

The ACEINNA IMU330RA is an easy-to-use high-performance 6-DOF inertial sensor packaged in a rugged sealed over-molded plastic housing at IP69K level. The IMU330RA features a redundant 3-Axis Accelerometer and 3-Axis Rate Gyroscope for excellent accuracy and reliability. It supports both 1000Base-T1 Automotive Ethernet and CAN-FD interfaces. The IMU330RA is designed as the automotive part with ASIL B qualification, which provides the solution of customer positioning system integration to ASIL D.

The ACEINNA IMU330RA is designed for use in Automotive Level 3 and higher ADAS systems. The unit provides encrypted data, at up to 1000Hz output rate over both Ethernet and CAN-FD interfaces, and support precise synchronization based on gPTP 802.1AS:2020 and Unified Diagnostic Services.

Applications

- Autonomous Vehicles
- Self-Driving Taxis/Delivery Vehicles
- ADAS Systems
- Precise Localization



Features

- 1000Base-T1 Automotive Ethernet and CAN-FD interfaces
- Supports gPtP 802.1AS:2020 time synchronization over Ethernet as a gPtP slave
- Supports UDS (Unified Diagnostic Services), defined in ISO 14229-1 and 14229-5 over Ethernet and CAN
- Automotive Grade with AEC Q-104 fulfillment
- Part Operating Temperature Grade 2: -40C to +105C
- Automotive Safety Integration Level: B
- IP69K, rugged, sealed, over-molded package
- Encrypted software updates and communication, with on board hardware security module (HSM)

This product has been developed exclusively for commercial applications. It has not been tested for and makes no representation or warranty as to conformance with any military specifications or its suitability for any military application or end-use. Additionally, any use of this product for nuclear, chemical, or biological weapons, or weapons research, or for any use in missiles, rockets, and/or UAV's of 300km or greater range, or any other activity prohibited by the Export Administration Regulations, is expressly prohibited without the written consent and without obtaining appropriate US export license(s) when required by US law. Diversion contrary to U.S. law is prohibited. Specifications are subject to change without notice.

Technical Characteristics

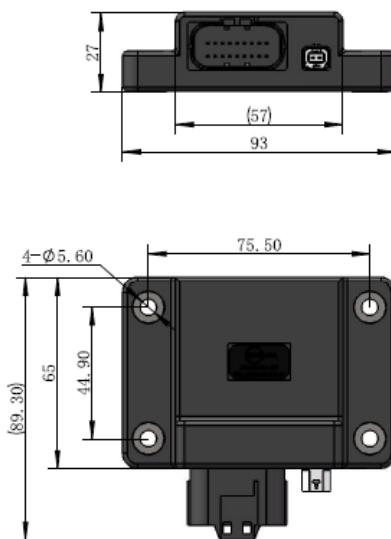
T_a = 25°C, VDC = 12V, unless otherwise stated

Angular Rate	MIN	TYP ²	MAX
Range (°/s)	-300		300
Bias Instability (°/hr) ¹		1.0	
Bias Stability over Temperature (°/s)		0.1	
Scale Factor Error (%FSR)		0.1	
Angle Random Walk (°/√hr) ¹		0.1	
Cross-Axis Error (%FSR)		0.1	
Non-linearity Error (%FSR)		0.1	
Acceleration	MIN	TYP ²	MAX
Range (g)	-6		6
Bias Instability (ug)		10	
Bias Stability over Temperature (mg)		1	
Scale Factor Error (%FSR)		0.1	
Velocity Random Walk (m/s/√hr) ¹		0.024	
Cross Axis Error (%FSR)		0.1	
Nonlinearity (%FSR) ³		0.1	
Electrical	MIN	TYP	MAX
Input Voltage (V)	9	12	24
Current Consumption (mA)		TBD	
Interface	1000Base-T1 Automotive Ethernet, and CAN-FD		
Output Data Rate – Eth/CAN (Hz)	10	100	1000
Environment			
Operating Temperature	-40 °C to 105°C		
Non-Operating Temperature	-40 °C to 105°C		
Physical			
Size (mm)	93 x 65 x 27mm		
Weight (g)	TBD		

Note 1: Allan variance curve, constant temperature

Note 2: Typical values are 1 sigma values unless otherwise noted

Note 3: Best line straight fit



EVALUATION KIT HARDWARE

- Evaluation Kit Includes an IMU330RA and interface cable.

EVALUATION SOFTWARE

- IMU330RA-SW provides an easy-to-use graphical interface to configure, display, record, playback, and analyze all the IMU330RA system parameters.

Ordering Information

Part Ordering Information

High-Performance Automotive IMU Platform

IMU330RA	Automotive Grade (ASIL B): Contact ACEINNA
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IMU330RA EVK	IMU330RA with Cable
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