

## INERTIAL MEASUREMENT UNIT (IMU)

### FEATURES

- Miniature in size
- High Dynamic Range
- Low Bias Instability
- Low Angle Random Walk
- Continuous Self-Diagnosis
- High mechanical Shock Survivability
- Digital SPI Interface

CSTR IMU1640



*Note: This is a representational image.*

### APPLICATIONS

- Guidance, Navigation and Control
- Drone Navigation and Control
- Unmanned Ground Vehicle
- Flight Control Systems
- Robotics
- Guided Projectiles

### DESCRIPTION

The Castor series IMU1640 is a high-end tactical class inertial measurement unit consisting of high-performance triaxial MEMS Accelerometer, triaxial Gyroscope and triaxial Magnetometer sensors based on latest MEMS technology. The IMU is equipped with a high-speed processor that runs superior signal processing Kalman filter based algorithms delivering control grade inertial measurement data. The IMU output is available over a Digital SPI interface. Its rugged and modular design makes it suitable for integration with control computers and other application hardware.

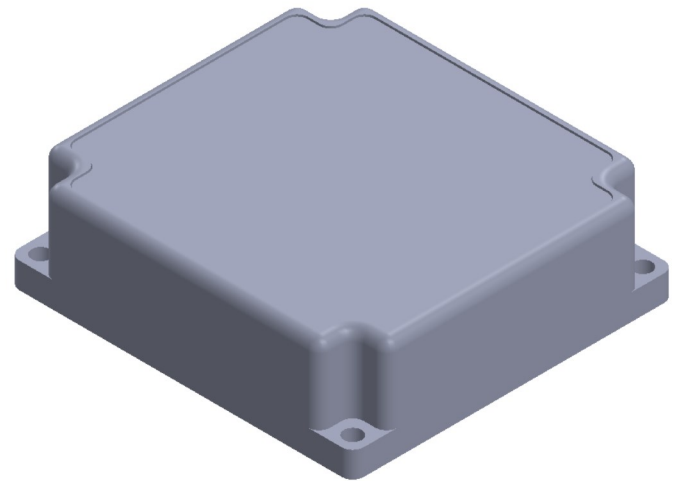
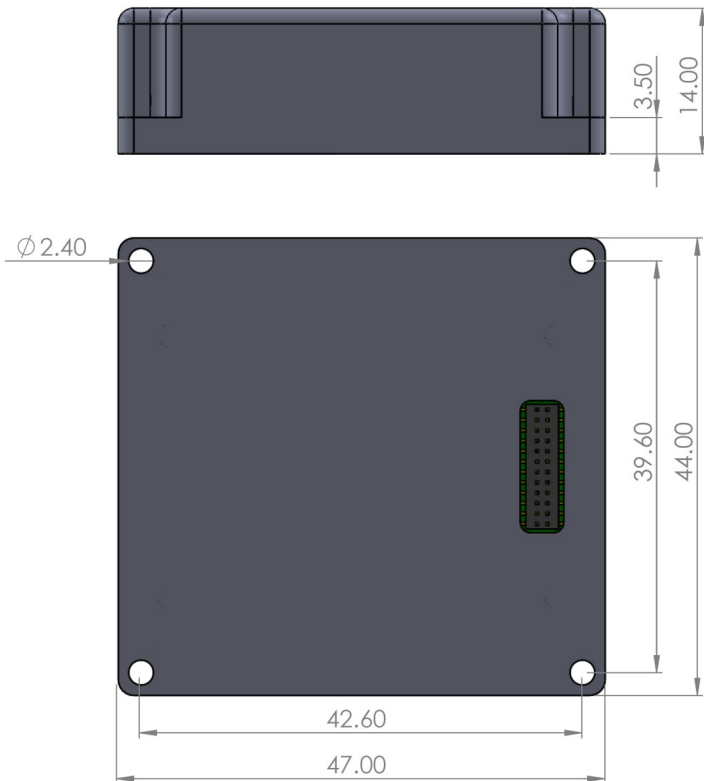
The sensing elements of each axis are factory-calibrated for bias, mis-alignment and are compensated for temperature effects to be usable across the entire operating temperature range. The miniature MEMS IMU, CSTR-IMU1640 offers 0.8 deg/hr bias instability performance and is suitable for inertial guidance and control applications where size is the constraint.

**TECHNICAL SPECIFICATIONS**

Parameter Name	Parameter Value
	CASTOR
	IMU1640
<b>Acceleration</b>	
Range	±40 g
Bias Instability	15 µg
Bias Repeatability	1.5 mg
Raw Bandwidth	200 Hz
<b>Gyro</b>	
Range	±480 °/s
Bias Instability	0.8 °/hr
Bias Repeatability	0.01 °/s
Raw Bandwidth (-3 dB)	400 Hz
ARW	<0.03 °/sqrt(hr)
<b>Magnetometer</b>	
Range	±8 gauss
Noise	±0.4 mgauss
<b>Electrical</b>	
Input Voltage	3.3 V to 6 V DC
Power Consumption	<1 W
<b>Diagnostics</b>	Onboard Temperature, Voltages, Sensor Health
<b>Update Rate</b>	Up to 500 Hz
<b>Interface</b>	SPI, 4 x Digital I/Os
<b>Physical</b>	
Dimensions	47 mm x 44 mm x 14 mm
Weight	<50 gm
<b>Environmental</b>	
Operating Temperature	-40 °C to +85 °C
Storage Temperature	-55 °C to +90 °C
Survival Shock	Up to 1000 g

## MECHANICAL DIMENSIONS

All dimensions in mm



ISOMETRIC VIEW FOR REFERENCE

## ORDERING INFORMATION

CSTR-IMU1640 (Product Code: 26002)