

FEDERAL SYSTEMS

# LAND INERTIAL NAVIGATION SYSTEMS

Highly reliable navigation and precision strikes  
under any conditions

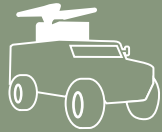


# HIGH PRECISION FOR SUCCESSFUL MISSIONS

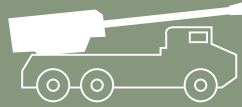
**ALL YOUR MISSIONS**  
require precision navigation  
& pointing, even in GNSS  
denied environments.



**ARTILLERY  
POINTING**



Ground-air  
defense systems



Howitzers



**TARGET  
ACQUISITION**



Forward Observer



Radars



**VEHICLE  
NAVIGATION**



APC / IFV



MBT



**75 YEARS OF EXPERIENCE  
AS A MARKET LEADER**



**PERFORMANCE & RELIABILITY  
AT YOUR SERVICE**



**TAILORED TO YOUR  
REQUIREMENTS**



**COMBAT PROVEN**



**OPTIMIZED LIFE CYCLE COST**



**SPACE & AERONAUTICS  
HERITAGE**



**ANTI SPOOFING CAPACITY**

# SAFRAN INS PORTFOLIO: TAILORED TO YOUR MISSIONS

# NOW WITH M-CODE

## FOR ALL YOUR PLATFORMS

- WHEELED OR TRACKED
- HOWITZER
- MORTAR
- MILITARY VEHICLE & TRUCK
- MAIN BATTLE TANK
- LIGHT VEHICLE & TRUCK
- MOBILE RADAR
- AMPHIBIOUS VEHICLE

## ACROSS ALL APPLICATIONS

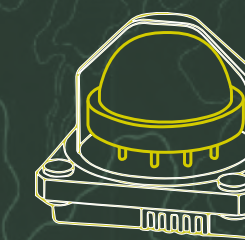
- POSITION
- NAVIGATION
- POINTING
- LAYING
- STABILIZATION
- FORWARD OBSERVATION

## IN EVERY ENVIRONMENT

- GNSS-DENIED
- SPOOFING
- JAMMING

## HRG CRYSTAL™

- NAVIGATION GRADE
- RESONATOR GYROSCOPE



HRG Crystal™ embedded

## THE FURTHER YOU GO OR STRIKE, THE MORE PRECISION YOU NEED

### EPSILON™ Family

#### GNSS BACK-UP SYSTEM

Product	EPSILON 10	EPSILON XP
Horizontal Position (CEP)	1% DT	1% DT
Heading RMS @65° (mils) (deg) Sec Lat (mils)	< 15 < 0.85° 5.13	< 15 < 0.85° 5.13
Roll and Pitch (RMS) (mils) (deg)	5.2 0.3°	3.5 0.2°
Autonomous Alignment without GNSS (full performance)	Aided alignment with GNSS	< 10 min
GNSS-denied survival	Tens of minutes	Hours
Size	4.3 x 4.3 x 3.3 (in.) / 1 L	
Weight	< 3.3 lbs / 1.5 kg	
MTBF	> 100,000 hours	
Power Requirements	+18 to +32 VDC: < 13 watts	

### GEONYX™ Family

#### INS FOR HIGH PRECISION NAVIGATION & POINTING

GEONYX SP	GEONYX HP/M	GEONYX XP	GEONYX XP+
0.15% DT	0.1% DT	0.05% DT	0.04% DT
1.7 0.09° 0.70	0.8 0.05° 0.35	0.7 0.04° 0.30	0.5 0.03° 0.20
0.75 0.04°	0.50 0.03°	0.35 0.02°	0.20 0.01°
< 5 min	< 5 min	< 5 min	< 10 min
Unlimited			
8.1 x 6.2 x 6.6 (in.) / 6 L			
< 14.1 lbs / 6.4 kg			
> 100,000 hours			
+18 to +32 VDC: < 17 watts			

### GEONYX™



### EPSILON™



# EPSILON™ FAMILY

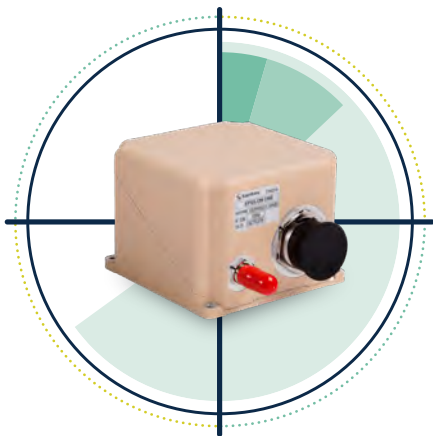
## TRUSTFUL COORDINATES UNDER ANY CONDITIONS

With the Epsilon™ family, Safran offers long lasting navigation performance INS/GNSS hybrid land navigation systems. Even in GNSS-denied environments, Epsilon™ provides accurate position and heading for hours thanks to tactical grade navigation technology.

Highly reliable and fully interchangeable, the Epsilon™ family offers the most cost-effective navigation solutions for any vehicle platform.



