





Orientation Sensors Comparison

Specifications				
Model	3DM-GX3® -35	3DM-GX3® -25	3DM®/3DM-DH®	FAS-A®
Application	Static/dynamic	Static/dynamic	Static/quasi-static	Static/quasi-static
Sensor suite	Accelerometers, gyroscopes, magnetometers, temperature	Accelerometers, gyroscopes, magnetometers, temperature	Accelerometers, magnetometers	Accelerometers
Orientation range	360° about all axes	360° about all axes	pitch +/-70° roll +/-180° yaw +/-180°	360° in single axis mode +/-70° in dual axis mode
Accelerometer range	+/-5 g standard +/-1.7 g, +/- 16 g, and +/-50 g also available	+/-5 g standard +/-1.7 g, +/- 16 g, and +/-50 g also available	+/-1.7 g	+/-1.7 g
Accelerometer bias stability	+/-0.005 g for +/-5 g range +/-0.003 g for +/-1.7 g range +/-0.010 g for +/-16 g range +/-0.050 g for +/-50 g range	+/- 0.005 g for +/-5 g range +/- 0.003 g for +/-1.7 g range +/- 0.010 g for +/-16 g range +/- 0.050 g for +/-50 g range	0.003 g	0.003 g
Accelerometer nonlinearity	0.2%	0.2%	0.2%	0.2%
Gyro range	+/-300°/sec standard +/-1200°/sec, +/- 600°/sec, +/- 50°/sec also available	+/-300°/sec standard +/-1200°/sec, +/- 600°/sec, +/- 50°/sec also available	-	-
Gyro bias stability	+/-0.2°/sec for +/-300°/sec	+/-0.2°/sec for +/- 00°/sec	-	-
Gyro nonlinearity	0.2%	0.2%	-	-
Magnetometer range	+/-2.5 Gauss	+/-2.5 Gauss	+/-6 Gauss	-
Magnetometer nonlinearity	0.4%	0.4%	0.4%	-
Magnetometer bias stability	0.01 Gauss	0.01 Gauss	0.085 Gauss	-
Filtering	Sensors sampled at 30 kHz, digitally filtered (user adjustable) and scaled into physical units Coning and sculling integrals computed at 1 kHz	Sensors sampled at 30 kHz, digitally filtered (user adjustable) and scaled into physical units Coning and sculling integrals computed at 1 kHz	Infinite Impulse Response (IIR), user programmable weighted moving average	Infinite Impulse Response (IIR), user programmable weighted moving average
A/D resolution	16 bits (SAR) (oversampled to 17 bits)	16 bits (SAR) (oversampled to 17 bits)	12 bits	12 bits

Model	3DM-GX3-35	3DM-GX3-25	3DM/3DM-DH	FAS-A
Orientation accuracy	+/- 0.5° typical for static test conditions +/- 2.0° typical for dynamic (cyclic) test conditions	+/- 0.5° typical for static test conditions +/- 2.0° typical for dynamic (cyclic) test conditions	pitch +/-0.7° typical roll +/-0.7° typical yaw +/-1.5° typical	+/-0.7 typical
Orientation resolution	<0.1°	<0.1°	0.1° at most aggressive setting	0.15° with no digital filtering, <0.1° with most aggressive digital filtering
Repeatability	0.2°	0.2°	pitch and roll 0.7°, yaw 0.26°	0.07° typical
Output modes	Acceleration, angular rate and magnetic field DeltaAngle and DeltaVelocity Euler angles Orientation matrix Quaternion GPS	Acceleration, angular rate and magnetic field DeltaAngle and DeltaVelocity Euler angles Orientation matrix Quaternion	Acceleration and magnetic field Euler angles Orientation matrix	Pitch and roll
Interface options	Standard: USB 2.0 or RS232	Standard: USB 2.0 or RS232 OEM: USB 2.0 / TTL serial (3.3 volts)	RS-232 serial	RS-232 serial
Analog output	-	-	-	0-4.096 volts FS
Data rate	AHRS: 1 Hz to 1,000 Hz GPS: 1 Hz to 4 Hz	1 to 1000 Hz	Angle mode: 45 Hz/3 channels (maximum) 30 Hz/3 channels (typical)	40 Hz
Serial baud rate	9,600 baud to 921,600 baud (115,200 baud default)	115200 baud to 921,600 baud	1200, 9600, 19200 baud	9600 baud
Supply voltage	+3.2 to +16 volts	+3.2 to +16 volts	+5.2 VDC min., +12 VDC max.	+5.2 VDC min., +12 VDC max.
Power consumption	160 mA (typical) @ 5 volts with RS-232 and GPS lock	80 mA @ 5 volts with USB	50 mA	40 mA
Connector	micro-DB9	Standard: micro-DB9 OEM: Samtec FTSH-105-01-F-D-K	RJ11 type	8 pin DIN type
Operating temperature	-40° to +65°C	-40° to +75°C (consult factory for higher temperature operation)	-25°C to 70°C in enclosure -40°C to 85°C without enclosure	-40°C to 70°C in enclosure -40°C to 85°C without enclosure
Dimensions	44 mm x 24 mm x 14 mm excluding mounting tabs, width across tabs 37 mm	Standard: 44 mm x 25 mm x 11 mm excluding mounting tabs, width across tabs 37 mm OEM: 38 mm x 24 mm x 12 mm	64mm x 90mm x 25 in enclosure	64mm x 90mm x 25 in enclosure
Weight	23 grams	Standard: 18 grams RS-232 and USB OEM: 11.5 grams	75 grams with enclosure 26.9 grams without enclosure	62 grams with enclosure 14 without enclosure
Shock limit	500 g	500 g	500g	500 g

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