

IMU15™ MEMS INERTIAL MEASUREMENT UNIT (IMU)

SUPERIOR PERFORMANCE AND RELIABILITY

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

The Collins 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 applications for an industrial grade non-licensable IMU.

In line with our constant drive for innovation, IMU15 incorporates the latest capacitive 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.

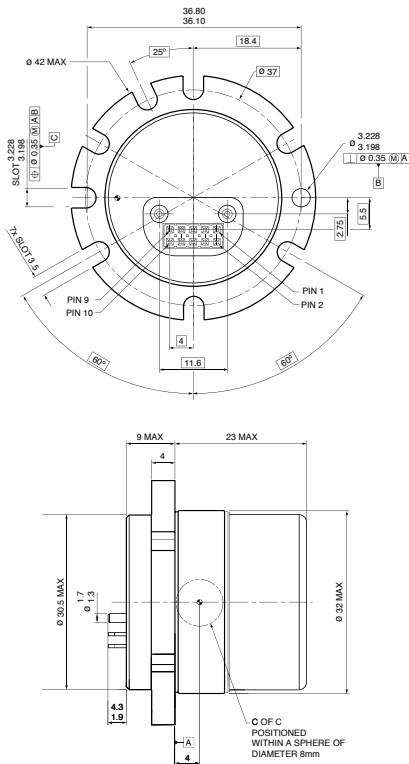
IMU15 uses our world-class MEMS inertial sensors, integrated and calibrated using our in-house, state-of-the-art test facility.

Collins Aerospace has a long and respected heritage in the design and development of inertial sensors. Today, we also specialize in MEMS products.



KEY FEATURES

- Precision 6-DOF MEMS inertial measurement unit
- Bias instability and random walk angular – 15°/hr, 3.0°/√hr (linear – 1.5mg, 1m/s/√hr)
- Non-ITAR
- Non-licensable
- Compact and lightweight – 32.0 x 34.0 x 42.0H (mm), 70g
- Internal power conditioning to accept 4.85 V to 5.25 V input voltage
- RS422 interface
- -40° C to 72° C operating temperature range
- RoHS compliant
- In-house manufacture from MEMS fabrication to IMU calibration



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

KEY CHARACTERISTICS

Parameter	Specification
Gyroscope properties	
Dynamic range	±498°/s
Scale factor error (1σ)	±1833 ppm
Bias instability (max)	15°/hr
Angular random walk (max)	<3°/√hr
Bias (1σ)	±240°/hr
RMS noise (max)	≤1.6°/s
Accelerometer properties	
Dynamic range	±30 g
Scale factor error (1σ)	±4933 ppm
Bias instability (max)	≤1.5 mg
Velocity random walk (max)	<1m/s/√hr
Bias (1σ)	≤14 mg
RMS noise (max)	≤6 mg
Misalignment	
Gyro (max)	≤10mrad
Acc (max)	≤19mrad
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
- Non-licensable

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