



Multi-Sensor RTK Module with ANavS Sensor Fusion Framework

Product Summary

Tight Coupling of Multi-GNSS RTK, INS, Odometry, Camera, Lidar and LPS for Autonomous Vehicles, Robots, UAVs and Vessels

Multi-Sensor Fusion on a single board

The next Generation of Positioning and Navigation for mass-market applications requires affordable hardware-costs and accuracy in all situations with highest reliability. The ANavS Multi-Sensor fusion with its tight coupling and deep learning technology brings these requirements for new autonomous solutions together.

Precise RTK and Attitude estimation:

The Multi-Sensor RTK-Module with its up to 3 Multi-Frequency, Multi-GNSS receivers and additional integrated sensors IMU and Barometer provides a highly reliable, precise position and attitude determination system.

Sensor Fusion Framework:

Depending on the additionally integrated sensors (IMU, Vehicle Data, Camera, Lidar, LPS), signal shading (tunnels, urban canyons, trees, etc.) can be bridged without loss of high accuracy position and attitude information.

Rapid System-Integration:

The ANavS sensor fusion framework is specifically designed to provide a custom solution without high development costs. Depending on the specific application, the ANavS framework delivers the best solution according to the customer requirements.



Key Features:

- Precise Positioning
- Precise Attitude
- Dual Frequency and Multi Constellation GNSS for fast convergence times
- High solution update rate for highly dynamic applications
- Sensor fusion on a single board
- Raw data with timestamps for all sensors

Benefits:

- Easy integration into customer applications
- Highly competitive pricing
- Single board with
 - integrated sensors
 - integrated processor
 - integrated interfaces
- Linux-OS for flexibility
- Small size
- Low weight

Sensor Fusion Performance:

Precise Positioning (1σ):

Horizontal accuracy: 0.015 m + 1 ppm

Vertical accuracy: 0.030 m + 1 ppm

Precise Attitude (1σ):

Accuracy: 0.25°
for 1m antenna spacing

Velocity Accuracy: 0.03m/s RMS

Time-Stamp Accuracy: 60ns RMS

Solution Output-Rate: up to 140 Hz

RTK Initialization:

Initialization Time: < 10 sec

Initialization Reliability: > 99 %

Solution Latency: < 30 ms

Electrical & Interfaces:

Power Connector:

USB-C 5V or

Terminal connector up to 24V

Power Consumption:

Peak: 10W (2A)

Average: 6.5W (1.3A)

Communication Interfaces:

Ethernet, WLAN, CAN, UART, LTE

Output format:

Standardized: NMEA format

Proprietary: ANavS binary format

GNSS Features:

GNSS Constellations:

Galileo, GPS, Glonass, Beidou, SBAS

GNSS Const. concurrent:

All

GNSS-Bands:

GPS L1C/A L2C, GLO L1OF L2OF,

GAL E1B/C E5b, BDS B1I B2I,

QZSS L1C/A L2C

Channels: 184

GNSS data rate: 20 Hz

Jamming detection: Yes

Timepulse-Output: Yes

Mechanical & Environmental:

Dimension: 110mm x 80mm x 30mm

Weight: 50g

Temperature: -40°C to +85°C