MEMS Inertial Sensors

Accelerometers

	Part Number	Range (*g*)	Output Type	Sensing Axes	BW Typ (kHz)	Sensitivity	Noise (mg/√Hz)	Voltage Supply (V)	Supply Current (mA)	Temperature Range (°C)	Package	Additional Features
MEMS Accelerometers	ADXL103	±1.7, ±18	Analog	1	2.5	100 mV/*g* to 1000 mV/*g*	0.11	3.0 to 6.0	0.7	–40 to +125	5 mm × 5 mm × 2 mm LCC	Low noise, low tempco
	ADXL78	±35, ±50, ±70	Analog	1	0.4	27 mV/*g* to 55 mV/*g*	1.1	4.75 to 5.25	2.2	–40 to +105	5 mm × 5 mm × 2 mm LCC	
	ADXL001	±70, ±250, ±500	Analog	1	22	2.2 mV/*g* to 16 mV/*g*	3.3	3.135 to 6	2.5	–40 to +125	5 mm × 5 mm × 2 mm LCC	Ultrawide bandwidth
	ADXL203	±1.7, ±5, ±18	Analog	2	2.5	100 mV/*g* to 1000 mV/*g*	0.11	3.0 to 6.0	0.7	–40 to +125	5 mm × 5 mm × 2 mm LCC	Low noise, low tempco
	ADXL206	±5	Analog	2	2.5	312 mV/ *g*	0.11	4.75 to 5.25	0.7	–40 to +175	13 mm × 8 mm × 2 mm SBDIP	Ultrahigh temperature
	ADXL278	±35, ±50, ±70	Analog	2	0.4	27 mV/*g* to 55 mV/*g*	1.1	4.75 to 5.25	2.2	–40 to +105	5 mm × 5 mm × 2 mm LCC	
	ADXL335	±3	Analog	3	1.6	300 mV/*g*	0.15	1.8 to 3.6	0.35	–40 to +85	4 mm × 4 mm × 1.45 mm LFCSP	
	ADXL326	±16	Analog	3	1.6	57 mV/*g*	0.3	1.8 to 3.6	0.35	–40 to +85	4 mm × 4 mm × 1.45 mm LFCSP	
	ADXL337	±3	Analog	3	1.6	300 mV/*g*	0.175	1.8 to 3.6	0.3	–40 to +85	3 mm × 3 mm × 1.45 mm LFCSP	
	ADXL325	±5	Analog	3	1.6	174 mV/*g*	0.25	1.8 to 3.6	0.35	–40 to +85	4 mm × 4 mm × 1.45 mm LFCSP	
	ADXL327	±2	Analog	3	1.6	440 mV/*g*	0.25	1.8 to 3.6	0.35	–40 to +85	4 mm × 4 mm × 1.45 mm LFCSP	
	ADXL377	±200	Analog	3	1.6	6.5 mV/*g*	2.4	1.8 to 3.6	0.3	–40 to +85	3 mm × 3 mm × 1.45 mm LFCSP	
	ADXL375 ***New***	±200	Digital	3	1.6	49 mg/LSB	5	2.0 to 3.6	0.03 to 0.14	–40 to +85	3 mm × 5 mm × 1 mm LGA	Low power, FIFO
	ADXL350	±1, ±2, ±4, ±8	Digital	3	1.6	2 mg/LSB	0.25	2.0 to 3.6	0.45 to 0.166	–40 to +85	3 mm × 4 mm × 1.2 mm LGA	Min/max tempco, low power, FIFO
	ADXL312	±1.5, ±3, ±6, ±12	Digital	3	1.6	2.9 mg/LSB	0.34	2.0 to 3.6	0.17	–40 to +105	5 mm × 5 mm × 1.45 mm LFCSP	AEC-Q100 qualified
	ADXL345	±2, ±4, ±8, ±16	Digital	3	1.6	3.9 mg/LSB	0.52	2.0 to 3.6	0.03 to 0.14	–40 to +85	3 mm × 5 mm × 1 mm LGA	Low power, FIFO
	ADXL363 ***New***	±2, ±4, ±8	Digital	3	0.2	1 mg/LSB	0.18	1.6 to 3.5	0.002	–40 to +85	3 mm × 3.25 mm × 1.06 mm LGA	Ultralow power, 12-bit ADC
	ADXL362	±2, ±4, ±8	Digital	3	0.2	1 mg/LSB	0.18	1.6 to 3.5	0.002	–40 to +85	3 mm × 3.25 mm × 1.06 mm LGA	Ultralow power, deep FIFO, built-in multiple sample activity/inactivity detection, external sync
	ADXL346	±2, ±4, ±8, ±16	Digital	3	1.6	3.9 mg/LSB	0.34	1.7 to 2.75	0.03 to 0.14	–40 to +85	3 mm × 3 mm × 1 mm LGA	Low power, FIFO
