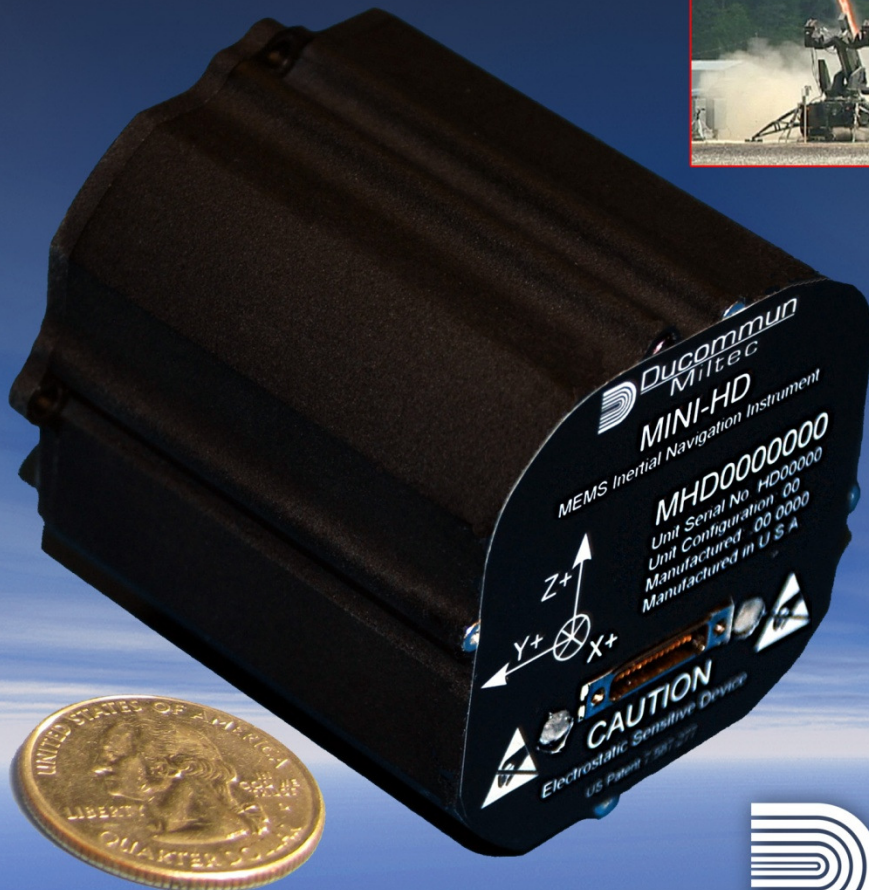
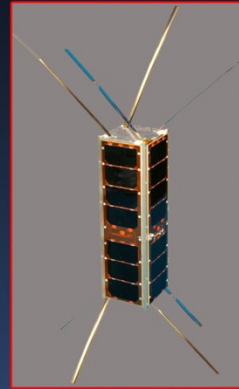


High Dynamic MEMS Inertial Navigation Instrument

MINI-HD

The MINI-HD offers performance and configurability to satisfy any application due to:

- ◆ Patented Processing Algorithms that Bind 3-Axis Gyro Drift
- ◆ Scalable and Configurable System Architecture
- ◆ Kalman Filter for Aided Navigation Systems
- ◆ High Performance Dual Processing (DSP plus FPGA)
- ◆ Wide Range of Digital Rates and Formats
- ◆ Extended Roll Rate Capability
- ◆ High Dynamic Measurement Capability
- ◆ Missile Flight Proven Sensors
- ◆ Internal Magnetometers



Typical Applications:

- ◆ Missile Systems
- ◆ Instrumentation
- ◆ KV's
- ◆ Autopilot
- ◆ Sounding Rockets / Targets
- ◆ Satellites
- ◆ Gun Launched Munitions



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MINI-HD Product Specifications

Dynamic Range

Angular Rate ¹	Up to $\pm 2600^\circ/\text{s}$ X, $\pm 1200^\circ/\text{s}$ Y, Z
Acceleration ²	Up to ± 250 g's per Axis
Magnetic Field	± 6 Gauss

