NAX-11

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3D Attitude

0.5°
ACCURACY

Precise velocity

Continuous position

Light and tiny MEMS inertial/GNSS integrated navigation system

NAX-11 new series of MEMS/GNSS integrated navigation products from NAVEXTECH, it is tiny in a 3 x 3 x 1.8cm space, of a weight 27gram. Built on NAX core data fusion technology, NAX-11 has excellent continuous navigation capability to fit your applications.

naVextech

NAX-11

Built on advanced NAX data fusion technology for MEMS/GNSS integrated navigation

0.5° attitude

Provide continuous position, velocity, and attitude of higher accuracy than GNSS only

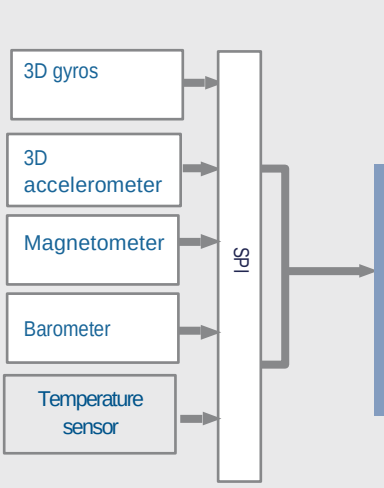
- Ultra fast startup in 2s
- Ultra fast alignment
- Stable attitude solution in 360°

Features

» Accurate attitude in dynamics
» Continuous and smooth velocity
» Continuous navigation during GNSS outages
» Start navigation output in 2s after powered on
» Ultra-rapid alignment on the fly

Integrated high sensitive GNSS and MEMS inertial sensors, NAX-11 can provide excellent continuous navigation upon NAX core data fusion technology

» Start attitude output in 2s w/o need of wait for GNSS TTFF
» Support multiple alignment modes – manual input, stored heading, and on-the-fly
» Stable attitude solution in all angle range, even in the singular Euler zone
» Tiny in 3x3x2cm aluminium box. Light weight in 27gram



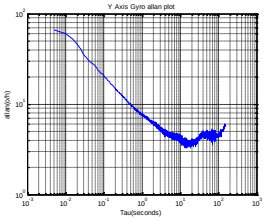
3D attitude
» Euler
» DCM
» Quaternion

3D navigation
» 3D velocity
» 3D position

Sensor data
» Angular rate
» Acceleration
» Temperature

NAX-11 consists of,
» 3-axial MEMS gyroscope and accelerometer;
» Support GPS and Beidou, of 72 tracking channels;
» NAX core data fusion technology

Professional sensor calibration



NAX-11 has operation temperature in [-40, +85]degC. The inertial sensors have been calibrated in terms of the bias, scale factor, linearity, orthogonality in the factory.

Applications

Upon advanced NAX core data fusion technology, NAX-11 provides excellent continuous navigation for your applications under poor or denied GNSS reception environments

» UAVs
» Autonomous vehicles
» Sports
» Antenna controls
» Precise agriculture

Reliability under vibrations

NAX-11 can work reliably under vibration environments. The NAX algorithm can obtain precise solution from the noisy data to capture the host platform's movement.

Parameters	Modes		Comments
Specs	**Real-time**	**Post-proc**	
Roll/Pitch (Static)	0.05˚	0.05˚	
(Dynamic)	0.5˚	0.5˚	GNSS valid
Heading (Dynamic)	0.5°	0.5˚	GNSS valid
Speed(RMS)	<0.1m/s	<0.05m/s	GNSS valid
Position(SEP)	<2 m	< 1.0 m	GNSS valid
Range	360˚ in 3 axes，no installation limits		
Inertial	Accelerometer	Gyroscope	
Range	±16g	±2000°/s	
Non-linearity	0.5%	0.1%	All range
Initial ZRO tolerance	±60mg	±5°/s	25°C
Scale factor sensitivity	2048 LSB/(g)	16.4 LSB/(°/s)	
Axial sensitivity	±2%	±2%	
Temperature variation	±1.5mg/°C	±30°/s	-40°C to +85°C
Noise spectrum	300ug /√Hz	0.01°/s/√Hz	
Updating rate	100Hz	100H	

GNSS		
Features	L1,C/A,72 channels,GPS+Beidou	
Warm start	< 1s	stored ephemeris valid
Cold start	< 26s	stored ephemeris invalid
Sensitivity	-167dBm	

Communication		
Output	Position, velocity, attitude, acceleration, angular rate	Configurable in NAXB protocol
Updating rate	100Hz	100Hz continuous output
Port	TTL serial，USB	Output in NAXB protocol

Physics		
Size	3.2 x 3.2 x 1.8cm (Type B)；	3.0 x 3.0cm (OEM)
Weight	27g (Type B);	10g (OEM)
Temperature	-40 ~ 85°C	
Input power	5V	
Consumption	1W	