exail

NAVIGATION AND POINTING SOLUTIONS FOR LAND DEFENSE

exail at a glance

30
YEARS OF EXPERIENCE

250+
MILLION EUROS OF TURNOVER

80%
OF TURNOVER ACHIEVED ABROAD

1500+
EMPLOYEES

25K+
FIBER-OPTIC GYROSCOPES SOLD

20%
OF TURNOVER REINVESTED EACH YEAR IN R&D

70+
NAVIES AND ARMIES SERVED

DELIVERING OVER
500
CUSTOMERS EVERY YEAR

24/7
TECHNICAL SUPPORT

Exail, a global partner for all Armed Forces in the fields of undisrupted navigation, positioning and pointing.

Today Armed Forces require high performance navigation, with or without GNSS, as well as swifter and more accurate pointing. Exail's pioneering work on Fiber-Optic Gyroscope (FOG) technology has revolutionized inertial navigation in the last decade, providing state-of-the-art performance, low cost of ownership and the highest reliability in harsh environments.

The company develops, manufactures and integrates all critical FOG components and is therefore able to adapt, produce, export and maintain its Inertial Navigation Systems (INS) with outstanding efficiency. With the full control of the value chain, Exail can design tailored solutions for its customers, stay on the cutting edge of technology and provide systems that are ITAR-free and only subject to French export regulations.

By combining the high intrinsic performance of FOG technology with advanced modeling of environmental sensitivities, specific designs and in-house testing and calibration, Exail's INS can operate in severe environments and withstand extreme shocks, vibrations, sand, dust or rain according to military standards. Robustness against GNSS drop outs provides reliable, accurate and uninterrupted position information, ensuring continuous military operations for all forces on the field.

Besides these operational requirements, Exail systems meet industrial integrators' needs for cost-effective and easy-to-integrate equipment. They share strong commonalities with regards to hardware, software and interface, resulting in significant savings in terms of integration, installation, configuration, logistics and maintenance costs.

A COMBAT-PROVEN SOLUTION FOR UNDISRUPTED NAVIGATION & POINTING

Based on Fiber-Optic Gyroscope (FOG) technology, the Advans Series Inertial Navigation Systems (INS) are designed to provide highly accurate positioning and pointing. North-seeking even in GNSS-denied environments, the series covers the needs of the full range of land applications from tactical navigation to high-grade artillery systems. Very compact and adaptable to any communication protocol, they are developed from the same architecture, making them easy to integrate and operate. ITAR-free, the Advans Inertial Navigation Systems have been selected by many integrators and armies worldwide.

Advans Ursa
Cost-effective INS for all tactical vehicles

Advans Lyra
Mid-grade INS for navigation and pointing

Advans Vega
High-grade INS for long range applications

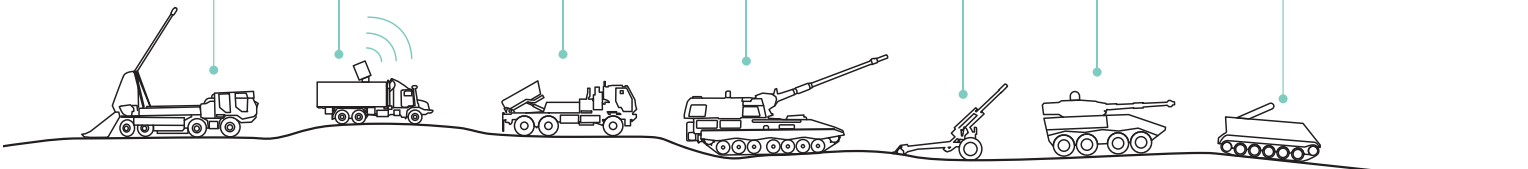
	Ursa U5	**Lyra L7**	**Vega**
Horizontal position (without GNSS) [1]	0.4% DT	0.2% DT	0.1% DT
Heading [2]	4 mils	1 mil	0.5 mil
Roll and pitch [2]	1 mils	0.5 mil	0.2 mil
Volume (mm)	166x160x136	275x136x150	180x180x162
Weight (kg)	3.8	4.5	5
Power consumption	< 12 W	< 18 W	< 18 W

[1]: In percentage of distance traveled. Expressed in CEP50
[2]: After dynamic alignment is completed. Expressed in RMS

