

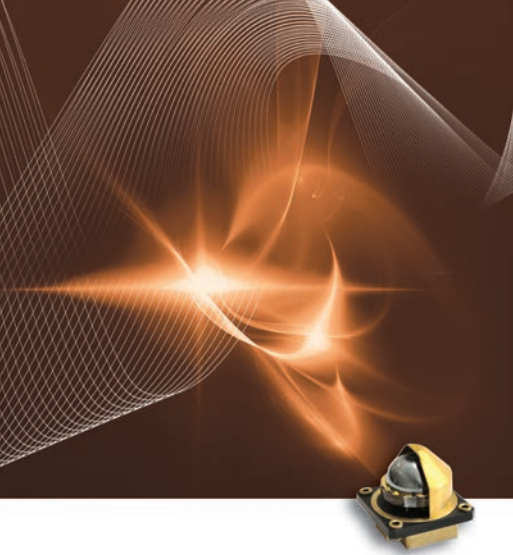
PRIMUS

HEMISPHERICAL RESONATOR GYRO

INERTIAL MEASUREMENT UNIT



- > 3 HRG SENSORS IN A MINIATURE PACKAGE
- > OPTIMIZED SWAP (SIZE, WEIGHT & POWER)
- > ULTRA LOW RANDOM WALK
- > IMMUNITY TO ENVIRONMENTAL STRESS
- > PROVEN HRG OPERATIONAL MTBF >1,000,000 HOURS



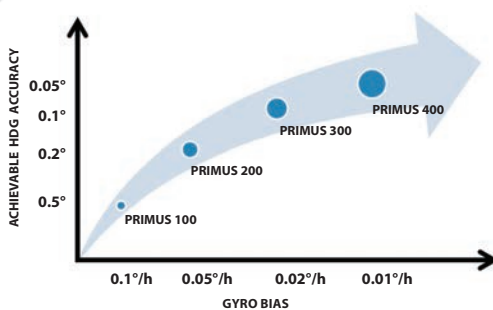
PRIMUS

Hemispherical Resonator Gyro Inertial Measurement Unit

Thanks to its 3 HRG sensors, Safran Electronics & Defense's PRIMUS Inertial Measurement Unit family achieves high performance in a small size and is perfectly ready for integration into applications even with the most demanding requirements.

Based on the advanced HRG (Hemispherical Resonator Gyroscope) technology, the new PRIMUS IMU family demonstrates Safran Electronics & Defense's leading gyro expertise by providing high navigation grade performance at a much lower cost and smaller size than RLG (ring laser gyros) or FOG (fiber optic gyros)-based IMUs.

PRIMUS is ideal for any application that requires very low random walk, excellent bias over temperature, low power consumption, low weight, high durability with unmatched reliability.



Applications:

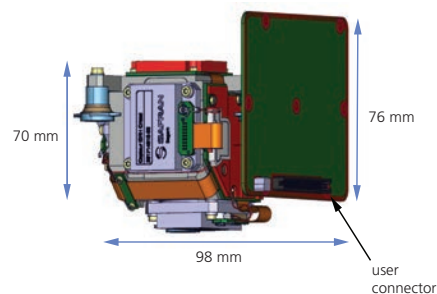
- Subsea positioning
- Surface navigation
- Land navigation
- Gyro-compass
- North finder
- Geo-localization
- Alignment transfer
- Man portable navigation
- Etc.

PRIMUS is composed of:

- An inertial sensor assembly with:
 - 3 Hemispherical Resonator Gyros (HRG)
 - 3 Accelerometers
 - Optimized dampers
- An electronics board for sensor management & inertial increment computation

PRIMUS delivers inertial data (angular & velocity increments) after coning / sculling, and thermal error compensation, via a RS422 datalink or Ethernet.

Optimized SWaP: <1 liter / <500g / 6W



Parameters	PRIMUS 100	PRIMUS 200	PRIMUS 300	PRIMUS 400
Gyro Bias (RMS)	< 0.1°/h	< 0.05°/h	< 0.02°/h	< 0.01°/h
Gyro Random Walk	< 0.004°/sqrt(h)	< 0.004°/sqrt(h)	< 0.002°/sqrt(h)	< 0.002°/sqrt(h)
Scale factor Accuracy (RMS)	10 ppm			
Bandwidth	200 Hz			
Accelerometer bias (RMS)	<2 mg	< 2 mg	< 1 mg	< 1 mg
Accelerometer scale factor accuracy (RMS)	500 ppm			
Accelerometer noise	60 µg/sqrt(Hz)			
Operating temperature (Continuous)	-40°C to +70°C			
Vibration	7.7g RMS			
Shock	50g 11msec half sinus			

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