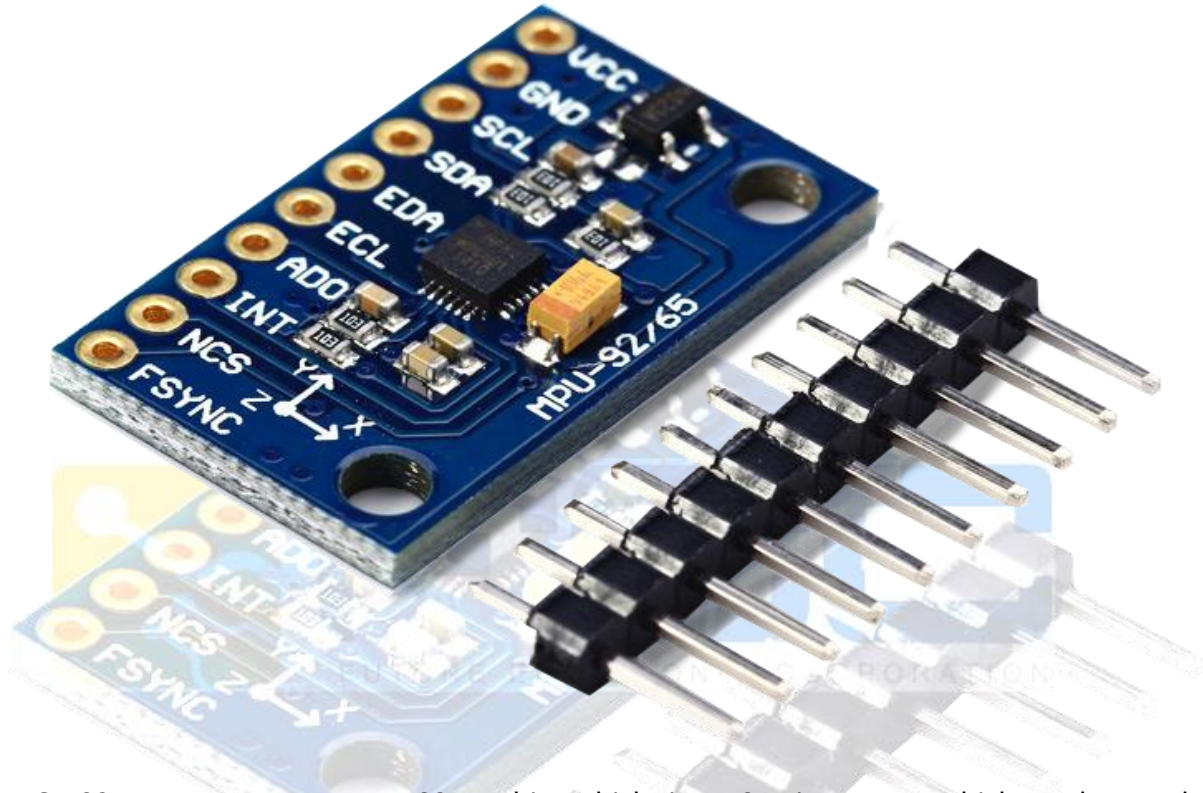


## GY-9255



The GY-9255 sensor uses MPU-9255 chip which is a 9-axis sensor which packages the accelerometer, gyroscope, magnetometer together each provides data for x, y and z axes. Other than the three mentioned sensors, it also has other features like Pedometer, Motion and Tap detection, and Temperature. It's really sensitive low field magnetic sensor. MPU-9255 is also designed to interface with multiple non-inertial digital sensors, such as pressure sensors, on its auxiliary I2C port and it guaranteeing optimal motion performance for users.

### **pins**

- The input voltage is about 3.3 volt usually from Arduino kit.
- SCL: Clock line for I2C or SPI communication it may connect to pin 5 of the Arduino or pin 21 of the Mega 2560 in SPI mode this is the clock line.
- SDA: Data line for I2C or SPI. For I2C it connects to Arduino pin 4 or Mega 2560 pin 20. For SPI it is data input line.
- EDA and ECL: These two pins are for serial communication to external sensor or device.

- ADO: In I2C mode, it is used to define the address of the sensor. In SPI mode, this is data output line.
- INT: Interrupt line where the sensor can notify the Arduino when data is ready or motion is detected, depending on the configuration.
- NCS: Chip select pin, used in SPI mode.
- FSYNC: Can be used for different purposes depending on the configuration.

## Features

- **Gyroscope Features**

- Digital-output X-, Y-, and Z-Axis angular rate sensors (gyroscopes) with a user-programmable full scale range of  $\pm 250$ ,  $\pm 500$ ,  $\pm 1000$ , and  $\pm 2000^\circ/\text{sec}$  and integrated 16-bit ADCs.
- Digitally-programmable low-pass filter
- Gyroscope operating current: 3.2mA
- Sleep mode current:  $8\mu\text{A}$
- Factory calibrated sensitivity scale factor
- Self-test

- **Accelerometer Features**

- Digital-output triple-axis accelerometer with a programmable full scale range of  $\pm 2g$ ,  $\pm 4g$ ,  $\pm 8g$  and  $\pm 16g$  and integrated 16-bit ADCs.
- Accelerometer normal operating current:  $450\mu\text{A}$
- Low power accelerometer mode current:  $8.4\mu\text{A}$  at 0.98Hz,  $19.8\mu\text{A}$  at 31.25Hz
- Sleep mode current:  $8\mu\text{A}$
- User-programmable interrupts
- Wake-on-motion interrupt for low power operation of applications processor
- Self-test

- **Magnetometer Features**

- 3-axis silicon monolithic Hall-effect magnetic sensor with magnetic concentrator
- Wide dynamic measurement range and high resolution with lower current consumption.
- Output data resolution of 14 bit ( $0.6\mu\text{T}/\text{LSB}$ ) or 16 bit ( $15\mu\text{T}/\text{LSB}$ )
- Full scale measurement range is  $\pm 4800\mu\text{T}$
- Magnetometer normal operating current:  $280\mu\text{A}$  at 8Hz repetition rate
- Self-test function with internal magnetic source to confirm magnetic sensor operation.

- **General Features**

- Auxiliary master I2C bus for reading data from external sensors.
- 3.5mA operating current when all 9 motion sensing axes and the DMP are enabled.
- VDD supply voltage range of 2.4 – 3.6V.
- Minimal cross-axis sensitivity between the accelerometer, gyroscope and magnetometer axes.
- 512 byte FIFO buffer enables the applications processor to read the data in bursts.
- Digital-output temperature sensor.
- User-programmable digital filters for gyroscope, accelerometer, and temp sensor.
- 400kHz Fast Mode I2C for communicating with all registers.
- 1MHz SPI serial interface for communicating with all registers.
- 20MHz SPI serial interface for reading sensor and interrupt registers.
- MEMS structure hermetically sealed and bonded at wafer level.
- RoHS and Green compliant.
- Module [datasheet](#).