NAVIGATION & POINTING SOLUTIONS FOR ALL PLATFORMS

Advans Series

Third-party Fire Control System



155 mm 52 cal howitzers

Radar and Air defense

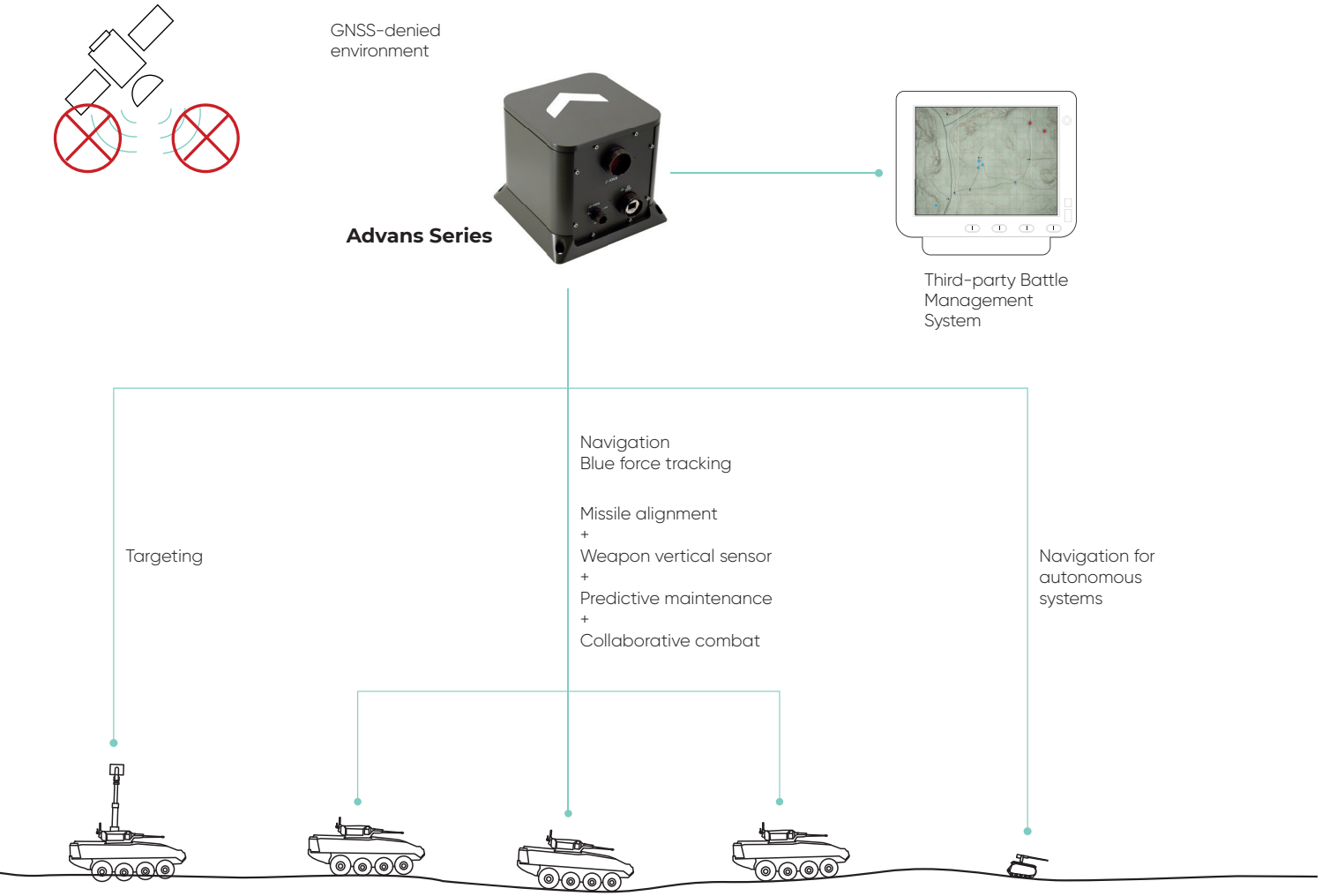
Rocket launchers

155-152 mm self-propelled

105-122 mm towed

105-122 mm self-propelled

81-120 mm mortars


GNSS-denied environment
Advans Series
Third-party Battle Management System
Navigation
Blue force tracking
Missile alignment
+
Weapon vertical sensor
+
Predictive maintenance
+
Collaborative combat
Targeting
Navigation for autonomous systems

