

# Multi-Sensor RTK/PPP Module

WITH ANAVS SENSOR FUSION FRAMEWORK

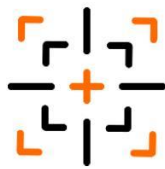
ALL-IN-VIEW GNSS Satellite tracking: multi-constellation, multi-frequency for fast convergence time

Multi-Sensor fusion on a single board for autonomous Vehicles, Robots, UAVs and Vessels

Interfaces to GNSS, INS, Odometry, Camera, Lidar, LPS and Barometer data



High rate solution output



Accurate position and attitude



Overcomes signal outages



Breakthrough price



Easy System Integration

## SENSOR FUSION PERFORMANCE

### Accurate RTK Positioning \* ( $1\sigma$ ):

Horizontal accuracy: 0.006 m + 1 ppm  
Vertical accuracy: 0.010 m + 1 ppm

### Accurate PPP Positioning \* ( $1\sigma$ ):

Horizontal accuracy: 0.20 m + 1 ppm  
Vertical accuracy: 0.40 m + 1 ppm

### Accurate Attitude \* ( $1\sigma$ ):

Accuracy: 0.25° (1m antenna spacing)

**Velocity Accuracy:** 0.03 m/s RMS

**Time-Stamp Accuracy:** 1  $\mu$ s RMS

**Solution Output-Rate:** up to 120 Hz

### RTK Initialization \*:

Initialization Time: < 7 sec

### PPP Initialization \*:

Initialization Time: < 4 min

\* Depends on Environment and used GNSS-Antenna

## GNSS FEATURES

### GNSS Constellations:

Galileo, GPS, Glonass,  
Beidou, SBAS (Egnos, WAAS, GAGAN)

### GNSS Const. concurrent:

All

### GNSS-Bands:

GPS: L1C/A, L1C, L1PY, L2C, L2P, L5  
GLO: L1CA, L2CA, L2P, L3  
GAL: E1, E5a, E5b, E5 AltBoc, E6  
BDS: B1I, B1C, B2a, B2I, B3  
QZSS: L1C/A, L1C, L2C, L5, L6

**Channels:** 448

**GNSS data rate:** max 100 Hz

**Jamming detection:** Yes

**Timepulse-Output:** Yes

## STANDARD\* IMU FEATURES

### Linear acceleration meas. range:

+/- 16 g (configurable)

### Angular rate meas. range:

+/- 4000 dps (configurable)

### Linear acceleration sensitivity:

0.061 mg/LSB with +/- 2 g range

### Angular rate sensitivity:

4.37 mdps/LSB bei +/- 125 dps range

### Angular random walk (T=25°C):

0.21 deg/ $\sqrt{h}$

### Bias stability:

3 degree/ hour (typical)

\* more powerful IMUs can be chosen.

## PROCESSOR PERFORMANCE

**CPU:** ARM 64Bit Quad-Core with 1.2 GHz

**RAM:** 1 to 4 Gbyte LPDDR2 RAM

**Flash:** 16 to 64 Gbyte

**OS:** Linux

## ELECTRICAL & INTERFACES

### Power Connector:

USB-C 5V or  
Terminal connector up to 24V

### Power Consumption:

Peak: 17.5 W (3.5A @ 5V)  
Average: 10.5 W (2.1 A @ 5V)

### Communication Interfaces:

Ethernet, WLAN, CAN, USB, LTE

### Output format:

Standardized: NMEA format, ROS  
Proprietary: ANavS binary format

## ODOMETRY FEATURES

### Performance:

Depends on resolution and quality of  
user-based wheel/steering  
measurements

### Input/Output:

Configurable with DBC-files or  
according to customer specification

### Communication Interfaces:

CAN, Ethernet, USB

## PRINTED CASING

Dimension: 128 x 119 x 55 mm  
Weight: 250 g  
Operating Temperature: -25°C to +75°C  
Display: No



## INDUSTRIAL CASING

Dimension: 294 x 195 x 95 mm  
Weight: 1200 g  
Operating Temperature: -25°C to +75°C  
Display: Yes



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