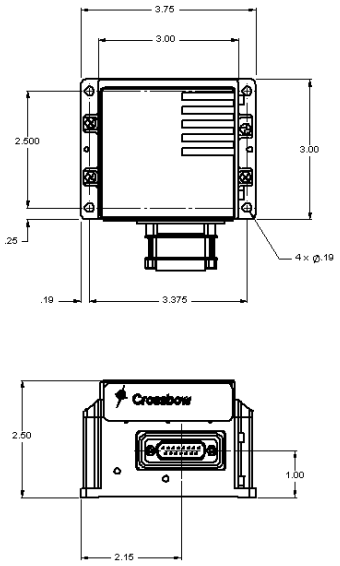
IMU440

MEMS INERTIAL MEASUREMENT UNIT

- X, Y, Z Acceleration and 3-Axis Angular Rate Outputs
- Fully Compensated Over Wide Temperature Range
- High Stability MEMS Sensors
- 100 Hz Output Data Rate
- EMI & Vibration Resistant
- Environmentally Sealed

Applications

- Navigation and Control
- Vehicle Testing
- General Instrumentation



Package Dimensions

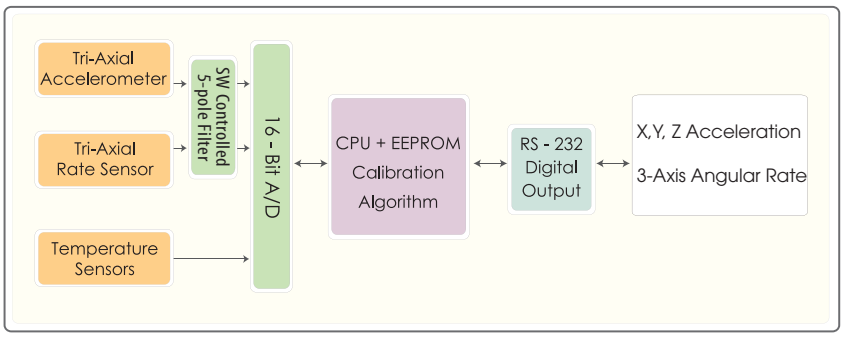
IMU440CA

The Crossbow IMU440 is an inertial system that utilizes MEMS-based gyroscopes and accelerometers to provide an unmatched value in terms of both price and performance. Developed in response to over a decade of extensive application experience in a wide variety of airborne, marine and land applications, the IMU440 incorporates many new and enhanced design features including:

- Water resistant, vibration resistant, lightweight design
- EMI protection for trouble-free operation
- Continuous Built-in-Test
- Programmable sensor filtering and mounting configurations
- Flexible and configurable digital communications protocol

This high reliability, strapdown inertial system provides inertial measurements with superior accuracy that exceed traditional spinning mass gyros. The IMU440 achieves its excellent performance by employing proprietary algorithms to characterize and correct for the effects of temperature, non-linearity and misalignment. Fully compensated angular rate and acceleration outputs are provided in a digital (RS-232) format. Data formats include DeltaV, DeltaTheta as well as scaled engineering units.

Each IMU440 system comes with a User's Manual and Crossbow's NAV-VIEW 2.0 software to assist users with system development, evaluation, and data acquisition.



IMU440 Block Diagram

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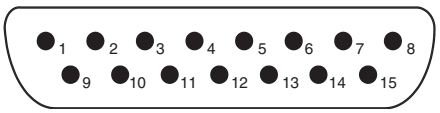
Specification	IMU440CA-200	Remarks
Performance		
Update Rate[1] (Hz)	2-100	Programmable
Start-up Time Valid Data (sec)	< 1	
Angular Rate		
Range: Roll, Pitch, Yaw (°)	± 200	
Bias: Roll, Pitch, Yaw (°/sec)	< ± 0.75	Full temperature range
Scale Factor Accuracy (%)	< 1	
Non-Linearity (% FS)	< 0.5	
Resolution (°/sec)	< 0.06	
Bandwidth (Hz)	25	-3 dB point nominal, programmable
Random Walk (°/hr$^{1/2}$)	< 4.5	
Acceleration		
Input Range: X/Y/Z (g)	± 4	
Bias: X/Y/Z (mg)	< ±15	Full temperature range
Scale Factor Accuracy (%)	< 1	
Non-Linearity (% FS)	< 1	
Resolution (mg)	< 0.6	
Bandwidth (Hz)	25	-3 dB point nominal, programmable
Random Walk (m/s/hr$^{1/2}$)	< 1.0	
Environment		
Operating Temperature (°C)	-40 to +71	
Non-Operating Temperature (°C)	-55 to +85	
Enclosure[2]	IP66 compliant	
Electrical		
Input Voltage (VDC)	9 to 42	
Input Current (mA)	< 350	At 12 VDC nominal
Power Consumption (W)	< 5	
Digital Output Format	RS-232	
Physical		
Size (in)	3 x 3.75 x 2.50	With mounting flanges
(cm)	7.62 x 9.53 x 6.43	With mounting flanges
Weight (lbs)	< 1.3	
(kg)	< 0.58	
Connector	15 pin "D" male	

Specifications subject to change without notice.

Notes
[1]See User's Manual for additional information.
[2]IP66 Compliant without EMI filter attached.

15 Pin "D" Connector Male Pinout



Pin	Signal
1	RS-232 Transmit Data
2	RS-232 Receive Data
3	Positive Power Input (+Vcc)
4	Power Ground
5	Chassis Ground
6	NC – Factory use only
7	NC – Factory use only
8	NC – Factory use only
9	Signal Ground
10	IPPS OUT
11	IPPS IN
12	NC – Factory use only
13	BIT Out
14	NC – Factory use only
15	NC – Factory use only

IMU440 Pin Diagram

Ordering Information

Model	Description	Gyro (°/sec)	Accel (g)
IMU440CA-200	MEMS Inertial Measurement Unit	± 200	± 4

CALL FACTORY FOR OTHER CONFIGURATIONS

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