

# MPU-6050 GY-521 3 Axis Gyro and Accelerometer



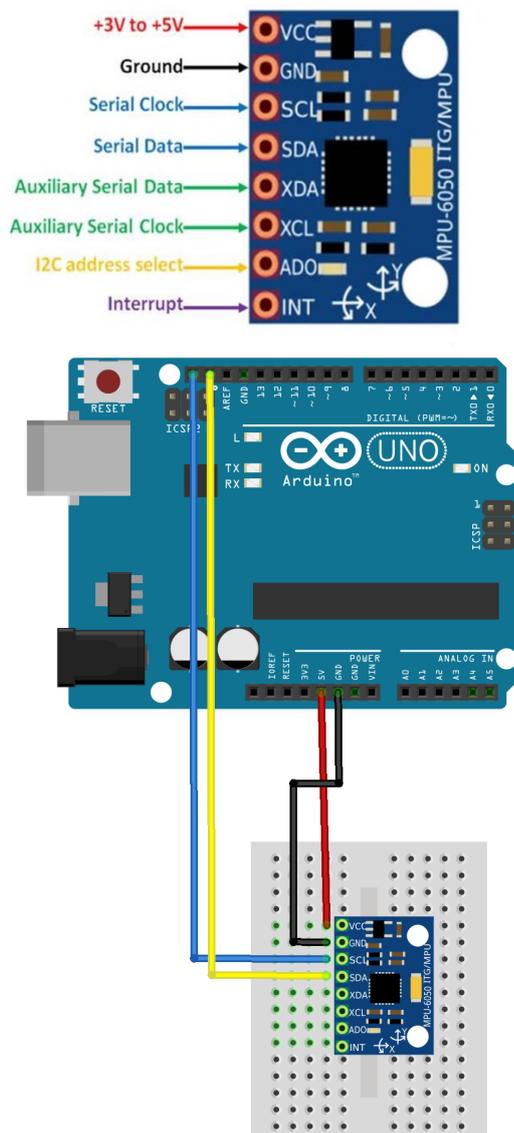
## **Features:**

The GY-521 module integrates a 3-axis gyroscope, 3-axis accelerometer, and digital thermometer based on the MPU-6050 sensor. It includes a built-in Digital Motion Processor (DMP) for offloading motion processing tasks from the main controller. The sensor supports I2C communication, programmable motion ranges, and built-in 16-bit ADCs for precise motion tracking. Ideal for motion detection, gesture control, gaming, stabilization, and wearable applications.

Specifications	
Sensor Chip	MPU-6050
Power Supply Voltage	3V to 5V
Operating Current (Max)	4 mA
Gyroscope Current	3.6 mA
Accelerometer Current	500 uA
Communication Interface	I2C (default address 0x68, configurable to 0x69 via ADO pin)
Gyroscope Range	±250, ±500, ±1000, ±2000 degrees/sec
Accelerometer Range	±2g, ±4g, ±8g, ±16g
ADC Resolution	16-bit (for both accelerometer and gyroscope)
Operating Temperature Range	-40 to +105 degrees Celsius
Dimensions	34 x 16 x 10 mm
G-Force Tolerance (Shock)	Up to 10,000g (0.2ms)
Use Cases	Motion tracking, gesture recognition, gaming controllers, stabilization systems, wearable sensors, robotics

## Pinouts:

Pin Name	Type	Description
VCC	Power Input	Power supply input (3V to 5V)
GND	Power Ground	Common ground
SCL	Digital Input	I2C clock input
SDA	Digital I/O	I2C data line
XDA	Digital I/O	Auxiliary I2C data (usually unused)
XCL	Digital Input	Auxiliary I2C clock (usually unused)
ADO	Digital Input	I2C address selector (low = 0x68, high = 0x69)
INT	Digital Output	Interrupt output pin



**Product Pictures:**

