DEWESoft®

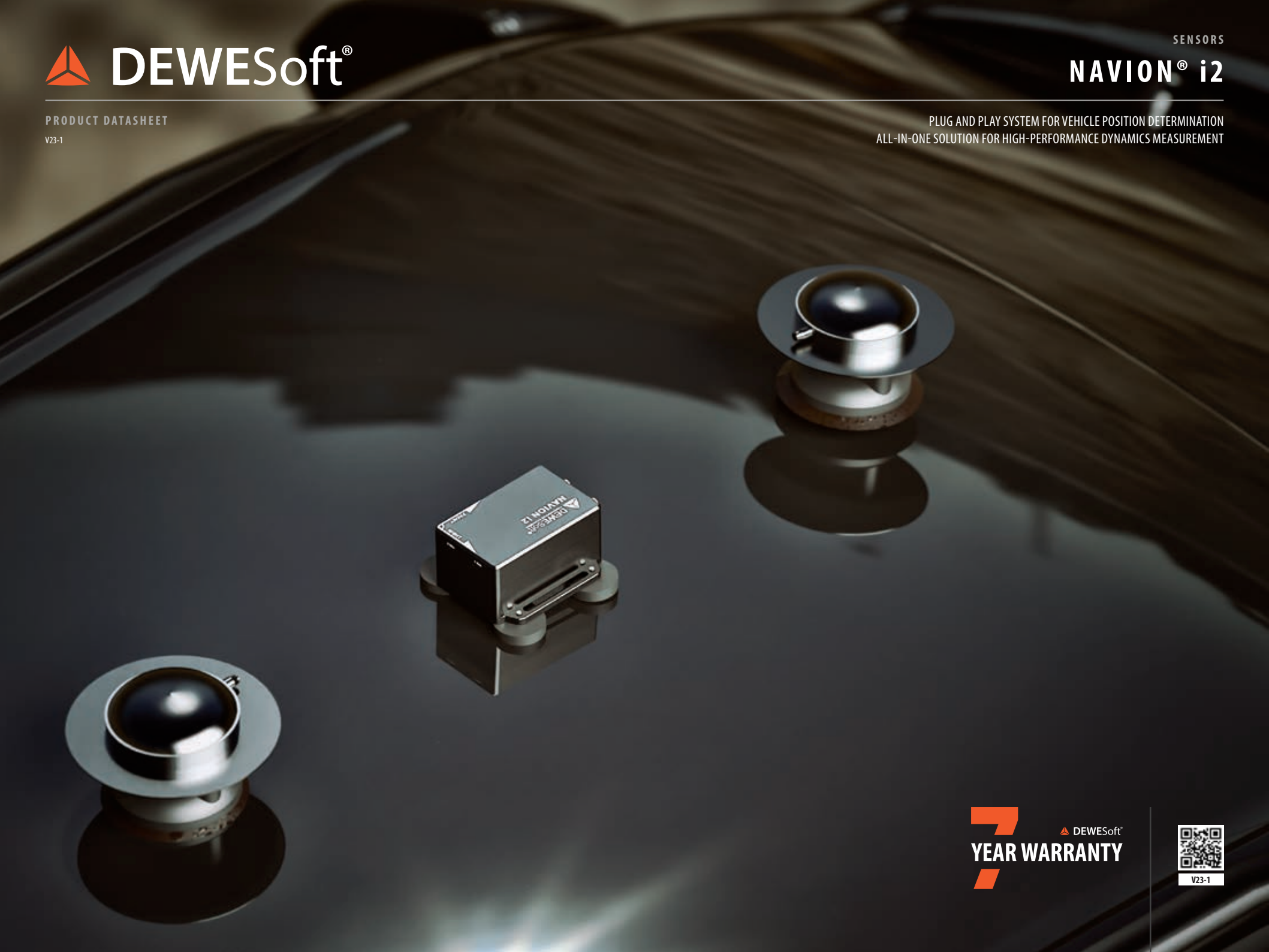
SENSORS

NAVION® i2

PRODUCT DATASHEET

V23-1

PLUG AND PLAY SYSTEM FOR VEHICLE POSITION DETERMINATION
ALL-IN-ONE SOLUTION FOR HIGH-PERFORMANCE DYNAMICS MEASUREMENT



7 YEAR WARRANTY
DEWESoft®

V23-1

NAVION® i2

CENTIMETRE ACCURACY

NAVION® i2 supports Real-time Kinematics (RTK) correction data, which improves the positional accuracy down to one centimeter (0.39 in.). RTK also allows easy connection with NTRIP devices.