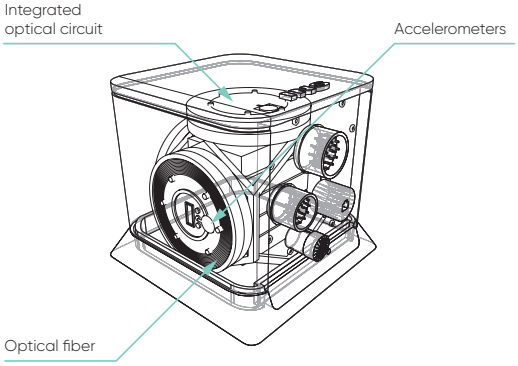
UNRIVALED PERFORMANCE AND RELIABILITY

Specifications

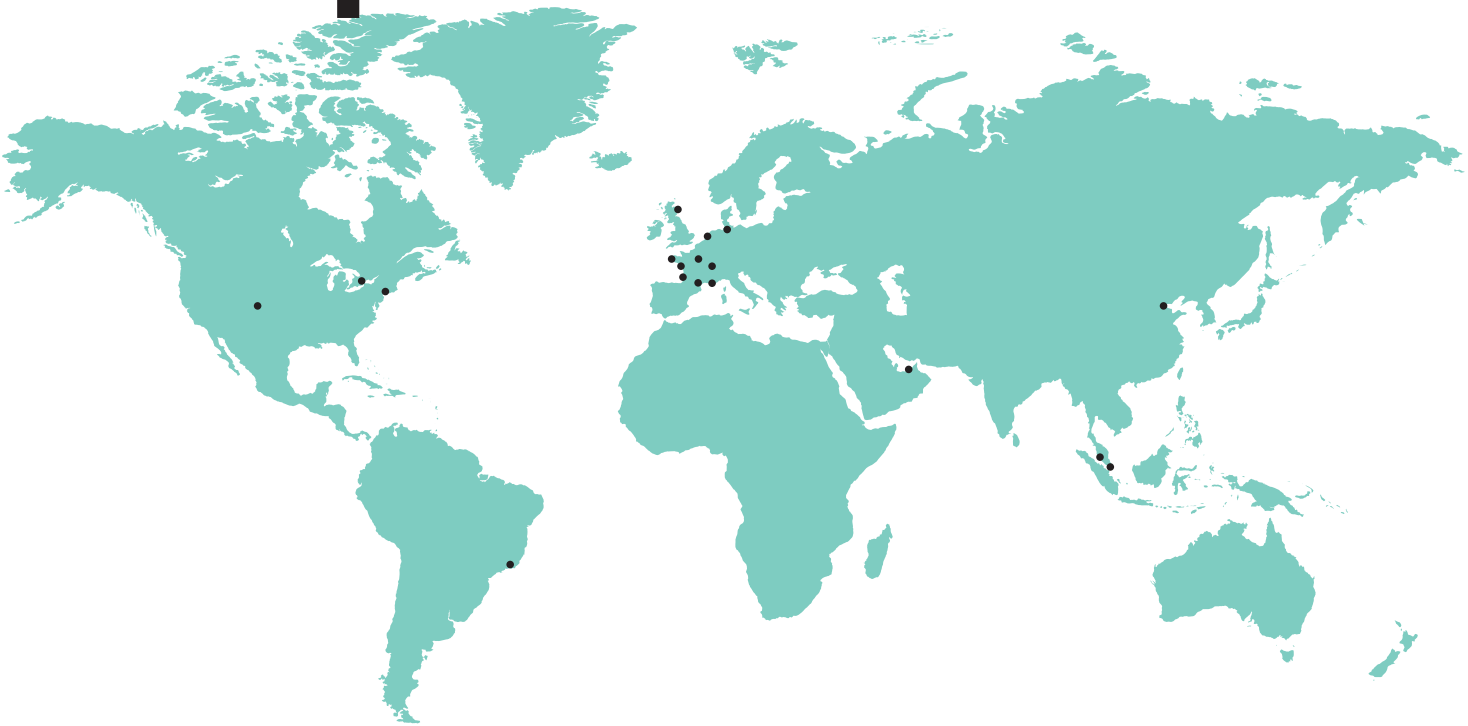
	Advans Series
Initial alignment	< 4 minutes
Fast alignment (stored values)	30 seconds
Optional GNSS	Advans GNSS or any GNSS providing NMEA 0183 messages
Communication input/output	RS-232 / RS-422 / CAN / Ethernet - Web-based interface for configuration
Reliability	MTBF > 100,000hrs - No moving parts - No periodic maintenance
Shocks	40g/10ms without shock absorbers - Lyra & Vega are howitzer qualified
Qualification	MIL-STD-810 / MIL-STD-461 / MIL-STD-1275 / IP67 / CE / ROHS
Operating temperature	-46°C to +71°C
Export control	French export legislation applies - No ITAR/EAR restricted components

FOG technology

The FOG is an extremely high-performance rotation sensing device based on the Sagnac Effect. A fiber-optic gyroscope uses optical waves propagating in a fiber-optic coil to accurately measure a rotation rate. This apparently simple design takes full advantage of the reciprocity principle in the propagation of light which enables a perfect device to be created from imperfect components. A FOG is therefore a genuine strapdown solid-state gyroscope exempted from all physical drawbacks that may affect other existing technologies (vibration, mechanical dither, sealed cavity and mirrors wearing away over time, etc.). This results in unrivaled longevity and reliability as well as very low power consumption and silent operation.



our global footprint



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