

# DS-IMU

## NEXT GENERATION OF NAVIGATION INSTRUMENTS



- ▶ Ruggedized and reliable GPS aided inertial navigation system including AHRS that provides accurate position, velocity, acceleration and orientation under most demanding conditions
- ▶ Ruggedized Combination of gyroscopes, accelerometers, magnetometers and pressure sensor with a GNSS receiver
- ▶ Inertial sensors together with GNSS receiver coupled in a sophisticated fusion algorithm to deliver accurate and reliable navigation and orientation
- ▶ GNSS receiver supports GPS, GLONASS, BeiDou, GALILEO, WAAS, EGNOS, Gagan and Real-time kinematic --> RTK
- ▶ IP68 & MIL-STD-810G environmental protection
- ▶ Up to 500 Hz output data rate
- ▶ Hot start in < 3 s
- ▶ Connected over USB
- ▶ Fast and easy installation



INSTRUMENTS

SOFTWARE

APPLICATIONS

**DS-IMU1**

**DS-IMU1** is a **100 Hz** GPS / MEMS based inertial measurement system for standard vehicle measurement applications.



**DS-IMU2**

**DS-IMU2** is a **500Hz** GPS / MEMS based inertial measurement system for advanced applications which require high position accuracy, high update rate and static heading.



	DS-IMU1	DS-IMU2
<b>Navigation</b>		
Horizontal position accuracy GPS / DGNSS/ OMNISTAR/ RTK	2.0 / 0.6 / - / - m	1.2 / 0.6 / 0.1 / 0.01m
Vertical position accuracy GPS / DGNSS/ OMNISTAR/ RTK	3.0 / 1.0 / - / - m	2.0 / 1.0 / 0.2 / 0.02 m
Velocity accuracy	0.05 m/s	0.007 m/s
Roll & Pitch accuracy (dynamic)	0.2 °	0.15 °
Heading accuracy (dynamic with GNSS)	0.2 °	0.1 °
Slip angle accuracy	0.3°	0.2°
Range	Unlimited	Unlimited
Hot start time	500 ms	500 ms
Output data rate	100 Hz	500 Hz
<b>GNSS</b>		
Supported navigation systems	GPS L1, GLONASS L1, GALILEO E1, COMPASS L1	GPS L1, L2, L5, GLONASS L1, L2, GALILEO E1, E5, BeiDou B1, B2
Supported SBAS systems	WASS, EGNOS, MSAS, GAGAN, QZSS	WASS, EGNOS, MSAS, GAGAN, QZSS, OMNISTAR HP/XP/G2
<b>Additional features</b>		
PPS output	✓	✓
RTK	-	✓
Static heading (dual antenna)	-	✓
<b>Hardware</b>		
Interface	USB	USB
Operating voltage	5 to 36 V	5 to 36 V
Power consumption	100 mA @ 5 V	220 mA @ 12 V
Operating temperatures	-40 °C to 85 °C	-40 °C to 85 °C
Environmental protection	IP 67, MIL-STD-810G	IP 67, MIL-STD-810G
Dimensions	30x40.6x24 mm	90x127x31 mm
Weight	25 g	304 g
<b>Applications</b>		
General Vehicle Dynamics	✓	✓
Brake Test	✓	✓
Acceleration Test	✓	✓
Lane change	✓	✓
Circle drive	✓	✓
Chassis development	✓	✓
Assistent systems	✓	✓
Comfort testing	✓	✓
Validation	✓	✓
ADAS	-	✓
Pass by Noise	-	✓
FUSI	-	✓
RTK positioning	-	✓

Inertial sensors	Accelerometer	Gyroscope	Magnetometer	Pressure
Range (dynamic)	2g, 4g, 16g	250 °/s, 500 °/s, 2000 °/s	2 G, 4 G, 16 G	10 to 120 kPa
Bias stability	20 ug	3 °/hr	/	100 Pa/yr
Scale factor stability	< 0.05 %	< 0.05 %	< 0.05 %	/