SOFTWARE INCLUDED

Includes award-winning DewesoftX software with free lifetime updates. Additional software plugins for ADAS, Vehicle Dynamics, Brake Testing and other applications can be added.

STATIC HEADING

Dual Antenna Heading provides instant and accurate heading even while standing still. This dramatically shortens time of initialization and calibration and serves as a great benefit for ADAS testing.

PERFECT SYNCHRONIZATION

NAVION's integrated GNSS receiver provides an extremely precise time source (<20 ns) that serves as a clock provider for all Dewesoft DAQ instruments. This allows precise data alignment with additional analog and digital signals, plus bus data from CAN, CAN FD, LIN Bus, FlexRay and more.

- HIGH-PERFORMANCE, SIX DEGREES OF FREEDOM
- MEMS-BASED INERTIAL NAVIGATION SYSTEM
- HIGHLY ACCURATE POSITION, ORIENTATION, VELOCITIES, AND ACCELERATIONS ON ALL AXES
- PRECISE SYNCHRONIZATION WITH OTHER DEWESOFT DATA ACQUISITION INSTRUMENTS

ROBUST, RUGGED & RELIABLE

Proven navigation algorithms for air, land and sea, within a robust aluminum enclosure. IP67 environmental protection allows operation in outdoor environments and temperatures from -40 to 71°C (-40 to 160 °F) and MTBF > 50k hours.

EXTENSIVE CONNECTIVITY

NAVION i2 supports multiple interfaces, including CAN, RS232 and Ethernet. This allows easy Wi-Fi connection, and for RTK correction data to be transferred to multiple NAVION systems over a DS-WIFI network.

APPLICATIONS

VEHICLE DYNAMICS AND BRAKE TESTING

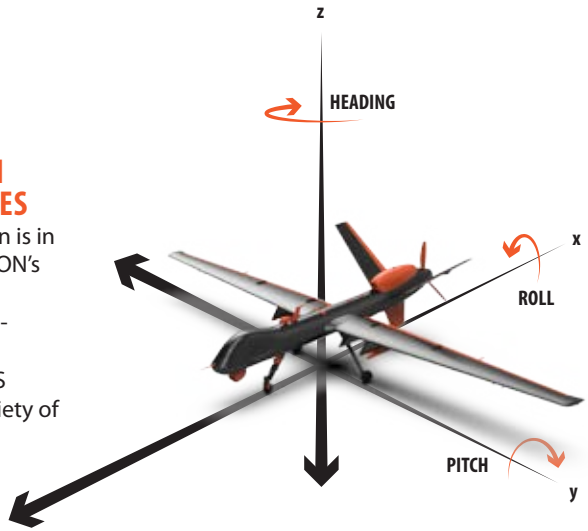
Automated workflow includes sensors position compensation and real-time data processing of vehicle dynamics and braking maneuvers. This supports most ISO, FMVSS, SAE and UN standards, including R13-H, Step Steering, Frequency Sweep and many others.

AUTONOMOUS VEHICLES AND ADAS REFERENCE MEASUREMENT SYSTEM

Centimeter level positional accuracy combined with our Polygon software create a simple and time efficient ADAS testing toolbox. Whether you're tracking two or 20 objects, the system has you covered with dynamic measurements and real-time calculations.