	ADXL313 ***New***	±0.5, ±1, ±2, ±4	Digital	3	1.6	1 mg/LSB	0.25	2.0 to 3.6	0.17	–40 to +105	5 mm × 5 mm × 1.45 mm LFCSP	AEC-Q100 qualified
	ADXL213	±1.2	PWM	2	2.5	30%/*g*	0.16	3.0 to 6.0	0.7	–40 to +85	5 mm × 5 mm × 2 mm LCC	Low noise, low offset tempco, PWM output
	ADXL212	±2	PWM	2	0.5	12.5%/*g*	0.5	3.0 to 5.25	0.7	–40 to +85	5 mm × 5 mm × 2 mm LCC	Low noise, low offset tempco, PWM output
iSensor® MEMS Accelerometer Subsystems	*Digital Accelerometers*											
	ADIS16003	1.7	SPI	2	5.5	—	0.11	5	1.5	–40 to +125	7 mm × 7 mm LGA	Internal temperature sensor
	ADIS16006	5	SPI	2	2.2	—	0.2	5	1.5	–40 to +125	7 mm × 7 mm LGA	Internal temperature sensor
	Inclinometers											
	ADIS16203	±1.7; ±180°	Digital	1	2.25	0.025°/LSB	—	3.3	11 (normal); 0.5 (sleep)	–40 to +125	9 mm × 9 mm LGA	Vertical mount, tilt and acceleration outputs, programmable alarms, digital filtering
	ADIS16209	±1.7; ±180°	Digital	2	0.05	0.025°/LSB	0.19	3.3	11 (normal); 0.14 (sleep)	–40 to +125	9 mm × 9 mm LGA	Dual-mode, high accuracy (0.1°) tilt and acceleration outputs, programmable alarms, digital filtering
	ADIS16201	±1.7; ±90°	Digital	2	2.25	0.1°/LSB	—	3.3	11 (normal); 0.5 (sleep)	–40 to +125	9 mm × 9 mm LGA	Tilt and acceleration outputs, programmable alarms, digital filtering
	ADIS16210	±1.7; ±180°	Digital	3	0.05	—	—	3.3	18 (normal); 0.23 (sleep)	–40 to +125	15 mm × 24 mm × 15 mm module	Triaxis, single command frame alignment, programmable alarms, serial number and device ID
	Impact Sensors											
	ADIS16204	±70	Digital	2	0.4	8.407 mg/LSB	1.8	3.3	12 (normal); 0.15 (sleep)	–40 to +105	9 mm × 9 mm LGA	Programmable event recorder, peak sample/hold
	ADIS16240	±19	Digital	3	1.6	51.4 mg/LSB	0.48	3	1 (normal); 0.1 (sleep)	–40 to +85	12 mm × 12 mm BGA	Programmable event recorder, peak sample/hold
	Vibration Sensors											
	ADIS16229 ***New***	18	Digital	3	840	0.6041 mg/LSB	0.248	3.3	43 (normal); 0.23 (sleep)	–40 to +85	37.8 mm × 22.8 mm × 8.8 mm MCML	Embedded RF transceiver
	ADIS16228	±18	Digital	3	5	0.3052 mg/LSB	0.248	3.3	40 (normal); 0.23 (sleep)	–40 to +125	15 mm × 24 mm × 15 mm module	Embedded FFT analysis, low noise, multiple capture modes, programmable windowing/filtering, serial number and device ID
	ADIS16223	±70	Digital	3	22	4.768 mg/LSB	3.3	3.3	43 (normal); 0.23 (sleep)	–40 to +125	15 mm × 15 mm × 15 mm module	
	ADIS16227	±70	Digital	3	22	1.192 mg/LSB	3.3	3.3	43 (normal); 0.23 (sleep)	–40 to +125	15 mm × 15 mm × 15 mm module	Embedded FFT analysis

For more information on ADI MEMS inertial sensors, visit our website at *analog.com/MEMS*.

