MMA7361LC 3-Axis Accelerometer

AIAA OC Rocketry - June 27, 2015

This accelerometer is used in the CanSat project from NAROM (Norwegian Centre for Space Related Education). Much of the information is from Jens Frederik Dalsgaard Nielsen from Aalborg University and we thank him for making this possible for SPARC.

As a caution, most of the documentation that you will find on line from NAROM still uses the older Arduino shields. For SPARC we will be using the Version 4, which added the ability to use a GY80 10 Degree of Freedom (DOF) Inertial Measurement Unit (IMU) that includes an ADXL345 accelerometer. If you do not use the GY80 you will need to use this MMA7361 Accelerometer.

This .ZIP file contains information to help get the MMA7361 3-Axis Accelerometer up and running. It includes the following files and folders:

- DOCUMENTATION FOLDER
    - Cansat_arduino_shield_ver4 (Schematic).pdf – is the schematic for the NAROM Version 4 Arduino Shield
    - MMA73x1LC 3-axis accelerometer-schematic-diagram.pdf – is the schematic for the MMA7361LC breakout board from Polulu
    - MMA7361LC.pdf is the data sheet for the accelerometer
- LIBRARIES FOLDER
    - Linscale library required for the accelerometer sketches. This library performs scaling between points by calculating slope and offset from two points (usually +/- 1g)
    - Looptime library required for the accelerometer sketches. This library allows adjustment of the actual time taken through each loop of the sketch
- LINKS FOLDER
    - "Aalborg University Shield V4 Web Page" will take you to a web page on the CanSats and the Shield. This appears to be an early description of the V4 shield – the modifications described will already be done on the final V4 shield
    - "Arduino Software Tools Web Page" will take you to the main Arduino web site where you can download the IDE (Integrated Development Environment) for writing and compiling Arduino code for your CanSat project. And there is a lot of great information elsewhere on that site
    - "NAROM 2013 CanSat Book (Uses Older Shield)" will let you download the NAROM CanSat Book with a lot of good information about the project. Again, this references an older Shield
    - "Pololu MMA7361LC Web Page" will take you to an informational and purchase page on the Pololu Web site
- SKETCHES FOLDER
  These sketches were provided by Jens at NAROM/Aalborg university and modified by AIAA OC Section Rocketry. There is a lot of information in the header of the sketch about the details.
    - Xyz02 contains the xyz02.ino sketch. Wire up your MMA7361LC breakout board on a breadboard or install in the V4 shield and run the program. Use the Serial Monitor to see the accelerometer data returned for the x, y, and z axis.

- Calib15g6g contains the calib15g6g.ino sketch. Once you know the accelerometer is working, you can use this sketch to help calibrate the sensor.