

ANELLO IMU+

High-Performance, Fault-Tolerant
Inertial Sensor

The ANELLO IMU+ is a hardened measurement unit with triple-redundant 6 degrees of freedom MEMS and proven optical gyroscope technology.



ANELLO IMU+

The ANELLO IMU+ achieves high reliability and performance under harsh environments including shock, vibration, and thermal gradients. The ANELLO IMU+ includes the proven, high-performance ANELLO optical gyroscope technology for Z axis in order to enable long-term GNSS-denied dead reckoning.

The ANELLO IMU+ provides integrated AHRS functionality for real-time 3D orientation (roll/pitch/yaw) and is intended for Construction, Robotics, Mining, Trucking and Defense applications in harsh applications.

With a power consumption of only 2.5W the ANELLO IMU+ can output data using RS-232 interfaces and operates under a wide temperature range of -40 to +70°C.

A hardware built in test (BIT) output line signals fault detection, alongside diagnostic messages and the BIT data word. The internal circuitry uses one ASIL-B ready functionally safe microcontroller, as well as an ASIL-D rated master CPU.

A Sync/PPS input line allows the optical gyroscope and IMU measurements to be time aligned with an external clock such as a pulse per second (PPS) line.

An ASIL-D rated CPU together with the PXROS RTOS are used for added safety which is critical for automotive, autonomy and heavy equipment control applications.

FEATURES

Complete 6 Degrees of Freedom Inertial System

Small Form Factor < 10in³

AHRS functionality for real-time 3D orientation - roll/pitch/yaw

Low Power Consumption of 2.5W

High-Performance ANELLO Optical Gyroscope for the Z axis

Wide Temperature Range of -40 to +70°C

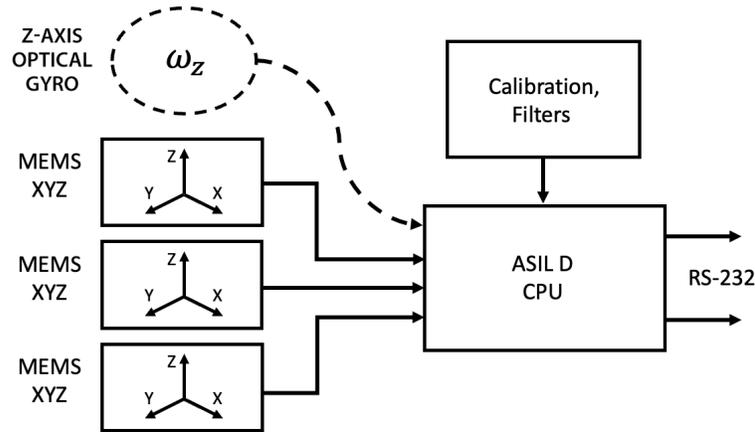
200 Hz Data Output Rate

ASIL-D rated CPU and OS

Two RS-232 Interfaces

IP68 - Waterproof, Resistant to Dust, Salt Spray and Chemicals

FUNCTIONAL BLOCK DIAGRAM



TECHNICAL SPECIFICATIONS (COMMERCIAL)

Gyroscope Performance		MEMS		Z-Axis Optical Gyro	
Range		up to 400°/s		+/- 200°/s	
Angle Random Walk		0.3°/√hr		0.05°/√hr	
Bias Instability		1.5°/hr		0.5°/hr	
Scale Factor Error		< 0.1% FS		< 0.1% (0 – 200°/s)	
Accelerometer Performance					
Range		8g			
Velocity Random Walk		0.03m/s/√hr			
Bias Instability		20μg			
Bias over Temp		5mg			
Environmental					
Operating Temperature		-40 to +70°C			
Vibration		5g rms			
Shock Survival		40g			
Electrical					
Input Voltage		8 to 30 VDC			
Power Consumption		2.5W typical			
Digital Interfaces		RS-232 (2 Ports)			
Timing					
Output Data Rate		200 Hz (Configurable)			
Synchronization		PPS In			
Bandwidth		up to 100 Hz			
Physical					
Size		75 x 75 x 28mm (9.8in ³)			
Weight		< 1lbs.			