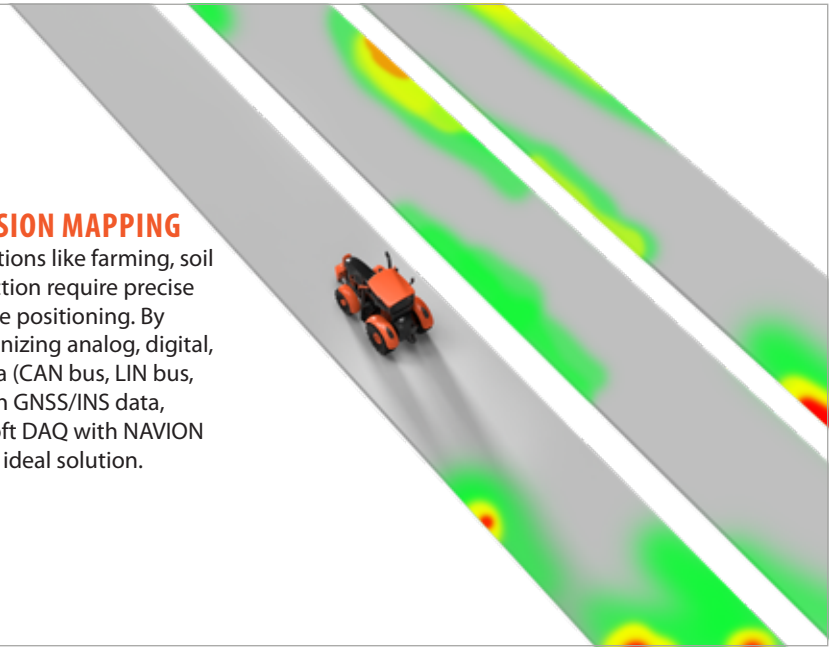
MEASUREMENTS ON UNMANNED VEHICLES

Whether your application is in the air, land or sea, NAVION's advanced algorithms, high accuracy 6-degrees-of-freedom sensors and multi-constellation GNSS easily handle a huge variety of measurement objects.



PRECISION MAPPING

Applications like farming, soil compaction require precise real-time positioning. By synchronizing analog, digital, bus data (CAN bus, LIN bus, etc) with GNSS/INS data, Dewesoft DAQ with NAVION i2 is the ideal solution.



SPECS

HARDWARE	
Main interface	Ethernet (10/100)
Auxiliary interfaces	CAN (output), 2x RS232 (RTK input, NMEA 0183 output)
Operating voltage	9 to 36 V
Power consumption	3.5 W
Operational temperature	-40°C to +71°C (0.8 °C/min Max)
Shock limit	40 g for 11 ms (MIL-STD-810G)
Vibration limit	Random 2.2g RMS 22
Dimensions	102 mm x 81 mm x 48 mm
Weight	310 g
Environmental protection	IEC 60529 IP68
NAVIGATION	
Standalone (horizontal positioning)	1.2 m
Standalone (vertical position)	1.9 m
SBAS (horizontal positioning)	0.6 m
SBAS (vertical position)	0.6 m
RTK (horizontal positioning)[1]	0.01 m
RTK (vertical positioning)[1]	0.025 m
Velocity accuracy	0.015 m/s
Roll & Pitch accuracy (dynamic)	0.03°
Heading accuracy (dynamic with GNSS)[2]	0.08°
Slip angle accuracy	0.08°
Range (Gyro/ACC)	± 490 deg/s / ±16 g
Hot start time	< 20 s
Output data rate	100 Hz
IMU	
ACCELEROMETER	
Operating range	+/- 16 g in all axes
Bias repeatability	2.0 mg
Bias in-run stability	0.03 mg
Velocity random walk (VRW)	0.03 m/s/√h
GYROSCOPE	
Operating range	+/- 490 °/s in all axes
Bias repeatability	90 °/h
Bias in-run stability	5 °/h
Angle random walk (ARW)	0.25 °/√h

[1] Valid in open sky conditions
[2] With dual antenna and 2m baseline, longer baselines improve performance

GNSS	
Supported navigation systems	GPS L1, L2, L5; GLONASS L1, L2, L3; BeiDou B1, B2; Galileo E1, AltBOC, E5a, E5b; NavIC (IRNSS) L5
Supported SBAS systems	SBAS L1, L5 QZSS L1, L2, L5
ADDITIONAL FEATURES	
PPS output	✓
Event/trigger input	✓
Dual antenna heading	✓
Single antenna capability	✓
RTK positioning	✓

GNSS OUTAGE PERFORMANCE WITH NO AIDING[1]			
Outage duration	**3 s**	**10 s**	**30 s**
Horizontal position RMS error	0.12 m	0.3 m	2.5 m
Vertical position RMS error	0.060 m	0.2 m	0.075 m
Heading RMS error	0.10°	0.125°	0.15°
Horizontal velocity RMS error	0.030 m/s	0.08 m/s	0.16 m/s
Vertical velocity RMS error	0.02 m/s	0.04 m/s	0.06 m/s

[1] From dual antenna RTK navigation solution without any aiding sources

RELATED PRODUCTS/SOLUTIONS

- **RTK Base Station** - Complete Dewesoft solution for getting reliable RTK correction messages streamed via RF modem
- **RTK 3G Modem** - Modem providing RTK data service via a mobile network
- **RTK RF Modem** - Modem that reads and provides the RTK data from the base station
- **Polygon plugin** - 3D visualization plugin for tests involving moving objects
- **Vehicle Dynamics** - Module for analyzing standard test maneuvers
- **Brake testing** - software extension for braking calculations

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LEARN MORE:
dewesoft.com/products/navion
dewesoft.com/applications/vehicle-testing

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