



GENERAL DESCRIPTION

The ICM-40609-D is a 6-axis MEMS MotionTracking™ device that combines a 3-axis gyroscope and a 3-axis accelerometer designed for the drone market. The ICM-40609-D is form factor compatible with our legacy drone devices – making the transition to the latest offering incredibly simple.

The ICM-40609-D takes advantage of a state-of-the-art architecture design that enhances the IMU’s performance and accuracy over temperature, making it the ideal drone solution to control the stability of the platform during long flight times that may experience high temperature shifts.

The ICM-40609-D has a max ODR of 32 KHz, making it the best sampling rate available in a consumer device. The ability to capture data at such a high ODR allows for customers to easily find any anomalies or errors that need to be addressed during flight. The accel Full Scale Range has also been increased to 32g, allowing for substantial linear movement to be easily tracked.

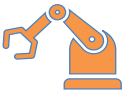
Other industry-leading features include on-chip 16-bit ADCs, programmable digital filters, an embedded temperature sensor, and programmable interrupts. The device features I²C and SPI serial interfaces, a VDD operating range of 1.71V to 3.6V, and a separate VDDIO operating range of 1.71V to 3.6V.

FEATURES

- Gyro Noise: **4.5mdps/√Hz**
- Gyro Offset Stability TC: **±10mdps/C**
- Gyro Sensitivity Error: **±0.5%**
- Gyro Sensitivity/temp: **±0.045%/C**
- Accel Noise: **100μg/√Hz**
- Accel Offset Stability TC: **±0.15mg/C**
- Accel Sensitivity Error: **±0.5%**
- Accel Sensitivity/temp: **±0.007%/C**
- Gyro + Accel Combo current: **0.77mA**
- Extended Accel Full Scale Range: **32g**
- Improved ODR Latency: **32KHz**

Custom architecture for Improved Thermal Gradient Behavior

- Best-in-class accuracy over temperature



Increased ODR/FSR for max data collection

- 32g Accel Full Scale Range
- 32 KHz ODR Sample Rate



Form Factor Compatible with Legacy Products

- Easily transition from ICM-20602 and MPU-6500
- Only minor pinout changes required



APPLICATIONS

- Drones, Flight Controller

PART NUMBER	PACKAGE SIZE	TARGET MARKETS	FULL SCALE RANGE	ODR & SAMPLE SYNCH	STATUS
MPU-6500	3x3x0.9mm 24-pin QFN	Various	±2000dps/16g	G: 8KHz/ A: 4KHz 16-bit	NR/ND
ICM-20602	3x3x0.75mm 16-pin LGA	Various	±2000dps/16g	G: 8KHz/ A: 4KHz 16-bit	NR/ND
ICM-42688-P	2.5x3 14mm-pin LGA	Robotics/HMD/loT/Drones	±2000dps/16g	32KHz G: 19-bit / A: 18-bit	Active
ICM-40609-D	3x3x0.91mm 24-pin LGA	Enhanced Drone Performance	±2000dps/32g	32KHz 16-bit	2H 2022