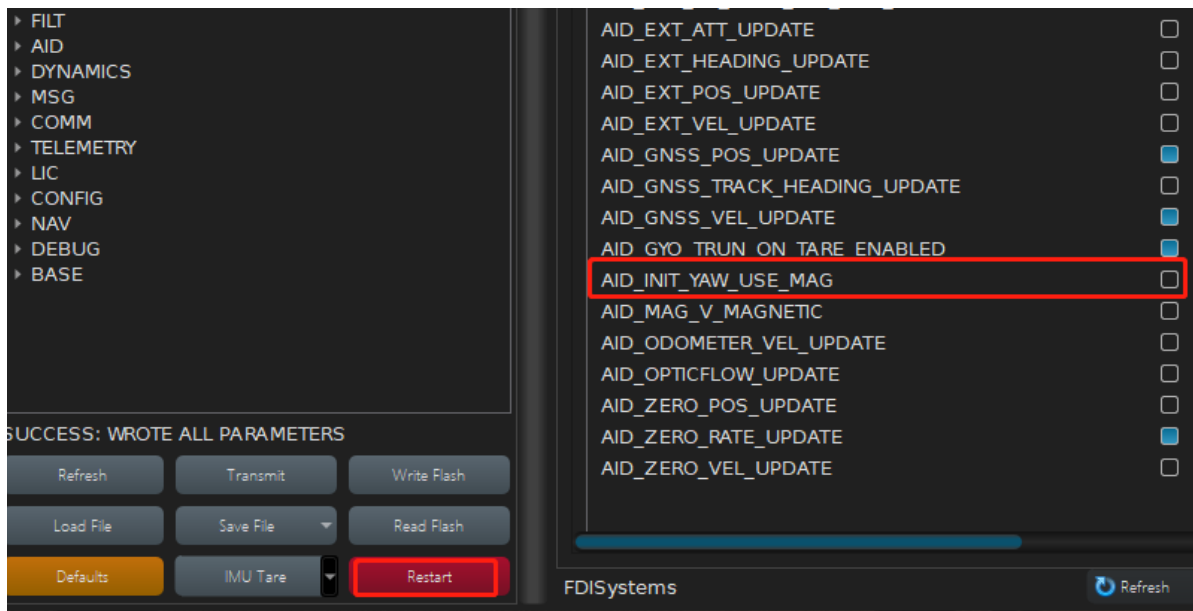
In the Config interface, find the tick to the right of AID_INIT_YAW_USE_MAG under the AID configuration column.



Click Save to FDI..., and then click Save to Permanent Memory to save the data to the inertial navigation module.

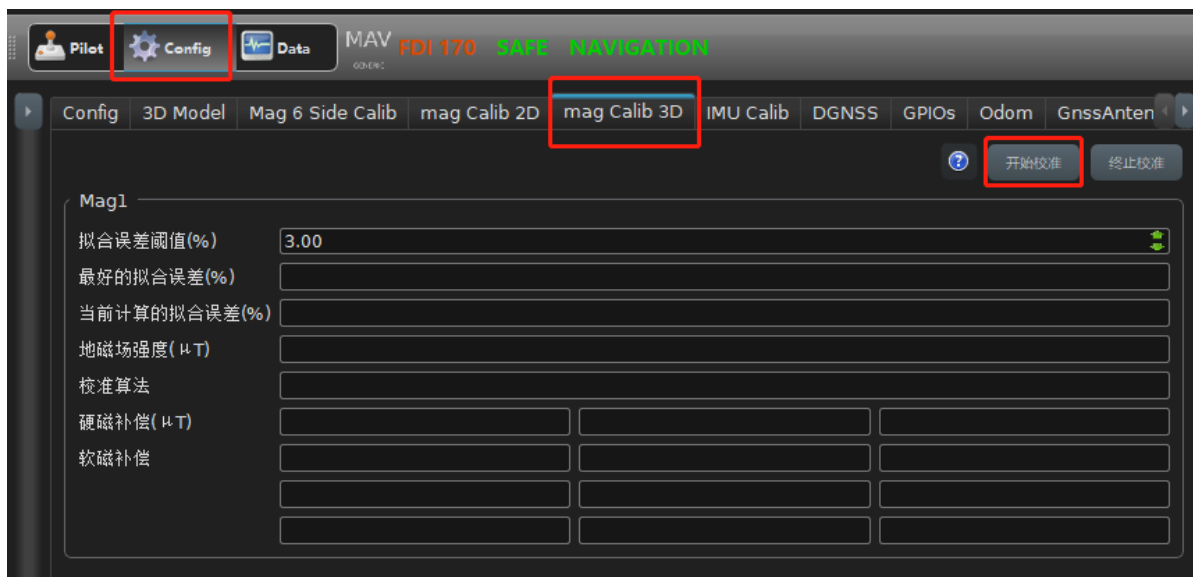


After clicking restart, you can see that the configuration has been updated.



2. Magnetic 3D Calibration

Magnetic 3D calibration can also be called eight-character calibration. Magnetic 3D calibration is more accurate than magnetic 2D calibration, and the calibration operation is more convenient. First, find mag Calib 3D under Config. By default, the fitting error threshold is 3%. You can modify the value according to the actual situation. The calibration parameters can only take effect when the calibration error is less than 3%. Other parameters are automatically generated data.



Then click Start Calibration, and the system state will switch from Navigation state to Calibration state.

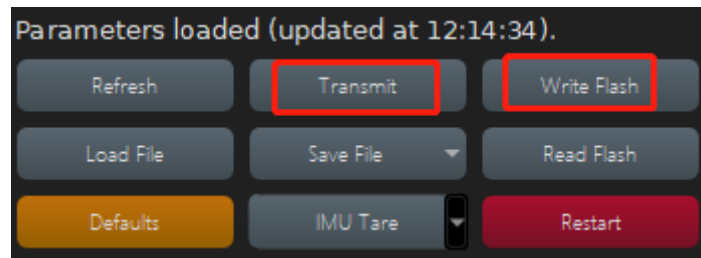


Operate in a place without strong magnetic interference, slowly wave the inertial navigation module in the air according to the '8' line, try to ensure that the turning is sufficient, and the speed cannot be too fast. It takes about 3-5 seconds to complete one '8'.

Calibration process The system automatically calibrates the magnetometer, and the calibration is complete when the system state returns from Calibration state to Navigation state.



After the calibration is completed, click Transmit to send the data, and then click Write Flash to save the data to the inertial navigation module.



Then reopen the configuration of AID_INIT_YAW_USE_MAG and save it to the inertial navigation module.



Finally, click Restart to restart the inertial navigation module.

