

Inertial Labs, IncTM

Miniature Orientation Sensor

OS3D-GS

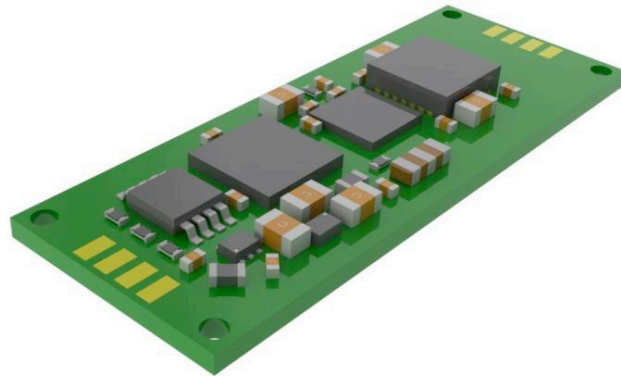
Datasheet
Revision 1.5

March, 2012

Inertial Labs Game Sensor OS3D-GS is a multi-purpose miniature 3D orientation sensor. It includes three types of sensing elements: tri-axial MEMS gyros, tri-axial MEMS accelerometers and tri-axial MEMS magneto-resistive magnetometers. It is designed for such real time applications as motion capture and inertial gamepad orientation.

Features

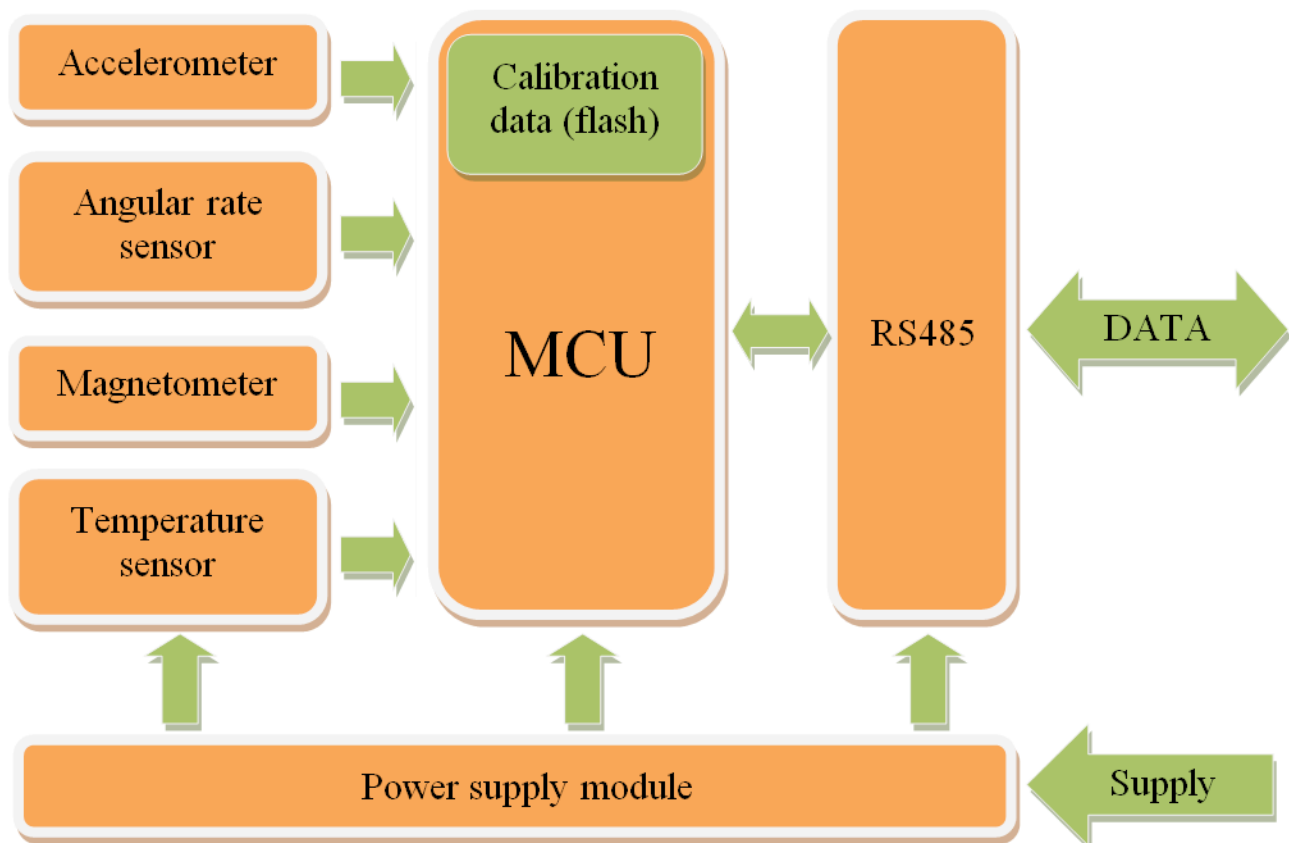
- 35 Real-time 3-axis inertial outputs
- 17 Individually calibrated
- 35 Ultra compact size
- 17 Low power consumption
- 35 TIA/EIA-485A serial interface
- 17 Multi-device mode support
- 35 PC-based full features SDK



Applications

- 35 Virtual reality systems
- 35 Platform stabilization
- 35 Inertial gamepads
- 35 Motion capture
- 17 Robotics

Data from the gyros, accelerometers, and magnetometers as well as the internal temperature sensor are gathered and passed by the MCU to the PC (or other platform). It is possible to request raw sensor data as well as calibration constants. On the PC, the OS3D-GS SDK is used in order to acquire the orientation data and apply it to the application software.



OS3D-GS Absolute Maximum Ratings

Parameter	Value	Units
Supply voltage (Vdd to Vss)	-0.3 to +6	V
Other pins voltage	-0.3 to +6	V

OS3D-GS Specifications (T=25 °C, Vdd = 4.0V, unless otherwise is noted)

Parameter	Value	Units
Output data (16-bit resolution)	Raw data (angular rate, acceleration, magnetic field strength, temperature)	-
Internal update rate	500	Hz
Start-up time	<1	s
Gyro Range	±2000	°/s
Accelerometer range	±2	g
Magnetometer range	±1.3	Gauss
Environment		
Specified temperature	+25	°C
Operating temperature	-30 to +85	°C
Storage temperature	-40 to +85	°C
Electrical		
Supply voltage	3.5 to 5.6	V
Power consumption	<110	mW
Interface		
Standard	TIA/EIA-485A (half-duplex)	-
Baud Rate	1M	bps
Byte Size	8	bits
Stop Bites	1	bits
Parity	No	-
Physical		
Size	32 × 12 × 4	mm
Weight	2	gram

OS3D-GS Pin Assignments

Num	Name	Function	Parameters
1	PWR	supply voltage	3.5V to 5.6V
2	GND	ground, shield	
3	A	A RS-485	1 Mbps, 120Ω
4	B	B RS-485	1 Mbps, 120Ω

