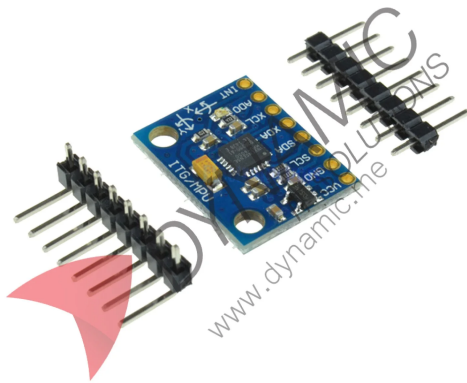


MPU-6050 GY-521 3 Axis Gyro and Accelerometer



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 AD0 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 |

