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Find the *Moog / Crossbow Technology IMU400CA-100* at our website: *Click HERE*

IMU400

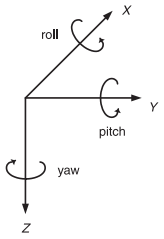
6DOF INERTIAL MEASUREMENT UNIT

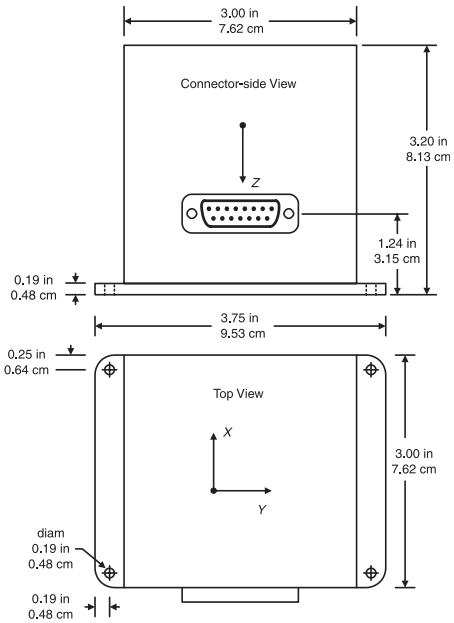
- High Stability MEMS Sensors
- Analog and Digital Outputs
- No Calibration Required
- EMI & Vibration Resistant



Applications

- Navigation and Control
- Marine Dynamics
- Vehicle Testing





IMU400CD

The Crossbow IMU400CD is a high performance solid-state six degree-of-freedom (6DOF) Inertial Package intended for OEM navigation and control, dynamics testing and instrumentation applications. This high reliability strap-down inertial system provides accurate measurement of angular rate and linear acceleration.

The IMU400CD offers enhanced stability and performance compared with previous 400-Series configurations by incorporating the latest advancements in MEMS accelerometers. These new MEMS accelerometers also provide significant improvement in vibration performance in a variety of different application environments.

The IMU400CD achieves its excellent performance by employing proprietary algorithms to characterize and correct for the effects of temperature, linearity and misalignment. Fully compensated angular rate and acceleration outputs are provided in both analog and digital (RS-232) formats.

Each Inertial System comes with a User's Manual offering helpful hints on programming, installation, and product information. In addition, Crossbow's GYRO-VIEW software is included to assist you in system development and evaluation, and allows you to perform data acquisition.

Document Part Number: 6020-0020-11 Rev C

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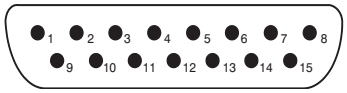
Specifications	IMU400CD-100	IMU400CD-200	Remarks
Performance			
Update Rate (Hz)	> 100	> 100	Continuous Update Mode
Start-up Time Valid data (sec)	< 1	< 1	
Angular Rate			
Range Roll, Pitch, Yaw (°/sec)	± 100	± 200	
Bias: Roll, Pitch, Yaw (°/sec)	<± 1.0	<± 1.0	
Scale Factor Accuracy (%)	< 1	< 1	
Non-Linearity (% FS)	< 0.3	< 0.3	
Resolution (°/sec)	< 0.025	< 0.05	
Bandwidth (Hz)	> 25	> 25	-3 dB point
Random Walk (°/hr$^{1/2}$)	< 2.25	< 4.5	Typical
Acceleration			
Range X/Y/Z (g)	± 4	± 4	
Bias: X/Y/Z (mg)	<± 12	<± 12	
Scale Factor Accuracy (%)	< 1	< 1	
Non-Linearity (% FS)	< 1	< 1	
Resolution (mg)	< 0.6	< 0.6	
Bandwidth (Hz)	> 75	> 75	-3 dB point
Random Walk (m/s/hr$^{1/2}$)	< 1.0	< 1.0	
Environment			
Operating Temperature (°C)	-40 to +71	-40 to +71	
Non-Operating Temperature (°C)	-55 to +85	-55 to +85	
Non-Operating Vibration (g rms)	6	6	20 Hz - 2 KHz random
Non-Operating Shock (g)	1000	1000	1 ms half sine wave
Electrical			
Input Voltage (VDC)	9 to 30	9 to 30	
Input Current (mA)	< 250	< 250	
Power Consumption (W)	< 3	< 3	at 12 VDC
Digital Output Format	RS-232	RS-232	
Analog[1] Range (VDC)	± 4.096	± 4.096	Pins 8, 9, 10, 12, 13, 14
	0 to 5.0	0 to 5.0	Pins 5, 6, 7
Physical			
Size (in)	3.0 x 3.75 x 3.2	3.0 x 3.75 x 3.2	Incl. mounting flanges
(cm)	7.62 x 9.53 x 8.13	7.62 x 9.53 x 8.13	Incl. mounting flanges
Weight (lbs)	< 1.4	< 1.4	
(kg)	< 0.64	< 0.64	
Connector	15 pin sub-miniature "D" male		

Notes:

[1]All DAC Analog outputs are fully buffered and are designed to interface directly to data acquisition equipment

Specifications subject to change without notice

15 Pin "D" Connector Male Pinout



Pin	Function
1	RS-232 Transmit Data
2	RS-232 Receive Data
3	Input Power
4	Ground
5	X-axis accel voltage[1]
6	Y-axis accel voltage[1]
7	Z-axis accel voltage[1]
8	Roll-axis angular rate[2]
9	Pitch-axis angular rate[2]
10	Yaw-axis angular rate[2]
11	NC – Factory use only
12	X-axis acceleration[3]
13	Y-axis acceleration[3]
14	Z-axis acceleration[3]
15	NC – Factory use only

Notes

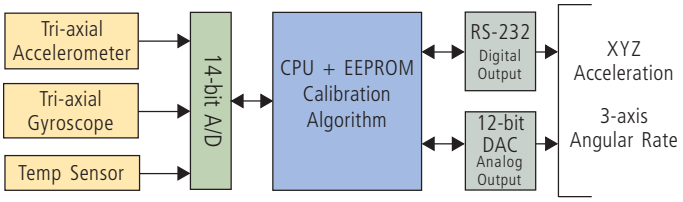
1 The accelerometer voltage outputs are taken directly from the accelerometers without compensation or scaling.

2 The angular rate analog outputs are scaled to represent degrees/second. Outputs are created by a D/A converter.

3 The acceleration outputs are scaled to represent g. Outputs are created by a D/A converter.

Pin Diagram





IMU Block Diagram

Ordering Information

Model	Description	Gyro (°/sec)	Accel (g)
IMU400CD-100	High performance 6 DOF Inertial Measurement Unit	± 100	± 4
IMU400CD-200	High Performance 6 DOF Inertial Measurement Unit	± 200	± 4

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