



## IMU25™ MEMS INERTIAL MEASUREMENT UNIT (IMU)

# COMPACT, LIGHTWEIGHT FOG PERFORMANCE

### Next-gen, tactical-grade IMU for high-performance applications

The Collins Aerospace IMU25™ MEMS IMU is a best-in-class inertial measurement unit providing six degrees of freedom and precise, three-axis outputs of angular rate, acceleration and temperature.

The modular architecture of the IMU25 design readily enables the incorporation of specific customer requirements for a tailored approach to each application.

IMU25 has been designed specifically to meet the demand from high-end commercial and industrial market applications for a high-performance, non-licensable IMU.

Collins Aerospace is a world leader in inertial technology, leveraging our pedigree to provide integrated and calibrated solutions using our in-house, state-of-the-art test facility.

We have a long and respected heritage in the design and development of inertial sensors and today we specialize in MEMS products.



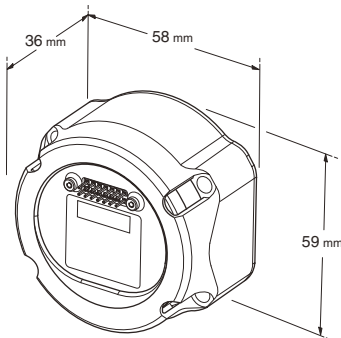
### KEY FEATURES

- FOG performance 6-DOF MEMS inertial measurement unit
- Bias instability and random walk angular –  $\leq 0.6^\circ/\text{hr}$ ,  $0.05^\circ/\sqrt{\text{hr}}$  linear –  $< 0.5\text{mg}$ ,  $< 0.6\text{m/s}/\sqrt{\text{hr}}$
- Non-ITAR
- Non-licensable
- Compact and lightweight – 58.0 x 59.0 x 36.0 H (mm), 200 g
- Internal power conditioning to accept 4.75 V to 5.25 V input strike voltage
- RS422 interfaces
- $-40^\circ\text{C}$  to  $75^\circ\text{C}$  operating temperature range
- RoHS compliant
- In-house manufacture from MEMS fabrication to IMU calibration

## Key Characteristics



IMU25



### GYROSCOPE PROPERTIES

PARAMETER	SPECIFICATION
Dynamic range	$<\pm 498^\circ/s$
Scale factor over temp ( $\pm 498^\circ/s$ ) ( $1\sigma$ )	$\pm 330$ ppm
SF non-linearity ( $\pm 498^\circ/s$ ) ( $1\sigma$ )	$\pm 250$ ppm
Bias instability ( $1\sigma$ )	$\leq 0.6^\circ/hr$
Random walk	$0.05^\circ/\sqrt{hr}$
Bias over temp ( $1\sigma$ )	$10^\circ/hr$
Noise (rms to 85Hz)	$\pm 0.15^\circ/sec$

### ACCELEROMETER PROPERTIES

Dynamic range	$\pm 30$ g
Scale factor over temp ( $\pm 1g$ ) ( $1\sigma$ )	$\pm 1400$ ppm
SF non-linearity ( $\pm 10g$ ) ( $1\sigma$ )	$\pm 2533.3$ ppm
Bias instability ( $1\sigma$ )	$< 0.50$ mg
Random walk	$< 0.6m/s/\sqrt{hr}$
Bias over temp ( $1\sigma$ )	$\pm 3.3$ mg
Noise (rms to 85Hz)	$< 6.0$ mg
<b>Cross axis sensitivity</b>	
Over temperature	$\pm 0.24\%$

### IMU PROPERTIES

Operating temperature	$-40$ to $75^\circ C$
Start-up-time (full performance)	$< 400$ ms
SF non-linearity ( $\pm 10g$ ) (1s)	$\pm 2533.3$ ppm
Power	nom $3.75$ W
Supply voltage	$4.75$ V - $5.25$ V
Mass	$200$ g
Further information available	Multiple interfaces available. Contact factory for further information.

### Alternative Products

#### IMU15™



#### PERFORMANCE

- Compact six degrees of freedom IMU
- Small form factor
- Under 1 cubic inch volume

#### IMU20™



#### PERFORMANCE

- Medium performance
- Medium performance gyro
- Meeting demand from industrial and commercial markets

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