

> THE RIGHT TECHNOLOGY FOR THE RIGHT APPLICATION

RING LASER GYRO



High accuracy Bias <math><0.001^\circ/h</math>	Small size 0.4L	European technology	32 Patents
MTBF >100,000h	Light weight 500g	Very good scalability	
	Low power consumption 0.4W	No periodic maintenance needed	

HEMISPHERICAL RESONATOR GYRO



High accuracy Bias <math><0.005^\circ/h</math>	Small size 0.1L	European technology	24 Patents
Ultra-High Reliability MTBF >1,000,000h	Light weight 45g	Very robust	
	Low power consumption 0.15W	Unlimited life duration No moving part	

MICRO-ELECTRO-MECHANICAL SYSTEMS



High accuracy Bias <math><0.1^\circ/h</math>	Small size 0.01L	European technology	19 Patents
Ultra-High Reliability MTBF >1,000,000h	Light weight 4g	New concept	
	Low power consumption 0.05W	Unlimited life duration No moving part	

Safran has developed proven expertise in all inertial technologies (mechanical, ring-laser, fiber-optics, resonator, MEMS), based on 70 years of experience in designing and producing navigation systems for civil and military platforms operating in all environments.

POWERED BY TRUST

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ELECTRONICS & DEFENSE




THE EUROPEAN LEADER IN AEROSPACE NAVIGATION

Setting the global standard for 70 years



> OUR STRENGTHS

- 
ACCURACY & INTEGRITY
 Guaranteed by the best standard quality of sensors and algorithms
- 
ROBUSTNESS & RELIABILITY
 Guaranteed by deep disruptive innovations
- 
EASY TO INTEGRATE
 Guaranteed by the optimization of the SWaP-C (Size, Weight, Power & Cost)
- 
EASY TO EXPORT*
 Guaranteed by European technologies
- 
LOW-LIFE-CYCLE COST
 Guaranteed by a very high MTBF & low maintenance cost

> OUR REFERENCES



20,000 +
AIRCRAFT AND HELICOPTERS
 EQUIPPED BY
SAFRAN ELECTRONICS & DEFENSE

> EXPERIENCE YOU CAN TRUST

100% of Rafale fighters
 rely on Safran's
 navigation systems



WORLDWIDE
 MRO footprint



ATTITUDE & HEADING REFERENCE SYSTEMS

HELICOPTERS

REGIONAL AIRCRAFT



APIRS

Certifications: ETSO / TSO
 Attitudes: A3
 Heading: gyromagnetic H2
 direct gyro H8
 SWaP: 2.2 L / 2 kg / 20 W
 Piloting Data



CIVIL NAVIGATION

HELICOPTERS

BIZJETS

AIRCRAFT

LAUNCHERS



SKYNAUTE

Certifications: DO178B / DO254 / DO229
 Hybrid: 100% RNP 0.1, even in coasting > 10 min
 Position drift: < 2Nm/h (95%)
 Velocity error: < 8kts (95%)
 SWaP: 3 L / 3 kg / 20 W
 Piloting Data



SPACE NAUTE*

Compliance from SSO to GTO+
 & space exploration missions
 Gyro bias: < 0.01°/h
 Accelero bias: < 50 µg
 SWaP: 3 L / 5 kg / 15 W



MILITARY NAVIGATION

AIRCRAFT

HELICOPTERS

FIGHTERS



GADIRU*

Certifications: DO178 / DO254 / DO229 / MIL
 Hybrid: 100% RNP 0.1, even in coasting > 10 min
 Position drift: < 2 Nm/h (95%)
 Velocity error: < 5kts (95%)
 SWaP: 10 L / 10 kg / 40 W
 Piloting Data



SIGMA 95*

Sigma 95L
 Hyb: 3D < 10m
 Position drift: < 1.6 Nm/h (95%)
 Velocity error: < 4kts (95%)
 SWaP: 6.3 L / 8.5 kg / 35 W
 Piloting Data



Sigma 95N
 Hyb: 3D < 10m
 Position drift: < 1 Nm/h (95%)
 Velocity error: < 3kts (95%)
 SWaP: 16 L / 15 kg / 45 W
 Piloting Data



* Subject to French export licence approval