ANALOG DEVICES

Gyroscopes

MEMS Gyroscopes (All Single Axis)

Part Number	Range (°/sec)	Output Type	BW Typ (Hz)	In-Run Bias Stability (°/Hr)	Angle Random Walk (°/√Hr)	Linear Acceleration Effect (°/sec/*g*)	Sensitivity	Bias Tempco (°/sec/°C)	Sensitivity Tempco (ppm/°C)	Non-Linearity (% FS)	Voltage Supply (V)	Supply Current (mA)	Start-Up Time (ms)	Temperature Range (°C)	Package	Additional Features
ADXRS644	300	Analog	1000	9	0.6	0.015	9 mV/°/sec	—	—	0.1	6	3.5	50	–40 to +105	7 mm × 7 mm × 3 mm BGA	Vibration immune, min/max specs across temperature range, ultralow noise
ADXRS646	300	Analog	1000	12	0.6	0.015	9 mV/°/sec	—	—	0.1	6	3.5	50	–40 to +105	7 mm × 7 mm × 3 mm BGA	Ultrahigh stability, vibration immune, min/max specs across temperature range, ultralow noise
ADXRS642	250	Analog	2000	20	1.2	0.03	7 mV/°/sec	0.02	308	0.01	4.75 to 5.25	3.5	50	–40 to +105	7 mm × 7 mm × 3 mm BGA	High vibration immunity, industrial grade typ specs
ADXRS624	50	Analog	1000	60	2	0.1	25 mV/°/sec	0.07	462	0.1	4.75 to 5.25	3.5	50	–40 to +105	7 mm × 7 mm × 3 mm BGA	Min/max specs across temperature range
ADXRS623	150	Analog	3000	60	2	0.1	12.5 mV/°/sec	0.14	462	0.1	4.75 to 5.25	3.5	50	–40 to +105	7 mm × 7 mm × 3 mm BGA	Min/max specs across temperature range
ADXRS622	250	Analog	2500	60	2	0.1	7 mV/°/sec	0.10	308	0.1	4.75 to 5.25	3.5	50	–40 to +105	7 mm × 7 mm × 3 mm BGA	Min/max specs across temperature range
ADXRS652	250	Analog	2500	60	2	0.1	7 mV/°/sec	0.10	308	0.1	4.75 to 5.25	3.5	50	–40 to +105	7 mm × 7 mm × 3 mm BGA	Industrial grade typ specs
ADXRS620	300	Analog	2500	60	2	0.1	6 mV/°/sec	0.11	308	0.1	4.75 to 5.25	3.5	50	–40 to +105	7 mm × 7 mm × 3 mm BGA	Min/max specs across temperature range
ADXRS645 ***New***	2000	Analog	2000	150	10.6	0.1	9 mV/°/sec	—	—	0.1	5	3.5	50	–40 to +175	8 mm × 9 mm × 3 mm, 15-lead brazed lead tri in-line package	High temperature
ADXRS649	20,000+	Analog	2000	200	15	0.03	0.01 mV/°/sec	—	—	0.1	5	3.5	3	–40 to +105	7 mm × 7 mm × 3 mm BGA	High rotation rate up to 50,000°/sec, industrial grade typ specs
ADXRS453	300	Digital	77.5	16	0.9	0.01	0.0125°/LSB	0.0034	207	0.05	3.15 to 5.25	6	100	–40 to +105	9 mm × 9 mm × 4 mm LCC VMP, 10 mm × 10 mm × 3.5 mm SOIC	Calibrated over temperature, vibration immune, in-plane and out-of-plane sensing
ADXRS450	300	Digital	80	25	0.9	0.03	0.0125°/LSB	0.02	462	0.05	3.15 to 5.25	6	100	–40 to +105	9 mm × 9 mm × 4 mm LCC VMP, 10 mm × 10 mm × 3.5 mm SOIC	High vibration immunity, industrial grade typ specs, in-plane and out-of-plane sensing

iSensor MEMS Gyroscope Subsystems (All Single Axis)

