

IMU- μ IMU-IC

High Performing MEMS IMU Combines With SPAN Technology to Provide 3D Position, Velocity and Attitude Solution



World-Leading GNSS+INS Technology

SPAN technology brings together two different but complementary technologies: Global Navigation Satellite Systems (GNSS) positioning and inertial navigation. The absolute accuracy of GNSS positioning and the stability of Inertial Measurement Unit (IMU) gyro and accelerometer measurements are deeply coupled to provide an exceptional 3D navigation solution that is continuously available, even through periods when satellite signals are blocked.

Overview

The μ IMU features Northrop Grumman Litef GmbH's proven inertial measurement technology offering exceptional performance when paired with SPAN technology. IMU measurements are used by the technology to compute a blended GNSS+INS position, velocity and attitude solution at up to 20 Hz. A small size and low weight and power consumption makes the μ IMU ideal for heading reference and marine stabilization applications.

The IMU- μ IMU-IC is available as a complete assembly in an environmentally sealed enclosure. SPAN technology provides your choice of accuracy and performance, from decimeter to RTK-level positioning.

Benefits

- High performance IMU
- Optimized for hydrographic survey and marine applications
- Easy integration with the LD900 receiver from Hexagon | VERIPOS and Quantum visualization software
- Commercially exportable

Features

- MEMS gyros and MEMS accelerometers
- SPAN GNSS+INS capability with configurable application profiles
- Non-ITAR IMU

SPAN Technology Performance¹

Horizontal Position Accuracy (RMS)

Single point L1/L2	1.2 m
SBAS ²	60 cm
VERIPOS DGPS	1 m
VERIPOS PPP	5 cm
RTK	1 cm +1 ppm

Data Rate

IMU Raw Data Rate	20Hz
INS Solution	Up to 20 Hz

Time Accuracy⁵ 20 ns RMS

Max Velocity⁶ 515 m/s

IMU Performance⁷

Gyroscope Performance

Input range	±499 deg/sec
Bias stability	≤6 deg/hr
Scale factor error	≤1400 ppm
Angular random walk	≤0.3 deg/√hr

Accelerometer Performance

Range	8 ±15 g
Bias repeatability	≤3 mg
Scale factor error	≤1500 ppm
Velocity random walk	≤0.25 mg/√Hz

Physical and Electrical

Dimensions 130 x 130 x 115 mm

Weight 2.57 kg

Power

Power consumption	11 W (typical)
Input voltage	+10 to +34 V

Connectors

Power	SAL M12, 5 pin, male
Data	SAL M12, 4 pin, female

Environmental

Temperature

Operating	-40°C to +55°C
Storage	-40°C to +80°C

Humidity

MIL-STD-810G(Ch1), Method 507.6

Random Vibe

MIL-STD-810G(CH1), Method 514.7 (2.0g)⁸

Environment

MIL-STD-810G(Ch1), Method 512.6 (IEC 60529 IP67)

Compliance

FCC, ISED, CE

Included Accessories

- Power cable
- Communication cable

PERFORMANCE DURING GNSS OUTAGES^{1,9}

Outage Duration	Positioning Mode	Position Accuracy (M) RMS		Velocity Accuracy (M/S) RMS		Attitude Accuracy (Degrees) RMS		
		Horizontal	Vertical	Horizontal	Vertical	Roll	Pitch	Heading
0 s	RTK ¹⁰	0.02	0.03	0.015	0.010	0.010	0.010	0.030
	PPP	0.06	0.15					
10 s	RTK ¹⁰	0.12	0.11	0.035	0.015	0.017	0.017	0.038
	PPP	0.16	0.23					
60 s	RTK ¹⁰	3.52	0.78	0.165	0.022	0.025	0.025	0.050
	PPP	3.56	0.90					

1. Typical values. Performance specifications subject to GNSS system characteristics, Signal-in-Space (SIS) operational degradation, ionospheric and tropospheric conditions, satellite geometry, baseline length, multipath effects and the presence of intentional or unintentional interference. 2. GPS-only. 3. Requires subscription to Apex³ Correction Service. Subscriptions available from VERIPOS. 4. Correction Service availability dependent on the receiver used. 5. Time accuracy does not include biases due to RF or antenna delay. 6. Export licensing restricts operation to a maximum of 515 meters/second. 7. Supplied by IMU manufacturer. 8. GNSS receiver sustains tracking up to 4 g. 9. Steady state and outage performance remains the same for the -L model. 10. 1 ppm should be added to all values to account for additional error due to baseline length.

Contact Hexagon | VERIPOS

sales@veripos.com +44 1224 965800

For the most recent details of this product visit veripos.com

©2020 VERIPOS. All rights reserved. VERIPOS is part of Hexagon. All trademarks or servicemarks used herein are property of their respective owners. VERIPOS makes no representation or warranty regarding the accuracy of the information in this publication. This document gives only a general description of the product(s) or service(s) offered by VERIPOS, and, except where expressly provided otherwise, shall not form part of any contract. Such information, the products and conditions of supply are subject to change without notice.