

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
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 <i>New</i>	±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 <i>New</i>	±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 <i>New</i>	±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
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 <i>New</i>	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.



Gyroscopes

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
ADXR644	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
ADXR646	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
ADXR642	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
ADXR624	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
ADXR623	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
ADXR622	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
ADXR652	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
ADXR620	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
ADXR645 <i>New</i>	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
ADXR649	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
ADXR453	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
ADXR450	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

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 <i>New</i>	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 <i>New</i>	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 <i>New</i>	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 multi-axis solutions, see the MEMS Inertial Measurement Unit (IMU) selection table.

iSensor MEMS Inertial Measurement Units (IMUs)

Part Number	Output Type	Range				Gyroscope									Accelerometer				Package	Additional Features
		Gyro (°/sec)	Acceleration (g)	Magnetometer (gauss)	Barometer (mbar)	In-Run Bias Stability (°/hr)	Angle Random Walk (°/√Hz)	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 (mg)	Start-Up Time (ms)	Voltage Supply (V)	Temperature Range (°C)		
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 <i>New</i>	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.

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