

TDK InvenSense - Microphone Selector Guide

	ICS-40300	ICS-40180	ICS-40181	ICS-40720	ICS-40618	ICS-40619	ICS-41350	ICS-41352	ICS-43432	ICS-43434	ICS-52000	ICS-40212
Interface Type	Analog	Analog	Analog	Analog	Analog	Analog	PDM	PDM	I ² S	I ² S	TDM	Analog
Port Location	Bottom	Bottom	Top	Bottom	Bottom	Top	Bottom	Bottom	Bottom	Bottom	Bottom	Bottom
Package Size (mm)	4.72 x 3.76 x 3.5	3.5 x 2.65 x 0.98	3.5 x 2.65 x 0.98	4 x 3 x 1.2	3.5 x 2.65 x 0.98	3.5 x 2.65 x 0.98	3.5 x 2.65 x 0.98	3.5 x 2.65 x 0.98	4 x 3 x 1.0	3.5 x 2.65 x 0.98	4.0 x 3.0 x 1.0	3.5 x 2.65 x 0.98
# of Pins	6	5	6	4	5	6	5	5	7	6	7	5
SNR (dBA)												
High Performance Mode	63	65	65	70	67	67	64	65	65	65	65	66
Standard Mode							64	64				
Low Power Mode					67	67	63	66		65		66
AOP (dB SPL)												
High Performance Mode	130	124	124	124	132	132	126	120	120	120	120	128
Standard Mode							120	120				
Low Power Mode					128	128	120	120		120		123
Sensitivity												
High Performance Mode	-45	-38	-38	-38	-38	-38	-32	-26	-26	-26	-26	-38
Standard Mode							-26	-26				
Low Power Mode					-38	-38	-26	-26		-26		55
Sensitivity Tolerance (dB)	±2	±1	±1	±2	±1	±1	±1	±1	±1	±1	±1	±1
Power Consumption (uA)												
High Performance Mode	220	190	180	285	165	165	650	550	1100	475	1100	
Standard Mode							430	550				
Low Power Mode					55	55	185	175		215		
Sleep							12	20	7	12	7	
Frequency Range												
Low Frequency Corner (Hz)	6	60	60	75	50	50	50	50	50	50	50	35
Frequency Band (High) (kHz)	>20	>20	>20	>20	>20	>20	40	85	20	20	20	>20

