



AHRS-02-01



Sensor Specifications

Angles

Range	Pitch: $\pm 90^\circ$ Roll: $\pm 180^\circ$ Yaw: $\pm 180^\circ$
Static Accuracy (RMS)	Pitch $\leq 0.0179^\circ$ Roll $\leq 0.0179^\circ$ Yaw $\leq 0.1498^\circ$
Dynamic Accuracy (RMS)	Pitch $\leq 0.50^\circ$ Roll $\leq 0.35^\circ$ Yaw $\leq 1.45^\circ$
Angular Resolution	Pitch: 0.05° Roll: 0.05° Yaw: 0.05°

Accelerometer

Range	± 16 g
Zero Offset Error	± 125 mg
In-run Bias Stability	0.2 mg/ $^\circ$ C
Noise Density	0.075 mg/ $\sqrt{\text{Hz}}$ (@ 500 Hz)
Velocity Random Walk	X & Y: 38.2 mm/sec/ $\sqrt{\text{Hz}}$ Z: 26.5 mm/sec/ $\sqrt{\text{Hz}}$ (@ 10 g)
Nonlinearity	0.1 % FS (@ 10 g)

Gyroscope

Range	± 2000 d/s
In-run Bias Stability	0.474 d/ $\sqrt{\text{Hz}}$
Angle random walk	0.711 d/ $\sqrt{\text{Hz}}$
Noise Density	0.0079 $^\circ$ /s/ $\sqrt{\text{Hz}}$
Nonlinearity	± 0.1 %

Magnetometer

Range	± 8 Gauss
Nonlinearity	FS= ± 8 G 0.1 %FS
Noise Density	600 μ Gauss/ $\sqrt{\text{Hz}}$

Barometre

Range	0.15PSI $\sim$ 17.4PSI
-------	------------------------

General Specifications

- 6 DOF sensor data: 3-axis accelerometer and 3-axis gyroscopic turn rate
- Additional 3 DOF on IMU and AHRS: 3-axis magnetic field intensity
- Output data rate up to 50Hz
- Simple ASCII interface language
- Robust aluminium housing

Applications

- Inertial navigation and GPS compensation
- Avionics and unmanned vehicles
- Motion and dynamics measurements
- Vehicle control: marine, robotics, automotive

Mechanical Specifications

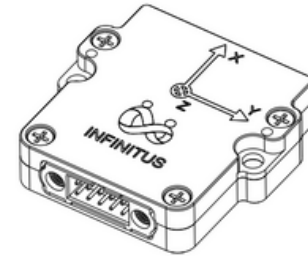
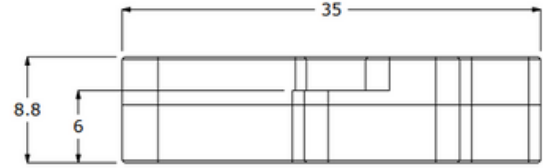
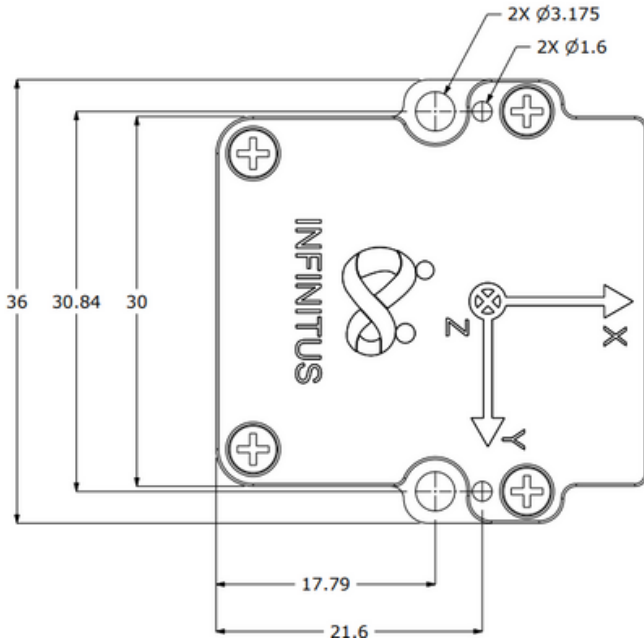
Dimension	33.2 x 30.2 x 12.5
Material	Alüminyum AL6061-T6

System Specifications

Power Source	4.5 - 5.5 V
Power Consumption	< 220 mW
Data Format	ASCII and binary
Baud Rate	2.4kbps – 921.6kbps selectable
Output data rate	50 Hz
Operating Temperature	-40 $^\circ$ C to +85 $^\circ$ C



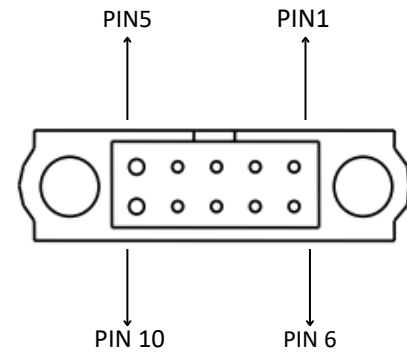
Dimensional Drawing



All dimensions are in millimeters.

Pin Assignment

PIN 1	VCC
PIN 2	TX1
PIN 3	RX1
PIN 4	SYNC_OUT
PIN 5	GND
PIN 6	RESTORE
PIN 7	SYNC_IN
PIN 8	TX_TTL
PIN 9	RX_TTL
PIN 10	GNSS_PPS



INFINITUS Engineering & Software Inc.

Address: Çukurambar Mahallesi Öğretmenler Caddesi No: 14A Çankaya/Ankara

Mobile: +90 542 230 21 43 - Associate Prof. Dr. Halit ERGEZER

E-Mail: info@infinitus.com.tr

This product is fully designed and manufactured in Türkiye.

All contents of this document are subject to change without any notice.