Adafruit Triple-axis Magnetometer – LIS3MDL – STEMMA QT / Qwiic

PRODUCT ID: 4479

Sense the magnetic fields that surround us with this handy triple-axis magnetometer (compass) module. Magnetometers can sense where the strongest magnetic force is coming from, generally used to detect magnetic north, but can also be used for measuring magnetic fields. This sensor tends to be paired with a 6-DoF (degree of freedom) accelerometer/gyroscope to create a 9-DoF inertial measurement unit that can detect its orientation in real-space thanks to Earth's stable magnetic field. It's a great match for the LSM6DSOX from ST!

We based this breakout on ST's LIS3MDL, a great general purpose magnetometer. This compact sensor uses I2C to communicate and its very easy to use. Simply download our library and connect the SCL pin to your I2C clock pin, and SDA pin to your I2C data pin and upload our test program to read out magnetic field data. If you'd like, you can also use SPI to receive data (we just happen to prefer I2C here)

This sensor can sense ranges from +-4 gauss (+- 400 uTesla) up to +-16 gauss (+- 16uTesla). For ultra high precision, 155 Hz update rate is recommended - but if you don't mind a little loss of precision, the sensor can output at 1000 Hz.

To make life easier so you can focus on your important work, we've taken the LIS3MDL and put it onto a breakout PCB along with support circuitry to let you use this little wonder with 3.3V (Feather/Raspberry Pi) or 5V (Arduino/ Metro328) logic levels. Additionally since it speaks I2C you can easily connect it up with two wires (plus power and ground!). We've even included SparkFun qwiic compatible STEMMA QT connectors for the I2C bus so you don't even need to solder! Just wire up to your favorite micro and you can use our CircuitPython/Python or Arduino drivers to easily interface with the LIS3MDL and get magnetic measurements ASAP.

It's fully assembled and tested. Comes with a bit of 0.1" standard header in case you want to use it with a breadboard or perfboard. Four 2.5mm (0.1") mounting holes for easy attachment.
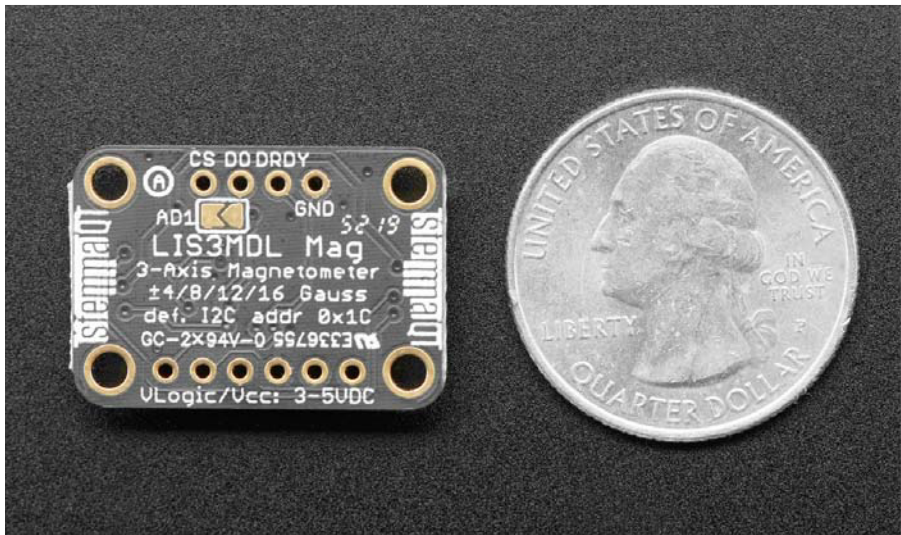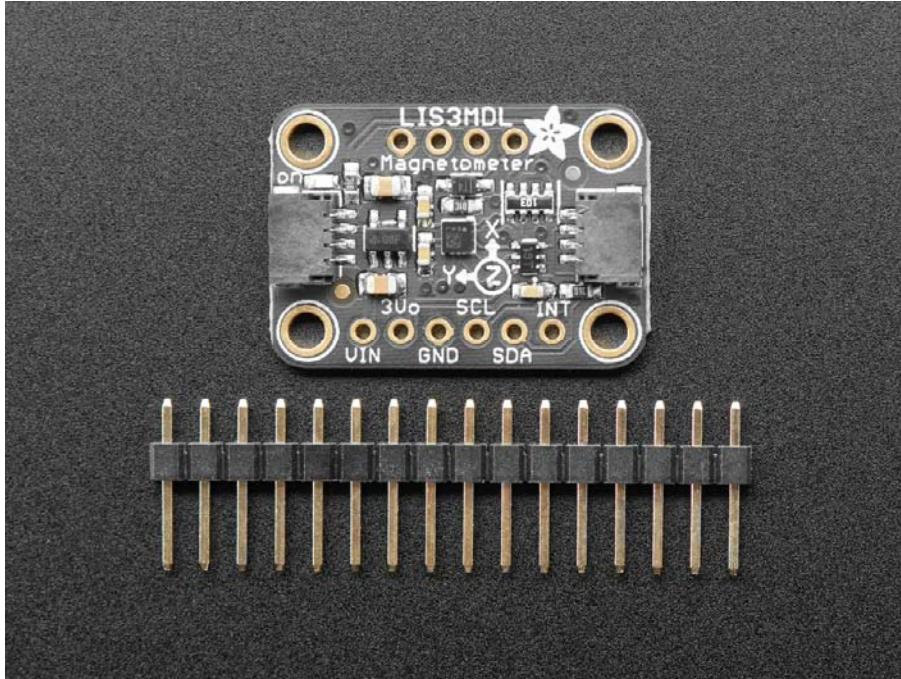
TECHNICAL DETAILS

Technical Specifications:

- I2C address 0x1C or 0x1E
- ±4/±8/±12/16 gauss selectable magnetic full scales
- 0.625 to 1000 Hz update rate
- Continuous and single-conversion modes
- 16-bit data output
- Interrupt generator
- Self-test mode

Product Dimensions: 25.7mm x 17.8mm x 4.6mm / 1.0" x 0.7" x 0.2"

Product Weight: 1.5g / 0.1oz

https://www.adafruit.com/product/4479/1-27-20