



IMU15™ MEMS INERTIAL MEASUREMENT UNIT (IMU)

COMPACT SIZE, PROVEN PERFORMANCE

Incorporating proven, precision, micro electro-mechanical systems (MEMS), gyroscopes and accelerometers

The Collins Aerospace IMU15™ MEMS inertial measurement unit (IMU) is a compact six-degree-of-freedom inertial measurement unit providing precise three-axis outputs of angular rate, acceleration and temperature. Our product has been designed specifically to meet the growing demand from high-end commercial and industrial market. Product not subject to UK Export Control.

In line with our constant drive for innovation, IMU15 incorporates the latest technology in a very small package, while retaining best-in-class performance and reliability. Our unique pedigree and world-class expertise has enabled an industrial grade IMU under 1 cubic inch in volume.

IMU15 uses our world-class MEMS inertial sensors, integrated and calibrated using our in-house, state-of-the-art test facility.

Collins Aerospace has a long and respected heritage in the design and development of inertial sensors.



KEY FEATURES

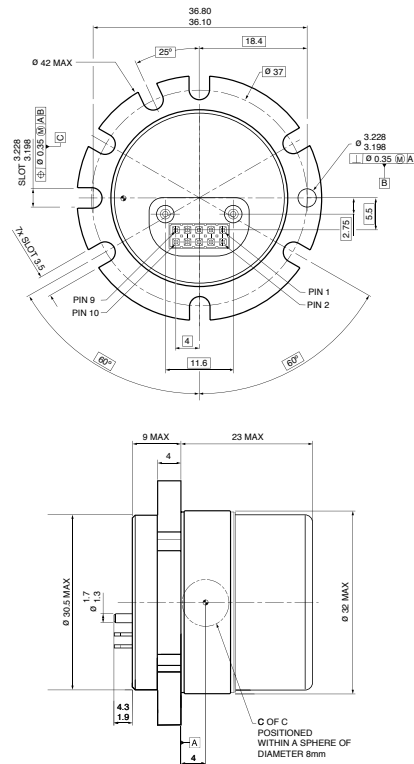
- FOG performance 6-DOF MEMS inertial measurement unit
- Bias instability and random walk angular: 15 °/hr, 3 °/√hr linear: 1.5 mg, 1 m/s/√hr
- ITAR free
- Not subject to UK Export Control
- Compact and lightweight – 32.0 x 34.0 x 42.0 H (mm), 70 g
- Internal power conditioning to accept 4.75 V to 5.25 V input strike voltage
- RS485 interfaces
- -40° C to 75° C operating temperature range
- RoHS compliant
- In-house manufacture from MEMS fabrication to IMU calibration



Key Characteristics

PRODUCT APPLICATIONS

- Small satellite stability control
- Precision guidance and navigation
- INS (inertial navigation systems)
- GPS/GNSS drop-out aiding
- Autonomous vehicle control, UAVs and ROVs
- Machine control



GYROSCOPE PROPERTIES

PARAMETER	SPECIFICATION
Dynamic range	$\pm 498^\circ/s$
Scale factor over temp ($\pm 498^\circ/s$) (1σ)	± 1833 ppm
Bias instability (max)	$15^\circ/hr$
Angular random walk (max)	$< 3^\circ/\sqrt{hr}$
Bias (1σ)	$\pm 163^\circ/hr$
RMS noise (max)	$\leq 1.6^\circ/s$

ACCELEROMETER PROPERTIES

Dynamic range	± 30 g
Scale factor error (1σ)	± 1000 ppm
Bias instability (max)	≤ 1.5 mg
Velocity random walk (max)	< 1 m/s/ \sqrt{hr}
Bias (1σ)	± 8.3 mg
RMS noise (max)	≤ 7.0 mg

MISALIGNMENT

Gyro (1σ)	≤ 2 mrad
Acc (1σ)	≤ 2 mrad

IMU PROPERTIES

Operating temperature	-40 to 72° C
Start-up-time (full performance)	0.5s
Power	1.5 W
Supply voltage	4.85 to 5.25 V
Mass	< 70 g

Alternative Products

IMU20™



PERFORMANCE

Medium performance

Medium performance gyro
Meeting demand from industrial and commercial markets

IMU25™



PERFORMANCE

FOG performance

Best-in-class MEMS IMU
Highly modular, tailored solution

This document does not contain any export controlled technical data. Specifications subject to change without notice.