

PETRA 3100

Bridging Civil and Defense
with **Ultra-Accurate FOG Navigation**



FOG-Powered
Mission-Proven
PETRA Land Navigator Family

PETRA 3100 LAND NAVIGATOR

PETRA 3100 is the most accurate and reliable product belonging to the family of Land INS (Inertial Navigation System) with integrated GNSS (Global Navigation Satellite System).

PETRA 3100 best exploits the strapdown Fiber Optic Gyro (FOG) technology for high-precision pointing, stabilization, localization and navigation, delivering near-strategic grade performance.

Thanks to the innovative architecture based on ITAR-free proprietary inertial sensors, fully designed and manufactured in Italy, with advanced state estima-

tion and sensor hybridization techniques based on Kalman Filter, PETRA 3100 provides the end user with superior pointing accuracy in GNSS denied environment. Engineered for demanding environments and severe operational conditions, PETRA 3100 is ready for next-generation and upgraded land vehicles programmes.

PETRA 3100 provides robust maintenance-free, ultra-precise, dual-use land inertial navigation and pointing solutions without compromising reliability, safety and performance in all operational environments.

PRODUCT PERFORMANCE

Gyroscope range	120 °/s
Accelerometer range	± 10g, ± 20g, ± 40g, ± 60g
Heading accuracy (1σ)	0.30 mils secant latitude
Attitude (roll & pitch) accuracy (1σ)	0.25 mils
Horizontal position accuracy with odometer	0.15% DT
Vertical position accuracy with odometer	0.10% DT
Horizontal accuracy with GNSS (RMS)	10 m East 10 m North
Minimum alignment time (leveling and gyrocompassing) in static conditions	2 ÷ 4 min
Full accuracy alignment time (leveling and gyrocompassing) in static conditions	10 ÷ 15 min
Stored Heading Alignment (using last stored position and heading)	60 sec

PRODUCT INTERFACES

Data link RS-422	RS-422 TX (navigation messages) RS-422 full duplex (parameter setting messages)
Data link Ethernet	UDP/IP protocol, 10/100 Mb (navigation messages)
Data link CANBUS (SAE J3919)	Optional for odometer interface
RF connector	Antenna link for embedded GNSS receiver
Data output	100 Hz

MECHANICAL CHARACTERISTICS AND POWER INPUT

Size (width, height, depth)	192 x 178 x 296.4 mm (including connectors)
Mass	12 kg
Voltage Input	18 ÷ 36 VDC
Power Consumption	< 20 W

ENVIRONMENTAL AND RELIABILITY

Operating Temperature	-32°C ÷ +65° (MIL-STD-810)
Vibration	Procedure VIII, equipment category F, Curve V - 5 ÷ 200 Hz, 1 inch peak (MIL-STD-810)
EMC/EMI	CE102, CS101, CS114, CS115, CS116, RE102, RS103 (MIL-STD-461 ^F)
MTBF	45500 hours, condition Ground Fixed (GF) at 30°C (MIL-HDBK-217)

