

COMPACT INERTIAL NAVIGATION SYSTEM

FEATURES

- Compact, Low Power & Light Weight
- Shock Survival up-to 20g
- Advanced Statistical Filtering
- Excellent bias stability (1°/hr) MEMS gyro
- MIL-STD-461F & MIL-STD-810G compliant

CNP AHRS500L/H

APPLICATIONS

- UAV & Aircraft Navigation
- Unmanned Vehicle Navigation
- Vehicle Electronics
- Robotics
- Dynamic motions of UUV, UGV, AGV, ROV
- Personal Tracking



DESCRIPTION

Canopus family consists of compact, rugged, GNSS aided and high performance MEMS Inertial Navigation Systems and AHRs. The device incorporates MEMS based sensors : tri-axial accelerometers, tri-axial gyroscopes and magnetometer, which are thermally compensated and calibrated for misalignment, bias and scaling errors, using state of the art calibration facilities. With the integration of these MEMS sensors, extended Kalman filter, air data sensor and highly sensitive GNSS receiver, the device delivers accurate estimations of position, velocity, attitude and heading information in dynamic environments.

The device samples raw sensors at a very high rate and filtered data can be obtained at flexible update rates of up to 50Hz.

Canopus devices are suitable for airborne as well as land applications.

AHRS500:

The **AHRS500** is a simple Attitude Heading and Reference System without GNSS, which embeds MEMS based tri-axial accelerometers, 3 - Axis Magnetometer and 3 - Axis angular rate Gyroscope. The AHRS500 provides the attitude information in roll, pitch and yaw.

TECHNICAL SPECIFICATIONS

Parameter Names	CANOPUS	
	AHRS500L	AHRS500H
Acceleration		
Range	±2 g	±6 g
Noise Density	3 mg /VHz	5 mg /VHz
Resolution	0.1 mg	0.1 mg
Bias Instability	< 4 mg	< 4 mg
Angular Rate		
Range	±100 °/s	±300 °/s
Noise Density	0.01 °/s/VHz	0.02 °/s/VHz
Resolution	0.02 °/s	0.05 °/s
Bias Instability	< 1° /hr	< 2° /hr
Attitude		
Roll Range	±180°	±180°
Pitch Range	±90°	±90°
Roll, Pitch Accuracy*	0.2° (static), 0.3° (dynamic) (1σ)	0.2° (static), 0.3° (dynamic) (1σ)
Heading Range	±180°	±180°
Heading Accuracy ^{1,2,3}	< 1° (1σ)	< 1° (1σ)
Angle Resolution	< 0.01°	< 0.01°
Magnetometer Range	± 4 gauss	± 4 gauss
Electrical		
Input Voltage	+9 to +36 VDC	+9 to +36 VDC
Current Consumption	350mA @ 12V	350mA @ 12V
Physical		
Weight	350gms	350gms
Size	64 mm (W) x 90 mm (B) x 45 mm (H)	64 mm (W) x 90 mm (B) x 45 mm (H)
Update rate	Up to 50Hz	Up to 50Hz
Interfaces	RS232, RS422	RS232, RS422
Environment (As per JSS55555)		
Operating Temperature	-40°C to +85°C	-40°C to +85°C
Storage Temperature	-45°C to +90°C	-45°C to +90°C
Humidity	10% to 90 RH (non -condensing)	10% to 90 RH (non -condensing)
Survival Shock	20g	20g
IP Protection	IP67	IP67
Vibration	0.02 g ² /VHz	0.02 g ² /VHz
EMI/EMC	As per MIL-STD-461F	As per MIL-STD-461F
Environmental Tests	As per MIL-STD-810G	As per MIL-STD-810G

1: Accuracy after magnetic calibration and setting correct declination / offset angle

2: After proper magnetic calibration for Hard Iron and Soft Iron disturbances, and in static magnetic field

3: If using external magnetometer, subject to its accuracy

* : with external velocity aiding

GRAPHICAL USER INTERFACE

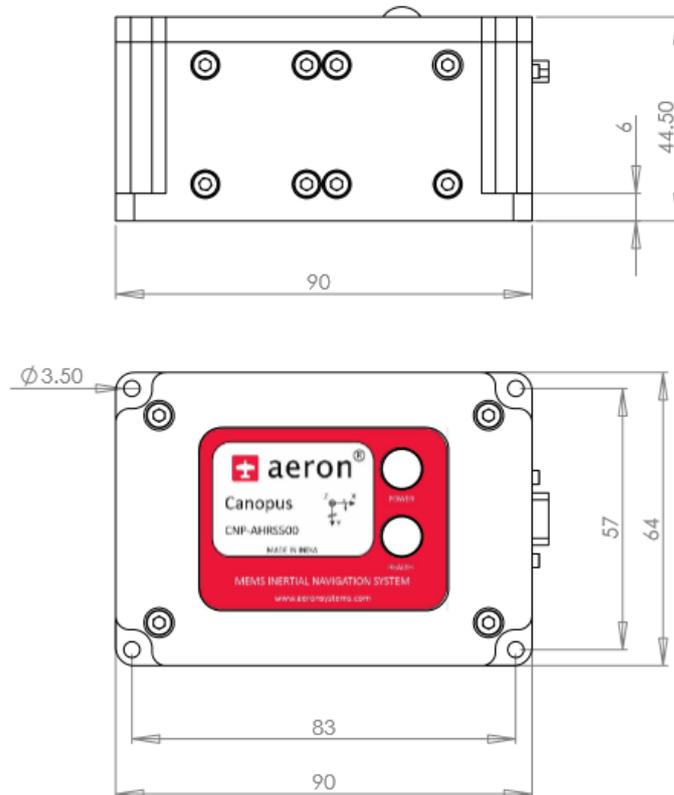
Below are some representational snapshots.



MECHANICAL DIMENSIONS

All dimensions in mm.

These are representational images.



ORDERING INFORMATION

Ordering Part No: **CNP AHR500 - X**

L – Low Dynamics
H- High Dynamics

Datasheet Ver. 2.0.9