

# **MEMSENSE**

Customer Focused Inertial Solutions

# ΣIMU 3020



**LEADING** **PERFORMANCE**  
**FEATURES**  
**VALUE**

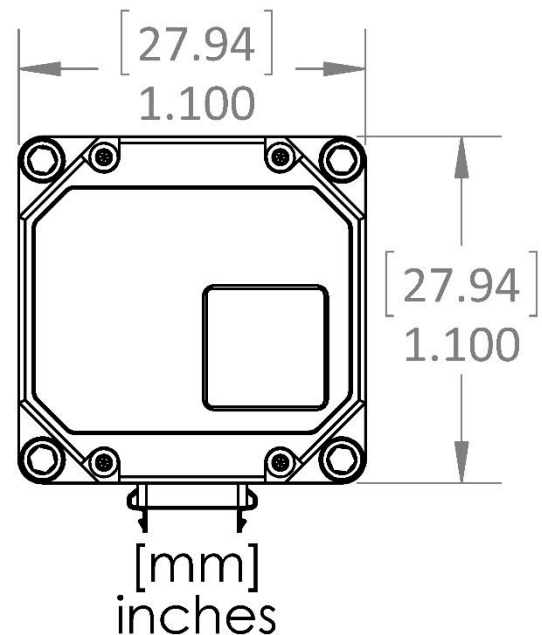
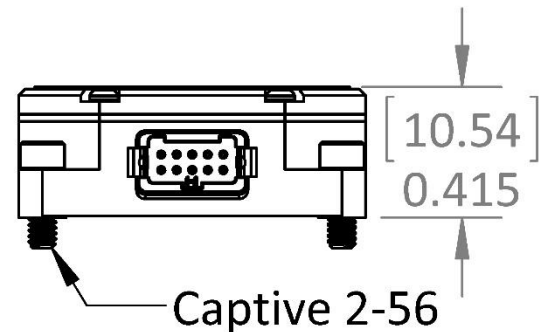
The MS-IMU3020 inertial measurement unit delivers market leading price to performance in an ultra-compact aluminum package that measures 1.1 x 1.1 x 0.4 inches. The gyro bias instability of 1.0 °/h and accel bias instability of 14.8  $\mu$ g supply ample inertial performance to support a range of applications from UAS navigation and control to platform stabilization. User configurable options allow the IMU to be tuned to your application with configurable bandwidth, sample rate, gyro ranges, 1 PPS input and other measurement parameters. The MS-IMU3020's combination of inertial performance, features, and value surpasses all IMUs in the market.

## Key Features

Accel Dynamic Range	$\pm 15$ g
Accel Bias Instability	14.8 $\mu$ g
Velocity Random Walk	0.078 m/s/h <sup>-1/2</sup>
Gyro Dynamic Range	$\pm 120$ °/s to $\pm 1920$ °/s
Gyro Bias Instability	1.06 °/h
Angle Random Walk	0.22 °/h <sup>-1/2</sup>
Export Control	No License Required

## Applications

Platform Stabilization  
UAS Navigation & Control  
Gimbal Pointing



ACCELERATION		UNITS	NOTES
Dynamic Range	$\pm 15$	g	Minimum
Bias Instability	14.8	$\mu\text{g}$	Typical
Offset	$\pm 0.73$	mg	Typical
Nonlinearity	$\pm 0.3$	% of FS	Typical
Velocity Random Walk	0.078	$\text{m/s/h}^{-1/2}$	Typical
Noise Density	158	$\mu\text{g/Hz}^{-1/2}$	Typical
Bandwidth	50	Hz	-3dB point
ANGULAR RATE		UNITS	NOTES
Dynamic Range	$\pm 480$	$^{\circ}/\text{s}$	Minimum, Note 1
Bias Instability	1.06	$^{\circ}/\text{h}$	Typical
Offset	$\pm 12$	$^{\circ}/\text{h}$	Typical
Nonlinearity	$\pm 0.05$	% of FS	Typical
Angle Random Walk	0.22	$^{\circ}/\text{h}^{-1/2}$	Typical
Noise Density	0.006	$^{\circ}/\text{s} / \text{Hz}^{-1/2}$	Typical
Bandwidth	50	Hz	-3dB point
MAGNETIC FIELD		UNITS	NOTES
NOTE 2			
Dynamic Range	$\pm 1.9$	gauss	Minimum
Offset	$\pm 0.005$	gauss	Typical
Nonlinearity	$\pm 0.5$	% of FS	Typical
Noise Density	79.2	$\mu\text{gauss} / \text{Hz}^{-1/2}$	Typical
Bandwidth	50	Hz	-3dB point
PHYSICAL		UNITS	NOTES
Dimensions	1.10 x 1.10 x 0.42	in.	(L x W x H)
Mass	20	grams	
Supply Voltage	4.9 – 30	VDC	
Supply Power	0.5	W	
Operating Temperature	-40 to 85	C	
Interface Connector	Harwin Gecko		10 pin

1. Ranges are software configurable to 120, 240, 480, 960, and 1920 see User Guide for detailed specifications.
2. Magnetometer only available in MS-IMU3020M and MS-IMU3020MP, see product specification for details.

### MS-IMU3020 ALLAN VARIANCE CURVES

