

Technical Product Description



SmartIMU-ETH

6DOF Gyro Stabilized Orientation Sensor with GPS

Features

- Digital Outputs
- Dynamic Calibration
- Ethernet Interface
- External GPS Antenna
- 9V-24V Supply Power

Applications

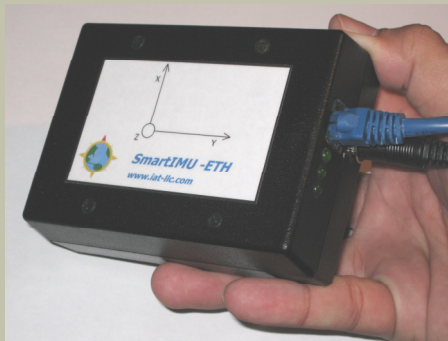
- Unmanned Applications
- Motion Control
- 3D Sensing/Mapping

Introduction

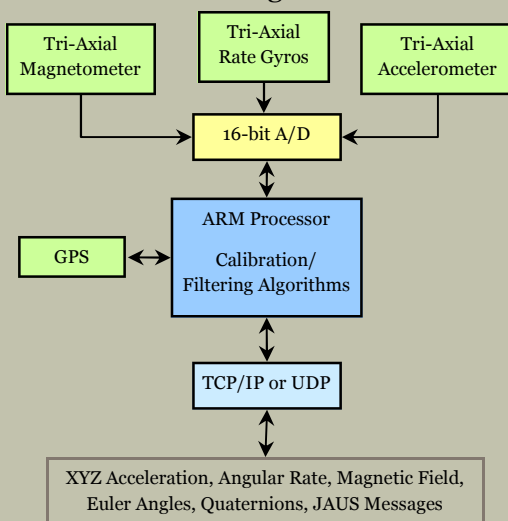
The SmartIMU-ETH provides an intelligent orientation and positioning solution in a compact footprint. The combination of a tri-axial magnetometer, three orthogonal rate gyros, a tri-axial accelerometer, and a GPS module accurately measures position in static and dynamic environments. Sensor data is sent via TCP/IP or UDP packets. The SmartIMU dynamically calibrates itself accounting for any magnetic signature in the vicinity of the sensor.

SmartIMU-ETH—6DOF Gyro Stabilized Orientation Sensor with GPS

The SmartIMU-ETH utilizes the sensor suite for robust and accurate orientation estimates in static and dynamic environments. The addition of a GPS module with an external antenna provides supplemental position information. The novel filtering, adaptation, and calibration algorithms combine all sensor data into an accurate position and orientation solution. The SmartIMU-ETH can be easily configured via webpage. In addition, this sensor is JAUS compliant and is compatible with the OpenJAUS architecture.



SmartIMU-ETH Block Diagram



Specifications

Specifications	
Processor	
Type	Philips ARM 7
Speed	60 MHz
GPS	
Update Rate	4 Hz
Antenna	External Active
Channels	L1 frequency, 16
Rate Gyros	
Axes	3 DOF
Full-Scale Range	$\pm 320^\circ/\text{sec}$
Magnetometer	
Axes	3 DOF
Full-Scale Range	± 11 gauss
Sensitivity	.00015 gauss
Accelerometer	
Axes	3 DOF
Full-Scale Range	± 3.6 g
Sensitivity	300 mV/g
Operation & Storage	
Input Supply Voltage	9V—24V (5W max)
Package Dimensions, Weight	4.4" x 3.25" x 1.4", < 5 oz.
Operating/Storage Temperature	-20C to 70C, -40C to 85C
Humidity	85% Non-Condensing RH
Powered/Unpowered Shock Rating	30G/200G

Ordering Information

Model	Description	Gyro ($^\circ/\text{sec}$)
SmartIMU-ETH 300-v1.2	6DOF IMU & GPS	± 320