Part Number	Range (°/sec)	Output Type	BW Typ (Hz)	In-Run Bias Stability (°/Hr)	Angle Random Walk (°/√Hz)	Linear Acceleration Effect (°/sec/*g*)	Sensitivity	Bias Tempco (°/sec/°C)	Sensitivity Tempco (ppm/°C)	Non-Linearity (% FS)	Voltage Supply (V)	Supply Current (mA)	Start-Up Time (ms)	Temperature Range (°C)	Package	Additional Features
ADIS16060	80	Digital	1000	—	—	0.1	0.0122°/LSB	0.11	—	0.1	5	4.3	10	–40 to +105	8 mm × 8 mm × 5 mm LGA	
ADIS16080	80	Digital	40	—	—	0.2	0.0976°/LSB	—	—	0.15	5	7	35	–40 to +85	8 mm × 8 mm × 5 mm LGA	
ADIS16137 ***New***	1000	Digital	400	2.8	0.15	0.017	0.00015873	0.00125	40	0.05	5	120	—	–40 to +105	36 mm × 44 mm × 14 mm module	
ADIS16136†	480	Digital	380	3.5	0.167	0.017	0.00007°/LSB	0.00125	35	0.05	5	120	180	–40 to +85	36 mm × 44 mm × 14 mm module	External clock option
ADIS16133†	1200	Digital	335	6	0.75	0.03	0.05°/LSB	—	16	0.008	5	88	181	–40 to +85	36 mm × 44 mm × 14 mm module	Wide dynamic range
ADIS16135†	350	Digital	335	6	0.75	0.03	0.0125°/LSB	—	16	0.008	5	88	181	–40 to +105	36 mm × 44 mm × 14 mm module	
ADIS16260 ***New***	320	Digital	330	25	2	0.2	0.0183/LSB	0.005	25	0.1	5	41	165	–40 to +105	11 mm × 11 mm × 5 mm LGA	Calibration temperature: 25°C
ADIS16265†	320	Digital	330	25	2	0.2	0.0183°/LSB	0.005	25	0.1	5	41	165	–40 to +105	11 mm × 11 mm × 5 mm LGA	Calibration temperature range: –40°C to +85°C
ADIS16266 ***New***	14,000	Digital	360	470	21.5	0.1	4.17°/LSB	0.35	200	0.1	5	41	170	–40 to +105	11 mm × 11 mm × 5 mm LGA	Bartlett FIR Filter

†Includes part specific factory calibration, programmable filtering, and digital self test.
For multiaxis solutions, see the MEMS Inertial Measurement Unit (IMU) selection table.

ANALOG DEVICES

*i*Sensor MEMS Inertial Measurement Units (IMUs)

