TACTICAL INERTIAL MEASUREMENT UNIT

FEATURES

- Miniature in size
- High Dynamic Range
- Low Bias Instability
- Low Angle Random Walk
- Continuous Self-Diagnosis
- High mechanical Shock Survivability
- RS422 Interface

APPLICATIONS

- Navigation and Control
- Drone Navigation and Control
- Gimbal Control
- Unmanned Ground Vehicle
- Flight Control Systems
- Robotics

DESCRIPTION

The CASTOR series model, CSTR-IMU1100 is a high-end inertial measurement unit consisting of a high-performance tri-axial Accelerometer and tri-axial Gyroscope and triaxial Inclinometer sensors based on the latest MEMS technology. The IMU is equipped with a high-speed processor that runs the digital signal processing algorithms, delivering control grade inertial measurement data. The IMU output is available over a RS422 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, misalignment and are compensated for temperature effects to be usable across the entire operating temperature range. The miniature MEMS IMU, CSTR-IMU1100 offers 1.1 deg/hr bias instability performance and is suitable for inertial control applications where size is the constraint.

TECHNICAL SPECIFICATIONS

Parameter Name	Parameter Value		
	CASTOR		
	IMU1100		
Acceleration			
Range (g)	±10		
Bias Instability (µg) (@25°C)[1]	Min.: 16	Typical: 20	Max.: 24
Bandwidth (Hz)	262		
VRW (m/s/rt(hr)) (262 Hz LPF, @25°C & 1000 Hz Data Rate)	Min.:0.021	Typical: 0.027	Max.:0.031
Gyro			
Range (°/s)	±480		
Bias Instability (°/hr) (@25°C)[2]	Min.: 0.6	Typical: 1.1	Max.: 1.8
Bias Repeatability (°/hr)	± 100		
ARW (°/sqrt(hr)) (262 Hz LPF, @25°C & 1000 Hz Data Rate)	Min. : 0.23	Typical: 0.45	Max.: 1.07
Bandwidth (Hz)	262		
Inclinometer			
Range (g)	±1.7		
Bias Instability (µg) (@25°C)[1]	Min.: 21	Typical: 28	Max.: 35
Bias Repeatability (mg)	± 0.4		
VRW (m/s/rt(hr)) (262 Hz LPF, @25°C & 1000 Hz Data Rate)	Min.:0.028	Typical: 0.03	Max.:0.032
Electrical			
Input Voltage (VDC)	4.5 to 6		
Power Consumption (W)	<1.3		
Diagnostics	Onboard Temperature, Voltages, Sensor Health		
Update Rate (Hz)	Up to 2000		
AUX (full scale) (V)	±2.5		
Interface	RS422, External Trigger Input, Time of Validity (TOV), Auxiliary Input		
Physical			

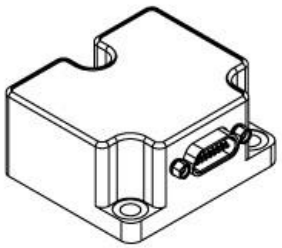
Dimensions (mm)	38.6 (L) x 44.8 (W) x 21.5 (H)
Weight (gm)	72 ± 3
Environmental	
Operating Temperature (°C)	-40 to +71
Storage Temperature (°C)	-55 to +90
Survival Shock (g)[3]	1500/ 0.5 ms half-sine

1. Accelerometer Bias Stability > 130 micro g when measured over a period of one year with respect to a fixed calibration value, and Accelerometer Bias Repeatability >1250 micro g when measured over a period of one year for the entire range.
2. Bias Stability > 1°/Hr when measured in a 1 g environment over a period of one month and with respect to a fixed calibration value.
3. Shock Survival is specified in non-operating conditions.

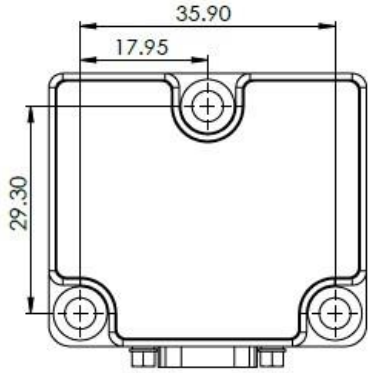
MECHANICAL DIMENSIONS

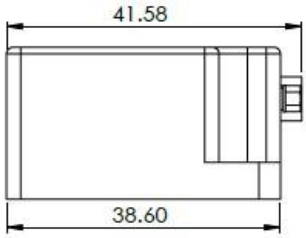
All the dimensions in mm

TOP VIEW

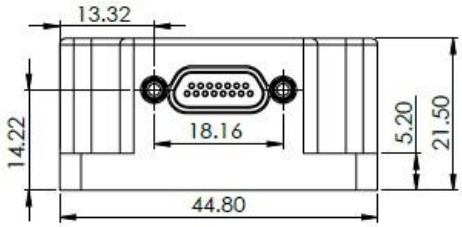


ISOMETRIC VIEW FOR REFERENCE





LHS VIEW



FRONT VIEW

ORDERING INFORMATION

CSTR - IMU1100 (Product Code: 26008)

MADE IN INDIA