**EPSILON™**  
**Most compact & life-cycle cost effective**  
**Northfinding and/or GNSS back-up system**



Optimized SWAP	Up to date interfaces	Compliant with latest navigation standards
Weight: < 3.3 lbs	GNSS (embedded or external)	Environment: MIL-STD-810
Dimensions (in) 4.3 x 4.3 x 3.3	CANBUS Ethernet RS-422	Electrical I/F MIL-STD-1275
Consumption < 13 W		EMC MIL-STD-461



MTBF:  
>100,000h



Gyrocompass capacity



Connectable to any BMS



Small caliber RCWS pointing



Long-lasting navigation performances

# GEONYX™ FAMILY

## RELIABLE STRIKES UNDER ANY CONDITIONS

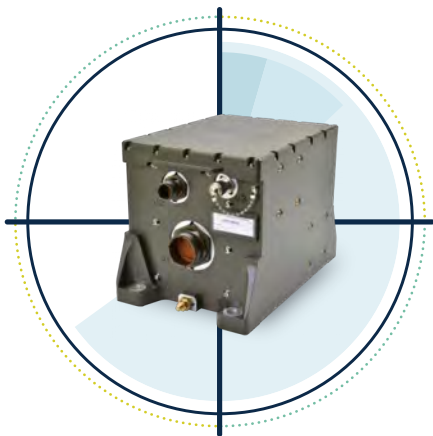
Integrating the HRG\* Crystal™, Geonyx™ offers a real breakthrough in the INS navigation grade market in terms of:

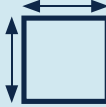


- **Operational efficiency:** Best-in-class pointing accuracy under the harshest conditions, market's shortest alignment time
- **Flexible systems integration:** Can be mounted on any orientation on devices. Withstands high shock due to being hard-mounted
- **Robustness and reliability:** Hard-mounted without external support, long lifetime supported by the reliable HRG Crystal™
- **PNT resilience:** Safran has the latest PNT solutions for military use



## GEONYX™

High performance & ultra effective life-cycle cost  
Inertial Navigation System



 <b>Optimized SWAP</b>	 <b>Up to date interfaces</b>	 <b>Compliant with latest navigation standards</b>
Weight: < 14.1 lbs	GNSS (embedded or external)	Environment: MIL-STD-810
Dimensions (in) 8.1/9.6 x 6.2 x 6.6	CANBUS Ethernet RS-422	Electrical I/F MIL-STD-1275
Consumption < 17 W		EMC MIL-STD-461



MTBF:  
>100,000h



Pointing accuracy < 0.4 mils (0.03°)



Space & aeronautics heritage



Hard-mounted on guns



Anti-spoofing capacity



Quick & flexible alignment

M-Code Enabled

# GEONYX™ M-CODE

## RELIABLE STRIKES UNDER ANY CONDITIONS

Integrating the HRG\* Crystal™, Geonyx™ offers a real breakthrough in the INS navigation grade market in terms of:

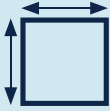


- **Operational efficiency:** Best-in-class pointing accuracy under the harshest conditions, market's shortest alignment time
- **Flexible systems integration:** Can be mounted on any orientation on devices. Withstands high shock due to being hard-mounted
- **Robustness and reliability:** Hard-mounted without external support, long lifetime supported by the reliable HRG Crystal™
- **M-Code resilience:** Safran has the latest M-Code solutions



## GEONYX™

High performance & ultra effective life-cycle cost  
**Inertial Navigation System**  
 Now with Embedded M-Code



 <p><b>Optimized SWAP</b></p>	 <p><b>Up to date interfaces</b></p>	 <p><b>Compliant with latest navigation standards</b></p>
<p>Weight: -16 lbs</p>	<p>GNSS (embedded or external)</p>	<p>Environment: MIL-STD-810</p>
<p>Dimensions (in) 9.6 x 6.2 x 7.2</p>	<p>CANBUS Ethernet RS-422</p>	<p>Electrical I/F MIL-STD-1275</p>
<p>Consumption &lt; 17 W</p>		<p>EMC MIL-STD-461</p>



MTBF:  
>100,000h



Pointing accuracy < 0.4 mils (0.03°)



M-Code



Quick & flexible alignment



Hard-mounted on guns



Additional Anti-spoofing & timing options

# OUR SUPPORT SOLUTIONS

Thanks to the HRG Crystal, the Safran family of products have the best life-cycle costs on the market. This allows Safran to propose innovative support solutions that will boost your vessels and submarines' availability rate.

**Safran offers flexible training programs and cost effective service support to assist you in your operations.**



## ABOUT SAFRAN FEDERAL SYSTEMS

Safran Federal Systems (SFS) provides Resilient PNT solutions and custom engineering services to U.S. Government agencies, defense organizations and their contractors. SFS is authorized to work on the full spectrum of U.S. Government classified and unclassified projects, in addition to supporting strategic partnerships for key defense PNT technologies. SFS is a proxy-regulated company, Free of Foreign Ownership, Control, or Influence (FOCI).

# OUR CUSTOMER REFERENCES

40 militaries equipped with Safran's inertial systems worldwide



**POWERED  
BY TRUST**



[safranfederalsystems.com](http://safranfederalsystems.com)