TDK InvenSense - Motion Sensors Selector Guide

	ICM-20789	ICG-20660L	ICM-20600	ICM-20602	ICM-20648	ICM-20649	ICM-20689	ICM-20948	MPU-9250	IAM-20680
# Axes	7	6	6	6	6	6	6	9	9	6
Processor(s)	DMP	N	N	N	DMP	DMP	DMP	DMP	DMP	
Software Features	7-axis sensor fusion				DMP based 6 Cal/Fusion, Pedometer, Activity, Bring to See, Gesture	DMP based 6 Cal/Fusion		DMP based 6 Cal/Fusion	DMP based 9-axis Cal/Fusion	
Package-Pin (mm)	4x4x1.365 QFN, 24-leads	3x3x0.75 LGA, 16-leads	2.5x3x0.91 LGA, 14-leads	3x3x0.75 LGA, 16-leads	3x3x0.9 QFN, 24-leads	3x3x0.9 QFN, 24-leads	4x4x0.9 QFN, 24-leads	3x3x1 QFN, 24-leads	3x3x1 QFN, 24-leads	LGA 16 3 mm x 3 mm x 0.75 mm
Gyroscope										
FSR (dps)	±250/500/ 1000/2000	±250/500/ 1000/2000	±250/500/ 1000/2000	±250/500/ 1000/2000	±250/500/ 1000/2000	±500/1000/ 2000/4000	±250/500/ 1000/2000	±250/500/ 1000/2000	±250/500/ 1000/2000	±250/500/ 1000/2000
ZRO @ 25°C (dps)	±5	±5	±1	±1	±5	±5	±5	±5	±5	-0.8
ZRO over Temp (-40C to 85C)(dps/°C)	±0.04 (-40C to 85C) (dps/°C)	±0.06 (-20° to +75°C) (dps/°C)	±0.01 (-40C to 85C) (dps/°C)	±0.01 (-40C to 85C) (dps/°C)	±0.05 (-40C to 85C) (dps/°C)	±0.05 (-40C to 85C) (dps/°C)	±0.04 (-40C to 85C) (dps/°C)	±0.05 (-40C to 85C) (dps/°C)	±0.24 (-40C to 85C) (dps/°C)	+/- 1 dps
Sens. Tolerance @ 25°C (%)	±2%	±1%	±1%	±1%	±3%	±1%	±2%	±3%	±3%	
Sens Over Temp (%)	±1.5% (-40C to 85C) (dps/°C)	±3% (-20° to +75°C) (dps/°C)	±2% (-40C to 85C) (dps/°C)	±2% (-40C to 85C) (dps/°C)	±3% (-40C to 85C) (dps/°C)	±3% (-40C to 85C) (dps/°C)	±1.5% (-40C to 85C) (dps/°C)	±3% (-40C to 85C) (dps/°C)	±4% (-40C to 85C) (dps/°C)	
Gyro Noise (dps/√Hz)	0.006	0.005	0.004	0.004	0.015	0.017	0.006	0.015	0.01	0.005
Accelerometer										
FSR(g)	±2/4/ 8/16	2/4/ 8/16	±2/4/ 8/16	±2/4/ 8/16	2/4/ 8/16	4/8/ 16/30	±2/4/ 8/16	2/4/ 8/16	±2/4/ 8/16	2, 4, 8, 16 g
Component Offset @ 25°C (mg)	±20	X,Y: ±40; Z: ±65	±25	±25	±50	±25	±20	±25	X,Y: ±60; Z: ±80m	+/-50
Offset Over Temp mg/°C(-40C to 85C)	±0.75mg/°C (-40C to 85C) (dps/°C)	±0.5 (-20° to +75°C) (dps/°C)	X, Y: ±0.5 Z: ±1 (-40C to 85C) (dps/°C)	X, Y: ±0.5 Z: ±1 (-40C to 85C) (dps/°C)	X, Y: ±0.64 Z: ±1 (-40C to 85C) (dps/°C)	±0.8 (-40C to 85C) (dps/°C)	X, Y: ±0.5 Z: ±0.75 (-40C to 85C) (dps/°C)	±0.8 (-40C to 85C) (dps/°C)	±1.5 (-40C to 85C) (dps/°C)	+/-50
Sens. Tolerance (%)	±2%	±1%	±1%	±1%	±3%	±1%	±2%	±3%	±3%	
Sens. Over Temp (%)	±1% (-40C to 85C) (dps/°C)	±2.5% (-20° to +75°C) (dps/°C)	±1.5% (-40C to 85C) (dps/°C)	±1.5% (-40C to 85C) (dps/°C)	±3.25% (-40C to 85C) (dps/°C)	±3.25% (-40C to 85C) (dps/°C)	±1% (-40C to 85C) (dps/°C)	±3.25% (-40C to 85C) (dps/°C)	±3.25% (-40C to 85C) (dps/°C)	
Accel Noise (µg/√Hz)	150	220	100	100	230	280	150	190	300	135
Bus Interface	SPI; I2C	SPI; I2C	SPI; I2C	SPI; I2C	SPI; I2C	SPI; I2C	SPI; I2C	SPI; I2C	SPI; I2C	SPI/I2C
FSYNC Support	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Memory	4Kbytes FIFO	512bytes FIFO	1Kbytes FIFO	1Kbytes FIFO	512bytes FIFO	512bytes FIFO	4Kbytes FIFO	512bytes FIFO	512bytes FIFO	512-byte FIFO
Power	6-Axis Low-Power Mode: 1.27mA * 1.8V = 2.29mW Gyro: 100Hz ODR, 1x avg filter	6-Axis: 3mA * 1.8V = 5.4mW	6-Axis Low-Power Mode: 1.33mA * 1.8V = 2.39mW Gyro: 100Hz ODR, 1x avg filter	6-Axis Low-Power Mode: 1.33mA * 1.8V = 2.39mW Gyro: 100Hz ODR, 1x avg filter	6-Axis Low-Power Mode: 1.27mA * 1.8V = 2.29mW Gyro: 100Hz ODR, 1x avg filter	6-Axis Low-Power Mode: 1.27mA * 1.8V = 2.29mW Gyro: 102Hz ODR, 1x avg filter	6-Axis Low-Power Mode: 1.9mA * 1.8V = 3.42mW Gyro: 100Hz ODR, 1x avg filter	9-Axis: 3.11mA * 1.8V = 5.6mW	9-Axis: 3.7mA * 2.5V = 9.25mW	3 mA
Magnetic Sensor										
Compass FSR (µT)								±4900	±4800	N/A
Compass Initial Offset								0.15µT/LSB	±300µT	N/A
Pressure Sensor										
Relative Accuracy	±1Pa (700 hPa - 1000 hPa)									N/A
Absolute Accuracy	±1hPa (300 hPa - 1100 hPa)									N/A
Noise (Low Power Mode)	3 Pa (P = 100kPa, T = 25°C) (dps/°C)									N/A
Noise (Low Noise Mode)	0.85 Pa (P = 100kPa, T = 25°C) (dps/°C)									N/A
Offset Temp Coefficient	±0.5 Pa/deg C (P = 100kPa, T = 25°C - 45°C)									N/A