Gyro Accuracy

Random Walk	$2^\circ/\text{rt-hr}$ @ $1200^\circ/\text{s}$ angular rates, typical
Bias Repeatability ³	100-200 $^\circ/\text{hr}$ (1σ)
Bias Drift ³	35 $^\circ/\text{hr}$ (1σ)
SF Repeatability ³	3,000 PPM (1σ)
Misalignment	3 milliradians (1σ)

Accelerometer Accuracy

Random Walk	0.75 m/s/rt-hr, typical
Bias Repeatability	10 milli-g's (1σ)
Bias Drift	5 milli-g's (1σ), typical
SF Repeatability	3,000 PPM (1σ)
Misalignment	3 milliradians (1s)

Magnetometer Accuracy

Resolution	366 micro-Gauss
Noise	500 micro-Gauss
Bias Error	<500 micro-Gauss

Bandwidth

Angular Rate	1 to 600 Hz (90° phase)
Acceleration	1 to 600 Hz (90° phase)
Magnetic Field	1 to 600 Hz (90° phase)

Mechanical

Size	2" dia. x 2" length
Weight	190 g
Shock ⁴	100 g, sine wave half cycle
Vibration ⁴	16 g RMS to 3 kHz
Temperature	-40 $^\circ\text{C}$ to +70 $^\circ\text{C}$ operating -55 $^\circ\text{C}$ to +125 $^\circ\text{C}$ non-operating

Electrical

Interface	Omnetics 31 Pin Connector
Power	3.0W @ 12V nominal (+9 to +18VDC)
Primary Interface	SDLC (sync) or RS-422 (async)
Auxiliary Interface ⁶	Two (2x) RS-422 (full duplex)
Discrete Inputs ⁶	LV-TTL (x4)

Output Rates

Compensated	Up to 1200 Hz
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Position Accuracy

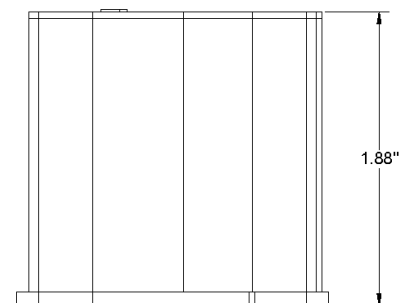
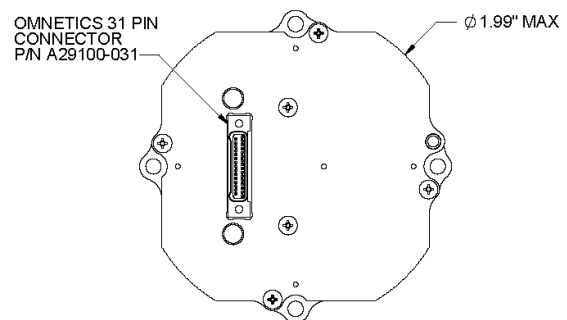
With GPS	1 to 3 m (L1/L2) 5 to 10 m (L1 only)
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Velocity Accuracy

With GPS ⁵	0.1 m/s
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Attitude Accuracy

With GPS ⁵	< 0.5 $^\circ$
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Ordering Options: The MINI-HD is available in a number of configurations depending on the options specified at the time of order. Please call or email to discuss your application requirements with a product engineer. The features and modes that can be installed in each unit are as follows:

- Roll Rate, deg/sec = 300, 600, 900, 1200, 2600
- Yaw/Pitch Rate, deg/sec = 300, 600, 900, 1200
- Accelerometers, g = 70, 250
- Message Modes = SDLC, RS-422
- Message Format = IMU, Navigation, Mixed
- Data Output Rate, Hz = Up to 1200
- Gyro Bandwidth, Hz = Up to 600
- Accelerometer Bandwidth, Hz = Up to 600
- Magnetometer Bandwidth, Hz = Up to 600

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Call or email for pricing and availability

Notes:

- 1 X-Axis configurable from 300 to 2600 $^\circ/\text{s}$, Y/Z from 300 to 1200 $^\circ/\text{s}$
- 2 Configurable from 70g up to 250g
- 3 Without onboard calibration
- 4 Without shock vibration isolator
- 5 Vehicle trajectory dependent
- 6 Configurations are application specific

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