		Range				Gyroscope									Accelerometer					
Part Number	Output Type	Gyro (°/sec)	Acceleration (*g*)	Magnetometer (gauss)	Barometer (mbar)	In-Run Bias Stability (°/hr)	Angle Random Walk (°/√Hr)	Bias Tempco (°/sec/°C)	Linear Acceleration Effect (°/sec/*g*)	Sensitivity (°/sec/LSB)	Sensitivity Tempco (ppm/°C)	Non-Linearity (% FS)	Alignment (°)	BW Typ (Hz)	In-Run Bias Stability (m*g*)	Start-Up Time (ms)	Voltage Supply (V)	Temperature Range (°C)	Package	Additional Features
4 Degrees of Freedom																				
ADIS16305	Digital	300	3	N/A	N/A	22	1.85	0.006	0.02	0.0125	20	0.1	0.1	330	0.037	180	5	–40 to +85	23 mm × 31 mm × 8 mm module	Low profile
6 Degrees of Freedom																				
ADIS16445	Digital	250	5	N/A	N/A	12	0.6	0.005	0.015	0.0025	40	0.1	0.05	330	0.075	—	3.3	–40 to +85	24 mm × 37 mm × 10 mm module	Programmable operation and control, wide dynamic range, external clock option, single command self test
ADIS16385	Digital	300	5	N/A	N/A	6 (z); 21 (x, y)	0.75 (z); 1.9 (x, y)	0.001 (z); 0.004 (x, y)	0.03 (z); 0.05 (x, y)	0.0031	40	0.1	0.05	330	0.05	210	5	–40 to +105	36 mm × 47 mm × 39 mm module	High precision on yaw axis
ADIS16375	Digital	300	18	N/A	N/A	12	1	0.005	0.013	0.013	40	0.025	0.05	330	0.13	500	3.3	–40 to +85	44 mm × 47 mm × 14 mm module	Continuous bias estimator, single command self test, delta angle/velocity, continuous bias estimator, programmable FIR filtering
ADIS16362	Digital	300	1.7	N/A	N/A	25	2	0.01	0.05	0.0125	50	0.1	0.05	330	0.041	180	5	–40 to +105	23 mm × 23 mm × 23 mm module	High sensitivity accelerometer, external clocking option, burst mode reads
ADIS16364	Digital	300	5	N/A	N/A	25	2	0.01	0.05	0.0125	50	0.1	0.05	330	0.1	180	5	–40 to +105	23 mm × 23 mm × 23 mm module	Narrowed temperature calibration range, external clocking option, burst mode reads
ADIS16365	Digital	300	18	N/A	N/A	25	2	0.01	0.05	0.0125	50	0.1	0.05	330	0.2	180	5	–40 to +105	23 mm × 23 mm × 23 mm module	Wide temperature calibration range, external clocking option, burst mode reads
ADIS16334	Digital	300	5	N/A	N/A	25	2	0.005	0.05	0.0125	40	0.1	0.05	330	0.1	180	5	–40 to +105	22 mm × 33 mm × 11 mm module	Small footprint/height, single command self-test
ADIS16485	Digital	450	18	N/A	N/A	6	0.3	0.0025	0.009	3.052×10^{-7}	35	0.01	0.05	330	0.032	500	3.3	–40 to +85	44 mm × 47 mm × 14 mm module	Programmable FIR filtering, 2.46 kHz sample rate, single command self test, delta angle/velocity, continuous bias estimator, linear *g* compensation
ADIS16367	Digital	1200	18	N/A	N/A	47	2	0.01	0.075	0.05	40	0.1	0.05	330	0.2	180	5	–40 to +105	23 mm × 23 mm × 23 mm module	Wide dynamic range, external clocking option, burst mode reads
9 Degrees of Freedom																				
ADIS16405	Digital	300	18	2.5	N/A	25	2	0.01	0.05	0.0125	40	0.1	0.05	330	0.2	220	5	–40 to +105	23 mm × 23 mm × 23 mm module	Magnetometer
10 Degrees of Freedom																				
ADIS16407	Digital	300	18	2.5	10 to 1200	25	1.9	0.01	0.05	0.0125	40	0.1	0.05	330	0.2	220	5	–40 to +105	23 mm × 23 mm × 23 mm module	Barometer
ADIS16488A ***New***	Digital	450	18	2.5	10 to 1200	5.1	0.26	0.0025	0.009	3.052×10^{-7}	35	0.01	0.05	330	0.1	500	3.3	–40 to +85	47 mm × 44 mm × 14 mm module	Programmable FIR filtering, 2.46 kHz sample rate, programmable soft iron correction matrix, programmable hard iron correction, single command self test, delta angle/velocity, continuous bias estimator, linear *g* compensation
ADIS16480	Digital	450	18	2.5	10 to 1200	6	0.3	0.0025	0.009	3.052×10^{-7}	35	0.01	0.05	330	0.1	500	3.3	–40 to +85	47 mm × 44 mm × 14 mm module	Extended Kalman filter, ±0.1° static angle accuracy, ±0.3° dynamic angle accuracy, programmable FIR filtering, 2.46 kHz sample rate, programmable soft iron correction matrix, programmable hard iron correction, single command self test, delta angle/velocity, continuous bias estimator, linear *g* compensation
ADIS16448	Digital	1000	18	1.9	10 to 1200	14	0.6	0.005	0.015	0.01	40	0.1	0.05	330	0.12	205	3.3	–40 to +85	24 mm × 37 mm × 10 mm module	Programmable operation and control, wide dynamic range, external clock option, single command self test

All ADI MEMS IMUs include part specific factory calibration and programmable filtering, unless noted.

ANALOG DEVICES

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