



RT1003

The compact INS for space constrained vehicle testing

Being compact and lightweight makes this product ideal for pedestrian and VRU testing where space restrictions are important considerations. This is our lightest full-featured automotive system and can easily be carried for extended periods.

The RT1003 can be used with RT Range as a target for VRU testing and low-profile robotic vehicles.

Applications

- / Vehicle dynamics testing
- / Motorcycle dynamics testing
- / Slip angle measurement
- / Low profile VRU platforms
- / Driving robot control
- / Open-road testing

Our high accuracy miniature INS for automotive testing

Responding to market needs, the OXTS R&D team achieved what many considered unachievable with the RT1003.

Leveraging technology advancements, our inertial experts created an effective solution for space constrained high and low dynamics testing.

A miniature INS solution that is both lightweight and small in size yet packs a real punch in terms of accuracy and performance.

Our mid-range INS, the RT1003 delivers effective performance at an attractive price.



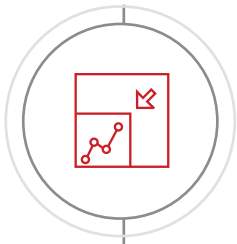
Benefits

- / Compact and light weight
- / Low profile suited for pedestrian platforms
- / Export hassle free with no restrictions
- / Internal memory allows you to capture days of data in one go
- / Up to 250Hz output even during GNSS drop-outs
- / Post-processing software included to improve on real-time performance

Firmware applications

- / Multiple slip points – INS computes slip angle from up to eight user configured points on the vehicle.
- / Local coordinates – Data is displaced from an origin on a local coordinates grid
- / Surface tilt – Roll and pitch are compared to an inclined surface
- / Analogue output – Enables measurements to be output on 16 analogue channels.
- / Acceleration filters – Applied to reduce unwanted noise on angular and acceleration measurements.
- / Motorsport high vibration filter (optional) for race teams using an INS for accurate slip angle measurements

Why choose the RT1003?



Compact size without data compromise

- / One of the most precise miniature INS solutions on the market, delivering centimetre-level positioning measurements
- / Capture the accurate velocity, acceleration, and orientation measurements you need for vehicle tests



High performance multi-environment testing

- / Easily integrated into low profile environments such as robotic platforms
- / The optimum size INS for VRU ADAS tests
- / Tight-coupling of GNSS/IMU data ensures accurate measurements in tunnels, bridges or obstructed environments with poor satellite visibility



Hassle-free exports worldwide

- / ITAR free – no need to acquire an export license when shipping worldwide



Economical choice

- / As our mid-range INS, the RT1003 is one of the most budget-friendly solutions on the market for high and low dynamic testing, delivering effective performance at an attractive price.

Features

- / 0.02 m position accuracy
- / 0.25° slip angle accuracy
- / 0.05° Pitch/roll accuracy
- / 0.1° Heading accuracy
- / Driving robot interface
- / Dual antenna
- / Up to 250Hz data output
- / GPS, GLONASS, Beidou
- / Wheel speed input
- / Indoor positioning interface

Options

- / 250Hz output
- / CAN acquisition
- / External GNSS interface
- / Indoor positioning interface
- / Motorsport high vibration filter

Performance

Positioning GPS, L1, L2, GLONASS L1, L2

Position accuracy (CEP)

SPS	1.6 m
SBAS	0.6 m
DGPS	0.4 m
RTK	0.02 m

Position drift after 60 s
GNSS outage* (RMS) 0.9 m

Velocity accuracy (RMS) 0.1 km/h

Roll/pitch accuracy (1 σ) 0.05°

Heading accuracy** 0.1°

Accelerometers

- Bias Stability	0.2 mg
- Linearity (=1 g range)	0.05 %
- Scale Factor	0.01 %
- Range	30 g

Gyros

- Bias Stability	3°/hr
- Linearity = (+200° range)	0.05 %
- Scale factor	0.1 %
- Range	300 °/s
Slip angle (at 50 km/h)	0.25° 1 σ
Update rate	100 Hz (200/250 Hz optional)
Power	10 - 31 V dc, 9 W
Dimensions	142 x 77 x 41 mm
Mass	435 g
Operating Temperature	-40 to +70°C
Specification temperature	-10 to +70°C

Performance (cont'd)

Vibration 10-2000 Hz 4.12 g RMS

Shock survival 60 g

Environmental protection IP65

Internal Storage 32 GB

Interfaces

Ethernet 10/100 Base-T

CAN Up to 1 Mbit/s

Serial Configurable RS232

Digital I/O Wheel speed input
(quadrature),
two configurable
triggers, PPS

Optional Accessories

RT-Strut

A quick and easy-to-use mounting system for vehicles

RT-UPS

Uninterruptible power supply for worry-free testing

RT Base S

A portable and weatherproof base station for GNSS corrections

RT-XLAN

Reliable long range communication between vehicles

* Post-processed (fwd-bwd) with wheel speed configured

** Dual antenna heading valid for 2 m antenna separation



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Setting the standard
in automotive testing
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